TECHNICAL REPORT

for the
2012–2013
Classroom Diagnostic Tools

Provided by
Data Recognition Corporation

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GLOSSARY OF COMMON TERMS

The following table contains some terms used in this technical report and their meanings. Some of these terms are used universally in the assessment community, and some of these terms are used commonly by psychometric professionals.

Term	Common Definition
Ability	In Rasch scaling, *ability* is a generic term indicating the level of an individual on the construct measured by an exam. As an example for the CDT, a student's reading ability is measured by how the student performed on the CDT Reading/Literature test.
Alternative Forms	*Alternative forms* are two or more versions of a test that are considered exchangeable; for example, they measure the same constructs in the same ways, are intended for the same purposes, and are administered using the same directions. More specific terminology applies depending on the degree of statistical similarity between the test forms (e.g., parallel forms, equivalent forms, comparable forms), where parallel forms refers to the situation in which the test forms have the highest degree of similarity to each other.
Average	*Average* is a measure of central tendency in a score distribution that usually refers to the arithmetic mean of a set of scores. In this case, it is determined by adding all the scores in a distribution and then dividing the obtained value by the total number of scores. Sometimes people use the word average to refer to other measures of central tendency such as the median (the score in the middle of a distribution) or mode (the score value with the greatest frequency).
Benchmark Activity	Also referred to as benchmarking, *benchmark activity* is a procedure used in the determination of the cut score(s) for a given assessment. It is used to measure students' progress towards certain performance standards. Methods vary (e.g., modified Angoff, Bookmark Method), but most use a panel of educators and expert judgments to operationalize the level of achievement students must demonstrate in order to be categorized within each performance level.
Benchmark Cut	A *benchmark cut* marks a specified point on a score scale where scores at or above that point are interpreted differently from scores below that point (e.g., a score designated as the minimum level of performance needed to pass a competency test). A test can be divided into multiple proficiency levels by setting one or more cut scores. Methods for establishing cut scores vary. For the CDT, one benchmark cut was set separating students into two categories: solidly ready for the next grade or course and not solidly ready for the next grade or course.
Bias	In a statistical context, *bias* refers to any source of systematic error in the measurement of a test score. In discussing test fairness, bias may refer to construct-irrelevant components of test scores that differentially affect the performance of different groups of test takers (e.g., gender, ethnicity). Attempts are made to reduce bias by conducting item fairness reviews and various differential item functioning (DIF) analyses, detecting potential areas of concern, and either removing or revising the flagged test items prior to including them in the final operational pools (see also *Differential Item Functioning*).
Computer Adaptive Test (CAT)	A *computer adaptive test* (*CAT*) is a computer-based test with an item selection routine that adjusts (adapts) to a student's performance during the test. For this reason, it has also been called a tailored test. Rather than all students taking the same set of items (fixed form), each student's test is individually tailored with items selected from a large item pool based on the student's performance.

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Term	Common Definition
Constructed-Response Item	A *constructed-response item*—referred to by some as an open-ended response item—is an item format that requires examinees to create their own responses, which can be expressed in various forms. This format is in contrast to multiple-choice items, which require students to make a choice from a supplied set of answer options. There are no constructed-response items on the CDT.
Content Validity Evidence	*Content validity evidence* shows the extent to which an exam provides an appropriate sampling of a content domain of interest (e.g., assessable portions of a state's grade 6 mathematics curriculum in terms of the knowledge, skills, objectives, and processes sampled).
Criterion-Referenced Interpretation	The *criterion-referenced interpretation* is a measure of a student's performance against an expected level of mastery, educational objective, or standard. The types of resulting score interpretations provide information about what a student knows or can do in a given content area.
Decision Consistency	*Decision consistency* is the extent to which classifications based on test scores would match the decisions on students' proficiency levels based on scores from a second parallel form of the same test. It is often expressed as the proportion of examinees who are classified the same way from the two test administrations.
Diagnostic Category	A *diagnostic category* is a grouping used for reporting results on the CDT. Each CDT test has four or five diagnostic categories which are based on the Pennsylvania Academic Standards.
Differential Item Functioning (DIF)	*Differential item functioning* (*DIF*) is a statistical property of a test item in which different groups of test takers (who have the same total test score) have different average item scores. In other words, students with the same ability level but different group memberships do not have the same probability of answering the item correctly (see also *Bias*).
Distractor	A *distractor* is an incorrect option in a multiple-choice item (also called a foil).
Equating	*Equating* is the strongest of several linking methods used to establish comparability between scores from multiple tests. Equated test scores should be considered exchangeable. Consequently, the criteria needed to refer to a linkage as equating are strong and somewhat complex (equal construct and precision, equity, and invariance). In practical terms, it is often stated that it should be a "matter of indifference" to a student if he/she takes any of the equated tests (see also *Linking*).
Field Test Item	A *field test item* is a newly developed item that is ready to be tried out to determine its statistical properties (e.g., see *p*-value and Point-Biserial Correlation). Items are field tested prior to operational administration. Items with acceptable statistical properties in field test form the pool of CDT operational items.
Frequency	*Frequency* is the number of times that a certain value or range of values (score interval) occurs in a distribution of scores.
Frequency Distribution	*Frequency distribution* is a tabulation of scores from low to high or high to low with the number and/or percent of individuals who obtain each score or who fall within each score interval.

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Term	Common Definition
Infit/Outfit	*Infit* and *outfit* are statistical indicators of the agreement of the data and the measurement model. Infit and outfit are highly correlated, and they both are highly correlated with the point-biserial correlation. Underfit can be caused when low-ability students correctly answer difficult items (perhaps by guessing or atypical experience) or high-ability students incorrectly answer easy items (perhaps because of carelessness or gaps in instruction). Any model expects some level of variability, so overfit can occur when nearly all low-ability students miss an item while nearly all high-ability students get the item correct.
Item Difficulty	For the Rasch model, the dichotomous *item difficulty* represents the point along the latent trait continuum where an examinee has a 0.50 probability of making a correct response.
Key	The *key* is the correct response option or answer to a test item.
Learning Progression	A *learning progression* shows the developmental sequences or building blocks of content/skills students need to master as they progress toward career and college readiness and is tied directly to the Assessment Anchors and Eligible Content as well as the Voluntary Model Curriculum Units and Lesson Plans.
Linking	*Linking* is a generic term referring to one of a number of processes by which scores from one or more tests are made comparable to some degree. Linking includes several classes of transformations (equating, scale alignment, prediction, etc.). Equating is associated with the strongest degree of comparability (exchangeable scores). Other linkages may be very strong, but fail to meet one or more of the strict criteria required of equating (see also *Equating*).
Logit	In Rasch scaling, *logits* are units used to express both examinee ability and item difficulty. When expressing examinee ability, if two students take the same set of items, a student who answers more items correctly has a higher logit than a student who answers fewer items correctly. Logits are transformed into scale scores through a linear transformation. When expressing item difficulty, logits are transformed *p*-value (see also *P-value*). The logit difficulty scale is inversely related to *p*-values. A higher logit value would represent a relatively harder item, while a lower logit value would represent a relatively easier item.
Mean	*Mean* is also referred to as the arithmetic mean of a set of scores. It is found by adding all the score values in a distribution and dividing by the total number of scores. For example, the mean of the set {66, 76, 85, and 97} is 81. The value of a mean can be influenced by extreme values in a score distribution.
Measure	In Rasch scaling, *measure* generally refers to a specific estimate of an examinee's ability (often expressed as logits) or an item's difficulty (again, often expressed as logits). As an example for the CDT, a student's literature measure might be equal to 0.525 logit. Or, a CDT literature test item might have a logit equal to -0.905.
Median	The *median* is the middle point or score in a set of rank-ordered observations that divides the distribution into two equal parts; each part contains 50 percent of the total data set. More simply put, half of the scores are below the median value and half of the scores are above the median value. As an example, the median for the following ranked set of scores {2, 3, 6, 8, 9} is 6.
Multiple-Choice Item	A *multiple-choice item* is a type of item format that requires the test taker to select a response from a group of possible choices, one of which is the correct answer (or key) to the question posed. All items on the CDT are multiple-choice items.

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Term	Common Definition
N-count	Sometimes designated as *N* or *n*, it is the number of observations (usually individuals or students) in a particular group. Some examples include the number of students tested, the number of students tested from a specific subpopulation (e.g., females), and the number of students who attained a specific score. In the following set {23, 32, 56, 65, 78, 87}, *n* = 6.
Operational Item	After initial item tryout (field test), all items with acceptable statistical properties form the pool of CDT *operational items*. Students' tests are selected from this pool.
Percent Correct	When referring to an individual item, the *percent correct* is the item's *p*-value from the field test administration expressed as a percent (instead of a proportion). Under a computer adaptive administration, percent correct scores are not appropriate for individual items or students.
Percentile	*Percentile* is the score or point in a score distribution at or below which a given percentage of scores fall. It should be emphasized that it is a value on the score scale, not the associated percentage (although sometimes in casual usage this misinterpretation is made). For example, if 72 percent of the students score at or below a scale score of 1500 on a given test, then the scale score of 1500 would be considered the 72nd percentile. As another example, the median is the 50th percentile.
Percentile Rank	The *percentile rank* is the percentage of scores in a specified distribution that fall at/below a certain point on a score distribution. Percentile ranks range in value from 1 to 99. They indicate the status or relative standing of an individual within a specified group, by indicating the percent of individuals in that group who obtained equal or lower scores. An individual's percentile rank can vary depending on which group is used to determine the ranking. As suggested above, percentiles and percentile ranks are sometimes used interchangeably; however, strictly speaking, a percentile is a value on the score scale.
Point-Biserial Correlation	In classical test theory, *point-biserial correlation* is an item discrimination index. It is the correlation between a dichotomously scored item and a continuous criterion, usually represented by the total test score (or the corrected total test score with the reference item removed). It reflects the extent to which an item differentiates between high-scoring and low-scoring examinees. This discrimination index ranges from –1.00 to +1.00. The higher the discrimination index (the closer to +1.00), the better the item is considered to be performing. For multiple-choice items scored as 0 or 1, it is rare for the value of this index to exceed 0.5.
P-value	A *p-value* is an index indicating an item's difficulty for some specified group (perhaps grade). It is calculated as the proportion (sometimes percent) of students in the group who answer an item correctly. *P*-values range from 0.0 to 1.0 on the proportion scale. Lower values correspond to more difficult items and higher values correspond to easier items. *P*-values are usually provided for multiple-choice items or other items worth one point. For open-ended items or items worth more than one point, difficulty on a *p*-value-like scale can be estimated by dividing the item mean score by the maximum number of points possible for the item (see also *Logit*).
Raw Score	*Raw score* is an unadjusted score usually determined by tallying the number of questions answered correctly or by the sum of item scores (i.e., points). Raw scores typically have little or no meaning by themselves and require additional information like the number of items on the test and the difficulty of the test items. Under a computer adaptive administration, where each student takes a unique set of items, raw scores are not comparable across students.

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Term	Common Definition
Reliability	*Reliability* is the expected degree to which test scores for a group of examinees are consistent over exchangeable replications of an assessment procedure and, therefore, considered dependable and repeatable for an individual examinee. A test that produces highly consistent, stable results (i.e., relatively free from random error) is said to be highly reliable. The reliability of a test is typically expressed as a reliability coefficient or by the standard error of measurement derived by that coefficient.
Reliability Coefficient	*Reliability coefficient* is a statistical index that reflects the degree to which scores are free from random measurement error. Theoretically, it expresses the consistency of test scores as the ratio of true score variance to total score variance (true score variance plus error variance). This statistic is often expressed as a correlation coefficient (e.g., correlation between two forms of a test) or with an index that resembles a correlation coefficient (e.g., calculation of a test's internal consistency using coefficient alpha). Expressed this way, the reliability coefficient is a "unitless" index. The higher the value of the index (closer to 1.0), the greater the reliability of the test (see also *Standard Error of Measurement*).
Scale Score	*Scale score* is a mathematical transformation of a Rasch ability estimate developed through a process called scaling. Scale scores are most useful when comparing test results over time. Several different methods of scaling exist, but each is intended to provide a continuous and meaningful score scale across different forms of a test.
Standard Deviation	*Standard deviation* is a statistic that measures the degree of spread or dispersion of a set of scores. The value of this statistic is always greater than or equal to zero. If all of the scores in a distribution are identical, the standard deviation is equal to zero. The further the scores are away from one another in value, the greater the standard deviation. This statistic is calculated using the information about the deviations (distances) between each score and the distribution's mean. It is equivalent to the square root of the variance statistic. The standard deviation is a commonly used method of examining a distribution's variability since the standard deviation is expressed in the same units as the data.
Standard Error of Measurement (SEM)	*Standard error of measurement* (*SEM*) is the amount an observed score is expected to fluctuate around the true score. As an example, across replications of a measurement procedure, the true score will not differ by more than plus or minus one standard error from the observed score about 68 percent of the time (assuming normally distributed errors). The SEM is frequently used to obtain an idea of the consistency of a person's score in actual score units, or to set a confidence band around a score in terms of the error of measurement. Often a single SEM value is calculated for all test scores. On other occasions, however, the value of the SEM can vary along a score scale. Conditional standard error of measurement (CSEM) also indicates the degree of measurement error in scale score units but varies as a function of a student's unique set of items and actual scale score.
Technical Advisory Committee (TAC)	The *technical advisory committee* (*TAC*) is a group of individuals (most often professionals in the field of testing) that are either appointed or selected to make recommendations for and to guide the technical development of a given testing program.
Validity	*Validity* is the degree to which accumulated evidence and theory support specific interpretations of test scores entailed by the purpose of a test. There are various ways of gathering validity evidence.

Glossary of Common Terms

PREFACE: AN OVERVIEW OF THE CDT

CLASSROOM DIAGNOSTIC TOOLS (CDT) OVERVIEW

The Pennsylvania Classroom Diagnostic Tools (CDT) are a set of online assessments, divided by content area, designed to provide diagnostic information in order to guide instruction and remediation. The CDT reporting system is fully integrated in Pennsylvania's Standards Aligned System (SAS). It assists educators in identifying student academic strengths and areas in need of improvement by providing links to classroom resources. The diagnostic reports feature easy-to-follow links to targeted curricular resources and materials, including units and lesson plans found within the SAS system. The CDT is offered to students in grades six through high school and is available to all public schools at no cost. Students may take the CDT up to five times throughout the school year.

The purpose of the CDT is to provide information that will help guide instruction by providing support to students and teachers. The CDT reports are designed to provide a picture or snapshot of how students are performing in relation to the Pennsylvania Assessment Anchors & Eligible Content and Keystone Assessment Anchors & Eligible Content. The CDT goes beyond focusing only on **What** students should know and be able to do at a particular grade and/or course. It also provides a snapshot of **How** and **Why** students may still be struggling or extending beyond the grade and/or course Eligible Content. This valuable information is typically not identified through other types of assessments. Teachers, through the use of the CDT reports, may access additional information through the Learning Progression Map. The Learning Progression Map allows teachers to pinpoint where students are struggling or where they are extending beyond the learning continuum. The CDT helps identify and provides suggestions for "next steps" in student academic development.

The CDT consists of only multiple-choice questions. The questions were developed to specifically align to the Pennsylvania Assessment Anchors & Eligible Content at grades 3 through high school and the Keystone Assessment Anchors & Eligible Content for end-of-course. The CDT is based on content assessed by the Pennsylvania System of School Assessments (PSSA) and the Keystone Exams. It includes interactive and dynamic reporting for various diagnostic reporting categories.

CDT Activities During the 2012–2013 School Year

Description	Date
PA Online Assessment Software Available for Download	August 20, 2012
Test Setup System Available	August 20, 2012
First Day of Testing	August 27, 2012
Test Engine Update (Embedded Field Test)	January 21, 2013

Preface: An Overview of the CDT

CHAPTER ONE: BACKGROUND OF THE CLASSROOM DIAGNOSTIC TOOLS

This brief overview of the Pennsylvania Classroom Diagnostic Tools summarizes the program's intent and purpose, as well as key dates in the development process.

THE CLASSROOM DIAGNOSTIC TOOLS

The Classroom Diagnostic Tools (CDT) is a set of online assessments, divided by content area, designed to provide diagnostic information in order to a guide instruction and enrichment. The CDT reporting system is fully integrated in the Standards Aligned System (SAS). It assists educators in identifying student academic strengths and areas in need of improvement by providing links to classroom resources. The diagnostic reports feature easy-to-follow links to targeted curricular resources and materials, including units and lesson plans found within the SAS system. The CDT is available to districts at no cost.

The CDT is:

- Offered to students in grade 6 through high school
- Available for use in the classroom throughout the school year on a voluntary basis
- Based on content assessed by the Keystone Exams and the Pennsylvania System of School Assessment (PSSA)
- Comprised of multiple-choice items
- Delivered as an online Computer Adaptive Test (CAT), ensuring valid and reliable measures of a student's skills while minimizing testing time
- Designed to provide real-time results for students and teachers with links to Materials and Resources in SAS
- Available for Mathematics, Algebra I, Geometry, Algebra II, Reading/Literature, Science, Biology, Chemistry, and Writing/English Composition

KEY DATES

The items for each course of the CDT were field tested online using fixed-form computer-based tests prior to their use in operational computer adaptive tests. The timeline for implementation of the field tests and operational availability is shown in the following table.

Course	Field Test Dates	Operational Rollout Dates
Mathematics, Algebra I, Geometry, Algebra II	Spring 2010	Fall 2010
Reading/Literature	Fall 2010	Spring 2011
Science, Biology, Chemistry	Fall 2010	Spring 2011
Writing/English Composition	Spring 2011	Fall 2011

Chapter One: Background of the Classroom Diagnostic Tools

CHAPTER TWO: TEST DEVELOPMENT OVERVIEW OF THE PENNSYLVANIA CDT FRAMEWORK

The Pennsylvania Classroom Diagnostic Tools (CDT) is available for Mathematics, Algebra I, Algebra II, Geometry, Reading/Literature, Science, Biology, Chemistry, and Writing/English Composition for students in grade 6 through high school. The assessments are administered online in a computer adaptive test (CAT) format.

The Pennsylvania CDT consists of multiple-choice questions that were developed to specifically align to the Pennsylvania Assessment Anchors and Eligible Content at grades 3 through high school for Mathematics, Reading, and Science and the Keystone Assessment Anchors and Eligible Content for end-of-course for Algebra I, Algebra II, Geometry, Literature, Biology, and Chemistry. With the exception of grades 3, 5, 6, and 7 for Science, these Pennsylvania Assessment Anchors and Eligible Content were developed previously for the PSSA and Keystone Exams as described in the following sections. In addition, learning progressions were developed to show the pathways along which students travel as they progress towards mastery of the skills in each content area.

For Writing/English Composition, the multiple-choice questions were developed to align to the Pennsylvania Academic Standards at 1.5 (Quality of Writing) at grades 3 through 8 and the Keystone Assessment Anchors and Eligible Content for English Composition. As with the Assessment Anchors and Eligible Content for other content areas, the Academic Standards and Keystone Assessment Anchors and Eligible Content were incorporated into a learning progression to show the vertical articulation of skills within Writing/English Composition across grades.

BACKGROUND FOR THE PSSA ASSESSMENT ANCHORS AND ELIGIBLE CONTENT

The PSSA Assessment Anchor Content Standards and Eligible Content in Mathematics, Reading, and Science are based on the Pennsylvania Academic Standards. Although the Academic Standards indicate what students should know and be able to do, educator concerns regarding the number and breadth of Academic Standards led to an initiative by the Pennsylvania Department of Education (PDE) to develop Assessment Anchor Content Standards (Assessment Anchors) to indicate which parts of the Academic Standards (Instructional Standards) would be assessed on the PSSA. Based on recommendations from Pennsylvania educators, the Assessment Anchors were designed as a tool to improve the articulation of curricular, instructional, and assessment practices. The Assessment Anchors clarify what is expected across each grade span and focus the content of the standards into what is assessable on a large-scale test. The Assessment Anchor documents also serve to communicate Eligible Content, also called assessment limits, or the range of knowledge and skills from which the PSSA would be designed.

The Assessment Anchor's coding is read like an outline. The coding includes the content, grade level, Reporting Category, Assessment Anchor, descriptor (Sub-Assessment Anchor), and Eligible Content. Thus, S.4.A.1.3.1 would be Science, Grade 4, Reporting Category A, Assessment Anchor 1, descriptor (Sub-Assessment Anchor) 3, and Eligible Content 1.

Each of the Assessment Anchors has one or more descriptors (Sub-Assessment Anchors) and Eligible Content varying to reflect grade-level appropriateness. The Assessment Anchors form the basis of the test design for the grades undergoing new test development. In turn, this hierarchy is the basis for organizing the total content scores (based on the core [common] sections).

A draft version of the Assessment Anchors and Eligible Content for mathematics and reading was submitted to Achieve, Inc., Washington, D.C., for a special analysis to evaluate the degree of alignment with the Academic Standards. Preliminary feedback enabled PDE to make adjustments to improve the alignment as the Assessment Anchors took final form. These adjustments were reflected operationally starting with the 2007 PSSA. Achieve, Inc., also conducted a preliminary review of the science anchors in 2003 and produced a follow-up report on the anchors in 2005.

The complete set of Assessment Anchors and Eligible Content can be referenced at PDE's website: www.education.state.pa.us. Click on the green checkmark labeled "State Assessment System," then select "Pennsylvania System of School Assessment (PSSA)," and then "Assessment Anchors and Anchor Toolkit."

For Science, Assessment Anchors and Eligible Content had only been previously developed at grades 4, 8, and 11 for the PSSA and for the Biology and Chemistry Keystone Exams. Therefore, to provide a vertical articulation of science content from grade to grade, a group of Pennsylvania educators were brought together to develop Assessment Anchors and Eligible Content for the off grades (those that do not assess Science on the PSSA). These educators, in collaboration with Data Recognition Corporation (DRC) Science Test Development staff, used the Assessment Anchors and Eligible Content for grades 4, 8, and 11 as the foundation to develop Assessment Anchors and Eligible Content for grades 3, 5, 6, and 7.

Assessment Anchors and Eligible Content were not considered operational for the writing content area during the 2012–2013 school year. Instead, the PSSA writing program is aligned directly to the Academic Standards at 1.4 (Types of Writing [Mode]) and at 1.5 (Quality of Writing). For the Writing CDT items aligned to grades 3 through 8, it was decided not to align items to the Academic Standard 1.4 (Types of Writing [Mode]) as the construct could not be completely assessed using multiple-choice questions in a computer adaptive test. In 1999, Pennsylvania adopted academic standards for writing (*Academic Standards for Reading, Writing, Speaking, and Listening*) that describe what students should know and be able to do with the English language at a grade level. Within the framework of the assessment, the writing prompts are measured under Academic Standards 1.4.A Narrative, 1.4.B Informational, and 1.4.C Persuasive, thus providing the responses to the eligible modes the prompts are designed to elicit. The writing prompts are also measured under Academic Standards 1.5.A–F Quality of Writing. The stimulus-based multiple-choice items are measured under the Academic Standards 1.5.E Revising and 1.5.F Editing.

BACKGROUND FOR THE KEYSTONE ASSESSMENT ANCHORS AND ELIGIBLE CONTENT

The Keystone Test Blueprints—known as the Keystone Assessment Anchors and Eligible Content—are based on Pennsylvania Keystone Course Standards and the Common Core State Standards. Prior to the development of the Assessment Anchors, multiple groups of Pennsylvania educators convened to create a set of standards for each of the Keystone Exams. Derived from a review of existing standards, these Enhanced Standards (Course Standards) focus on what students need to know and be able to do in order to be college and career ready.

Although the Keystone Course Standards indicate what students should know and be able to do, Assessment Anchors are designed to indicate which parts of the Keystone Course Standards (Instructional Standards) will be assessed on the Keystone Exams. Based on recommendations from Pennsylvania educators, the Assessment Anchors were designed as a tool to improve the articulation of curricular, instructional, and assessment practices. The Assessment Anchors clarify what is expected and focus the content of the standards into what is assessable on a large-scale exam. The Assessment Anchor documents also serve to communicate Eligible Content, or the range of knowledge and skills from which the Keystone Exams are designed.

Chapter Two: Test Development Overview of the Pennsylvania CDT Framework

The Keystone Assessment Anchors and Eligible Content have been designed to hold together or *anchor* the state assessment system and curriculum/instructional practices in schools following these design parameters:

- **Clear:** The Assessment Anchors are easy to read and are user-friendly; they clearly detail which standards are assessed on the Keystone Exams.
- **Focused:** The Assessment Anchors identify a core set of standards that could be reasonably assessed on a large-scale assessment, which will keep educators from having to guess which standards are critical.
- **Rigorous:** The Assessment Anchors support the rigor of the state standards by assessing higher order and reasoning skills.
- **Manageable:** The Assessment Anchors define the standards in a way that can be easily incorporated into a course to prepare students for success.

The Assessment Anchors and Eligible Content are organized into cohesive blueprints, each structured with a common labeling system. This framework is organized first by Module (Reporting Category), then by Assessment Anchor, followed by Anchor Descriptor, and then finally, at the greatest level of detail, by an Eligible Content statement. The common format of this outline is followed across the Keystone Exams.

Here is a description of each level in the labeling system for the Keystone Exams:

- **Module:** The Assessment Anchors are organized into two thematic modules for each of the Keystone Exams, and these modules serve as the Reporting Categories for the Keystone Exams. The module title appears at the top of each page in the Assessment Anchor document. The module level is also important because the Keystone Exams are built using a module format, with each of the Keystone Exams divided into two equally sized test modules. Each module is made up of two or more Assessment Anchors.
- **Assessment Anchor:** The Assessment Anchor appears in the shaded bar across the top of each Assessment Anchor table in the Assessment Anchor document. The Assessment Anchors represent categories of subject matter that anchor the content of the Keystone Exams. Each Assessment Anchor is part of a module and has one or more Anchor Descriptors unified under it.
- **Anchor Descriptor:** Below each Assessment Anchor in the Assessment Anchor document is a specific Anchor Descriptor. The Anchor Descriptor level provides further details that delineate the scope of content covered by the Assessment Anchor. Each Anchor Descriptor is part of an Assessment Anchor and has one or more Eligible Content statements unified under it.
- **Eligible Content:** The column to the right of the Anchor Descriptor in the Assessment Anchor document contains the Eligible Content statements. The Eligible Content is the most specific description of the content that is assessed on the Keystone Exams. This level is considered the assessment limit and helps educators identify the range of content covered on the Keystone Exams.
- **Enhanced Standard:** In the column to the right of each Eligible Content statement is a code representing one or more Enhanced Standards that correlate to the Eligible Content statement. Some Eligible Content statements include annotations that indicate certain clarifications about the scope of an Eligible Content.

- **Notes:** There are three types of notes included in the Assessment Anchor document:
  "e.g." ("for example")—sample approach, but not a limit to the Eligible Content
  "i.e." ("that is")—specific limit to the Eligible Content
  "Note"—content exclusions or definable range of the Eligible Content

The Assessment Anchor's coding is read like an outline. The coding includes the Subject (Exam), Reporting Category/Module, Assessment Anchor, Anchor Descriptor, and Eligible Content. Each exam has two modules. Each module has two or more Assessment Anchors. Each of the Assessment Anchors has one or more Anchor Descriptors, and each Anchor Descriptor has at least one Eligible Content statement (generally more than one). The Assessment Anchors form the basis of the test design for the exams undergoing test development. In turn, this hierarchy is the basis for organizing the total module and exam scores (based on the core [common] portions).

Table 2–1. Sample Keystone Assessment Anchor Coding

Sample Code	Subject (Exam)	Reporting Category (Module)	Assessment Anchor (AA)	Anchor Descriptor (AD)	Eligible Content (EC)
A1.1.1.2.1	**A1** Algebra I	**1** Operations and Linear Equations & Inequalities	**1** Linear Equations	**2** Write, solve, and/or graph linear equations using various methods.	**1** Write, solve, and/or apply a linear equation (including problem situations).
BIO.A.2.1.1	**BIO** Biology	**A** Cells and Cell Processes	**2** The Chemical Basis for Life	**1** Describe how the unique properties of water support life on Earth.	**1** Describe the unique properties of water and how these properties support life on Earth (e.g., freezing point, high specific heat, cohesion).
L.F.2.4.1	**L** Literature	**F** Fiction	**2** Analyzing and Interpreting Literature—Fiction	**4** Use appropriate strategies to interpret and analyze the universal significance of literary fiction.	**1** Interpret and analyze works from a variety of genres for literary, historical, and/or cultural significance.

The complete set of Assessment Anchors and Eligible Content can be referenced at PDE's Standards Aligned System (SAS) website: http://www.pdesas.org/Standard/KeystoneDownloads.

DIAGNOSTIC CATEGORIES FOR THE CLASSROOM DIAGNOSTIC TOOLS

The Classroom Diagnostic Tools provide information for teachers, students, and other stakeholders regarding student performance at the Overall Score level and also for each diagnostic category within the selected assessment. These diagnostic categories provide more detailed information about student strengths and areas of need for a related group of Eligible Content. A description of the diagnostic categories for each assessment follows.

MATHEMATICS

There are five diagnostic categories for the Mathematics Assessment. These are *Numbers & Operations*, *Measurement*, *Geometry*, *Algebraic Concepts*, and *Data Analysis & Probability*. The number of Eligible Content from each grade that map to these diagnostic categories is shown in the table below.

Table 2–2. Number of Eligible Content per Diagnostic Category by Grade for Mathematics

	Number of Eligible Content per Grade						
Diagnostic Category	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**HS**
Numbers & Operations	26	24	21	15	16	12	31
Measurement	13	11	11	8	8	12	7
Geometry	8	13	7	9	9	7	42
Algebraic Concepts	11	14	7	7	9	14	59
Data Analysis & Probability	7	9	8	9	11	10	27

ALGEBRA I

The Keystone Algebra I Assessment Anchors and Eligible Content has two reporting categories: Module 1, Operations and Linear Equations & Inequalities, and Module 2, Linear Functions and Data Organizations. These modules are each divided into two diagnostic categories. Module 1 is divided into *Operations with Real Numbers and Expressions* and *Linear Equations & Inequalities*. Module 2 is divided into *Functions & Coordinate Geometry* and *Data Analysis*. The number of Eligible Content from each grade that map to these diagnostic categories is shown in the following table.

Table 2–3. Number of Eligible Content per Diagnostic Category by Grade for Algebra I

		Number of Eligible Content per Grade						
Diagnostic Category		Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	HS
Module 1	Operations with Real Numbers and Expressions	23	18	18	15	17	9	38
	Linear Equations & Inequalities	0	0	0	0	1	5	23
Module 2	Functions & Coordinate Geometry	2	5	3	2	2	6	24
	Data Analysis	4	4	5	6	7	7	23

GEOMETRY

The Keystone Geometry Assessment Anchors and Eligible Content has two reporting categories: Module 1, Geometric Properties & Reasoning, and Module 2, Coordinate Geometry & Measurement. These modules are each divided into two diagnostic categories. Module 1 is divided into *Geometric Properties* and *Congruence, Similarity, & Proofs*. Module 2 is divided into *Coordinate Geometry & Right Triangles* and *Measurement*. The number of Eligible Content from each grade that map to these diagnostic categories is shown in the following table.

Table 2–4. Number of Eligible Content per Diagnostic Category by Grade for Geometry

		Number of Eligible Content per Grade						
Diagnostic Category		Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	HS
Module 1	Geometric Properties	2	4	3	6	3	3	14
	Congruence, Similarity, & Proofs	2	1	2	0	2	0	4
Module 2	Coordinate Geometry & Right Triangles	0	1	0	1	4	2	12
	Measurement	2	0	8	3	5	6	19

ALGEBRA II

The Keystone Algebra II Assessment Anchors and Eligible Content has two reporting categories: Module 1, Number Systems and Non-Linear Expressions & Equations, and Module 2, Functions and Data Analysis. These modules are each divided into two diagnostic categories. Module 1 is divided into *Operations with Complex Numbers* and *Non-Linear Expressions & Equations*. Module 2 is divided into *Functions* and *Data Analysis*. The number of Eligible Content from each grade that map to these diagnostic categories is shown in the following table.

Table 2–5. Number of Eligible Content per Diagnostic Category by Grade for Algebra II

		Number of Eligible Content per Grade						
Diagnostic Category		Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	HS
Module 1	Operations with Complex Numbers	0	0	0	0	0	0	4
	Non-Linear Expressions & Equations	0	0	0	15	17	14	53
Module 2	Functions	0	0	0	2	2	6	27
	Data Analysis	4	4	5	6	7	7	23

SCIENCE

There are four diagnostic categories for the Science Assessment. These are *The Nature of Science*, *Biological Sciences*, *Physical Sciences*, and *Earth/Space Sciences*. The number of Eligible Content from each grade that map to these diagnostic categories is shown in the table below.

Table 2–6. Number of Eligible Content per Diagnostic Category by Grade for Science

	Number of Eligible Content per Grade						
Diagnostic Category	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	HS
The Nature of Science	9	21	9	11	19	31	27
Biological Sciences	14	18	12	7	21	21	38
Physical Sciences	10	9	12	12	12	12	47
Earth/Space Sciences	13	16	8	7	11	13	15

BIOLOGY

The Keystone Biology Exam has two reporting categories: Module 1[A], Cells and Cell Processes, and Module 2[B], Continuity and Unity of Life. These modules are each divided into two diagnostic categories. Module 1 is divided into *Basic Biological Principles/Chemical Basis for Life* and *Bioenergetics/Homeostasis & Transport*. Module 2 is divided into *Cell Growth & Reproduction/Genetics* and *Theory of Evolution/Ecology*. The number of Eligible Content from each grade that map to these diagnostic categories is shown in the following table.

Table 2–7. Number of Eligible Content per Diagnostic Category by Grade for Biology

		Number of Eligible Content per Grade						
Diagnostic Category		Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	HS
Module 1	Basic Biological Principles/ Chemical Basis for Life	5	5	3	3	5	5	9
	Bioenergetics/Homeostasis & Transport	0	0	0	0	0	0	7
Module 2	Cell Growth & Reproduction/Genetics	2	1	1	0	5	4	10
	Theory of Evolution/Ecology	8	13	6	3	18	18	12

CHEMISTRY

The Keystone Chemistry Assessment Anchors and Eligible Content has two reporting categories: Module 1[A], Structure and Properties of Matter, and Module 2[B], The Mole Concept and Chemical Interactions. These modules are each divided into two diagnostic categories. Module 1 is divided into *Properties & Classification of Matter* and *Atomic Structure & The Periodic Table*. Module 2 is divided into *The Mole & Chemical Bonding* and *Chemical Relationships & Reactions*. The number of Eligible Content from each grade that map to these diagnostic categories is shown in the following table.

Table 2–8. Number of Eligible Content per Diagnostic Category by Grade for Chemistry

		Number of Eligible Content per Grade						
Diagnostic Category		Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	HS
Module 1	Properties & Classification of Matter	7	4	7	7	3	3	10
	Atomic Structure & The Periodic Table	0	0	0	0	1	0	8
Module 2	The Mole & Chemical Bonding	0	0	0	0	1	1	9
	Chemical Relationships & Reactions	0	0	1	0	1	1	7

READING/LITERATURE

The Reading/Literature Assessment uses the same diagnostic categories across grades 3 through 8 and the high school Literature course. These diagnostic categories are not divided across the two Keystone Literature Modules (reporting categories) of Fiction and Non-fiction. The diagnostic categories for Reading/Literature are *Comprehension*, *Vocabulary*, *Interpretation/Analysis Literary Elements & Devices*, *Interpretation/Analysis Persuasive Techniques*, and *Interpretation/Analysis Text Organizational Skills*. The number of Eligible Content from each grade that map to these diagnostic categories is shown in the following table.

Table 2–9. Number of Eligible Content per Diagnostic Category by Grade for Reading/Literature

	Number of Eligible Content per Grade						
Diagnostic Category	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**HS**
Comprehension	8	8	12	12	12	12	21
Vocabulary	8	8	8	8	8	8	8
Interpretation/Analysis Literary Elements & Devices	3	5	8	8	6	6	18
Interpretation/Analysis Persuasive Techniques	2	2	3	3	2	2	6
Interpretation/Analysis Text Organizational Skills	4	4	4	4	4	4	5

WRITING/ENGLISH COMPOSITION

The Writing/English Composition Assessment uses the same diagnostic categories across grades 3 through 8 and the high school English Composition course. The diagnostic categories for Writing/English Composition are *Quality of Writing: Focus and Content*, *Quality of Writing: Organization and Style*, *Quality of Writing: Editing*, *Conventions: Spelling, Capitalization, and Punctuation*, and *Conventions: Grammar and Sentence Formation*. The number of Eligible Content from each grade that map to these diagnostic categories is shown in the following table.

Table 2–10. Number of Eligible Content per Diagnostic Category by Grade for Writing/English Composition

	Number of Eligible Content per Grade						
Diagnostic Category	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**	**HS**
Quality of Writing: Focus and Content	2	2	2	2	2	2	4
Quality of Writing: Organization and Style	2	2	2	2	2	2	4
Quality of Writing: Editing	1	1	1	1	1	1	11
Conventions: Spelling, Capitalization, and Punctuation	3	3	3	3	3	3	5
Conventions: Grammar and Sentence Formation	1	1	1	1	1	1	3

CHAPTER THREE: GENERAL CLASSROOM DIAGNOSTIC TOOL TEST DEVELOPMENT PROCESSES

The operational item pool for each Classroom Diagnostic Tool (CDT) subject is made up of multiple-choice items that were field tested in a stand-alone field test administration. Due to the large number of items needed for each CDT Computer Adaptive Test (CAT) to provide reliable information about student strengths and areas of need, it was decided to stagger the content areas for both development and field testing. Appendix A shows a graphic representation of the basic process flow and overlap of the development cycles.

Mathematics (comprising Mathematics, Algebra I, Algebra II, and Geometry) was developed first. After initial development and internal reviews by DRC, the items were taken to be reviewed by Pennsylvania educators. Upon completion of the educator reviews, edits were incorporated and items were placed into fixed-form, online field test forms for a stand-alone, voluntary field test. For more information regarding the field test, see Chapter Six. After the field test, item statistics were reviewed, and those items that had questionable data were taken to an item data review with Pennsylvania educators. See Chapter Six for more information about this meeting. Following the item data review, all items administered during the field test were reviewed by a committee of Pennsylvania educators for alignment to the Learning Progression Maps. More information about this meeting is found later in this chapter. After the alignment review, committees of Pennsylvania educators participated in a benchmarking activity to determine the points on the scale at which students in each of grades 5 through high school could be considered solidly ready for the next course. For more information about the benchmarking process, see Chapter Ten. Following this set of meetings, the statuses of items were updated, and accepted items were included in the item pool for the operational administrations.

This same process was then repeated for Literature (comprising Reading and Literature) and for Science (comprising Science, Biology, and Chemistry), and then finally for Writing (comprising Writing and English Composition). See Appendix A for more information about the basic development cycles for these three subjects.

ITEM DEVELOPMENT CONSIDERATIONS

Alignment to the PSSA and Keystone Assessment Anchors and Eligible Content, grade- or course-level appropriateness (as specified by PDE), depth of knowledge (DOK), item/task level of complexity, estimated difficulty level, relevancy of context, rationale for distractors, style, accuracy, and correct terminology were major considerations in the item development process. The *Standards for Educational and Psychological Testing* (AERA, APA, NCME, 1999) and the *Principles of Universal Design* (Thompson, Johnstone, & Thurlow, 2002) guided the development process. In addition, DRC's *Bias, Fairness, and Sensitivity Guidelines* were used for developing items. All items were reviewed for fairness by bias and sensitivity committees and for content by Pennsylvania educators and field specialists.

BIAS, FAIRNESS, AND SENSITIVITY OVERVIEW

At every stage of the item and test development process, DRC employs procedures that are designed to ensure that items and tests meet Standard 7.4 of the Standards for Educational and Psychological Testing (AERA, APA, NCME, 1999).

Standard 7.4: Test developers should strive to identify and eliminate language, symbols, words, phrases, and content that are generally regarded as offensive by members of racial, ethnic, gender, or other groups, except when judged to be necessary for adequate representation of the domain.

To meet Standard 7.4, DRC employs a series of internal quality steps. DRC provides specific training for test developers, item writers, and reviewers on how to write, review, revise, and edit items for issues of bias, fairness, and sensitivity (as well as for technical quality). Training also includes an awareness of and sensitivity to issues of cultural diversity. In addition to providing *internal* training in reviewing items in order to eliminate potential bias, DRC also provides *external* training to the review panels of minority experts, teachers, and other stakeholders.

DRC's guidelines for bias, fairness, and sensitivity includes instruction concerning how to eliminate language, symbols, words, phrases, and content that might be considered offensive by members of racial, ethnic, gender, or other groups. Areas of bias that are specifically targeted include, but are not limited to, stereotyping, gender, regional/geographic, ethnic/cultural, socioeconomic/class, religious, experiential, and biases against a particular age group (ageism) or persons with disabilities. DRC catalogues topics that should be avoided and maintains balance in gender and ethnic emphasis within the pool of available items and passages.

UNIVERSAL DESIGN OVERVIEW

The Principles of Universal Design were incorporated throughout the item development process to allow participation of the widest possible range of students in the Classroom Diagnostic Tools. The following checklist was used as a guideline:

- Items measure what they are intended to measure.
- Items respect the diversity of the assessment population.
- Items have a clear format for text.
- Stimuli and items have clear pictures and graphics.
- Items have concise and readable text.
- The arrangement of the items on the test has an overall appearance that is clean and well organized.

A more extensive description of the application of the Principles of Universal Design is found in Chapter Four.

DEPTH OF KNOWLEDGE (DOK) OVERVIEW

An important element in statewide assessments is the alignment between the overall assessment system and the state's standards. A methodology developed by Norman Webb (1999, 2006) offers a comprehensive model that can be applied to a wide variety of contexts. With regard to the alignment between standards statements and the assessment instruments, Webb's criteria include five categories, one of which deals with content. Within the content category is a useful set of levels for evaluating depth of knowledge (DOK). According to Webb (1999), "depth-of-knowledge consistency between standards and assessments indicates alignment if what is elicited from students on the assessment is as demanding cognitively as what students are expected to know and do as stated in the standards" (p. 7–8). The four levels of cognitive complexity (i.e., depths of knowledge) are as follows:

- Level 1: Recall
- Level 2: Application of Skill/Concept
- Level 3: Strategic Thinking
- Level 4: Extended Thinking

Depth-of-knowledge levels were incorporated in the item writing and review process, and items were coded with respect to the level each represented.

PASSAGE READABILITY OVERVIEW

Evaluating the readability of a passage is essentially a judgmental process by individuals familiar with the classroom context and what is linguistically appropriate. Although various readability indices were computed and reviewed, it is recognized that such methods measure different aspects of readability and are often fraught with particular interpretive liabilities. Thus, the commonly available readability formulas were not used in a rigid way, but more informally to provide for several snapshots of a passage that senior test development staff considered along with experience-based judgments in guiding the passage selection process. In addition, passages were reviewed by committees of Pennsylvania educators who evaluated each passage for readability and grade-level appropriateness.

TEST ITEM READABILITY OVERVIEW

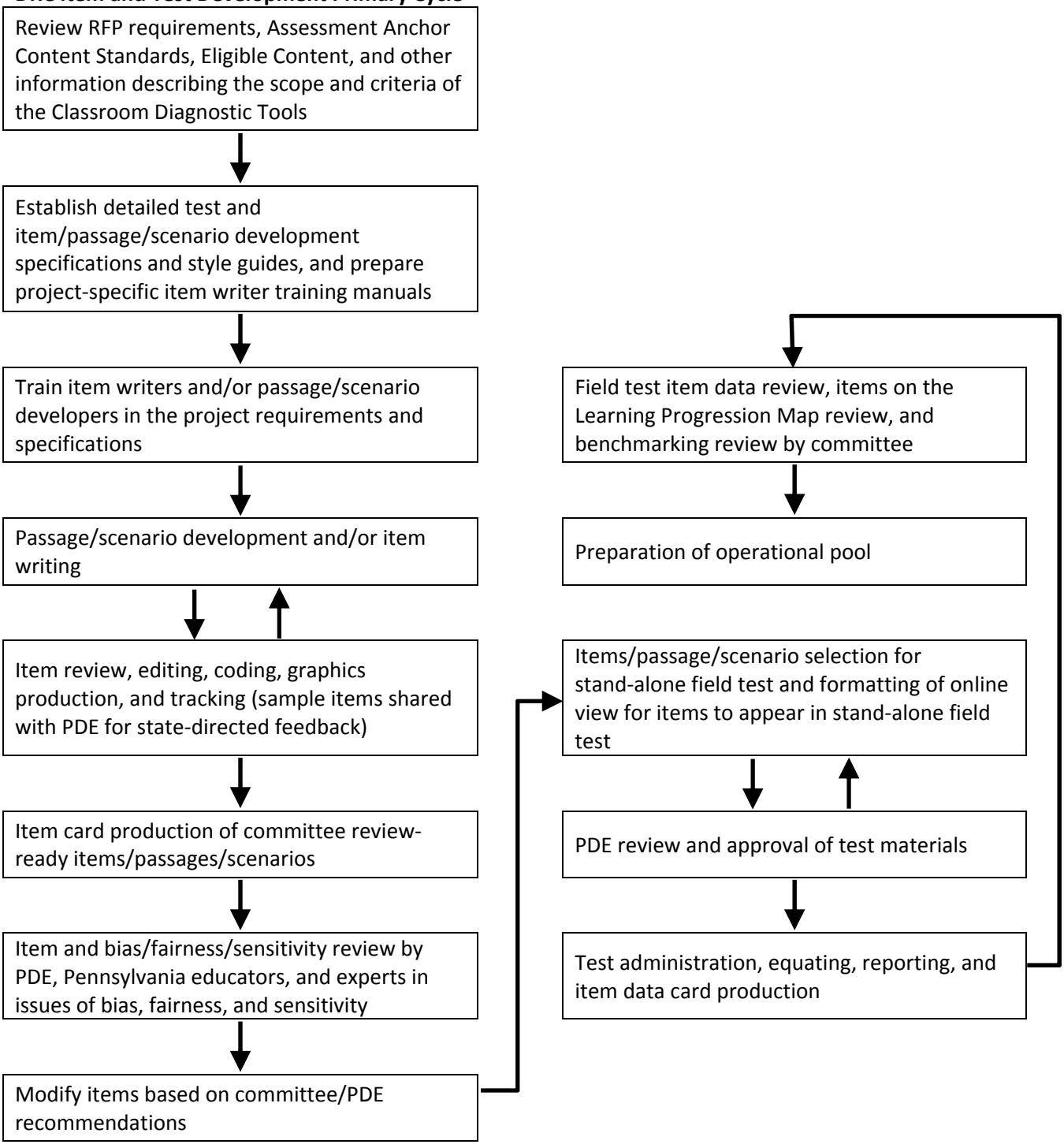
Careful attention was given to the readability of the items to make certain that the assessment focus of the item did not shift based on the difficulty of reading the item. Subject/course areas such as Mathematics, Algebra I, Science, or Biology contain many content-specific vocabulary terms. As a result, readability formulas were not used. However, wherever it was practicable and reasonable, every effort was made to keep the vocabulary at or one level below the grade or course level for non-Reading/Literature items. There was a conscious consideration made to ensure that each question was evaluating a student's ability to build toward mastery of the course standards versus the student's reading ability. Resources used to verify the vocabulary level were the *EDL Core Vocabularies* and the *Children's Writer's Word Book.*

In addition, every test question is brought before committees comprised of Pennsylvania educators who are course-level/grade-level experts in the content field in question. They review each question from the perspective of the students they teach, and they determine the validity of the vocabulary used and work to minimize the level of reading required.

ITEM AND TEST DEVELOPMENT CYCLE

The item development process for items followed a logical cycle and timeline, which is outlined in the figure on the following page. On the front end of the schedule, tasks were generally completed with the goal of presenting field test candidate items to committees of Pennsylvania educators. On the back end of the schedule, all tasks lead to the field test data review and operational test construction. This presentation represents a typical life cycle for a stand-alone field test event.

DRC Item and Test Development Primary Cycle



GENERAL ITEM AND TEST DEVELOPMENT PROCESS

The following describes the processes which lead up to an operational assessment. These processes were used to develop the entire pool of items that appeared within the field test administrations for potential inclusion in the operational item pool.

ITEM DEVELOPMENT PLANNING MEETING

Prior to the start of any item development work, DRC's test development staff meets with PDE's assessment office to discuss the test development plans, including the test blueprint, the field test plan (including development counts), procedures, timelines, etc.

ITEM WRITER TRAINING

Item writers were selected and trained for the subject areas of Mathematics, Algebra I, Algebra II, Geometry, Science, Biology, Chemistry, Reading, Literature, Writing, and English Composition. Qualified writers were college graduates with teaching experience and a demonstrated base of knowledge in the content area. Many of these writers were content assessment specialists and curriculum specialists. The writers were trained individually and had previous experience in writing multiple-choice items. Prior to developing items for the Classroom Diagnostic Tools, the cadre of item writers was trained with regard to the following:

- PSSA and Keystone Assessment Anchors and Eligible Content
- Webb's Levels of Cognitive Complexity, Depth of Knowledge
- Bias, Fairness, and Sensitivity Guidelines
- Principles of Universal Design
- Item Quality Technical Style Guidelines
- Reference Information
- Sample Items

LITERATURE PASSAGE DEVELOPMENT

The task of developing passages was conducted by DRC professionals with classroom experience in reading/language arts. These professionals also underwent specialized training (provided by DRC) in the characteristics of acceptable passages. Guidelines for passage development included appropriate length, text structure, density, and vocabulary. A judgment was also made about whether the reading level required by a particular passage was at the independent level—that is, where the average student should be able to read 90 percent of words in the text independently. Passage writers were given the task of writing a specified number of passages for each genre. Passages were commissioned from experienced authors.

Passages underwent an internal review by several test development content editors to judge their merit with regard to the following criteria:

- Passages have interest value for students.
- Passages are appropriate in terms of vocabulary and language characteristics.
- Passages are free of bias, fairness, and sensitivity issues.
- Passages represent different cultures.
- Passages are able to stand the test of time.
- Passages are sufficiently rich to generate a variety of multiple-choice items.
- Passages avoid dated subject matter unless a relevant historical context is provided.
- Passages should not require students to have extensive background knowledge in a certain discipline or area to understand a text.

Once through the internal review process, those passages deemed potentially acceptable were reviewed by the Reading Content Committee and Bias, Fairness, and Sensitivity Committee for final approval.

ITEM AUTHORING AND TRACKING

Initially, items were generated with software-prepared Classroom Diagnostic Tools Item Cards, which allows for preliminary sorting and reviewing. A column against the right margin includes codes to identify the subject area, grade, content categories, passage information (in the case of reading), item type, depth of knowledge (cognitive complexity), estimated difficulty, answer key, and calculator use (for mathematics items).

All items undergoing field testing were entered into the DRC Item Development and Educational Assessment System (IDEAS), which is a comprehensive, secure, online item banking system. It accommodates item writing, item viewing and reviewing, and item tracking and versioning. IDEAS manages the transition of an item from its developmental stage to its approval for use within a test form. The system supports item history records that include item usage within a form, item-level notes, content categories and subcategories, item statistics from both classical and Rasch item analyses, and classifications derived from analyses of differential item functioning (DIF).

INTERNAL REVIEWS

To ensure that the items produced were sufficient in number and adequately distributed across subcategories and levels of difficulty, item writers were informed of the required quantities of items. As items were written, an item authoring card was completed. It contained information about the item, such as subject, content category, and subcategories. Based on the item writer's classroom teaching experience, knowledge of the content area curriculum, and cognitive demands required by the item, estimates were recorded for level of cognitive complexity and difficulty level. Items were written to provide for a range of difficulties and cognitive complexities.

As part of the item construction process, each item was reviewed by content specialists and editors at DRC. Content specialists and editors evaluated each item to make sure that it measured the intended Eligible Content and Assessment Anchor. They also assessed each item to make certain that it was appropriate for the intended grade and that it provided only one correct answer. In addition, the difficulty level, depth of knowledge, graphics, language demand, and distractors were also evaluated. Other elements considered in this process include, but are not limited to, Universal Design, bias, source of challenge, grammar/punctuation, and Pennsylvania style. Following these reviews, the items were prepared for the content review meetings conducted with Pennsylvania educators.

ITEM CONTENT REVIEWS

Prior to the 2010 and 2011 field testing, all newly developed test items were submitted to content committees for review. The content committees consisted of Pennsylvania educators from school districts throughout the Commonwealth of Pennsylvania, some with postsecondary university affiliations. The primary responsibility of the content committee was to evaluate items with regard to quality and content classification, including grade-level or course appropriateness, estimated difficulty, depth of knowledge, and source of challenge. With source of challenge, items were identified where the cognitive demand was focused on an unintended content, concept, or skill (Webb, 2002). In addition, source of challenge may be attributed if the reason that an answer could be given results from a cultural bias, an inappropriate reading level, or a flawed graphic in an item, or if an item requires specialized, non-content-related knowledge to answer. Source of challenge could result in a student who has mastered the intended content or skill answering the item incorrectly or a student who has not mastered the intended content or skill answering the item correctly. Committee members were asked to note any items with a source of challenge and to suggest revisions to remove the source of challenge. They also suggested revisions and made recommendations for reclassification of items. The committee members also reviewed the items for adherence to the Principles of Universal Design, including language demand and issues of bias, fairness, and sensitivity.

The content review meetings were held in January 2010 for Mathematics, Algebra I, Algebra II, and Geometry; in May/June 2010 for Reading/Literature, Science, Biology, and Chemistry; and in January 2011 for Writing/English Composition. Committee members were approved by PDE, and PDE-approved invitations were sent to them by DRC. PDE also selected internal staff members for attendance. The meeting commenced with a welcome by PDE and DRC. This was followed by an overview of the test development process by DRC. PDE, along with DRC, also provided training on the procedures and forms to be used for item content review.

DRC content assessment specialists facilitated the reviews and were assisted by representatives of PDE. Committee members, grouped by content area, received training by working through and reviewing a group of items for quality and content, as well as for the following categories:

- Assessment Anchor Alignment
- Content Limits
- Grade-Level (Course-Level) Appropriateness
- Difficulty Level
- Depth of Knowledge
- Appropriate Source of Challenge

- Correct Answer
- Quality of Distractors
- Graphics in Regards to Appropriateness
- Appropriate Language Demand
- Freedom from Bias

The members then received a binder containing items to independently review and provided their recommendation for the status of each item: Approved, Accepted with Revision, or Rejected. All comments were reviewed and addressed by DRC content staff, and, when necessary, PDE staff were consulted.

Security was addressed by adhering to a strict set of procedures. All attendees, with the exception of PDE staff, were required to sign a confidentiality agreement. All materials not in use at any time were stored in a locked room. Secure materials that did not need to be retained after the meetings were deposited in secure barrels, the contents of which were shredded.

BIAS, FAIRNESS, AND SENSITIVITY REVIEWS

Prior to the 2010 and 2011 field testing, all newly developed test items were also submitted to a Bias, Fairness, and Sensitivity Committee for review. These reviews took place prior to the Item Content Review for each content area. The committee's primary responsibility was to evaluate items with regard to bias, fairness, and sensitivity issues. They also made recommendations for changes to or deletion of items in order to remove the potential for issues of bias, fairness, and/or sensitivity. Included in the review were proposed reading passages. An expert, multi-ethnic committee composed of men and women was trained by a DRC test development lead to review items for bias, fairness, and sensitivity issues. Training materials included a manual developed by DRC (DRC, 2003–2010). Members of the committee also had expertise with special-needs students and English Language Learners. All items were read by a cross-section of committee members. Each member noted bias, fairness, and/or sensitivity comments on tracking sheets and on the item, if needed, for clarification. Committee members individually categorized any concerns as related to ageism, disability, ethnicity/culture, gender, region, religion, socioeconomics, or stereotypes. These categories were the framework through which recommendations for modification or rejection of items occurred during the subsequent committee consensus process. The committee discussed each of the issues as a group and came to a consensus as to which issues should represent the view of the committee. All consensus comments were then compiled, and the suggested actions on these items were recorded and submitted to DRC content staff. This review followed the same security procedures as outlined above.

ITEMS ALIGNED TO LEARNING PROGRESSION MAPS

Following the field test of items, all items were brought before a committee of Pennsylvania educators for review of each item's alignment to the Learning Progression Map. DRC and PDE provided a general overview of the item and test development process for the Classroom Diagnostic Tools and provided information about the Learning Progression Maps and the purpose of the Classroom Diagnostic Tools. Then the committee reviewed the Learning Progression Map, which shows the vertical articulation of the Assessment Anchors and Eligible Content across grades within a given subject area. Once it was determined that the Learning Progression Map containing the Assessment Anchors and Eligible Content was an accurate representation of how the content progressed across grades, teachers worked in grade-span committees to review items for their alignment with the Assessment Anchor and Eligible Content. When reviewing the alignment to the Assessment Anchor and Eligible Content, educators considered whether the test item

measured the content that it purported to measure, as well as the appropriateness of the difficulty and cognitive complexity of the item in relation to the Assessment Anchor and Eligible Content to which the item was aligned. Committees came to a consensus regarding the status of each item: Accepted, Accepted with Revised Alignment, or Rejected.

Security was addressed by adhering to a strict set of procedures. All attendees, with the exception of PDE staff, were required to sign a confidentiality agreement. All materials not in use at any time were stored in a locked room. Secure materials that did not need to be retained after the meetings were deposited in secure barrels, the contents of which were shredded.

CHAPTER FOUR: UNIVERSAL DESIGN PROCEDURES APPLIED TO THE CLASSROOM DIAGNOSTIC TOOLS TEST DEVELOPMENT PROCESS

UNIVERSAL DESIGN

Universally designed assessments allow participation of the widest possible range of students and contribute to valid inferences about participating students. Principles of Universal Design are based on the premise that each child in school is a part of the population to be tested and that testing results should not be affected by disability, gender, race, or English language ability (Thompson, Johnstone, & Thurlow, 2002). At every stage of the item and test development process, procedures were employed to ensure that items and subsequent tests were designed and developed using the elements of universally designed assessments developed by the National Center for Educational Outcomes (NCEO).

Federal legislation addresses the need for universally designed assessments. The No Child Left Behind Act (Elementary and Secondary Education Act) requires that each state must "provide for the participation in [statewide] assessments of all students" [Section 1111(b)(3)(C)(ix)(I)]. Both Title I and IDEA regulations call for universally designed assessments that are accessible and valid for all students, including students with disabilities and English Language Learners. The benefits of universally designed assessments not only apply to these groups of students, but to all individuals with wide-ranging characteristics. Therefore, it is important that the development of all assessments, including voluntary assessments such as the Classroom Diagnostic Tools, be guided by the Principles of Universal Design.

DRC's test development team was trained in the elements of Universal Design as it relates to developing large-scale statewide assessments. Team leaders were trained directly by NCEO, and other team members were subsequently trained by team leaders. Committees involved in content review included some members who were familiar with the unique needs of students with disabilities and English Language Learners. Likewise some members of the Bias, Fairness, and Sensitivity Committee were conversant with these issues. What follows are the Universal Design guidelines followed during all stages of the item development process for the Classroom Diagnostic Tools.

ELEMENTS OF UNIVERSALLY DESIGNED ASSESSMENTS

After a review of research relevant to the assessment development process and the Principles of Universal Design (Center for Universal Design, 1997), NCEO has produced seven elements of Universal Design as they apply to assessments (Thompson, Johnstone & Thurlow, 2002). These elements served to guide item development for the Classroom Diagnostic Tools.

- **Inclusive Assessment Population**

  The target population includes students attending Commonwealth schools in grades 6 through 12 who will be participating in either the Pennsylvania System of School Assessment or the Keystone exams.

- **Precisely Defined Constructs**

  An important function of well-designed assessments is that they actually measure what they are intended to measure. The Assessment Anchor Content Standards and Eligible Content for both PSSA and the Keystone Exams, as well as the Pennsylvania Academic Standards for Writing, provided clear descriptions of the constructs to be measured by the Classroom Diagnostic Tools assessments. Universally designed assessments must remove all non-construct-oriented cognitive, sensory, emotional, and physical barriers.

- **Accessible, Non-biased Items**

  DRC conducted both internal and external reviews of items and test specifications to ensure that they did not create barriers because of lack of sensitivity to disability, culture, or other subgroups. Items and test specifications were developed by a team of individuals who understand the varied characteristics of items that might create difficulties for any group of students. Accessibility is incorporated as a primary dimension of test specifications, so accessibility was woven into the fabric of the test rather than being added after the fact.

- **Amenable to Accommodations**

  Even though items on universally designed assessments are accessible for most students, there are some students who continue to need accommodations. This essential element of a universally designed assessment requires that the exam is compatible with accommodations and a variety of widely used adaptive equipment and assistive technology.

- **Simple, Clear, and Intuitive Instructions and Procedures**

  Assessment instructions should be easy to understand, regardless of a student's experience, knowledge, language skills, or current concentration level. Questions that are posed using complex language can invalidate the test if students cannot understand how they are expected to respond to a question. To meet this guideline, directions and questions were prepared in simple, clear, and understandable language that underwent multiple reviews.

- **Maximum Readability and Comprehensibility**

  A variety of guidelines exist to ensure the maximum readability and comprehensibility of a test. These features go beyond what is measured by readability formulas. Readability and comprehensibility are affected by many factors, including student background, sentence difficulty, text organization, and others. All of these features were considered as item text was developed.

Plain language is a concept now being highlighted in research on assessments. Plain language has been defined as language that is straightforward and concise. The following strategies for editing text to produce plain language were used during the editing process of the Classroom Diagnostic Tools items:

- Reduction of excessive length
- Use of common words
- Avoidance of ambiguous words
- Avoidance of irregularly spelled words
- Avoidance of proper names
- Avoidance of inconsistent naming and graphic conventions
- Avoidance of unclear signals about how to direct attention

- **Maximum Legibility**

  Legibility is the physical appearance of text, the way that the shapes of letters and numbers enable people to read text easily. Bias can result when tests contain physical features that interfere with a student's focus on or understanding of the constructs that test items are intended to assess. A style guide was developed and was utilized which included dimensions of style consistent with Universal Design.

GUIDELINES FOR UNIVERSALLY DESIGNED ITEMS

All test items written and reviewed adhered closely to the following guidelines for Universal Design. Item writers and reviewers used a checklist during the item development process to ensure that each aspect was attended to.

1. **Items measure what they are intended to measure.** Item writing training included ensuring that writers and reviewers had a clear understanding of Pennsylvania's Academic Standards and the PSSA and Keystone Assessment Anchors and Eligible Content. During all phases of test development, items were presented with content-standard information to ensure that each item reflected the intended Academic Standard (Writing items aligned to grades 3–8) or Eligible Content (all other grades and content areas). Careful consideration of the content standards was important in determining which skills involved in responding to an item were extraneous and which were relevant to what was being tested. In certain types of items an additional skill is necessary, such as the Algebra I test, which requires the student to read.
2. **Items respect the diversity of the assessment population.** To develop items that avoid content that might unfairly advantage or disadvantage any student subgroup, item writers, test developers, and reviewers were trained to write and review items to avoid issues of bias, fairness, and sensitivity. Training also included an awareness of, and sensitivity to, issues of cultural and regional diversity.

3. **Items have a clear format for text.** Decisions about how items are presented to students must allow for maximum readability for all students. Appropriate fonts and point sizes were employed with minimal use of italics, which is far less legible and is read considerably more slowly than standard typeface. Captions, keys, and legends were at least a 12-point size, while footnotes and sentence numbers use a 10-point font.[1] Legibility was enhanced by sufficient spacing between letters, words, and lines. Blank space around paragraphs and between columns and staggered right margins were used.
4. **Stimuli and items have clear pictures and graphics.** When pictures and graphics were used, they were designed to provide essential information in a clear and uncluttered manner. Illustrations were placed directly next to the information to which they referred, and labels were used where possible. Sufficient contrast between background and text, with minimal use of shading, increased readability for students with visual impairments. Color was not used to convey important information.
5. **Items have concise and readable text.** Linguistic demands of stimuli and items can interfere with a student's ability to demonstrate knowledge of the construct being assessed. During item writing and review, the following guidelines were used.
    - Simple, clear, commonly used words were used whenever possible.
    - Extraneous text was omitted.
    - Vocabulary and sentence complexity were appropriate for the grade level being assessed.
    - Technical terms and abbreviations were used only if they were related to the content being measured.
    - Definitions and examples were clear and understandable.
    - Idioms were avoided unless idiomatic speech was being assessed.
    - The questions to be answered were clearly identifiable.
6. **Items allow changes to format without changing meaning or difficulty.** An audio accommodation is available in Mathematics, Algebra I, Geometry, Algebra II, Science, Biology, and Chemistry for any student with Individualized Education Program (IEP) requirements related to receiving audio assistance during testing. Additionally, a Magnifier tool that can be used to enlarge an area of the screen is available to all students. This tool can be used at the same time as other tools, such as the Highlighter or Line Guide.
7. **The test has an overall appearance that is clean and organized.** Images, pictures, and text that may not be necessary (e.g., sidebars, overlays, callout boxes, shading, visual crowding caused by excess information) and that could be potentially distracting to students were avoided. Also avoided were purely decorative features that did not serve a purpose. Information was organized in a left-right, top-bottom format.

[1] While font size follows specific requirements during online setup of an exam, the screen resolution used at the local level can impact the effective font size visible to the student.

Chapter Four: Universal Design Procedures Applied to the Classroom Diagnostic Tools Test Development Process

ITEM DEVELOPMENT

DRC works closely with the Pennsylvania Department of Education to help ensure that the Classroom Diagnostic Tools comply with nationally recognized Principles of Universal Design. In addition to the Principles of Universal Design as described in the Classroom Diagnostic Tools Technical Report, DRC applies to each exam the standards for test accessibility as described in *Tests Access: Making Tests Accessible for Students with Visual Impairments—A Guide for Test Publishers, Test Developers, and State Assessment Personnel* (Allman, 2004).

To this end, DRC ensures that committee members at item and bias reviews are made aware of the Principles of Universal Design and of issues that may adversely affect students with disabilities with the goal of ensuring that Classroom Diagnostic Tools assessments are bias-free for all students.

ITEM FORMAT

For all Classroom Diagnostic Tools assessments, DRC formats the items to maximize accessibility for all students by using text that is in a size and font style that is easily readable. DRC limits shading, graphics, and charts. DRC ensures that graphics, pictures, diagrams, charts, and tables are positioned on the page with the associated test items. DRC uses high contrast for text and background where possible to convey pertinent information.

DRC ensures consistency across Classroom Diagnostic Tools assessments by following these Principles of Universal Design:

- High contrast and clarity is used to convey detailed information.
- Typically, shading is avoided; when necessary for content purposes, 10-percent screens are used as the standard.
- Overlaid print on diagrams, charts, and graphs is avoided.
- Charts, graphs, diagrams, and tables are clearly labeled with titles and with short descriptions where applicable.
- Only relevant information is included in diagrams, pictures, and graphics.
- Symbols used in keys and legends are meaningful and provide reasonable representations of the topics they depict.

ASSESSMENT ACCOMMODATIONS

While universally designed assessments provide for participation of the widest range of students, many students require accommodations in order to participate in the regular assessment. Clearly, the intent of providing accommodations for students is to ensure that students are not unfairly disadvantaged during testing and that the accommodations used during instruction, if appropriate, are made available as students take the test. The literature related to assessment accommodations is still evolving and often focuses on state policies regulating accommodations rather than on providing empirical data that supports the reliability and validity of the use of accommodations. On a yearly basis, the Pennsylvania Department of Education examines accommodations policies and current research to ensure that valid, acceptable accommodations are available for students. At this time, an audio accommodation is available in Mathematics, Algebra I, Geometry, Algebra II, Science, Biology, and Chemistry for any student with Individualized Education Program (IEP) requirements related to receiving audio assistance during testing.

CHAPTER FIVE: TEST ADMINISTRATION PROCEDURES

TEST SETUP

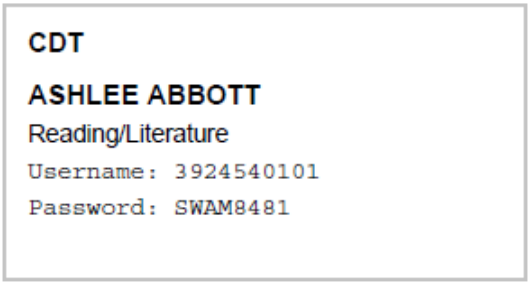
The process to set up students to take the Classroom Diagnostic Tools (CDT) is accomplished through an online interface located on the eDIRECT site (https://pa.drcedirect.com). The eDIRECT site is a permission-based site that enables districts to assign users different roles and permissions depending on their role in the setup process. Each district can set up users with as much or as little permission as deemed necessary. A user's role and permission may be modified at any time.

The student and teacher information is imported via the Pennsylvania Information Management System (PIMS) each month or by user upload at any time. Once the data is imported, users organize students into student groups and test sessions. Student groups and test sessions can be created by class, grade, school, or any other variation.

Each student group is assigned to a specific teacher. Students may belong to multiple student groups and multiple teachers can be assigned to the same student group. This allows districts/schools the ability to allow multiple users to view the data by class, grade, or even school. Student groups may be created and modified at any time during the administration window.

Test sessions are generated to create test tickets that will be distributed to students prior to testing. A test ticket contains the student's full name, user name, password, and the assessment he/she will be taking. The test session, like the student group, may also be created by class, grade, and school. Each time an assessment is administered, a new test session must be created. Test sessions can be copied to simplify administering the CDT to the same students multiple times each year.

SAMPLE TEST SESSION TICKET



Each CDT should take the typical student 50 to 90 minutes to complete; however, the test is untimed. Each CDT is between 48 and 60 items in length. It is recommended that districts and schools administer the CDT in one day. However, it is possible to administer the CDT over multiple days.

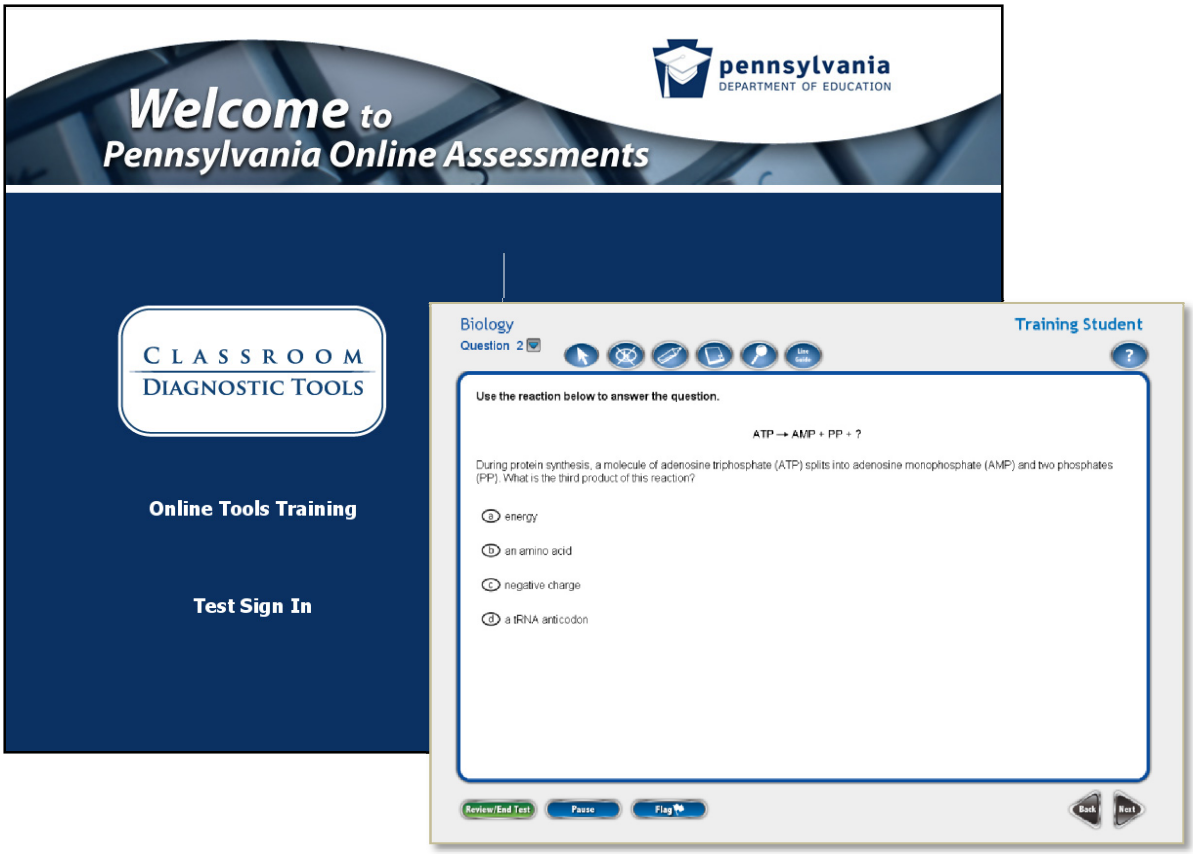
It is recommended that a student take one of the available CDTs three times in a given school year. There should be enough time between CDT administrations to allow for instructional impact to be reflected in the student's results. Though there are no restrictions on the time between CDTs, there is a restriction in the Test Setup system that only allows a student to be associated with a single CDT a maximum of five (5) times within a given school year.

PA ONLINE ASSESSMENTS SOFTWARE

Prior to testing, each student computer needs to have the PA Online Assessments software installed. The testing software downloads are located on the eDIRECT site. The installer is an MSI file that can be pushed out across a server to expedite the installation process. Once the software is installed, users also have access to the PA Assessment Online Student Tutorials and the PA Assessment Online Tools Training (OTT). Users are encouraged to run the Online Tools Training prior to testing as it does interact with DRC servers exactly like an actual CDT assessment. Completion of the OTT will provide a good indication that the software installed correctly and everything is configured properly on the network.

The web-based PA Online Assessment Student Tutorials are available for each operational assessment and are designed to be used by students at all grade levels. They use pictures, motion, and sound to present visual and verbal descriptions of the features and functionality of the PA Online Assessment system. It is recommended to allow a minimum of 20 minutes to view the tutorials. Tutorials may be reviewed as often as needed.

The PA Assessment Online Tools Training (OTT) is designed to provide an introductory experience using the online assessment software in preparation for taking the CDT. The purpose of the OTT is for students to observe and experiment with the features of the online assessment software prior to the actual assessment. The OTT is NOT designed to demonstrate complete coverage of the tested content, and it is NOT scored. Rather, sample items have been chosen to demonstrate online assessment features and uses.



TRAINING AND CUSTOMER SERVICE SUPPORT

Prior to testing, training was provided to District Technology Coordinators and District Assessment Coordinators. All training is administered via web conference and lasts approximately 1½ hours. Test coordinator training goes over tasks that need to be completed prior to testing. A large portion of the training is dedicated to the setup of users and the creation of student groups and test sessions.

Technology coordinator training focuses on all technical aspects required for the setup of the CDT. Detailed installation instructions of the PA Online Assessments Software and Local Caching Service (LCS) are provided. The LCS runs on a server within the local network and helps mitigate internet traffic by allowing student machines to retrieve items from the LCS rather than from DRC servers. The CDT requires an internet connection at all times.

Student Interface System Requirements

Windows / Linux Installer System Requirements

- 256 MB of RAM or greater
- Updated graphics drivers with a screen resolution of 1024 x 768 or greater*
- Mouse; Keyboard
- 100 MB of available hard disk space or greater
- 700 MHz or faster processor

Note: Tablet devices currently not supported

Supported Operating Systems

- Microsoft® Windows® XP with SP1 or greater
- Microsoft® Windows Vista®
- Microsoft® Windows® 7
- Microsoft® Server 2003
- Microsoft® Server 2008
- UBUNTU 10.04 with Gnome 2.3, most recent kernel

**Workstations with ATI integrated onboard graphics must have ATI Catalyst drivers version 9.3 or newer installed*

Macintosh Installer System Requirements

- 256 MB of RAM or greater
- Updated graphics drivers with a screen resolution of 1024 x 768 or greater
- Mouse; Keyboard
- 10 MB of available hard disk space or greater
- 400 MHz or faster processor*

Note: Tablet devices currently not supported

Supported Operating Systems*

- Apple® Mac OS X® 10.5**
- Apple® Mac OS X® 10.6**
- Apple® Mac OS X® 10.7**

**PowerPC not recommended*
***Running most recent Java for Mac OS X® update*

Users are encouraged to call or email with any questions or error messages that cannot be resolved. If the problem cannot be resolved via a customer service representative, the issue is escalated to DRC developers. Ninety percent of the time, a solution is provided within twenty-four hours. If the issue requires more research, DRC will contact the caller daily to provide an update.

CHAPTER SIX: FIELD TEST

FIELD TEST OVERVIEW

All items appearing in the 2012–2013 Classroom Diagnostic Tools (CDT) operational item pools were field tested prior to their use on the operational CDT. The purpose of administering field test items is to obtain statistics for them so they can be reviewed and approved before becoming operational. Based on this statistical review, many of the field test items were selected for use in the 2012–2013 CDT operational item pools.

There were three separate CDT field test events to build the 2012–2013 operational item pools because the operational CDT was rolled out in phases by content area. Items in mathematics were field tested in spring 2010. Items in reading and science were field tested in fall 2010. Items in writing were field tested in spring 2011. During these three field test events, CDT items were field tested on stand-alone fixed forms. The forms were administered in computer-based format only. No paper/pencil versions were available. Field test administration mode was limited to computer-based to mirror the operational CDT, which is an adaptive test requiring computer administration.

CDT stand-alone field tests were designed to build vertical scales across all grades and courses within a content area. In order to accomplish this, some field test forms had items from one grade above or below, in addition to on-grade level items. For example, some grade 7 mathematics forms contained items from grade 6 in addition to items from grade 7. Other grade 7 mathematics forms contained items from both grade 7 and grade 8. See Chapter Nine for more details.

In addition to the three stand-alone field test events, a small number of field test items were included (embedded) within the 2012–2013 CDT tests in Mathematics and Reading/Literature starting on February 14, 2013. The purpose of this embedded field test was to add items to the operational item pools for future years that align to the Pennsylvania Core Standards. Embedded field test items are included within an operational administration and students do not know which items are field test items (items that do not count toward a student's score). Therefore, the embedded field test items can be linked to the existing operational scales. See Chapter Twelve for details.

CDT STAND-ALONE FIELD TESTS

SPRING 2010 – MATHEMATICS

The stand-alone field test administered in spring 2010 was designed to yield enough items to populate the item pool for CDT Mathematics. Items covering the Eligible Content in grades 3 through 8 and courses Algebra I, Geometry, and Algebra II were field tested. Items covering grade 11 Eligible Content that were NOT covered in Algebra I, Geometry, or Algebra II were also field tested.

Participation in the field test was voluntary. All schools that wanted to participate were allowed to field test. All students in volunteer schools were encouraged, but not required, to participate.

In order to encourage participation, field test forms were limited in length. Forms in grades 3, 4, and 5 had 25 items. Forms in grades 6, 7, 8, and courses Algebra I, Geometry, and Algebra II had 35 items. There were not separate grade 11 forms. Instead, grade 11 items were included on grade 8, Algebra I, Geometry, and Algebra II forms.

Since testing occurred in spring, students had nearly a full year of instruction. Therefore, grade-level forms were assigned to students in the corresponding grade (i.e., students in grade 7 took grade 7 forms). Course-level forms were assigned to students currently taking the course (i.e., students in a Geometry course took Geometry forms).

Each student was randomly assigned one of the appropriate grade- or course-level forms at the time of testing.

Table 6–1. Mathematics Field Test Form Details

Grade/Course	Number of Items	Number of Forms	Number of Vertical Linking Forms
Grade 3	86	8	4
Grade 4	86	10	8
Grade 5	85	10	8
Grade 6	259	16	8
Grade 7	258	16	8
Grade 8	257	18	12
Grade 11*	149	0	0
Algebra I	256	18	8
Geometry	257	16	4
Algebra II	256	16	4
* Grade 11 items were tested on Algebra I, Geometry, and Algebra II forms.			

FALL 2010 – READING/LITERATURE AND SCIENCE

The stand-alone field tests administered in fall 2010 were designed to yield enough items to populate the item pools for CDT Reading/Literature and CDT Science. Reading items covering the Eligible Content in grades 3 through 8 and Literature were field tested. Science items covering the Eligible Content in grades 3 through 8 and courses Biology and Chemistry were field tested. Items covering grade 11 science Eligible Content that were NOT covered in Biology or Chemistry were also field tested.

Participation in the field test was voluntary. All schools that wanted to participate were allowed to field test. All students in volunteer schools were encouraged, but not required, to participate. Schools were allowed to field test in both content areas.

In order to encourage participation, field test forms were limited in length. Forms in grades 3, 4, and 5 had 25 items. Forms in grades 6, 7, 8, and courses Literature, Biology, and Chemistry had 35 items. There were not separate grade 11 science forms. Instead, grade 11 science items were included on grade 8 science forms.

Since testing occurred in fall, students did NOT have a full year of instruction at their current grade level. Grade-level forms were therefore assigned one grade lower (i.e., students in grade 7 took grade 6 forms). Course-level forms were assigned to students who had completed the course during the prior school year.

Each student was randomly assigned one of the appropriate grade- or course-level forms at the time of testing.

Table 6–2. Reading/Literature Field Test Form Details

Grade/Course	Number of Items	Number of Forms	Number of Vertical Linking Forms
Grade 3	86	7	2
Grade 4	87	8	4
Grade 5	86	8	4
Grade 6	210	10	4
Grade 7	192	9	4
Grade 8	192	9	4
Literature	348	15	2

Table 6–3. Science Field Test Form Details

Grade/Course	Number of Items	Number of Forms	Number of Vertical Linking Forms
Grade 3	91	7	2
Grade 4	123	11	4
Grade 5	102	9	4
Grade 6	178	9	4
Grade 7	327	15	4
Grade 8	377	22	6
Grade 11*	115	0	0
Biology	390	16	2
Chemistry	335	14	2
* Grade 11 items were tested on Grade 8 forms.			

SPRING 2011 – WRITING

The stand-alone field test administered in spring 2011 was designed to yield enough items to populate the item pool for CDT Writing/English Composition. Items covering the Pennsylvania Academic Standards for Writing in grades 3 through 8 and the Eligible Content for English Composition were field tested.

Participation in the field test was voluntary. All schools that wanted to participate were allowed to field test. All students in volunteer schools were encouraged, but not required, to participate.

In order to encourage participation, field test forms were limited in length. Forms in grades 3, 4, and 5 had 25 items. Forms in grades 6, 7, 8, and English Composition had 35 items.

Since testing occurred in spring, students had nearly a full year of instruction. Therefore, grade-level forms were assigned to students in the corresponding grade (i.e., students in grade 7 took grade 7 forms).

Each student was randomly assigned one of the appropriate grade- or course-level forms at the time of testing.

Table 6–4. Writing/English Composition Field Test Form Details

Grade/Course	Number of Items	Number of Forms	Number of Vertical Linking Forms
Grade 3	140	10	2
Grade 4	149	12	4
Grade 5	165	13	4
Grade 6	193	9	4
Grade 7	176	9	4
Grade 8	195	9	4
English Composition	365	15	2

CDT EMBEDDED FIELD TESTS

SPRING 2013 – MATHEMATICS AND READING/LITERATURE

The embedded field test administered in spring 2013 was designed to augment the existing mathematics and reading/literature item pools. Items were aligned to the Pennsylvania Core Standards. Starting on February 14, 2013, all students testing CDT Mathematics took 5 field test items. All students testing CDT Reading/Literature took 5–7 field test items, depending on passage length. Students did not know which items were operational and which were field test. Field test items did not count in calculation of total or diagnostic category scores. Since testing occurred in spring, students had received nearly a full year of instruction. Therefore, grade-level items were assigned to students in the corresponding grade wherever possible.

Table 6–5. Embedded Field Test Details

Grade/Course		Number of Items
Mathematics	Grade 3*	56
	Grade 4*	67
	Grade 5*	41
	Grade 6	156
	Grade 7	73
	Grade 8	157
Reading	Grade 3*	58
	Grade 4*	71
	Grade 5*	60
	Grade 6	56
	Grade 7	58
	Grade 8	57

*Items in grades 3 through 5 were initially field tested with students in grade 6 because CDT is available to students in grade 6 and above. However, this plan was revised after a few weeks of testing in favor of stand-alone field tests in fall 2013 with students in grades 3 through 5.

STATISTICAL ANALYSIS OF ITEM DATA

All field tested items were analyzed statistically following conventional item analysis methods for multiple-choice (MC) items. Traditional, or classical, item statistics included the point-biserial correlation (Pt. Bis.) for the correct and incorrect responses (distractors), percent correct (*p*-value), and the percent selecting each incorrect response.

In general, more capable students are expected to respond correctly to easy items and less capable students are expected to respond incorrectly to difficult items. If either of these situations does not occur, the item will be reviewed by DRC test development staff and committees of Pennsylvania educators to determine the nature of the potential problem and the characteristics of the students affected. The primary way of detecting such conditions is through the point-biserial correlation coefficient. This statistic will be positive if the total-test mean score is higher for the students who respond correctly to MC items and negative when the reverse is true.

Item statistics are used as a means of detecting items that deserve closer scrutiny rather than as a mechanism for automatic retention or rejection. Toward this end, a set of criteria was used as a screening tool to identify items needing a closer review by committees of Pennsylvania educators.

For an item to be flagged, the criteria included any of the following:

- Point-biserial correlation for the correct response of less than 0.10
- Point-biserial correlation for any incorrect response greater than point-biserial correlation for the correct response
- Differential item functioning (DIF) code of either C- or C+[2]

These criteria differ slightly from the criteria used for end of year/course summative tests such as the Pennsylvania System of School Assessment (PSSA) or the Keystone Exams. For example, CDT items are not flagged for low and high *p*-values. While very easy and very difficult items may not be appropriate for summative tests, they are needed in diagnostic item pools so the computer adaptive item selection routine can find appropriate items for students at various levels.

Item analysis results for field test items are presented in Appendix B.

REVIEW OF ITEMS WITH DATA

In the preceding section on Statistical Analysis of Item Data, it was stated that content-area test development specialists used certain statistics from item and DIF analyses of the stand-alone field tests to identify items for further review. Specific flagging criteria for this purpose were specified in the previous section. Items not identified for this review were those that had good statistical characteristics and, consequently, were regarded as statistically acceptable, or had extremely poor statistical quality and, consequently were regarded as unacceptable, removed from the CDT item pools, and needed no further review. However, there were some

[2] Items classified as C+ or C- have strong evidence of DIF. The plus sign indicates that the item favors the focal group (female or black) and a minus sign indicates that the item favors the reference group (male or white). For more details see the section in this chapter on Differential Item Functioning.

items that DRC content-area test development specialists and DRC psychometric specialists regarded as needing further review by committees of Pennsylvania educators.

There were separate meetings to review items with data for each field test event and content area. CDT mathematics items from the spring 2010 stand-alone field test were reviewed by fourteen Pennsylvania educators on August 9, 2010. CDT reading and science items from the fall 2010 stand-alone field test were reviewed by sixteen and fourteen Pennsylvania educators respectively on January 24, 2011. CDT writing items from the spring 2011 stand-alone field test were reviewed by fourteen Pennsylvania educators on August 1, 2011. CDT mathematics and reading items from the spring 2013 embedded field test were reviewed by twenty-two educators respectively on July 16–18, 2013.

At each of the item data review meetings committee members were first trained with regard to the statistical indices used in item evaluation. This was followed by a discussion with examples concerning reasons that an item might be retained regardless of the statistics. The committee review process involved a brief exploration of possible reasons for the statistical profile of an item (e.g., possible sensitivity/bias, grade appropriateness, instructional issues) and a decision regarding acceptance. DRC content-area test development specialists facilitated the review of the items. Each committee reviewed the pool of field test items and made recommendations (i.e., accept or reject) for each item.

Table 6–6. CDT Data Review Results

Grade/Course		Number of Items Field Tested	Flagged and Examined at Data Review Committee		Rejected by Data Review Committee		Removed from CDT Item Pools (all sources)*	
			Number	Percent	Number	Percent	Number	Percent
Mathematics Aug 2010	3	86	4	4.7%	0	0.0%	0	0.0%
	4	86	7	8.1%	0	0.0%	0	0.0%
	5	85	0	0.0%	0	0.0%	0	0.0%
	6	259	6	2.3%	0	0.0%	0	0.0%
	7	258	19	7.4%	1	0.4%	1	0.4%
	8	257	20	7.8%	1	0.4%	1	0.4%
	11	149	13	8.7%	0	0.0%	0	0.0%
	Algebra I	256	19	7.4%	6	2.3%	6	2.3%
	Geometry	257	12	4.7%	3	1.2%	19	7.4%
	Algebra II	256	15	5.9%	1	0.4%	2	0.8%
Reading Jan 2011	3	86	0	0.0%	0	0.0%	0	0.0%
	4	87	2	2.3%	0	0.0%	0	0.0%
	5	86	3	3.5%	0	0.0%	0	0.0%
	6	210	13	6.2%	1	0.5%	4	1.9%
	7	192	8	4.2%	1	0.5%	2	1.0%
	8	192	3	1.6%	0	0.0%	2	1.0%
	Literature	348	16	4.6%	1	0.3%	8	2.3%

Table 6–6 (continued). CDT Data Review Results

Grade/Course		Number of Items Field Tested	Flagged and Examined at Data Review Committee		Rejected by Data Review Committee		Removed from CDT Item Pools (all sources)*	
			Number	Percent	Number	Percent	Number	Percent
Science Jan 2011	3	91	4	4.4%	1	1.1%	5	5.5%
	4	123	6	4.9%	6	4.9%	9	7.3%
	5	102	8	7.8%	3	2.9%	4	3.9%
	6	178	13	7.3%	4	2.2%	10	5.6%
	7	327	34	10.4%	28	8.6%	64	19.6%
	8	377	43	11.4%	33	8.8%	56	14.9%
	11	115	26	22.6%	9	7.8%	29	25.2%
	Biology	390	43	11.0%	4	1.0%	61	15.6%
	Chemistry	335	33	9.9%	8	2.4%	13	3.9%
Writing Aug 2011	3	140	4	2.9%	1	0.7%	1	0.7%
	4	149	10	6.7%	1	0.7%	1	0.7%
	5	165	11	6.7%	4	2.4%	4	2.4%
	6	193	13	6.7%	5	2.6%	5	2.6%
	7	176	16	9.1%	5	2.8%	5	2.8%
	8	195	21	10.8%	2	1.0%	2	1.0%
	English Composition	365	28	7.7%	10	2.7%	10	2.7%
Mathematics July 2013	6	156	27	17.3%	7	4.5%	7	4.5%
	7	73	15	20.5%	2	2.7%	2	2.7%
	8	157	39	24.8%	4	2.5%	4	2.5%
Reading July 2013	6	56	1	1.8%	1	1.8%	2	3.6%
	7	58	4	6.9%	3	5.2%	4	6.9%
	8	57	2	3.5%	1	1.8%	1	1.8%

*Data Review Committee, PDE, and DRC

**Items in grades 3 through 5 were not taken to data review due to plans to re-field test in fall 2013.

DIFFERENTIAL ITEM FUNCTIONING

Differential item functioning occurs when examinees with the same ability level but different group memberships do not have the same probability of answering an item correctly. This pattern of results may suggest the presence of item bias. As a statistical concept, however, DIF can be differentiated from item sensitivity/bias, which is a content issue that can arise when an item presents negative group stereotypes, uses language that is more familiar to one subpopulation than to another, or is presented in a format that disadvantages certain learning styles. While the source of item sensitivity/bias is often easily recognized by trained judges, DIF may have no clear cause. However, studying how DIF arises and how it presents itself can help to detect and correct for it.

LIMITATIONS OF STATISTICAL DETECTION

No statistical procedure should be used as a substitute for rigorous, hands-on reviews by content and bias specialists. The statistical results can help organize the review so the effort is concentrated on the most problematic cases. Further, no items should be automatically rejected simply because a statistical method flagged them or accepted because they were not flagged.

Statistical detection of DIF is an inexact science. There have been a variety of methods proposed for detecting DIF, but no one statistic can be considered either necessary or sufficient. Different methods are more or less successful depending on the situation. No analysis can guarantee that a test is free of bias, but almost any thoughtful analysis will uncover the most flagrant problems.

A fundamental shortcoming of all statistical methods used in DIF evaluation is that all are intrinsic to the test being evaluated. If a test is unbiased overall but contains one or two DIF items, any method will locate the problems. If, however, all items on the test show consistent DIF to the disadvantage of a given subpopulation, a statistical analysis of the items will not be able to separate DIF effects from true differences in achievement.

MANTEL-HAENSZEL PROCEDURE OF DIFFERENTIAL ITEM FUNCTIONING

For MC items, the Mantel-Haenszel (MH) procedure (Mantel & Haenszel, 1959) for detecting differential item functioning is a commonly used technique in educational testing. It does not depend on the application or the fit of any specific measurement model. However, it does have significant philosophical overlap with the Rasch model since it uses a test's total score to organize the analysis.

The procedure as implemented by DRC contrasts a focal group with a reference group. While it makes no practical difference in the analysis which group is defined as the focal group, the group most apt to be disadvantaged by a biased measurement is typically defined as the focal group. In these analyses, the focal group was female for gender-based DIF and black for ethnicity-based DIF; reference groups were male and white respectively. The MH statistic for each item is computed from a contingency table. It has two groups (focal and reference) and two outcomes (right or wrong). The ability groups are defined by the test's score distribution for the total examinee population.

The basic MH statistic is a single degree of freedom chi-square that compares the observed number in each cell to the expected number. The expected counts are computed to ensure that the analysis is not confounded with differences in the achievement level of the two groups.

To assist the review committees in interpreting the analyses, the items are assigned a severity code based on the magnitude of the MH statistic. Items classified as A+ or A- have little or no statistical indication of DIF. Items classified as B+ or B- have some indication of DIF but may be judged to be acceptable for future use. Items classified as C+ or C- have strong evidence of DIF and should be reviewed and possibly rejected from the eligible item pool. The plus sign indicates that the item favors the focal group and a minus sign indicates that the item favors the reference group.

RESULTS AND OBSERVATIONS

Counts of the number of items field tested from each content area and grade/course that were assigned to each severity code are shown in Table 6–7. Some field test items are classified as N/A (not applicable) because the number of students in either the reference or focal groups who took the item was insufficient for analysis. Where there are sufficient data to run DIF analyses, relatively few items had B or C DIF for the Male/Female or White/Black reference and focal groups.

Table 6–7. DIF Summary

Grade/Course		Number of Field Test Items	Male/Female							White/Black						
			A+	A-	B+	B-	C+	C-	N/A*	A+	A-	B+	B-	C+	C-	N/A*
Mathematics Aug 2010	3	86	49	22	12	1	1	1	0	25	44	3	12	0	2	0
	4	86	40	31	7	5	0	3	0	31	33	3	10	0	3	6
	5	85	42	36	5	2	0	0	0	19	54	2	10	0	0	0
	6	259	121	112	14	8	3	1	0	79	143	8	27	0	2	0
	7	258	109	112	18	9	4	6	0	88	124	13	20	0	2	11
	8	257	101	104	31	15	5	1	0	62	65	7	14	0	0	109
	11	149	53	75	4	11	0	6	0	20	41	1	8	0	1	78
	Algebra I	256	122	120	7	6	1	0	0	107	110	9	11	1	3	15
	Geometry	257	115	123	7	8	1	3	0	93	109	6	15	1	2	31
	Algebra II	256	124	115	6	9	0	2	0	58	89	4	14	2	4	85
Reading Jan 2011	3	86	41	34	5	6	0	0	0	26	31	2	6	0	0	21
	4	87	47	37	1	1	0	1	0	21	45	1	7	1	0	12
	5	86	47	27	9	2	1	0	0	28	45	4	7	1	1	0
	6	210	103	87	7	10	0	3	0	72	100	7	25	1	5	0
	7	192	90	78	9	11	2	2	0	69	68	4	11	1	2	37
	8	192	109	67	10	6	0	0	0	22	34	2	6	0	1	127
	Literature	348	147	146	21	25	3	6	0	5	5	0	0	0	0	338

N/A* Items with insufficient counts for DIF analysis

The plus sign indicates that the item favors the focal group (female or black) and a minus sign indicates that the item favors the reference group (male or white).

Table 6–7 (continued). DIF Summary

Grade/Course		Number of Field Test Items	Male/Female							White/Black						
			A+	A-	B+	B-	C+	C-	N/A*	A+	A-	B+	B-	C+	C-	N/A*
Science Jan 2011	3	91	47	41	1	2	0	0	0	20	29	2	4	0	3	33
	4	123	55	53	6	5	3	1	0	15	22	1	5	0	1	79
	5	102	48	45	4	2	2	1	0	25	36	3	4	0	0	34
	6	178	80	84	4	7	1	2	0	10	11	1	1	0	0	155
	7	327	123	143	28	27	2	4	0	58	56	2	15	0	0	196
	8	377	155	154	28	32	3	5	0	5	6	0	0	0	1	365
	11	115	47	49	4	12	1	2	0	0	0	0	0	0	0	115
	Biology	390	154	183	22	23	2	6	0	4	6	0	0	0	0	380
	Chemistry	335	143	148	17	21	2	4	0	6	4	2	0	0	0	323
Writing Aug 2011	3	140	71	59	4	4	1	1	0	24	44	3	4	0	0	65
	4	149	69	67	7	5	1	0	0	15	26	3	2	0	0	103
	5	165	78	62	15	7	3	0	0	12	14	1	2	0	1	135
	6	193	94	82	8	7	1	1	0	53	67	4	12	0	4	53
	7	176	73	81	16	3	3	0	0	11	20	1	3	0	0	141
	8	195	95	81	10	3	3	3	0	4	3	0	2	0	1	185
	English Composition	365	157	155	29	18	4	2	0	3	5	1	0	0	1	355

N/A* Items with insufficient counts for DIF analysis

The plus sign indicates that the item favors the focal group (female or black) and a minus sign indicates that the item favors the reference group (male or white).

Table 6–7 (continued). DIF Summary

Grade/Course		Number of Field Test Items	Male/Female							White/Black						
			A+	A-	B+	B-	C+	C-	N/A*	A+	A-	B+	B-	C+	C-	N/A*
Mathematics July 2013	3	56	0	0	0	0	0	0	56	0	0	0	0	0	0	56
	4	67	0	0	0	0	0	0	67	0	0	0	0	0	0	67
	5	41	0	0	0	0	0	0	41	0	0	0	0	0	0	41
	6	156	67	65	9	14	1	0	0	2	1	0	2	0	0	151
	7	73	37	32	2	1	0	1	0	13	16	1	4	0	0	39
	8	157	72	63	8	12	2	0	0	2	5	0	1	0	0	149
Reading July 2013	3	58	0	0	0	0	0	0	58	0	0	0	0	0	0	58
	4	71	0	0	0	0	0	0	71	0	0	0	0	0	0	71
	5	60	0	0	0	0	0	0	60	0	0	0	0	0	0	60
	6	56	29	21	4	2	0	0	0	4	6	0	2	0	0	44
	7	58	29	21	4	3	1	0	0	11	34	1	3	0	0	9
	8	57	34	20	2	1	0	0	0	13	38	0	5	0	1	0

N/A* Items with insufficient counts for DIF analysis or those that will be re-field tested in fall 2013.

The plus sign indicates that the item favors the focal group (female or black) and a minus sign indicates that the item favors the reference group (male or white).

CHAPTER SEVEN: CLASSICAL ITEM STATISTICS

This chapter provides an overview of the two most familiar item-level statistics obtained from classical (traditional) item analysis: item difficulty and item discrimination. The following results pertain to all items field tested in the three stand-alone field test events as well as the embedded field test event. Other statistics such as Rasch item statistics are discussed in Chapter Eight.

ITEM-LEVEL STATISTICS

Appendix B provides classical item statistics for all items in Mathematics, Reading/Literature, Science, and Writing/English Composition. Results are organized by content area and field test event. These statistics represent the item characteristics most often used to determine whether an item functioned properly and/or how a group of students performed on a particular item. The item statistics in Appendix B include: *N*, the number of students taking the item; *p*-values (denoted as PVal); proportions of students who chose each response option (denoted as P(A), P(B), P(C), P(D)); proportions of students who didn't respond to an item (denoted as P(-)); point-biserial correlations (denoted as PtBis); and item-total correlations for each response option (denoted as PT(A), PT(B), PT(C), and PT(D)).

ITEM DIFFICULTY

At the most general level, an item's difficulty is indicated by its mean score in some specified group (e.g., grade level).

$$\bar{x} = \frac{1}{n} \cdot \sum_{i=1}^{n} x_i$$

In the mean score formula above, the individual item scores (x_i) are summed and then divided by the total number of students (*n*). For MC items, student scores are represented by 0s and 1s (0 = wrong, 1 = right). With 0/1 scoring, the equation above also represents the number of students correctly answering the item divided by the total number of students. So, this is also the *proportion correct* for the item, or as it is better known, the *p*-value. In theory, *p*-values can range from 0.00[3] to 1.00 on the proportion-correct scale. For example, if an item has a *p*-value of 0.89, it means 89 percent of the students answered the item correctly. Additionally, this value might also suggest that the item is relatively easy and/or the students who attempted the item are relatively high achievers. In other words, item difficulty and student ability are somewhat confounded.

The minimum and maximum extremes of the difficulty scale are virtually never seen in applied practice. However, understanding what those values are helps illustrate that relatively lower values correspond to more difficult items and that relatively higher values correspond to easier items. (Because of this, some assert that this index would be better referred to as the item's *easiness*.)

[3] For multiple-choice (MC) items with four response options, pure random guessing would lead to an expected *p*-value of 0.25.

Item difficulty is an important consideration for the Classroom Diagnostic Tools (CDT) because they are computer adaptive tests. The item selection routine selects items based on student performance during the test. While very easy or very difficult items may not be appropriate for many students, they are needed in the CDT item pools to ensure that the item selection routine can find appropriate items for students at various levels.

Utilizing the proportion of students who chose each option can be helpful for verifying keys. For example, if a large proportion of students chose a distractor instead of the key answer, it may, but not always, indicate the key is not correct.

ITEM DISCRIMINATION

At the most general level, item discrimination[4] indicates an item's ability to differentiate between high and low achievers. It is expected that students with high ability (i.e., those who perform well on the CDT overall) would be more likely to answer any given CDT item correctly, while students with low ability (i.e., those who perform poorly on the CDT overall) would be more likely to answer the same item incorrectly. For the CDT, Pearson's product-moment correlation coefficient between item scores and test scores is used to indicate discrimination. The correlation coefficient can range from -1.0 to +1.0. If the aforementioned expectation is met (high-scoring students tend to get the item right while low-scoring students do not), the correlation between the item score and the total test score will be both positive and noticeably large in its magnitude (i.e., well above zero), meaning the item is a good discriminator between high- and low-ability students.

Item total correlation for each option is another indicator of an item's ability to differentiate between high and low achievers. It is expected that students with high ability (i.e., those who perform well on the CDT overall) would be less likely to choose any distractors, while students with low ability (i.e., those who perform poorly on the CDT overall) would be more likely to choose a distractor. In other words, the item total correlations for the distractors are expected to be negative.

In summary, the correlation will be positive in value when the mean test score of the students answering the item correctly is higher than the mean test score of the students answering the item incorrectly.[5] In other words, this indicates that students who did well on the total test tended to do well on the item, as well. However, an interaction can exist between item discrimination and item difficulty. Items answered correctly (or incorrectly) by a large proportion of examinees (i.e., they have extreme *p*-values) can have reduced power to discriminate, and, thus, can have lower correlations.

Discrimination is an important consideration for the operational CDT because the use of more discriminating items on a test is associated with more precise score estimates (i.e., there will be smaller confidence intervals around the scores).

[4] As noted earlier, the discrimination index for dichotomous MC items is typically referred to as the *point-biserial correlation coefficient*.

[5] It is legitimate to view the point-biserial correlation as a standardized mean. A positive value indicates students who chose that response had a higher mean score than the average student; a negative value indicates students who chose that response had a lower-than-average mean score.

OBSERVATIONS AND INTERPRETATIONS

Table 7–1 provides the mean *p*-values and point-biserial correlations for the CDT item pools in each content area. The mean *p*-value ranged from about 0.35 to 0.82. The mean point-biserial correlations ranged from 0.20 to 0.44.

It is difficult to make global conclusions about overall quality from these item statistics alone. With that caveat in mind, the results presented in this chapter indicate that the CDT item pools contain items within expected and acceptable ranges of item difficulty and discrimination.

Table 7–1. Mean *P*-value and Point-Biserial

Grade/Course		Number of Items Field Tested	Mean *P*-value	Mean Point-Biserial
Mathematics Aug 2010	3	86	0.824	0.415
	4	86	0.737	0.414
	5	85	0.717	0.439
	6	259	0.684	0.413
	7	258	0.575	0.432
	8	257	0.497	0.361
	11	149	0.521	0.339
	Algebra I	256	0.411	0.317
	Geometry	257	0.439	0.349
	Algebra II	256	0.419	0.369
Reading Jan 2011	3	86	0.595	0.437
	4	87	0.665	0.440
	5	86	0.666	0.433
	6	210	0.607	0.423
	7	192	0.679	0.395
	8	192	0.623	0.404
	Literature	348	0.568	0.408
Science Jan 2011	3	91	0.637	0.371
	4	123	0.602	0.348
	5	102	0.482	0.335
	6	178	0.503	0.322
	7	327	0.486	0.322
	8	377	0.504	0.335
	11	115	0.381	0.238
	Biology	390	0.420	0.294
	Chemistry	335	0.355	0.255

Table 7–1 (continued). Mean *P*-value and Point-Biserial

Grade/Course		Number of Items Field Tested	Mean *P*-value	Mean Point-Biserial
Writing Aug 2011	3	140	0.584	0.392
	4	149	0.566	0.372
	5	165	0.566	0.380
	6	193	0.556	0.369
	7	176	0.550	0.346
	8	195	0.538	0.332
	English Composition	365	0.514	0.357
Mathematics July 2013	3*	56	N/A	N/A
	4*	67	N/A	N/A
	5*	41	N/A	N/A
	6	156	0.448	0.290
	7	73	0.431	0.257
	8	157	0.354	0.204
Reading July 2013	3*	58	N/A	N/A
	4*	71	N/A	N/A
	5*	60	N/A	N/A
	6	56	0.585	0.351
	7	58	0.545	0.339
	8	57	0.577	0.358
* Items in grades 3 through 5 will be re-field tested in fall 2013.				

CHAPTER EIGHT: RASCH ITEM CALIBRATION

The particular item response theory (IRT) model used for the Classroom Diagnostic Tools (CDT) is based on the work of Georg Rasch. Rasch models have had a long-standing presence in applied testing programs and have been the methodology used to calibrate the Pennsylvania System of School Assessment (PSSA) items and Keystone Exam items. Consequently, this model was chosen to be used for the CDT. IRT has several advantages over classical test theory, so it has become the standard procedure for analyzing item response data in large-scale assessments. However, IRT models make a number of strong assumptions related to dimensionality, local independence, and model-data fit. Resulting inferences derived from any application of IRT rests strongly on the degree to which the underlying assumptions are met.

This chapter outlines the procedures used for calibrating the CDT items. Generally, item calibration is the process of assigning a difficulty-parameter estimate to each item so that they are placed onto a common scale. This chapter briefly introduces the Rasch model and reports the results from evaluations of the adequacy of the Rasch assumptions. See Chapter Nine for a description of the common scale across grades and courses within a content area and for summaries of the Rasch item statistics for the CDT item pools.

DESCRIPTION OF THE RASCH MODEL

The Rasch model (Rasch, 1960) for dichotomous (0,1) items was used to calibrate CDT items because all item pools contain only multiple-choice (MC) items. The Rasch model predicts the probability of person *n* getting item *i* correct as follows:

$$\Phi_{ni}\,(X = 1 \mid \beta_n) = [\exp(\beta_n - \delta_i)]/[1 + \exp(\beta_n - \delta_i)]$$

where β_n represents a student's proficiency (ability) level, and δ_i is the difficulty of item *i*.

The Rasch model places both student ability and item difficulty (estimated in terms of log-odds or logits) on the same continuum. When the model assumptions are met, it also provides person ability estimates that are independent of the items employed in the assessment, and, conversely, estimates item difficulty independently of the sample of examinees.

SOFTWARE AND ESTIMATION ALGORITHM

Item calibration was implemented via WINSTEPS 3.69 computer program (Linacre, 2009). The unconditional, joint maximum likelihood (UCON) estimation procedure estimates the person parameters (i.e., ability) simultaneously with the item parameters (i.e., difficulty).

CHECKING RASCH ASSUMPTIONS

Because the Rasch model was the basis of all calibration, scoring, and scaling analyses associated with the CDT, the validity of the inferences from these results depends on the degree to which the assumptions of the model are met and how well the model fits the test data. Therefore, it is important to check these assumptions. This section evaluates the dimensionality of the data, local item independence, and model-data fit at the item level. Though a variety of methods are available for assessing these issues, the Rasch analyses and criteria available from WINSTEPS were used here.

UNIDIMENSIONALITY

Rasch models assume that one dominant dimension determines the difference in students' performances. WINSTEPS provides results from a principal components analysis (PCA) that can be used to assess the unidimensionality assumption. Different from standard applications of PCA, WINSTEPS conducts its PCA on the response residuals, not the original observations. That is, the primary dimension from the Rasch model is removed first and then the residual variance is analyzed. The purpose of the analysis is to verify whether any other dominant components exist among the residuals (i.e., they account for a practically significant amount of residual variance). If any other dimensions are found, the unidimensionality assumption would be violated.

WINSTEPS provides three PCA residuals: raw, standardized, and logit. All three should yield similar results. The mixed residual setting was used for the PCA because previous research has demonstrated that raw residuals (PRCOMP=R) give a more realistic estimate of explained variance than do standardized residuals (PRCOMP=S), and standardized residuals are better for decomposing the unexplained variance into contrasts (Linacre, 2009).

Table 8–1 presents the PCA results for the CDT Mathematics operational item pool. The results include the total variance, variance explained by the model, unexplained total variance, and unexplained variance explained by the first factor (both eigenvalue units and percentage values are shown in the table). In addition, the modeled column provides variance components that would be explained if the data complied with the Rasch definition of unidimensionality.

As can been seen from Table 8–1, the primary dimension in the Rasch model explained between 31 and 59 percent of the total variances across the grades and courses. The empirical and model-based percentages were quite close, suggesting that the estimation of a primary Rasch dimension was successful. The unexplained variances were between 41 and 69 percent. This includes the Rasch-predicted randomness and any departures in the data from the Rasch model (e.g., departure from unidimensionality).

The most important variance for evaluating dimensionality is in the row named "unexplained variance explained by 1st factor." The eigenvalue of unexplained total variance equals the total number of items, since PCA was conducted with residuals. The eigenvalues of the first factor in the residual (again, this is the second dimension beyond the first Rasch model dimension in WINSTEPS PCA) were between 0.3 and 0.9 percent. Overall, WINSTEPS PCA suggests that there is one clearly dominant dimension for CDT Mathematics.

Table 8–1. Results from PCA of Residuals in WINSTEPS for Mathematics

Grade/Course	Statistic	Eigenvalue	Empirical	Modeled
	Total variance in observations	208.5	100.0%	100.0%
	Variance explained by model	122.5	58.7%	58.5%
	Unexplained variance (total)	86	41.3%	41.5%
Grade 3	Unexplained variance explained by 1st factor	1.6	0.8%	
	Total variance in observations	167.8	100.0%	100.0%
	Variance explained by model	81.8	48.7%	48.1%
	Unexplained variance (total)	86	51.3%	51.9%
Grade 4	Unexplained variance explained by 1st factor	1.5	0.9%	
	Total variance in observations	177.3	100.0%	100.0%
	Variance explained by model	92.3	52.1%	52.9%
	Unexplained variance (total)	85	47.9%	47.1%
Grade 5	Unexplained variance explained by 1st factor	1.5	0.9%	
	Total variance in observations	606.2	100.0%	100.0%
	Variance explained by model	347.2	57.3%	58.0%
	Unexplained variance (total)	259	42.7%	42.0%
Grade 6	Unexplained variance explained by 1st factor	2.0	0.3%	
	Total variance in observations	529.8	100.0%	100.0%
	Variance explained by model	271.8	51.3%	52.3%
	Unexplained variance (total)	258	48.7%	47.7%
Grade 7	Unexplained variance explained by 1st factor	2.2	0.4%	
	Total variance in observations	476.9	100.0%	100.0%
	Variance explained by model	219.9	46.1%	47.3%
	Unexplained variance (total)	257	53.9%	52.7%
Grade 8	Unexplained variance explained by 1st factor	2.1	0.4%	
	Total variance in observations	365.4	100.0%	100.0%
	Variance explained by model	109.4	29.9%	30.6%
	Unexplained variance (total)	256	70.1%	69.4%
Algebra I*	Unexplained variance explained by 1st factor	1.9	0.5%	
	Total variance in observations	408.9	100.0%	100.0%
	Variance explained by model	151.9	37.2%	38.3%
	Unexplained variance (total)	257	62.8%	61.7%
Geometry*	Unexplained variance explained by 1st factor	1.9	0.5%	
	Total variance in observations	464.8	100.0%	100.0%
	Variance explained by model	208.8	44.9%	46.1%
	Unexplained variance (total)	256	55.1%	53.9%
Algebra II*	Unexplained variance explained by 1st factor	2.0	0.4%	

*Grade 11 items were tested on Algebra I, Geometry, and Algebra II forms.

Table 8–2 presents the PCA results for the CDT Reading/Literature operational item pool. The primary dimension in the Rasch model explained between 44 and 54 percent of the total variances across the grades and courses. The second dimension (the row named "unexplained variance explained by 1st factor") accounted for between 0.3 and 1.0 percent of the total variance in observations. These results suggest that the CDT Reading/Literature operational item pool essentially measures a single dominant dimension.

Table 8–2. Results from PCA of Residuals in WINSTEPS for Reading/Literature

Grade/Course	Statistic	Eigenvalue	Empirical	Modeled
	Total variance in observations	179.8	100.0%	100.0%
	Variance explained by model	93.8	52.2%	51.9%
	Unexplained variance (total)	86	47.8%	48.1%
Grade 3	Unexplained variance explained by 1st factor	1.7	0.9%	
	Total variance in observations	157.4	100.0%	100.0%
	Variance explained by model	70.4	44.7%	43.9%
	Unexplained variance (total)	87	55.3%	56.1%
Grade 4	Unexplained variance explained by 1st factor	1.6	1.0%	
	Total variance in observations	171.5	100.0%	100.0%
	Variance explained by model	85.5	49.8%	50.5%
	Unexplained variance (total)	86	50.2%	49.5%
Grade 5	Unexplained variance explained by 1st factor	1.7	1.0%	
	Total variance in observations	442.8	100.0%	100.0%
	Variance explained by model	232.8	52.6%	53.5%
	Unexplained variance (total)	210	47.4%	46.5%
Grade 6	Unexplained variance explained by 1st factor	2.3	0.5%	
	Total variance in observations	364.4	100.0%	100.0%
	Variance explained by model	172.4	47.3%	46.8%
	Unexplained variance (total)	192	52.7%	53.2%
Grade 7	Unexplained variance explained by 1st factor	2.1	0.6%	
	Total variance in observations	345.5	100.0%	100.0%
	Variance explained by model	153.5	44.4%	44.5%
	Unexplained variance (total)	192	55.6%	55.5%
Grade 8	Unexplained variance explained by 1st factor	2.0	0.6%	
	Total variance in observations	699.1	100.0%	100.0%
	Variance explained by model	351.1	50.2%	50.2%
	Unexplained variance (total)	348	49.8%	49.8%
Literature	Unexplained variance explained by 1st factor	2.2	0.3%	

Table 8–3 presents the PCA results for the CDT Science operational item pool. The primary dimension in the Rasch model explained between 20 and 60 percent of the total variances across the grades and courses. The second dimension (the row named "unexplained variance explained by 1st factor") accounted for between 0.3 and 0.9 percent of the total variance in observations. These results suggest that the CDT Science operational item pool essentially measures a single dominant dimension.

Table 8–3. Results from PCA of Residuals in WINSTEPS for Science

Grade/Course	Statistic	Eigenvalue	Empirical	Modeled
	Total variance in observations	229.1	100.0%	100.0%
	Variance explained by model	138.1	60.3%	60.3%
	Unexplained variance (total)	91	39.7%	39.7%
Grade 3	Unexplained variance explained by 1st factor	1.7	0.7%	
	Total variance in observations	285.9	100.0%	100.0%
	Variance explained by model	162.9	57.0%	56.9%
	Unexplained variance (total)	123	43.0%	43.1%
Grade 4	Unexplained variance explained by 1st factor	1.5	0.5%	
	Total variance in observations	161.9	100.0%	100.0%
	Variance explained by model	59.9	37.0%	37.4%
	Unexplained variance (total)	102	63.0%	62.6%
Grade 5	Unexplained variance explained by 1st factor	1.5	0.9%	
	Total variance in observations	290.8	100.0%	100.0%
	Variance explained by model	112.8	38.8%	39.3%
	Unexplained variance (total)	178	61.2%	60.7%
Grade 6	Unexplained variance explained by 1st factor	2.1	0.7%	
	Total variance in observations	487.1	100.0%	100.0%
	Variance explained by model	160.1	32.9%	33.3%
	Unexplained variance (total)	327	67.1%	66.7%
Grade 7	Unexplained variance explained by 1st factor	2.2	0.4%	
	Total variance in observations	658.8	100.0%	100.0%
	Variance explained by model	281.8	42.8%	43.9%
	Unexplained variance (total)	377	57.2%	56.1%
Grade 8*	Unexplained variance explained by 1st factor	1.9	0.3%	
	Total variance in observations	545.2	100.0%	100.0%
	Variance explained by model	155.2	28.5%	29.7%
	Unexplained variance (total)	390	71.5%	70.3%
Biology	Unexplained variance explained by 1st factor	2.0	0.4%	
	Total variance in observations	418.1	100.0%	100.0%
	Variance explained by model	83.1	19.9%	20.1%
	Unexplained variance (total)	335	80.1%	79.9%
Chemistry	Unexplained variance explained by 1st factor	2.0	0.5%	

*Grade 11 items were tested on Grade 8 forms.

Table 8–4 presents the PCA results for the CDT Writing/English Composition operational item pool. The primary dimension in the Rasch model explained between 42 and 55 percent of the total variances across the grades and courses. The second dimension (the row named "unexplained variance explained by 1st factor") accounted for between 0.3 and 0.7 percent of the total variance in observations. These results suggest that the CDT Writing/English Composition operational item pool essentially measures a single dominant dimension.

Table 8–4. Results from PCA of Residuals in WINSTEPS for Writing/English Composition

Grade/Course	Statistic	Eigenvalue	Empirical	Modeled
Grade 3	Total variance in observations	297.7	100.0%	100.0%
	Variance explained by model	157.7	53.0%	55.0%
	Unexplained variance (total)	140	47.0%	45.0%
	Unexplained variance explained by 1st factor	1.7	0.6%	
Grade 4	Total variance in observations	283.6	100.0%	100.0%
	Variance explained by model	134.6	47.5%	49.0%
	Unexplained variance (total)	149	52.5%	51.0%
	Unexplained variance explained by 1st factor	1.8	0.6%	
Grade 5	Total variance in observations	280.7	100.0%	100.0%
	Variance explained by model	115.7	41.2%	42.2%
	Unexplained variance (total)	165	58.8%	57.8%
	Unexplained variance explained by 1st factor	1.8	0.6%	
Grade 6	Total variance in observations	340.5	100.0%	100.0%
	Variance explained by model	147.5	43.3%	44.2%
	Unexplained variance (total)	193	56.7%	55.8%
	Unexplained variance explained by 1st factor	2.0	0.6%	
Grade 7	Total variance in observations	317.9	100.0%	100.0%
	Variance explained by model	141.9	44.6%	45.5%
	Unexplained variance (total)	176	55.4%	54.5%
	Unexplained variance explained by 1st factor	2.1	0.6%	
Grade 8	Total variance in observations	336.0	100.0%	100.0%
	Variance explained by model	141.0	42.0%	42.4%
	Unexplained variance (total)	195	58.0%	57.6%
	Unexplained variance explained by 1st factor	2.3	0.7%	
English Composition	Total variance in observations	763.2	100.0%	100.0%
	Variance explained by model	398.2	52.2%	53.4%
	Unexplained variance (total)	365	47.8%	46.6%
	Unexplained variance explained by 1st factor	2.3	0.3%	

LOCAL INDEPENDENCE

Local independence (LI) is a fundamental assumption of IRT. No relationship should exist between examinees' responses to different items after accounting for the abilities measured by a test. In formal statistical terms, a test X that is comprised of items X_1, X_2,…X_n is locally independent with respect to the latent variable θ if, for all x = (x_1, x_2,…x_n) and θ ,

$$P(\mathbf{X} = \mathbf{x} \mid \theta) = \prod_{i=1}^{I} P(X_i = x_i \mid \theta)$$

This formula essentially states that the probability of any pattern of responses across all items (x), after conditioning on the abilities (θ) measured by the test, should be equal to the product of the conditional probabilities across each item (cf. the multiplication rule for independent events where the joint probabilities are equal to the product of the associated marginal probabilities).

The equation above shows the condition after satisfying the "strong form" of local independence. A "weak form" of local independence (WLI) was proposed by McDonald (1979). The distinction is important, as many indicators of local dependency are actually framed by WLI. The requirement here would be for the conditional covariances of all pairs of item responses, conditioned on the abilities, to be equal to zero. When this assumption is met, the joint probability of responses to an item pair, conditioned on abilities, is the product of the probabilities of responses to these two items, as show below. (This is a "weaker" form because higher-order dependencies among items are allowed.) Based on the WLI, the following expression can be derived:

$$P(X_i = x_i, X_j = x_j \mid \theta) = P(X_i = x_i \mid \theta) P(X_j = x_j \mid \theta)$$

Marais and Andrich (2008) pointed out that local item dependence in the Rasch model can occur in two ways that some may not distinguish. The first way occurs when the assumption of unidimensionality is violated. Here, other nuisance dimensions besides a dominant dimension also determine students' performance (this can be called "trait dependence"). The second violation occurs when responses to an item depend on responses to another. This is a violation of statistical independence and can be called "response dependence." Many people treat the assumptions of "unidimensionality" and "local independence" as one phenomenon and believe that once unidimensionality holds, that local independence also holds. By distinguishing the two sources of local dependence, one can see that while local independence can be related to unidimensionality, the two are different assumptions, and, therefore, require different tests.

Residual item correlations provided in WINSTEPS for each item pair were used to assess the local dependence among the CDT items. In general, these residuals are computed as follows. First, expected item performance based on the Rasch model is determined using ability and item parameter estimates. Next, deviation (residual) between the examinees' expected and observed performance is determined for each item. Finally, for each item pair, a correlation between the respective deviations is computed.

As previously mentioned, three types of residual correlations are available in WINSTEPS: raw, standardized, and logit. Since the three residual correlations are very similar, the default "standardized residual correlation" in WINSTEPS was used for these analyses. Tables 8–5 through 8–8 show the summary statistics—mean, standard deviation (SD), minimum (Min), maximum (Max), and several percentiles (P_{10}, P_{25}, P_{50}, P_{75}, P_{90})—for all the residual correlations for each content area and grade/course. The total number of item pairs (*N*) and the number of pairs with the residual correlations greater than 0.20 are also reported in the tables.

Table 8–5. Summary of Item Residual Correlations for Mathematics

	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Algebra I*	Geometry*	Algebra II*
N	1372	1122	1132	5410	5409	4935	5024	5470	5457
Mean	-0.03	-0.03	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
SD	0.03	0.04	0.04	0.04	0.04	0.06	0.04	0.04	0.04
Min	-0.15	-0.18	-0.17	-0.15	-0.24	-0.36	-0.19	-0.20	-0.18
P10	-0.06	-0.08	-0.07	-0.06	-0.07	-0.10	-0.07	-0.07	-0.07
P25	-0.04	-0.06	-0.05	-0.04	-0.05	-0.06	-0.05	-0.04	-0.05
P50	-0.03	-0.03	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
P75	-0.01	-0.01	-0.01	0.00	0.00	0.01	0.00	0.00	0.00
P90	0.01	0.01	0.01	0.02	0.03	0.05	0.02	0.02	0.02
Max	0.32	0.28	0.38	0.34	0.35	0.27	0.26	0.27	0.22
< -.20	0	0	0	0	3	18	0	0	0
>.20	2	2	1	12	4	3	2	1	2

*Grade 11 items were tested on Algebra I, Geometry, and Algebra II forms.

Table 8–6. Summary of Item Residual Correlations for Reading/Literature

	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Literature
N	1334	1272	1262	4245	3782	3782	7517
Mean	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
SD	0.04	0.03	0.03	0.05	0.04	0.04	0.05
Min	-0.17	-0.18	-0.17	-0.24	-0.23	-0.26	-0.28
P10	-0.07	-0.07	-0.06	-0.07	-0.07	-0.07	-0.09
P25	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
P50	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01
P75	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.01
P90	0.01	0.01	0.01	0.02	0.02	0.03	0.04
Max	0.14	0.27	0.18	0.35	0.22	0.34	0.40
< -.20	0	0	0	2	2	2	25
>.20	0	2	0	13	1	5	10

Table 8–7. Summary of Item Residual Correlations for Science

	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8*	Biology	Chemistry
N	1400	1950	1530	3642	6934	6881	8255	7105
Mean	-0.03	-0.02	-0.03	-0.02	-0.02	-0.02	-0.02	-0.02
SD	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.05
Min	-0.16	-0.19	-0.17	-0.18	-0.22	-0.27	-0.24	-0.22
P10	-0.07	-0.07	-0.07	-0.07	-0.08	-0.09	-0.09	-0.08
P25	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
P50	-0.02	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01
P75	-0.01	0.00	-0.01	0.00	0.00	0.00	0.00	0.01
P90	0.01	0.01	0.01	0.02	0.03	0.02	0.03	0.03
Max	0.09	0.09	0.08	0.19	0.24	0.24	0.26	0.24
< -.20	0	0	0	0	7	30	17	8
>.20	0	0	0	0	2	2	1	2

*Grade 11 items were tested on Grade 8 forms.

Table 8–8. Summary of Item Residual Correlations for Writing/English Composition

	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	English Composition
N	2205	2315	2580	3795	3544	3815	7705
Mean	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
SD	0.05	0.05	0.05	0.05	0.05	0.07	0.06
Min	-0.26	-0.24	-0.25	-0.25	-0.24	-0.29	-0.30
P10	-0.08	-0.09	-0.09	-0.08	-0.08	-0.11	-0.10
P25	-0.04	-0.04	-0.04	-0.04	-0.04	-0.05	-0.04
P50	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.01
P75	0.00	0.00	0.00	0.01	0.00	0.01	0.01
P90	0.02	0.02	0.02	0.03	0.03	0.06	0.05
Max	0.19	0.28	0.19	0.27	0.24	0.29	0.33
< -.20	6	9	11	4	10	58	72
>.20	0	2	0	5	2	13	18

Across the content areas and grades/courses, the mean residual correlations were slightly negative and the values were close to -0.02. The vast majority of the correlations were very small, suggesting local item independence generally holds for the CDT mathematics, reading/literature, science, and writing/English composition operational item pools.

ITEM FIT

WINSTEPS provides two item-fit statistics (infit and outfit) for evaluating the degree to which the Rasch model predicts the observed item responses. Each fit statistic can be expressed as a mean square (MnSq) statistic or on a standardized metric (Zstd with mean = 0 and variance = 1). MnSq values are more oriented toward practical significance, while Zstd values are more oriented toward statistical significance. MnSq values are presented in this chapter.

Both infit and outfit MnSq are the average of standardized residual variance (the difference between the observed score and the Rasch estimated score divided by the square root of the Rasch model variance). The difference is that the outfit statistic gives all examinees equal weight in computing the fit and tends to be affected more by unexpected responses far from the person, item, or rating scale category measure (i.e., it is more sensitive to outlying, off-target, low information responses). The infit statistic is weighted by the examinee locations relative to item difficulty and tends to be affected more by unexpected responses close to the person, item, or rating scale category measure (i.e., informative, on-target responses). Some feel that extreme infit values are a greater threat to the measurement process than extreme outfit values since most tests intend to measure the on-target population rather than extreme outliers.

The expected MnSq value is 1.0, and it can range from 0 to infinity. Deviation in excess of the expected value can be interpreted as noise or lack of fit between the items and the model. Values lower than the expected value can be interpreted as item redundancy or overfitting items (too predictable, too much redundancy), and values greater than the expected value indicate underfitting items (too unpredictable, too much noise). Rules of thumb regarding practically significant MnSq values vary. More conservative users might prefer items with MnSq values that range from 0.8 to 1.2. Others believe reasonable test results can be achieved with values from 0.5 to 1.5. In the following results, values outside of 0.7 to 1.3 are given practical importance.

Table 8–9 presents the summary statistics of infit and outfit mean square statistics for the CDT operational item pools, including the mean, standard deviation, minimum, and maximum values. The number of items within the range of (0.7, 1.3) is also reported in Table 8–9. As can been seen, the mean values for both fit statistics were close to 1.00 for all grades/courses. Nearly all items had infit values falling in the range of (0.7, 1.3). These results indicate that the Rasch model fits the CDT data well.

Table 8–9. Summary of Infit and Outfit Mean Square Statistics

Grade/Course		Number of Items	Infit					Outfit				
			Mean	SD	Min	Max	[0.7,1.3]	Mean	SD	Min	Max	[0.7,1.3]
Mathematics	3	86	0.99	0.08	0.78	1.17	86/86	0.99	0.24	0.21	1.56	71/86
	4	86	0.99	0.08	0.81	1.20	86/86	0.98	0.18	0.50	1.65	78/86
	5	85	0.99	0.12	0.80	1.32	84/85	1.00	0.24	0.46	1.56	69/85
	6	259	0.99	0.11	0.80	1.38	256/259	1.00	0.31	0.40	3.92	217/259
	7	258	1.00	0.12	0.80	1.49	253/258	1.01	0.25	0.56	2.24	213/258
	8	257	1.00	0.11	0.75	1.37	254/257	1.03	0.22	0.48	2.40	226/257
	11	149	0.99	0.10	0.80	1.27	149/149	0.99	0.18	0.67	1.67	141/149
	Algebra I	256	1.00	0.09	0.79	1.28	256/256	1.02	0.14	0.65	1.61	249/256
	Geometry	257	1.00	0.10	0.81	1.31	256/257	1.02	0.17	0.66	1.78	239/257
	Algebra II	256	1.00	0.10	0.78	1.41	254/256	1.03	0.20	0.66	1.99	233/256
Reading	3	86	0.99	0.12	0.74	1.30	86/86	0.97	0.24	0.40	1.53	66/86
	4	87	0.99	0.10	0.79	1.28	87/87	0.95	0.22	0.32	1.58	74/87
	5	86	0.96	0.09	0.78	1.22	86/86	0.91	0.20	0.44	1.64	72/86
	6	210	1.01	0.13	0.70	1.30	210/210	1.02	0.31	0.37	2.65	151/210
	7	192	1.00	0.10	0.76	1.30	192/192	0.96	0.23	0.21	2.00	162/192
	8	192	0.98	0.11	0.75	1.33	191/192	0.96	0.22	0.41	1.84	158/192
	Literature	348	1.01	0.13	0.75	1.31	347/348	1.01	0.25	0.38	2.00	282/348
Science	3	91	1.01	0.09	0.83	1.20	91/91	1.00	0.21	0.45	1.48	80/91
	4	123	1.01	0.08	0.85	1.23	123/123	1.00	0.18	0.52	1.81	112/123
	5	102	1.00	0.08	0.84	1.21	102/102	1.02	0.16	0.74	1.85	98/102
	6	178	1.00	0.09	0.80	1.22	178/178	1.02	0.17	0.61	1.82	165/178
	7	327	0.99	0.09	0.78	1.22	327/327	1.01	0.17	0.54	1.83	300/327
	8	377	1.02	0.12	0.77	1.37	372/377	1.06	0.24	0.57	2.12	307/377
	11	115	1.08	0.10	0.81	1.30	115/115	1.19	0.26	0.73	2.19	82/115
	Biology	390	1.00	0.08	0.84	1.28	390/390	1.03	0.14	0.73	1.63	372/390
	Chemistry	335	1.00	0.06	0.85	1.26	335/335	1.02	0.09	0.79	1.48	333/335

Table 8–9 (continued). Summary of Infit and Outfit Mean Square Statistics

Grade/Course		Number of Items	Infit					Outfit				
			Mean	SD	Min	Max	[0.7,1.3]	Mean	SD	Min	Max	[0.7,1.3]
Writing	3	140	0.99	0.11	0.80	1.43	139/140	1.00	0.24	0.42	1.95	115/140
	4	149	0.99	0.10	0.79	1.26	149/149	1.00	0.24	0.52	1.74	123/149
	5	165	0.98	0.09	0.80	1.24	165/165	0.97	0.19	0.62	1.92	151/165
	6	193	0.99	0.10	0.78	1.23	193/193	0.98	0.20	0.53	1.76	170/193
	7	176	1.00	0.11	0.75	1.36	175/176	1.02	0.23	0.56	1.92	147/176
	8	195	0.99	0.11	0.77	1.31	194/195	0.99	0.21	0.45	1.68	166/195
	English Composition	365	1.00	0.12	0.77	1.38	362/365	1.03	0.25	0.38	2.16	304/365

RASCH ITEM STATISTICS

As noted earlier, the Rasch model expresses item difficulty (and student ability) in units referred to as *logits*, rather than on the percent-correct metric. In the simplest case, a logit is a transformed *p*-value with the average *p*-value becoming a logit of zero. In this form, logits resemble *z*-scores or standard normal deviates; a very difficult item might have a logit of +4.0 and a very easy item might have a logit of –4.0. However, they have no formal relationship to the normal distribution.

The logit metric has several mathematical advantages over *p*-values. Logits have an interval scale, meaning that two items with logits of 0.0 and +1.0, respectively, are the same distance apart as two items with logits of +3.0 and +4.0. Logits are not dependent on the ability level of the students. For example, a test form can have a mean logit of zero, whether the average item *p*-value for the student sample is 0.8 or 0.3.

The standard Rasch calibration procedure arbitrarily sets the mean difficulty of the items in any calibration at zero. For each CDT stand-alone field test event and content area, all grades and courses were calibrated separately with the exception of grade 11 items in Mathematics and Science. As a result, items in each grade or course were centered at zero. See Chapter Nine for a description of how item parameters within a content area were re-scaled across grades and courses to build a single (vertical) scale.

For each CDT embedded field test event and content area, field test items were calibrated anchoring on operational items' parameters. As a result, the embedded field test items were placed on operational vertical scale.

Chapter Eight: Rasch Item Calibration

CHAPTER NINE: VERTICAL LINKING

The Classroom Diagnostic Tools (CDT) are designed to enable educators to identify students' academic strengths and areas of need. As such, it is necessary for some students to take items out of grade or course level. In order to do this, all items within a content area must be on a common (vertical) scale.

As previously mentioned in Chapter Eight, items from the stand-alone field test events for each CDT content area and grade or course were calibrated separately and centered at zero. This chapter outlines the procedures used for vertically linking CDT items across grades and courses within a content area. The end results are four separate vertical scales—one for each content area.

Also previously mentioned in Chapter Eight, items from the embedded field test events for each content area were calibrated anchoring on operational items' parameters. As a result, the embedded field test items were placed on the operational vertical scale.

VERTICAL LINKING DESIGN

CDT stand-alone field tests were designed to build vertical scales across all grades and courses within a content area. In order to accomplish this, some field test forms had items from one grade above or below, in addition to on-grade or course-level items.

Stand-alone field tests in each content area had two types of forms:

1. Vertical linking form
2. On-grade only form

Students who received vertical linking forms took a set of on-grade items and a set of items either one grade above or one grade below. Students who received on-grade-only forms took just on-grade items.

All items in the pool were field tested on one or more form. In Mathematics, on-grade items were chained across adjacent forms to provide a horizontal link within grade, across forms. There were eight to ten horizontal links across adjacent forms. In all other content areas, 10 on-grade items appeared on each form within a grade or course. These common items provide a horizontal link within grade, across forms.[6]

Items used in vertical linking were administered to students one grade above or one grade below in order to link the forms across grades. DRC test development specialists selected items to be administered off-grade level with the following guidelines:

- There are two types of linking sets
  - Items administered one grade below (e.g., grade 7 items administered to grade 6 students)
  - Items administered one grade above (e.g., grade 7 items administered to grade 8 students)

[6] The change in horizontal linking design after the Mathematics field test was in response to lower-than-expected participation. Using the same horizontal links on all forms within a grade results in higher *n*-counts.

- Linking sets span the diagnostic categories
- Linking sets span the estimated difficulty range (item developers estimate easy, medium, or hard)
- Students have a reasonable chance of correctly answering a linking item based on the instruction received
    - For items administered in the grade above, students should have received instruction the previous year
    - For items administered in the grade below, they should be extensions of concepts the students have already covered, not something completely new

In Mathematics, each set of linking items appeared on two forms, once located at the beginning and once located at the end to counterbalance possible position effect. In all other content areas, vertical linking items were co-mingled throughout the form with on-grade items.[7]

See Tables 6–1 through 6–4 in Chapter Six for details on the stand-alone field tests including number of items, number of forms, and number of vertical linking forms.

VERTICAL LINKING — MATHEMATICS

Links were made between adjacent grades, grade 8 to Algebra I, Algebra I to Algebra II, and grade 8 to Geometry. Table 9–1 below shows the number of linking items from the lower grade and the upper grade for each link. There were two sets of linking items for each link and direction. For example, in linking grade 5 to grade 6, there were 30 grade 5 items (lower grade) and 20 grade 6 items (upper grade). The 30 grade 5 items were in two sets of 15, while the 20 grade 6 items were in two sets of 10. The number of linking items differs across grades because forms in grades 3, 4, and 5 had 25 items total while all of the others had 35. There was no overlap of linking items among the sets.

Table 9–1. Mathematics Linking Item Detail

Link	Number of Linking Items		
	Lower Grade	Upper Grade	Total
Grade 3 to Grade 4	20	20	40
Grade 4 to Grade 5	20	20	40
Grade 5 to Grade 6	30	20	50
Grade 6 to Grade 7	30	30	60
Grade 8 to Grade 7	30	30	60
Algebra I to Grade 8	30	30	60
Algebra II to Algebra I	30	30	60
Geometry to Grade 8	30	30	60

[7] The change in vertical linking design after the Mathematics field test was in response to lower-than-expected participation.

A visual representation of the vertical linking design is provided in Table 9–2. Rows are item level and columns are forms. For example, looking at the second row, you can see grade 4 items were on grades 3, 4, and 5 forms. Grade 4 items on grade 4 forms were on-grade items. Grade 4 items on grade 3 and grade 5 forms were vertical linking items. These items also appeared on grade 4 forms and were used to calculate the vertical linking shift parameter.

In linking grades 4 and 5, we look at the four cells in Table 9–2 where grade 4 and grade 5 rows and columns cross. There were 86 grade 4 items, and of those 86 items, 20 items were also given to grade 5 as linking items. Similarly, there were 85 grade 5 items, and 20 out of the 85 items were given to grade 4 students as linking items.

Items used to link to a lower grade were different from items used to link to an upper grade. For example, the 30 grade 7 items administered on grade 6 forms were not the same as the 30 grade 7 items administered on grade 8 forms.

Table 9–2. Mathematics Vertical Linking Design

		Forms								
		Gr. 3	**Gr. 4**	**Gr. 5**	**Gr. 6**	**Gr. 7**	**Gr. 8**	**Alg I**	**Geo**	**Alg II**
Items	**Gr. 3**	Gr. 3 Items (86)	Gr. 3 Items (20)							
	Gr. 4	Gr. 4 Items (20)	Gr. 4 Items (86)	Gr. 4 Items (20)						
	Gr. 5		Gr. 5 Items (20)	Gr. 5 Items (85)	Gr. 5 Items (30)					
	Gr. 6			Gr. 6 Items (20)	Gr. 6 Items (259)	Gr. 6 Items (30)				
	Gr. 7				Gr. 7 Items (30)	Gr. 7 Items (258)	Gr. 7 Items (30)			
	Gr. 8					Gr. 8 Items (30)	Gr. 8 Items (257)	Gr. 8 Items (30)	Gr. 8 Items (30)	
	Gr. 11						Gr. 11 Items (30)	Gr. 11 Items (50)	Gr. 11 Items (50)	Gr. 11 Items (50)
	Alg I						Alg I Items (15)	Alg I Items (256)		Alg I Items (30)
	Geo						Geo Items (15)		Geo Items (257)	
	Alg II							Alg II Items (30)		Alg II Items (256)

See Appendix C for details related to vertical linking items such as *n*-counts, Eligible Content, and diagnostic categories.

VERTICAL LINKING — READING/LITERATURE

Links were made between adjacent grades and grade 8 to Literature. Table 9–3 shows the number of linking items from the lower grade and the upper grade for each link. There were two sets of linking items for each link and direction. For example, in linking grade 5 to grade 6, there were 20 grade 5 items (lower grade) and 20 grade 6 items (upper grade). The number of linking items was the same across grades.

Table 9–3. Reading/Literature Linking Item Detail

Link	Number of Linking Items		
	Lower Grade	Upper Grade	Total
Grade 3 to Grade 4	20	20	40
Grade 4 to Grade 5	20	20	40
Grade 5 to Grade 6	20	20	40
Grade 6 to Grade 7	20	20	40
Grade 8 to Grade 7	20	20	40
Literature to Grade 8	20	20	40

A visual representation of the vertical linking design is provided in Table 9–4.

Table 9–4. Reading/Literature Vertical Linking Design

		Forms						
		Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Lit
Items	Gr. 3	Gr. 3 Items (86)	Gr. 3 Items (20)					
	Gr. 4	Gr. 4 Items (20)	Gr. 4 Items (87)	Gr. 4 Items (20)				
	Gr. 5		Gr. 5 Items (20)	Gr. 5 Items (86)	Gr. 5 Items (20)			
	Gr. 6			Gr. 6 Items (20)	Gr. 6 Items (210)	Gr. 6 Items (20)		
	Gr. 7				Gr. 7 Items (20)	Gr. 7 Items (192)	Gr. 7 Items (20)	
	Gr. 8					Gr. 8 Items (20)	Gr. 8 Items (192)	Gr. 8 Items (20)
	Lit						Lit Items (20)	Lit Items (348)

See Appendix C for details related to vertical linking items such as *n*-counts, Eligible Content, and diagnostic categories.

VERTICAL LINKING — SCIENCE

Links were made between adjacent grades, grade 8 to Biology, and grade 8 to Chemistry. Table 9–5 below shows the number of linking items from the lower grade and the upper grade for each link. There were two sets of linking items for each link and direction. For example, in linking grade 5 to grade 6, there were 20 grade 5 items (lower grade) and 20 grade 6 items (upper grade). The number of linking items was the same across grades.

Table 9–5. Science Linking Item Detail

Link	Number of Linking Items		
	Lower Grade	Upper Grade	Total
Grade 3 to Grade 4	20	20	40
Grade 4 to Grade 5	20	20	40
Grade 5 to Grade 6	20	20	40
Grade 6 to Grade 7	20	20	40
Grade 8 to Grade 7	20	20	40
Biology to Grade 8	20	20	40
Chemistry to Grade 8	20	20	40

A visual representation of the vertical linking design is provided in Table 9–6.

Table 9–6. Science Vertical Linking Design

		Forms							
		Gr. 3	**Gr. 4**	**Gr. 5**	**Gr. 6**	**Gr. 7**	**Gr. 8**	**Bio**	**Chem**
Items	**Gr. 3**	Gr. 3 Items (91)	Gr. 3 Items (20)						
	Gr. 4	Gr. 4 Items (20)	Gr. 4 Items (123)	Gr. 4 Items (20)					
	Gr. 5		Gr. 5 Items (20)	Gr. 5 Items (102)	Gr. 5 Items (20)				
	Gr. 6			Gr. 6 Items (20)	Gr. 6 Items (178)	Gr. 6 Items (20)			
	Gr. 7				Gr. 7 Items (20)	Gr. 7 Items (327)	Gr. 7 Items (20)		
	Gr. 8					Gr. 8 Items (20)	Gr. 8 Items (377)	Gr. 8 Items (20)	Gr. 8 Items (20)
	Gr. 11						Gr. 11 Items (115)		
	Bio						Bio Items (20)	Bio Items (390)	
	Chem						Chem Items (20)		Chem Items (335)

See Appendix C for details related to vertical linking items such as *n*-counts, Eligible Content, and diagnostic categories.

VERTICAL LINKING — WRITING/ENGLISH COMPOSITION

Links were made between adjacent grades and grade 8 to English Composition. Table 9–7 shows the number of linking items from the lower grade and the upper grade for each link. There were two sets of linking items for each link and direction. For example, in linking grade 5 to grade 6, there were 20 grade 5 items (lower grade) and 20 grade 6 items (upper grade). The number of linking items was the same across grades.

Table 9–7. Writing/English Composition Linking Item Detail

Link	Number of Linking Items		
	Lower Grade	Upper Grade	Total
Grade 3 to Grade 4	20	20	40
Grade 4 to Grade 5	20	20	40
Grade 5 to Grade 6	20	20	40
Grade 6 to Grade 7	20	20	40
Grade 8 to Grade 7	20	20	40
English Composition to Grade 8	20	20	40

A visual representation of the vertical linking design is provided in Table 9–8.

Table 9–8. Writing/English Composition Vertical Linking Design

		Forms						
		Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Eng
Items	Gr. 3	Gr. 3 Items (140)	Gr. 3 Items (20)					
	Gr. 4	Gr. 4 Items (20)	Gr. 4 Items (149)	Gr. 4 Items (20)				
	Gr. 5		Gr. 5 Items (20)	Gr. 5 Items (165)	Gr. 5 Items (20)			
	Gr. 6			Gr. 6 Items (20)	Gr. 6 Items (193)	Gr. 6 Items (20)		
	Gr. 7				Gr. 7 Items (20)	Gr. 7 Items (176)	Gr. 7 Items (20)	
	Gr. 8					Gr. 8 Items (20)	Gr. 8 Items (195)	Gr. 8 Items (20)
	Eng						Eng Items (20)	Eng Items (365)

See Appendix C for details related to vertical linking items such as *n*-counts, Eligible Content, and diagnostic categories.

THE VERTICAL LINKING PROCEDURE

Each of the CDT content area vertical scales was centered at grade 7. Adjacent-grade shift parameters were calculated and applied such that all items were vertically linked to grade 7. For example, grade 4 science items were placed on the science vertical scale by applying three shift parameters:

- shift between grades 4 and 5 science
- shift between grades 5 and 6 science
- shift between grades 6 and 7 science

The steps used to calculate adjacent-grade shift parameters are described below. All item calibrations were done with WINSTEPS software version 3.69 (Linacre, 2009). The grade 4 to grade 5 link is provided as an example for the steps.

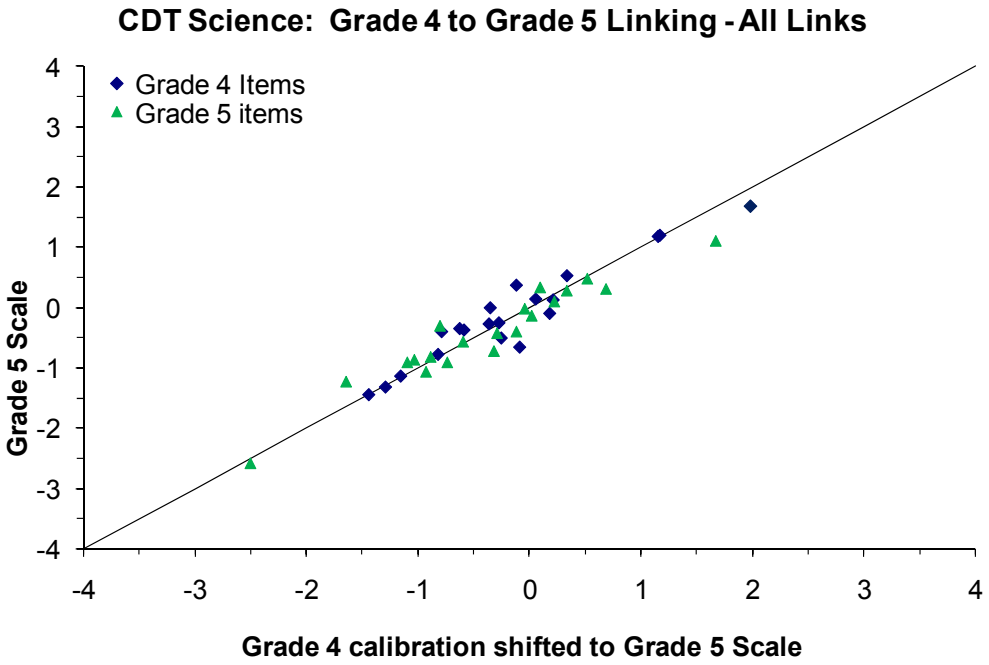
1. Calibrate all on-grade items.
    - Calibrate grade 4 items on grade 4 forms
    - Calibrate grade 5 items on grade 5 forms
2. Calibrate off-grade items anchoring on the on-grade items. Anchor values come from step 1.
    - Calibrate grade 5 items on grade 4 forms anchoring on item parameters determined in grade 4 calibration in step 1
    - Calibrate grade 4 items on grade 5 forms anchoring on item parameters determined in grade 5 calibration in step 1

      Note: For the linking between grades 4 and 5, the calibration of off-grade items on grade 4 forms includes only grade 5 items. It does not include grade 3 items that appeared on grade 4 forms. That is, grade 3 and grade 5 items that appeared on grade 4 forms are not calibrated together.

    For each of the linking items, there are two estimates of item difficulty—one from each of the two calibrations. Correlation between these should be high. If not, vertical linking will be problematic.
3. Calculate the difference between the two estimates of item difficulty from step 2 for each linking item. The average of these differences is the adjacent grade shift parameter.
    - If grade is less than 7, determine the shift parameter needed to place items on upper grade scale.
    - If grade is greater than 7, determine the shift parameter needed to place items on lower grade scale.
    - Calculate the difference in item difficulty estimates between step 2, bullet 1 (grade 4 scale) and step 2, bullet 2 (grade 5 scale). An example of an Excel table used for calculations can be found in Appendix C.

4. Apply the adjacent grade shift parameter and plot the linking items along with a 45° line. Figure 9–1 below is an example. The 45° line is for visual reference only. Outliers are NOT identified by comparing to the line. See step 5 for details.

Figure 9–1. Sample of Linking Items Plot



Plots for all adjacent grade links can be found in Appendix C.

5. Determine if any items should be removed from the vertical linking process.
   Identify potential outliers using a combination of correlation, ratio of standard deviation, and robust Z. Discuss these items with test development specialists to determine if they should be removed. An item may be removed from the linking process and still remain in the item pool. In this case, the item is not removed from the on-grade calibrations. That is, do not re-run calibrations in step 1. Repeat steps 2 through 4.
6. Calculate the final shift parameter to the base grade (center of scale) by chaining together adjacent grade shift parameters
   - Grade 7 is the base grade. The final shift parameter for grade 4 items is the shift parameter between grades 4 and 5 plus the shift parameter between grades 5 and 6 plus the shift parameter between grades 6 and 7.
7. Apply the final shift parameters in step 6 to the item parameters calibrated in step 1.

VERTICAL LINKING RESULTS

Table 9–9 shows the number of links, correlation, and shift parameter for the both the initial and final vertical linking for each content area. Initial vertical linking includes all items. Final values were determined after some links were dropped after consultation with test development specialists.

Table 9–9. Vertical Linking Summary

Link		Number of Links		Correlation		Shift Parameter	
		Initial	Final	Initial	Final	Initial	Final
Mathematics	Grade 3 to Grade 4	40	39	0.960	0.964	-1.245	-1.212
	Grade 4 to Grade 5	40	40	0.892	0.892	-0.622	-0.622
	Grade 5 to Grade 6	50	49	0.914	0.910	-0.416	-0.395
	Grade 6 to Grade 7	60	60	0.935	0.935	-0.782	-0.782
	Grade 8 to Grade 7	60	60	0.887	0.887	0.301	0.301
	Algebra I to Grade 8	60	58	0.933	0.941	0.766	0.808
	Algebra II to Algebra I	60	59	0.880	0.905	0.516	0.544
	Geometry to Grade 8	60	60	0.907	0.907	1.022	1.022
Reading	Grade 3 to Grade 4	40	40	0.956	0.956	-0.257	-0.257
	Grade 4 to Grade 5	40	38	0.940	0.954	-0.410	-0.348
	Grade 5 to Grade 6	40	39	0.948	0.965	-0.419	-0.389
	Grade 6 to Grade 7	40	37	0.914	0.945	-0.066	-0.092
	Grade 8 to Grade 7	40	40	0.934	0.934	0.352	0.352
	Literature to Grade 8	40	40	0.929	0.929	0.383	0.383
Science	Grade 3 to Grade 4	40	40	0.952	0.952	-0.570	-0.570
	Grade 4 to Grade 5	40	40	0.956	0.956	-0.773	-0.773
	Grade 5 to Grade 6	40	40	0.968	0.968	-0.211	-0.211
	Grade 6 to Grade 7	40	39	0.938	0.945	-0.135	-0.111
	Grade 8 to Grade 7	40	40	0.973	0.973	0.140	0.140
	Biology to Grade 8	40	38	0.858	0.904	0.815	0.821
	Chemistry to Grade 8	40	37	0.882	0.932	1.172	1.136
Writing	Grade 3 to Grade 4	40	40	0.957	0.957	-0.597	-0.597
	Grade 4 to Grade 5	40	40	0.954	0.954	-0.221	-0.221
	Grade 5 to Grade 6	40	40	0.967	0.967	-0.305	-0.305
	Grade 6 to Grade 7	40	40	0.950	0.950	-0.237	-0.237
	Grade 8 to Grade 7	40	40	0.967	0.967	0.221	0.221
	English Composition to Grade 8	40	40	0.961	0.961	0.176	0.176

Recall that for each content area the vertical scale is centered at grade 7. If the item's grade is less than 7, the shift parameter is the value that is added to place the item on the upper grade scale. For example, -1.212 is added to each grade 3 mathematics item's difficulty to place them on the grade 4 scale. The negative sign indicates that grade 3 items are less difficult than grade 4 items. If the item's grade is greater than 7, the shift parameter is the value added to place the item on the lower grade scale. For example, 0.301 is added to each

grade 8 mathematics item's difficulty to place them on the grade 7 scale. The positive sign indicates that grade 8 items are more difficult than grade 7 items.

Items dropped from vertical linking are shown in Table 9–10. Linking plots in Appendix C show all linking items with dropped items in red.

Table 9–10. Items Dropped from Vertical Linking

	Link	Linking Items Removed
Mathematics	Grade 3 to Grade 4	603609 (gr. 4 item)
	Grade 4 to Grade 5	None
	Grade 5 to Grade 6	602104 (gr. 6 item)
	Grade 6 to Grade 7	None
	Grade 8 to Grade 7	None
	Algebra I to Grade 8	601126 (gr. 8 item) and 602644 (gr. 11 item*)
	Algebra II to Algebra I	603086 (Alg II item)
	Geometry to Grade 8	None
Reading	Grade 3 to Grade 4	None
	Grade 4 to Grade 5	611272 (gr. 5 item) and 611274 (gr. 5 item)
	Grade 5 to Grade 6	610309 (gr. 6 item)
	Grade 6 to Grade 7	610135 (gr. 6 item), 609022 (gr. 6 item), and 609023 (gr. 6 item)
	Grade 8 to Grade 7	None
	Literature to Grade 8	None
Science	Grade 3 to Grade 4	None
	Grade 4 to Grade 5	None
	Grade 5 to Grade 6	None
	Grade 6 to Grade 7	615238 (gr. 7 item)
	Grade 8 to Grade 7	None
	Biology to Grade 8	617395 (Bio item) and 617880 (Bio item)
	Chemistry to Grade 8	618699 (Chem item), 616511 (Chem item), and 616365 (Chem item)
Writing	Grade 3 to Grade 4	None
	Grade 4 to Grade 5	None
	Grade 5 to Grade 6	None
	Grade 6 to Grade 7	None
	Grade 8 to Grade 7	None
	English Composition to Grade 8	None
*The grade 11 item was embedded on an Algebra I form		

The final shift parameters were calculated by summing adjacent grade shift parameters. For example, grade 4 items were placed on the vertical scale by applying the grade 4 to grade 5 shift, the grade 5 to grade 6 shift, and the grade 6 to grade 7 shift. Similarly, Algebra I items were placed on the vertical scale by applying the Algebra I to grade 8 shift and the grade 8 to grade 7 shift. Table 9–11 shows the final shift parameters for each content area.

Table 9–11. Final Vertical Linking Shift Parameters

	Grade/Course	Shift
Mathematics	Grade 3	-3.011
	Grade 4	-1.799
	Grade 5	-1.177
	Grade 6	-0.782
	Grade 7	0.000
	Grade 8	0.301
	Algebra I	1.109
	Geometry	1.323
	Algebra II	1.653
Reading	Grade 3	-1.086
	Grade 4	-0.829
	Grade 5	-0.481
	Grade 6	-0.092
	Grade 7	0.000
	Grade 8	0.352
	Literature	0.735
Science	Grade 3	-1.665
	Grade 4	-1.095
	Grade 5	-0.322
	Grade 6	-0.111
	Grade 7	0.000
	Grade 8	0.140
	Biology	0.961
	Chemistry	1.276
Writing	Grade 3	-1.360
	Grade 4	-0.763
	Grade 5	-0.542
	Grade 6	-0.237
	Grade 7	0.000
	Grade 8	0.221
	English Composition	0.397

The final vertical linking shift parameters for grade 7 in each content area is zero because it is the base grade. The final vertical linking parameter applied to grade 11 items in mathematics and science is based on the grade or course where the items were field tested. For example, the Algebra I vertical linking constant is applied to grade 11 mathematics items which appeared on Algebra I forms.

BANKED ITEM PARAMETERS FROM STAND-ALONE FIELD TESTS

Table 9–12 shows the mean, standard deviation, minimum, and maximum of the item parameter estimates for each grade or course level on the content area vertical scales.

Table 9–12. Summary Statistics for Vertically Scaled Item Parameters

	Grade/Course	Mean	SD	Min	Max
Mathematics	Grade 3	-3.011	1.222	-6.641	0.052
	Grade 4	-1.799	1.008	-4.388	0.781
	Grade 5	-1.177	1.031	-4.367	1.172
	Grade 6	-0.782	1.122	-3.821	2.748
	Grade 7	0.000	0.979	-2.385	2.800
	Grade 8	0.301	0.939	-2.743	2.985
	Grade 11	0.939	1.014	-1.175	3.713
	Algebra I	1.109	0.763	-0.888	3.099
	Geometry	1.323	0.865	-1.125	3.482
	Algebra II	1.653	0.955	-1.377	4.181
Reading	Grade 3	-1.086	1.045	-3.761	1.855
	Grade 4	-0.829	0.944	-3.242	2.177
	Grade 5	-0.481	1.039	-3.201	1.964
	Grade 6	-0.092	1.060	-2.653	3.580
	Grade 7	0.000	1.077	-3.744	3.259
	Grade 8	0.352	1.039	-3.127	3.093
	Literature	0.735	0.929	-2.115	3.313
Science	Grade 3	-1.665	1.302	-5.319	0.813
	Grade 4	-1.095	1.145	-4.453	1.663
	Grade 5	-0.322	0.948	-2.899	1.683
	Grade 6	-0.111	0.971	-2.347	2.546
	Grade 7	0.000	0.910	-2.531	2.532
	Grade 8	0.140	1.035	-2.654	3.309
	Grade 11	0.773	0.892	-2.216	2.377
	Biology	0.961	0.867	-1.331	3.731
	Chemistry	1.276	0.688	-1.101	3.064
Writing	Grade 3	-1.360	1.196	-4.536	2.958
	Grade 4	-0.763	1.140	-3.608	1.899
	Grade 5	-0.542	1.073	-3.780	2.462
	Grade 6	-0.237	1.052	-2.724	4.390
	Grade 7	0.000	1.132	-2.866	3.593
	Grade 8	0.221	1.120	-3.234	2.883
	English Composition	0.397	1.087	-2.531	3.617

Figures 9–2 through 9–5 show the banked item parameter estimates for each grade or course on the content area vertical scales.

Figure 9–2. Mathematics Item Parameters Estimates on the Vertical Scale

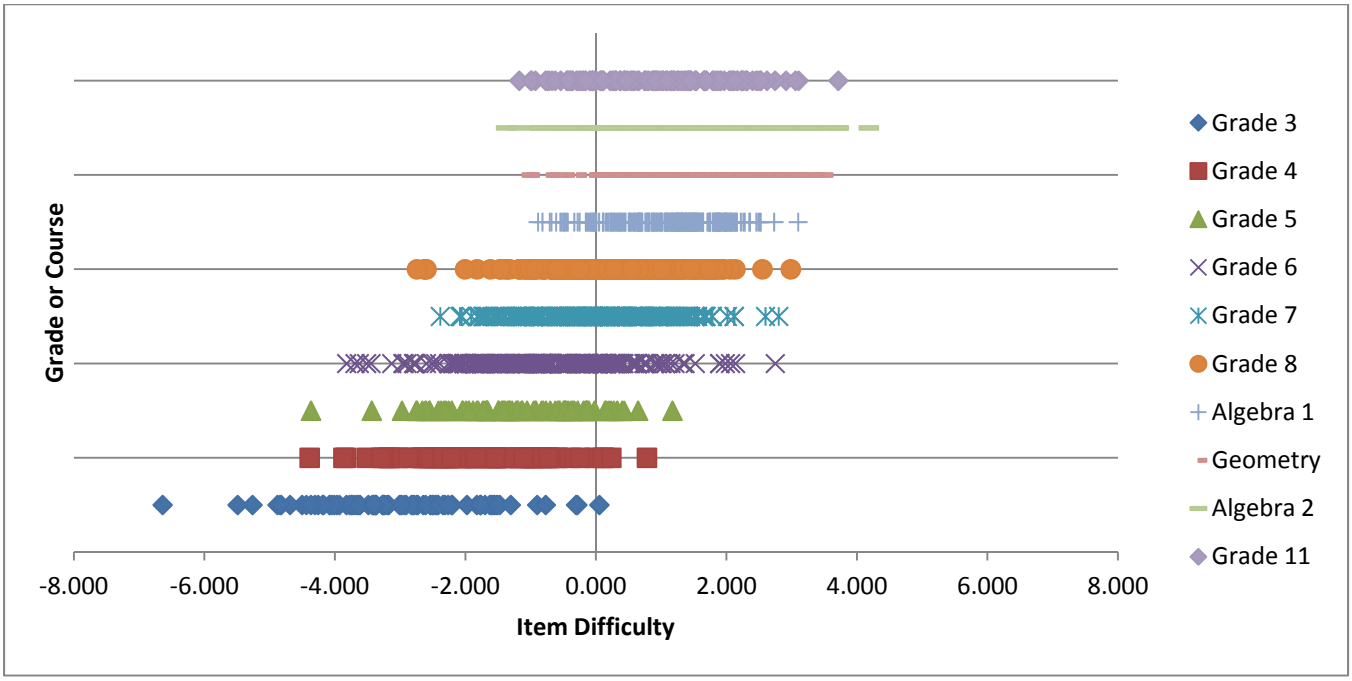


Figure 9–3. Reading/Literature Item Parameters Estimates on the Vertical Scale

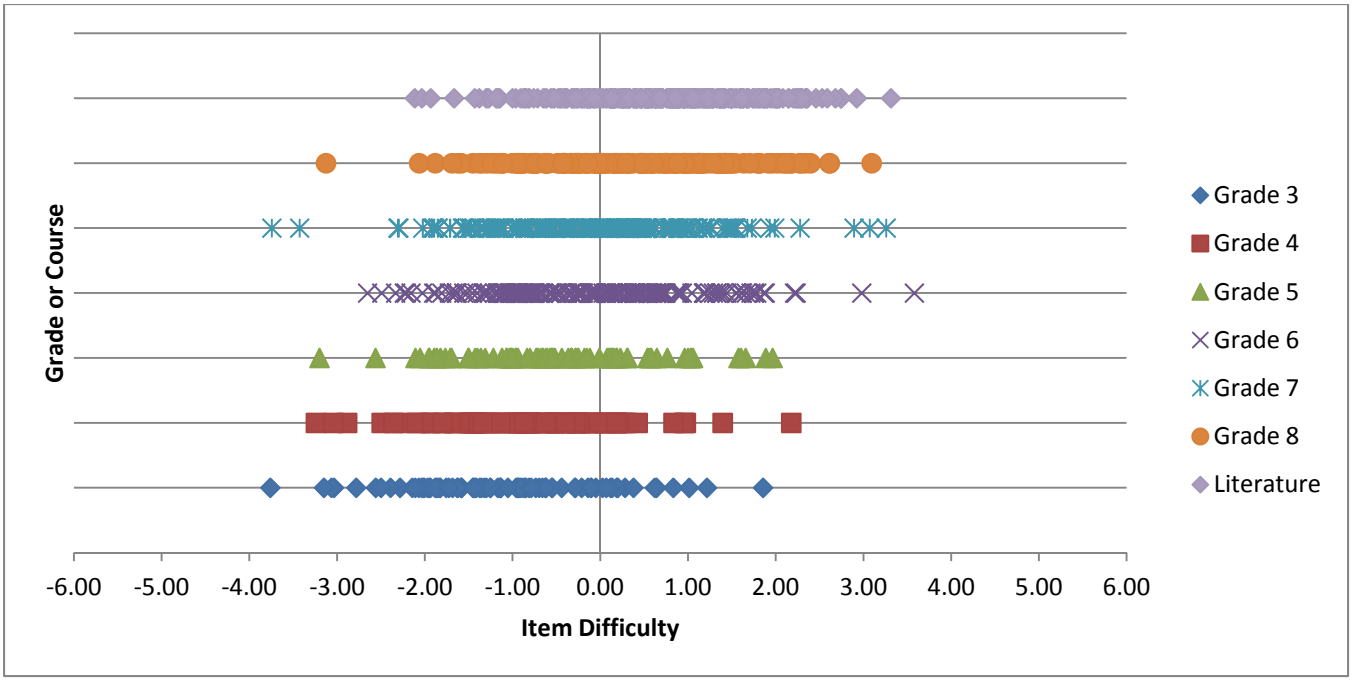


Figure 9–4. Science Item Parameters Estimates on the Vertical Scale

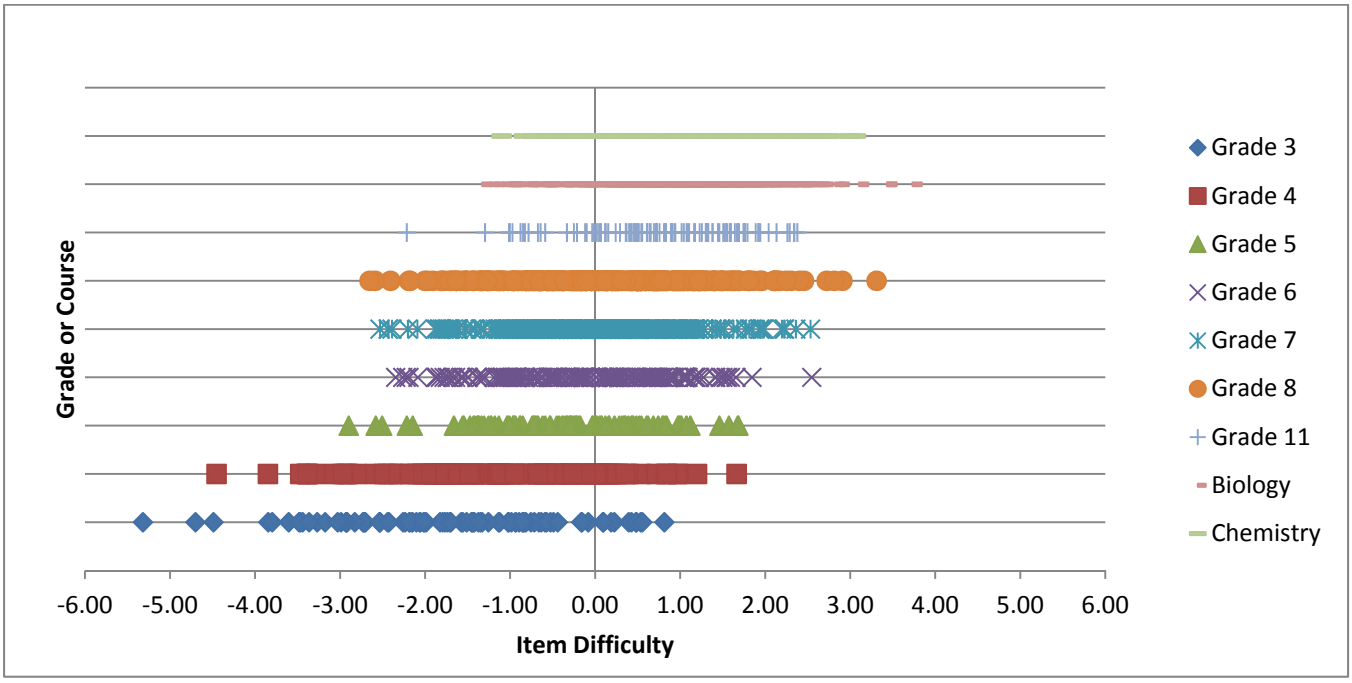
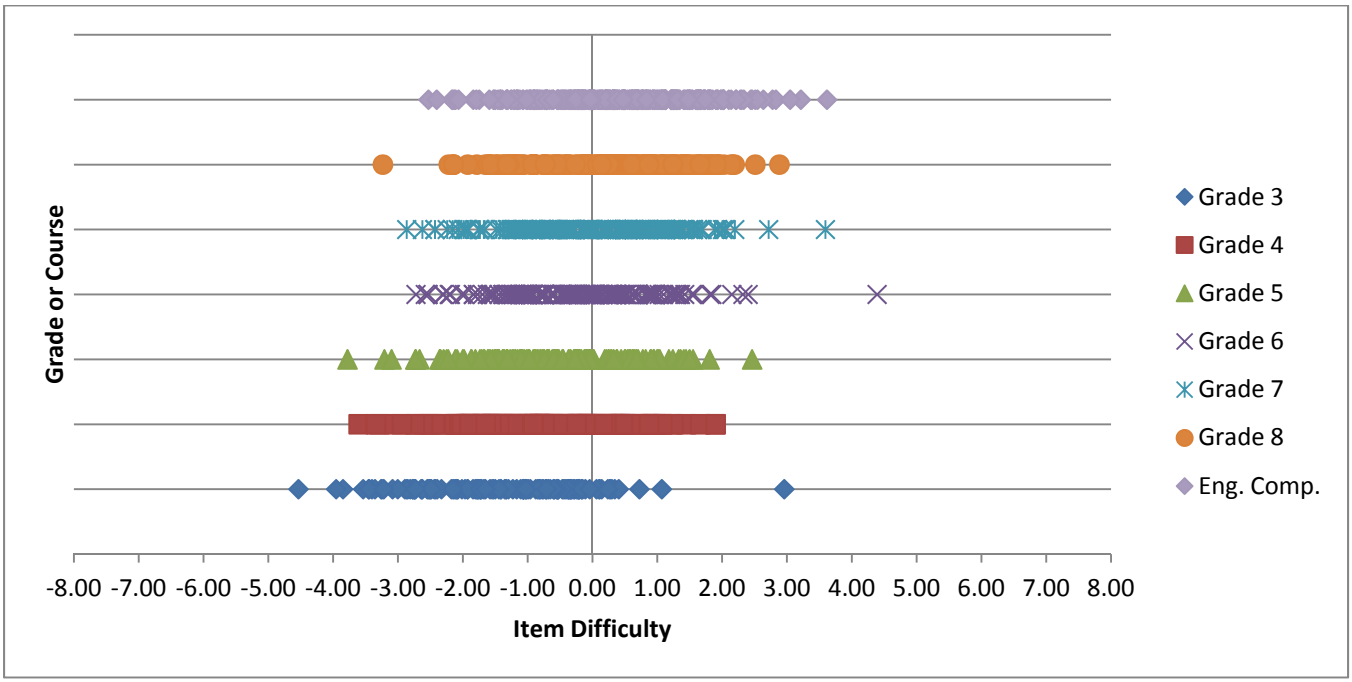


Figure 9–5. Writing/English Composition Item Parameters Estimates on the Vertical Scale



Rasch item difficulty measure on the vertical scale and associated standard error for each item are presented in Appendix B.

CHAPTER TEN: BENCHMARKING

As described in Chapter Fourteen, CDT scores are placed along a continuum from "Areas of Need" to "Strengths to Build On." These are represented in the dynamic reporting suite with colors red, green, and blue. "Areas of Need" are depicted in the red range, while "Strengths to Build On" are depicted in the green and blue ranges. The center of the green range for each CDT grade or course was established by panels of Pennsylvania educators during benchmarking activities. The center of green is the point that separates students into two categories: solidly ready for the next grade or course and not solidly ready for the next grade or course.

BENCHMARKING ACTIVITIES

Table 10–1 below presents general information about the preliminary benchmarking activities for Mathematics, Reading, Science, and Writing. The cut points established are considered preliminary because they were set prior to the first operational administration of the CDT. This was necessary so teachers and students would have access to immediate scores and reports following operational administration. As operational data become available, preliminary cut points are reevaluated and possibly revised (see Chapter Nineteen).

Table 10–1. General Information About CDT Benchmarking Activities

Category	Information
Event Dates	Mathematics: August 12–13, 2010
	Reading: January 27–28, 2011
	Science: January 27–28, 2011
	Writing: August 4–5, 2011
Grades/Courses	Mathematics: Grades 5–8, High School, Algebra I, Geometry, Algebra II
	Reading: Grades 5–8, Literature
	Science: Grades 5–8, High School, Biology, Chemistry
	Writing: Grades 5–8, English Composition
Methodology	Randomly Ordered Item Booklet (ROIB) Angoff (Yes/No) Method
Categories	Not solidly ready for the next grade or course
	Solidly ready for the next grade or course
Number of Panelists	Mathematics: 28
	Reading: 23
	Science: 20
	Writing: 46
Rounds	Two

There were three separate CDT benchmarking events because the operational CDT was rolled out in phases by content area. Each benchmarking event followed the field test for that content area.

Chapter Ten: Benchmarking

The CDT is available to students in grade 6 and above. However, cut points were established for grades 5 and above. This is because CDT is available throughout the school year. Early in the school year it may be more appropriate to evaluate a student's scores based on the prior grade cut. For example, in October, a teacher may choose to evaluate a grade 6 student's scores relative to the grade 5 cut.

The Randomly Ordered Item Booklet (ROIB) Angoff (Yes/No) method was used to set CDT benchmark cut points. Panels of educators worked in grade/course groups to establish cut points for grades 5 through 8, high school, and content area courses Algebra I, Geometry, Algebra II, Literature, Biology, Chemistry, and English Composition. After a training session describing the process and definition of roles, a discussion was held in which panelists were asked to describe what "solidly ready for the next grade or course" means. Thereafter, panelists were asked to review approximately 40 test questions and make individual yes/no judgments as to whether a "solidly ready" student would be successful in answering each question. The judgments were made over two iterations or rounds with a sequence of Round 1 judgments, show and verification of Round 1 results, group discussion, and Round 2 judgments.

After cut points were set for each grade and course within a content area, the vertical articulation of cut points across grades and courses was reviewed. Given that each content area is vertically scaled, it was expected that cut points would increase as grade increased. For example, the grade 8 cut point would not be lower than the grade 7 cut point on the vertical scale. In some cases, post-smoothing was required to ensure increasing cut points across grades/courses and smooth transitions.

Complete descriptions of each benchmarking activity including post-smoothing are available in TAC documents:

- *Classroom Diagnostic Tools - Results for Preliminary Benchmarking Activity - Mathematics*
- *Classroom Diagnostic Tools - Results for Preliminary Benchmarking Activity - Reading and Science*
- *Classroom Diagnostic Tools - Results for Preliminary Benchmarking Activity - Writing*

BENCHMARKING RESULTS

Preliminary cut points in the logit metric for each content area are shown in Figures 10–1 through 10–4. In general, the difference between cut points is greater in the lower grades and then levels off.

Figure 10–1. Preliminary Benchmark Cut Points for Mathematics

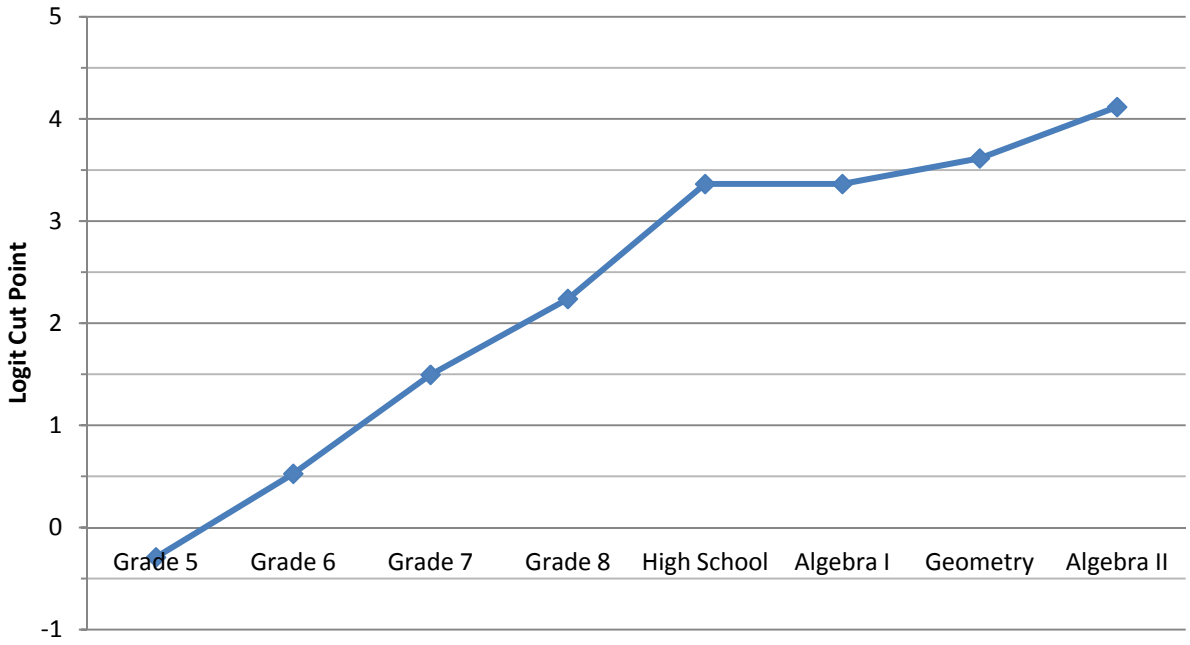


Figure 10–2. Preliminary Benchmark Cut Points for Reading

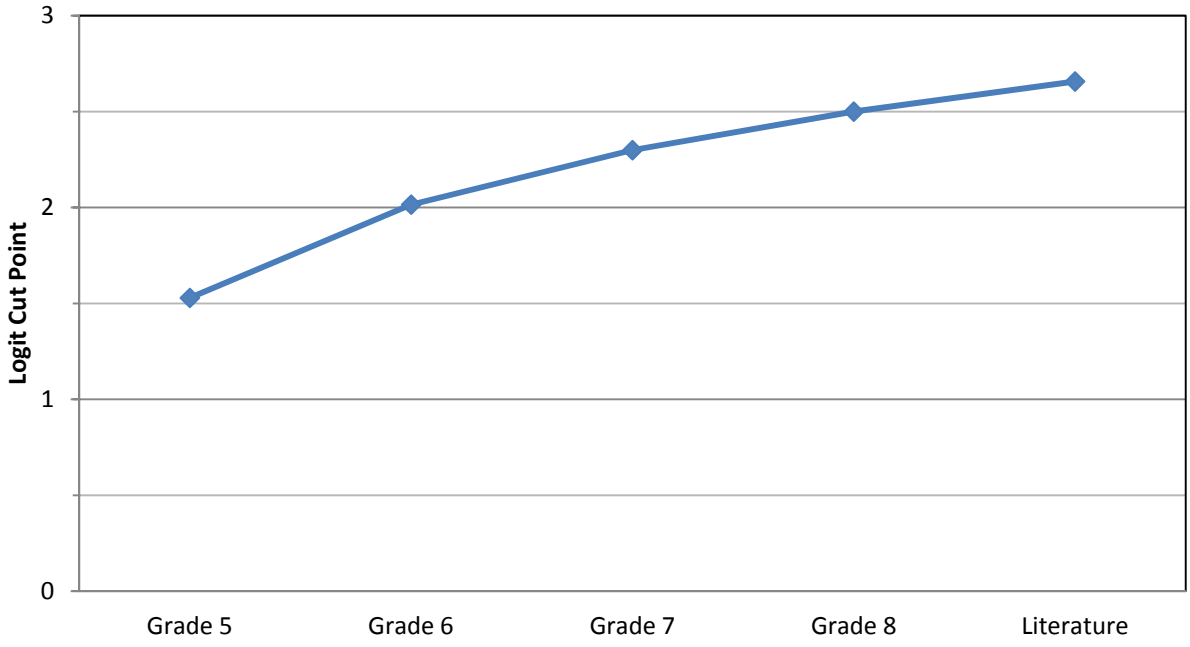


Figure 10–3. Preliminary Benchmark Cut Points for Science

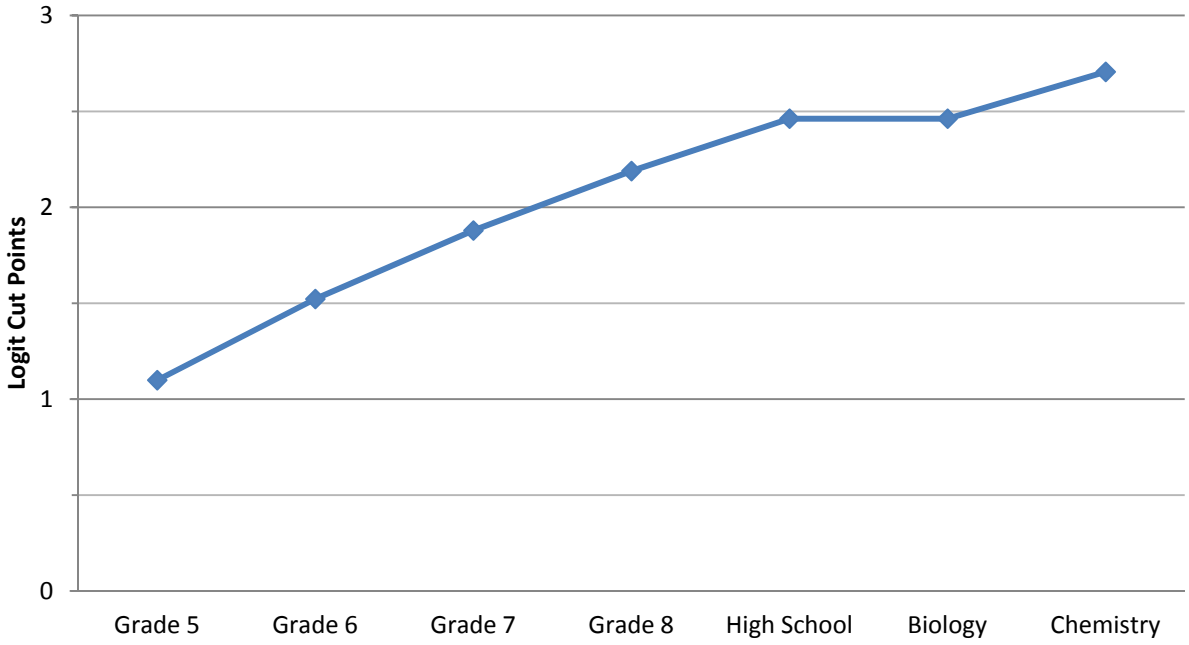


Figure 10–4. Preliminary Benchmark Cut Points for Writing

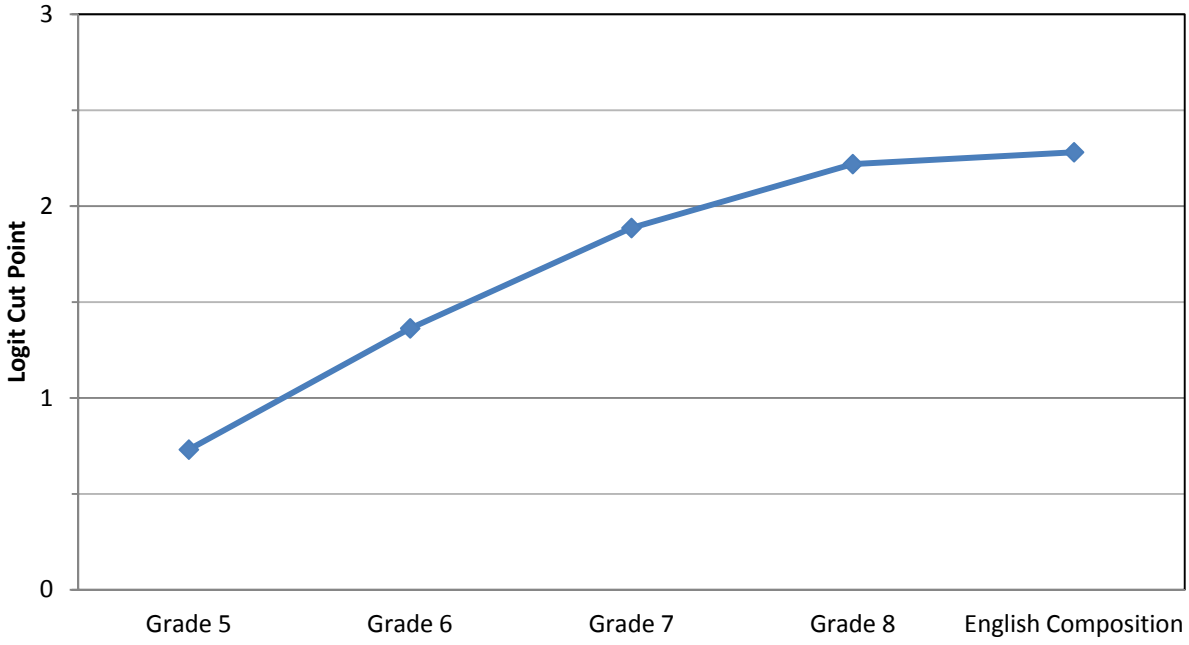


Table 10–2 shows the preliminary benchmark cuts in the logit metric for each content area. Also presented are the scale score ranges for each color on the CDT reports.

Table 10–2. Preliminary Benchmark Cuts and Scale Score Ranges

Grade or Course		Logit Cut Point (Center of Green)	Red Scale Score Range	Green Scale Score Range	Blue Scale Score Range
Mathematics	Grade 5	-0.292	400 - 895	896 - 1058	1059 - 2000
	Grade 6	0.526	400 - 997	998 - 1160	1161 - 2000
	Grade 7	1.495	400 - 1118	1119 - 1281	1282 - 2000
	Grade 8	2.238	400 - 1211	1212 - 1374	1375 - 2000
	High School	3.363	400 - 1351	1352 - 1514	1515 - 2000
	Algebra I	3.363	400 - 1351	1352 - 1514	1515 - 2000
	Geometry	3.614	400 - 1383	1384 - 1546	1547 - 2000
	Algebra II	4.117	400 - 1446	1447 - 1609	1610 - 2000
Reading	Grade 5	1.529	400 - 982	983 - 1197	1198 - 2000
	Grade 6	2.015	400 - 1051	1052 - 1266	1267 - 2000
	Grade 7	2.299	400 - 1092	1093 - 1307	1308 - 2000
	Grade 8	2.500	400 - 1121	1122 - 1336	1337 - 2000
	Literature	2.657	400 - 1143	1144 - 1358	1359 - 2000
Science	Grade 5	1.099	400 - 1009	1010 - 1182	1183 - 2000
	Grade 6	1.522	400 - 1066	1067 - 1239	1240 - 2000
	Grade 7	1.879	400 - 1113	1114 - 1286	1287 - 2000
	Grade 8	2.189	400 - 1154	1155 - 1327	1328 - 2000
	High School	2.462	400 - 1190	1191 - 1363	1364 - 2000
	Biology	2.462	400 - 1190	1191 - 1363	1364 - 2000
	Chemistry	2.706	400 - 1223	1224 - 1396	1397 - 2000
Writing	Grade 5	0.731	400 - 959	960 - 1132	1133 - 2000
	Grade 6	1.363	400 - 1043	1044 - 1216	1217 - 2000
	Grade 7	1.886	400 - 1113	1114 - 1286	1287 - 2000
	Grade 8	2.219	400 - 1157	1158 - 1330	1331 - 2000
	English Composition	2.281	400 - 1166	1167 - 1339	1340 - 2000

Chapter Ten: Benchmarking

CHAPTER ELEVEN: SCALING

Scaling is used to transform test score values onto a scale that can be interpreted by users easily and correctly. Raw scores cannot be used to compare students' achievement on the CDT because they depend on the difficulty of the test items administered. Given the adaptive nature of the CDT, each student receives test items targeted at his or her level of achievement. Therefore, two students may have taken very different sets of items in terms of difficulty, but have the same raw score. This makes use of raw scores for comparison across students, across administrations, or to a specific standard (cut point) meaningless. Rasch ability estimates in the logit metric do take into consideration the difficulty of the items administered. Therefore, they may be used to make comparisons. However, scale scores are introduced to report CDT results since scale scores may be easier to understand and interpret than logits.

Essentially, CDT scale scores are derived through a two-step process. First, there is a nonlinear transformation that converts an individual raw score on a unique set of items to Rasch ability (in logits). Second, a linear transformation is used to convert logits to scale scores. These and some additional considerations (e.g., rounding rules) are discussed in more detail below.

RAW SCORES TO RASCH ABILITY ESTIMATES

For each CDT test, the calibrated item difficulties associated with the unique set of items administered were used to obtain Rasch person ability estimates and asymptotic standard errors of measurement for the overall test, as well as each diagnostic category. Calibrated item difficulties were based on the field tests and vertical linking (further discussed in Chapter Eight and Chapter Nine).

Raw scores (total and diagnostic category) on the unique set of items that makes up an individual CDT test were mapped to Rasch ability estimates using unconditional, joint-maximum likelihood estimation. In the case of zero or perfect raw scores, a fractional raw score (a value less than one) was added to zero scores and subtracted from perfect scores to determine the corresponding logit values for these extreme scores. The Rasch ability estimates were then transformed to scale scores as discussed in the next section.

RASCH ABILITY ESTIMATES TO SCALE SCORES

Generally, scale scores are preferred over Rasch ability estimates for reporting purposes. One issue is that Rasch ability estimates are on a scale that includes negative and decimal values. By transforming the Rasch ability estimates to scale scores, all reported values can become positive integers, which makes more sense to teachers, parents, and students. Since Rasch ability estimates are comparative, the transformed scale scores have a common scale across administrations.

Scale scores are usually obtained through some linear transformation of Rasch ability estimates. Before the linear equation was established for each content area, a few points were considered for the CDT:

- Avoid scales that might be confused with scores for other types of assessment; for example:
  - Scale scores ranging from 0 to 100 (because this might be confused with percent correct scores or percentile ranks)
  - Scale scores ranging from 200 to 800 (because this might be confused with SAT scores)
  - Scale scores with similar ranges as the ones for the Pennsylvania System of School Assessment (PSSA) or Keystone Exams
- Avoid scales similar to raw scores.
- Avoid scales that might suggest the scores are more precise than they actually are (in other words, suggesting more precision than can be supported by the test scores).
- Avoid scales with negative numbers and decimals.

In terms of industry standard practice, a common perspective is that scale scores should facilitate score interpretation while at the same time minimize misinterpretation and unwarranted inferences. Often this is done by incorporating some kind of meaning to the scores[8] (Peterson, Kolen, and Hoover, 1989). The incorporation of content meaning is one way to facilitate score interpretation. This might be done in several different ways. For example, the current PSSA scaled scores, like those of many other state assessments, try to input some content meaning by having the PSSA performance level cut scores have known values on the scaled score metric. Such an approach appears to make good sense given the purposes of the criterion-reference test like the PSSA.

For CDT, the scale must be sufficiently large to cover the entire vertical scale. As a result, a scale score range of 400 to 2000 was established. Additionally, the grade 7 benchmark logit cut point was mapped to a scale score of 1200 for all content areas. It is worth noting that, although careful consideration was given to the selection of these values, they are completely arbitrary. For example, the label of 1200 could have been called 100 or any other value or letter without affecting any of the relationships among schools, administrations, students, or items. In other words, changing the scale would simply be changing the labels on the axis of a graph without moving any of the points.

LINEAR TRANSFORMATION FORMULAS

The scale scores for the CDT for each content area are obtained through a linear transformation of the Rasch ability estimates ($\hat{\beta}$). Specifically,

$$SS = m\hat{\beta} + b,$$

where *m* is the slope and *b* is the intercept. The linear transformation for each CDT content area was derived by anchoring the grade 7 benchmark cut (i.e., Rasch ability estimate) to the scale score 1200 and a Rasch ability estimate of 7.9 to the scale score of 2000. The slopes of the scaling equations influence the variability

[8] Not everyone agrees with this sentiment. Some have argued the opposite point—that is, any attempt to add meaning to test scores actually predisposes the scores to be misinterpreted (see Angoff, 1984).

of the scale scores. It is important that the slopes are sufficiently large to cover the full range of the vertical scale. The CDT scaling equations produce scale score distributions with standard deviations of approximately 125 scale score points and cover logit ranges of approximately -4.5 to 7.9. The final slopes and intercepts for deriving scale scores for the CDT are provided in Table 11–1.

Table 11–1. Scaling Constants by Content Area

Content Area	Scaling Constants	
	Slope	Intercept
Mathematics	124.90	1013.30
Reading	142.83	871.63
Science	132.87	950.34
Writing	133.02	949.12

ROUNDING

The linearly transformed scale scores are rounded to the nearest integer value for reporting purposes. Values greater than or equal to 0.50 are rounded up. Values less than 0.50 are rounded down.

LOWEST OBTAINABLE SCALE SCORES

Each CDT content area has a lowest obtainable scale score (LOSS) of 400. Any derived scale score less than 400 is truncated to this minimum value. The selection of a LOSS is mainly based on two considerations:

1. extremely low scale scores may have an impact on the average of the scale scores if CDT data is summarized at school, district, or state level
2. score truncation makes sense from a score precision perspective given measurement errors at the extremes are large

HIGHEST OBTAINABLE SCALE SCORES

A highest obtainable scale score (HOSS), 2000, is set for the CDT for the same reasons as described for the LOSS value.

Chapter Eleven: Scaling

CHAPTER TWELVE: EQUATING

Equating is a statistical process that is used to adjust scores on test forms so that scores on the forms can be used interchangeably (Kolen & Brennan, 2004), even though the test forms consist of different items. In the case of the CDT, the adaptive nature of the test means that each student takes a unique test form with items targeted at his or her level of achievement.

To make meaningful comparisons of test scores across administrations, various equating models and procedures have been developed in the literature. For example, in terms of design, there are randomly equivalent groups design and common-item non-equivalent groups design. In terms of testing model, it can be classified as either classical test theory based equating model or modern test theory (e.g., Rasch model or item response theory) based equating model. In terms of when the equating is conducted in the assessment cycle, it can be classified as pre-equating or post-equating.

Given the requirements of adaptive testing and immediate score reporting, CDT is pre-equated. Also, it was based on the Rasch model. The following sections will focus on the discussion of pre-equating and the equating design for the CDT.

PRE-EQUATING VERSUS POST-EQUATING

Like other Pennsylvania assessment programs, the CDT uses the Rasch model to guide test design, calibration, scaling, and equating. The key element of equating test forms using the Rasch model is to place the item parameters on the same scale. Once this is done, raw scores can be converted to Rasch ability estimates and then to scale scores as described in Chapter Eleven. As a result, the scale scores can be compared across forms and administrations with different items.

A common practice in many K–12 large-scale assessment programs is to have all the items field tested before they are administered in an operational setting. Once the field test items' difficulties are placed on the base scale or common metric, in theory, one should not expect the Rasch item difficulties for these items to change, except within a reasonable range of measurement error, after they are administered in an operational test, providing the Rasch model fits the data. Based on this theoretical advantage of using Rasch models, equating can be conducted using the item parameters calibrated from field test data. This statistical procedure is referred to as pre-equating. In contrast, post-equating involves the use of Rasch item difficulties calibrated from the data of the operational test to be equated.

Although, in theory, the two equating procedures should provide identical results when the model fits the data, each of them has its own advantages and disadvantages. The use of pre-equating can facilitate the operational process in terms of adaptive item selection, rapid or immediate score reporting, and more flexibility in the assessment. However, a variety of issues need to be considered when using pre-equating in practice. For example, students may not be motivated to take the field tests, especially stand-alone field tests, which may make the items appear harder in the field test than in the operational test (Eignor, 1985; Eignor and Stocking, 1986; Stocking and Eignor, 1986; Kolen and Harris, 1990). Other concerns for the field test items include item context, item position, and sample size. In contrast, the use of post-equating, when applicable, does not have the same motivational concerns because students cannot distinguish between operational and field test items. Also, post-equating is sometimes considered to yield more accurate analysis results given the large number of students who take the operational tests. On the other hand, post-equating does not allow for adaptive item selection or immediate score reporting as required of the CDT.

Chapter Twelve: Equating

EQUATING DESIGN FOR THE CDT

The CDT is an adaptive test, meaning that the test items selected are tailored to each student's achievement as the test progresses. This requires that all items in the pool be on the same scale and known at the time of testing. For CDT, this is accomplished by vertical linking the entire item pool within a content area based on the field test. See Chapter Eight and Chapter Nine for details. The known (pre-equated) item parameters are used in selecting items targeted for the student and to provide immediate scores to teachers and students.

In implementing the pre-equating model for the CDT, efforts were made to enhance the accuracy of pre-equating results. To address the concerns on students' motivation to take field tests, records were excluded from item calibrations if the student did not answer at least 5 questions. Also, records with high person outfit mean-squares values were excluded following the WINSTEPS suggestion that these may be the result of a few random responses by low performers. To address concerns of sample sizes, windows for field testing were scheduled so they did not overlap other testing in an attempt to increase volunteer participation. Also, field test windows were extended in cases where schools were unable to complete testing in the allotted time. A small study of mathematics vertical linking items revealed no position effects. However, it should be noted that with adaptive tests students do not take the same items. Even if two students do take the same item, it will likely not be in the same test position.

EVALUATION OF ITEM PARAMETER STABILITY

Once sufficient operational data are available within a content area, DRC will conduct an item parameter stability study. If the differences between the newly estimated Rasch item difficulties and the estimates based on the field test administration are not statistically significant, the pre-equating results should be valid. See Chapter Eighteen for results of item parameter stability studies based on operational data from the 2012–2013 school year.

EQUATING ADDITIONAL FIELD TEST ITEMS

Over time, additional items will be needed to replenish the CDT item pools. Plans to field test additional items must include an equating plan. Equating is needed to place the new items onto the current vertical scale. In the case of a stand-alone field test, common-item equating would likely be used. That is, field test forms would include items from the current CDT item pool. In the case of embedded field test, field test items would be included within an operational administration and students would not know which items are field test. Whether stand-alone or embedded field test, equating would be accomplished by running the calibration of field test items with item parameters of operational items fixed/anchored to the bank values using WINSTEPS.

Starting on February 14, 2013, a small number of field test items were embedded within CDT tests in Mathematics and Reading/Literature. The purpose of this embedded field test was to add items to the operational item pools for future years. Common-item equating was used to place the new items onto the existing scales in mathematics and reading. For each content area, the entire item pool, including field test items, was calibrated using WINSTEPS with operational items anchored on the banked values.

CHAPTER THIRTEEN: OPERATIONAL TEST DESIGN AND CAT CONFIGURATIONS

The Pennsylvania Classroom Diagnostic Tools (CDT) were developed to support teachers and students in grades 6 through 12. These tools are fully integrated and aligned in the Standards Aligned System (SAS) and enable educators to identify students' academic strengths and areas of need as well as provide links to classroom resources. The assessment is voluntary and administered completely online using a computer adaptive test (CAT) model.

The CDTs feature a number of tests. Tests in Mathematics, Algebra I, Geometry, and Algebra II have been available since October 2010. Tests in Reading/Literature, Science, Biology, and Chemistry have been available since April 2011. Tests in Writing /English Composition have been available since October 2011.

This chapter details the operational CDT test design and configuration of the CAT algorithm. Test design elements include the number of diagnostic categories, the number of operational items to administer per diagnostic category, and the number of embedded field test items. CAT algorithm elements include entry point, item selection criteria, test navigation, and termination.

OPERATIONAL TEST DESIGN

NUMBER OF DIAGNOSTIC CATEGORIES

The CDT tests include multiple-choice items only. All items on the CDT are aligned to the Pennsylvania Academic Standards. Each CDT is broken into four or five diagnostic categories and the items in the pool are grouped by these diagnostic categories based on the Assessment Anchors and Eligible Content. The diagnostic categories for each of the CDT tests are listed below.

Mathematics

- Numbers and Operations
- Measurement
- Geometry
- Algebraic Concepts
- Data Analysis and Probability

Algebra I

- Operations with Real Numbers and Expressions
- Linear Equations & Inequalities
- Functions & Coordinate Geometry
- Data Analysis

Geometry

- Geometric Properties
- Congruence, Similarity, & Proofs
- Coordinate Geometry and Right Triangles
- Measurement

Algebra II

- Operations with Complex Numbers
- Non-linear Expressions & Equations
- Functions
- Data Analysis

Reading/Literature

- Comprehension
- Vocabulary
- Interpretation/Analysis Literary Elements & Devices
- Interpretation/Analysis Persuasive Techniques
- Interpretation/Analysis Organizational Skills

Science

- The Nature of Science
- Biological Sciences
- Physical Sciences
- Earth and Space Sciences

Biology

- Basic Biological Principles/Chemical Basis for Life
- Bioenergetics/Homeostasis and Transport
- Cell Growth and Reproduction/Genetics
- Theory of Evolution/Ecology

Chemistry

- Properties and Classification of Matter
- Atomic Structure and The Periodic Table
- The Mole and Chemical Bonding
- Chemical Relationships and Reactions

Writing/English Composition

- Quality of Writing: Focus and Content
- Quality of Writing: Organization and Style
- Quality of Writing: Editing
- Conventions: Spelling, Capitalization, and Punctuation
- Conventions: Grammar and Sentence Formation

NUMBER OF ITEMS PER DIAGNOSTIC CATEGORY

There were various factors considered when determining the number of operational items to administer per diagnostic category. The goal of the CDT is to provide diagnostic information. Therefore, the test must include a sufficient number of items to provide meaningful scores with low standard errors. However, testing time is limited and the item pools are finite. A very long test may produce lower standard errors, but if it is considered to be "too long" will teachers use it? Also, the longer the test, the more the items are exposed.

Table 13–1 shows the average person standard error (SE) for total test and each diagnostic category (DC) for five test lengths in simulations of CDT Mathematics. Also included is the theoretical minimum standard error that is possible for each test length. This is the standard error if the ability is known and there are sufficient items to administer where the item's difficulty is equal to the known ability and the test constraints are met.

Table 13–1. Average Standard Errors for Various Test Lengths — Mathematics

Total			Diagnostic Categories						
Number of Points	Min Error	Avg Error	Number of Points	Min Error	DC1 Avg Error	DC2 Avg Error	DC3 Avg Error	DC4 Avg Error	DC5 Avg Error
40	0.316	0.348	8	0.707	0.789	0.796	0.784	0.783	0.798
45	0.298	0.329	9	0.667	0.738	0.741	0.729	0.734	0.742
50	0.283	0.313	10	0.632	0.690	0.707	0.691	0.691	0.696
55	0.270	0.298	11	0.603	0.660	0.667	0.655	0.653	0.659
60	0.258	0.286	12	0.577	0.633	0.636	0.622	0.622	0.631

As expected, increasing the number of items decreases the standard error. Differences in standard errors at the diagnostic category level for the same number of items are a reflection of differences in the diagnostic category item pools.

Figures 13–1 and 13–2 show average standard errors as a function of test length.

Figure 13–1. Average Standard Errors for Various Test Lengths – Mathematics Total Test

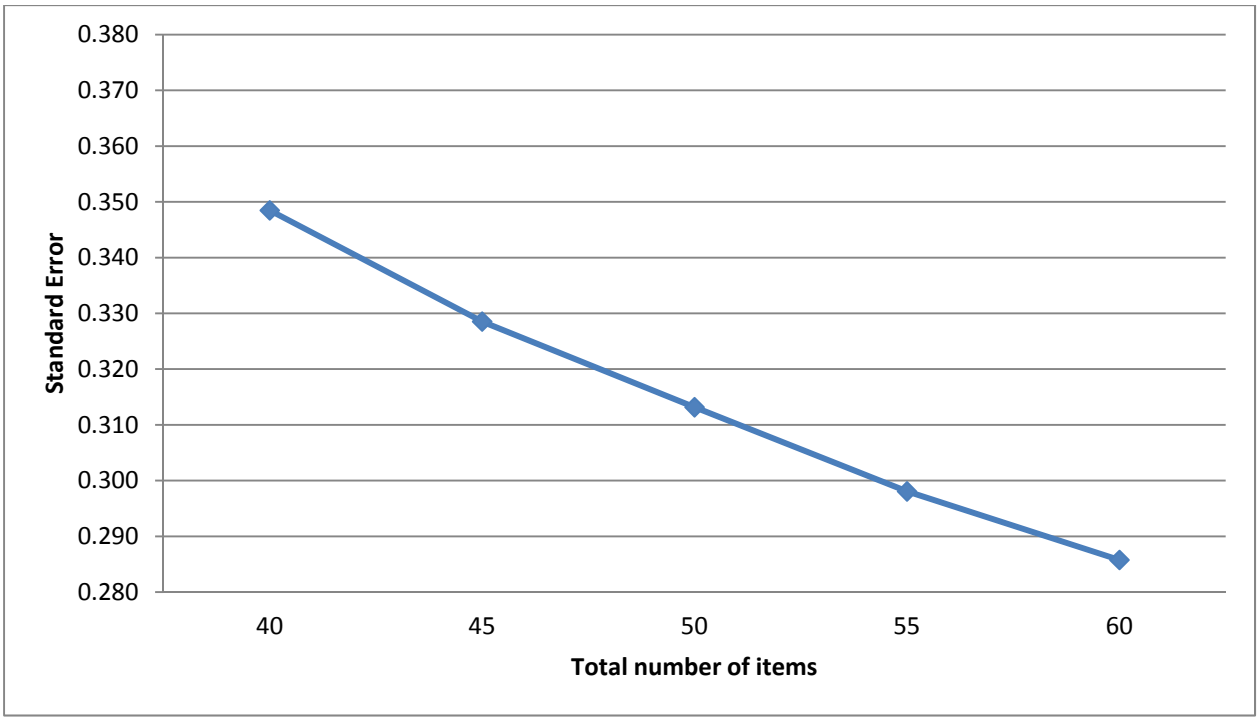
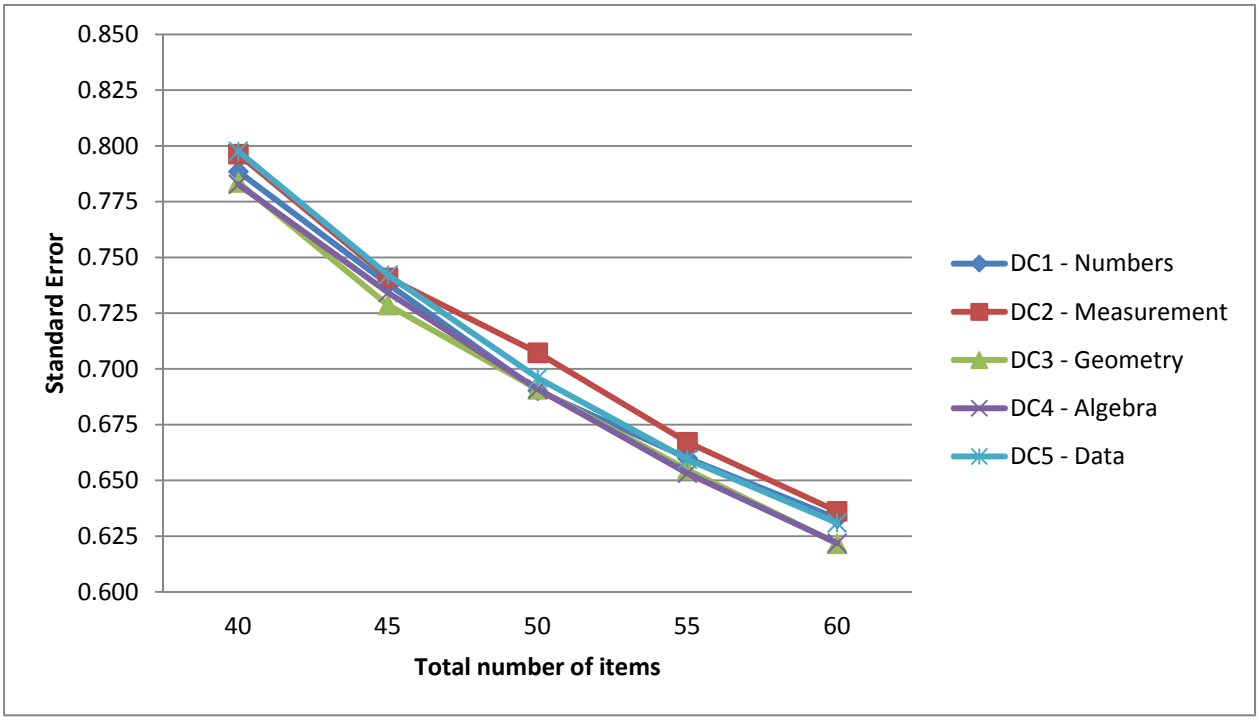


Figure 13–2. Average Standard Errors for Various Test Lengths – Mathematics Diagnostic Categories



Considering test time factors and simulation results for various test lengths, it was determined that CDT tests with four diagnostic categories would have 12–15 items per category (48–60 items total) and CDT tests with five diagnostic categories would have 10–12 items per category (50–60 items total).

NUMBER OF EMBEDDED FIELD TEST ITEMS

Over time, additional items will be needed to replenish the CDT item pools. Embedding field test items within an operational CDT test is advantageous for two reasons. First, sufficient item level data can be gathered without the time and expense of a separate stand-alone administration. Second, it allows the new items to be placed on the existing operational scale. See Chapter Twelve for details.

Starting on February 14, 2013, field test items were embedded within CDT tests in Mathematics and Reading/Literature. The factors considered when determining the number of field test items to embed within each operational test were the number of items to be field tested, the expected number of students testing, and the desired *n*-count per item for field test analyses.

Five field test items were embedded in CDT Mathematics. Field test items were randomly assigned to fixed positions within the operational test. The positions of field test items were unknown to students and spread throughout the operational test. Field test items were not clustered at the end in an effort to avoid any fatigue effect when placing the items on the operational scale.

Five to seven field test items were embedded in CDT Reading/Literature. The number of items is variable because Reading items are passage-based and the number of items associated with a passage varies. If a given passage was assigned to a student, the student took all of the items associated with the passage. The positions of field test items were unknown to students. The field test passage was embedded near the middle of the test in an effort to avoid any fatigue effect when placing the items on the operational scale.

CAT ALGORITHM

This section covers elements of the CAT algorithm including entry point, item selection criteria, test navigation, and termination.

ENTRY POINT

All CDTs other than Reading/Literature begin with a small "locator" section in which one or two items per diagnostic category are administered. The order of the diagnostic categories is random. Reading/Literature is slightly different because it is passage-based. It, too, has a small "locator" section but it may not contain one or two items for each diagnostic category because not all passages have an item for each diagnostic category.

The CAT algorithm is designed to administer items targeted for the individual student based on performance. However, student performance in the current test setting is not known at the beginning of the test. With no prior information about a student, the starting point in each diagnostic category is an item of average difficulty. For CDT tests that are not course-specific (Mathematics, Science, Reading/Literature, and Writing/English Composition), the student's grade is considered in selecting an item of average difficulty. For example, a grade 7 student taking CDT mathematics will start with an item near the average difficulty of grade 7 items in the pool. For CDT tests that are course-specific (Algebra I, Geometry, Algebra II, Biology, and Chemistry), an average item from the course will be selected regardless of the student's grade. For example, a grade 7 student taking CDT Algebra I will start with an item near the average difficulty of Algebra I items in the pool.

If a student has previously taken the CDT, the prior CDT scores are used to give the CAT algorithm a "head start." In this case, the first item in each diagnostic category is selected to match the characteristics of the prior information rather than an average item. For example, if a student previously took the CDT Mathematics test and scored very high in "Data Analysis and Probability," then the first item selected in that diagnostic category will be more difficult than the grade level average.

The CAT algorithm includes a randomization component when selecting items to control item exposure. That is, one item is selected from among a set of items that are near the targeted item difficulty. This is especially important at the beginning of the CDT when no prior information is available. Randomization of items and diagnostic categories ensure that students will not see the same set of items in the same order even when all of the students are assigned items of average difficulty.

ITEM SELECTION CRITERIA

Once the initial set of items has been administered, the CAT algorithm is designed to administer items targeted for the individual student based on performance. In targeting items, the CAT algorithm uses Rasch ability estimates from the current test session and considers a number of factors including test blueprint, response probability, item pool refinement, and passage-related concerns. Each of these is discussed in detail on the following pages.

RASCH ABILITY ESTIMATES

As described in Chapter Eight and Chapter Nine, CDT item pools are scaled using the Rasch model (Rasch, 1960) and vertically linked across grades and courses. The CAT algorithm has access to all item parameters in the item pool. After each item response, Rasch ability estimates and standard errors are calculated via maximum likelihood estimation (MLE) for the total test and each diagnostic category. In the case of zero (all items incorrect) and perfect (all items correct) scores, a correction factor is applied before computing the relevant maximum likelihood estimates. A fractional value is added to a zero score and subtracted from a perfect score before estimation.

After the locator section of the CDT, but before a student has taken many items in each diagnostic category, the total Rasch ability estimate is used in item selection. This is because total and diagnostic category ability estimates tend to be highly correlated and the total estimate does not change as dramatically as diagnostic category estimates given one additional item. Using the total estimate at this point prevents students from experiencing extreme fluctuations in the difficulty of items.

While use of the total Rasch ability estimate makes sense early in the test, the goal of the CDT is to be diagnostic, and some students exhibit clear strengths and areas of need in different diagnostic categories. Therefore, after four or five items have been administered in a diagnostic category, the corresponding Rasch ability estimate for that diagnostic category is used in item selection. This ensures, for example, that a student struggling in “Biological Sciences” while at the same time excelling in “Earth and Space Sciences” will be administered easier “Biological Sciences” items and more challenging “Earth and Space Sciences” items.

TEST BLUEPRINT

The CAT algorithm closely resembles a modified constrained CAT (MCCAT) design (Leung, Chang, & Hau, 2003). The general idea is that the CAT algorithm is configured with an upper and lower bound that specifies the minimum and maximum number of items that will be administered to students for both total and diagnostic categories.

RESPONSE PROBABILITY

No matter which Rasch ability estimate is used in selecting an item, total or diagnostic category estimate, the CAT algorithm targets items where the student has response probability (RP) of answering correctly, based on the Rasch ability estimate and item’s difficulty. The most efficient way to run a CAT is to select items where RP is 0.5. That is, select items where the student has a 50% chance of getting the item correct. This response probability produces the smallest standard error for any given number of items.

Table 13–2 shows the average person standard errors for total test and each diagnostic category for seven response probabilities in simulations of CDT Mathematics with 50 items. Figures 13–3 and 13–4 show average standard errors as a function of response probability.

Table 13–2. Average Standard Errors for Various Response Probabilities — Mathematics

Number of Items	Response Probability	Total	DC 1	DC 2	DC 3	DC 4	DC 5
50 total (10 per DC)	0.50	0.312	0.696	0.700	0.689	0.689	0.696
50 total (10 per DC)	0.55	0.315	0.702	0.705	0.690	0.693	0.703
50 total (10 per DC)	0.60	0.318	0.709	0.715	0.699	0.699	0.708
50 total (10 per DC)	0.65	0.323	0.722	0.714	0.716	0.715	0.719
50 total (10 per DC)	0.70	0.333	0.748	0.738	0.735	0.736	0.752
50 total (10 per DC)	0.75	0.344	0.776	0.775	0.756	0.767	0.774
50 total (10 per DC)	0.80	0.360	0.829	0.813	0.809	0.807	0.815

As expected, increasing the response probability increases the standard error. Differences in standard errors at the diagnostic category level for the same response probability are a reflection of differences in the diagnostic category item pools.

Figure 13–3. Average Standard Errors for Various Response Probabilities — Mathematics Total Test

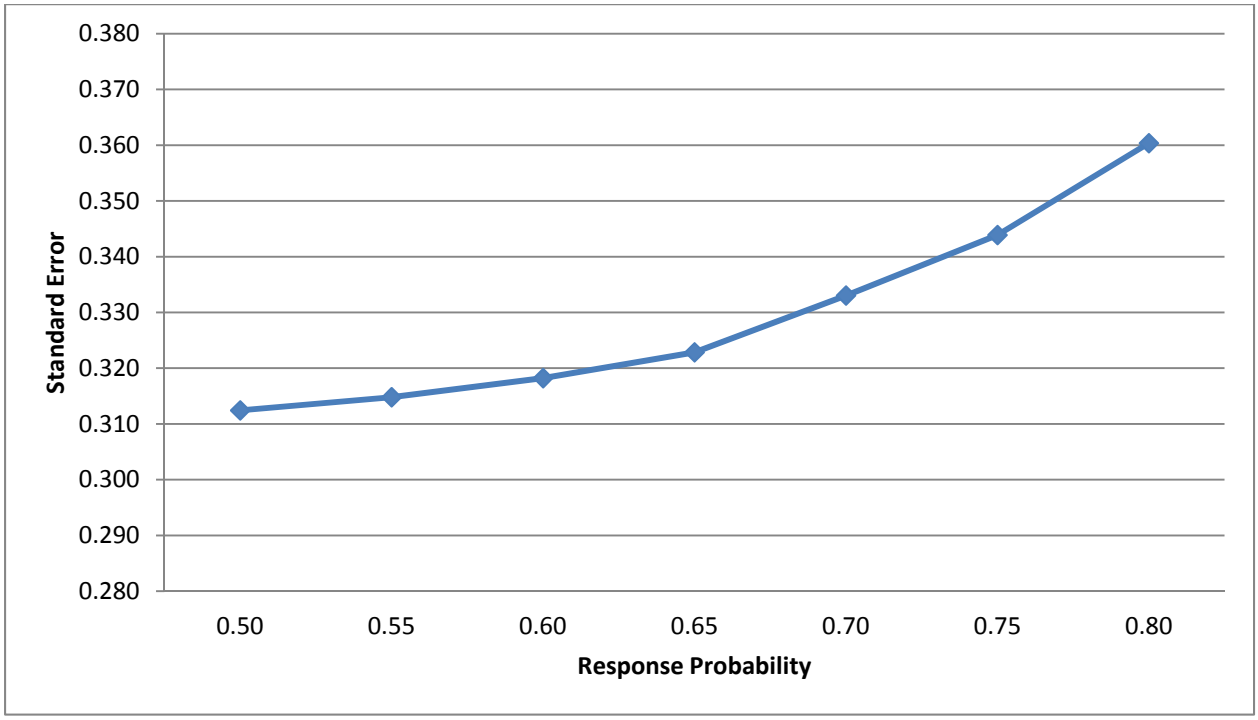
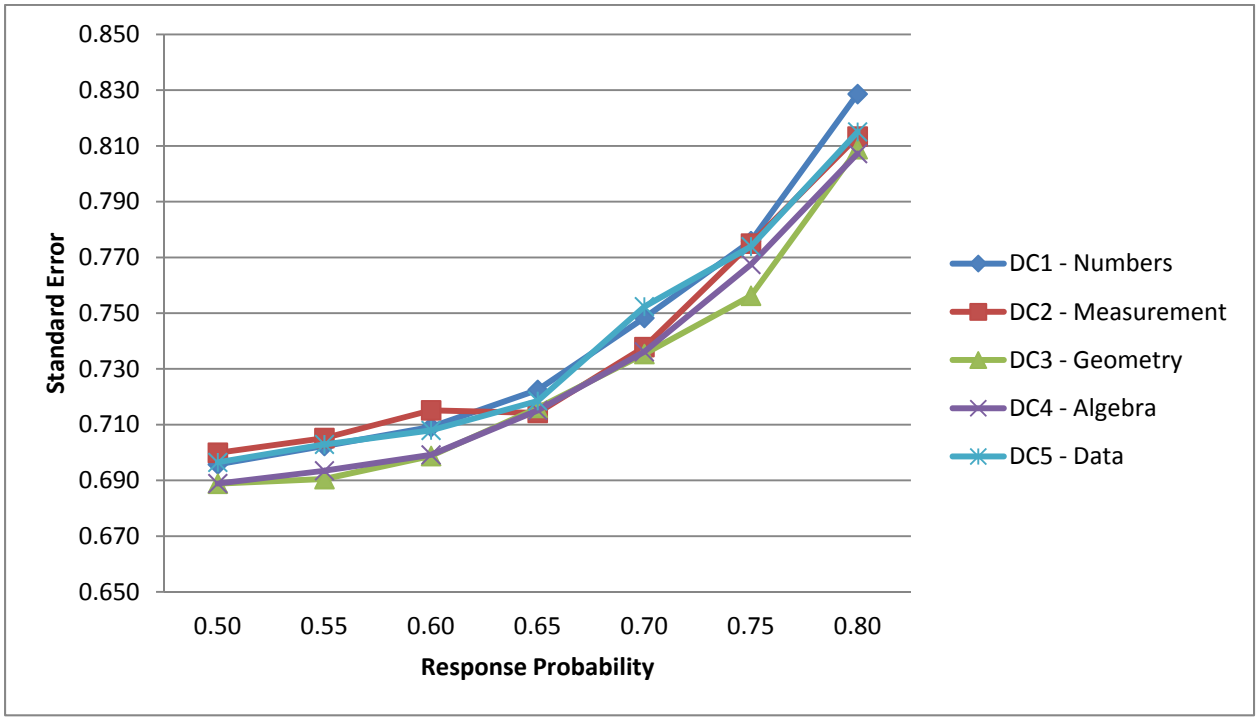


Figure 13–4. Average Standard Errors for Various Response Probabilities — Mathematics Diagnostic Categories



Based on the desire for low standard errors at the diagnostic category level and the grade level of students testing (grade 6 and above), the response probability is set at 0.5 for the CDT. As part of the CDT training, students are told that the test is computer adaptive and designed to challenge them.

Response probability may be revisited if the CDT is extended to lower grades. Younger students may not have much experience with tests designed to be so challenging and could conceivably give up on a test that is perceived to be "too hard."

ITEM POOL REFINEMENT

The CAT algorithm has configurable elements that allow for refinement of the item pool used in item selection. The two configurable elements are:

- **Restrict pool** — The ability to restrict the available item pool by grade/course at various points in the test.

  For example, Chemistry items are not available for the first 15 items of a CDT Science test.

- **Favor items** — The ability to favor items that are close to the student's grade when evaluating items near a student's estimated score.

  For example, if a student is in grade 8 and the item selection routine finds appropriate items (in terms of difficulty) in grades 4, 5, 6, 7, and 8, item selection can favor items at or close to grade 8. It is possible that no items near a student's grade are appropriate in terms of difficulty. In such a case, the CAT algorithm will select items further away from the student's grade, but appropriate based on item difficulty.

The difference between restricting the pool and favoring items is that when the pool is restricted, some items may NOT be selected. With favoring, all non-restricted items are eligible for administration, but they are made more or less LIKELY to be selected based on closeness to student grade.

PASSAGE RELATED CONCERNS

As previously mentioned, the CDT in Reading/Literature is passage-based. CDT passages have between one and six associated items. The CAT algorithm does not require that all items associated with a passage be administered. Instead, it evaluates all possible combinations of items within a passage. Item sequencing within a passage is preserved when items are presented to the student. For example, if a six-item passage is selected and items 1 and 4 are NOT administered, then the items administered in order will be 2, 3, 5, and 6.

The configurable elements of passage-based CAT include:

- **Passage minimum percent** — Define the minimum percentage of the items associated with a passage to be used.

  For example, if the passage minimum percent is set at 80, then the selection routine will consider combinations such as 1 of 1 (100%), 4 of 5 (80%), 5 of 6 (83%), and 6 of 6 (100%). It will not consider combinations such as 1 of 2 (50%), 3 of 4 (75%), 3 of 5 (60%), etc. Near the end of a test, the passage minimum percent constraint may need to be loosened in order to meet content constraints such as number of items per diagnostic category.

- **Passage evaluation criteria** — Multiple factors are considered when evaluating and ranking each passage combination to determine the best combination to administer to a student. They include:
  - Percent of items associated with the passage used; the higher the percent, the higher the combination is ranked
  - Number of items associated with the passage used; the higher the number, the higher the combination is ranked
  - Distance between items' difficulties and student's estimated score; the smaller the distance, the higher the combination is ranked
  - Distance between the items' grade levels and the student's grade level; the smaller the distance, the higher the combination is ranked

  Different weights may be assigned to each of the factors. For example, if all of the weight is put on number of items used, then the algorithm will select the passages with the most associated items and administer all of them until the maximum number of items is reached.

TEST NAVIGATION

Many versions of computer adaptive tests do not allow students to skip items in the test or back up to previously answered items and change answers due to some complicating factors.

If students are allowed to skip items, the CAT algorithm would need to select additional items without any additional information (no change to Rasch ability estimates). Taken to the extreme, a student with no prior CDT scores who skipped every item starting with the first would get an entire test of average items. It would not be adaptive at all.

If students are allowed to back up and change answers, Rasch ability estimates are re-calculated when answered are changed. This additional information can be used to select additional items, but would not change previously selected items. For example, suppose a student is on item twenty-five and goes back to change the answer to item eleven from wrong to right. The total and corresponding diagnostic category Rasch ability estimates would go up. That additional information can be used in selection of items twenty-six and beyond. However, items twelve through twenty-five are not reselected even though different items may have been selected if item eleven was initially answered correctly. When it comes to items twelve through twenty-five, "the train has left the station."

Also, if students are allowed to back up in the test, additional considerations must be put in place to ensure that the answer to one item does not cue another.

Currently all CDT tests except Reading/Literature do not allow skipping items or backing up and changing answers. On CDT Reading/Literature, students are allowed to skip items within a passage. For example, when presented with a passage and five associated items, the student does not have to answer questions one through five in that order without skipping. If a student tries to navigate to the next passage without answering all of the items associated with a passage, the test engine will prompt the student to answer all items and will not move on to the next passage until all are answered.

TERMINATION

The CAT algorithm allows for both a fixed- or variable-length test.

With fixed length, the test ends when a student has taken a pre-defined number of items total and in each diagnostic category.

With variable length, the algorithm stops administering items from a diagnostic category when one of two conditions is satisfied:

- A student has taken at least a pre-defined minimum number of items in that diagnostic category and the standard error is below a pre-defined threshold

  OR

- A student has taken a pre-defined maximum number of items in that diagnostic category

The test ends when one of the two conditions above is satisfied for each of the diagnostic categories.

Note with both fixed- and variable-length tests, there is no requirement that the pre-defined number of items in diagnostic categories be equal.

CAT CONFIGURATION – MATHEMATICS

The test has five diagnostic categories. Each student will take between 10 and 12 operational items per diagnostic category for a total test of 50 to 60 operational items. Starting February 14, 2013, tests also included five field test items. With no prior information about a student, the starting point in each diagnostic category will be an item of average difficulty by grade level. For example, a grade 7 student will start with an item near the average difficulty of grade 7 items. Items are selected where the response probability is 0.5, meaning a student has a 50% chance of answering correctly. The CAT algorithm will stop administering items in a diagnostic category when one of two conditions is satisfied:

- A student has taken at least 10 operational items in that diagnostic category and the standard error is below 0.65
- A student has taken 12 operational items in that diagnostic category

Functionality is used to restrict the pool and to favor items close to a student's grade. The pool restrictions are:

- No Algebra I items will be administered in the first 5 items
- No grade 11 items will be administered in the first 5 items UNLESS the student is in grade 11 or 12
- No Geometry items will be administered in the first 10 items
- No Algebra II items will be administered in the first 20 items

Simulations were run with this configuration. On average:

- A total of 56 operational items are administered – about 11 per diagnostic category
- Standard errors are in the range of 0.63 to 0.67

CAT CONFIGURATION – ALGEBRA I

The test has four diagnostic categories. Each student will take between 12 and 15 operational items per diagnostic category for a total test of 48 to 60 operational items. With no prior information about a student, the starting point in each diagnostic category will be an item of average difficulty. Items are selected where the response probability is 0.5, meaning a student has a 50% chance of answering correctly. The CAT algorithm will stop administering items in a diagnostic category when one of two conditions is satisfied:

- A student has taken at least 12 operational items in that diagnostic category and the standard error is below 0.60
- A student has taken 15 operational items in that diagnostic category

Functionality is used to restrict the pool and to favor items close to Algebra I. The pool restriction is that no Algebra II items will be administered in the first 16 items.

Simulations were run with this configuration. On average:

- A total of 52 operational items are administered – about 13 per diagnostic category
- Standard errors are in the range of 0.59 to 0.65

CAT CONFIGURATION – GEOMETRY

The test has four diagnostic categories. Each student will take between 12 and 15 operational items per diagnostic category for a total test of 48 to 60 operational items. With no prior information about a student, the starting point in each diagnostic category will be an item of average difficulty. Items are selected where the response probability is 0.5, meaning a student has a 50% chance of answering correctly. The CAT algorithm will stop administering items in a diagnostic category when one of two conditions is satisfied:

- A student has taken at least 12 operational items in that diagnostic category and the standard error is below 0.60
- A student has taken 15 operational items in that diagnostic category

Functionality is used to favor items close to Geometry. There are no pool restrictions.

Simulations were run with this configuration. On average:

- A total of 53 operational items are administered – about 13 per diagnostic category
- Standard errors are in the range of 0.60 to 0.62

CAT CONFIGURATION – ALGEBRA II

The test has four diagnostic categories. Each student will take between 12 and 15 operational items per diagnostic category for a total test of 48 to 60 operational items. With no prior information about a student, the starting point in each diagnostic category will be an item of average difficulty. Items are selected where the response probability is 0.5, meaning a student has a 50% chance of answering correctly. The CAT algorithm will stop administering items in a diagnostic category when one of two conditions is satisfied:

- A student has taken at least 12 operational items in that diagnostic category and the standard error is below 0.60
- A student has taken 15 operational items in that diagnostic category

Functionality is used to favor items close to Algebra II. There are no pool restrictions.

Simulations were run with this configuration. On average:

- A total of 52 operational items are administered – about 13 per diagnostic category
- Standard errors are in the range of 0.59 to 0.62

Note that the standard error is higher for Mathematics than Algebra I, Geometry, or Algebra II. This is because there are five diagnostic categories instead of four, meaning the test has fewer items per category. Standard errors in the range 0.58 to 0.61 could be achieved for Mathematics, but it would require 12–15 operational items per category (60 to 75 operational items total).

CAT CONFIGURATION – READING/LITERATURE

The test has five diagnostic categories. Each student will take between 10 and 12 operational items per diagnostic category for a total test of 50 to 60 operational items. Starting February 14, 2013, tests also included five to seven field test items. With no prior information about a student, the starting point in each diagnostic category will be an item of average difficulty by grade level. For example, a grade 7 student will start with an item near the average difficulty of grade 7 items. Items are selected where the response probability is 0.5, meaning a student has a 50% chance of answering correctly. The CAT algorithm will stop administering items in a diagnostic category when one of two conditions is satisfied:

- A student has taken at least 10 operational items in that diagnostic category and the standard error is below 0.75
- A student has taken 12 operational items in that diagnostic category

Functionality is used to run CAT with passages and favor items close to student's grade. There are no pool restrictions.

Passage minimum percent is set at 66%. That is, whenever possible, only passage combinations that use 66% or more of the associated items are used. (Near the end of a test, the passage minimum percent constraint may need to be loosened in order to meet content constraints.) Many simulations were run to arrive at this percent. On the one hand, we want to minimize testing time and reading load. Therefore, we do not want students reading long passages for only one or two items. On the other hand, using all items associated with a passage may not be desirable since some items are far from a student's estimated score. Given a limited number of items, we don't want to take up spots with items that are either too easy or too hard.

In evaluating and ranking passages, percent of items associated with the passage is not used. Simulation results indicate that if it is factored into evaluations, students take many short passages because 1 of 1 (100%) and 2 of 2 (100%) are ranked higher than 5 of 6 (83%) and 4 of 5 (80%), for example.

Simulations were run with this configuration. On average:

- A total of 54 operational items are administered – about 11 per diagnostic category
- A total of 19 passages are administered
- Standard errors are in the range of 0.69 to 0.74

Note that the standard error is higher for Reading/Literature than the other content areas. This is because Reading/Literature is passage-based. Rather than selecting one targeted item at a time, the item selection routine evaluates and selects multiple items associated with a given passage. In general, items selected in this manner are not as close to the targeted response probability as stand-alone items selected one by one.

CAT CONFIGURATION – SCIENCE

The test has four diagnostic categories. Each student will take between 12 and 15 operational items per diagnostic category for a total test of 48 to 60 operational items. With no prior information about a student, the starting point in each diagnostic category will be an item of average difficulty by grade level. For example, a grade 7 student will start with an item near the average difficulty of grade 7 items. Items are selected where the response probability is 0.5, meaning a student has a 50% chance of answering correctly. The CAT algorithm will stop administering items in a diagnostic category when one of two conditions is satisfied:

- A student has taken at least 12 operational items in that diagnostic category and the standard error is below 0.60
- A student has taken 15 operational items in that diagnostic category

Functionality is used to restrict the pool and to favor items close to a student's grade. The pool restrictions are:

- No grade 11 items will be administered in the first 20 items UNLESS the student is in grade 11 or 12
- No Biology items will be administered in the first 20 items
- No Chemistry items will be administered in the first 20 items

Simulations were run with this configuration. On average:

- A total of 52 operational items are administered – about 13 per diagnostic category
- Standard errors are in the range of 0.58 to 0.62

CAT CONFIGURATION – BIOLOGY

The test has four diagnostic categories. Each student will take between 12 and 15 operational items per diagnostic category for a total test of 48 to 60 operational items. With no prior information about a student, the starting point in each diagnostic category will be an item of average difficulty. Items are selected where the response probability is 0.5, meaning a student has a 50% chance of answering correctly. The CAT algorithm will stop administering items in a diagnostic category when one of two conditions is satisfied:

- A student has taken at least 12 operational items in that diagnostic category and the standard error is below 0.60
- A student has taken 15 operational items in that diagnostic category

Functionality is used to favor items close to Biology. There are no pool restrictions.

Simulations were run with this configuration. On average:

- A total of 52 operational items are administered – about 13 per diagnostic category
- Standard errors are in the range of 0.58 to 0.61

CAT CONFIGURATION – CHEMISTRY

The test has four diagnostic categories. Each student will take between 12 and 15 operational items per diagnostic category for a total test of 48 to 60 operational items. With no prior information about a student, the starting point in each diagnostic category will be an item of average difficulty. Items are selected where the response probability is 0.5, meaning a student has a 50% chance of answering correctly. The CAT algorithm will stop administering items in a diagnostic category when one of two conditions is satisfied:

- A student has taken at least 12 operational items in that diagnostic category and the standard error is below 0.60
- A student has taken 15 operational items in that diagnostic category

Functionality is used to favor items close to Chemistry. There are no pool restrictions.

Simulations were run with this configuration. On average:

- A total of 52 operational items are administered – about 13 per diagnostic category
- Standard errors are in the range of 0.59 to 0.63

CAT CONFIGURATION – WRITING/ENGLISH COMPOSITION

The test has five diagnostic categories. Each student will take between 10 and 12 operational items per diagnostic category for a total test of 50 to 60 operational items. With no prior information about a student, the starting point in each diagnostic category will be an item of average difficulty by grade level. For example, a grade 7 student will start with an item near the average difficulty of grade 7 items. Items are selected where the response probability is 0.5, meaning a student has a 50% chance of answering correctly. The CAT algorithm will stop administering items in a diagnostic category when one of two conditions is satisfied:

- A student has taken at least 10 operational items in that diagnostic category and the standard error is below 0.65
- A student has taken 12 operational items in that diagnostic category

Functionality is used to favor items close to the student's grade. There are no pool restrictions.

Simulations were run with this configuration. On average:

- A total of 55 to 56 operational items are administered – about 11 per diagnostic category
- Standard errors are in the range of 0.64 to 0.67

Tables 13–3 through 13–6 summarize CAT configurations by content area.

Table 13–3. CAT Configuration Summary – Mathematics

	Mathematics	Algebra I	Geometry	Algebra II
Number of DCs	5	4	4	4
Number of OP Items per DC	10–12	12–15	12–15	12–15
Number of OP Items Total	50–60	48–60	48–60	48–60
Number of FT Items Total	5	0	0	0
Entry Point				
No Prior CDT	average item by grade	average item	average item	average item
Prior CDT	prior diagnostic scores	prior diagnostic scores	prior diagnostic scores	prior diagnostic scores
Item Selection				
Rasch Ability Estimates	After locator, use total estimate until the fifth item in a DC; then switch to DC estimate	After locator, use total estimate until the fifth item in a DC; then switch to DC estimate	After locator, use total estimate until the fifth item in a DC; then switch to DC estimate	After locator, use total estimate until the fifth item in a DC; then switch to DC estimate
Response Probability	0.5	0.5	0.5	0.5
Pool Restriction	Items 1–5: no Algebra I Items 1–5: no grade 11 UNLESS student grade is 11 or 12 Items 1–10: no Geometry Items 1–20: no Algebra II	Items 1–16: no Algebra II	none	none
Favor Items	close to student grade	close to Algebra I	close to Geometry	close to Algebra II
Navigation	no skip; no backtrack	no skip; no backtrack	no skip; no backtrack	no skip; no backtrack
Termination	10 items per DC, SE < 0.65 OR 12 items per DC	12 items per DC, SE < 0.60 OR 15 items per DC	12 items per DC, SE < 0.60 OR 15 items per DC	12 items per DC, SE < 0.60 OR 15 items per DC
Simulation Results	approximately 56 items standard error 0.63 to 0.67	approximately 52 items standard error 0.59 to 0.65	approximately 53 items standard error 0.60 to 0.62	approximately 52 items standard error 0.59 to 0.62

DC = Diagnostic Category

Table 13–4. CAT Configuration Summary – Reading/Literature

	Reading/Literature
Number of DCs	5
Number of OP Items per DC	10–12
Number of OP Items Total	50–60
Number of FT Items Total	5-7
Entry Point	
No Prior CDT	average item by grade
Prior CDT	prior diagnostic scores
Item selection	
Rasch Ability Estimates	After locator, use total estimate until the fifth item in a DC; then switch to DC estimate
Response Probability	0.5
Pool Restriction	none
Favor Items	close to student grade
Passage Min %	66
Passage Evaluation Weights	30 for number of items used; 50 for difference between item difficulty and ability estimate; 20 for difference between item and student grade
Navigation	skip items within passage
Termination	10 items per DC, SE < 0.75 OR 12 items per DC
Simulation Results	approximately 54 items approximately 19 passages standard error 0.69 to 0.74

DC = Diagnostic Category

Table 13–5. CAT Configuration Summary – Science

	Science	Biology	Chemistry
Number of DCs	4	4	4
Number of OP Items per DC	12–15	12–15	12–15
Number of OP Items Total	48–60	48–60	48–60
Number of FT Items Total	0	0	0
Entry Point			
No Prior CDT	average item by grade	average item	average item
Prior CDT	prior diagnostic scores	prior diagnostic scores	prior diagnostic scores
Item Selection			
Rasch Ability Estimates	After locator, use total estimate until the sixth item in a DC; then switch to DC estimate	After locator, use total estimate until the sixth item in a DC; then switch to DC estimate	After locator, use total estimate until the sixth item in a DC; then switch to DC estimate
Response Probability	0.5	0.5	0.5
Pool Restriction	Items 1-20: no grade 11 UNLESS student grade is 11 or 12 Items 1–20: no Biology Items 1–20: no Chemistry	none	none
Favor Items	close to student grade	close to Biology	close to Chemistry
Navigation	no skip; no backtrack	no skip; no backtrack	no skip; no backtrack
Termination	12 items per DC, SE < 0.60 OR 15 items per DC	12 items per DC, SE < 0.60 OR 15 items per DC	12 items per DC, SE < 0.60 OR 15 items per DC
Simulation Results	approximately 52 items standard error 0.58 to 0.62	approximately 52 items standard error 0.58 to 0.61	approximately 52 items standard error 0.59 to 0.63

DC = Diagnostic Category

Table 13–6. CAT Configuration Summary – Writing/English Composition

	Writing/English Composition
Number of DCs	5
Number of OP Items per DC	10–12
Number of OP Items Total	50–60
Number of FT Items Total	0
Entry Point	
No Prior CDT	average item by grade
Prior CDT	prior diagnostic scores
Item Selection	
Rasch Ability Estimates	After locator, use total estimate until the sixth item in a DC; then switch to DC estimate
Response Probability	0.5
Pool Restriction	None
Favor items	close to student grade
Navigation	no skip; no backtrack
Termination	10 items per DC, SE < 0.65 OR 12 items per DC
Simulation Results	approximately 55–56 items standard error 0.64 to 0.67

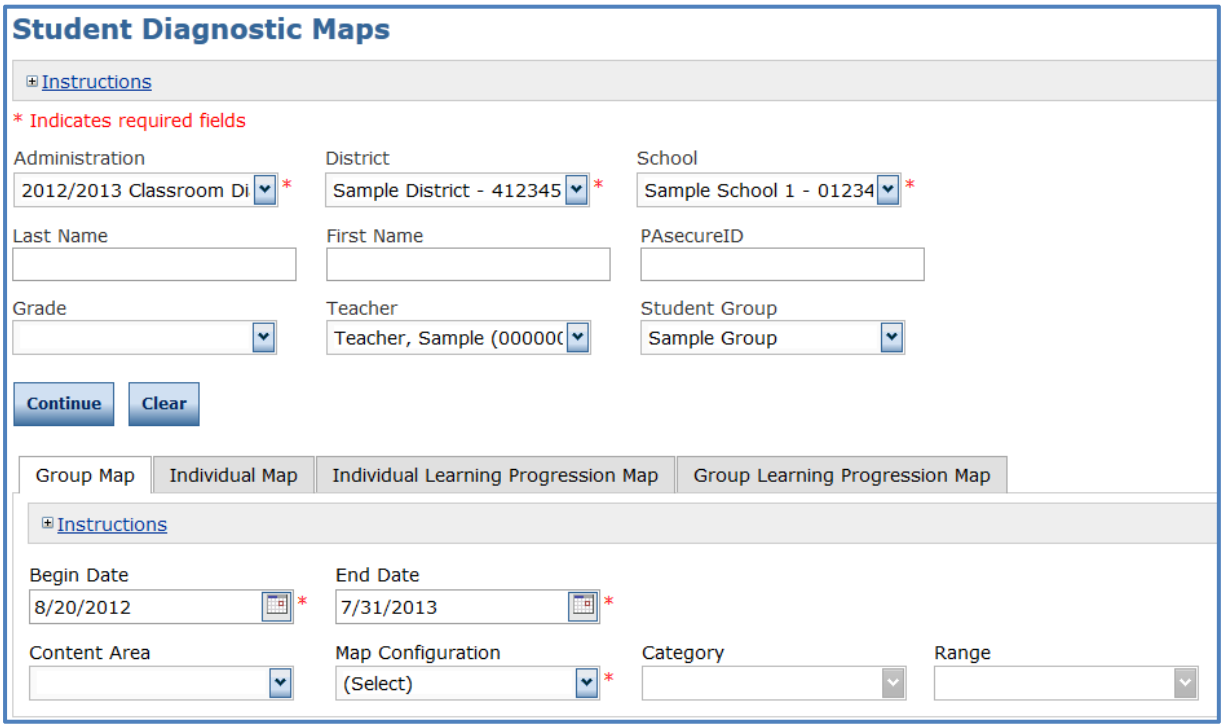
DC = Diagnostic Category

CHAPTER FOURTEEN: SCORES AND SCORE REPORTS

Teachers will receive immediate and usable data to be used for targeting instruction to meet the needs of individual students. The CDT online reports provide direct links to resources in SAS, including specific lesson plans, interventions, and other resources. The reports can also show the progress of students across test administrations. This overview summarizes the steps in accessing the interactive reports, as well as the types of information available for each type of report.

ACCESSING THE INTERACTIVE REPORTS

Any user with the role of District, School, or Teacher has the ability to view the interactive reports. Once the user is logged in, Reporting Tools is an option on the left side of the screen. Next, the user selects Interactive Reports. The appropriate administration, district, school, teacher, and student group should be selected by the user. After the Continue button is selected, the user will be prompted to select the Map Configuration.

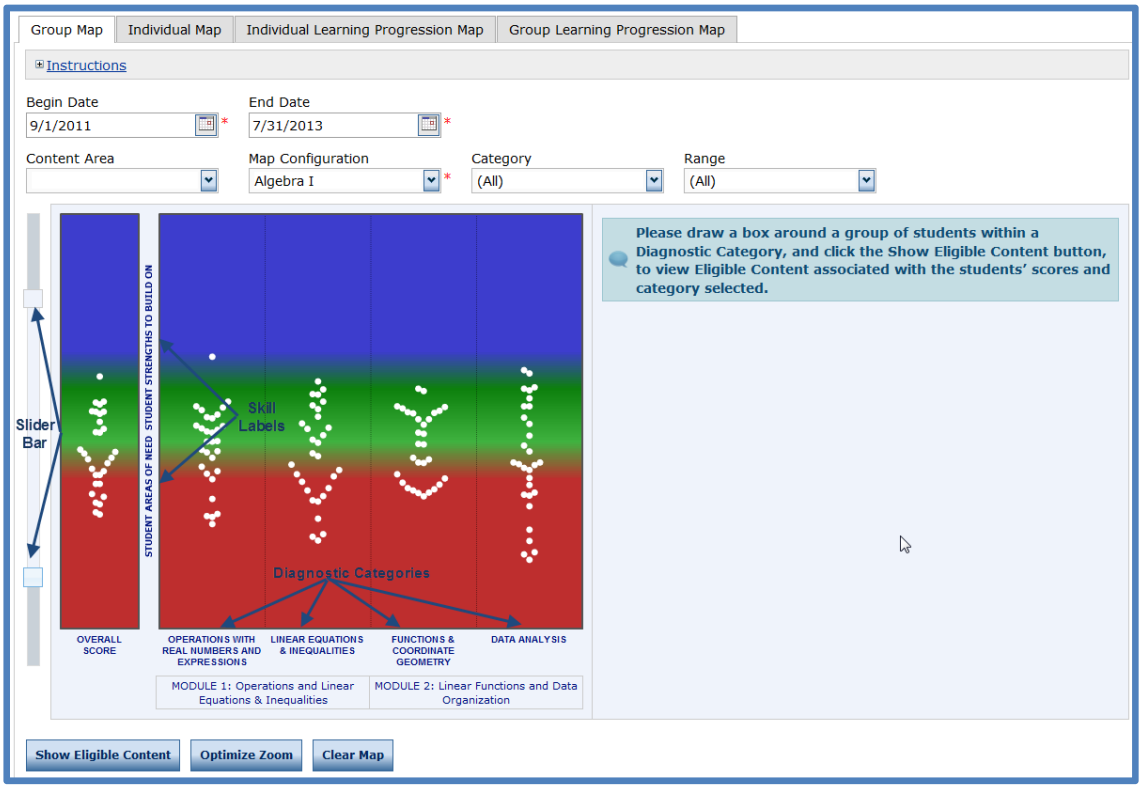


GROUP MAP

The Interactive Reports use colors to indicate relative **Strengths to Build On** and **Areas of Need.** Each descriptor correlates with a color range on the scale: Green/Blue = Strengths to Build On; Red = Areas of Need.

- Each white dot on the Group Map represents a single student score.
- Only students within the Student Group with scores will appear as white dots on the map.

- All dots represent the most recent assessment score (during the administration window selected using the Begin Date and End Date) for each student within the Student Group selected.
- The Group Map is intended to provide general assessment information based on a group of student scores within a Diagnostic Category.



Initially, the Group Map shows the entire vertical scale (representing scores from 400 to 2000). Click on the **Optimize Zoom** button to narrow the window to show only the portion of the scale that includes the highest and lowest scores for the Student Group selected. The area in between the slider bars indicates what portion of the total scale is currently being displayed.

Slider Bar—To adjust the map focus, use the upper and lower sliders on the bar to the left of the map. The area between the sliders is the area of the scale displayed on the map.

Skill Labels—These identify the area on the scale above which are **Student Strengths to Build On** and below which are **Student Areas of Need**.

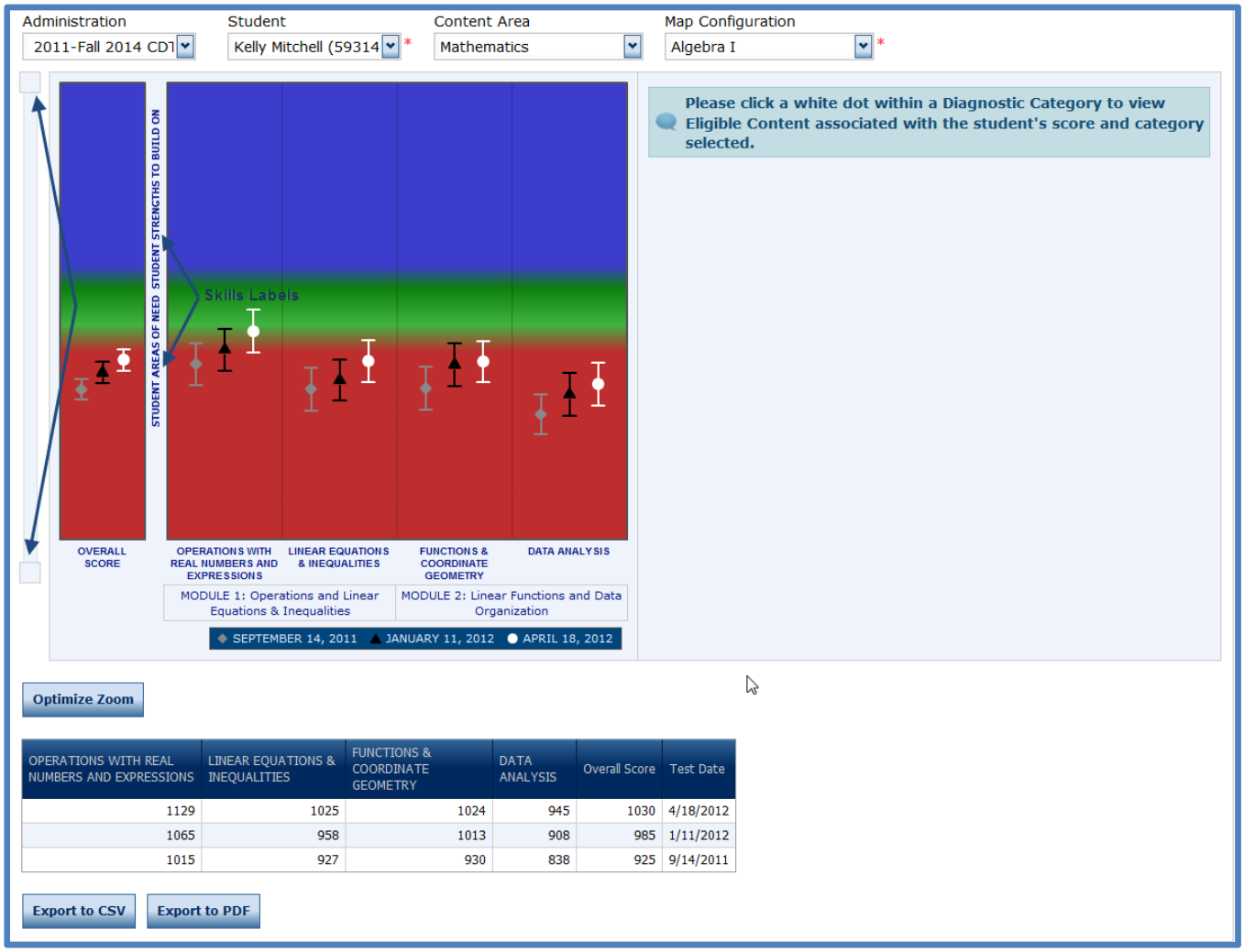
Diagnostic Categories—These appear below each of the columns at the bottom of the map.

Hover Over—Hover over a white dot to view a pop-up of the Name, PAsecureID, Test Date, and Score.

Group Map Grid—This appears below the map and provides a complete list of the students within the selected Student Group as well as additional information, including the date of the most recent test event for each student and his or her diagnostic category and overall scores.

INDIVIDUAL MAP

The Individual Map has the ability to show the three most recent assessments that apply to the Map Configuration selected for an individual student. The Individual Map is intended to provide general Instructional Enrichment (a set of Eligible Content) based on a student's score within a Diagnostic Category.



OPERATIONS WITH REAL NUMBERS AND EXPRESSIONS	LINEAR EQUATIONS & INEQUALITIES	FUNCTIONS & COORDINATE GEOMETRY	DATA ANALYSIS	Overall Score	Test Date
1129	1025	1024	945	1030	4/18/2012
1065	958	1013	908	985	1/11/2012
1015	927	930	838	925	9/14/2011

Student Filter—Click on the **Student** drop-down menu to select a student. When a new student is selected, the map will refresh.

Slider Bar—To adjust the map's focus, use the upper and lower sliders on the bar to the left of the map. The area between the sliders is the area of the scale that is displayed on the map.

Skill Labels—These identify the area on the scale above which are **Student Strengths to Build On** and below which are **Student Areas of Need**.

Diagnostic Categories—These appear below each of the columns at the bottom of the map.

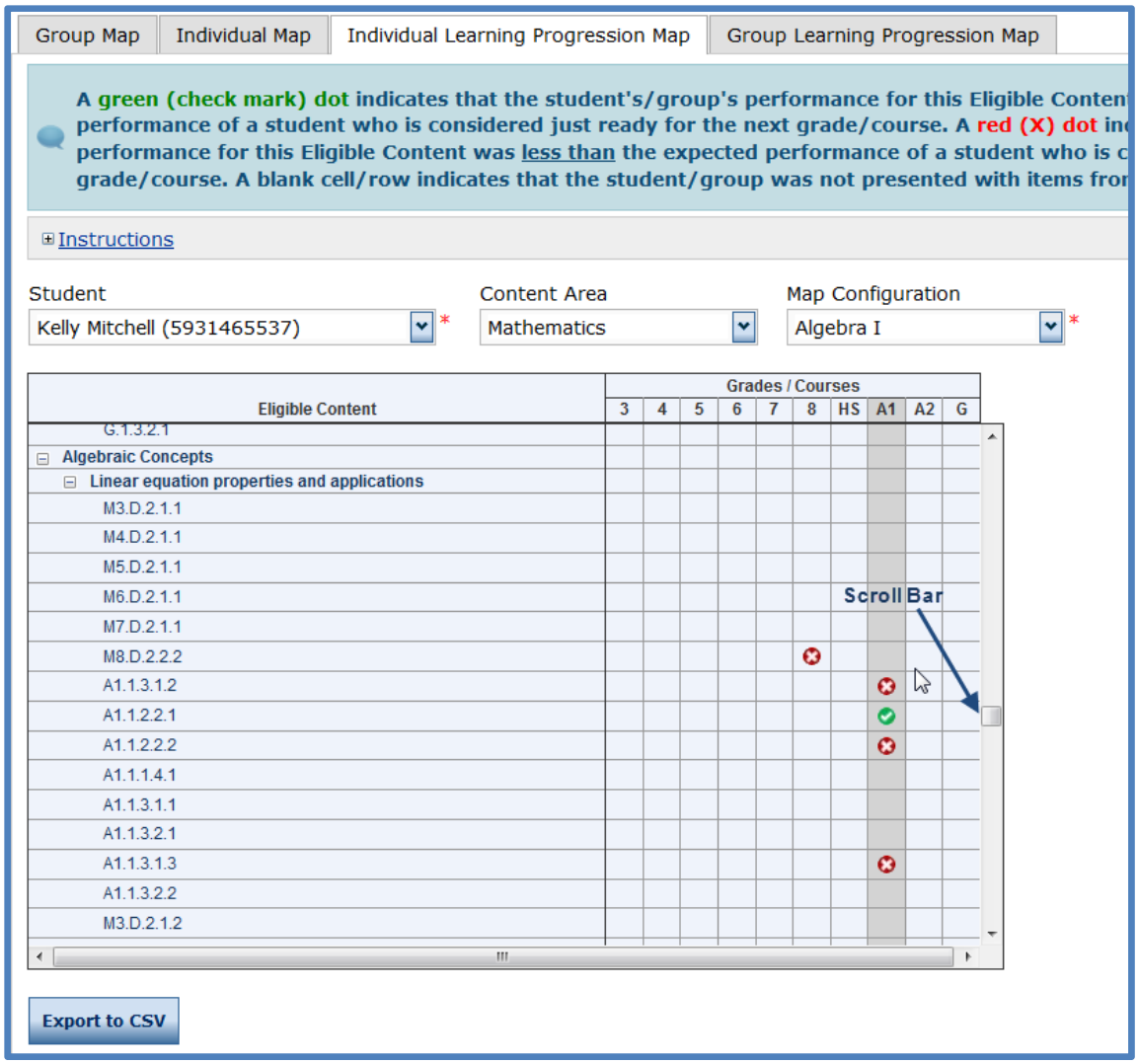
Hover Over—Hover over the dot in the middle of the white, grey, or black line to view a pop-up of the Assessment Date and Score.

Export to PDF—Click on the **Export to PDF** button to export a PDF image of the current view of the map, search criteria, and Instructional Strategies. Instructional Strategies will only appear in the PDF if the **Show Eligible Content** button has been selected. They will appear in the bar to the right of the map.

Export to CSV—Click on the **Export to CSV** button to export map data to a CSV-formatted table.

INDIVIDUAL LEARNING PROGRESSION MAP

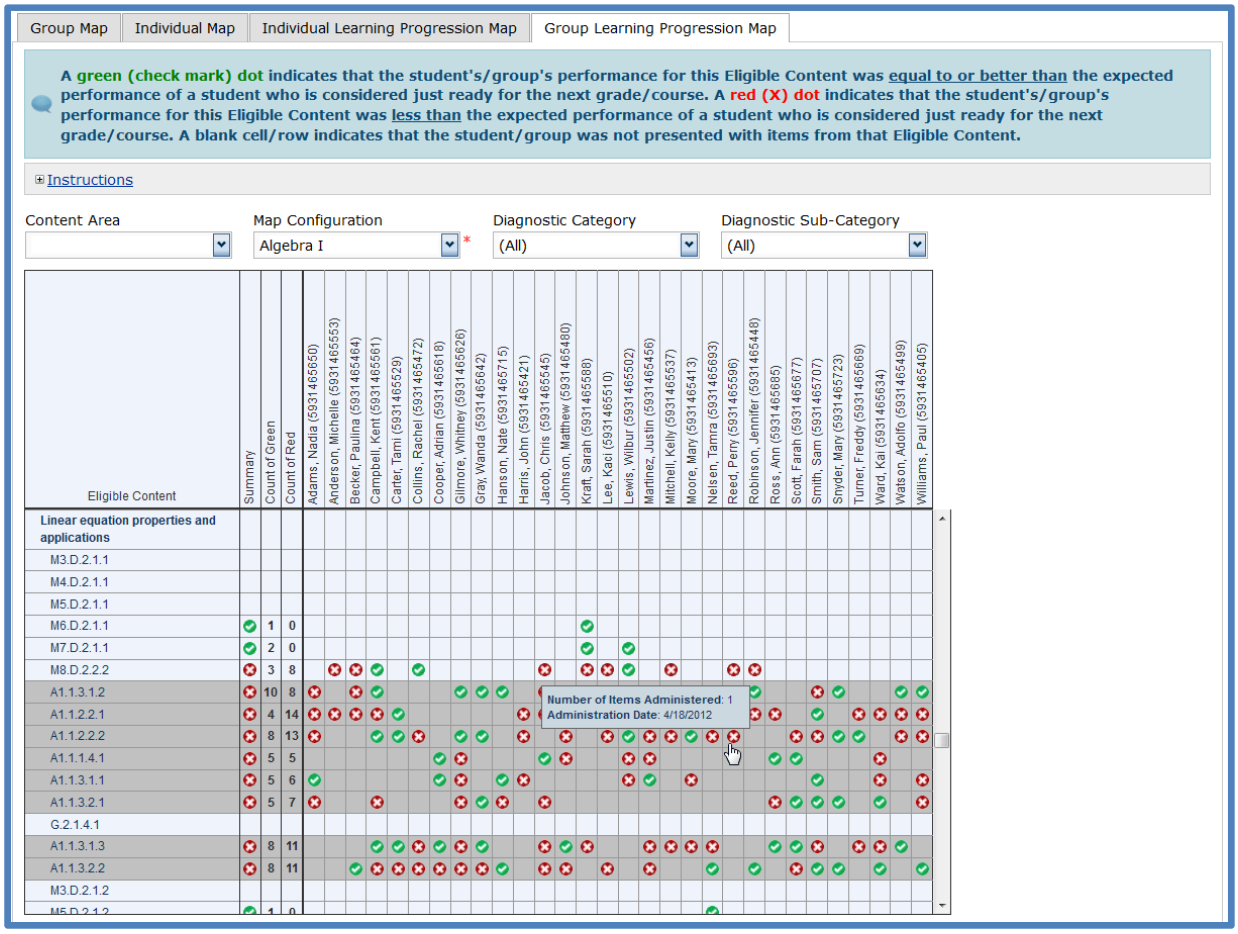
The Individual Learning Progression Map is a graphical representation about how learning may typically move toward increased understanding over time based on Eligible Content. Each row represents the Eligible Content in a subject's domain and subdomain and for a specific grade level or course. The column of the grade/course is highlighted based on the Map Configuration that has been selected.



- A ***green* (check mark)** dot indicates that the student was presented with at least one test item for the Eligible Content and performed as well or better than the expected performance of a student who is considered just ready for the next grade/course.
- A ***red (X)*** dot indicates that the student was presented with at least one test item from the Eligible Content and the student's performance was less than the expected performance of a student who is considered just ready for the next grade/course.
- An empty box represents Eligible Content that is available, but the student was not presented with any test items from that Eligible Content.
- ***Hover Over***—Hover over a red or green dot to see the number of items administered and the administration date. Hover over an Eligible Content code to see the Eligible Content Description and links to available Materials and Resources as well as a sample item for that Eligible Content.

GROUP LEARNING PROGRESSION MAP

The Group Learning Progression Map shows information about the learning progression of Eligible Content for a given content area for all students in a student group. Each row represents the Eligible Content in a subject's domain and subdomain and for a specific grade level or course. Columns show a Summary dot, Count of Green, Count of Red, and one column for each student in the student group.



- The ***Summary*** dot shows the average performance of students in the group that received one or more items for that Eligible Content. When determining the color of the summary dot, all students in the group who received at least one item for that Eligible Content count equally, even though they may have taken different numbers of items for the Eligible Content. Additionally, how close each student's performance is to the expected performance of a student just ready for the next grade/course is taken into account. Therefore, a group's summary dot may not be the same as the most frequently occurring color for the group.
- ***Count of Green*** shows the number of students in the student group who were administered one or more items for a given Eligible Content and received a green dot.
- ***Count of Red*** shows the number of students in the student group who were administered one or more items for a given Eligible Content and received a red dot.
- ***Hover Over***—Hover over a red or green student dot to see the number of items administered and the administration date. Hover over a Summary dot to see the number of students and number of items used to determine the color of the Summary dot. Hover over an Eligible Content code to see the Eligible Content Description and links to available Materials and Resources as well as a sample item for that Eligible Content.

CHAPTER FIFTEEN: OPERATIONAL ADMINSTRATION 2012–2013

This chapter contains summary information about the operational administration of the Classroom Diagnostic Tools (CDT) during the 2012–2013 school year. All CDT tests were available from August 27, 2012 through the end of the school year (July 31, 2013).

The CDT is administered completely online using a computer adaptive test (CAT) model and participation is voluntary. CDT scores are available immediately after testing in the dynamic reporting suite. In addition to the scores, this suite includes links to instructional resources. The CDT may be administered multiple times throughout the school year.

FREQUENCIES

Tables 15–1 through 15–3 present information related to the number of students who were administered one or more CDT tests in the 2012–2013 school year. Table 15–1 shows the number of students who have taken each CDT. Some of these students have taken the same CDT test multiple times or have taken multiple CDT tests. Table 15–1 counts only the first administration of each CDT test. Data about multiple administrations of the same test and multiple CDT tests are presented in Tables 15–2 and 15–3, respectively.

Table 15–1. Number of Students Taking the First Administration of a CDT Test by Grade Level

	Student Grade							
	6	7	8	9	10	11	12	TOTAL
Mathematics	18,587	22,936	14,116	785	631	674	434	58,163
Algebra I	181	4,340	21,567	39,990	29,755	32,201	3,870	131,904
Geometry	0	4	216	1,876	3,643	899	278	6,916
Algebra II	1	3	107	1,018	2,155	2,698	785	6,767
Reading/Literature	14,785	19,821	18,879	25,179	42,883	37,603	2,788	161,938
Science	4,950	7,819	9,810	1,129	300	368	175	24,551
Biology	2	333	655	19,515	34,017	20,979	1,386	76,887
Chemistry	0	0	0	42	1,876	3,087	441	5,446
Writing/English Composition	1,272	2,841	2,961	3,730	1,560	1,224	216	13,804

Table 15–2. Multiple Administrations of the Same CDT Test

	Students with 1 Administration	Students with 2 Administrations	Students with 3 Administrations	Students with 4 Administrations	Students with 5 Administrations
Mathematics	58,163	34,068	11,583	808	34
Algebra I	131,904	55,014	15,434	1,169	150
Geometry	6,916	3,426	692	15	6
Algebra II	6,767	2,861	559	95	2
Reading/Literature	161,938	80,484	22,799	1,500	37
Science	24,551	12,398	3,307	78	0
Biology	76,887	30,932	8,616	709	7
Chemistry	5,446	2,272	362	1	0
Writing/English Comp.	13,804	6,522	1,557	17	0

Table 15–3. Number of Students Taking Multiple CDT Tests

	Math	Algebra I	Geometry	Algebra II	Reading/ Literature	Science	Biology	Chemistry	Writing/ English Comp.
Math	-	-	-	-	-	-	-	-	-
Algebra I	2,633	-	-	-	-	-	-	-	-
Geometry	165	1,993	-	-	-	-	-	-	-
Algebra II	152	1,610	475	-	-	-	-	-	-
Reading	40,173	77,149	4,956	4,648	-	-	-	-	-
Science	15,096	5,628	299	175	16,942	-	-	-	-
Biology	1,418	47,559	3,933	2,792	54,884	981	-	-	-
Chemistry	58	2,254	713	1,258	3,571	31	1,472	-	-
Writing	4,940	5,390	899	819	10,188	5,681	2,890	259	-

Further demographic information about students tested with the CDT is found in the next section.

DEMOGRAPHIC CHARACTERISTICS

COMPOSITION OF SAMPLE USED IN SUBSEQUENT TABLES

To avoid double counting of students, the following demographic tables are based on students' first administration for a given CDT test. Students who took the same test multiple times are counted only once. Students who took different tests are counted for each test. For example, if a student took CDT Algebra I twice, he or she is counted only once in the Algebra I counts; if a student took Algebra I once and Biology once, he or she is counted in both Algebra I and Biology counts.

COLLECTION OF STUDENT DEMOGRAPHIC INFORMATION

Data for analyses of demographic characteristics were obtained primarily from information supplied by school district personnel through the Pennsylvania Information Management System (PIMS) and subsequently transmitted to DRC. However, teachers may assign CDT tests to students who do not have data in PIMS at the time of testing. This may result in some CDT records with incomplete demographic information.

DEMOGRAPHIC CHARACTERISTICS

Frequency data for various demographic categories are presented in Tables 15–4 through 15–12. Shown at the bottom of the appropriate table is the number of students with a total test score on which the column percentages are based. Percentages in some categories may sum to a quantity below 100 percent due to missing data.

Analyses are broken out by grade level. However, in the case of course-specific CDT tests (Algebra I, Geometry, Algebra II, Biology, and Chemistry) students across multiple grades may be enrolled in the course.

Caution should be used in interpreting CDT demographic data, since participation is voluntary and complete demographic data via PIMS is not required for testing.

Table 15–4. Demographic Characteristics of Students Taking CDT Mathematics

Demographic or Educational Characteristic		Gr.6	Gr.7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total
		N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Gender	Female	9,204	11,262	6,710	324	269	316	189	28,274
		49.5%	49.1%	47.5%	41.3%	42.6%	46.9%	43.5%	48.6%
	Male	9,383	11,674	7,406	461	362	358	245	29,889
		50.5%	50.9%	52.5%	58.7%	57.4%	53.1%	56.5%	51.4%
Race/Ethnicity	American Indian or Alaskan Native	27	37	21	0	0	1	4	90
		0.1%	0.2%	0.1%	0.0%	0.0%	0.1%	0.9%	0.2%
	Black/African American non-Hispanic	2,213	2,732	1,834	165	90	54	38	7,126
		11.9%	11.9%	13.0%	21.0%	14.3%	8.0%	8.8%	12.3%
	Hispanic	1,328	1,331	967	60	37	28	11	3,762
		7.1%	5.8%	6.9%	7.6%	5.9%	4.2%	2.5%	6.5%
	White/Caucasian non-Hispanic	14,236	17,799	10,743	533	489	575	368	44,743
		76.6%	77.6%	76.1%	67.9%	77.5%	85.3%	84.8%	76.9%
	Multi-Racial non-Hispanic	426	494	314	17	10	6	8	1,275
		2.3%	2.2%	2.2%	2.2%	1.6%	0.9%	1.8%	2.2%
	Asian non-Hispanic	340	502	214	10	5	7	2	1,080
		1.8%	2.2%	1.5%	1.3%	0.8%	1.0%	0.5%	1.9%
	Native Hawaiian or Pacific Islander	9	29	10	0	0	2	1	51
		0.0%	0.1%	0.1%	0.0%	0.0%	0.3%	0.2%	0.1%
Educational Category and Other Demographic Groups	IEP	2,806	3,519	2,848	342	292	171	138	10,116
		15.1%	15.3%	20.2%	43.6%	46.3%	25.4%	31.8%	17.4%
	Title I	3,998	3,163	1,815	105	78	38	32	9,229
		21.5%	13.8%	12.9%	13.4%	12.4%	5.6%	7.4%	15.9%
	Title III served	356	378	248	19	11	5	1	1,018
		1.9%	1.6%	1.8%	2.4%	1.7%	0.7%	0.2%	1.8%
	Title III not served	41	38	43	3	1	1	0	127
		0.2%	0.2%	0.3%	0.4%	0.2%	0.1%	0.0%	0.2%
	Migrant student	16	12	8	0	0	0	0	36
		0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%
	ELL (enrolled after 3-31-12)	56	65	51	2	0	0	0	174
		0.3%	0.3%	0.4%	0.3%	0.0%	0.0%	0.0%	0.3%
	ELL (enrolled before 3-31-12)	341	350	240	20	12	6	1	970
		1.8%	1.5%	1.7%	2.5%	1.9%	0.9%	0.2%	1.7%
	Exited ESL - first year of monitoring	114	86	58	1	1	0	1	261
		0.6%	0.4%	0.4%	0.1%	0.2%	0.0%	0.2%	0.4%
	Exited ESL - second year of monitoring	77	74	26	1	1	2	2	183
		0.4%	0.3%	0.2%	0.1%	0.2%	0.3%	0.5%	0.3%
	Former ELL and no longer monitored	159	287	170	3	4	2	0	625
		0.9%	1.3%	1.2%	0.4%	0.6%	0.3%	0.0%	1.1%
	Economically disadvantaged	8,617	9,886	6,748	410	280	215	146	26,302
		46.4%	43.1%	47.8%	52.2%	44.4%	31.9%	33.6%	45.2%
	Number of students	18,587	22,936	14,116	785	631	674	434	58,163

Table 15–5. Demographic Characteristics of Students Taking CDT Algebra I

Demographic or Educational Characteristic		Gr.6	Gr.7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total
		N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Gender	Female	55	2,022	10,848	19,437	14,352	15,644	1,777	64,135
		30.4%	46.6%	50.3%	48.6%	48.2%	48.6%	45.9%	48.6%
	Male	126	2,318	10,719	20,553	15,403	16,557	2,093	67,769
		69.6%	53.4%	49.7%	51.4%	51.8%	51.4%	54.1%	51.4%
Race/Ethnicity	American Indian or Alaskan Native	0	3	37	61	48	51	7	207
		0.0%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
	Black/African American non-Hispanic	8	166	1,389	3,996	3,176	2,972	490	12,197
		4.4%	3.8%	6.4%	10.0%	10.7%	9.2%	12.7%	9.2%
	Hispanic	3	120	1,036	3,820	2,526	2,379	353	10,237
		1.7%	2.8%	4.8%	9.6%	8.5%	7.4%	9.1%	7.8%
	White/Caucasian non-Hispanic	129	3,658	18,037	30,600	22,969	25,837	2,860	104,090
		71.3%	84.3%	83.6%	76.5%	77.2%	80.2%	73.9%	78.9%
	Multi-Racial non-Hispanic	5	57	263	700	392	342	65	1,824
		2.8%	1.3%	1.2%	1.8%	1.3%	1.1%	1.7%	1.4%
	Asian non-Hispanic	36	322	766	783	624	592	90	3,213
		19.9%	7.4%	3.6%	2.0%	2.1%	1.8%	2.3%	2.4%
	Native Hawaiian or Pacific Islander	0	14	27	27	18	24	5	115
		0.0%	0.3%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Educational Category and Other Demographic Groups	IEP	6	203	1,263	5,836	4,517	4,482	780	17,087
		3.3%	4.7%	5.9%	14.6%	15.2%	13.9%	20.2%	13.0%
	Title I	8	255	2,106	3,263	2,299	2,161	363	10,455
		4.4%	5.9%	9.8%	8.2%	7.7%	6.7%	9.4%	7.9%
	Title III served	0	11	187	1,040	646	588	150	2,622
		0.0%	0.3%	0.9%	2.6%	2.2%	1.8%	3.9%	2.0%
	Title III not served	0	0	17	70	50	36	15	188
		0.0%	0.0%	0.1%	0.2%	0.2%	0.1%	0.4%	0.1%
	Migrant student	0	0	7	28	16	17	2	70
		0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%
	ELL (enrolled after 3-31-12)	0	1	31	215	97	95	22	461
		0.0%	0.0%	0.1%	0.5%	0.3%	0.3%	0.6%	0.3%
	ELL (enrolled before 3-31-12)	0	10	174	895	599	529	143	2,350
		0.0%	0.2%	0.8%	2.2%	2.0%	1.6%	3.7%	1.8%
	Exited ESL - first year of monitoring	0	11	61	116	128	92	13	421
		0.0%	0.3%	0.3%	0.3%	0.4%	0.3%	0.3%	0.3%
	Exited ESL - second year of monitoring	0	12	32	103	59	79	2	287
		0.0%	0.3%	0.1%	0.3%	0.2%	0.2%	0.1%	0.2%
	Former ELL and no longer monitored	3	58	300	646	416	436	50	1,909
		1.7%	1.3%	1.4%	1.6%	1.4%	1.4%	1.3%	1.4%
	Economically disadvantaged	19	728	5,820	16,260	12,074	11,677	1,507	48,085
		10.5%	16.8%	27.0%	40.7%	40.6%	36.3%	38.9%	36.5%
	Number of students	181	4,340	21,567	39,990	29,755	32,201	3,870	131,904

Table 15–6. Demographic Characteristics of Students Taking CDT Geometry

Demographic or Educational Characteristic		Gr.6	Gr.7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total
		N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Gender	Female	0	1	95	944	1,771	436	115	3,362
		N/A	25.0%	44.0%	50.3%	48.6%	48.5%	41.4%	48.6%
	Male	0	3	121	932	1,872	463	163	3,554
		N/A	75.0%	56.0%	49.7%	51.4%	51.5%	58.6%	51.4%
Race/Ethnicity	American Indian or Alaskan Native	0	0	0	0	6	2	2	10
		N/A	0.0%	0.0%	0.0%	0.2%	0.2%	0.7%	0.1%
	Black/African American non-Hispanic	0	0	19	129	419	104	38	709
		N/A	0.0%	8.8%	6.9%	11.5%	11.6%	13.7%	10.3%
	Hispanic	0	1	4	88	273	66	25	457
		N/A	25.0%	1.9%	4.7%	7.5%	7.3%	9.0%	6.6%
	White/Caucasian non-Hispanic	0	3	167	1,558	2,835	703	204	5,470
		N/A	75.0%	77.3%	83.0%	77.8%	78.2%	73.4%	79.1%
	Multi-Racial non-Hispanic	0	0	4	50	57	20	7	138
		N/A	0.0%	1.9%	2.7%	1.6%	2.2%	2.5%	2.0%
	Asian non-Hispanic	0	0	22	51	53	3	2	131
		N/A	0.0%	10.2%	2.7%	1.5%	0.3%	0.7%	1.9%
	Native Hawaiian or Pacific Islander	0	0	0	0	0	1	0	1
		N/A	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
Educational Category and Other Demographic Groups	IEP	0	0	5	56	503	201	47	812
		N/A	0.0%	2.3%	3.0%	13.8%	22.4%	16.9%	11.7%
	Title I	0	0	4	49	166	45	19	283
		N/A	0.0%	1.9%	2.6%	4.6%	5.0%	6.8%	4.1%
	Title III served	0	0	0	3	47	12	10	72
		N/A	0.0%	0.0%	0.2%	1.3%	1.3%	3.6%	1.0%
	Title III not served	0	0	1	1	12	4	2	20
		N/A	0.0%	0.5%	0.1%	0.3%	0.4%	0.7%	0.3%
	Migrant student	0	0	0	0	0	0	0	0
		N/A	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	ELL (enrolled after 3-31-12)	0	0	1	0	8	3	0	12
		N/A	0.0%	0.5%	0.0%	0.2%	0.3%	0.0%	0.2%
	ELL (enrolled before 3-31-12)	0	0	0	4	51	13	12	80
		N/A	0.0%	0.0%	0.2%	1.4%	1.4%	4.3%	1.2%
	Exited ESL - first year of monitoring	0	0	2	1	20	3	2	28
		N/A	0.0%	0.9%	0.1%	0.5%	0.3%	0.7%	0.4%
	Exited ESL - second year of monitoring	0	0	0	4	11	3	0	18
		N/A	0.0%	0.0%	0.2%	0.3%	0.3%	0.0%	0.3%
	Former ELL and no longer monitored	0	0	1	22	51	14	4	92
		N/A	0.0%	0.5%	1.2%	1.4%	1.6%	1.4%	1.3%
	Economically disadvantaged	0	0	46	445	1,376	411	124	2,402
		N/A	0.0%	21.3%	23.7%	37.8%	45.7%	44.6%	34.7%
	Number of students	0	4	216	1,876	3,643	899	278	6,916

Table 15–7. Demographic Characteristics of Students Taking CDT Algebra II

Demographic or Educational Characteristic		Gr.6	Gr.7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total
		N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Gender	Female	0	2	52	525	1,111	1,349	376	3,415
		0.0%	66.7%	48.6%	51.6%	51.6%	50.0%	47.9%	50.5%
	Male	1	1	55	493	1,044	1,349	409	3,352
		100.0%	33.3%	51.4%	48.4%	48.4%	50.0%	52.1%	49.5%
Race/Ethnicity	American Indian or Alaskan Native	0	0	0	0	4	5	1	10
		0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	0.1%	0.1%
	Black/African American non-Hispanic	0	0	1	41	159	290	111	602
		0.0%	0.0%	0.9%	4.0%	7.4%	10.7%	14.1%	8.9%
	Hispanic	0	1	6	26	115	180	65	393
		0.0%	33.3%	5.6%	2.6%	5.3%	6.7%	8.3%	5.8%
	White/Caucasian non-Hispanic	0	1	86	919	1,774	2,124	577	5,481
		0.0%	33.3%	80.4%	90.3%	82.3%	78.7%	73.5%	81.0%
	Multi-Racial non-Hispanic	1	0	3	9	32	48	20	113
		100.0%	0.0%	2.8%	0.9%	1.5%	1.8%	2.5%	1.7%
	Asian non-Hispanic	0	1	11	23	70	50	10	165
		0.0%	33.3%	10.3%	2.3%	3.2%	1.9%	1.3%	2.4%
	Native Hawaiian or Pacific Islander	0	0	0	0	1	1	1	3
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
Educational Category and Other Demographic Groups	IEP	0	0	1	16	87	280	90	474
		0.0%	0.0%	0.9%	1.6%	4.0%	10.4%	11.5%	7.0%
	Title I	0	0	0	3	82	115	91	291
		0.0%	0.0%	0.0%	0.3%	3.8%	4.3%	11.6%	4.3%
	Title III served	0	0	1	2	8	12	16	39
		0.0%	0.0%	0.9%	0.2%	0.4%	0.4%	2.0%	0.6%
	Title III not served	0	0	0	0	3	8	11	22
		0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	1.4%	0.3%
	Migrant student	0	0	0	0	1	0	0	1
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	ELL (enrolled after 3-31-12)	0	0	0	0	3	4	2	9
		0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.3%	0.1%
	ELL (enrolled before 3-31-12)	0	0	1	2	8	16	25	52
		0.0%	0.0%	0.9%	0.2%	0.4%	0.6%	3.2%	0.8%
	Exited ESL - first year of monitoring	0	0	0	0	6	7	2	15
		0.0%	0.0%	0.0%	0.0%	0.3%	0.3%	0.3%	0.2%
	Exited ESL - second year of monitoring	0	0	0	3	3	5	1	12
		0.0%	0.0%	0.0%	0.3%	0.1%	0.2%	0.1%	0.2%
	Former ELL and no longer monitored	0	0	3	10	24	22	2	61
		0.0%	0.0%	2.8%	1.0%	1.1%	0.8%	0.3%	0.9%
	Economically disadvantaged	1	1	23	189	541	943	325	2,023
		100.0%	33.3%	21.5%	18.6%	25.1%	35.0%	41.4%	29.9%
	Number of students	1	3	107	1,018	2,155	2,698	785	6,767

Table 15–8. Demographic Characteristics of Students Taking CDT Reading/Literature

Demographic or Educational Characteristic		Gr.6	Gr.7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total
		N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Gender	Female	7,280	9,694	9,211	12,135	21,080	18,224	1,244	78,868
		49.2%	48.9%	48.8%	48.2%	49.2%	48.5%	44.6%	48.7%
	Male	7,505	10,127	9,668	13,044	21,803	19,379	1,544	83,070
		50.8%	51.1%	51.2%	51.8%	50.8%	51.5%	55.4%	51.3%
Race/Ethnicity	American Indian or Alaskan Native	25	31	28	32	60	52	5	233
		0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%
	Black/African American non-Hispanic	1,755	2,235	2,103	2,674	3,756	3,361	344	16,228
		11.9%	11.3%	11.1%	10.6%	8.8%	8.9%	12.3%	10.0%
	Hispanic	794	1,019	907	1,710	2,761	2,260	194	9,645
		5.4%	5.1%	4.8%	6.8%	6.4%	6.0%	7.0%	6.0%
	White/Caucasian non-Hispanic	11,626	15,617	15,014	19,687	34,594	30,474	2,161	129,173
		78.6%	78.8%	79.5%	78.2%	80.7%	81.0%	77.5%	79.8%
	Multi-Racial non-Hispanic	325	469	383	483	600	541	37	2,838
		2.2%	2.4%	2.0%	1.9%	1.4%	1.4%	1.3%	1.8%
	Asian non-Hispanic	244	429	420	576	1,083	889	41	3,682
		1.7%	2.2%	2.2%	2.3%	2.5%	2.4%	1.5%	2.3%
	Native Hawaiian or Pacific Islander	10	8	10	15	24	23	2	92
		0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Educational Category and Other Demographic Groups	IEP	2,192	2,860	2,723	3,604	5,417	4,695	679	22,170
		14.8%	14.4%	14.4%	14.3%	12.6%	12.5%	24.4%	13.7%
	Title I	2,991	2,079	2,217	1,830	2,463	2,191	179	13,950
		20.2%	10.5%	11.7%	7.3%	5.7%	5.8%	6.4%	8.6%
	Title III served	196	258	188	380	494	401	52	1,969
		1.3%	1.3%	1.0%	1.5%	1.2%	1.1%	1.9%	1.2%
	Title III not served	34	30	51	38	47	39	17	256
		0.2%	0.2%	0.3%	0.2%	0.1%	0.1%	0.6%	0.2%
	Migrant student	2	2	0	6	11	9	1	31
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	ELL (enrolled after 3-31-12)	35	39	52	96	64	59	8	353
		0.2%	0.2%	0.3%	0.4%	0.1%	0.2%	0.3%	0.2%
	ELL (enrolled before 3-31-12)	195	249	187	323	477	381	61	1,873
		1.3%	1.3%	1.0%	1.3%	1.1%	1.0%	2.2%	1.2%
	Exited ESL - first year of monitoring	76	76	87	74	166	101	5	585
		0.5%	0.4%	0.5%	0.3%	0.4%	0.3%	0.2%	0.4%
	Exited ESL - second year of monitoring	53	48	38	64	72	85	5	365
		0.4%	0.2%	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%
	Former ELL and no longer monitored	112	215	185	309	550	470	14	1,855
		0.8%	1.1%	1.0%	1.2%	1.3%	1.2%	0.5%	1.1%
	Economically disadvantaged	6,643	8,423	7,690	9,613	14,327	12,172	1,133	60,001
		44.9%	42.5%	40.7%	38.2%	33.4%	32.4%	40.6%	37.1%
	Number of students	14,785	19,821	18,879	25,179	42,883	37,603	2,788	161,938

Table 15–9. Demographic Characteristics of Students Taking CDT Science

Demographic or Educational Characteristic		Gr.6	Gr.7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total
		N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Gender	Female	2,493	3,924	4,807	537	140	170	67	12,138
		50.4%	50.2%	49.0%	47.6%	46.7%	46.2%	38.3%	49.4%
	Male	2,457	3,895	5,003	592	160	198	108	12,413
		49.6%	49.8%	51.0%	52.4%	53.3%	53.8%	61.7%	50.6%
Race/Ethnicity	American Indian or Alaskan Native	16	18	19	4	0	0	0	57
		0.3%	0.2%	0.2%	0.4%	0.0%	0.0%	0.0%	0.2%
	Black/African American non-Hispanic	1,058	1,538	1,521	214	67	66	36	4,500
		21.4%	19.7%	15.5%	19.0%	22.3%	17.9%	20.6%	18.3%
	Hispanic	311	436	536	139	45	20	21	1,508
		6.3%	5.6%	5.5%	12.3%	15.0%	5.4%	12.0%	6.1%
	White/Caucasian non-Hispanic	3,259	5,367	7,318	709	173	270	107	17,203
		65.8%	68.6%	74.6%	62.8%	57.7%	73.4%	61.1%	70.1%
	Multi-Racial non-Hispanic	228	295	230	50	4	9	6	822
		4.6%	3.8%	2.3%	4.4%	1.3%	2.4%	3.4%	3.3%
	Asian non-Hispanic	65	150	170	13	11	3	3	415
		1.3%	1.9%	1.7%	1.2%	3.7%	0.8%	1.7%	1.7%
	Native Hawaiian or Pacific Islander	6	4	4	0	0	0	0	14
		0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
Educational Category and Other Demographic Groups	IEP	733	1,160	1,431	224	72	93	87	3,800
		14.8%	14.8%	14.6%	19.8%	24.0%	25.3%	49.7%	15.5%
	Title I	958	1,741	1,646	228	28	40	17	4,658
		19.4%	22.3%	16.8%	20.2%	9.3%	10.9%	9.7%	19.0%
	Title III served	65	120	120	20	10	3	2	340
		1.3%	1.5%	1.2%	1.8%	3.3%	0.8%	1.1%	1.4%
	Title III not served	21	19	34	12	3	2	3	94
		0.4%	0.2%	0.3%	1.1%	1.0%	0.5%	1.7%	0.4%
	Migrant student	2	5	1	0	1	0	0	9
		0.0%	0.1%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%
	ELL (enrolled after 3-31-12)	11	13	24	4	5	4	1	62
		0.2%	0.2%	0.2%	0.4%	1.7%	1.1%	0.6%	0.3%
	ELL (enrolled before 3-31-12)	75	126	130	28	8	1	4	372
		1.5%	1.6%	1.3%	2.5%	2.7%	0.3%	2.3%	1.5%
	Exited ESL - first year of monitoring	37	50	54	4	3	0	1	149
		0.7%	0.6%	0.6%	0.4%	1.0%	0.0%	0.6%	0.6%
	Exited ESL - second year of monitoring	21	20	18	1	2	0	1	63
		0.4%	0.3%	0.2%	0.1%	0.7%	0.0%	0.6%	0.3%
	Former ELL and no longer monitored	25	61	93	20	4	3	2	208
		0.5%	0.8%	0.9%	1.8%	1.3%	0.8%	1.1%	0.8%
	Economically disadvantaged	2,776	4,072	4,636	596	143	183	74	12,480
		56.1%	52.1%	47.3%	52.8%	47.7%	49.7%	42.3%	50.8%
	Number of students	4,950	7,819	9,810	1,129	300	368	175	24,551

Table 15–10. Demographic Characteristics of Students Taking CDT Biology

Demographic or Educational Characteristic		Gr.6	Gr.7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total
		N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Gender	Female	0	146	348	9,865	16,709	10,206	660	37,934
		0.0%	43.8%	53.1%	50.6%	49.1%	48.6%	47.6%	49.3%
	Male	2	187	307	9,650	17,308	10,773	726	38,953
		100.0%	56.2%	46.9%	49.4%	50.9%	51.4%	52.4%	50.7%
Race/Ethnicity	American Indian or Alaskan Native	0	1	1	26	60	35	2	125
		0.0%	0.3%	0.2%	0.1%	0.2%	0.2%	0.1%	0.2%
	Black/African American non-Hispanic	0	17	45	1,694	2,787	1,863	195	6,601
		0.0%	5.1%	6.9%	8.7%	8.2%	8.9%	14.1%	8.6%
	Hispanic	0	11	32	788	2,031	950	104	3,916
		0.0%	3.3%	4.9%	4.0%	6.0%	4.5%	7.5%	5.1%
	White/Caucasian non-Hispanic	2	295	541	16,032	27,809	17,343	1,030	63,052
		100.0%	88.6%	82.6%	82.2%	81.8%	82.7%	74.3%	82.0%
	Multi-Racial non-Hispanic	0	3	19	337	451	276	19	1,105
		0.0%	0.9%	2.9%	1.7%	1.3%	1.3%	1.4%	1.4%
	Asian non-Hispanic	0	6	16	626	855	491	35	2,029
		0.0%	1.8%	2.4%	3.2%	2.5%	2.3%	2.5%	2.6%
	Native Hawaiian or Pacific Islander	0	0	1	12	19	17	1	50
		0.0%	0.0%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%
Educational Category and Other Demographic Groups	IEP	2	45	78	2,046	4,417	2,499	294	9,381
		100.0%	13.5%	11.9%	10.5%	13.0%	11.9%	21.2%	12.2%
	Title I	0	39	111	1,147	1,704	934	75	4,010
		0.0%	11.7%	16.9%	5.9%	5.0%	4.5%	5.4%	5.2%
	Title III served	0	10	10	206	451	243	39	959
		0.0%	3.0%	1.5%	1.1%	1.3%	1.2%	2.8%	1.2%
	Title III not served	0	0	0	16	45	18	3	82
		0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.2%	0.1%
	Migrant student	0	0	0	0	11	0	1	12
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
	ELL (enrolled after 3-31-12)	0	0	1	58	65	43	2	169
		0.0%	0.0%	0.2%	0.3%	0.2%	0.2%	0.1%	0.2%
	ELL (enrolled before 3-31-12)	0	10	9	164	431	218	40	872
		0.0%	3.0%	1.4%	0.8%	1.3%	1.0%	2.9%	1.1%
	Exited ESL - first year of monitoring	0	5	2	45	144	45	7	248
		0.0%	1.5%	0.3%	0.2%	0.4%	0.2%	0.5%	0.3%
	Exited ESL - second year of monitoring	0	2	2	34	64	35	2	139
		0.0%	0.6%	0.3%	0.2%	0.2%	0.2%	0.1%	0.2%
	Former ELL and no longer monitored	0	8	16	196	428	215	16	879
		0.0%	2.4%	2.4%	1.0%	1.3%	1.0%	1.2%	1.1%
	Economically disadvantaged	1	126	268	6,344	11,559	6,789	553	25,640
		50.0%	37.8%	40.9%	32.5%	34.0%	32.4%	39.9%	33.3%
	Number of students	2	333	655	19,515	34,017	20,979	1,386	76,887

Table 15–11. Demographic Characteristics of Students Taking CDT Chemistry

Demographic or Educational Characteristic		Gr.6	Gr.7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total
		N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Gender	Female	0	0	0	18	993	1,566	244	2,821
		N/A	N/A	N/A	42.9%	52.9%	50.7%	55.3%	51.8%
	Male	0	0	0	24	883	1,521	197	2,625
		N/A	N/A	N/A	57.1%	47.1%	49.3%	44.7%	48.2%
Race/Ethnicity	American Indian or Alaskan Native	0	0	0	0	4	1	1	6
		N/A	N/A	N/A	0.0%	0.2%	0.0%	0.2%	0.1%
	Black/African American non-Hispanic	0	0	0	3	180	268	48	499
		N/A	N/A	N/A	7.1%	9.6%	8.7%	10.9%	9.2%
	Hispanic	0	0	0	2	56	267	51	376
		N/A	N/A	N/A	4.8%	3.0%	8.6%	11.6%	6.9%
	White/Caucasian non-Hispanic	0	0	0	36	1,565	2,443	320	4,364
		N/A	N/A	N/A	85.7%	83.4%	79.1%	72.6%	80.1%
	Multi-Racial non-Hispanic	0	0	0	1	26	63	12	102
		N/A	N/A	N/A	2.4%	1.4%	2.0%	2.7%	1.9%
	Asian non-Hispanic	0	0	0	0	44	44	9	97
		N/A	N/A	N/A	0.0%	2.3%	1.4%	2.0%	1.8%
	Native Hawaiian or Pacific Islander	0	0	0	0	1	1	0	2
		N/A	N/A	N/A	0.0%	0.1%	0.0%	0.0%	0.0%
Educational Category and Other Demographic Groups	IEP	0	0	0	7	126	288	51	472
		N/A	N/A	N/A	16.7%	6.7%	9.3%	11.6%	8.7%
	Title I	0	0	0	0	76	238	28	342
		N/A	N/A	N/A	0.0%	4.1%	7.7%	6.3%	6.3%
	Title III served	0	0	0	1	3	38	13	55
		N/A	N/A	N/A	2.4%	0.2%	1.2%	2.9%	1.0%
	Title III not served	0	0	0	0	1	6	4	11
		N/A	N/A	N/A	0.0%	0.1%	0.2%	0.9%	0.2%
	Migrant student	0	0	0	0	0	0	0	0
		N/A	N/A	N/A	0.0%	0.0%	0.0%	0.0%	0.0%
	ELL (enrolled after 3-31-12)	0	0	0	0	0	6	4	10
		N/A	N/A	N/A	0.0%	0.0%	0.2%	0.9%	0.2%
	ELL (enrolled before 3-31-12)	0	0	0	1	4	38	13	56
		N/A	N/A	N/A	2.4%	0.2%	1.2%	2.9%	1.0%
	Exited ESL- first year of monitoring	0	0	0	0	1	12	2	15
		N/A	N/A	N/A	0.0%	0.1%	0.4%	0.5%	0.3%
	Exited ESL - second year of monitoring	0	0	0	0	1	9	1	11
		N/A	N/A	N/A	0.0%	0.1%	0.3%	0.2%	0.2%
	Former ELL and no longer monitored	0	0	0	1	13	54	6	74
		N/A	N/A	N/A	2.4%	0.7%	1.7%	1.4%	1.4%
	Economically disadvantaged	0	0	0	25	543	1,116	188	1,872
		N/A	N/A	N/A	59.5%	28.9%	36.2%	42.6%	34.4%
	Number of students	0	0	0	42	1,876	3,087	441	5,446

Table 15–12. Demographic Characteristics of Students Taking CDT Writing/English Composition

Demographic or Educational Characteristic		Gr.6	Gr.7	Gr. 8	Gr. 9	Gr. 10	Gr. 11	Gr. 12	Total
		N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Gender	Female	616	1,386	1,393	1,766	756	550	85	6,552
		48.4%	48.8%	47.0%	47.3%	48.5%	44.9%	39.4%	47.5%
	Male	656	1,455	1,568	1,964	804	674	131	7,252
		51.6%	51.2%	53.0%	52.7%	51.5%	55.1%	60.6%	52.5%
Race/Ethnicity	American Indian or Alaskan Native	7	3	8	2	3	2	0	25
		0.6%	0.1%	0.3%	0.1%	0.2%	0.2%	0.0%	0.2%
	Black/African American non-Hispanic	29	215	328	315	112	127	7	1,133
		2.3%	7.6%	11.1%	8.4%	7.2%	10.4%	3.2%	8.2%
	Hispanic	30	107	135	206	87	71	3	639
		2.4%	3.8%	4.6%	5.5%	5.6%	5.8%	1.4%	4.6%
	White/Caucasian non-Hispanic	1,182	2,404	2,390	3,075	1,301	975	201	11,528
		92.9%	84.6%	80.7%	82.4%	83.4%	79.7%	93.1%	83.5%
	Multi-Racial non-Hispanic	8	45	41	71	13	11	2	191
		0.6%	1.6%	1.4%	1.9%	0.8%	0.9%	0.9%	1.4%
	Asian non-Hispanic	8	54	47	59	43	38	2	251
		0.6%	1.9%	1.6%	1.6%	2.8%	3.1%	0.9%	1.8%
	Native Hawaiian or Pacific Islander	2	2	1	2	1	0	0	8
		0.2%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%
Educational Category and Other Demographic Groups	IEP	202	414	419	550	192	197	54	2,028
		15.9%	14.6%	14.2%	14.7%	12.3%	16.1%	25.0%	14.7%
	Title I	70	252	272	260	127	94	2	1,077
		5.5%	8.9%	9.2%	7.0%	8.1%	7.7%	0.9%	7.8%
	Title III served	5	7	6	20	15	5	2	60
		0.4%	0.2%	0.2%	0.5%	1.0%	0.4%	0.9%	0.4%
	Title III not served	0	4	7	2	2	1	1	17
		0.0%	0.1%	0.2%	0.1%	0.1%	0.1%	0.5%	0.1%
	Migrant student	0	0	0	0	0	0	0	0
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	ELL (enrolled after 3-31-12)	0	3	2	4	7	2	0	18
		0.0%	0.1%	0.1%	0.1%	0.4%	0.2%	0.0%	0.1%
	ELL (enrolled before 3-31-12)	5	8	11	18	10	4	3	59
		0.4%	0.3%	0.4%	0.5%	0.6%	0.3%	1.4%	0.4%
	Exited ESL- first year of monitoring	0	10	9	11	7	3	0	40
		0.0%	0.4%	0.3%	0.3%	0.4%	0.2%	0.0%	0.3%
	Exited ESL - second year of monitoring	0	2	6	13	6	5	0	32
		0.0%	0.1%	0.2%	0.3%	0.4%	0.4%	0.0%	0.2%
	Former ELL and no longer monitored	3	7	11	30	15	6	0	72
		0.2%	0.2%	0.4%	0.8%	1.0%	0.5%	0.0%	0.5%
	Economically disadvantaged	536	1,161	1,299	1,388	496	461	64	5,405
		42.1%	40.9%	43.9%	37.2%	31.8%	37.7%	29.6%	39.2%
	Number of students	1,272	2,841	2,961	3,730	1,560	1,224	216	13,804

SUMMARY STATISTICS – TEST LENGTH

The analyses from here until the section titled "Multiple Administrations of the Same CDT Test" include all records in the CDT operational assessments. When a student took CDT Mathematics twice, for example, both records were used in the analyses.

As noted in Chapter Thirteen, CDT tests have either four or five diagnostic categories. On tests with five diagnostic categories (Mathematics, Reading/Literature, and Writing/English Composition), students take between 10 and 12 operational items per diagnostic category for a total test of 50 to 60 operational items. On tests with four diagnostic categories (Algebra I, Geometry, Algebra II, Science, Biology, and Chemistry), students take between 12 and 15 operational items per diagnostic category for a total test of 48 to 60 operational items.

Table 15–13 shows the summary statistics for the test length for each assessment. Summary statistics are based on the number of items presented to the student and include minimum, maximum, quartiles 1 and 3, mean, and median.

Table 15–13. Summary Statistics for CDT Test Length (Number of Items Administered)

	N	Minimum	Q1	Median	Mean	Q3	Maximum
Mathematics	104,656	50	54	55	55.44	57	60
Algebra I	203,671	47*	49	51	51.40	53	60
Geometry	11,055	48	50	51	52.03	54	60
Algebra II	10,284	47*	50	52	52.07	54	60
Reading/Literature	266,758	49*	53	54	54.60	56	60
Science	40,334	48	50	51	51.68	53	60
Biology	117,151	48	50	51	51.75	53	60
Chemistry	8,081	48	50	52	52.46	55	60
Writing/English Comp.	21,900	50	54	55	55.26	56	60

*Occasionally a test that is within 1 item of the minimum is moved to "complete" status so reports can be viewed.

The minimum number of items was quite similar, ranging from 47 to 50. The mean and median were higher for Mathematics, Reading/Literature, and Writing/English Composition. This is due to the additional diagnostic category. The maximum number of items administered was fixed at 60 for all CDT tests.

SUMMARY STATISTICS – SCALE SCORES AND CONDITIONAL STANDARD ERRORS FOR TOTAL TEST

Table 15–14 shows the summary statistics for the scale scores based on total test. Tests with multiple benchmark cuts (Mathematics, Reading, Science, and Writing) are broken down to match the grade level of the cuts. Tests that are course-specific (Algebra I, Geometry, Algebra II, Literature, Biology, Chemistry, and English Composition) are not broken down.

Table 15–14. Summary Statistics for Scale Score Based on Total Test

	N	Minimum	Q1	Median	Mean	Q3	Maximum
Mathematics – G6	35,412	495	866	961	955.46	1054	1432
Mathematics – G7	42,248	484	922	1022	1007.00	1104	1457
Mathematics – G8	23,769	498	937	1027	1012.07	1100	1582
Mathematics – HS	3,227	467	901	1037	1028.84	1158	1683
Algebra I	203,671	400	1034	1117	1101.82	1182	1844
Geometry	11,055	545	1028	1111	1102.34	1185	1723
Algebra II	10,284	547	1082	1157	1154.96	1232	1875
Reading – G6	27,361	406	825	943	923.38	1035	1436
Reading – G7	34,608	400	869	988	963.88	1076	1471
Reading – G8	33,297	411	900	1012	989.96	1099	1494
Literature	171,492	400	953	1064	1038.42	1147	1631
Science – G6	8,247	445	771	868	856.53	947	1214
Science – G7	13,261	484	803	903	887.05	981	1292
Science – G8	15,973	453	841	935	915.15	1001	1341
Science – HS	2,853	503	742	867	859.82	972	1270
Biology	117,151	475	918	1002	991.56	1073	1674
Chemistry	8,081	638	934	1007	1003.24	1075	1524
Writing – G6	2,406	464	861	954	934.40	1020	1283
Writing – G7	4,670	503	881	978	955.74	1049	1265
Writing – G8	4,464	447	887	982	961.01	1054	1443
English Composition	10,360	448	957	1047	1026.73	1120	1504

Table 15–15 shows the summary statistics for the conditional standard errors (CSEMs) in the scale score metric based on total test. The final column in the table shows the theoretical minimum CSEM that is possible for a test length equal to the mean number of items. This is the standard error if the student's ability is known and there are sufficient items in the operational pool to administer where the item's difficulty is equal to the known ability and the test constraints are met.

Table 15–15. Summary Statistics for Conditional Standard Errors Based on Total Test

	N	Minimum	Q1	Median	Mean	Q3	Maximum	Theoretical Minimum
Mathematics – G6	35,412	34	35	36	36.03	36	49	33.38
Mathematics – G7	42,248	34	35	36	36.02	36	53	33.68
Mathematics – G8	23,769	34	35	36	36.08	36	55	33.68
Mathematics – HS	3,227	34	35	36	36.36	37	75	33.38
Algebra I	203,671	34	37	37	37.32	38	127	34.98
Geometry	11,055	34	37	37	37.35	38	90	34.64
Algebra II	10,284	34	37	37	37.37	38	126	34.64
Reading – G6	27,361	39	42	43	43.80	45	87	38.87
Reading – G7	34,608	39	42	43	43.86	45	87	38.87
Reading – G8	33,297	39	42	43	43.76	45	86	38.87
Literature	171,492	39	42	43	44.64	46	145	38.52
Science – G6	8,247	37	39	39	39.44	40	58	36.85
Science – G7	13,261	37	39	39	39.45	40	54	36.85
Science – G8	15,973	37	39	39	39.43	40	63	37.21
Science – HS	2,853	37	39	39	39.70	40	54	36.50
Biology	117,151	37	39	39	39.46	40	96	36.85
Chemistry	8,081	37	39	39	39.66	40	63	36.85
Writing – G6	2,406	36	38	38	38.03	38	55	35.87
Writing – G7	4,670	36	38	38	38.08	38	51	35.87
Writing – G8	4,464	36	38	38	38.15	38	59	35.87
English Composition	10,360	36	38	38	38.23	38	70	35.87

Values in the “Minimum” column that are less than the “Theoretical Minimum” are due to students taking more than the mean number of items. Recall that calculation of “Theoretical Minimum” is based on the mean number of items.

Figures 15–1 through 15–4 show the scale score distributions for the total test for the content areas Mathematics, Reading, Science, and Writing. Tests with multiple benchmark cuts are broken down to match the grade level of the cuts while tests that are course-specific are not broken down. The benchmark cuts in place during the 2012–2013 school year are shown in green[9]. The bottom plot in each figure represents the distribution of items in the content area pools.

[9] For details on benchmark cuts, see Chapter Ten and Chapter Nineteen.

Figure 15–1. Scale Score Distribution – Mathematics Total Scores

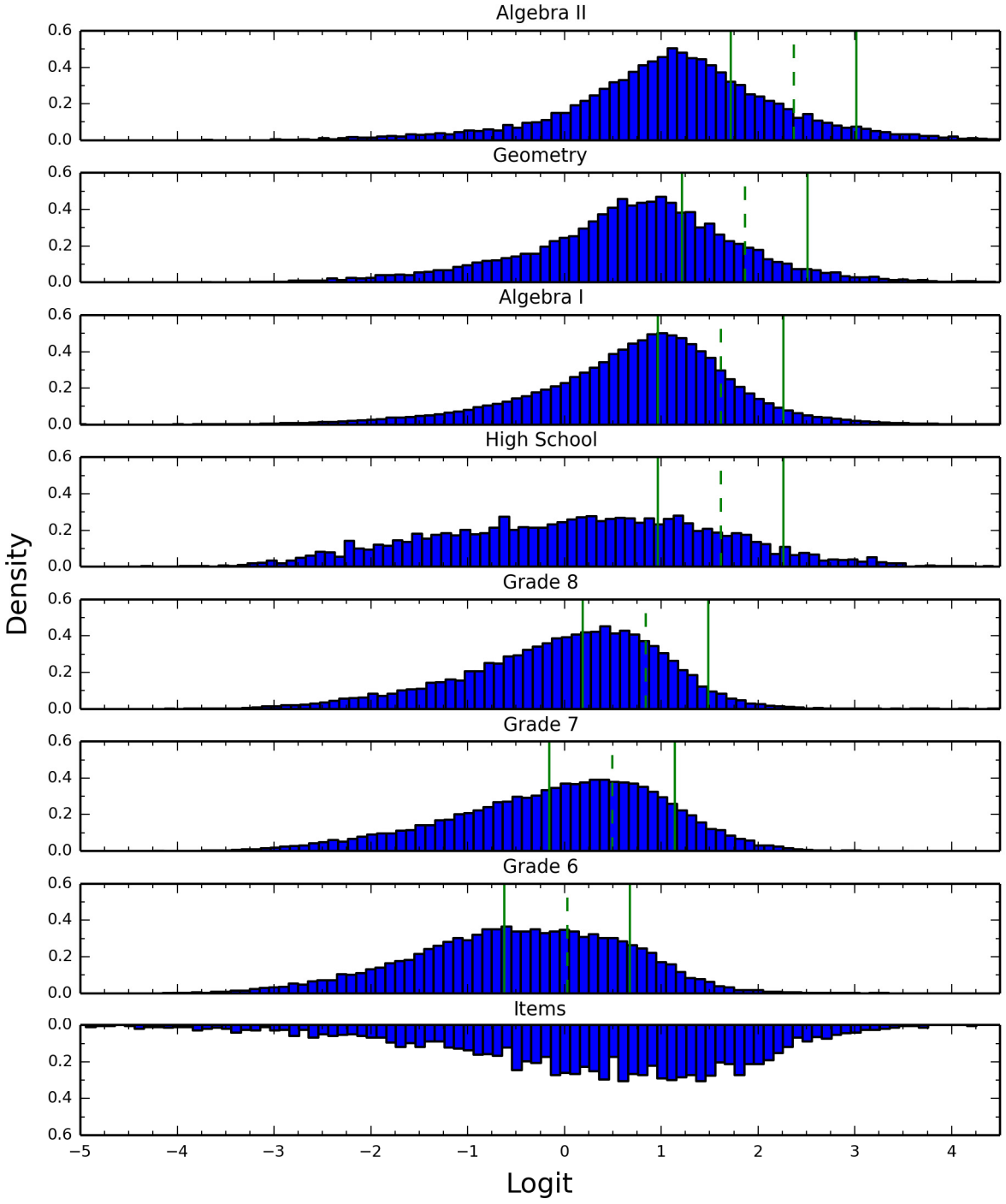


Figure 15–2. Scale Score Distribution – Reading/Literature Total Scores

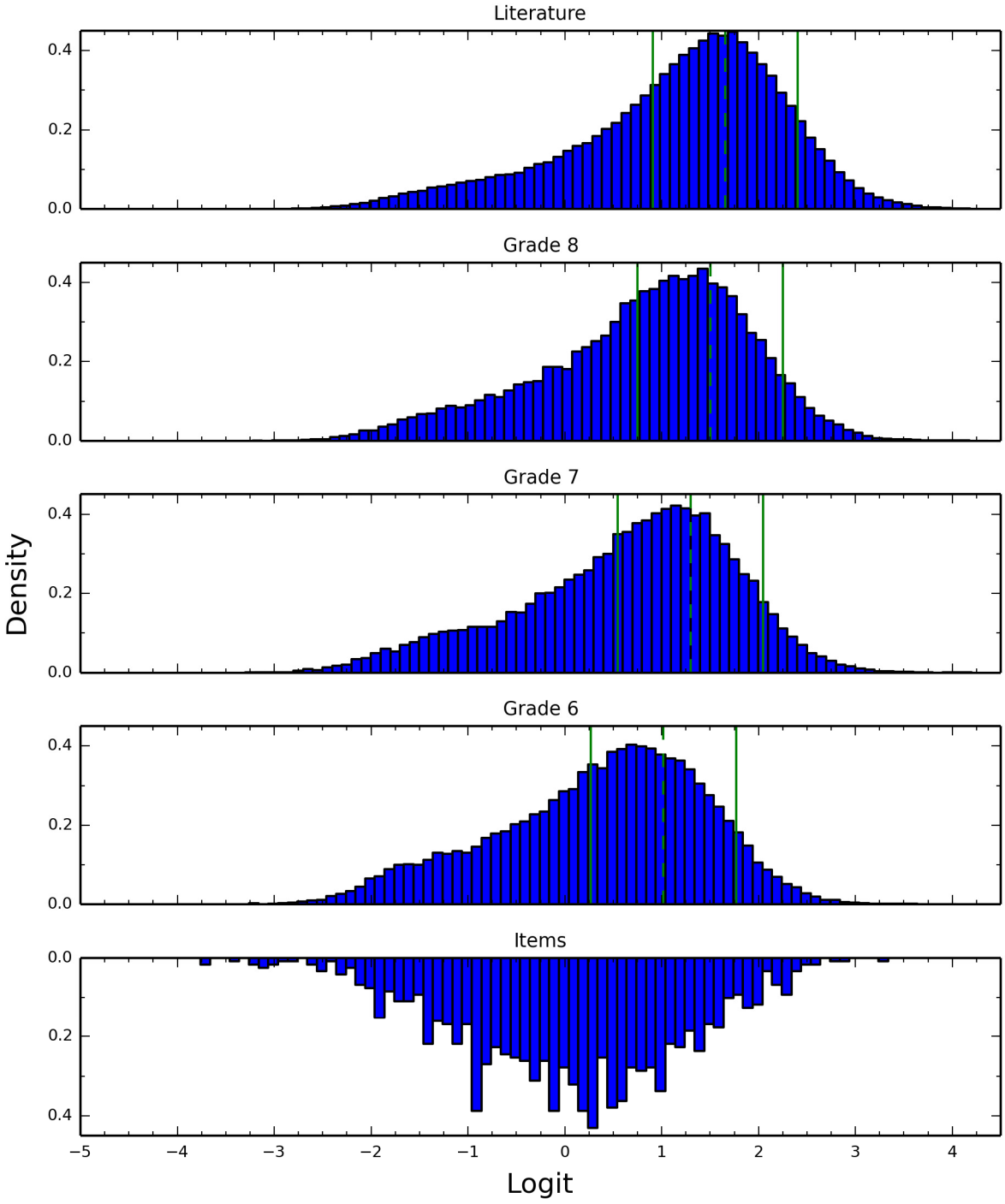


Figure 15–3. Scale Score Distribution – Science Total Scores

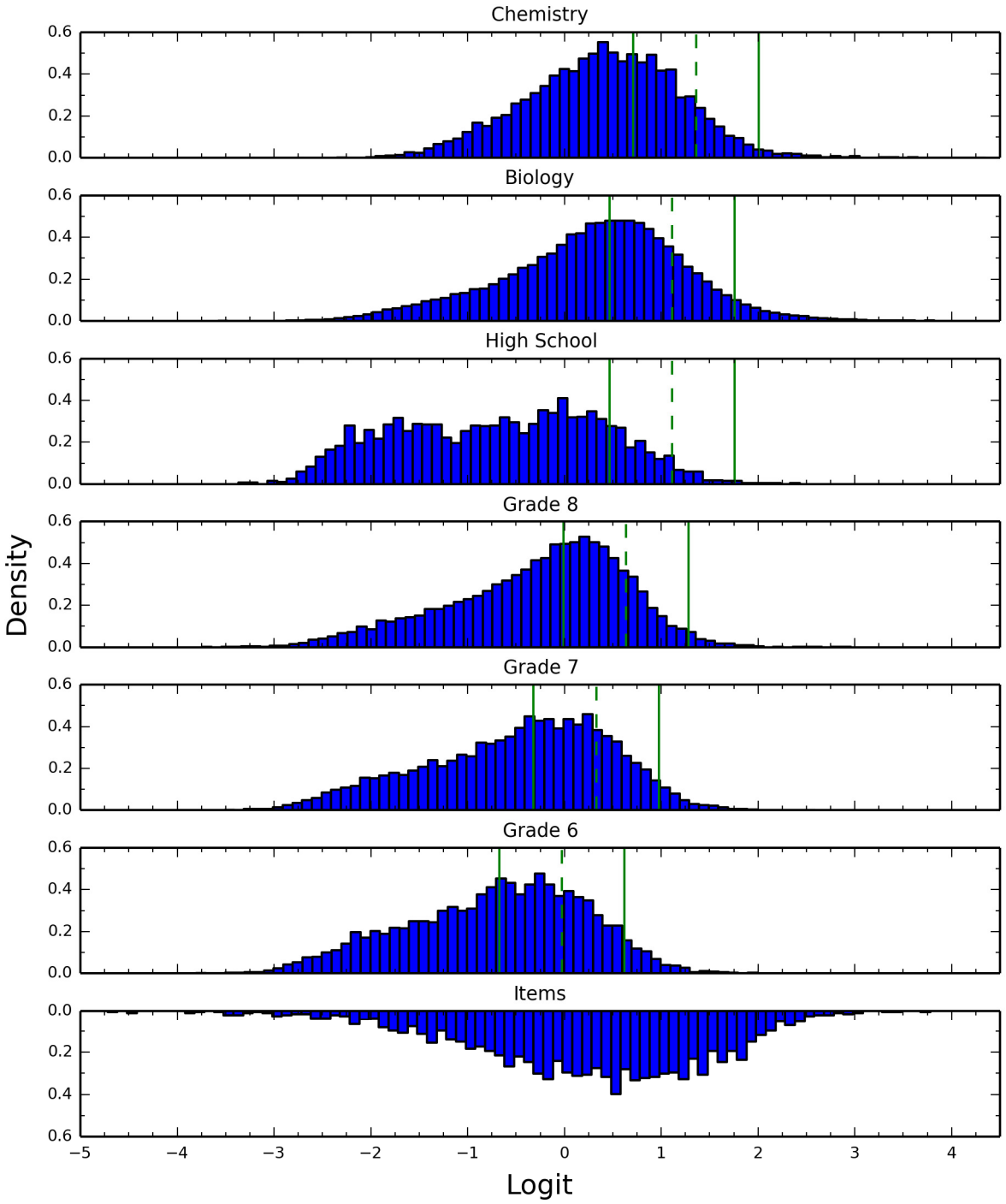
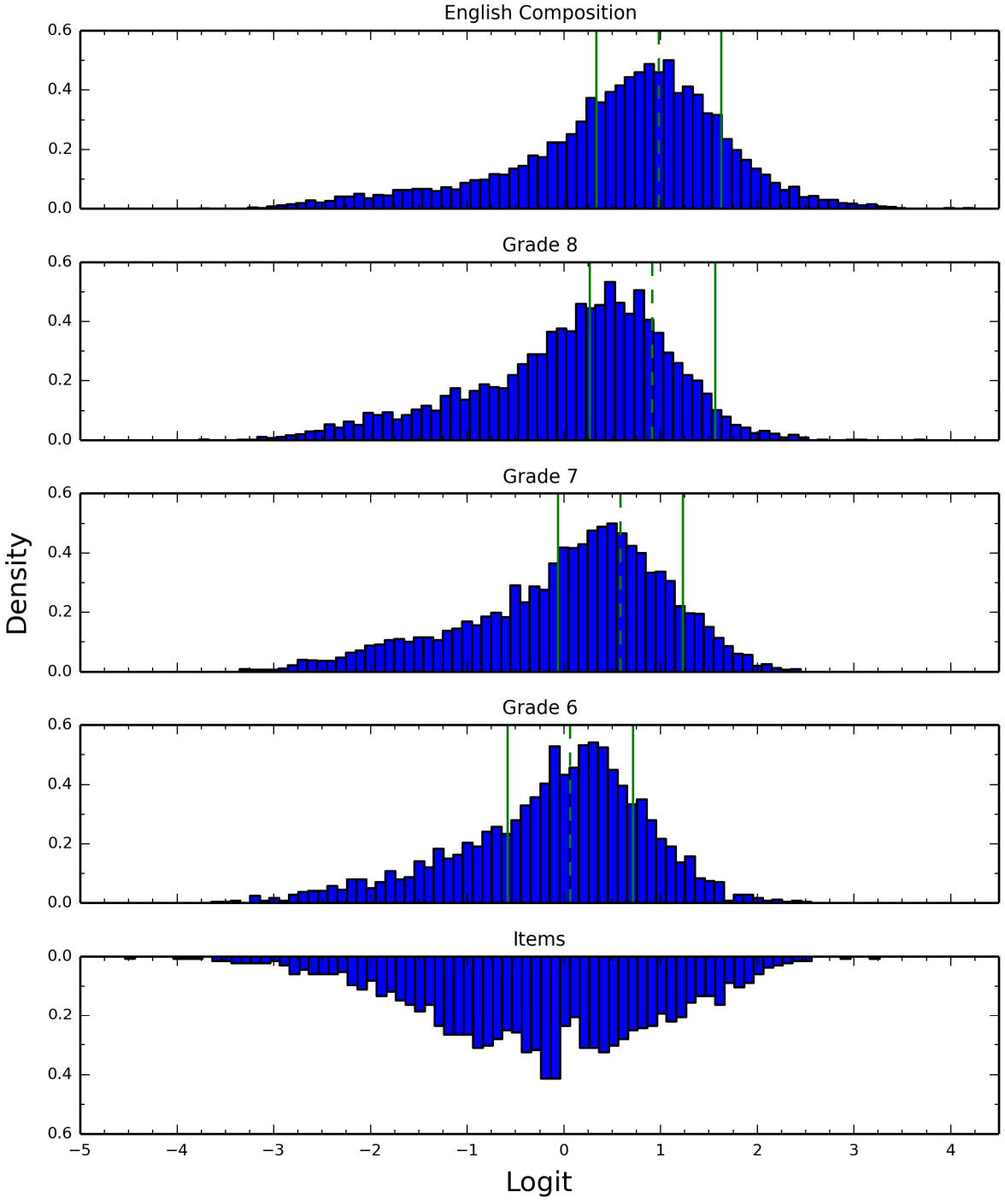


Figure 15–4. Scale Score Distribution – Writing/English Composition Total Scores



SUMMARY STATISTICS – SCALE SCORES AND CONDITIONAL STANDARD ERRORS FOR DIAGNOSTIC CATEGORIES

Table 15–16 shows the summary statistics for the scale scores based on diagnostic categories. To be consistent with Table 15–14, tests with multiple benchmark cuts are broken down to match the grade level of the cuts, while tests that are course-specific are not broken down. Full diagnostic category names can be found in Chapter Thirteen.

Table 15–16. Summary Statistics for Scale Score Based on Diagnostic Categories

	Grade	Diagnostic Category	N	Minimum	Q1	Median	Mean	Q3	Maximum
Mathematics	6	1	35,412	400	851	971	961.26	1087	1634
	6	2	35,412	400	856	957	953.46	1056	1676
	6	3	35,412	400	837	942	940.38	1048	1549
	6	4	35,412	400	859	973	959.80	1076	1504
	6	5	35,412	400	849	971	965.05	1089	1741
	7	1	42,248	400	916	1040	1017.20	1140	1604
	7	2	42,248	400	897	1012	1002.48	1109	1700
	7	3	42,248	400	907	1010	999.02	1105	1536
	7	4	42,248	400	907	1017	1002.23	1119	1616
	7	5	42,248	400	904	1037	1015.78	1138	1799
	8	1	23,769	400	935	1042	1020.28	1133	1796
	8	2	23,769	400	899	1015	1003.67	1114	1685
	8	3	23,769	400	919	1018	1007.00	1107	1640
	8	4	23,769	400	931	1032	1018.75	1123	1738
	8	5	23,769	400	911	1032	1012.72	1128	1808
	HS	1	3,227	400	897	1059	1033.61	1188	1783
	HS	2	3,227	400	881	1033	1031.99	1175	1698
	HS	3	3,227	400	891	1036	1022.46	1160	1653
	HS	4	3,227	400	910	1051	1037.27	1172	1747
	HS	5	3,227	400	879	1042	1021.03	1165	1786
Algebra I	All	1	203,671	400	1026	1119	1098.99	1195	1844
	All	2	203,671	467	1035	1122	1113.60	1198	1848
	All	3	203,671	400	1018	1126	1107.25	1205	1845
	All	4	203,671	400	1011	1113	1091.45	1189	1845
Geometry	All	1	11,055	400	1015	1114	1093.43	1193	1753
	All	2	11,055	400	1024	1107	1106.48	1201	1794
	All	3	11,055	400	1008	1121	1108.66	1209	1790
	All	4	11,055	400	1016	1114	1103.53	1203	1827
Algebra II	All	1	10,284	568	1050	1143	1177.02	1283	1838
	All	2	10,284	400	1075	1160	1150.37	1235	1881
	All	3	10,284	400	1091	1176	1158.46	1244	1864
	All	4	10,284	400	1066	1154	1139.88	1227	1848

Table 15–16 (continued). Summary Statistics for Scale Score Based on Diagnostic Categories

	Grade	Diagnostic Category	N	Minimum	Q1	Median	Mean	Q3	Maximum
Reading	6	1	27,361	400	833	966	947.95	1075	1608
	6	2	27,361	400	803	927	909.11	1034	1610
	6	3	27,361	400	815	952	930.92	1059	1603
	6	4	27,361	400	790	925	909.74	1036	1607
	6	5	27,361	400	808	938	923.42	1048	1596
	7	1	34,608	400	874	1008	987.21	1113	1615
	7	2	34,608	400	850	970	951.32	1071	1628
	7	3	34,608	400	857	991	966.87	1094	1639
	7	4	34,608	400	839	974	954.98	1082	1636
	7	5	34,608	400	854	983	966.21	1091	1606
	8	1	33,297	400	896	1024	1003.80	1129	1641
	8	2	33,297	400	882	995	976.38	1091	1641
	8	3	33,297	400	887	1014	992.30	1114	1639
	8	4	33,297	400	875	1011	991.25	1119	1634
	8	5	33,297	400	885	1012	995.91	1119	1604
Literature	HS	1	171,492	400	942	1071	1051.71	1173	1662
	HS	2	171,492	400	940	1049	1036.52	1145	1649
	HS	3	171,492	400	936	1058	1037.18	1158	1663
	HS	4	171,492	400	934	1065	1042.41	1163	1648
	HS	5	171,492	400	938	1060	1042.86	1160	1627
Science	6	1	8,247	400	752	872	855.84	970	1406
	6	2	8,247	400	749	860	846.06	954	1306
	6	3	8,247	400	774	873	865.47	961	1318
	6	4	8,247	400	770	872	861.36	963	1348
	7	1	13,261	400	784	904	884.57	1002	1348
	7	2	13,261	400	783	896	881.50	992	1371
	7	3	13,261	400	802	905	897.07	996	1407
	7	4	13,261	400	798	900	888.32	991	1457
	8	1	15,973	400	830	939	919.07	1028	1676
	8	2	15,973	400	826	931	913.20	1016	1377
	8	3	15,973	400	838	933	921.67	1014	1323
	8	4	15,973	400	825	926	910.42	1008	1491
	HS	1	2,853	400	703	861	847.95	986	1405
	HS	2	2,853	400	730	865	857.51	982	1320
	HS	3	2,853	400	771	888	880.14	987	1288
	HS	4	2,853	400	735	872	856.84	985	1337

Table 15–16 (continued). Summary Statistics for Scale Score Based on Diagnostic Categories

	Grade	Diagnostic Category	N	Minimum	Q1	Median	Mean	Q3	Maximum
Biology	All	1	117,151	400	906	1008	995.97	1099	1784
	All	2	117,151	400	911	997	998.43	1088	1730
	All	3	117,151	400	917	1001	998.16	1084	1763
	All	4	117,151	400	893	1000	976.46	1083	1714
Chemistry	All	1	8,081	400	901	1015	984.27	1088	1700
	All	2	8,081	500	943	1023	1019.01	1099	1755
	All	3	8,081	438	936	1020	1012.60	1098	1466
	All	4	8,081	442	915	998	1000.20	1092	1723
Writing	6	1	2,406	400	834	950	923.49	1031	1545
	6	2	2,406	400	836	949	932.16	1038	1606
	6	3	2,406	400	841	950	929.74	1036	1403
	6	4	2,406	400	865	964	948.14	1045	1444
	6	5	2,406	400	850	957	938.10	1044	1347
	7	1	4,670	400	858	976	952.76	1071	1585
	7	2	4,670	400	848	976	958.21	1081	1593
	7	3	4,670	400	855	964	942.89	1054	1381
	7	4	4,670	400	884	981	970.62	1076	1631
	7	5	4,670	400	867	974	953.68	1061	1386
	8	1	4,464	400	866	979	957.79	1076	1628
	8	2	4,464	400	858	977	957.95	1075	1562
	8	3	4,464	400	854	972	948.61	1057	1623
	8	4	4,464	400	896	991	979.78	1085	1523
	8	5	4,464	400	875	981	959.75	1066	1688
English Comp.	HS	1	10,360	400	939	1051	1027.41	1142	1605
	HS	2	10,360	400	941	1051	1036.93	1151	1619
	HS	3	10,360	400	932	1034	1009.76	1114	1668
	HS	4	10,360	400	943	1051	1039.54	1144	1718
	HS	5	10,360	400	939	1036	1022.58	1119	1695

Table 15–17 shows the summary statistics for the conditional standard errors (CSEMs) in the scale score metric based on diagnostic categories. The final column in the table shows the theoretical minimum CSEM that is possible for a test length equal to the mean number of items. Minimum values in the table that are less than the theoretical minimum are due to students taking more than the mean number of items.

Table 15–17. Summary Statistics for Conditional Standard Errors Based on Diagnostic Categories

	Grade	Diagnostic Category	N	Minimum	Q1	Median	Mean	Q3	Maximum	Theoretical Minimum
Mathematics	6	1	35,412	76	78	80	80.10	81	235	75.32
	6	2	35,412	75	78	80	80.49	81	238	75.32
	6	3	35,412	76	78	80	80.19	81	235	75.32
	6	4	35,412	76	78	80	80.37	81	233	75.32
	6	5	35,412	76	78	80	80.35	81	236	75.32
	7	1	42,248	76	78	80	80.05	81	234	75.32
	7	2	42,248	75	78	80	80.88	81	243	75.32
	7	3	42,248	76	78	80	79.86	80	235	75.32
	7	4	42,248	76	78	80	80.22	81	234	75.32
	7	5	42,248	76	78	80	80.47	81	241	75.32
	8	1	23,769	76	78	80	80.20	81	238	75.32
	8	2	23,769	76	78	80	80.71	81	237	75.32
	8	3	23,769	76	78	80	80.13	81	235	75.32
	8	4	23,769	76	78	80	80.62	81	233	75.32
	8	5	23,769	76	78	80	80.88	81	249	75.32
	HS	1	3,227	76	78	80	81.62	81	234	75.32
	HS	2	3,227	76	79	80	84.47	81	235	75.32
	HS	3	3,227	76	78	80	80.94	81	233	75.32
	HS	4	3,227	76	78	80	82.06	81	234	75.32
	HS	5	3,227	76	78	80	82.09	81	239	75.32
Algebra I	All	1	203,671	69	73	74	73.92	74	234	69.28
	All	2	203,671	69	73	74	74.35	74	234	69.28
	All	3	203,671	69	73	74	74.08	74	238	69.28
	All	4	203,671	69	73	74	74.14	74	246	69.28
Geometry	All	1	11,055	69	73	74	74.11	74	237	69.28
	All	2	11,055	69	73	74	75.30	75	264	69.28
	All	3	11,055	69	73	74	74.77	74	232	69.28
	All	4	11,055	70	73	74	74.30	74	241	69.28
Algebra II	All	1	10,284	69	73	74	78.19	75	231	69.28
	All	2	10,284	70	73	74	74.23	74	232	69.28
	All	3	10,284	69	73	74	74.24	74	232	69.28
	All	4	10,284	69	73	74	74.42	74	240	69.28

Table 15–17 (continued). Summary Statistics for Conditional Standard Errors Based on Diagnostic Categories

	Grade	Diagnostic Category	N	Minimum	Q1	Median	Mean	Q3	Maximum	Theoretical Minimum
Reading	6	1	27,361	83	92	96	100.46	101	272	86.13
	6	2	27,361	87	95	98	101.50	103	275	90.33
	6	3	27,361	84	93	96	99.18	101	269	86.13
	6	4	27,361	84	96	100	103.28	104	274	86.13
	6	5	27,361	83	94	99	102.96	104	276	86.13
	7	1	34,608	83	91	96	100.68	101	272	86.13
	7	2	34,608	87	96	99	102.63	104	273	90.33
	7	3	34,608	83	93	96	99.00	101	270	86.13
	7	4	34,608	84	96	100	103.49	104	275	86.13
	7	5	34,608	83	94	99	103.76	104	278	86.13
	8	1	33,297	83	90	95	99.81	101	272	86.13
	8	2	33,297	87	96	99	101.91	103	273	90.33
	8	3	33,297	84	93	96	99.16	101	272	86.13
	8	4	33,297	83	96	100	104.35	105	274	86.13
	8	5	33,297	83	94	99	105.42	104	278	86.13
Literature	HS	1	171,492	83	91	97	103.00	102	273	86.13
	HS	2	171,492	87	96	100	106.13	105	278	86.13
	HS	3	171,492	83	93	97	100.84	102	274	86.13
	HS	4	171,492	84	97	101	107.45	106	277	86.13
	HS	5	171,492	83	95	100	108.54	107	276	86.13
Science	6	1	8,247	74	77	78	78.89	79	246	73.70
	6	2	8,247	74	77	78	80.02	79	246	73.70
	6	3	8,247	74	77	78	79.84	79	246	73.70
	6	4	8,247	74	77	78	79.27	79	248	73.70
	7	1	13,261	74	77	78	78.76	79	246	73.70
	7	2	13,261	74	77	78	79.23	79	246	73.70
	7	3	13,261	74	77	78	78.99	79	246	73.70
	7	4	13,261	74	77	78	79.18	79	247	73.70
	8	1	15,973	74	77	78	78.68	79	246	73.70
	8	2	15,973	74	77	78	78.93	79	246	73.70
	8	3	15,973	74	77	78	78.83	79	246	73.70
	8	4	15,973	74	77	78	79.22	79	247	73.70
	HS	1	2,853	74	77	79	80.16	79	247	73.70
	HS	2	2,853	74	77	79	80.28	79	247	73.70
	HS	3	2,853	74	77	78	79.57	79	246	73.70
	HS	4	2,853	74	78	79	80.86	79	248	73.70

Table 15–17 (continued). Summary Statistics for Conditional Standard Errors Based on Diagnostic Categories

	Grade	Diagnostic Category	N	Minimum	Q1	Median	Mean	Q3	Maximum	Theoretical Minimum
Biology	All	1	117,151	74	77	78	78.98	79	253	73.70
	All	2	117,151	74	77	79	79.79	79	247	73.70
	All	3	117,151	74	77	78	79.36	79	259	73.70
	All	4	117,151	74	77	78	78.98	79	257	73.70
Chemistry	All	1	8,081	74	77	78	79.20	79	256	73.70
	All	2	8,081	74	77	79	81.17	79	247	73.70
	All	3	8,081	74	77	79	80.00	79	247	73.70
	All	4	8,081	74	77	79	80.71	79	246	73.70
Writing	6	1	2,406	81	83	85	86.54	86	247	80.21
	6	2	2,406	81	83	85	86.47	86	249	80.21
	6	3	2,406	81	83	85	85.70	86	247	80.21
	6	4	2,406	81	83	85	85.84	86	248	80.21
	6	5	2,406	81	83	85	85.11	86	143	80.21
	7	1	4,670	81	83	85	86.61	86	247	80.21
	7	2	4,670	81	83	85	87.03	86	250	80.21
	7	3	4,670	81	83	85	86.16	86	248	80.21
	7	4	4,670	81	83	85	85.68	86	249	80.21
	7	5	4,670	81	83	85	85.21	86	248	80.21
	8	1	4,464	81	83	85	86.53	86	248	80.21
	8	2	4,464	81	84	85	86.74	86	253	80.21
	8	3	4,464	81	83	85	86.35	86	248	80.21
	8	4	4,464	81	83	85	86.00	86	249	80.21
	8	5	4,464	81	83	85	85.52	86	248	80.21
English Comp.	HS	1	10,360	81	84	85	87.77	86	249	80.21
	HS	2	10,360	80	84	85	89.71	86	257	80.21
	HS	3	10,360	81	83	85	85.93	86	249	80.21
	HS	4	10,360	81	83	85	86.46	86	249	80.21
	HS	5	10,360	81	83	85	85.98	86	249	80.21

DIAGNOSTIC CATEGORY SCORE DIFFERENCES

As described in Chapter Fourteen, the CDT reports that are available to teachers display scale scores and probable score ranges for each diagnostic category. The probable score range is the scale score ± one standard error. Probable score range differences—ranges that do not overlap—may indicate to teachers a meaningful difference between two diagnostic category scores. Tables 15–18a through 15–26a show the number of students with score range differences (non-overlapping probable score ranges) between pairs of diagnostic categories for each CDT test. For example, according to Table 15–18a, 24,749 students who took the Mathematics assessment had score range differences between diagnostic categories 1 and 2 while 79,907 students did not. Tables 15–18b through 15–26b show the total number of score range differences. For example, 16,083 students had two pairs of diagnostic categories with score range differences, which was 15.4% of the total students who took Mathematics.

Table 15–18a. Diagnostic Category Score Range Differences – Mathematics

Comparison		Score Range Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	24,749	79,907	23.6%	76.4%
DC1	DC3	26,113	78,543	25.0%	75.0%
DC1	DC4	23,307	81,349	22.3%	77.7%
DC1	DC5	23,307	81,349	22.3%	77.7%
DC2	DC3	23,592	81,064	22.5%	77.5%
DC2	DC4	24,083	80,573	23.0%	77.0%
DC2	DC5	23,824	80,832	22.8%	77.2%
DC3	DC4	24,383	80,273	23.3%	76.7%
DC3	DC5	24,976	79,680	23.9%	76.1%
DC4	DC5	23,103	81,553	22.1%	77.9%

Table 15–18b. Total Number of Diagnostic Category Score Range Differences – Mathematics

Number of Score Range Differences	Number of Students	Percent of Students
0	28,169	26.9%
1	14,266	13.6%
2	16,083	15.4%
3	13,553	13.0%
4	18,056	17.3%
5	7,012	6.7%
6	5,875	5.6%
7	1,331	1.3%
8	304	0.3%
9	7	0.0%
10	0	0.0%

Table 15–19a. Diagnostic Category Score Range Differences – Algebra I

Comparison		Score Range Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	42,264	161,407	20.8%	79.2%
DC1	DC3	43,381	160,290	21.3%	78.7%
DC1	DC4	45,400	158,271	22.3%	77.7%
DC2	DC3	39,277	164,394	19.3%	80.7%
DC2	DC4	45,981	157,690	22.6%	77.4%
DC3	DC4	45,735	157,936	22.5%	77.5%

Table 15–19b. Total Number of Diagnostic Category Score Range Differences – Algebra I

Number of Score Range Differences	Number of Students	Percent of Students
0	87,749	43.1%
1	35,133	17.2%
2	32,968	16.2%
3	33,300	16.3%
4	11,607	5.7%
5	2,843	1.4%
6	71	0.0%

Table 15–20a. Diagnostic Category Score Range Differences – Geometry

Comparison		Score Range Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	2,637	8,418	23.9%	76.1%
DC1	DC3	2,734	8,321	24.7%	75.3%
DC1	DC4	2,505	8,550	22.7%	77.3%
DC2	DC3	2,657	8,398	24.0%	76.0%
DC2	DC4	2,647	8,408	23.9%	76.1%
DC3	DC4	2,503	8,552	22.6%	77.4%

Table 15–20b. Total Number of Diagnostic Category Score Range Differences – Geometry

Number of Score Range Differences	Number of Students	Percent of Students
0	4,244	38.4%
1	1,914	17.3%
2	1,948	17.6%
3	2,081	18.8%
4	711	6.4%
5	156	1.4%
6	1	0.0%

Table 15–21a. Diagnostic Category Score Range Differences – Algebra II

Comparison		Score Range Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	3,307	6,977	32.2%	67.8%
DC1	DC3	3,504	6,780	34.1%	65.9%
DC1	DC4	3,771	6,513	36.7%	63.3%
DC2	DC3	1,930	8,354	18.8%	81.2%
DC2	DC4	2,277	8,007	22.1%	77.9%
DC3	DC4	2,330	7,954	22.7%	77.3%

Table 15–21b. Total Number of Diagnostic Category Score Range Differences – Algebra II

Number of Score Range Differences	Number of Students	Percent of Students
0	3,397	33.0%
1	1,604	15.6%
2	1,689	16.4%
3	2,505	24.4%
4	827	8.0%
5	258	2.5%
6	4	0.0%

Table 15–22a. Diagnostic Category Score Range Differences – Reading/Literature

Comparison		Score Range Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	53,528	213,230	20.1%	79.9%
DC1	DC3	48,196	218,562	18.1%	81.9%
DC1	DC4	47,135	219,623	17.7%	82.3%
DC1	DC5	49,903	216,855	18.7%	81.3%
DC2	DC3	49,399	217,359	18.5%	81.5%
DC2	DC4	46,887	219,871	17.6%	82.4%
DC2	DC5	50,807	215,951	19.0%	81.0%
DC3	DC4	45,617	221,141	17.1%	82.9%
DC3	DC5	48,235	218,523	18.1%	81.9%
DC4	DC5	44,837	221,921	16.8%	83.2%

Table 15–22b. Total Number of Diagnostic Category Score Range Differences – Reading/Literature

Number of Score Range Differences	Number of Students	Percent of Students
0	92,252	34.6%
1	41,925	15.7%
2	43,207	16.2%
3	33,304	12.5%
4	35,034	13.1%
5	11,540	4.3%
6	8,212	3.1%
7	1,087	0.4%
8	197	0.1%
9	0	0.0%
10	0	0.0%

Table 15–23a. Diagnostic Category Score Range Differences – Science

Comparison		Score Range Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	8,323	32,011	20.6%	79.4%
DC1	DC3	8,802	31,532	21.8%	78.2%
DC1	DC4	9,002	31,332	22.3%	77.7%
DC2	DC3	8,474	31,860	21.0%	79.0%
DC2	DC4	8,654	31,680	21.5%	78.5%
DC3	DC4	8,620	31,714	21.4%	78.6%

Table 15–23b. Total Number of Diagnostic Category Score Range Differences – Science

Number of Score Range Differences	Number of Students	Percent of Students
0	16,666	41.3%
1	7,364	18.3%
2	7,154	17.7%
3	6,764	16.8%
4	2,021	5.0%
5	363	0.9%
6	2	0.0%

Table 15–24a. Diagnostic Category Score Range Differences – Biology

Comparison		Score Range Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	23,600	93,551	20.1%	79.9%
DC1	DC3	24,555	92,596	21.0%	79.0%
DC1	DC4	24,824	92,327	21.2%	78.8%
DC2	DC3	22,942	94,209	19.6%	80.4%
DC2	DC4	27,915	89,236	23.8%	76.2%
DC3	DC4	26,429	90,722	22.6%	77.4%

Table 15–24b. Total Number of Diagnostic Category Score Range Differences – Biology

Number of Score Range Differences	Number of Students	Percent of Students
0	48,746	41.6%
1	21,121	18.0%
2	20,670	17.6%
3	19,599	16.7%
4	6,077	5.2%
5	929	0.8%
6	9	0.0%

Table 15–25a. Diagnostic Category Score Range Differences – Chemistry

Comparison		Score Range Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	1,988	6,093	24.6%	75.4%
DC1	DC3	1,792	6,289	22.2%	77.8%
DC1	DC4	2,000	6,081	24.7%	75.3%
DC2	DC3	1,419	6,662	17.6%	82.4%
DC2	DC4	1,640	6,441	20.3%	79.7%
DC3	DC4	1,566	6,515	19.4%	80.6%

Table 15–25b. Total Number of Diagnostic Category Score Range Differences – Chemistry

Number of Score Range Differences	Number of Students	Percent of Students
0	3,344	41.4%
1	1,494	18.5%
2	1,337	16.5%
3	1,454	18.0%
4	386	4.8%
5	65	0.8%
6	1	0.0%

Table 15–26a. Diagnostic Category Score Range Differences – Writing/English Composition

Comparison		Score Range Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	4,210	17,690	19.2%	80.8%
DC1	DC3	4,336	17,564	19.8%	80.2%
DC1	DC4	4,832	17,068	22.1%	77.9%
DC1	DC5	4,626	17,274	21.1%	78.9%
DC2	DC3	4,439	17,461	20.3%	79.7%
DC2	DC4	4,725	17,175	21.6%	78.4%
DC2	DC5	4,553	17,347	20.8%	79.2%
DC3	DC4	4,616	17,284	21.1%	78.9%
DC3	DC5	4,260	17,640	19.5%	80.5%
DC4	DC5	4,353	17,547	19.9%	80.1%

Table 15–26b. Total Number of Diagnostic Category Score Range Differences – Writing/English Composition

Number of Score Range Differences	Number of Students	Percent of Students
0	6,607	30.2%
1	3,344	15.3%
2	3,483	15.9%
3	2,849	13.0%
4	3,349	15.3%
5	1,135	5.2%
6	938	4.3%
7	166	0.8%
8	29	0.1%
9	0	0.0%
10	0	0.0%

Significant differences among diagnostic categories were tested based on *t*-test. Using the diagnostic category scale scores and the conditional standard errors for each student, the differences between pairs of diagnostic category scores were examined based on *t*-test for each student. A Bonferroni correction for multiple comparisons was performed to keep the familywise Type I error rate at 0.32. This results in the number of significant differences being smaller than the number of score range differences (non-overlapping probable score ranges) presented above. Tables 15–27a through 15–35a show the number of students who had significance differences between pairs of diagnostic categories for each assessment. Tables 15–27b through 15–35b show the total number of significance differences.

Table 15–27a. Diagnostic Category Significant Differences – Mathematics

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	1,592	103,064	1.5%	98.5%
DC1	DC3	1,854	102,802	1.8%	98.2%
DC1	DC4	1,490	103,166	1.4%	98.6%
DC1	DC5	1,602	103,054	1.5%	98.5%
DC2	DC3	1,275	103,381	1.2%	98.8%
DC2	DC4	1,327	103,329	1.3%	98.7%
DC2	DC5	1,258	103,398	1.2%	98.8%
DC3	DC4	1,574	103,082	1.5%	98.5%
DC3	DC5	1,591	103,065	1.5%	98.5%
DC4	DC5	1,462	103,194	1.4%	98.6%

Note: Z value is 2.15

Table 15–27b. Total Number of Diagnostic Category Significant Differences – Mathematics

Number of Significant Differences	Number of Students	Percent of Students
0	95,194	91.0%
1	5,790	5.5%
2	2,302	2.2%
3	904	0.9%
4	425	0.4%
5	27	0.0%
6	14	0.0%
7	0	0.0%
8	0	0.0%
9	0	0.0%
10	0	0.0%

Table 15–28a. Diagnostic Category Significant Differences – Algebra I

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	5,564	198,107	2.7%	97.3%
DC1	DC3	5,477	198,194	2.7%	97.3%
DC1	DC4	6,533	197,138	3.2%	96.8%
DC2	DC3	3,602	200,069	1.8%	98.2%
DC2	DC4	6,159	197,512	3.0%	97.0%
DC3	DC4	5,890	197,781	2.9%	97.1%

Note: Z value is 1.94

Table 15–28b. Total Number of Diagnostic Category Significant Differences – Algebra I

Number of Significant Differences	Number of Students	Percent of Students
0	182,100	89.4%
1	12,941	6.4%
2	5,950	2.9%
3	2,345	1.2%
4	326	0.2%
5	9	0.0%
6	0	0.0%

Table 15–29a. Diagnostic Category Significant Differences – Geometry

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	299	10,756	2.7%	97.3%
DC1	DC3	350	10,705	3.2%	96.8%
DC1	DC4	298	10,757	2.7%	97.3%
DC2	DC3	332	10,723	3.0%	97.0%
DC2	DC4	298	10,757	2.7%	97.3%
DC3	DC4	291	10,764	2.6%	97.4%

Note: Z value is 1.94

Table 15–29b. Total Number of Diagnostic Category Significant Differences – Geometry

Number of Significant Differences	Number of Students	Percent of Students
0	9,824	88.9%
1	762	6.9%
2	318	2.9%
3	135	1.2%
4	15	0.1%
5	1	0.0%
6	0	0.0%

Table 15–30a. Diagnostic Category Significant Differences – Algebra II

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	615	9,669	6.0%	94.0%
DC1	DC3	570	9,714	5.5%	94.5%
DC1	DC4	869	9,415	8.5%	91.5%
DC2	DC3	251	10,033	2.4%	97.6%
DC2	DC4	317	9,967	3.1%	96.9%
DC3	DC4	350	9,934	3.4%	96.6%

Note: Z value is 1.94

Table 15–30b. Total Number of Diagnostic Category Significant Differences – Algebra II

Number of Significant Differences	Number of Students	Percent of Students
0	8,427	81.9%
1	1,046	10.2%
2	536	5.2%
3	247	2.4%
4	27	0.3%
5	1	0.0%
6	0	0.0%

Table 15–31a. Diagnostic Category Significant Differences – Reading/Literature

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	1,349	265,409	0.5%	99.5%
DC1	DC3	788	265,970	0.3%	99.7%
DC1	DC4	698	266,060	0.3%	99.7%
DC1	DC5	977	265,781	0.4%	99.6%
DC2	DC3	1,042	265,716	0.4%	99.6%
DC2	DC4	739	266,019	0.3%	99.7%
DC2	DC5	1,118	265,640	0.4%	99.6%
DC3	DC4	633	266,125	0.2%	99.8%
DC3	DC5	979	265,779	0.4%	99.6%
DC4	DC5	493	266,265	0.2%	99.8%

Note: Z value is 2.15

Table 15–31b. Total Number of Diagnostic Category Significant Differences – Reading/Literature

Number of Significant Differences	Number of Students	Percent of Students
0	259,922	97.4%
1	5,214	2.0%
2	1,314	0.5%
3	260	0.1%
4	46	0.0%
5	2	0.0%
6	0	0.0%
7	0	0.0%
8	0	0.0%
9	0	0.0%
10	0	0.0%

Table 15–32a. Diagnostic Category Significant Differences – Science

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	828	39,506	2.1%	97.9%
DC1	DC3	941	39,393	2.3%	97.7%
DC1	DC4	863	39,471	2.1%	97.9%
DC2	DC3	842	39,492	2.1%	97.9%
DC2	DC4	815	39,519	2.0%	98.0%
DC3	DC4	831	39,503	2.1%	97.9%

Note: Z value is 1.94

Table 15–32b. Total Number of Diagnostic Category Significant Differences – Science

Number of Significant Differences	Number of Students	Percent of Students
0	36,775	91.2%
1	2,335	5.8%
2	914	2.3%
3	283	0.7%
4	27	0.1%
5	0	0.0%
6	0	0.0%

Table 15–33a. Diagnostic Category Significant Differences – Biology

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	2,092	115,059	1.8%	98.2%
DC1	DC3	2,086	115,065	1.8%	98.2%
DC1	DC4	2,282	114,869	1.9%	98.1%
DC2	DC3	1,450	115,701	1.2%	98.8%
DC2	DC4	2,973	114,178	2.5%	97.5%
DC3	DC4	2,556	114,595	2.2%	97.8%

Note: Z value is 1.94

Table 15–33b. Total Number of Diagnostic Category Significant Differences – Biology

Number of Significant Differences	Number of Students	Percent of Students
0	107,369	91.7%
1	6,819	5.8%
2	2,325	2.0%
3	582	0.5%
4	56	0.0%
5	0	0.0%
6	0	0.0%

Table 15–34a. Diagnostic Category Significant Differences – Chemistry

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	307	7,774	3.8%	96.2%
DC1	DC3	232	7,849	2.9%	97.1%
DC1	DC4	235	7,846	2.9%	97.1%
DC2	DC3	64	8,017	0.8%	99.2%
DC2	DC4	66	8,015	0.8%	99.2%
DC3	DC4	85	7,996	1.1%	98.9%

Note: Z value is 1.94

Table 15–34b. Total Number of Diagnostic Category Significant Differences – Chemistry

Number of Significant Differences	Number of Students	Percent of Students
0	7,370	91.2%
1	490	6.1%
2	166	2.1%
3	53	0.7%
4	2	0.0%
5	0	0.0%
6	0	0.0%

Table 15–35a. Diagnostic Category Significant Differences – Writing/English Composition

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	135	21,765	0.6%	99.4%
DC1	DC3	170	21,730	0.8%	99.2%
DC1	DC4	207	21,693	0.9%	99.1%
DC1	DC5	188	21,712	0.9%	99.1%
DC2	DC3	133	21,767	0.6%	99.4%
DC2	DC4	171	21,729	0.8%	99.2%
DC2	DC5	174	21,726	0.8%	99.2%
DC3	DC4	167	21,733	0.8%	99.2%
DC3	DC5	182	21,718	0.8%	99.2%
DC4	DC5	160	21,740	0.7%	99.3%

Note: Z value is 2.15

Table 15–35b. Total Number of Diagnostic Category Significant Differences – Writing/English Composition

Number of Significant Differences	Number of Students	Percent of Students
0	20,756	94.8%
1	764	3.5%
2	260	1.2%
3	82	0.4%
4	35	0.2%
5	1	0.0%
6	2	0.0%
7	0	0.0%
8	0	0.0%
9	0	0.0%
10	0	0.0%

Low numbers of significant differences across diagnostic categories, along with the high disattenuated correlations between categories and exploratory factor analyses discussed in Chapter Seventeen, suggest that some diagnostic categories might be measuring essentially the same construct. While this may be the case in general, when looking at group summary information, diagnostic category scores for individual students can provide useful information to teachers. For example, while 89.4% of students showed no significant differences between Algebra I diagnostic categories, 10.6% of students did. CDT diagnostic category scores for these students along with links to instructional resources are a valuable tool for teachers.

The tables in Appendix D show the significant differences with the familywise Type I error rate at 0.10.

DISTRIBUTION OF BENCHMARK RANGES

As described in Chapter Ten, committees of Pennsylvania educators established preliminary CDT cut scores prior to the first operational use. Following the 2010–2011 school year, the preliminary cut scores were revised for the mathematics content area tests. See Chapter Nineteen of the 2010–2011 technical report for details. Following the 2011–2012 school year, the preliminary cut scores were revised for the reading, science, and writing content area tests. See Chapter Nineteen of the 2011–2012 technical report for details.

The benchmark cuts in place during the 2012–2013 school year determine the color ranges (red/green/blue) in the CDT dynamic reporting suite. The cut scores and standard errors (SE)[10] were used to define ranges as follows: The green range is defined as the scale score cut ± one SE. The red range is defined as the scale minimum (400) to the lower bound of the green range. The blue range is defined as the upper bound of the green range to the scale maximum (2000).

[10] The standard error was estimated based on simulations using the operational configuration of the CAT in terms of the content constraints and stopping rules.

Table 15–36 shows the number and percentage of students in each benchmark range for each CDT test. Tests with multiple benchmark cuts are broken down to match the grade level of the cuts. Tests that are course-specific are not broken down.

Table 15–36. Number and Percent of Students in Each CDT Score Range

	Red Range		Green Range		Blue Range	
	N	Percent	N	Percent	N	Percent
Mathematics – G6	15,185	42.9%	15,050	42.5%	5,177	14.6%
Mathematics – G7	17,697	41.9%	19,562	46.3%	4,989	11.8%
Mathematics – G8	12,592	53.0%	10,251	43.1%	926	3.9%
Mathematics – HS	2,252	69.8%	788	24.4%	187	5.8%
Algebra I	114,859	56.4%	80,139	39.3%	8,673	4.3%
Geometry	7,617	68.9%	2,973	26.9%	465	4.2%
Algebra II	7,588	73.8%	2,262	22.0%	434	4.2%
Reading – G6	11,326	41.4%	14,058	51.4%	1,977	7.2%
Reading – G7	13,916	40.2%	18,308	52.9%	2,384	6.9%
Reading – G8	13,663	41.0%	17,562	52.7%	2,072	6.2%
Literature	58,011	33.8%	96,659	56.4%	16,822	9.8%
Science – G6	3,898	47.3%	3,903	47.3%	446	5.4%
Science – G7	6,821	51.4%	5,960	44.9%	480	3.6%
Science – G8	8,834	55.3%	6,857	42.9%	282	1.8%
Science – HS	2,422	84.9%	423	14.8%	8	0.3%
Biology	62,552	53.4%	49,532	42.3%	5,067	4.3%
Chemistry	5,183	64.1%	2,767	34.2%	131	1.6%
Writing – G6	646	26.8%	1,325	55.1%	435	18.1%
Writing – G7	1,781	38.1%	2,442	52.3%	447	9.6%
Writing – G8	2,255	50.5%	2,048	45.9%	161	3.6%
English Composition	3,484	33.6%	5,536	53.4%	1,340	12.9%

Results for Mathematics, Algebra I, Geometry, and Algebra II are based on the revised benchmark cuts which were put in place at the start of the 2011–2012 school year. See Chapter Nineteen of the 2010–2011 Technical Report for details. Results for reading, science, and writing content areas are based on the revised benchmark cuts which were put in place at the start of the 2012–2013 school year. See Chapter Nineteen of the 2011–2012 Technical Report for details.

MULTIPLE ADMINISTRATIONS OF THE SAME CDT TEST

As previously indicated in Table 15–2, there are a number of students who took the same CDT test multiple times. This section focuses on the number of days between administrations and both changes in scale score and benchmark range across a student's first and last administrations.

Table 15–37 shows the summary statistics for the number of days from the first to last administration.

Table 15–37. Summary Statistics for Number of Days Between Administrations

	N	Minimum	Q1	Median	Mean	Q3	Maximum
Mathematics	34,068	0	110	137	151.29	195	275
Algebra I	55,014	0	90	127	132.66	168	320
Geometry	3,426	1	82	97	117.76	151	277
Algebra II	2,861	0	82	118	120.42	148	268
Reading/Literature	80,484	0	99	131	136.61	169	274
Science	12,398	0	104	131	152.07	218	263
Biology	30,932	0	82	127	126.78	167	271
Chemistry	2,272	39	83	113	122.98	151	253
Writing/English Composition	6,522	0	84	112	127.79	179	271

Table 15–38 shows the summary statistics for the change in total scale score from the first to last administration.

Table 15–38. Summary Statistics for Change in Total Scale Score Between Administrations

	N	Minimum	Q1	Median	Mean	Q3	Maximum
Mathematics	34,068	-612	-9	38	36.25	85	468
Algebra I	55,014	-674	-23	24	21.47	70	719
Geometry	3,426	-448	-2	50	50.33	104	544
Algebra II	2,861	-466	0	55	54.04	113	544
Reading/Literature	80,484	-664	-49	7	3.89	61	635
Science	12,398	-387	-33	18	15.71	66	436
Biology	30,932	-929	-8	44	42.65	97	777
Chemistry	2,272	-262	-2	50	49.33	99	373
Writing/English Composition	6,522	-472	-30	18	15.48	65	497

Table 15–39 shows the changes in benchmark range from the first to last administration. For example, 5,254 students who scored in the red range on the first administration of the Mathematics test scored in the green range on the last administration.

Table 15–39. Change in Benchmark Range Between First and Last Administrations

Mathematics		Last		
First		red	green	blue
	red	11,518	5,254	105
	green	1,395	10,143	3,069
	blue	9	426	2,149
Algebra I		**Last**		
First		red	green	blue
	red	25,813	8,725	69
	green	3,205	14,161	1,687
	blue	14	249	1,091
Geometry		**Last**		
First		red	green	blue
	red	1,807	692	43
	green	83	533	183
	blue	0	8	77
Algebra II		**Last**		
First		red	green	blue
	red	1,756	582	43
	green	50	249	123
	blue	1	7	50
Reading/Literature		**Last**		
First		red	green	blue
	red	22,586	6,866	29
	green	5,718	34,823	4,112
	blue	24	2,623	3,703
Science		**Last**		
First		red	green	blue
	red	5,147	1,732	7
	green	819	4,058	352
	blue	1	106	176
Biology		**Last**		
First		red	green	blue
	red	12,195	6,879	137
	green	1,331	8,278	1,577
	blue	3	112	420

Table 15–39 (continued). Change in Benchmark Range Between First and Last Administrations

Chemistry		Last		
First		red	green	blue
	red	1,161	579	2
	green	67	405	48
	blue	0	4	6
Writing/English Composition		**Last**		
First		red	green	blue
	red	1,743	683	8
	green	431	2,614	460
	blue	1	138	444

CHAPTER SIXTEEN: RELIABILITY

This chapter addresses the reliability of Classroom Diagnostic Tools (CDT) test scores. According to the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 1999), reliability refers to:

> the degree to which test scores for a group of test takers are consistent over repeated applications of a measurement procedure and hence are inferred to be dependable and repeatable for an individual test taker; the degree to which scores are free of errors of measurement for a given group (p. 25).

Frisbie (2005) highlighted several elements of this definition. First, reliability is a property of test scores, not of a test itself. Many may appreciate this distinction, but in casual usage, individuals frequently make reference to a "reliable test." While reliability concerns test scores (and not the test specifically), it's important to appreciate the fact that test scores can be affected by characteristics of the instrument. For example, all other things being equal, tests with more items/points tend to be more reliable than tests with fewer items/points. Second, reliability coefficients are group specific. Reliabilities tend to be higher in populations that are more heterogeneous and lower in populations that are more homogeneous. Consequently, both test length and population heterogeneity should be considered when evaluating reliability.

There are other reliability considerations that may be less evident from the *Standards'* definition yet are still important for test users to understand. While freedom from measurement error is highlighted in the definition above, reliability is specifically concerned with random sources of error. Indeed, the degree of inconsistency due to random error sources is what determines reliability: less consistency is associated with lower reliability and more consistency is associated with higher reliability. Of course, systematic error sources also exist. These can artificially increase reliability and decrease validity. Validity is further discussed in Chapter Seventeen.

Another noteworthy issue is that multiple sources of error exist (e.g., the day of testing, the items used). However, most widely used reliability indices only reflect a single type of error. Consequently, it is important for test users to understand what specific type of error is being considered in a reliability study, and equally, if not more importantly, what types are not.

Understanding the distinction between relative error and absolute error is also important, as many reliability indices only reflect relative error. Relative error is of interest whenever the relative ordering of individuals with respect to their test performance is of interest. Understanding examinee rank-order stability is important; however, such stability might be well achieved even when the specific score values are considerably different. When specific score values are considered important (e.g., if cut cores are used), then absolute error is of interest, too. Generally, there is more error variance when considering the absolute scores of examinees, which, in turn, suggests lower reliability.

As the above discussion suggests, reliability is a complex, nonunitary notion that cannot be adequately represented by a single number. There are several reliability indices available, and these may not provide the same results (Frisbie, 2005). The remainder of this chapter covers the following:

- Reliability coefficients and their interpretation
- Unconditional and conditional standard errors of measurement (SEMs and CSEMs)
- Decision consistency

RELIABILITY INDICES

As shown below, the reliability coefficient expresses the consistency of test scores as the ratio of true score variance to total score variance. The total variance contains two components: 1) variance in true scores and 2) variance due to the imperfections in the measurement process. Put differently, total variance equals true score variance plus error variance.[11]

$$\rho_X^2 = \frac{\sigma_T^2}{\sigma_X^2} = \frac{\sigma_T^2}{\sigma_T^2 + \sigma_E^2}$$

Reliability coefficients indicate the degree to which differences in test scores reflect true differences in the attribute being tested rather than random fluctuations. Total test score variance (i.e., individual differences) is partly due to real differences in the attribute (true variance) and partly due to random error in the measurement process (error variance).

Reliability coefficients range from 0.0 to 1.0. If all test score variance were true, the index would equal 1.0. The index would be 0.0 if none of the test score variance were true. Such scores would be pure random noise—i.e., all measurement error. If the index had a value of 1.0, scores would be perfectly consistent—i.e., contain no measurement error. Although values of 1.0 are never achieved in practice, it is clear that larger coefficients are more desirable, as they indicate that test scores are less influenced by random error. "How big is big enough?" and "how small is too small?" are issues considered in a later section.

As noted in the introduction, there are several different indices that can be used to estimate this ratio. One approach is referred to as internal consistency, which is derived from analyzing the performance consistency of individuals over the items within a test. As discussed below, these internal consistency indices do not take into account other sources of error, such as day-to-day variations (student health, testing environment, etc.).

COEFFICIENT ALPHA

Although a number of reliability indices exist, one of the most frequently reported for achievement tests is coefficient alpha. For example, both PSSA and Keystone programs report alpha.

FORMULA FOR ALPHA

Consider the following data matrix representing the scores of persons (rows) on items (columns):

Table 16–1. Person × Item Score (*Xpi*) Infinite (Population-Universe) Matrix

Person	Item			
	1	**2**	**. . . *i***	**. . . *k***
1	*Y*11	*Y*12	. . . *Y*1*i*	. . . *X*1*k*
2	*Y*21	*Y*22	. . . *Y*2*i*	. . . *X*2*k*
. . . .				
p	*Yp*1	*Yp*2	. . . *Ypi*	. . . *Xpk*
. . . .				
N	*YN*1	*YN*2	. . . *YNi*	. . . *XNk*

Note. Adapted from Cronbach and Shavelson (2004).

[11] A covariance term is not required, as true scores and error are assumed to be uncorrelated in classical test theory.

Then, a general computational formula for alpha is as follows:

$$\alpha = \frac{N}{N-1}\left(1 - \frac{\sum_{i=1}^{N}\sigma_{Y_i}^2}{\sigma_X^2}\right),$$

where *N* is the number of parts (items or testlets), σ_X^2 is the variance of the observed total test scores, and $\sigma_{Y_i}^2$ is the variance of part *i*.

Examination of the formula for alpha indicates why the coefficient is not appropriate for CDT. In the case of CDT, tests are adaptive. Each student takes a unique set of test items rather than the same fixed form. A person item score matrix for CDT analogous to Table 16–1 would include all items in the available item pool (over 2,000 in some cases). Each student takes only a small subset of items (48–60) from the available pool. Summing the variance of more than 2,000 item scores and dividing by the variance of test scores based on 48–60 items is not appropriate. Therefore, a measure of reliability other than alpha must be used for CDT.

SPLIT-HALF RELIABILITY

Like alpha, split-half is an internal consistency index. It can be conceptualized as the extent to which an exchangeable set of items from the same domain would result in a similar rank ordering of students. Note that relative error is reflected in this index. Variation in student performance from one sample of items to the next should be of particular concern for any test user. Consider two hypothetical vocabulary tests intended for the same group of students. Each test contains different sets of unique words that are believed to be randomly equivalent, perhaps like the ones shown below:

Table 16–2. Two Hypothetical Vocabulary Tests

Test One	Test Two
Abase	Abate
Boon	Bilk
Capricious	Circuitous
Deface	Debase
....	....
Zealous	Zenith

If a representative group of students could take both of these tests, the correlation between the scores obtained would represent the parallel forms reliability of the test scores. However, such data-collection designs are impractical in large-scale settings and experimental confounds like fatigue and practice effects are likely to affect the results. Internal-consistency reliability indices arose in part to provide reliability measures using the data from just a single test administration. So, if students only took Test One and the split-half reliability index for those test scores was high, this would suggest that Test Two would provide a very similar rank ordering of the students if they had taken it instead. If split-half reliability was low, dissimilar rank orderings would likely be observed—again, relative-error variance is reflected.

CALCULATION OF SPLIT-HALF RELIABILITY

To determine split-half reliability for a given CDT test, such as Mathematics or Biology, each administration of the test was split into two halves. Each item's difficulty was considered in the split so the halves represent approximately equivalent alternative forms. Rasch ability estimates were then calculated for each of the two halves. Then, Pearson correlation was computed between the Rasch ability estimates from the two halves. Finally, the Pearson correlation was adjusted for test length using the Spearman-Brown prediction formula as described below.

Split-Half reliability = $\frac{2r}{1+r}$ where r = Pearson correlation

Split-half reliability is related to coefficient alpha in that alpha is often interpreted as the mean of all possible split-half coefficients.

FURTHER INTERPRETATIONS

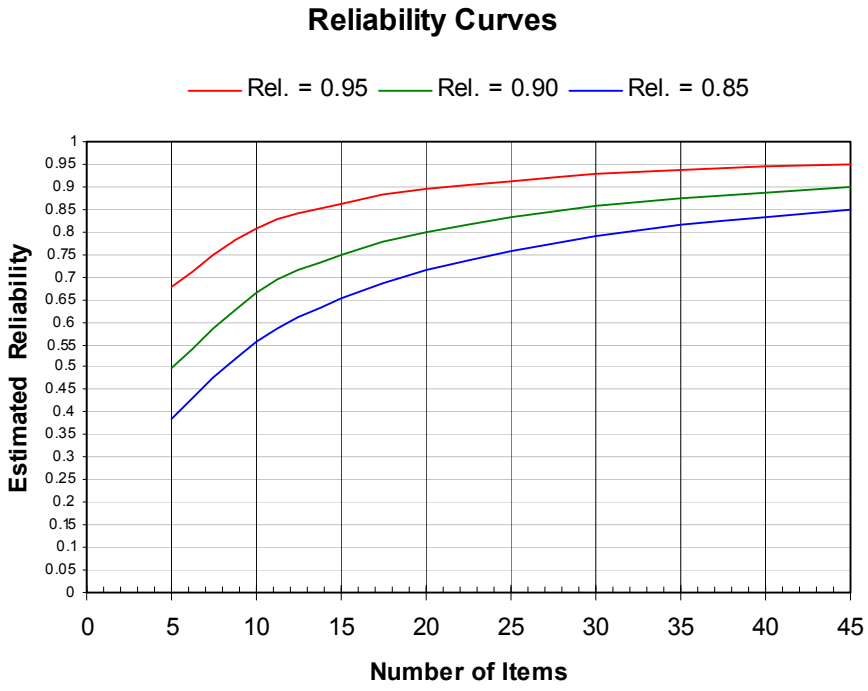
What reliability value is considered high enough? What values are considered too low? Although frequently asked for, any rules of thumb for interpreting the magnitude of reliability indices are mostly arbitrary. One approach is to research the reliabilities from similar testing instruments to see what values are commonly observed. For 2013 PSSA tests in Reading, Mathematics, and Science, reliability coefficients ranged from 0.90 to 0.94, while reliability coefficients for writing ranged from 0.77 to 0.81. For spring 2013 Keystone exams in Algebra I, Literature, and Biology, reliability coefficients were 0.91, 0.92, and 0.90, respectively. For many other state assessment programs, reliabilities in the low 0.90s are usually the highest observed, and reliabilities in the high 0.80s are very common.

The lower a given reliability coefficient, the greater the potential for over-interpretation of the associated results. As suggested earlier, there is no firm guideline regarding how low is too low. However, as an informative point of reference, a reliability coefficient of 0.50 would mean that there is as much error variance as true-score variance in the scores.

DIAGNOSTIC CATEGORY SCORE RELIABILITY

As noted in the introduction, reliabilities tend to be higher with an increase in test length and lower with a decrease in test length. Figure 16–1 illustrates this relationship for a hypothetical 45-item test with three total score reliabilities: 0.95, 0.90, and 0.85. As an example, the curve for reliability equal to 0.90 suggests that a 10-item diagnostic category score would be expected to have a score reliability of just over 0.65. The use of the Spearman-Brown prediction formula assumes all items are exchangeable, which, in practice, they may not be. While such a chart may not perfectly model actual diagnostic category reliability, the intent is to illustrate the substantial impact that limited numbers of items can have on diagnostic category score reliability.

Figure 16–1. Example of the Relationship Between Test Length and Reliability



STANDARD ERROR OF MEASUREMENT

The reliability coefficient is a unit-free indicator that reflects the degree to which scores are free of measurement error. It always ranges between 0.0 and 1.0 regardless of the test's scale. Reliability coefficients best reflect the extent to which measurement inconsistencies may be present or absent in a group. However, they are not that useful for helping users interpret test scores. The standard error of measurement (SEM) is another indicator of test score precision that is better suited for determining the effect of measurement inconsistencies on the scores obtained by individual examinees. This is particularly so for conditional SEMs (CSEM) discussed further below.

TRADITIONAL STANDARD ERROR OF MEASUREMENT

A precise, theoretical interpretation of the SEM is somewhat unwieldy. A beginning point for understanding the concept is as follows. If everyone being tested had the same true score,[12] there would still be some variation in observed scores due to imperfections in the measurement process, such as random differences in attention during instruction or concentration during testing, the sampling of test items, etc. The standard error is defined as the standard deviation[13] of the distribution of observed scores for students with identical true scores. Because the SEM is an index of the random variability in test scores in actual score units, it represents very important information for test score users.

[12] True score is the score the person would receive if the measurement process were perfect.
[13] The standard deviation of a distribution is a measure of the dispersion of the observations. For the normal distribution, about 16 percent of the observations are more than one standard deviation above the mean.

The SEM formula is provided below:

$$SEM = SD\sqrt{1 - reliability}$$

It indicates that the value of the SEM depends on both the reliability coefficient and the standard deviation of test scores. If the reliability were equal to 0.00 (the lowest possible value), the SEM would be equal to the standard deviation of the test scores. If test reliability were equal to 1.00 (the highest possible value), the SEM would be 0.0. In other words, a perfectly reliable test has no measurement error (Harvill, 1991). Additionally, the value of the SEM takes the group variation (i.e., score standard deviation) into account.

TRADITIONAL SEM CONFIDENCE INTERVALS

The SEM is an index of the random variability in test scores in actual score units, which is why it has such great utility for test score users. SEMs allow statements regarding the precision of individual tests scores. SEMs help place reasonable limits (Gulliksen, 1950) around observed scores through construction of an approximate score band. Often referred to as confidence intervals, these bands are constructed by taking the observed scores, *X*, and adding and subtracting a multiplicative factor of the SEM. As an example, students with a given true score will have observed scores that fall between ± 1 SEM about two-thirds of the time.[14] For ±2 SEM confidence intervals, the percentage increases to about 95 percent.

FURTHER INTERPRETATIONS

ONE SEM FOR ALL TEST SCORES

The SEM approach described above only provides a single numerical estimate for constructing the confidence intervals for examinees regardless of their score levels. In reality, however, such confidence intervals vary according to one's score. Consequently, care should be taken when using the SEM for students with extreme scores. An alternate approach is described in the next section that conditions the SEM on a student's score estimate.

GROUP SPECIFIC

As noted in the introduction, reliabilities are group specific. The same is true for SEMs because both score reliabilities and score standard deviations vary across groups.

SCALE SCORE METRIC

The SEM approach is calculated using scale scores, and as such, the resulting confidence interval bands are in the scale score metric.

[14] Some prefer the following interpretation: if a student were tested an infinite number of times, the ± 1 SEM confidence intervals constructed for each score would capture the student's true score 68 percent of the time.

TYPE OF ERROR REFLECTED

The interpretation of the SEM should be driven by the type of score reliability that underpins it. So, the CDT SEMs involve the same source of error relevant to internal consistency indices. As noted earlier, a precise technical explanation of the SEM (and resulting confidence intervals) can be unwieldy. Because of this, score users are often provided less complex interpretations.

One simpler description sometimes used is that a confidence interval represents the possible score range that one would observe if a student could be tested twice with the same instrument. Taking the same test on a different day implies the only source of random error being considered is related to the occasion of testing—such as a student might be sleepier one day than another, might be sick, or might not have eaten a good breakfast. There is a reliability index that captures this source of random error and it is referred to as the test-retest reliability coefficient. This is not the type of reliability computed for the CDT. When internal consistency reliability estimates are used, such an explanation blurs the fact that random error based on the occasion of testing is not considered.

When SEMs are derived from internal consistency reliability estimates, a better approach is to describe the confidence interval as providing reasonable bounds for the range of scores that a student might receive if he or she took an equivalent version of the test. That is, the student took a test that covered exactly the same content, but included a different set of items. As an example, if the Algebra I score was 1078 and the SEM band was 1038 to 1118, then a student would be likely to receive a score somewhere between 1038 and 1118 if he or she took a different version of the test without additional instruction.

RESULTS AND OBSERVATIONS

Split-half reliability coefficients and associated (traditional) SEMs for CDT tests are presented in Table 16–3. Values were derived using the operational data from the 2012–2013 school year. The results are presented for total scores and each diagnostic category score. The statistics reported include number of students tested (*N*), mean scale score, standard deviation of scale score, split-half reliability, and traditional standard error of measurement (SEM) in the scale score metric.

Table 16–3. CDT Reliabilities

	Average Number of Items	N	Scale Score Mean	Scale Score SD	Split-Half Reliability	SEM in Scale Score Metric
Mathematics						
Total Test	55.4	104,656	991.386	135.864	0.925	37.1
Numbers and Operations	11.1	104,656	999.476	171.257	0.768	82.5
Measurement	11.1	104,656	987.072	161.528	0.724	84.8
Geometry	11.1	104,656	981.716	152.787	0.706	82.8
Algebraic Concepts	11.1	104,656	992.705	158.044	0.723	83.1
Data Analysis and Probability	11.1	104,656	998.084	167.035	0.753	83.0
Algebra I						
Total Test	51.4	203,671	1101.820	127.992	0.911	38.2
Operations with Real Numbers and Expressions	12.8	203,671	1098.991	154.844	0.759	76.0
Linear Equations & Inequalities	12.8	203,671	1113.598	131.658	0.658	77.0
Functions & Coordinate Geometry	12.8	203,671	1107.252	147.749	0.733	76.3
Data Analysis	12.9	203,671	1091.448	157.852	0.764	76.8
Geometry						
Total Test	52.0	11,055	1102.335	135.651	0.918	38.8
Geometric Properties	12.9	11,055	1093.431	152.622	0.746	77.0
Congruence, Similarity, and Proofs	13.1	11,055	1106.481	155.996	0.742	79.2
Coordinate Geometry and Right Triangles	13.1	11,055	1108.663	163.470	0.766	79.1
Measurement	13.0	11,055	1103.532	159.381	0.757	78.6
Algebra II						
Total Test	52.1	10,284	1154.962	135.222	0.917	39.0
Operations with Complex Numbers	13.4	10,284	1177.016	190.470	0.827	79.1
Non-linear Expressions & Equations	12.9	10,284	1150.368	150.356	0.739	76.8
Functions	12.9	10,284	1158.461	146.572	0.729	76.2
Data Analysis	12.9	10,284	1139.884	162.438	0.780	76.1

Table 16–3 (continued). CDT Reliabilities

	Average Number of Items	N	Scale Score Mean	Scale Score SD	Split-Half Reliability	SEM in Scale Score Metric
Reading/Literature						
Total Test	54.6	266,758	1010.904	160.705	0.918	46.1
Comprehension	11.2	266,758	1026.717	198.085	0.721	104.6
Vocabulary	10.5	266,758	1004.888	194.120	0.698	106.7
Interpretation/Analysis Literary Elements & Devices	10.9	266,758	1011.557	185.555	0.681	104.9
Interpretation/Analysis Persuasive Techniques	11.0	266,758	1011.075	196.011	0.689	109.3
Interpretation/Analysis Organizational Skills	11.1	266,758	1014.806	199.871	0.701	109.3
Science						
Total Test	51.7	40,334	890.010	125.304	0.895	40.6
The Nature of Science	12.9	40,334	889.769	159.405	0.735	82.0
Biological Sciences	12.9	40,334	885.111	152.559	0.712	81.9
Physical Sciences	12.9	40,334	899.153	138.795	0.646	82.6
Earth and Space Sciences	13.0	40,334	889.333	144.458	0.665	83.7
Biology						
Total Test	51.7	117,151	991.558	122.794	0.892	40.4
Basic Biological Principles/Chemical Basis for Life	12.9	117,151	995.975	155.619	0.718	82.7
Bioenergetics/Homeostasis and Transport	13.1	117,151	998.430	136.253	0.615	84.5
Cell Growth and Reproduction/Genetics	12.9	117,151	998.160	135.503	0.623	83.2
Theory of Evolution/Ecology	12.9	117,151	976.458	156.454	0.727	81.8
Chemistry						
Total Test	52.5	8,081	1003.236	104.194	0.848	40.6
Properties and Classification of Matter	12.9	8,081	984.269	154.999	0.721	81.9
Atomic Structure and the Periodic Table	13.3	8,081	1019.009	119.425	0.487	85.6
The Mole and Chemical Bonding	13.1	8,081	1012.600	122.081	0.528	83.8
Chemical Relationships and Reactions	13.2	8,081	1000.197	132.910	0.589	85.2

Table 16–3 (continued). CDT Reliabilities

	Average Number of Items	N	Scale Score Mean	Scale Score SD	Split-Half Reliability	SEM in Scale Score Metric
Writing/English Composition						
Total Test	55.3	21,900	988.055	142.865	0.924	39.3
Quality of Writing: Focus and Content	11.1	21,900	985.883	175.599	0.728	91.6
Quality of Writing: Organization and Style	11.1	21,900	992.534	183.890	0.751	91.8
Quality of Writing: Editing	11.0	21,900	974.245	160.168	0.684	90.0
Conventions: Spelling, Capitalization, and Punctuation	11.0	21,900	1002.619	164.779	0.705	89.5
Conventions: Grammar and Sentence Formation	11.0	21,900	985.800	163.372	0.704	88.9

The overall test score reliability values are high and similar to those reported for PSSA and Keystone Exams. The reliabilities at the diagnostic category level are lower due to the fact that each diagnostic category contains fewer items. At the diagnostic category level, reliability values are highest for Mathematics, followed by Writing, Reading, and Science, the lowest of the four content areas.

RASCH CONDITIONAL STANDARD ERRORS OF MEASUREMENT

The CSEM also indicates the degree of measurement error in scale score units, but varies as a function of a student's actual scale score. Therefore, the CSEM may be especially useful in characterizing measurement precision in the neighborhood of a score level used for decision-making—such as cut scores for identifying students who meet a performance standard.

Technically, when a Rasch model is applied, the CSEM at any given point on the ability continuum is defined as the reciprocal of the square root of the test information function derived from the Rasch scaling model:

$$CSEM(\hat{\beta}_n) = \frac{1}{\sqrt{I(\hat{\beta}_n)}}$$

where $CSEM(\hat{\beta}_n)$ is conditional standard error of measurement and $I(\hat{\beta}_n)$ is test information function. Test information depends on the sum of the corresponding information functions for the test items. Item information depends on each item's difficulty and conditional item score variance. The formula above utilizes the Rasch ability (β_n) metric. The conditional standard error on the scale score (SS) metric is determined simply by multiplying the $CSEM(\hat{\beta}_n)$ by the slope (multiplicative constant, *m*) of the linear transformation equation used to convert the Rasch ability estimates to scale scores:

CSEM(SS) = $CSEM(\hat{\beta}_n)$ **m*

Chapter Eleven provides the linear transformation formulas for each of the CDT content areas.

RASCH CSEM CONFIDENCE INTERVALS

CSEMs also allow statements regarding the precision of individual tests scores. And like SEMs, they help place reasonable limits around observed scale scores through construction of an approximate score band. The confidence intervals are constructed by adding and subtracting a multiplicative factor of the CSEM and may be interpreted as described in the earlier section.

FURTHER INTERPRETATIONS

DIFFERENT CSEMS FOR DIFFERENT TEST SCORES

The CSEM approach provides different numerical estimates for constructing the confidence intervals for examinees depending on their specific score. On fixed form tests, the magnitude of the CSEM values is often "U" shaped, with larger CSEM values associated with lower and higher scores. With a fixed set of items, there is less information for students scoring at the extremes, and CSEM is inversely related to the information function (the more information, the lower the CSEM). Given that CDT tests are adaptive, this "U" shape tends to be less pronounced as students are presented with items targeted at their level. While

there is some "U" shape at the extreme ends of the vertical scale, there is a much larger area on the scale where CSEMs are relatively flat compared to fixed form tests. The adaptive tests allow for greater information and, therefore, lower CSEMs across a wide range of the vertical scale.

GROUP SPECIFIC

Assuming reasonable model-data fit—as explored in Chapter Eight—the Rasch based CSEMs (conditioned on score level) should not vary across groups.

SCALE SCORE METRIC

The CSEM and associated confidence interval bands are in the scale score metric.

TYPE OF ERROR REFLECTED

The CSEMs reported in the dynamic reporting suite are the Rasch-based conditional standard errors of measurement described above. Score report content is considered in greater detail in Chapter Fourteen.

RESULTS AND OBSERVATIONS

Figures 16–2 through 16–10 show the average Rasch CSEMs associated with various scale score ranges based on operational data from the 2012–2013 school year. The values are fairly consistent across a large range of scores on the vertical scale. The values increase at the low and high ends of the scale score range.

Figure 16–2. Average Conditional Standard Errors for Mathematics

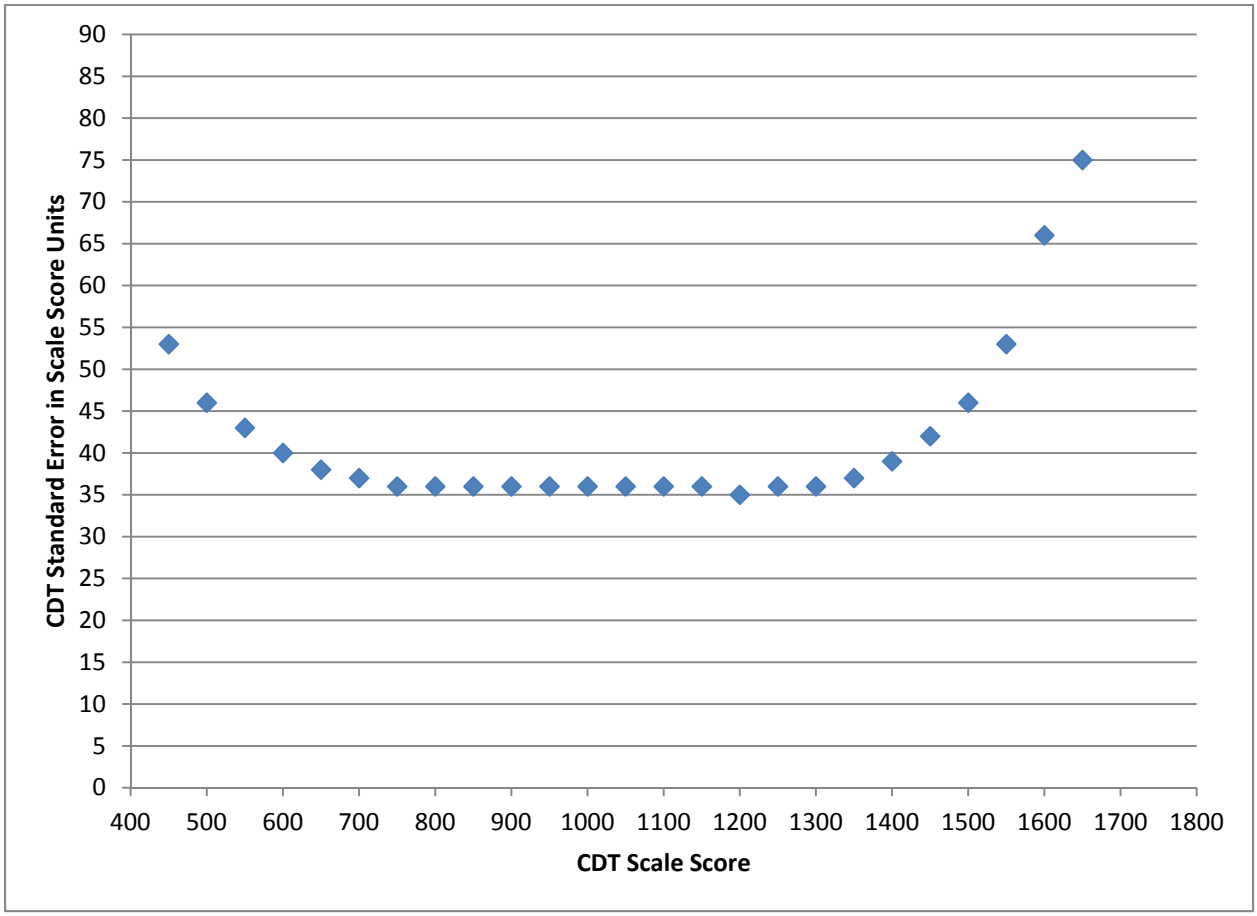


Figure 16–3. Average Conditional Standard Errors for Algebra I

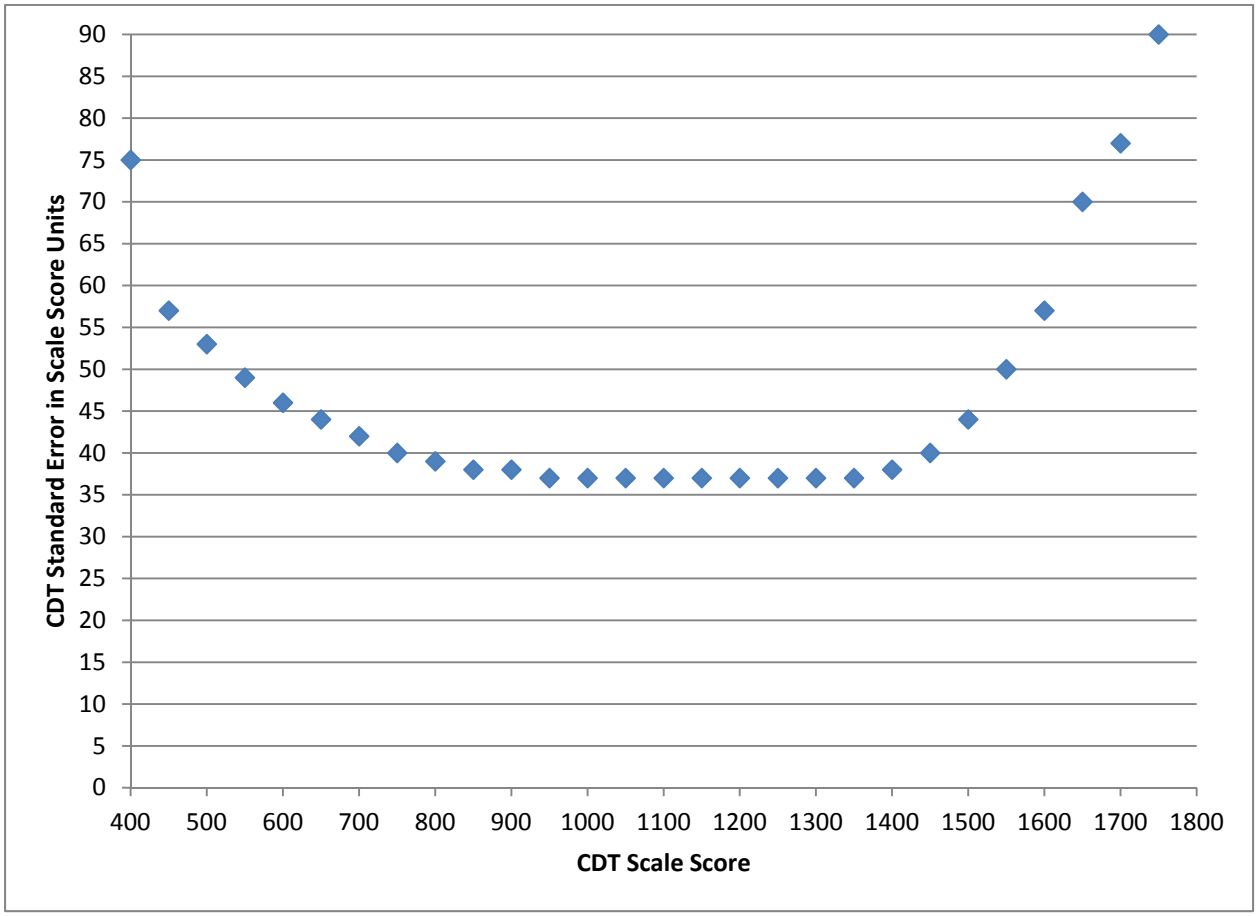


Figure 16–4. Average Conditional Standard Errors for Geometry

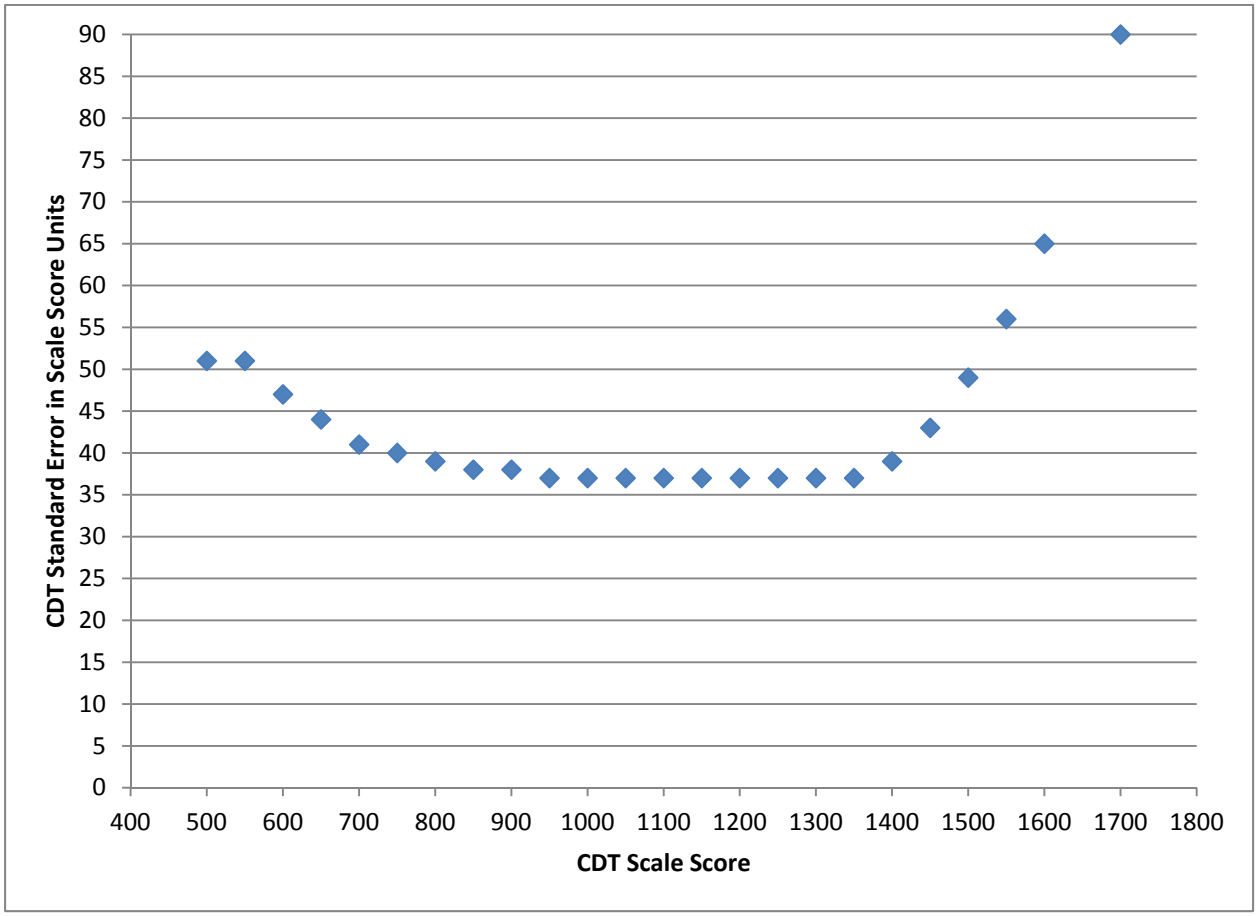


Figure 16–5. Average Conditional Standard Errors for Algebra II

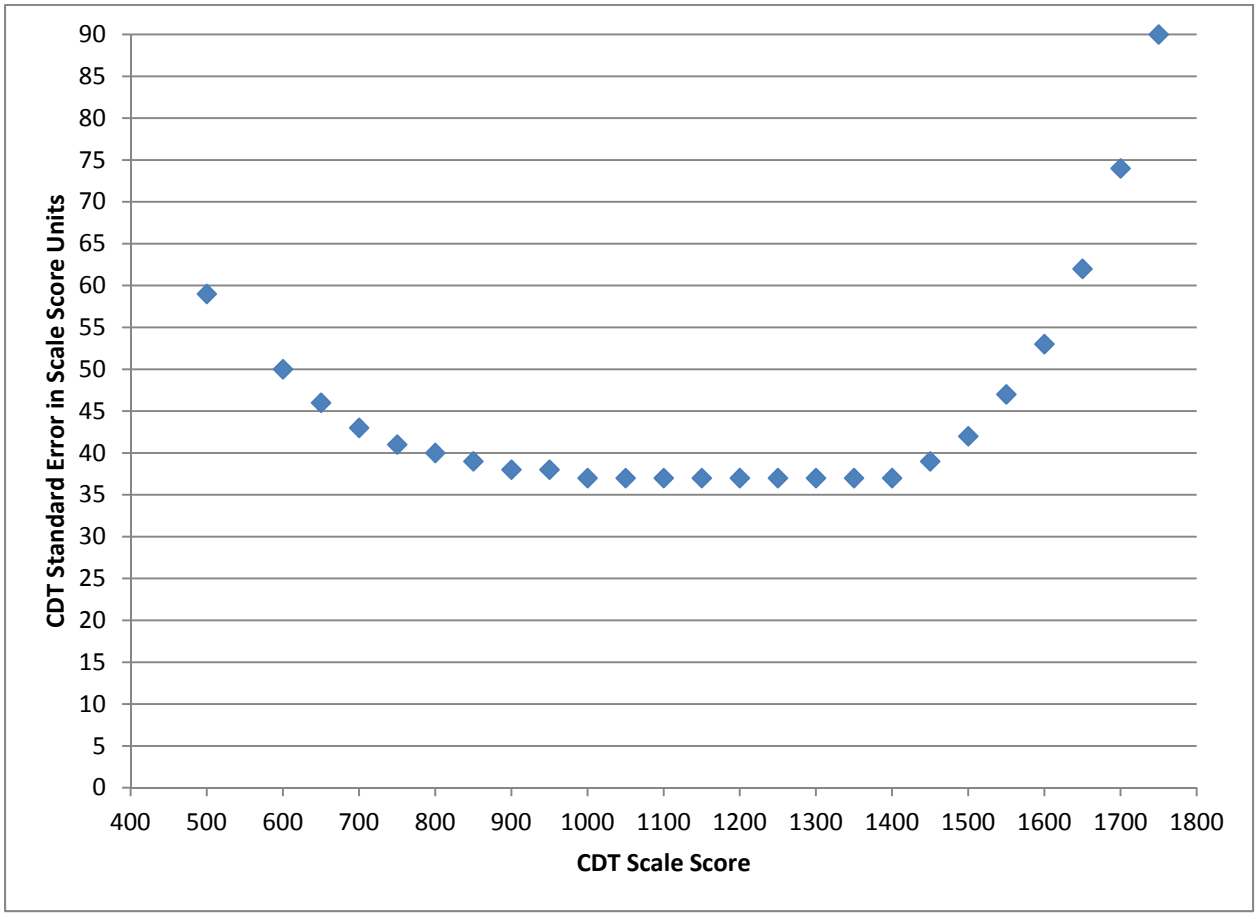
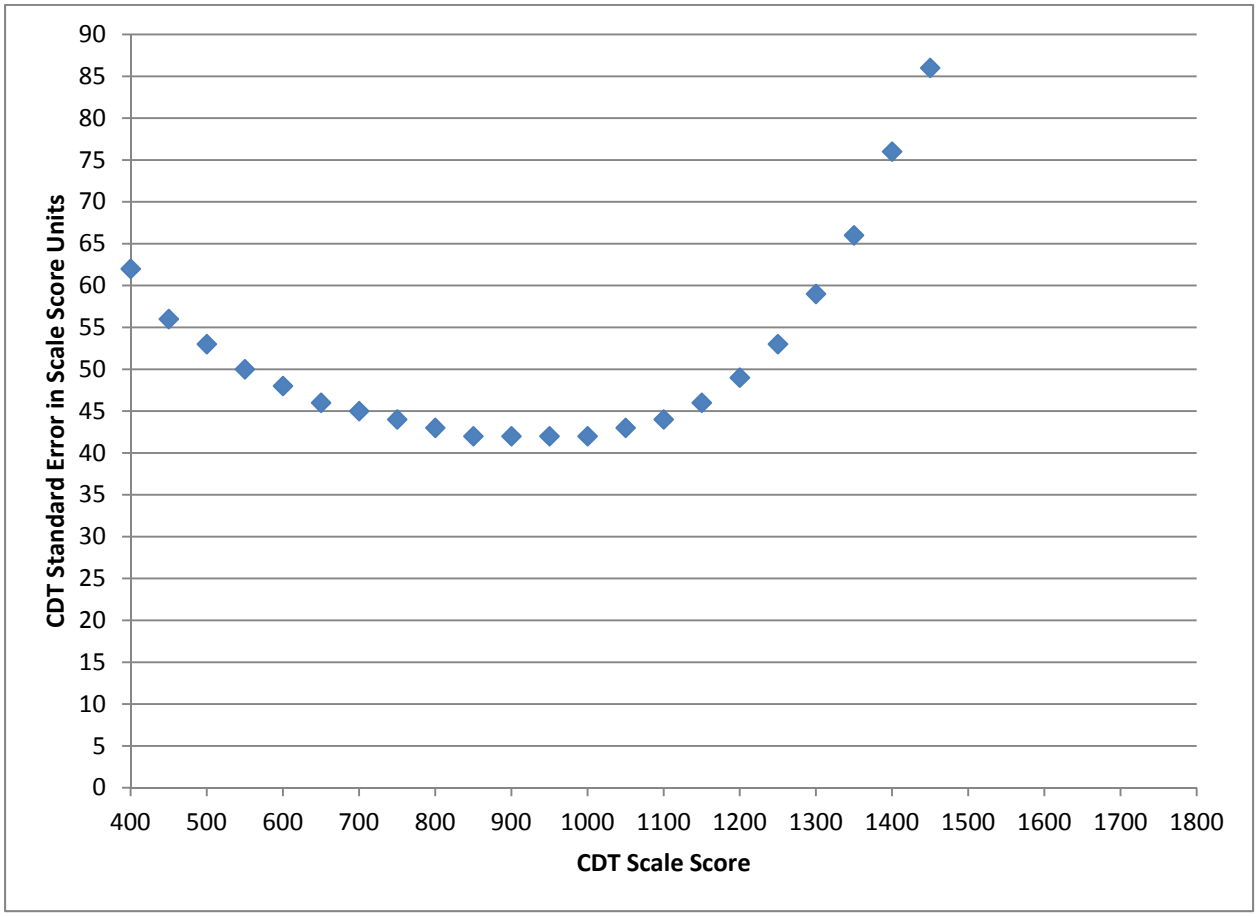


Figure 16–6. Average Conditional Standard Errors for Reading/Literature



CSEMs tend to be higher in Reading/Literature than other CDT tests. This is due to the fact that Reading/Literature is passage-based. The items from a selected passage may not be as closely targeted to the student's level as when individual items are selected one at a time. For more information on adaptive selection of passages, see Chapter Thirteen.

Figure 16–7. Average Conditional Standard Errors for Science

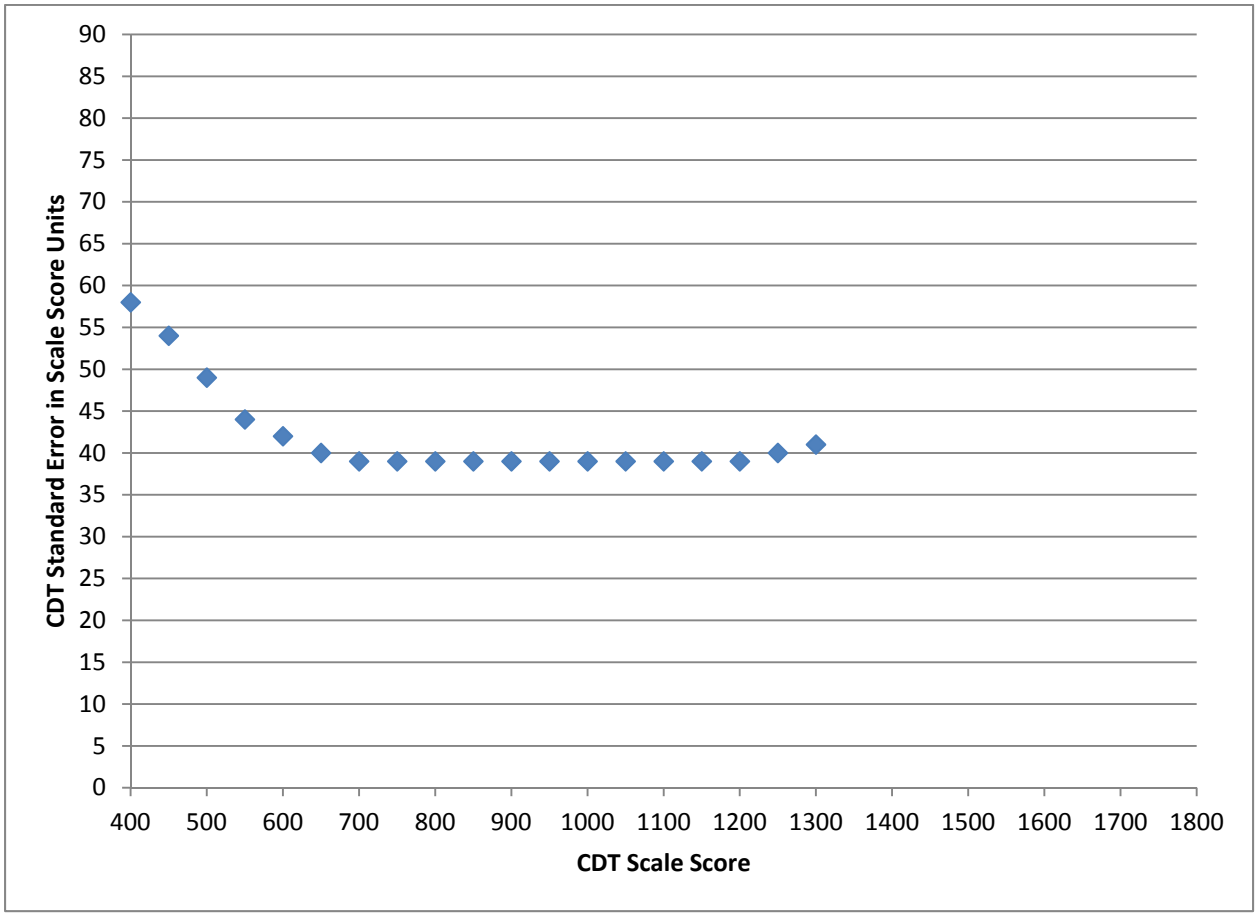


Figure 16–8. Average Conditional Standard Errors for Biology

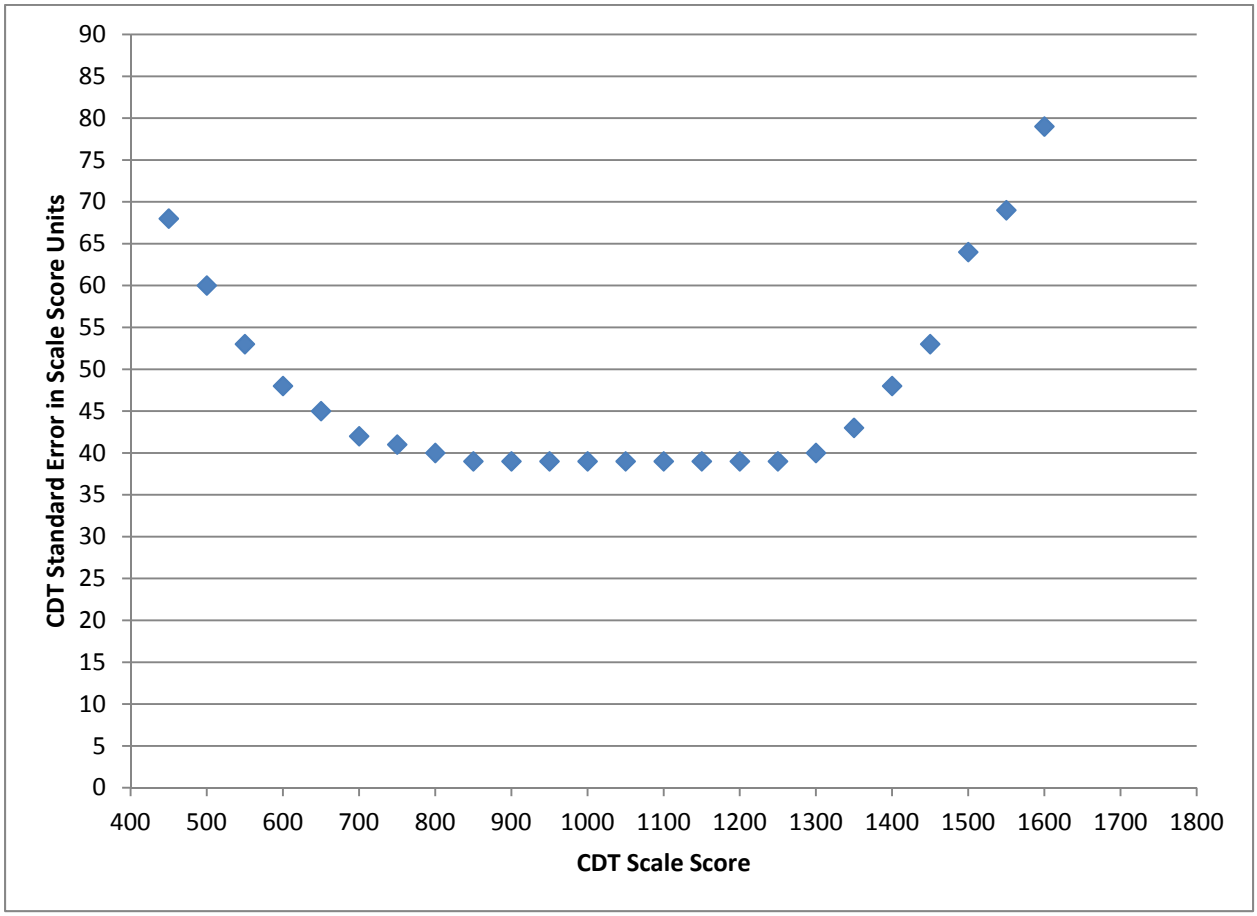


Figure 16–9. Average Conditional Standard Errors for Chemistry

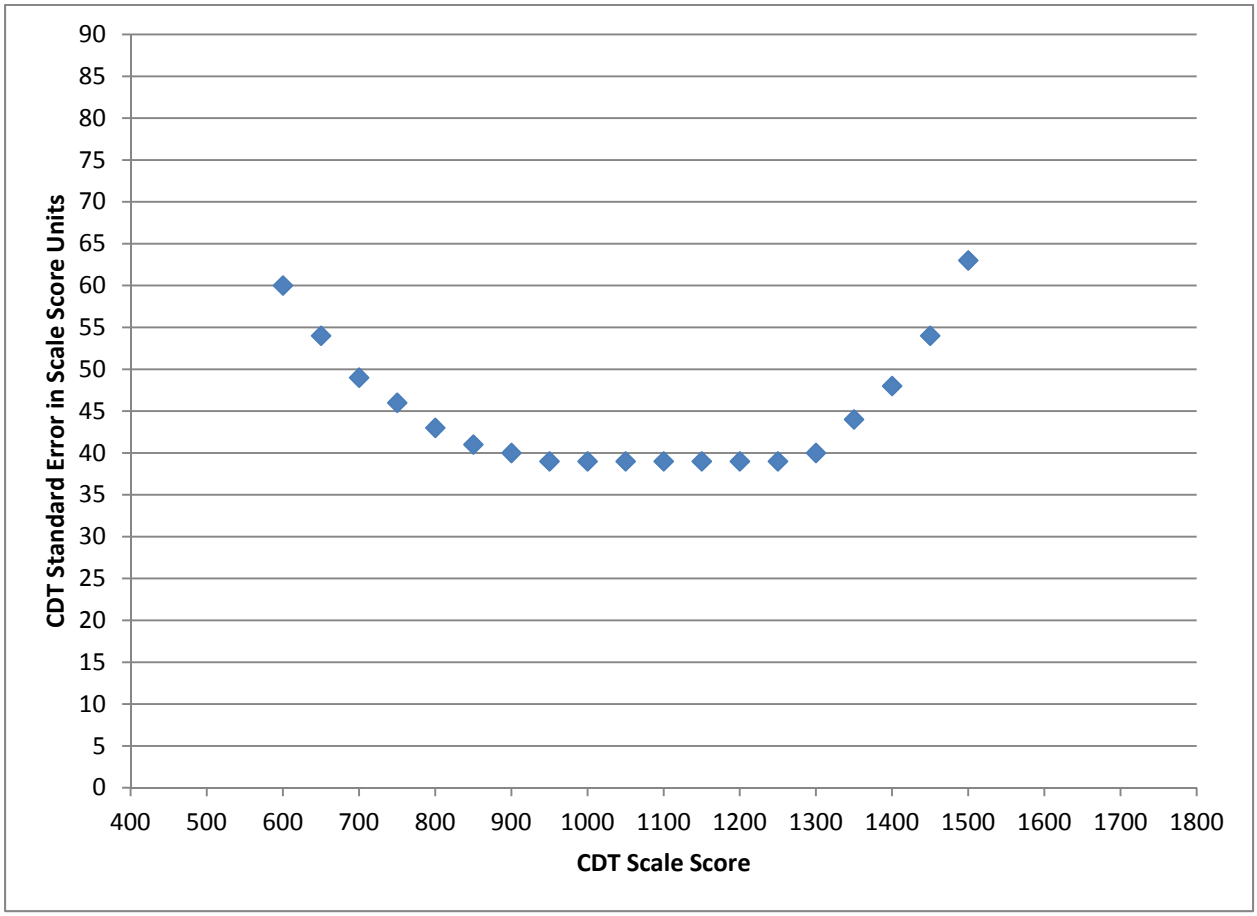
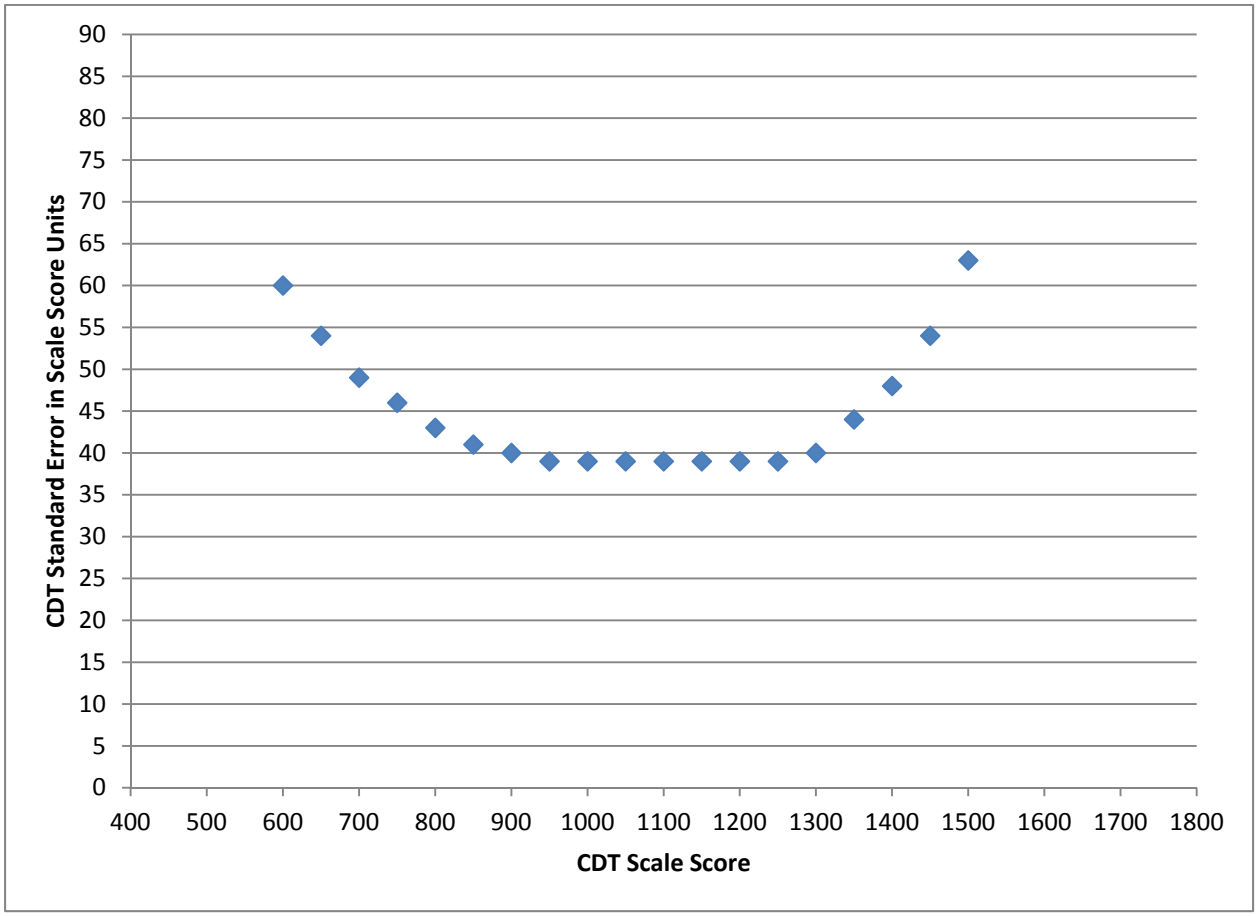


Figure 16–10. Average Conditional Standard Errors for Writing/English Composition



DECISION CONSISTENCY

Classification decision consistency refers to the degree to which the achievement level for each student can be replicated upon retesting using an equivalent form (Huynh, 1976). While CDT is designed to be administered multiple times in the school year to gauge progress following instruction, retesting in the context of decision consistency refers to retesting shortly after testing without additional instruction.

In a standards-based testing program, there should be great interest in knowing how accurately students are classified into performance categories. In contrast to reliability, which is concerned with the relative rank-ordering of students, it is the absolute values of student scores that are important in decision consistency.

Decision consistency answers the question: What is the agreement between the classifications based on two non-overlapping, equally difficult forms of the test? If two parallel forms of the test were given to the same students (without additional instruction), the consistency of the measure would be reflected by the extent to which the classification decisions made based on the first set of test scores matched the decisions based on the second set of test scores. Consider Table 16–4:

Table 16–4. Pseudo-Decision Table for Three Hypothetical Categories

		Test One			
		Level I	**Level II**	**Level III**	**Marginal**
Test Two	Level I	φ_{11}	φ_{12}	φ_{13}	$\varphi_{1\bullet}$
	Level II	φ_{21}	φ_{22}	φ_{23}	$\varphi_{2\bullet}$
	Level III	φ_{31}	φ_{32}	φ_{33}	$\varphi_{3\bullet}$
	Marginal	$\varphi_{\bullet 1}$	$\varphi_{\bullet 2}$	$\varphi_{\bullet 3}$	1

If a student is classified as in one category based on Test One's score, how probable would it be that the student would be reclassified in the same category if he or she took Test Two (a non-overlapping, equally difficult form of the test)?

The proportions of correct decisions, φ, for three categories is computed as:

$$\varphi = \varphi 11 + \varphi 22 + \varphi 33$$

It is the sum of the diagonal entries—that is, the proportion of students classified by the two forms into exactly the same level—that would signify the overall consistency.

Since it is not feasible to repeat CDTs—one right after the other with no additional instruction—in order to estimate the proportion of students who would be reclassified in the same performance levels, a statistical model needs to be imposed on the data in order to project the consistency of classifications solely using data from the available administration (Hambleton and Novick, 1973). Two well-known methods were developed by Hanson and Brennan (1990) and Livingston and Lewis (1995) utilizing specific true score models. While both measures are reported for PSSA and Keystone Exams, the statistical models imposed on the data depend upon a beta binomial distribution of raw scores. Given that CDT is adaptive (i.e., raw scores using a response probability of 0.5 are generally equal to ½ of test length), these measures are not reported for CDT. Instead, decision consistency measures in this section are a Rasch-based index that relies on conditional standard errors (CSEMs). Also reported are results based on simulations and kappa.

The decision consistency measures reported in the section are based on the Rasch model and conditional standard errors (Stearns and Smith, 2007). Each person's scale score has an associated conditional standard error. Each of the performance levels on the test has an established benchmark cut in the scale score metric. Given these three pieces of information, the assumption of a normal distribution of measurement error allows us to calculate the probability that a student would receive the same classification on retesting. Using the statistic:

$$z = \frac{SS_n - SSBC}{SE_{SS_n}}$$

where SS_n is the scale score estimate for person n, $SSBC$ is the scale score benchmark cut, and SE_{SS_n} is the asymptotic standard error of the person scale score estimate. Using cumulative normal probabilities, the probability that a retest would produce the same performance level classification and the probability of a different performance level classification were calculated. The process was repeated for each cut score which

results in a probability of classification in each of the performance levels. The total classification rate for the entire sample is the average of the probabilities of the same classification on retesting.

Table 16–5 provides an example based on CDT Algebra I operational data from the 2012–2013 school year. Recall that in the dynamic reporting suite, scores are classified into one of three color ranges—red, green, or blue. The benchmark cut points used for the analyses are the cut points in place during the 2012–2013 school year.

Table 16–5. Retest Classification Probability – Algebra I

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.902	0.098	0.000
	green	0.140	0.823	0.037
	blue	0.000	0.169	0.831

Consider students with scores in the green range: The probability of scoring in the red range if retested is 0.140. The probability of scoring in the green range again is 0.823. The probability of scoring in the blue range is 0.037.

The total classification rate is determined by taking the weighted average of the diagonal probabilities where the weights are the number of students in the corresponding range. There are 203,671 students in the sample: 114,859 with total scores in the red range, 80,139 in the green range, and 8,673 in the blue range. The total classification rate is

[(0.902)*(114,859)+(0.823)*(80,139)+(0.831)*(8,673)]/203,671 = 0.868

In addition to the exact agreement rate, Cohen's kappa[15] was also calculated as 0.750.

In cases with multiple categories, an alternative to kappa, which treats every misclassification as equally important, is a weighted kappa that considers differences that are non-adjacent as more "off."

While relevant, given there are three categories, weighted kappa is the same as kappa in this case because both the red/blue and blue/red cells in Table 16–5 are zero.

3 X 3 retest classification probability tables for all CDT tests and benchmark cuts comparable to Table 16–5 are presented in Appendix E.

[15] Kappa, κ, takes into account the agreement occurring by chance.

Stearns and Smith (2007) point out that one advantage of this method is that each student can understand how likely it is that he or she would be classified in the same range if they took the test over without additional instruction. In addition, each student can learn the probability with which they would be reclassified in any of the ranges. A student scoring right at the cut score will have a lower rate of consistent classification than a student scoring in the middle of a performance level band. This can be seen in Table 16–6, which is based on the same Algebra I data set and cut points and shows for various scale scores the percent chance of scoring in each color range if retested.

Table 16–6. Retest Classification Percent for Various Scale Score Ranges – Algebra I

Scale Score Range	Number of Students	% Chance in Category if Retested*			% Chance in Same Category if Retested*	
		Red	Green	Blue		
< 400	0					
400 to 449	2	>99.9%	0.0%	0.0%	>99.9%	
450 to 499	8	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	28	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	99	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	290	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	735	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	1,408	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	2,445	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	3,685	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	5,805	>99.9%	0.0%	0.0%	>99.9%	
900 to 949	9,226	>99.9%	0.0%	0.0%	>99.9%	
950 to 999	13,905	>99.9%	0.0%	0.0%	>99.9%	
1000 to 1049	20,726	99.6%	0.4%	0.0%	99.6%	
1050 to 1099	30,371	92.4%	7.6%	0.0%	92.4%	
1100 to 1149	39,166	57.8%	42.2%	0.0%	63.8%	Red/Green cut = 1134
1150 to 1199	36,159	15.5%	84.4%	0.1%	84.4%	
1200 to 1249	21,406	1.2%	95.9%	2.8%	95.9%	
1250 to 1299	9,953	0.0%	74.4%	25.6%	74.5%	Green/Blue cut = 1297
1300 to 1349	4,432	0.0%	27.0%	73.0%	73.0%	
1350 to 1399	2,164	0.0%	3.0%	97.0%	97.0%	
1400 to 1449	954	0.0%	0.1%	99.9%	99.9%	
1450 to 1499	438	0.0%	0.0%	>99.9%	>99.9%	
1500 to 1549	145	0.0%	0.0%	>99.9%	>99.9%	
1550 to 1599	62	0.0%	0.0%	>99.9%	>99.9%	
1600 to 1649	30	0.0%	0.0%	>99.9%	>99.9%	
1650 to 1699	15	0.0%	0.0%	>99.9%	>99.9%	
1700 to 1749	6	0.0%	0.0%	>99.9%	>99.9%	
1750 to 1799	5	0.0%	0.0%	>99.9%	>99.9%	
1800 to 1849	3	0.0%	0.0%	>99.9%	>99.9%	
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	203,671					
* Retest assuming no additional instruction						

Tables for all CDT tests and benchmark cuts comparable to Table 16–6 are presented in Appendix E.

As previously mentioned, it is not feasible to repeat CDTs—one right after the other with no additional instruction—in order to estimate decision consistency. However, simulations were run as a validation of the results based on the Stearns and Smith method. The reported Algebra I scores from 2012–2013 were used as true scores in order to simulate retest results. Table 16–7 repeats the Algebra I results from Table 16–5, shows the simulation results, and displays the differences.

Table 16–7. Compare Stearns and Smith Results to Simulation Retest – Algebra I

Stearns and Smith		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.902	0.098	0.000
	green	0.140	0.823	0.037
	blue	0.000	0.169	0.831

Exact Agreement Rate = 0.868

Kappa = 0.750

Simulated Retest		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.900	0.100	0.000
	green	0.144	0.818	0.038
	blue	0.000	0.169	0.831

Exact Agreement Rate = 0.865

Kappa = 0.745

Difference		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.002	-0.002	0.000
	green	-0.004	0.005	-0.001
	blue	0.000	0.000	0.000

Exact Agreement Rate = 0.003

Kappa = 0.005

Based on results of the simulation validation, Stearns and Smith methodology was applied to all CDT tests and benchmark cut points using data from the 2012–2013 school year. Results are presented in Table 16–8.

Table 16–8. Decision Consistency for All CDT Tests

CDT Test	Benchmark Cut	*N*-count	Exact Agreement Rate	Kappa
Mathematics	Grade 6	35,412	0.863	0.777
Mathematics	Grade 7	42,248	0.868	0.780
Mathematics	Grade 8	23,769	0.878	0.773
Mathematics	High School	3,227	0.922	0.827
Algebra I	Algebra I	203,671	0.868	0.750
Geometry	Geometry	11,055	0.892	0.764
Algebra II	Algebra II	10,284	0.905	0.771
Reading/Literature	Grade 6	27,361	0.874	0.777
Reading/Literature	Grade 7	34,608	0.875	0.776
Reading/Literature	Grade 8	33,297	0.874	0.773
Reading/Literature	Literature	171,492	0.867	0.765
Science	Grade 6	8,247	0.864	0.756
Science	Grade 7	13,261	0.871	0.759
Science	Grade 8	15,973	0.870	0.747
Science	High School	2,853	0.931	0.742
Biology	Biology	117,151	0.866	0.751
Chemistry	Chemistry	8,081	0.877	0.742
Writing/English Composition	Grade 6	2,406	0.859	0.764
Writing/English Composition	Grade 7	4,670	0.865	0.767
Writing/English Composition	Grade 8	4,464	0.873	0.763
Writing/English Composition	English Composition	10,360	0.860	0.764

See Appendix E for the 3 X 3 retest classification probability tables.

Chapter Sixteen: Reliability

CHAPTER SEVENTEEN: VALIDITY

As defined in the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 1999) validity refers to "the degree to which evidence and theory support the interpretation of test scores entailed by proposed uses of tests" (p. 9). The *Standards* provides a framework for describing the sources of evidence that should be considered when evaluating validity. These sources include evidence based on 1) test content, 2) response processes, 3) the internal structure of the test, 4) the relationships between test scores and other variables, and 5) the consequences of testing. In addition, when Rasch models are used to analyze assessment data, validity considerations related to those processes should also be explored.

The validity process involves the collection of a variety of evidence to support the proposed test score interpretations and uses. The entire technical report describes the technical aspects of the Classroom Diagnostic Tools (CDT) in support of their score interpretations and uses. Each of the previous chapters contributes important evidence components that pertain to score validation: test development, test administration, test scoring, item analysis, Rasch calibration, scaling, equating, score reporting, and reliability. This chapter is used to summarize and synthesize the evidence based on the framework of the *Standards*. The purposes and intended use of CDT is reviewed first, and then each type of validity evidence is addressed in turn.

PURPOSES AND INTENDED USES OF THE CDT

The *Standards* emphasize that validity pertains to how test scores are used. To help contextualize the evidence that will be presented below, the purposes of the CDT will be reviewed first. The CDTs were developed to support teachers and students in grades 6 through 12. These tools, available at no cost to districts, are fully integrated and aligned in the Standards Aligned System (SAS) and enable educators to identify students' academic strengths and areas of need, as well as provide links to classroom resources. The assessment is administered completely online using a computer adaptive test (CAT) model, and participation is voluntary. CDT scores are available immediately after testing in the dynamic reporting suite. In addition to the scores, this suite includes links to instructional resources. The CDT may be used multiple times throughout the school year.

EVIDENCE BASED ON TEST CONTENT

Test content validity evidence for CDT rests greatly on establishing a link between each piece of the assessment (i.e., the items) and what students should know and be able to do as prescribed by the Assessment Anchors and Eligible Content. The CDTs are intended to measure the knowledge and skills described in the Assessment Anchors and Eligible Content for grades 6 through 8 and high school in Mathematics, Reading, Science, and Writing, and courses Algebra I, Geometry, Algebra II, Literature, Biology, Chemistry, and English Composition.

Lane (1999) suggests taking the following steps to support the content validity of an assessment. In the case of the operational CDT, one should:

- Evaluate the degree to which the test specifications represent and align with the knowledge and skills described in the corresponding Assessment Anchors and Eligible Content.
- Evaluate the alignment between the CDT items and test specifications to ensure representativeness.
- Evaluate the extent to which the curriculum aligns with the Assessment Anchors and Eligible Content.

- Conduct content reviews of the CDT items using a panel of content experts to see whether items measure the intended construct or are the sources of construct-irrelevant variance.
- Conduct fairness reviews of the items to avoid issues related to a specific subpopulation.
- Evaluate procedures for administration and scoring such as the appropriateness of instructions to examinees, practice/training with online tools and test, and time limit for the assessment.
- Submit operational tests to third-party independent reviews.

Chapters Two through Five of this report present a considerable amount of evidence related to test content. As described in these chapters, all the items were developed and aligned with the Assessment Anchors and Eligible Content. After development, prior to field testing, items were reviewed for content and bias issues. After being field tested, items were reviewed with respect to their statistical properties and alignment with the learning progressions. Items selected for inclusion in the operational pools had to pass content, psychometric, and PDE reviews. Tests were administrated according to standardized procedures with allowable accommodations.

Some of the efforts made to ensure content validity are summarized below:

- DRC used Webb's (1999) DOK model to ensure the CDT items aligned with the Assessment Anchors and Eligible Content and the Academic Content Standards in terms of both content and cognitive levels.
- DRC established detailed test and item/passage development specifications and ensured the items were sufficient in number and adequately distributed across content, levels of cognitive complexity, and levels of difficulty.
- DRC selected qualified item writers and provided training to help ensure they wrote high-quality items.
- All newly developed items were first reviewed by content specialists and editors at DRC to make sure they measured the intended Assessment Anchors and Eligible Content. Appropriateness for the intended students was also considered, as well as depth of knowledge, graphics, grammar/punctuation, language demand, and distractor reasonableness.
- Prior to field testing, the test items were submitted to content committees (composed of Pennsylvania educators) for review using, but not limited to, the following categories:
    - Overall quality and clarity
    - Anchor, Eligible Content, and/or standard alignment
    - Grade-level appropriateness
    - Difficulty level
    - Depth of knowledge
    - Appropriate sources of challenge (e.g., unintended content and skills)
    - Correct answer
    - Quality of distractors

  - Graphics
  - Appropriate language demand
  - Freedom from bias

- The items were also submitted to a Bias, Fairness, and Sensitivity Committee for review. This committee reviewed items for issues related to diversity, gender, and other pertinent factors.
- Items passing all prior hurdles were tried out in a stand-alone or embedded field test event. Several statistical analyses were conducted on the field test data including classical item analyses, distractor analyses, and differential item functioning (DIF). Items were again carefully reviewed by DRC staff and a committee of Pennsylvania teachers with respect to their statistical characteristics. DIF was used to detect test items that might bias test scores for particular groups. Empirical investigation of DIF strengthens the validity evidence related to score interpretations for students in particular groups by eliminating potential sources of construct-irrelevant variance.
- Following field test, the items were submitted to content committees (composed of Pennsylvania educators) for review and alignment with the learning progressions.
- The CDTs were administered according to standardized procedures with allowable accommodations. Students were given ample time to complete the tests (i.e., there were no speediness issues).

EVIDENCE BASED ON RESPONSE PROCESS

Response-process evidence is used to examine the extent to which the cognitive skills and processes employed by students match those identified in the test developer's defined construct domains for all students and for each subgroup. Think-aloud procedures or "cognitive labs" can be used to collect this type of evidence.

For the operational 2012–2013 CDTs, no cognitive lab studies were conducted to collect the response process evidence.

EVIDENCE BASED ON INTERNAL STRUCTURE

As described in the *Standards* (1999), internal-structure evidence refers to the degree to which the relationships among test items and test components conform to the construct on which the proposed test interpretations are based. For each CDT, one total test score as well as diagnostic category scores were reported (see Chapter Fourteen for more information about CDT scores). Several dimensionality studies were conducted in order to provide internal-structure evidence relating to the use of both types of scores.

ITEM-TEST CORRELATIONS

Item-test correlations are discussed in Chapter Seven and provided in Appendix A. All items in the final operational pools had values that were positive and of acceptable magnitude.

DIMENSIONALITY

Dimensionality analyses were conducted for the CDT using WINSTEPS's principal components analyses on response residuals for each content area. Results are shown in Chapter Eight. The principal component analysis results provided evidence that each of the CDTs was essentially unidimensional, supporting the validity of using the total scores to estimate a student's overall ability.

DIAGNOSTIC CATEGORY CORRELATIONS

Correlations and disattenuated correlations among diagnostic category scores for the CDT are presented below. Values were derived from the CDT operational data from the 2012–2013 school year. This data can also provide information on score dimensionality that is part of internal-structure evidence. Each CDT has either four or five diagnostic categories. Full diagnostic category names can be found in Chapter Thirteen.

Table 17–1. Correlations Among Diagnostic Categories — Mathematics

	Numbers.	Measure.	Geo.	Alg. Con.	Data.
Numbers.	-				
Measure.	0.642	-			
Geo.	0.613	0.616	-		
Alg. Con.	0.654	0.617	0.596	-	
Data.	0.663	0.644	0.614	0.641	-

Table 17–2. Correlations Among Diagnostic Categories — Algebra I

	Operations.	Linear.	Functions.	Data.
Operations.	-			
Linear.	0.630	-		
Functions.	0.654	0.645	-	
Data.	0.652	0.618	0.647	-

Table 17–3. Correlations Among Diagnostic Categories — Geometry

	Properties.	Congruence.	Coordinate.	Measure.
Properties.	-			
Congruence.	0.632	-		
Coordinate.	0.646	0.648	-	
Measure.	0.661	0.646	0.676	-

Table 17–4. Correlations Among Diagnostic Categories — Algebra II

	Complex.	Non-Linear.	Functions.	Data.
Complex.	-			
Non-Linear.	0.566	-		
Functions.	0.541	0.668	-	
Data.	0.499	0.657	0.640	-

Table 17–5. Correlations Among Diagnostic Categories — Reading/Literature

	Comp.	Vocab.	I/A Lit.	I/A Pers.	I/A Text Org.
Comp.	-				
Vocab.	0.640	-			
I/A Lit.	0.666	0.643	-		
I/A Pers.	0.667	0.652	0.660	-	
I/A Text Org.	0.653	0.631	0.645	0.666	-

Table 17–6. Correlations Among Diagnostic Categories — Science

	Nature.	Bio.	Phys.	Earth/Space.
Nature.	-			
Bio.	0.651	-		
Phys.	0.612	0.599	-	
Earth/Space.	0.616	0.603	0.566	-

Table 17–7. Correlations Among Diagnostic Categories — Biology

	Basic.	Bioenerg.	Cell Growth.	Evol./Ecol.
Basic.	-			
Bioenerg.	0.613	-		
Cell Growth.	0.605	0.564	-	
Evol./Ecol.	0.654	0.563	0.591	-

Table 17–8. Correlations Among Diagnostic Categories — Chemistry

	Matter.	Atomic.	Mole.	Chem.
Matter.	-			
Atomic.	0.463	-		
Mole.	0.537	0.464	-	
Chem.	0.517	0.460	0.492	-

Table 17–9. Correlations Among Diagnostic Categories — Writing/English Composition

	Focus.	Org.	Edit.	Spell.	Gram.
Focus.	-				
Org.	0.698	-			
Edit.	0.657	0.672	-		
Spell.	0.633	0.656	0.634	-	
Gram.	0.644	0.666	0.638	0.649	-

The correlations in Tables 17–1 through 17–9 are based on the observed diagnostic category scores. These observed-score correlations are weakened by existing measurement error contained within each diagnostic category. As a result, disattenuated correlations could provide an estimate of the relationships among diagnostic categories if there were no measurement error. (An important caveat is explained further below.) The disattenuated correlation coefficients (R_{12}) can be computed by using the formula (Spearman 1904, 1910) below:

$$R_{12} = \frac{r_{12}}{\sqrt{r_{11} r_{22}}},$$

where r_{12} is the observed correlation, and r_{11} and r_{22} are the reliabilities for diagnostic categories 1 and 2. Disattenuated correlations very near 1.00 suggest that the same or very similar constructs are being measured. Values somewhat less than 1.00 suggest that different diagnostic categories are measuring slightly different aspects of the same construct. Values markedly less than 1.00 suggest the diagnostic categories reflect different constructs.

Tables 17–10 through 17–18 show the corresponding disattenuated correlations. Given that none of these diagnostic categories had perfect reliabilities (see Chapter Sixteen), the disattenuated module correlations are higher than their observed score counterparts.

Table 17–10. Disattenuated Correlations Among Diagnostic Categories — Mathematics

	Numbers.	Measure.	Geo.	Alg. Con.	Data.
Numbers.	-				
Measure.	0.861	-			
Geo.	0.833	0.862	-		
Alg. Con.	0.878	0.853	0.835	-	
Data.	0.872	0.872	0.843	0.868	-

Table 17–11. Disattenuated Correlations Among Diagnostic Categories — Algebra I

	Operations.	Linear.	Functions.	Data.
Operations.	-			
Linear.	0.891	-		
Functions.	0.876	0.929	-	
Data.	0.857	0.872	0.864	-

Table 17–12. Disattenuated Correlations Among Diagnostic Categories — Geometry

	Properties.	Congruence.	Coordinate.	Measure.
Properties.	-			
Congruence.	0.849	-		
Coordinate.	0.855	0.860	-	
Measure.	0.880	0.862	0.889	-

Table 17–13. Disattenuated Correlations Among Diagnostic Categories — Algebra II

	Complex.	Non-Linear.	Functions.	Data.
Complex.	-			
Non-Linear.	0.724	-		
Functions.	0.696	0.910	-	
Data.	0.621	0.864	0.849	-

Table 17–14. Disattenuated Correlations Among Diagnostic Categories — Reading/Literature

	Comp.	Vocab.	I/A Lit.	I/A Pers.	I/A Text Org.
Comp.	-				
Vocab.	0.903	-			
I/A Lit.	0.951	0.934	-		
I/A Pers.	0.946	0.941	0.963	-	
I/A Text Org.	0.919	0.902	0.934	0.959	-

Table 17–15. Disattenuated Correlations Among Diagnostic Categories — Science

	Nature.	Bio.	Phys.	Earth/Space.
Nature.	-			
Bio.	0.900	-		
Phys.	0.888	0.884	-	
Earth/Space.	0.881	0.877	0.864	-

Table 17–16. Disattenuated Correlations Among Diagnostic Categories — Biology

	Basic.	Bioenerg.	Cell Growth.	Evol./Ecol.
Basic.	-			
Bioenerg.	0.923	-		
Cell Growth.	0.905	0.911	-	
Evol./Ecol.	0.906	0.843	0.878	-

Table 17–17. Disattenuated Correlations Among Diagnostic Categories — Chemistry

	Matter.	Atomic.	Mole.	Chem.
Matter.	-			
Atomic.	0.781	-		
Mole.	0.870	0.915	-	
Chem.	0.793	0.860	0.882	-

Table 17–18. Disattenuated Correlations Among Diagnostic Categories — Writing/English Composition

	Focus.	Org.	Edit.	Spell.	Gram.
Focus.	-				
Org.	0.944	-			
Edit.	0.930	0.938	-		
Spell.	0.884	0.902	0.913	-	
Gram.	0.900	0.917	0.920	0.921	-

In reviewing the differences between the simple correlations and the disattenuated ones, it is clear that the impact of the "less than perfect" reliabilities on the disattenuated correlations is large for most of the tests. For example, Reading/Literature found virtually no differences between any pair of disattenuated correlations. This indicates that, for the majority of students, the diagnostic category scores are merely shorter versions of what the total scores are measuring. Note that, while the theoretical maximum for observed correlations is 1.00, disattenuated correlations can exceed this value when high observed correlations are combined with low reliabilities. The other tests' disattenuated correlations are somewhat lower, generally in the range of .83 to .94. The test with the lowest disattenuated correlations is Algebra II, with Complex Numbers showing the most uniqueness.

As a practical consideration, and despite these results, diagnostic category scores for individual students may still provide useful information to the teacher. For example, a student may still have statistically significant differences between pairs of diagnostic scores ("areas of needs" versus "strengths to build on") with large observed scale score differences. The diagnostic reporting suite shows these differences in a graphic that includes the level of precision for each scale score in the form of an "error band." The error band is the scale score ± one conditional standard error. Any two pairs of scores can be interpreted as statistically different if their respective error bands do not overlap. More details about the use and interpretation of error bands may be found in Chapter Fourteen. Additionally, Chapter Fifteen provides summary information about conditional standard errors for each diagnostic category and tables that indicate the incidence of non-overlapping error bands in the 2012–2013 operational testing population.

EXPLORATORY FACTOR ANALYSIS

In order to further explore the internal structure of each CDT, an exploratory factor analysis (EFA) of the diagnostic category scores was conducted. Operational data from the 2012–2013 school year was used to create the observed correlation matrices shown in Tables 17–1 though 17–9. These, in turn, were used in the EFA. In the Statistical Package for the Social Sciences (SPSS), Principal Axis Factor extraction was utilized with an oblique rotation (Promax) of the initial factor solution to improve interpretability. Oblique rotations allow for correlated factors.

Tables 17–19 through 17–27 present the eigenvalues and the explained variance for the extracted factors. Figures 17–1 through 17–9 are scree plot graphs of the eigenvalues against the factor number. In general, the first factor accounts for approximately 70% of the total variance for all CDT except Chemistry, while the second factor accounts for approximately 10% of the total variance. For Chemistry, the first factor accounts for 62% of the total variance, while the second factor accounts for 14%. For each CDT, only the first factor had an eigenvalue greater than 1.0, typically suggesting a one-factor solution using the Kaiser criterion.

Table 17–19. Eigenvalues and Explained Variance for Mathematics Diagnostic Categories

Factor	Eigenvalue	Percent
1	3.52	70.41
2	0.42	8.33
3	0.38	7.56
4	0.35	7.01
5	0.33	6.69

Figure 17–1. Scree Plot for Mathematics Diagnostic Categories

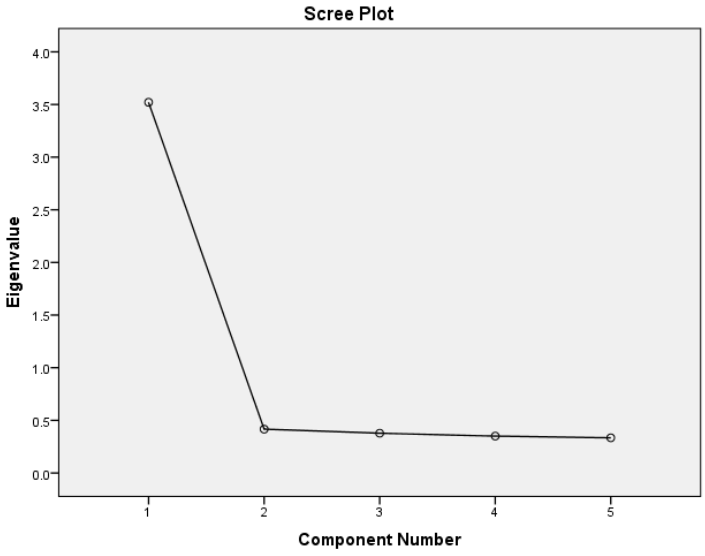


Table 17–20. Eigenvalues and Explained Variance for Algebra I Diagnostic Categories

Factor	Eigenvalue	Percent
1	2.92	73.08
2	0.39	9.67
3	0.35	8.68
4	0.34	8.57

Figure 17–2. Scree Plot for Algebra I Diagnostic Categories

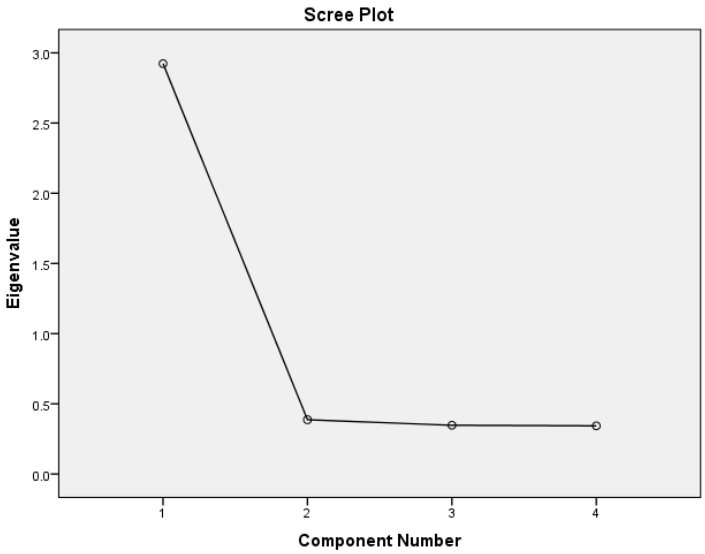


Table 17–21. Eigenvalues and Explained Variance for Geometry Diagnostic Categories

Factor	Eigenvalue	Percent
1	2.95	73.87
2	0.37	9.26
3	0.35	8.84
4	0.32	8.04

Figure 17–3. Scree Plot for Geometry Diagnostic Categories

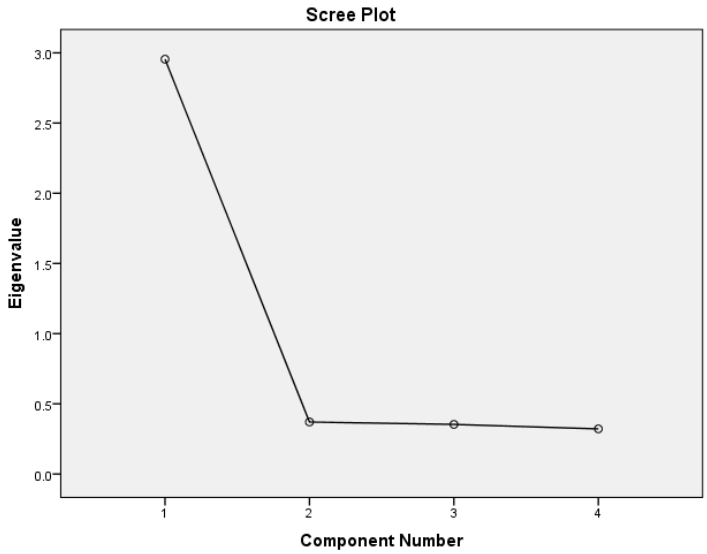


Table 17–22. Eigenvalues and Explained Variance for Algebra II Diagnostic Categories

Factor	Eigenvalue	Percent
1	2.79	69.77
2	0.53	13.19
3	0.36	8.91
4	0.33	8.13

Figure 17–4. Scree Plot for Algebra II Diagnostic Categories

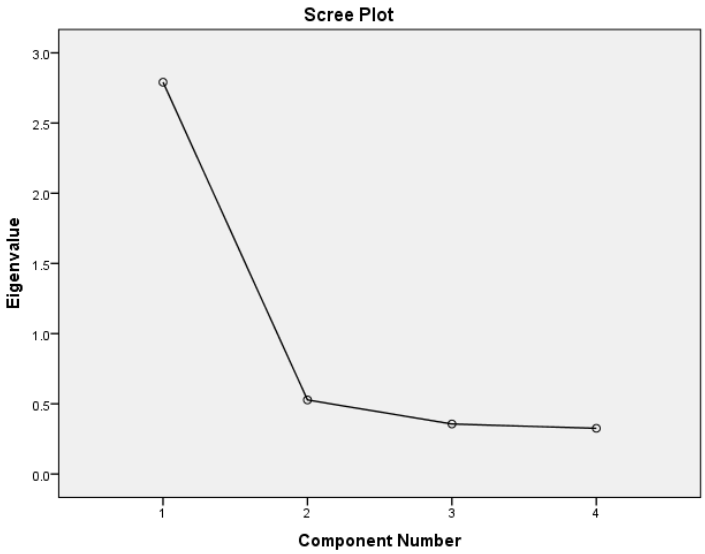


Table 17–23. Eigenvalues and Explained Variance for Reading/Literature Diagnostic Categories

Factor	Eigenvalue	Percent
1	3.61	72.19
2	0.37	7.45
3	0.36	7.15
4	0.33	6.67
5	0.33	6.54

Figure 17–5. Scree Plot for Reading/Literature Diagnostic Categories

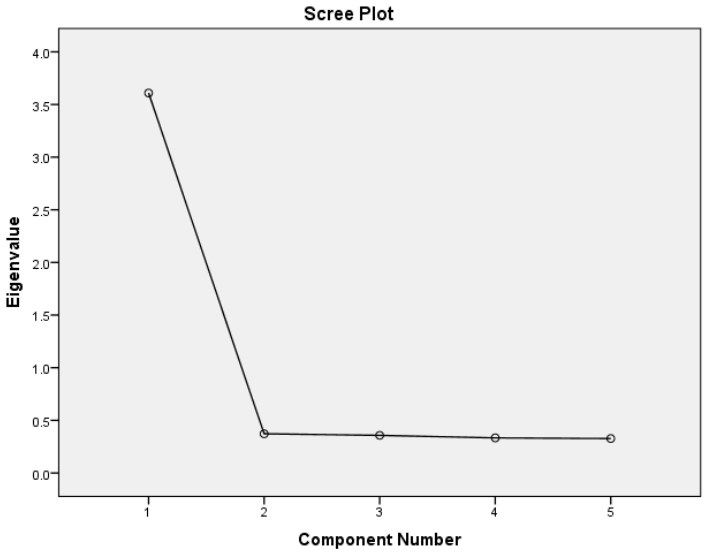


Table 17–24. Eigenvalues and Explained Variance for Science Diagnostic Categories

Factor	Eigenvalue	Percent
1	2.82	70.61
2	0.43	10.85
3	0.39	9.86
4	0.35	8.68

Figure 17–6. Scree Plot for Science Diagnostic Categories

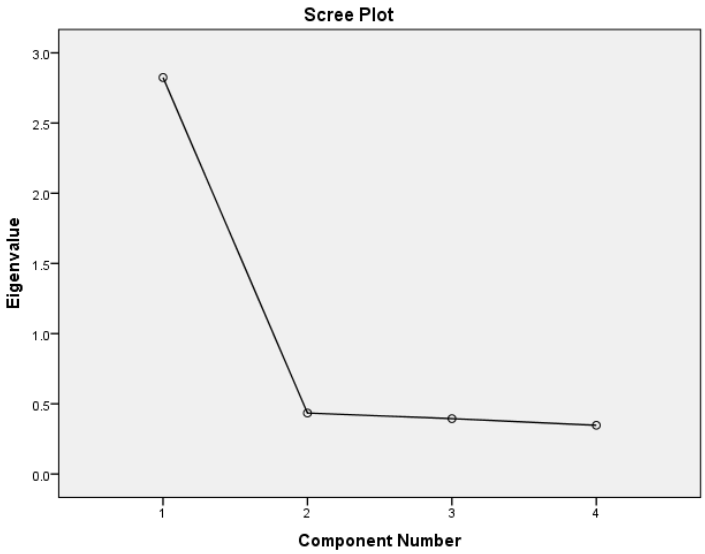


Table 17–25. Eigenvalues and Explained Variance for Biology Diagnostic Categories

Factor	Eigenvalue	Percent
1	2.80	69.90
2	0.45	11.15
3	0.42	10.53
4	0.34	8.42

Figure 17–7. Scree Plot for Biology Diagnostic Categories

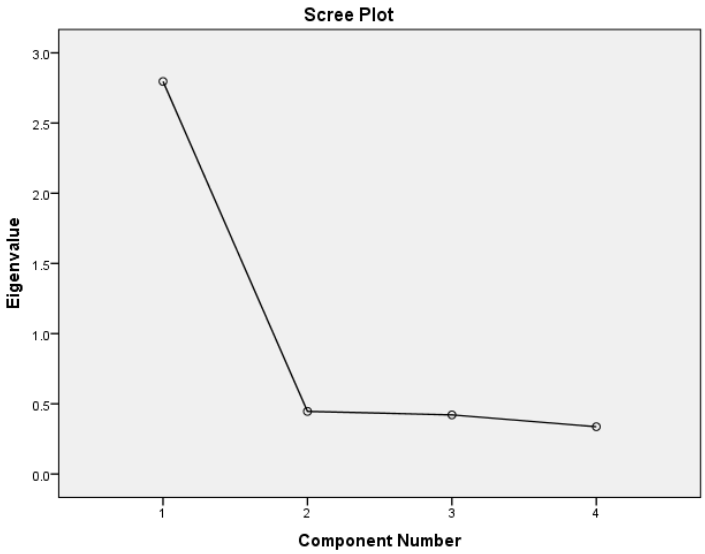


Table 17–26. Eigenvalues and Explained Variance for Chemistry Diagnostic Categories

Factor	Eigenvalue	Percent
1	2.47	61.69
2	0.56	14.09
3	0.51	12.76
4	0.46	11.45

Figure 17–8. Scree Plot for Chemistry Diagnostic Categories

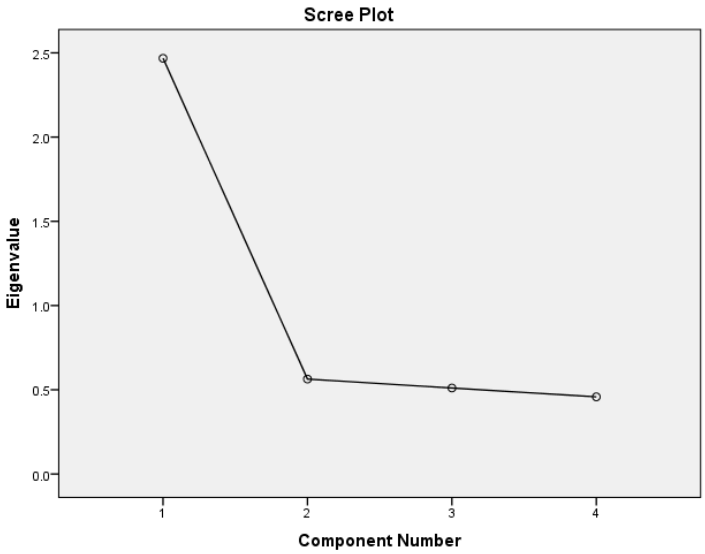
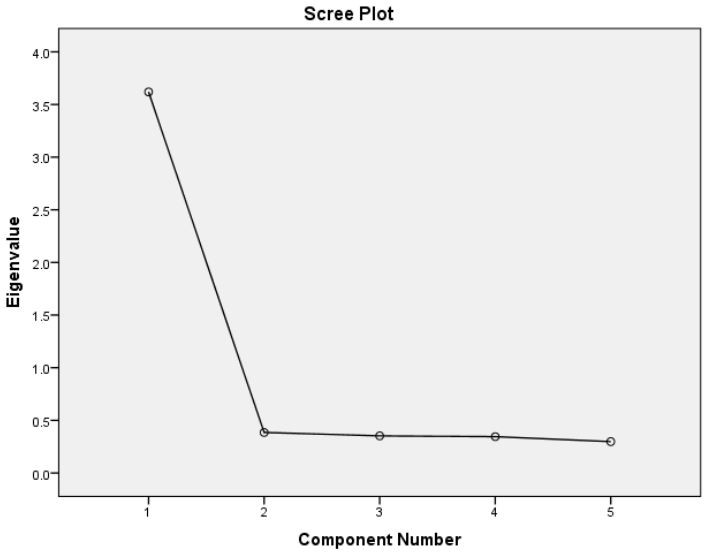


Table 17–27. Eigenvalues and Explained Variance for Writing/English Composition Diagnostic Categories

Factor	Eigenvalue	Percent
1	3.62	72.39
2	0.38	7.70
3	0.35	7.06
4	0.35	6.91
5	0.30	5.96

Figure 17–9. Scree Plot for Writing/English Composition Diagnostic Categories



Taken as a whole, the internal structure evidence presented generally indicates that related elements of each of the CDTs are correlated in the intended manner. This further supports using a total score to report students' performances in the different content areas.

The diagnostic category scores present more of a mixed message. Since the diagnostic categories in each CDT were designed to measure distinct components, it is reasonable to expect that the diagnostic category correlations should be positive and strong but, ideally, not extremely high. However, the disattenuated correlations imply that some diagnostic categories are essentially measuring the same constructs. While there is content rationale underlying the creation of the diagnostic category scores, the empirical correlations illustrate that caution is required when using these scores when identifying an individual student's areas of need and strengths to build on.

EVIDENCE BASED ON RELATIONSHIPS WITH OTHER VARIABLES

As described in the *Standards* (AERA, APA, & NCME, 1999), ". . . Evidence based on relationships with other variables addresses questions about the degree to which relationships are consistent with the construct underlying the proposed interpretations" (p. 13). This category of evidence refers to "external structure evidence" and has been classified as three types of evidence: *convergent, discriminant*, and *criterion-related*. *Convergent evidence* is provided by relationships among students' performances on different assessments intended to measure a similar construct. *Discriminant evidence* is provided by relationships among students' performances on different tests intended to measure different constructs. *Criterion-related evidence*, either predictive or concurrent, is provided by relationships between students' test scores and their performances on a criterion measure (Cronbach, 1971; Messick, 1989).

Correlations and disattenuated correlations among students' test scores across different CDT content areas provide some discriminant validity evidence. These are provided in Tables 17–28 and 17–29.

Table 17–28. Correlations Among CDT Tests

	Math	Algebra I	Geometry	Algebra II	Reading/ Literature	Science	Biology	Chemistry	Writing/ English Comp.
Math	-	-	-	-	-	-	-	-	-
Algebra I	0.824	-	-	-	-	-	-	-	-
Geometry	0.863	0.724	-	-	-	-	-	-	-
Algebra II	0.705	0.723	0.711	-	-	-	-	-	-
Reading	0.739	0.695	0.625	0.601	-	-	-	-	-
Science	0.696	0.682	0.680	0.545	0.749	-	-	-	-
Biology	0.709	0.669	0.642	0.555	0.715	0.687	-	-	-
Chemistry	0.842	0.640	0.668	0.548	0.625	0.708	0.697	-	-
Writing	0.707	0.689	0.560	0.610	0.814	0.704	0.736	0.643	-

Table 17–29. Disattenuated Correlations Among CDT Tests

	Math	Algebra I	Geometry	Algebra II	Reading/ Literature	Science	Biology	Chemistry	Writing/ English Comp.
Math	-	-	-	-	-	-	-	-	-
Algebra I	0.898	-	-	-	-	-	-	-	-
Geometry	0.936	0.792	-	-	-	-	-	-	-
Algebra II	0.765	0.791	0.775	-	-	-	-	-	-
Reading	0.802	0.760	0.680	0.655	-	-	-	-	-
Science	0.765	0.755	0.751	0.602	0.826	-	-	-	-
Biology	0.780	0.742	0.710	0.614	0.790	0.769	-	-	-
Chemistry	0.950	0.729	0.757	0.621	0.708	0.813	0.801	-	-
Writing	0.764	0.751	0.608	0.662	0.884	0.774	0.811	0.726	-

Each CDT test measures a different construct, so the correlations among them were not expected to be extremely high. The values in the tables are consistent with this expectation. Correlations among the CDT tests ranged from 0.545 to 0.863. Correlations across tests within a content area are more highly correlated than across content areas. For example, the correlation between math and Algebra I is 0.898, whereas the correlation between math and writing is 0.764.

External evidence for the CDT is examined by using students' scores on the 2013 Pennsylvania System of School Assessment (PSSA) and/or 2013 Keystone Exams as external criteria. For each content area, CDT results from the 2012–2013 school year were matched to spring 2013 PSSA in the corresponding content area using the PA secure ID. Similarly, CDT tests in Algebra I, Biology, and Reading/Literature were matched to corresponding 2013 Keystone Exams. The correlations between students' scores on the CDT and PSSA are calculated as one piece of external evidence. Table 17–30 summarizes the sample sizes and correlations.

Table 17–30. Correlation Between CDT and PSSA or Keystone Exams Scores

Student Grade	CDT Test	PSSA or Keystone Test	N	Correlation
6	Math	PSSA Math Grade 6	18,294	0.835
7	Math	PSSA Math Grade 7	22,545	0.841
8	Math	PSSA Math Grade 8	13,802	0.809
6	Reading/Literature	PSSA Reading Grade 6	14,524	0.809
7	Reading/Literature	PSSA Reading Grade 7	19,479	0.808
8	Reading/Literature	PSSA Reading Grade 8	18,468	0.793
8	Science	PSSA Science Grade 8	9,577	0.784
8	Writing/English Composition	PSSA Writing Grade 8	2,887	0.547
6-12	Algebra I	Keystone Algebra I	94,138	0.790
6-12	Biology	Keystone Biology	65,954	0.795
6-12	Reading/Literature	Keystone Literature	79,140	0.757

Lower correlation in the writing content area may be due to the fact that CDT Writing/English Composition is based on multiple-choice items, while PSSA Writing has extended writing prompts. These results provide external evidence in support of CDT as a valid measure of students' achievement.

The collection of external evidence related to the CDT is an ongoing process. As more CDT data become available, other criterion-related evidence will be evaluated. In addition to examining the relationship between CDT and PSSA or Keystone Exams, other criterion variables such as Scholastic Aptitude Test (SAT), American College Test (ACT), or student Grade Point Average (GPA) may be considered.

EVIDENCE BASED ON CONSEQUENCES OF TESTS

Based on the *Standards* (AERA, APA, & NCME, 1999), evidence of the consequences of implementing an assessment program is an additional source of validity information. Both positive and negative (intended and unintended) consequences of score-based inferences must be investigated to fully evaluate the pool of validity evidence.

Lane and Stone (2002) summarized the general *intended* consequences for state assessments and accountability programs:

- Student, teacher, and administrator motivation and effort
- Curriculum and instruction practices (including content and strategies)
- Improved learning for all students
- Content and format of classroom assessments
- Professional development support
- Use and nature of test preparation activities
- Student, teacher, administrator, and public awareness and beliefs about the assessment, criteria for judging performance, and the use of assessment results

Evidence for the improvement of student learning can be seen by looking at the changes in scale scores for students who took the same CDT test multiple times. Table 17–31 below summarizes scale score changes between the first and last administrations of the CDT.

Table 17–31. Summary of Scale Score Changes Between CDT Administrations

	N	Minimum	Q1	Median	Mean	Q3	Maximum
Mathematics	34,068	-612	-9	38	36.25	85	468
Algebra I	55,014	-674	-23	24	21.47	70	719
Geometry	3,426	-448	-2	50	50.33	104	544
Algebra II	2,861	-466	0	55	54.04	113	544
Reading/Literature	80,484	-664	-49	7	3.89	61	635
Science	12,398	-387	-33	18	15.71	66	436
Biology	30,932	-929	-8	44	42.65	97	777
Chemistry	2,272	-262	-2	50	49.33	99	373
Writing/English Composition	6,522	-472	-30	18	15.48	65	497

Lane and Stone (2002) also summarized the possible *unintended* outcomes:

- Narrowing of curriculum and instruction to focus only on the specific standards assessed and ignoring the broader construct reflected in the specified standards
- Use of test preparation materials that are closely linked to the assessment without making changes to instruction
- Use of unethical test preparation materials or administration procedures
- Differential performance gains for subgroups of students
- Inappropriate or unfair uses of test scores, such as questionable practices in reassignment of teachers or principals
- For some students, decreased confidence and motivation to learn and to perform well on the assessment because of past experiences with assessments

As noted above, one important piece of consequential evidence pertains to the use of assessment results. As shown in Chapter Fourteen, CDT offers a dynamic suite of reports. The extent to which various groups of users (e.g., students and teachers) interpret these reports appropriately affects the validity of subsequent uses of these results. As noted in Chapter Fourteen, there are report training scenarios for each content area. The intent is that the scenarios will help users avoid unintended uses and interpretations of the CDT results.

EVIDENCE RELATED TO USE OF THE RASCH MODEL

Since the Rasch model is the basis of all calibration, scaling, and equating analyses associated with the CDT, the validity of the inferences from these results depends on the degree to which the assumptions of the model are met, as well as the fit between the model and the test data. As discussed in Chapter Eight, the underlying assumptions of Rasch models were essentially met for all the CDT data, indicating the appropriateness of using Rasch models to analyze the CDT data.

VALIDITY EVIDENCE SUMMARY

Validity evidence related to test content was reviewed earlier in this chapter. On the whole, the early chapters of this technical report show that a strong link can be established between each CDT item and its associated Eligible Content. Detailed information regarding educator reviews are presented in Chapter Six.

Diagnostic category score intercorrelations were also presented in this chapter. They provide some favorable evidence regarding the internal relationships between the tests' components.

Validity of score inferences is bolstered when test scores are consistent. Here, the reliabilities of the total test scores (presented in Chapter Sixteen) were very good, with many in the low 0.90s.

Reported in Chapter Six, differential item functioning (DIF) with respect to gender and ethnicity helps address construct-irrelevant variance, which represents an important threat to the validity of inferences made from achievement test scores. As noted in that chapter, field test items are screened and reviewed for DIF. Only items approved by teacher committees are eligible for operational use.

CHAPTER EIGHTEEN: PARAMETER STABILITY

The CDTs feature a number of tests. Tests in Mathematics, Algebra I, Geometry, and Algebra II have been available since October 2010. Tests in Reading/Literature, Science, Biology, and Chemistry have been available since April 2011. Tests in Writing/English Composition have been available since October 2011. During the 2012–2013 school year, CAT item selection and Rasch ability estimates were based on preliminary item parameters estimated from the stand-alone field tests and vertical linking (see Chapter Eight and Chapter Nine for details). The only exceptions were 113 items in the mathematics content area that had parameters re-estimated following the 2010–2011 school year and 74 items in the science content area that had parameters re-estimated following the 2011–2012 school year.

Following the 2012–2013 school year, item parameter stability was checked for all items in the banks. In order to complete this work prior to the start of the 2013–2014 school year, DCR chose August 1, 2013 as the cut-off date for the analyses described in this chapter.

METHODOLOGY

In previous years, four separate methods were investigated to evaluate the stability of the item parameters in the CDT operational administration

1. Calibrate the entire bank within a content area in a single concurrent calibration. Do not anchor item parameters on banked values. Compare new parameter estimates to the banked values.
2. Calibrate the entire bank within a content area in a single concurrent calibration. Anchor item parameters on banked values. Examine displacements.
3. Calibrate each grade/course level item with students in that grade/course. Do not anchor item parameters on banked values. Compare new parameter estimates to the banked values.
4. Calibrate each grade/course level item with students in that grade/course. Anchor item parameters on banked values. Examine displacements.

As noted in Chapter Twelve, CDT tests are pre-equated. Immediate score reports are based on banked item parameters. Therefore, this chapter focuses on anchored calibrations and examination of displacement values to evaluate item parameter stability. For results of all four methods for the 2011–2012 school year, see Chapter Eighteen of the 2011–2012 technical report.

ANCHORED CONCURRENT CALIBRATION WITHIN CONTENT AREA ACROSS GRADES/COURSES

One method used to evaluate the stability of the item parameters in the operational administration was to calibrate the entire bank within a content area anchoring on the banked item parameters and examine the displacements. For each item, the displacement value is the size of the change in the parameter estimate that would be estimated if the parameter for the item was unanchored and all other parameters were anchored at their current value. Given that the banked values were developed into a single, vertical scale, all items within a content area were calibrated in a single concurrent calibration using WINSTEPS software version 3.69 (Linacre, 2009).

MATHEMATICS

Figure 18–1 shows the displacements from a concurrent anchored calibration of all mathematics items using the operational data set. Items are color-coded by grade/course.

Figure 18–1. Anchored Calibration Displacements — All Items

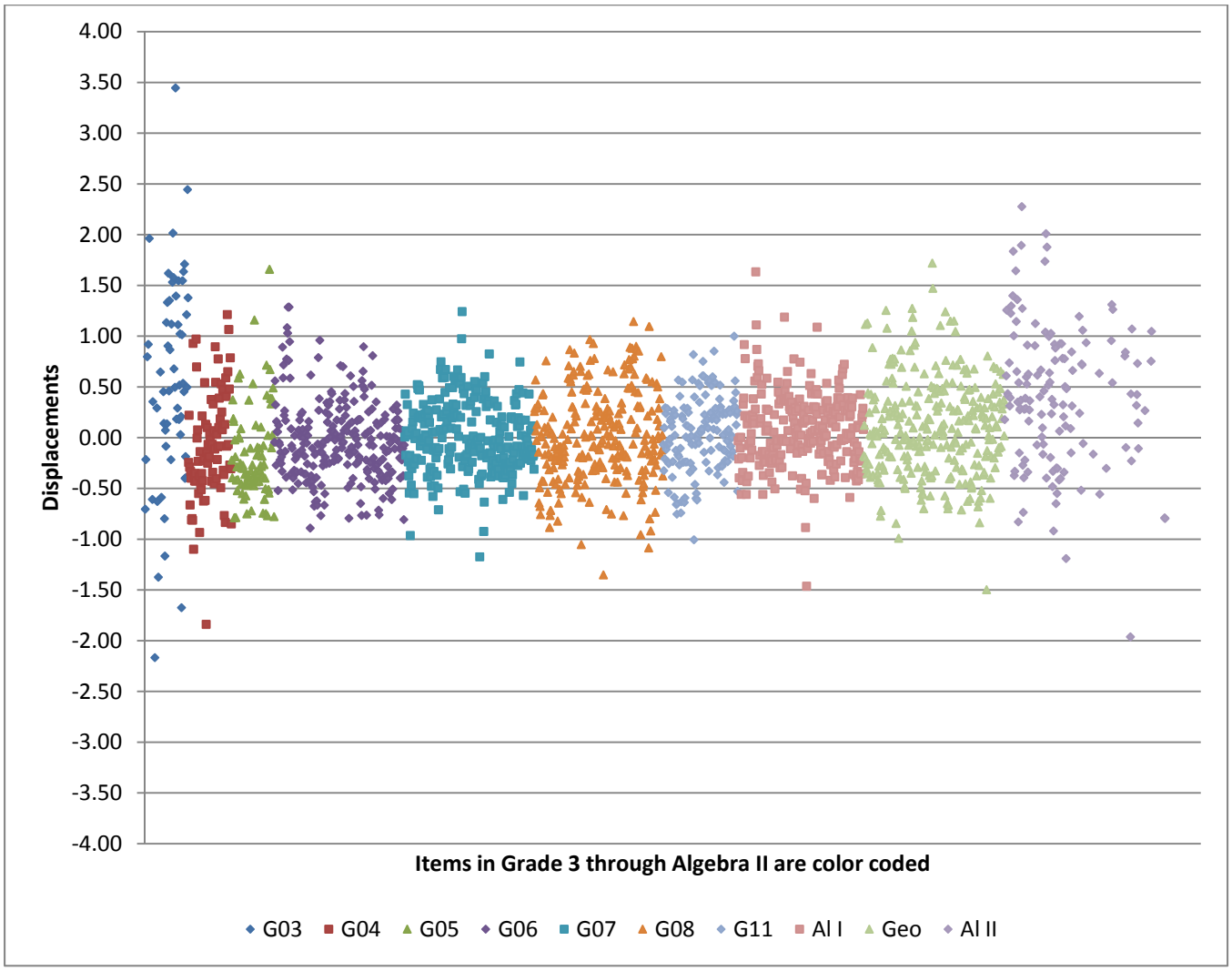


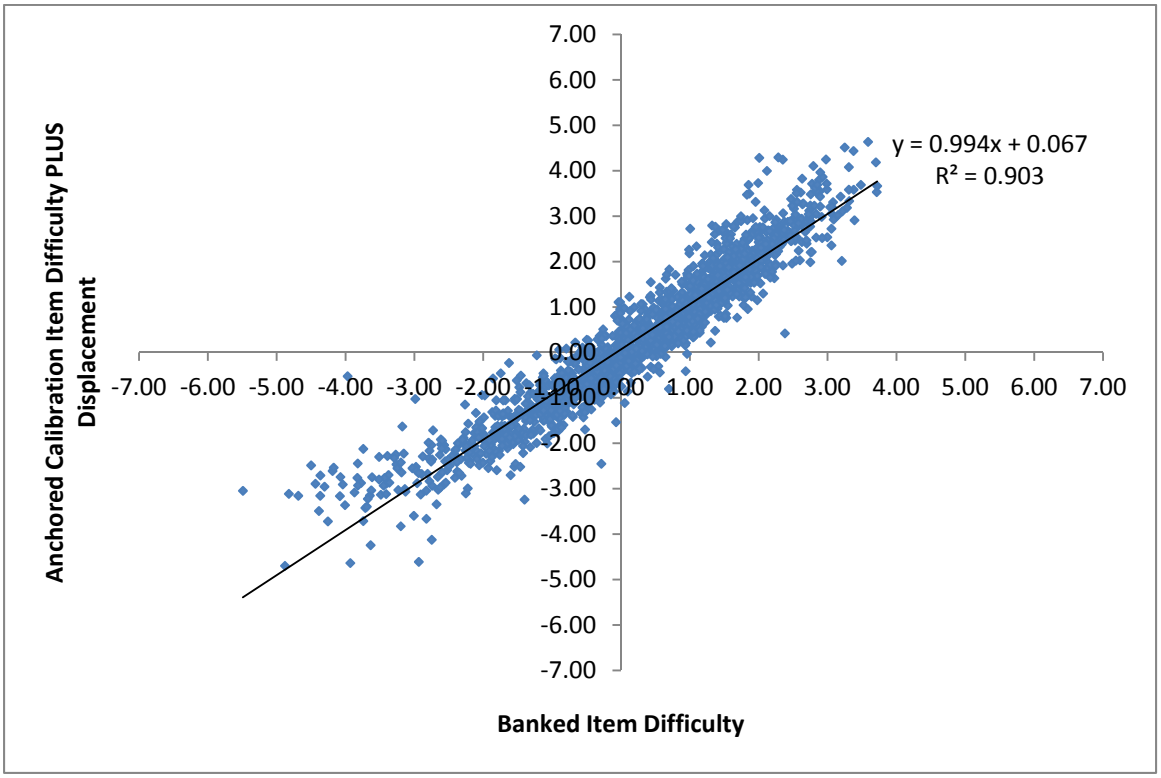
Table 18–1 summarizes the data in Figure 18–1. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Seventy-five percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–1).

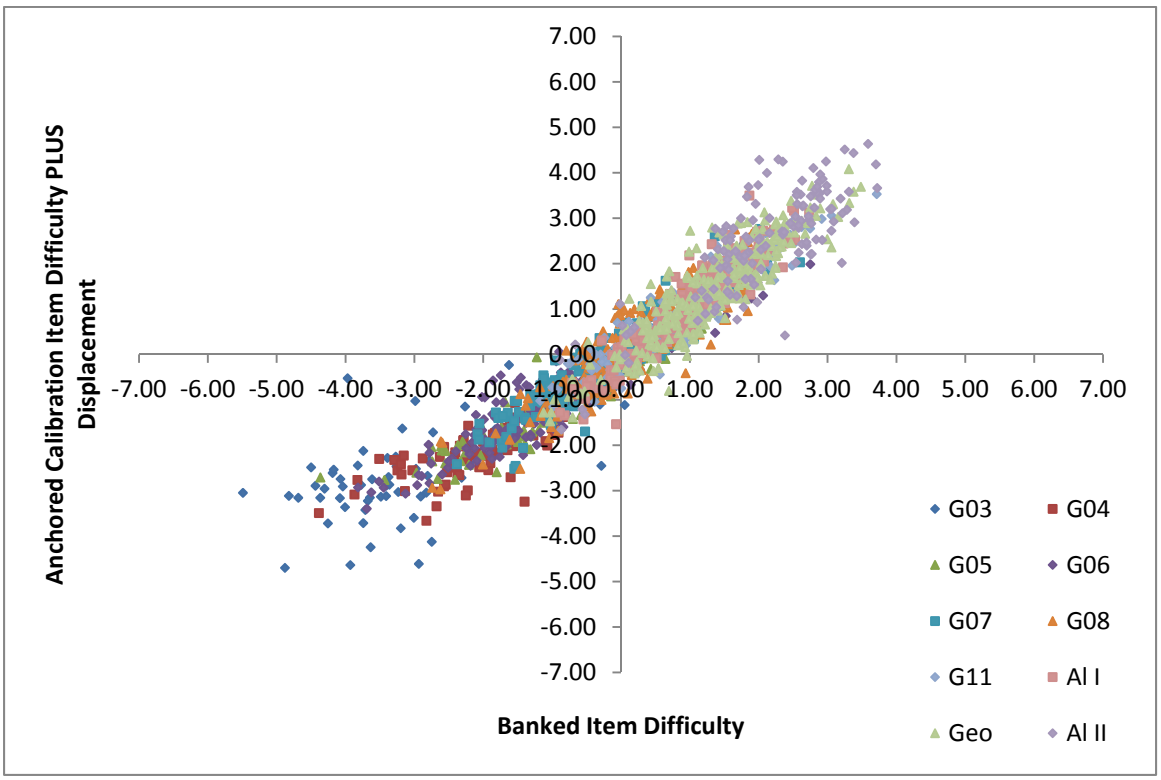
Table 18–1. Number of Mathematics Items by Grade/Course and Displacement Interval

	G03	G04	G05	G06	G07	G08	G11	ALI	GEO	ALII	Total
Disp. ≤ -1.0	4	2	0	0	1	3	1	1	1	2	15
-1.0 < Disp. ≤ -0.9	0	1	0	0	2	2	0	0	1	1	7
-0.9 < Disp. ≤ -0.8	0	4	0	2	0	2	0	1	2	1	12
-0.8 < Disp. ≤ -0.7	2	2	8	6	1	8	2	0	4	3	36
-0.7 < Disp. ≤ -0.6	2	3	2	7	2	5	5	0	7	1	34
-0.6 < Disp. ≤ -0.5	1	2	6	8	8	8	6	8	9	3	59
-0.5 < Disp. ≤ -0.4	0	8	13	16	7	16	2	8	13	3	86
-0.4 < Disp. ≤ -0.3	2	10	12	26	24	16	6	15	22	9	142
-0.3 < Disp. ≤ -0.2	2	8	9	26	26	18	15	21	14	4	143
-0.2 < Disp. ≤ -0.1	1	5	7	32	35	28	12	23	20	6	169
-0.1 < Disp. ≤ 0.0	1	9	6	25	30	24	14	30	26	4	169
0.0 < Disp. ≤ 0.1	2	5	4	35	23	22	20	28	26	4	169
0.1 < Disp. ≤ 0.2	4	5	4	21	22	17	15	22	19	4	133
0.2 < Disp. ≤ 0.3	3	3	0	15	17	20	23	29	24	10	144
0.3 < Disp. ≤ 0.4	1	3	5	10	20	10	5	28	23	11	116
0.4 < Disp. ≤ 0.5	5	3	2	5	16	11	4	10	17	7	80
0.5 < Disp. ≤ 0.6	2	4	2	7	12	11	12	9	9	7	75
0.6 < Disp. ≤ 0.7	2	2	2	3	6	11	3	5	11	8	53
0.7 < Disp. ≤ 0.8	1	2	1	6	2	9	1	6	12	8	48
0.8 < Disp. ≤ 0.9	1	1	0	3	1	8	2	1	4	4	25
0.9 < Disp. ≤ 1.0	2	2	0	2	1	2	0	1	2	8	20
1.0 < Disp.	21	2	2	4	1	2	1	4	14	24	75
TOTAL	59	86	85	259	257	253	149	250	280	132	1810

Figure 18–2 shows banked item difficulties plotted against the item difficulties plus displacement from the anchored concurrent calibration of operational data for the mathematics item bank. A line of best fit is included in the upper plot. If item difficulties from the operational calibration are close to the banked values, the line will approach an intercept of zero and a slope of one. The lower plot displays the same data as the upper, but color codes items by grade/course in an attempt to lend insight into the possible causes for the deviations.

Figure 18–2. Mathematics Banked Item Parameters vs. Anchored Calibration — All Items





Based on Figure 18–2, one can see that there are a number of items with operational estimates that differ from their banked values. Many of these are in grades 3 through 5. Recall that the operational CDT is available to students in grade 6 and above. While items were developed to sample content in grades 3 through 5 to provide better diagnostic information for lower performing students, the data from the operational administration (in contrast to the field test, where students from grades lower than 6 were included) did not include students below grade 6. To investigate whether this had an impact on the stability of the item parameter estimates, a concurrent anchored calibration of all items in grade 6 and above was run.

Figure 18–3 and Table 18–2 summarize the displacements from a concurrent anchored calibration of all items in grade 6 and above. Seventy-seven percent of the items in the calibration have displacement less than 0.5 in magnitude (gray shaded in Table 18–2). Figure 18–4 shows banked item difficulties plotted against the item difficulties plus displacement. Again, a line of best fit is included in the upper plot.

Figure 18–3. Mathematics Anchored Calibration Displacements — All Items in Grade 6 and Above

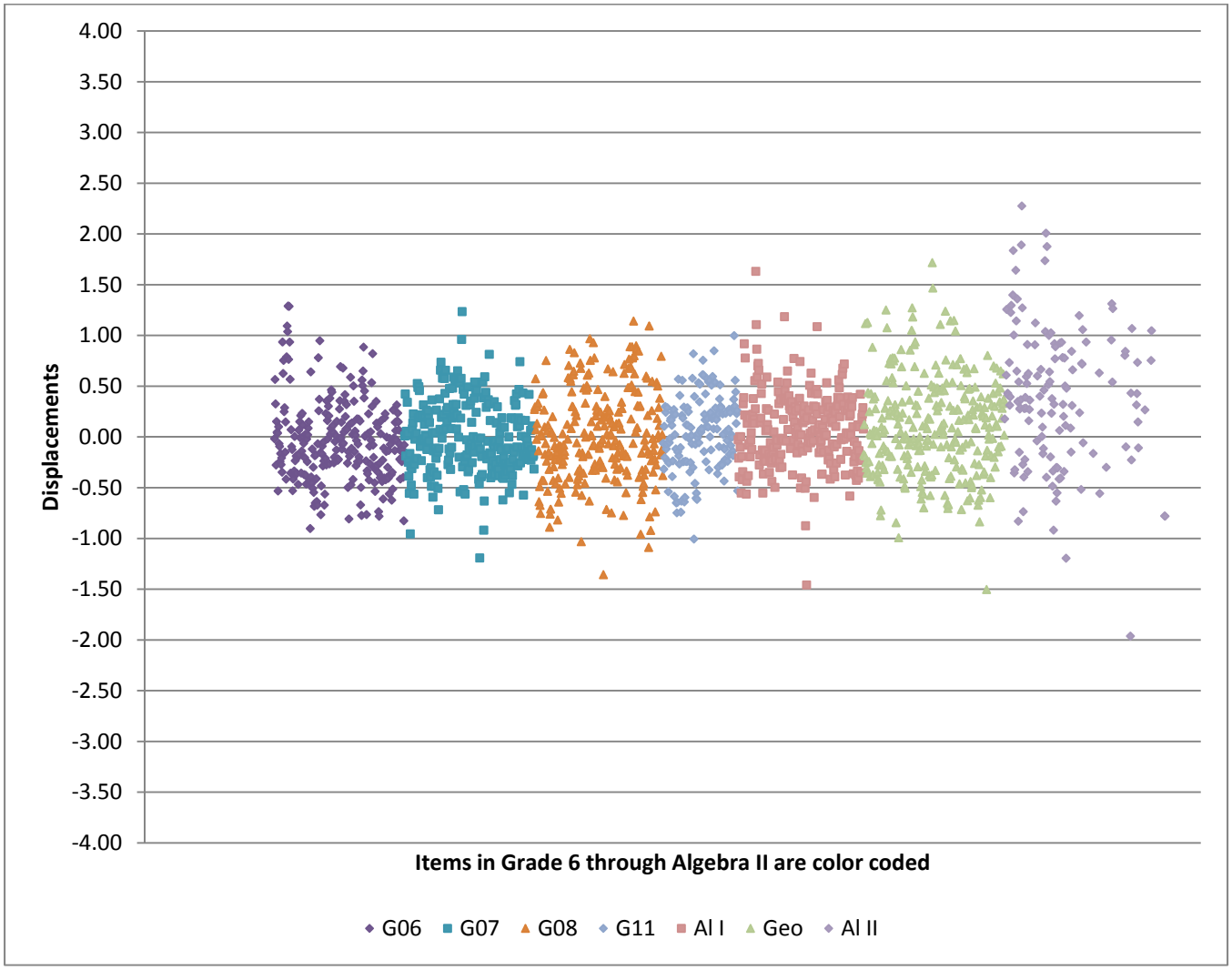
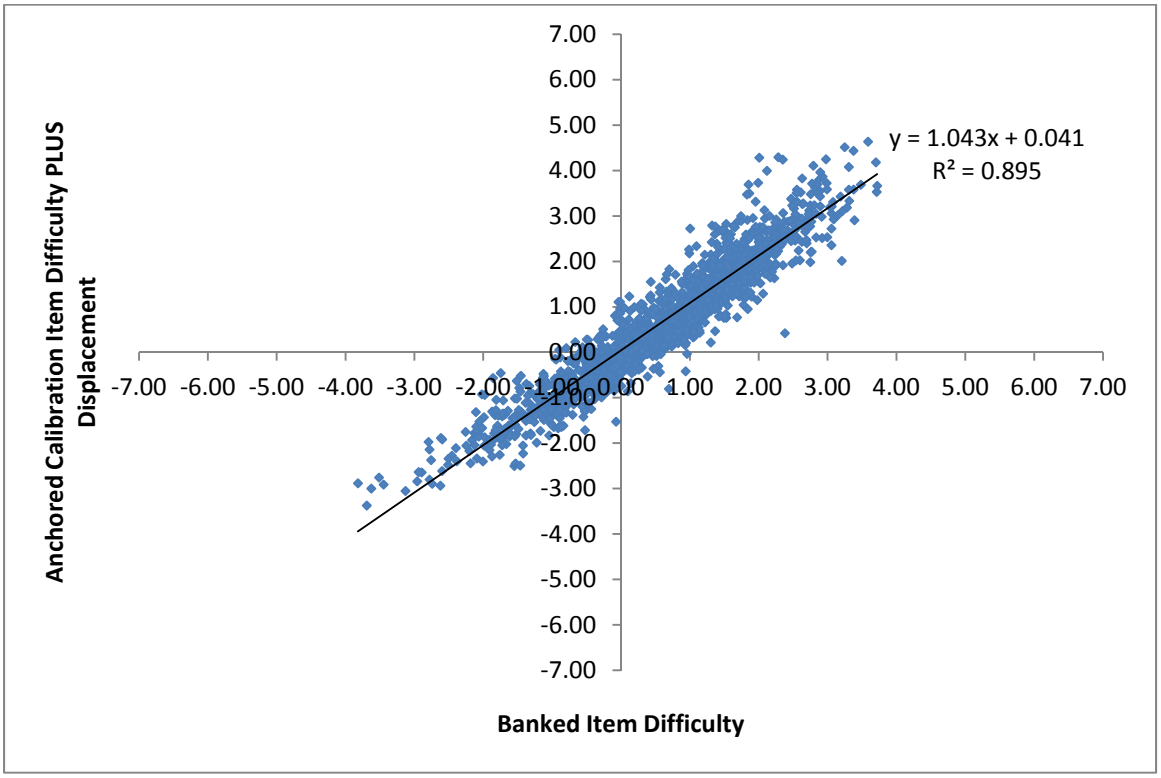
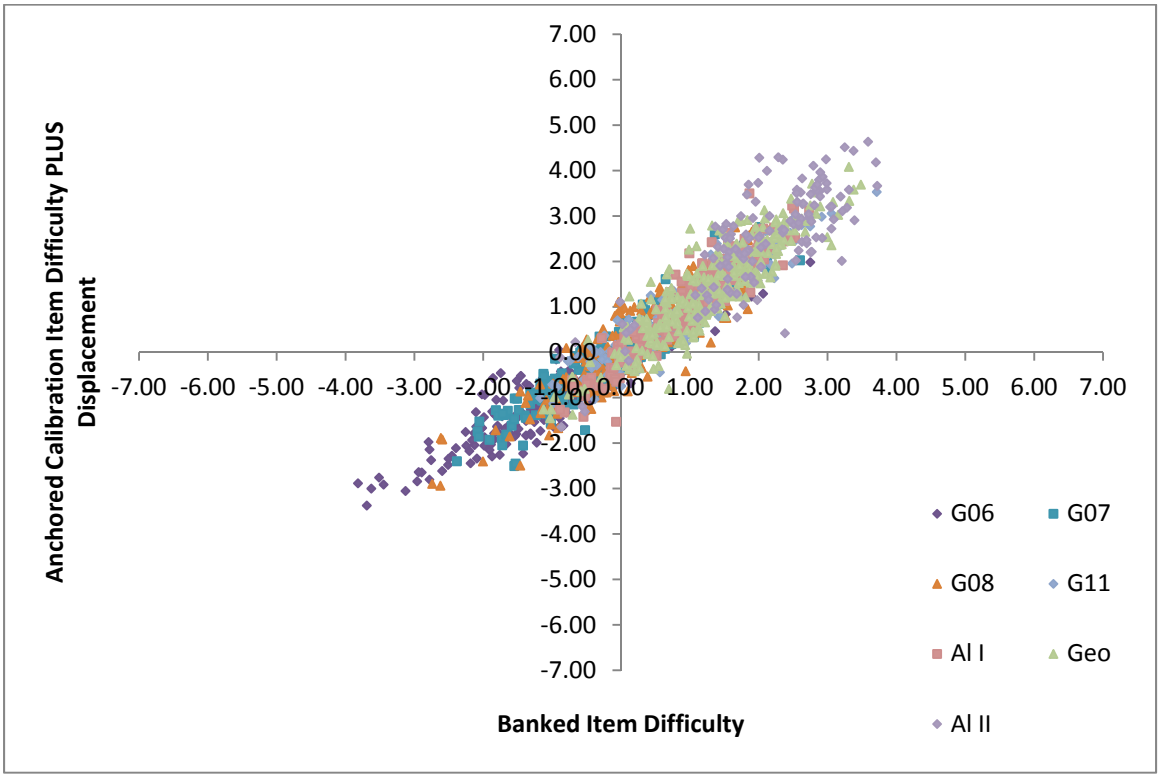


Table 18–2. Number of Mathematics Items by Grade/Course and Displacement Interval

	G06	G07	G08	G11	ALI	GEO	ALII	Total
Disp. ≤ -1.0	0	1	3	1	1	1	2	9
-1.0 < Disp. ≤ -0.9	1	2	2	0	0	1	1	7
-0.9 < Disp. ≤ -0.8	2	0	2	0	1	2	1	8
-0.8 < Disp. ≤ -0.7	5	1	8	2	0	4	3	23
-0.7 < Disp. ≤ -0.6	8	2	5	6	0	8	1	30
-0.6 < Disp. ≤ -0.5	8	9	8	5	7	8	3	48
-0.5 < Disp. ≤ -0.4	21	9	15	2	9	14	3	73
-0.4 < Disp. ≤ -0.3	20	22	19	6	16	21	8	112
-0.3 < Disp. ≤ -0.2	32	29	16	15	19	15	5	131
-0.2 < Disp. ≤ -0.1	28	36	27	12	25	18	7	153
-0.1 < Disp. ≤ 0.0	29	27	26	14	29	27	3	155
0.0 < Disp. ≤ 0.1	28	23	21	19	26	26	4	147
0.1 < Disp. ≤ 0.2	22	24	18	16	25	19	4	128
0.2 < Disp. ≤ 0.3	13	16	19	22	29	26	10	135
0.3 < Disp. ≤ 0.4	13	18	10	7	27	22	11	108
0.4 < Disp. ≤ 0.5	4	17	11	3	10	16	7	68
0.5 < Disp. ≤ 0.6	7	12	11	13	9	9	7	68
0.6 < Disp. ≤ 0.7	5	4	11	2	5	12	8	47
0.7 < Disp. ≤ 0.8	4	2	9	1	6	11	8	41
0.8 < Disp. ≤ 0.9	2	1	8	2	1	4	4	22
0.9 < Disp. ≤ 1.0	3	1	2	1	1	2	7	17
1.0 < Disp.	4	1	2	0	4	14	25	50
TOTAL	259	257	253	149	250	280	132	1580

Figure 18–4. Mathematics Banked Item Parameters vs. Anchored Calibration — All Items in Grade 6 and Above





An examination of the items with larger differences between banked values and operational estimates revealed that a number of these have low *n*-counts in the operational calibration. To investigate whether this had an impact on the stability of the item parameter estimates, a concurrent anchored calibration of all items in grade 6 and above with larger *n*-counts was run.

Figure 18–5 and Table 18–3 summarize the displacements from a concurrent anchored calibration that excludes items in grades 3 through 5 and items with fewer than 100 administrations. Seventy-eight percent of the items in the calibration have displacement less than 0.5 in magnitude (gray shaded in Table 18–3). Figure 18–6 shows banked item difficulties plotted against the item difficulties plus displacement. Again, a line of best fit is included in the upper plot.

Figure 18–5. Mathematics Anchored Calibration Displacements — All Items in Grade 6 and Above with N>100

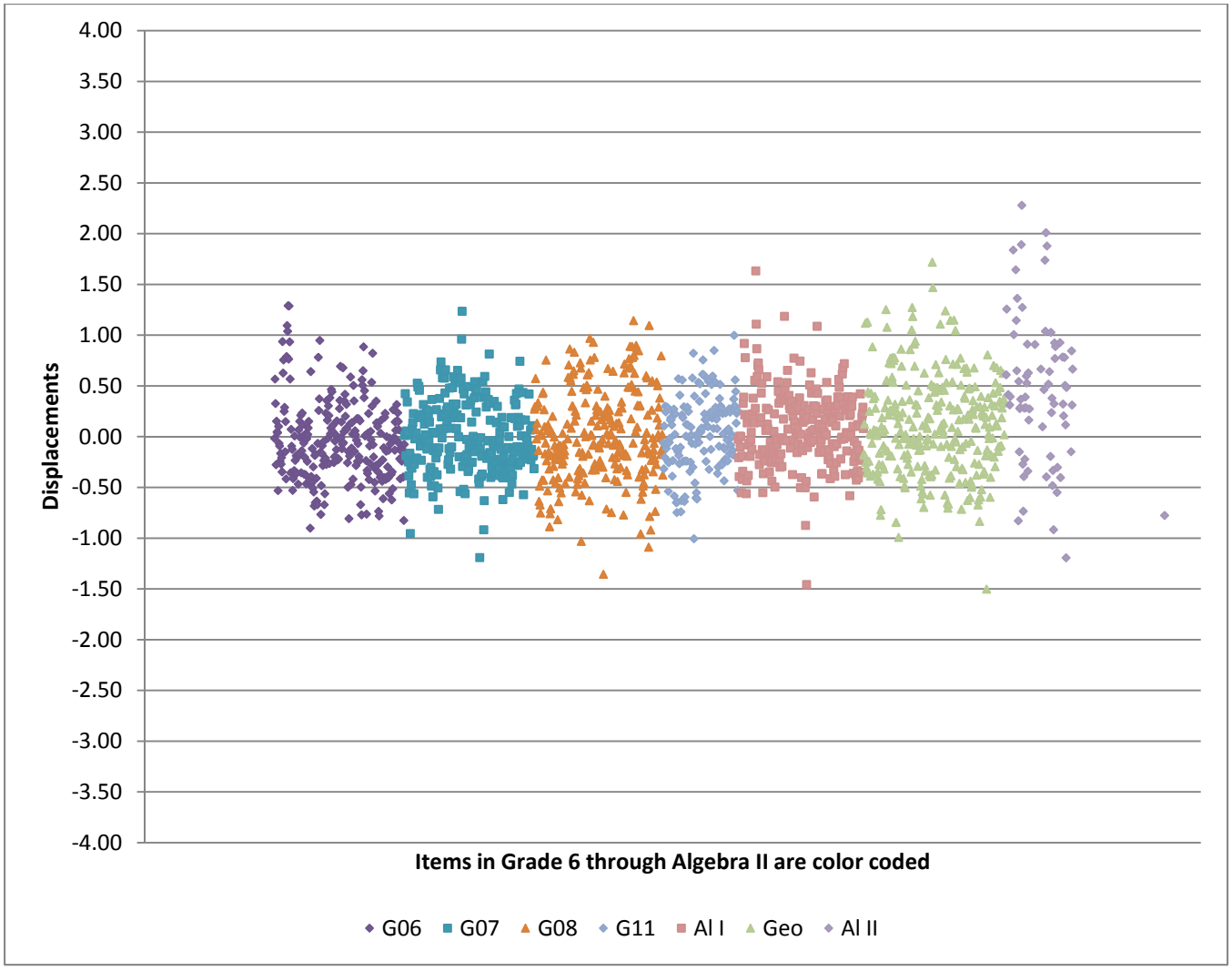
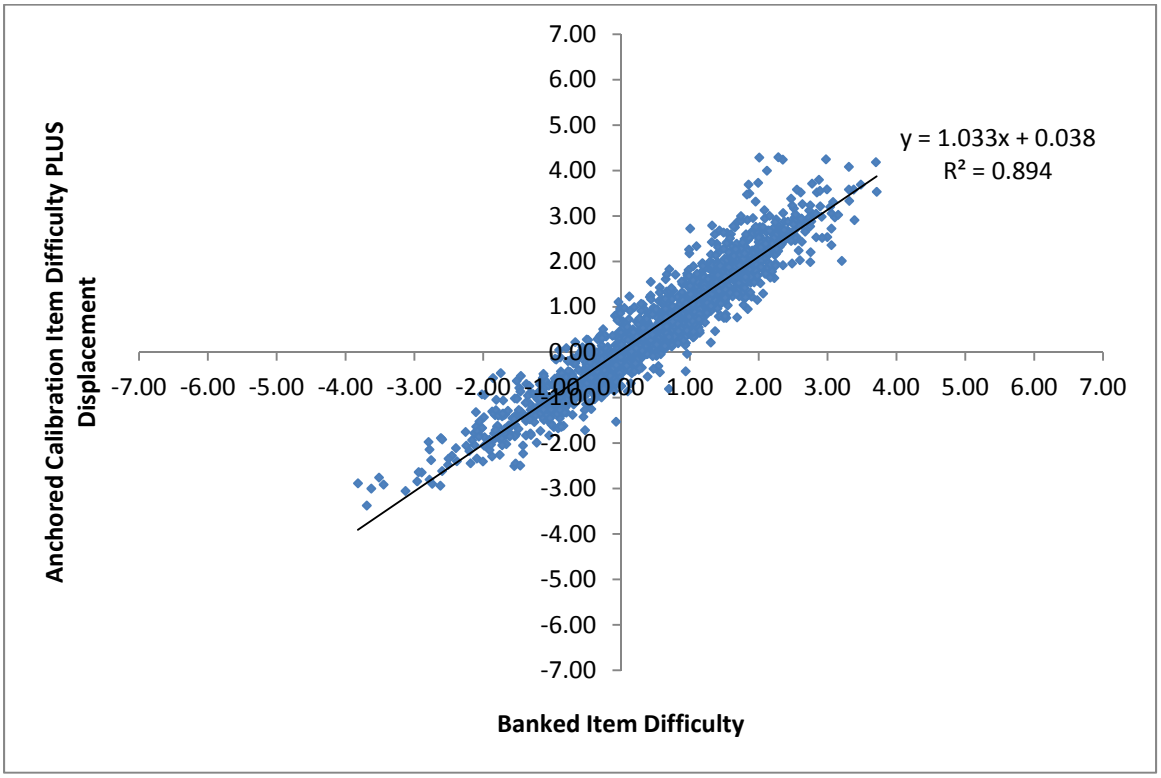
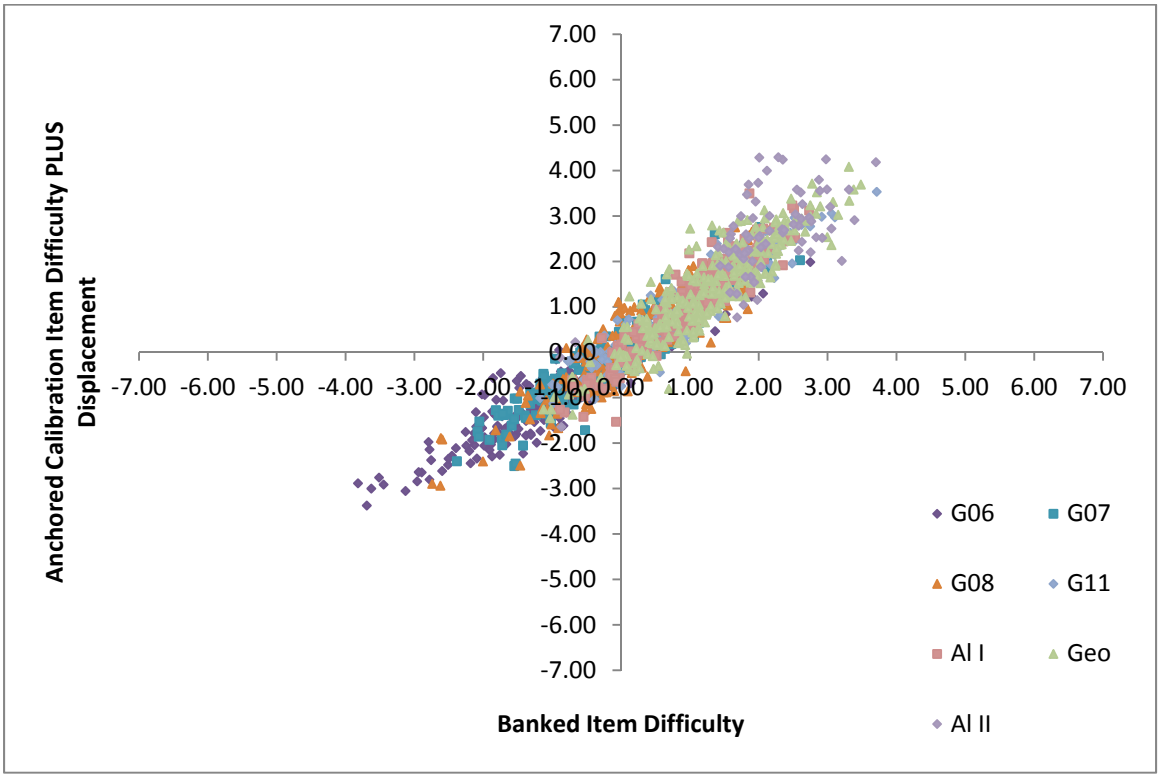


Table 18–3. Number of Mathematics Items by Grade/Course and Displacement Interval

	G06	G07	G08	G11	ALI	GEO	ALII	Total
Disp. ≤ -1.0	0	1	3	1	1	1	1	8
-1.0 < Disp. ≤ -0.9	1	2	2	0	0	1	1	7
-0.9 < Disp. ≤ -0.8	2	0	2	0	1	2	1	8
-0.8 < Disp. ≤ -0.7	5	1	8	2	0	4	2	22
-0.7 < Disp. ≤ -0.6	8	2	5	6	0	8	0	29
-0.6 < Disp. ≤ -0.5	8	9	8	5	7	8	1	46
-0.5 < Disp. ≤ -0.4	21	9	15	2	9	14	2	72
-0.4 < Disp. ≤ -0.3	20	22	19	6	16	21	5	109
-0.3 < Disp. ≤ -0.2	32	29	16	15	19	15	2	128
-0.2 < Disp. ≤ -0.1	28	36	27	12	25	18	3	149
-0.1 < Disp. ≤ 0.0	29	27	26	14	29	27	0	152
0.0 < Disp. ≤ 0.1	28	23	21	19	26	26	1	144
0.1 < Disp. ≤ 0.2	22	24	18	16	25	19	2	126
0.2 < Disp. ≤ 0.3	13	16	19	22	29	26	7	132
0.3 < Disp. ≤ 0.4	13	18	10	7	27	22	8	105
0.4 < Disp. ≤ 0.5	4	17	11	3	10	16	3	64
0.5 < Disp. ≤ 0.6	7	12	11	13	9	9	5	66
0.6 < Disp. ≤ 0.7	5	4	11	2	5	11	6	44
0.7 < Disp. ≤ 0.8	4	2	9	1	6	12	3	37
0.8 < Disp. ≤ 0.9	2	1	8	2	1	4	2	20
0.9 < Disp. ≤ 1.0	3	1	2	1	1	2	4	14
1.0 < Disp.	4	1	2	0	4	14	14	39
TOTAL	259	257	253	149	250	280	73	1521

Figure 18–6. Mathematics Banked Item Parameters vs. Anchored Calibration — All Items in Grade 6 and Above with N>100





It is evident from this series of plots that the item parameter estimates are reasonably stable for the items in grade 6 and above.

For each of the three anchored calibrations described in this section, banked item parameters were compared to the banked item parameters plus the displacements by calculating a robust Z statistic for each item pairing. Table 18–4 shows the number of items in each grade/course and the number and percent of items with absolute value of robust Z greater than 1.645 in each of the three calibrations.

Table 18–4. Summary of Robust Z Across Three Anchored Calibrations in Mathematics

Grade/ Course	Cal. 1 — All Items			Cal. 2 — Items in G6+			Cal. 3 — Items in G6+ N>100		
	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645
Grade 3	59	31	53%	0	0	N/A	0	0	N/A
Grade 4	86	16	19%	0	0	N/A	0	0	N/A
Grade 5	85	10	12%	0	0	N/A	0	0	N/A
Grade 6	259	20	8%	259	27	10%	259	28	11%
Grade 7	257	9	4%	257	9	4%	257	9	4%
Grade 8	253	33	13%	253	38	15%	253	40	16%
Grade 11	149	7	5%	149	8	5%	149	10	7%
Algebra I	250	12	5%	250	14	6%	250	15	6%
Geometry	280	36	13%	280	45	16%	280	47	17%
Algebra II	132	50	38%	132	51	39%	73	28	38%
Total	1810	224	12%	1580	192	12%	1521	177	12%

For the most part, whether we used high absolute displacement values or robust Z to identify items with operational estimates that differ from banked values, the same items were identified. For example, in calibration 1, all items with absolute displacement greater than 0.725 have an absolute value of robust Z greater than 1.645. In the displacement range of 0.700 to 0.725, some items have absolute value of robust Z greater than 1.645 while others do not. No items with absolute displacement less than 0.700 have absolute value of robust Z greater than 1.645.

READING/LITERATURE

Figure 18–7 shows the displacements from a concurrent anchored calibration of all reading items using the operational data set. Items are color-coded by grade/course.

Figure 18–7. Reading Anchored Calibration Displacements — All Items

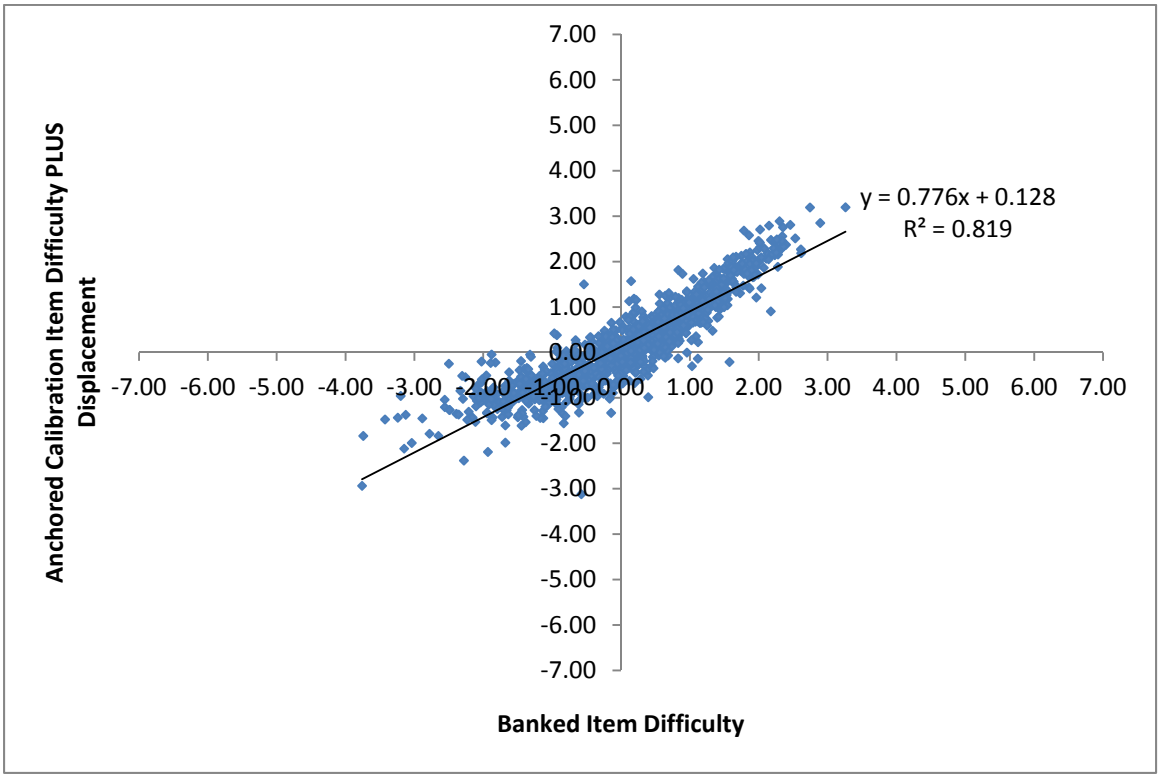
Table 18–5 summarizes the data in Figure 18–7. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Seventy-six percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–5).

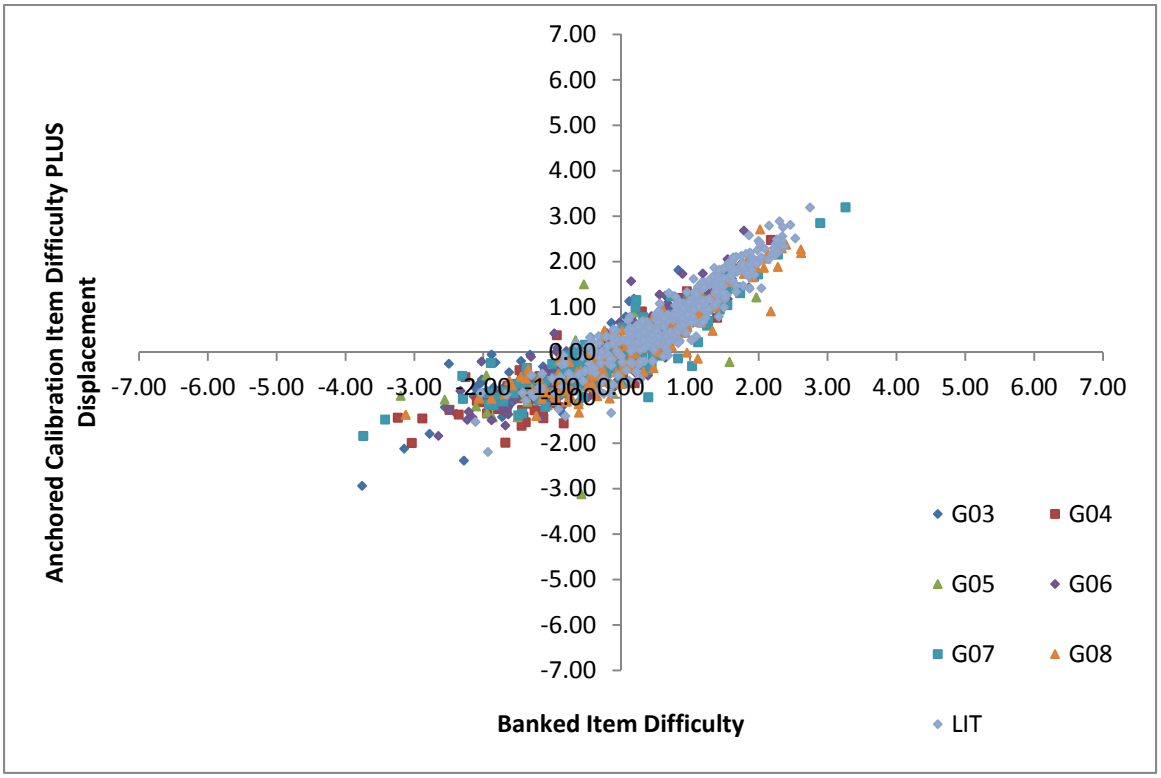
Table 18–5. Number of Reading Items by Grade/Course and Displacement Interval

	G03	G04	G05	G06	G07	G08	LIT	Total
Disp. ≤ -1.0	0	0	2	0	2	2	1	7
-1.0 < Disp. ≤ -0.9	0	0	0	0	1	1	0	2
-0.9 < Disp. ≤ -0.8	0	1	0	1	1	3	1	7
-0.8 < Disp. ≤ -0.7	0	1	2	1	3	2	6	15
-0.7 < Disp. ≤ -0.6	1	1	0	2	3	3	7	17
-0.6 < Disp. ≤ -0.5	1	2	2	3	4	6	9	27
-0.5 < Disp. ≤ -0.4	4	2	3	5	9	13	13	49
-0.4 < Disp. ≤ -0.3	1	5	1	10	16	13	24	70
-0.3 < Disp. ≤ -0.2	1	3	6	16	18	22	23	89
-0.2 < Disp. ≤ -0.1	4	9	11	15	21	12	23	95
-0.1 < Disp. ≤ 0.0	2	7	8	16	18	32	42	125
0.0 < Disp. ≤ 0.1	5	5	11	23	22	20	37	123
0.1 < Disp. ≤ 0.2	4	9	6	28	15	17	42	121
0.2 < Disp. ≤ 0.3	3	5	10	22	7	10	35	92
0.3 < Disp. ≤ 0.4	6	7	2	15	7	10	35	82
0.4 < Disp. ≤ 0.5	2	4	3	9	10	7	15	50
0.5 < Disp. ≤ 0.6	3	5	2	10	6	2	11	39
0.6 < Disp. ≤ 0.7	7	5	5	6	5	3	9	40
0.7 < Disp. ≤ 0.8	5	1	1	7	9	3	5	31
0.8 < Disp. ≤ 0.9	6	3	3	6	3	4	1	26
0.9 < Disp. ≤ 1.0	6	4	3	4	2	2	0	21
1.0 < Disp.	19	8	5	7	8	3	1	51
TOTAL	80	87	86	206	190	190	340	1179

Figure 18–8 shows banked item difficulties plotted against the item difficulties plus displacement from the anchored concurrent calibration of operational data for the reading item bank. A line of best fit is included in the upper plot. The lower plot displays the same data as the upper, but color codes items by grade/course in an attempt to lend insight into the possible causes for the deviations.

Figure 18–8. Reading Banked Item Parameters vs. Anchored Calibration — All Items





Based on Figure 18–8, one can see that there are a number of items with operational estimates that differ from their banked values. Many of these are in grades 3 through 5. Recall that the operational CDT is available to students in grade 6 and above. While items were developed to sample content in grades 3 through 5 to provide better diagnostic information for lower performing students, the data from the operational administration (in contrast to the field test, where students from grades lower than 6 were included) did not include students below grade 6. To investigate whether this had an impact on the stability of the item parameter estimates, a concurrent anchored calibration of all items in grade 6 and above was run.

Figure 18–9 and Table 18–6 summarize the displacements from a concurrent anchored calibration of all items in grade 6 and above. Eighty-one percent of the items in the calibration have displacement less than 0.5 in magnitude (gray shaded in Table 18–6). Figure 18–10 shows banked item difficulties plotted against the item difficulties plus displacement. Again, a line of best fit is included in the upper plot.

Figure 18–9. Reading Anchored Calibration Displacements — All Items in Grade 6 and Above

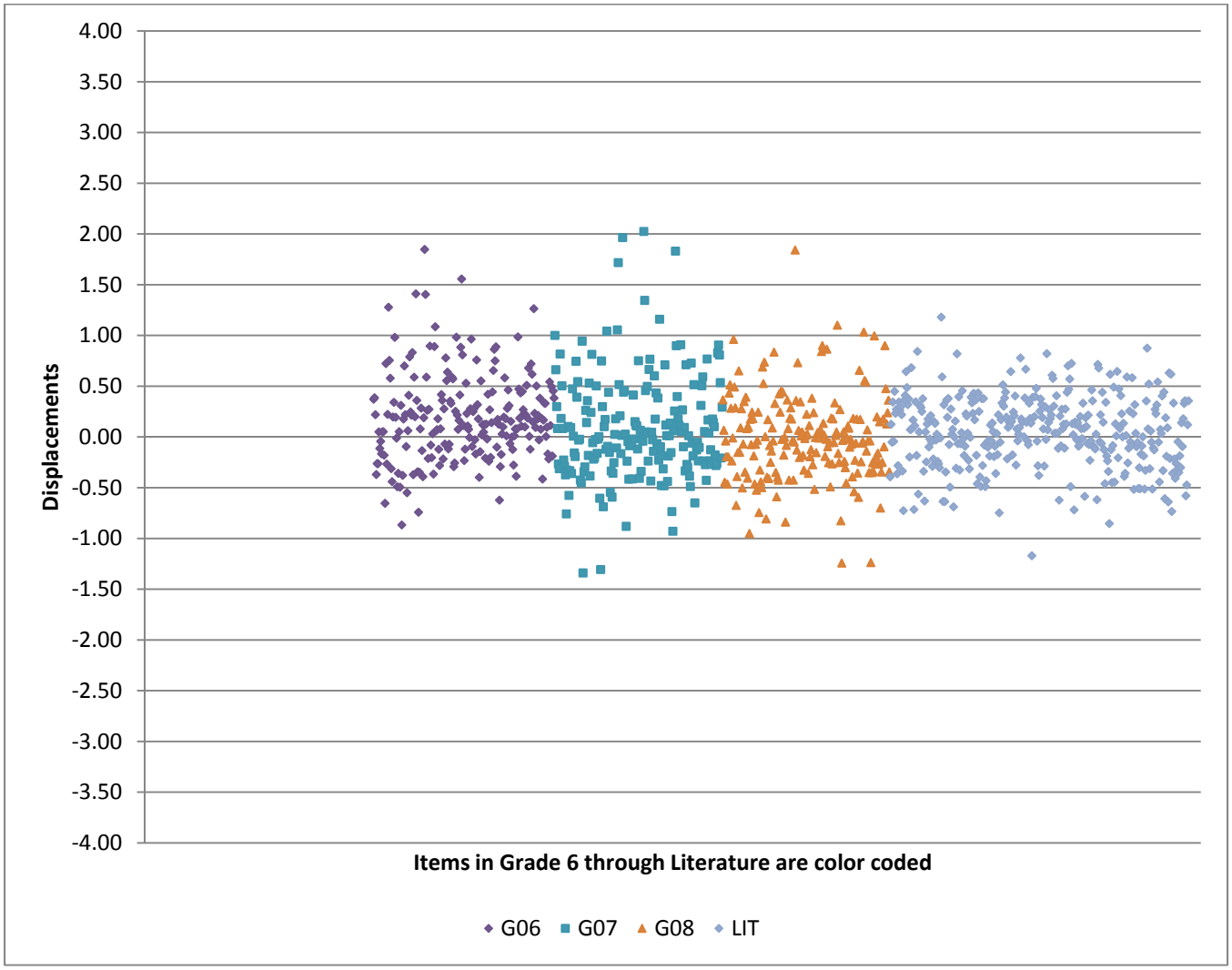
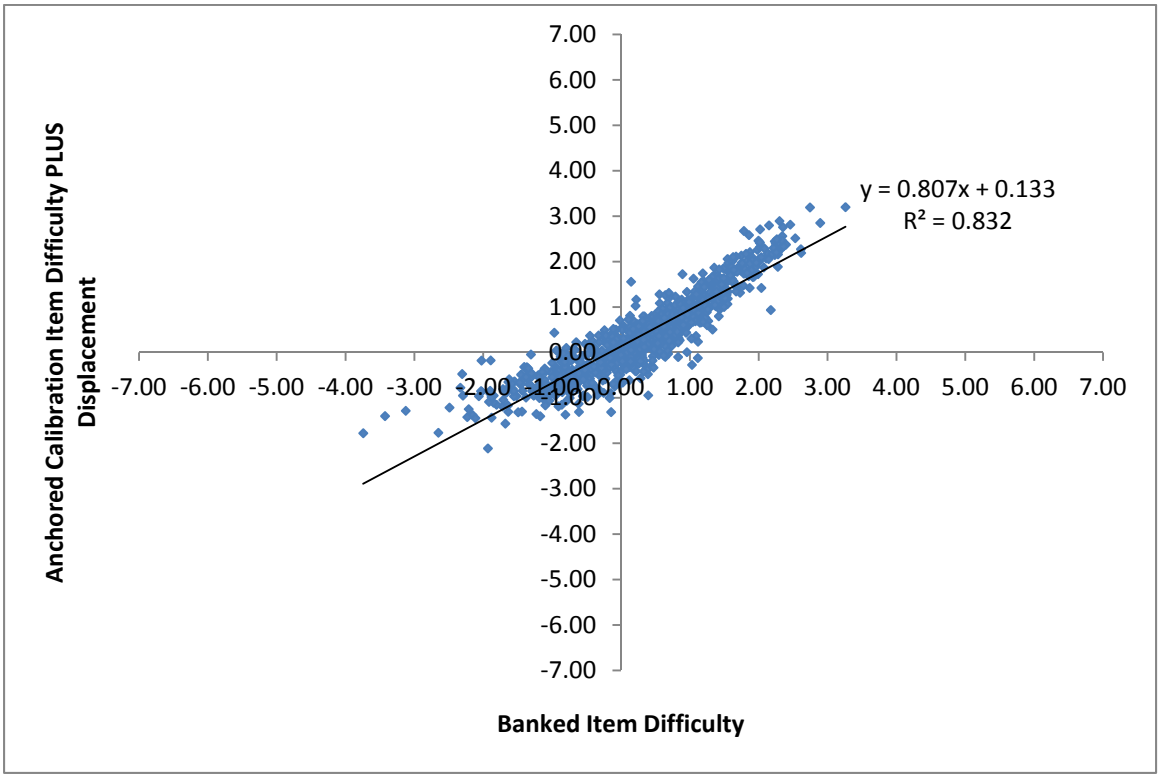
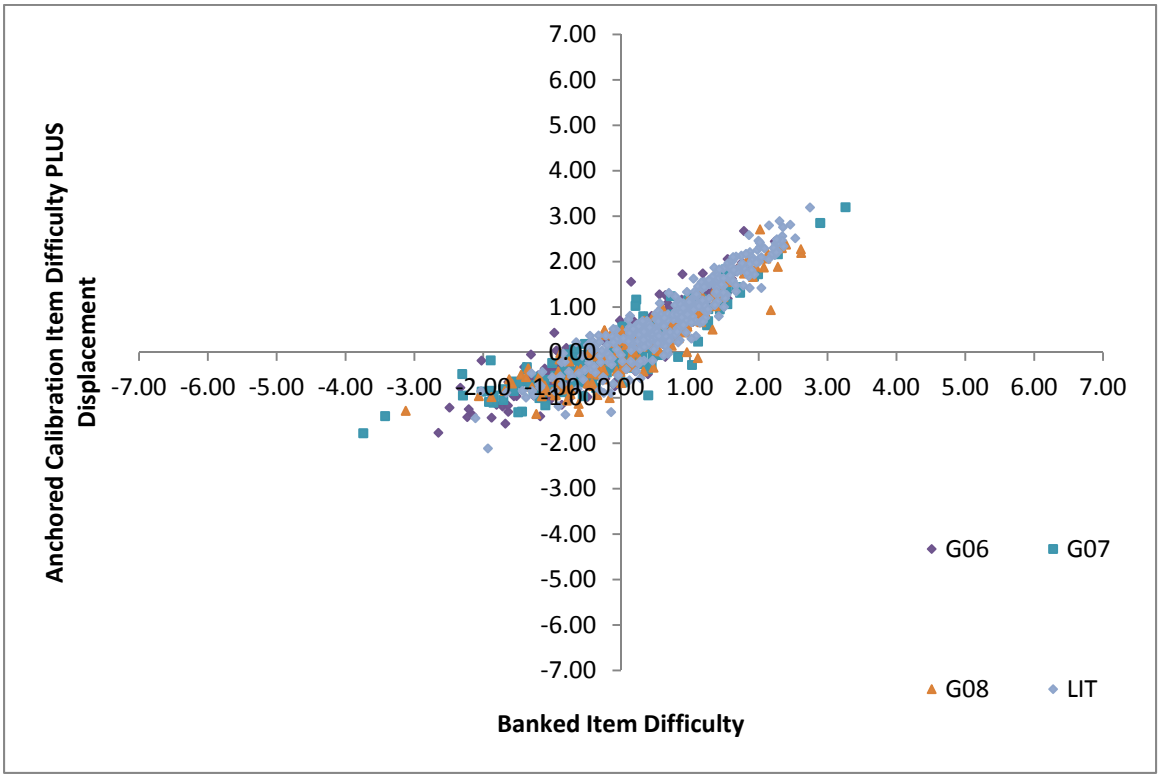


Table 18–6. Number of Reading Items by Grade/Course and Displacement Interval

	G06	G07	G08	LIT	Total
Disp. ≤ -1.0	0	2	2	1	5
-1.0 < Disp. ≤ -0.9	0	1	1	0	2
-0.9 < Disp. ≤ -0.8	1	1	3	1	6
-0.8 < Disp. ≤ -0.7	1	2	1	5	9
-0.7 < Disp. ≤ -0.6	2	3	2	8	15
-0.6 < Disp. ≤ -0.5	1	3	6	8	18
-0.5 < Disp. ≤ -0.4	4	11	12	12	39
-0.4 < Disp. ≤ -0.3	11	14	16	23	64
-0.3 < Disp. ≤ -0.2	16	19	14	19	68
-0.2 < Disp. ≤ -0.1	14	18	18	22	72
-0.1 < Disp. ≤ 0.0	14	20	30	47	111
0.0 < Disp. ≤ 0.1	26	20	22	37	105
0.1 < Disp. ≤ 0.2	26	18	17	42	103
0.2 < Disp. ≤ 0.3	23	8	11	32	74
0.3 < Disp. ≤ 0.4	14	5	10	37	66
0.4 < Disp. ≤ 0.5	11	8	6	19	44
0.5 < Disp. ≤ 0.6	12	9	4	8	33
0.6 < Disp. ≤ 0.7	4	3	3	10	20
0.7 < Disp. ≤ 0.8	8	8	2	4	22
0.8 < Disp. ≤ 0.9	7	5	4	4	20
0.9 < Disp. ≤ 1.0	4	3	3	0	10
1.0 < Disp.	7	9	3	1	20
TOTAL	206	190	190	340	926

Figure 18–10. Reading Banked Item Parameters vs. Anchored Calibration — All Items in Grade 6 and Above





An examination of the items with larger differences between banked values and operational estimates revealed that a number of these have low *n*-counts in the operational calibration. To investigate whether this had an impact on the stability of the item parameter estimates, a concurrent anchored calibration of all items in grade 6 and above with larger *n*-counts was run.

Figure 18–11 and Table 18–7 summarize the displacements from a concurrent anchored calibration that excludes items in grades 3 through 5 and items with fewer than 100 administrations. Eighty-two percent of the items in the calibration have displacement less than 0.5 in magnitude (gray shaded in Table 18–7). Figure 18–12 shows banked item difficulties plotted against the item difficulties plus displacement. Again, a line of best fit is included in the upper plot.

Figure 18–11. Reading Anchored Calibration Displacements — All Items in Grade 6 and Above with N>100

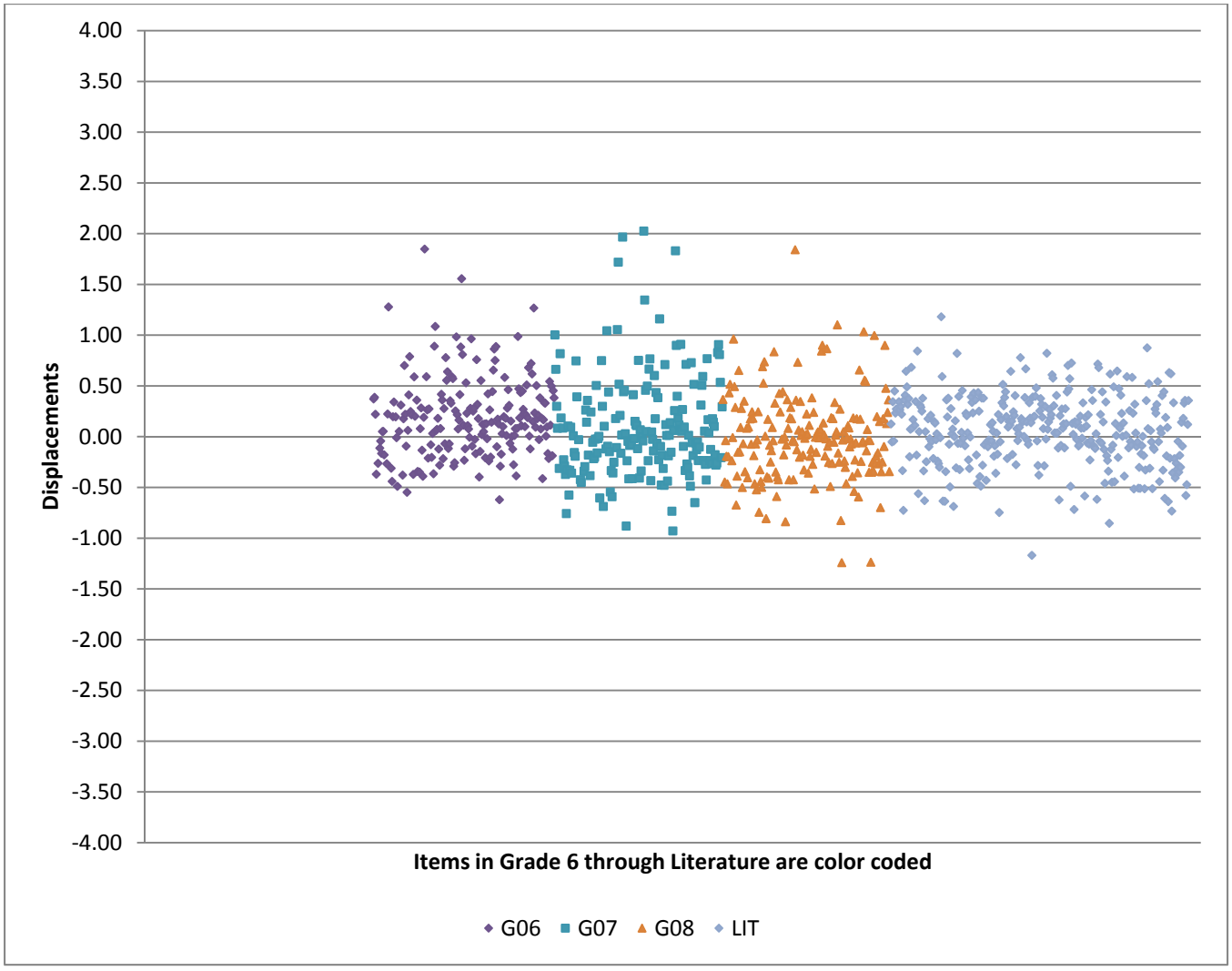
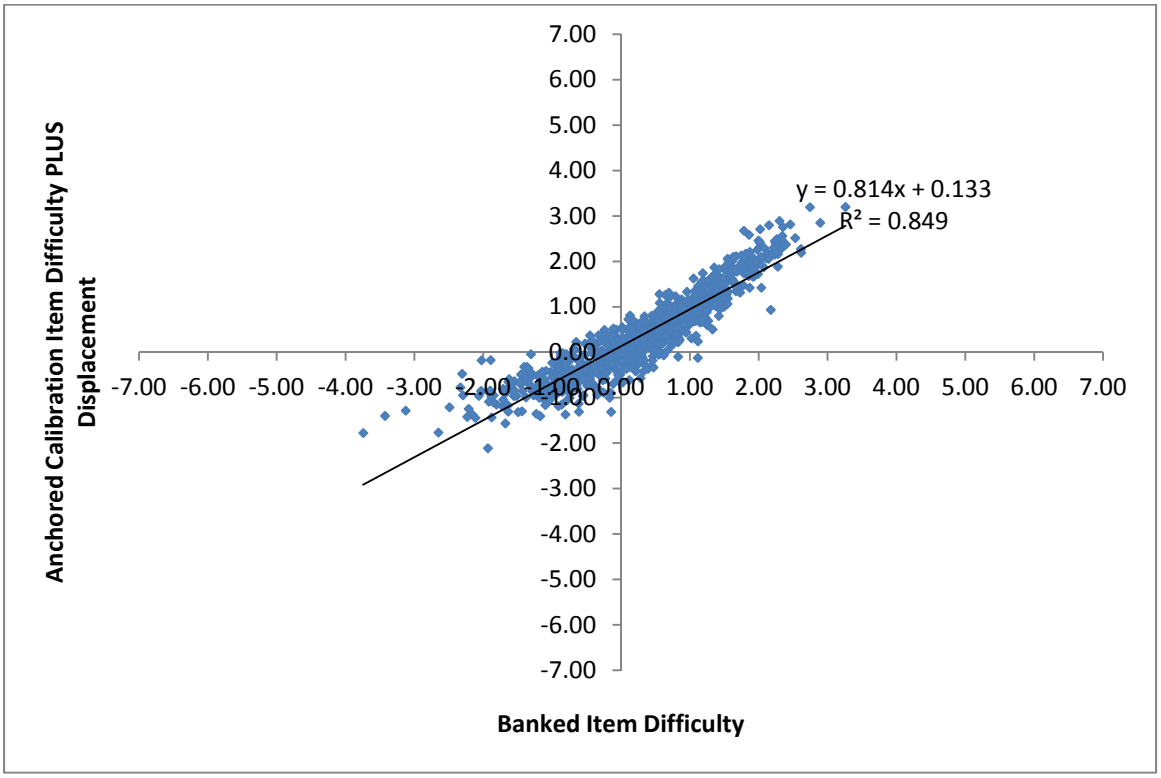
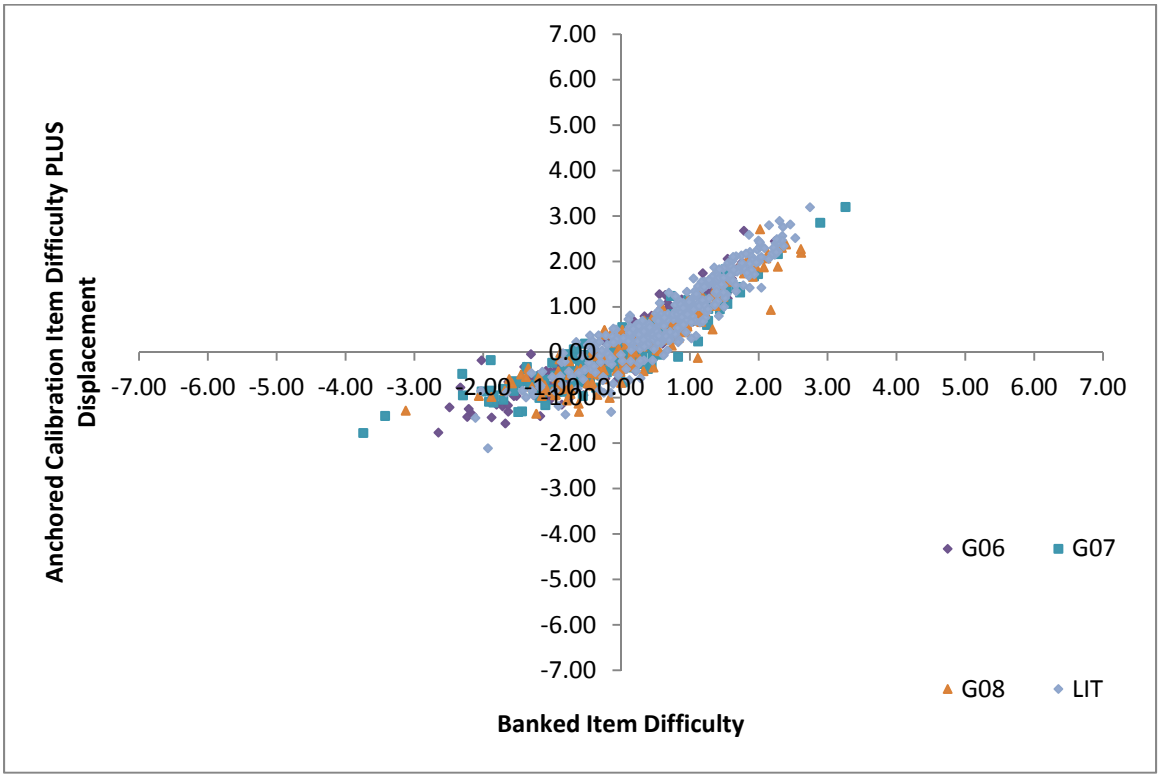


Table 18–7. Number of Reading Items by Grade/Course and Displacement Interval

	G06	G07	G08	LIT	Total
Disp. ≤ -1.0	0	0	2	1	3
-1.0 < Disp. ≤ -0.9	0	1	0	0	1
-0.9 < Disp. ≤ -0.8	0	1	3	1	5
-0.8 < Disp. ≤ -0.7	0	2	1	4	7
-0.7 < Disp. ≤ -0.6	1	3	2	8	14
-0.6 < Disp. ≤ -0.5	1	3	6	8	18
-0.5 < Disp. ≤ -0.4	3	11	12	11	37
-0.4 < Disp. ≤ -0.3	10	14	16	20	60
-0.3 < Disp. ≤ -0.2	15	18	14	16	63
-0.2 < Disp. ≤ -0.1	14	18	18	20	70
-0.1 < Disp. ≤ 0.0	14	19	30	47	110
0.0 < Disp. ≤ 0.1	25	19	21	37	102
0.1 < Disp. ≤ 0.2	26	17	17	40	100
0.2 < Disp. ≤ 0.3	23	8	10	32	73
0.3 < Disp. ≤ 0.4	14	5	9	36	64
0.4 < Disp. ≤ 0.5	11	7	5	19	42
0.5 < Disp. ≤ 0.6	11	6	4	8	29
0.6 < Disp. ≤ 0.7	4	3	3	10	20
0.7 < Disp. ≤ 0.8	6	8	2	4	20
0.8 < Disp. ≤ 0.9	5	4	4	4	17
0.9 < Disp. ≤ 1.0	3	2	3	0	8
1.0 < Disp.	5	9	3	1	18
TOTAL	191	178	185	327	881

Figure 18–12. Reading Banked Item Parameters vs. Anchored Calibration — All Items in Grade 6 and Above with N>100





It is evident from this series of plots that the item parameter estimates are reasonably stable for the items in grade 6 and above.

For each of the three anchored calibrations described in this section, banked item parameters were compared to the banked item parameters plus the displacements by calculating a robust Z statistic for each item pairing. Table 18–8 shows the number of items in each grade/course and the number and percent of items with absolute value of robust Z greater than 1.645 in each of the three calibrations.

Table 18–8. Summary of Robust Z Across Three Anchored Calibrations in Reading

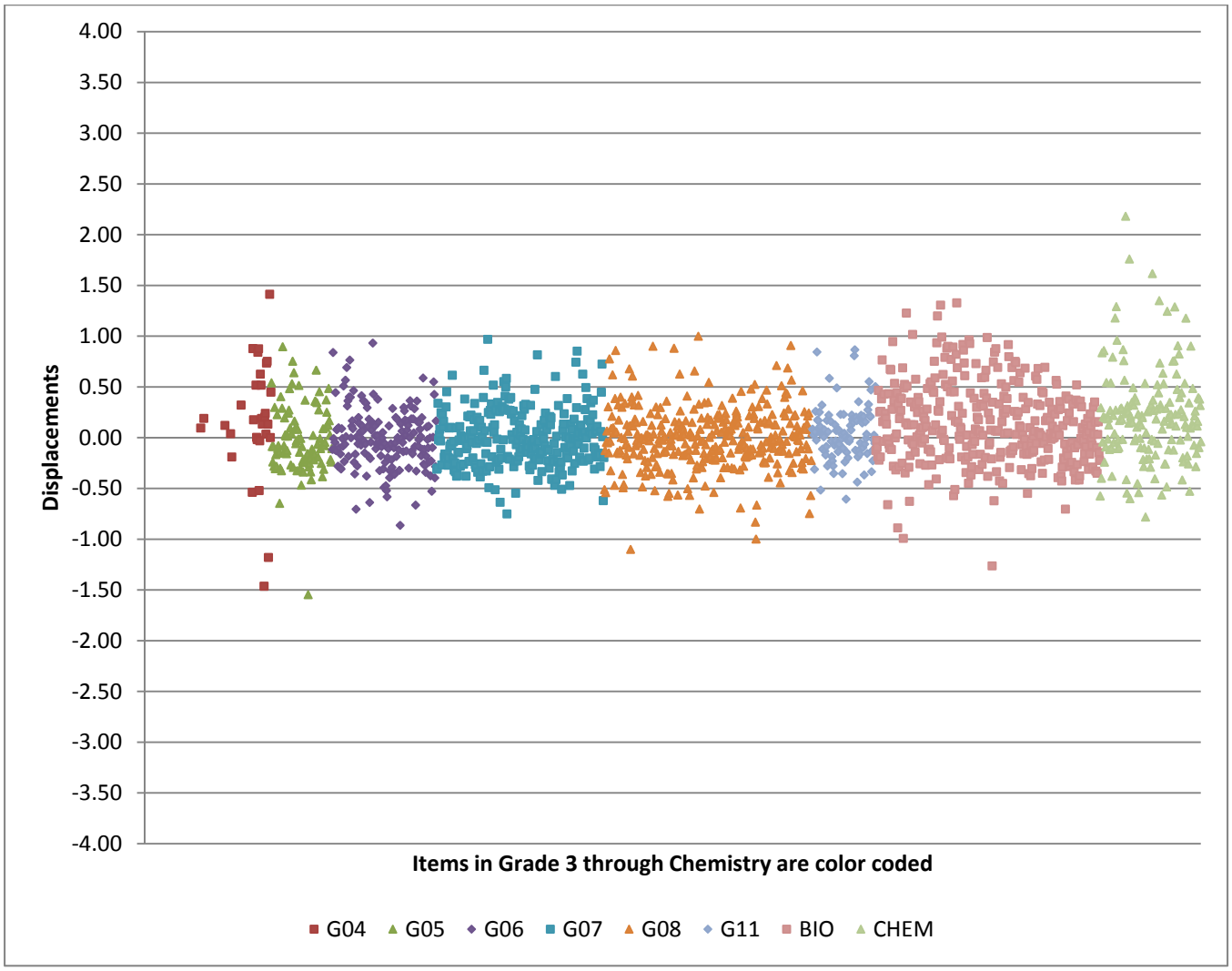
Grade/ Course	Cal. 1 — All Items			Cal. 2 — Items in G6+			Cal. 3 — Items in G6+ N>100		
	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645
Grade 3	80	36	45%	0	N/A	N/A	0	N/A	N/A
Grade 4	87	18	21%	0	N/A	N/A	0	N/A	N/A
Grade 5	86	15	17%	0	N/A	N/A	0	N/A	N/A
Grade 6	206	24	12%	206	21	10%	191	16	8%
Grade 7	190	28	15%	190	24	13%	178	22	12%
Grade 8	190	21	11%	190	18	9%	185	18	10%
Literature	340	23	7%	340	13	4%	327	13	4%
Total	1179	165	14%	926	76	8%	881	69	8%

For the most part, whether we used high absolute displacement values or robust Z to identify items with operational estimates that differ from banked values, the same items were identified. For example, in calibration 1, all items with absolute displacement greater than 0.73 have an absolute value of robust Z greater than 1.645. In the displacement range of 0.60 to 0.73, some items have absolute value of robust Z greater than 1.645 while others do not. No items with absolute displacement less than 0.60 have absolute value of robust Z greater than 1.645.

SCIENCE

Figure 18–13 shows the displacements from a concurrent anchored calibration of all science items using the operational data set. Items are color-coded by grade/course.

Figure 18–13. Science Anchored Calibration Displacements — All Items



Note: No grade 3 items were estimated by Winsteps software due to insufficient counts.

Table 18–9 summarizes the data in Figure 18–13. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Eighty-five percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–9).

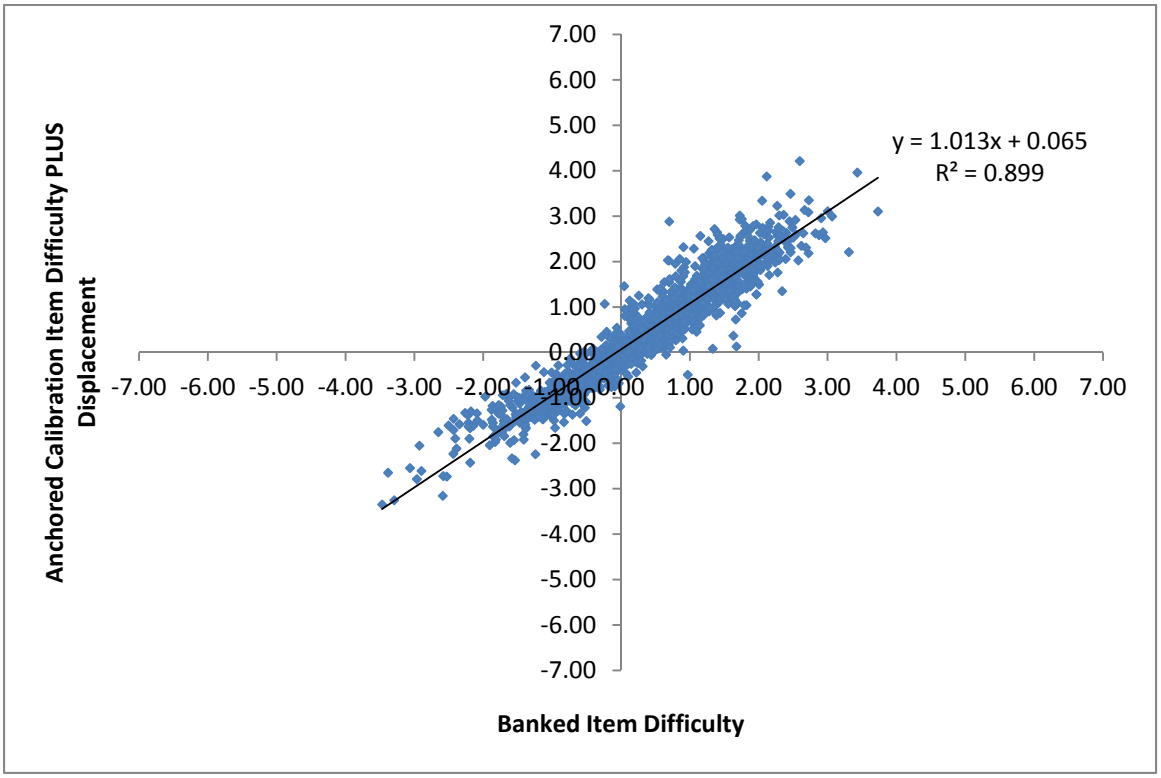
Table 18–9. Number of Science Items by Grade/Course and Displacement Interval

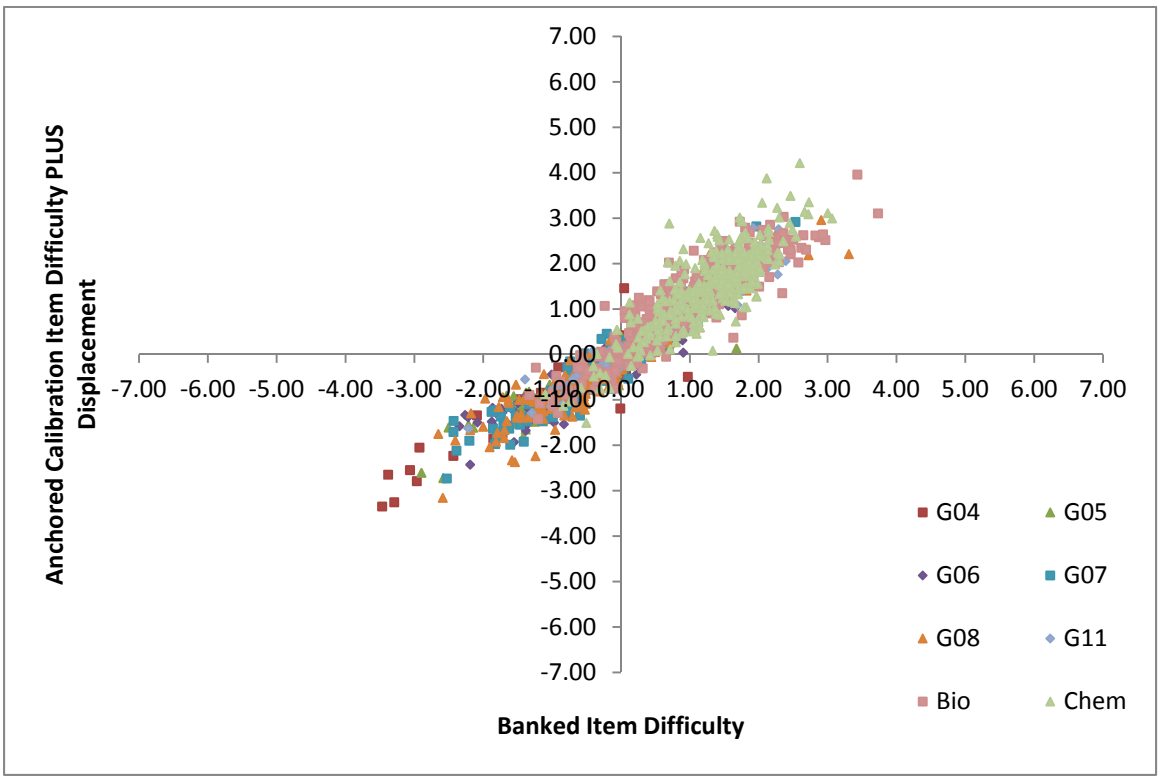
	G03	G04	G05	G06	G07	G08	G11	BIO	CHEM	Total
Disp. ≤ -1.0	0	2	1	0	0	1	0	1	2	7
-1.0 < Disp. ≤ -0.9	0	0	0	0	0	1	0	1	1	3
-0.9 < Disp. ≤ -0.8	0	0	0	1	0	1	0	1	0	3
-0.8 < Disp. ≤ -0.7	0	0	0	1	1	2	0	1	2	7
-0.7 < Disp. ≤ -0.6	0	0	1	2	2	2	1	3	4	15
-0.6 < Disp. ≤ -0.5	0	2	0	3	3	10	1	3	7	29
-0.5 < Disp. ≤ -0.4	0	0	2	2	7	7	1	8	13	40
-0.4 < Disp. ≤ -0.3	0	0	8	14	18	19	5	19	15	98
-0.3 < Disp. ≤ -0.2	0	0	18	15	38	27	6	27	17	148
-0.2 < Disp. ≤ -0.1	0	1	15	22	36	55	14	35	18	196
-0.1 < Disp. ≤ 0.0	0	2	14	31	44	45	18	41	35	230
0.0 < Disp. ≤ 0.1	0	5	10	23	36	54	19	42	18	207
0.1 < Disp. ≤ 0.2	0	6	6	25	24	40	14	36	42	193
0.2 < Disp. ≤ 0.3	0	2	7	6	25	24	12	30	36	142
0.3 < Disp. ≤ 0.4	0	1	5	9	18	21	3	33	27	117
0.4 < Disp. ≤ 0.5	0	1	4	6	5	9	2	17	17	61
0.5 < Disp. ≤ 0.6	0	2	3	4	4	4	3	19	16	55
0.6 < Disp. ≤ 0.7	0	1	2	1	4	6	0	14	10	38
0.7 < Disp. ≤ 0.8	0	2	1	1	2	2	0	10	10	28
0.8 < Disp. ≤ 0.9	0	3	1	1	2	2	3	6	10	28
0.9 < Disp. ≤ 1.0	0	0	0	1	1	3	0	9	5	19
1.0 < Disp.	0	1	0	0	0	0	0	5	19	25
TOTAL	0	31	98	168	270	335	102	361	324	1689

Note: No grade 3 items were estimated by Winsteps software due to insufficient counts.

Figure 18–14 shows banked item difficulties plotted against the item difficulties plus displacement from the anchored concurrent calibration of operational data for the science item bank. A line of best fit is included in the upper plot. If item difficulties from the operational calibration are close to the banked values, the line will approach an intercept of zero and a slope of one. The lower plot displays the same data as the upper, but color codes items by grade/course in an attempt to lend insight into the possible causes for the deviations.

Figure 18–14. Science Banked Item Parameters vs. Anchored Calibration — All Items





Note. No grade 3 items were estimated by Winsteps software due to insufficient counts.

Based on Figure 18–14, one can see that there are a number of items with operational estimates that differ from their banked values. Many of these are in grades 4 and 5. Recall that the operational CDT is available to students in grade 6 and above. While items were developed to sample content in grades 3 through 5 to provide better diagnostic information for lower performing students, the data from the operational administration (in contrast to the field test, where students from grades lower than 6 were included) did not include students below grade 6. To investigate whether this had an impact on the stability of the item parameter estimates, a concurrent anchored calibration of all items in grade 6 and above was run.

Figure 18–15 and Table 18–10 summarize the displacements from a concurrent anchored calibration of all items in grade 6 and above. Eighty-five percent of the items in the calibration have displacement less than 0.5 in magnitude (gray shaded in Table 18–10). Figure 18–16 shows banked item difficulties plotted against the item difficulties plus displacement. Again, a line of best fit is included in the upper plot.

Figure 18–15. Science Anchored Calibration Displacements — All Items in Grade 6 and Above

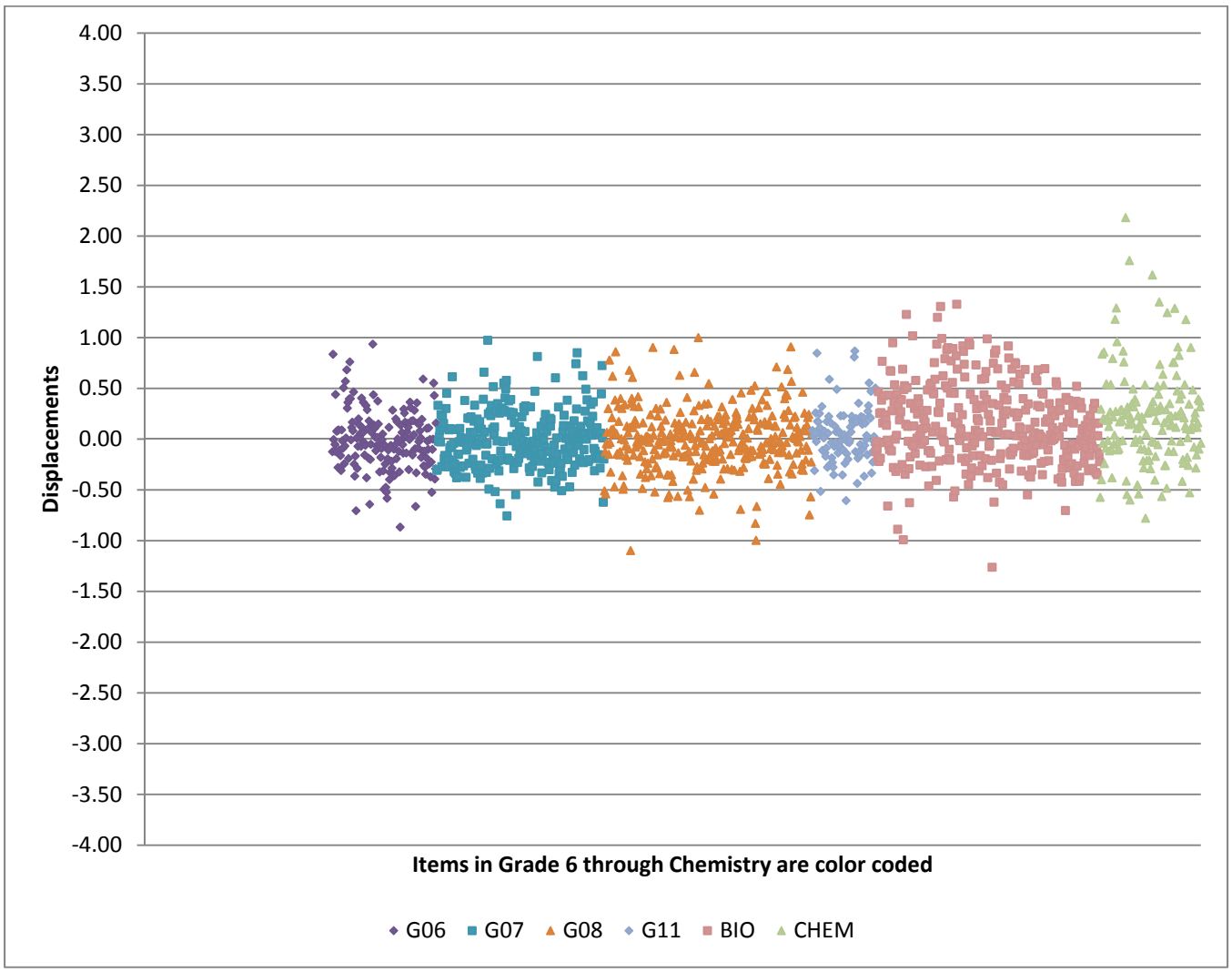
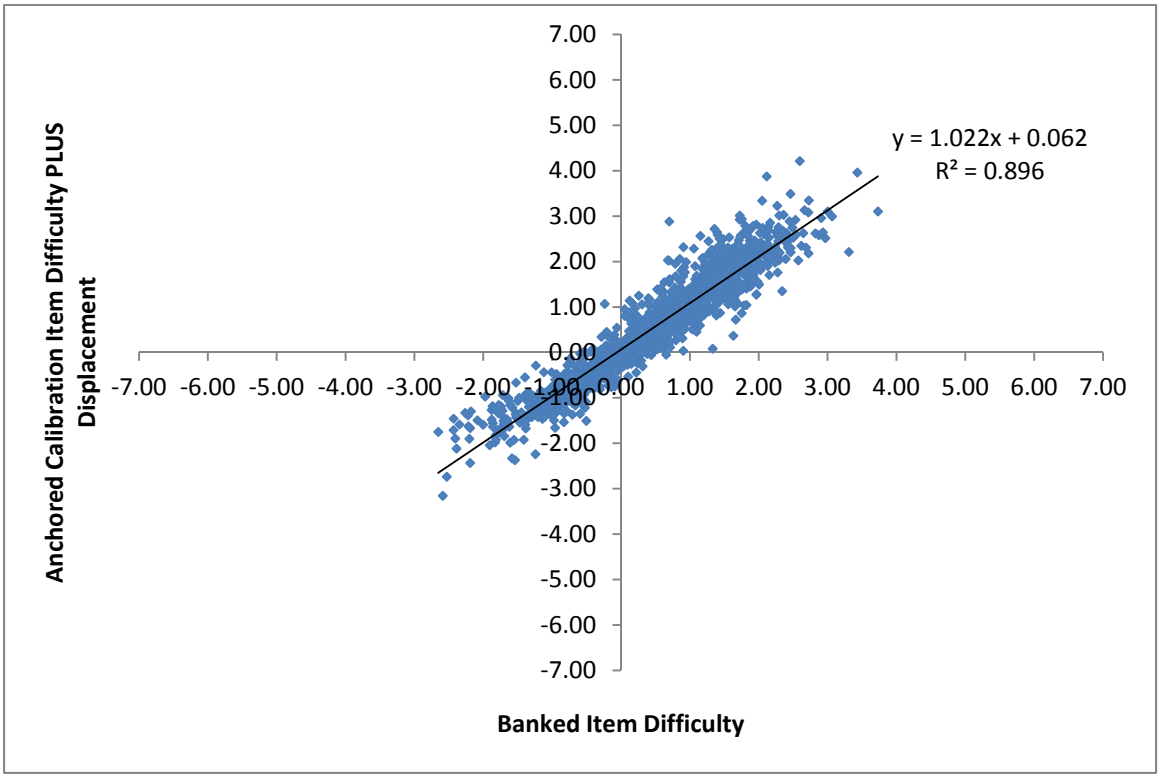
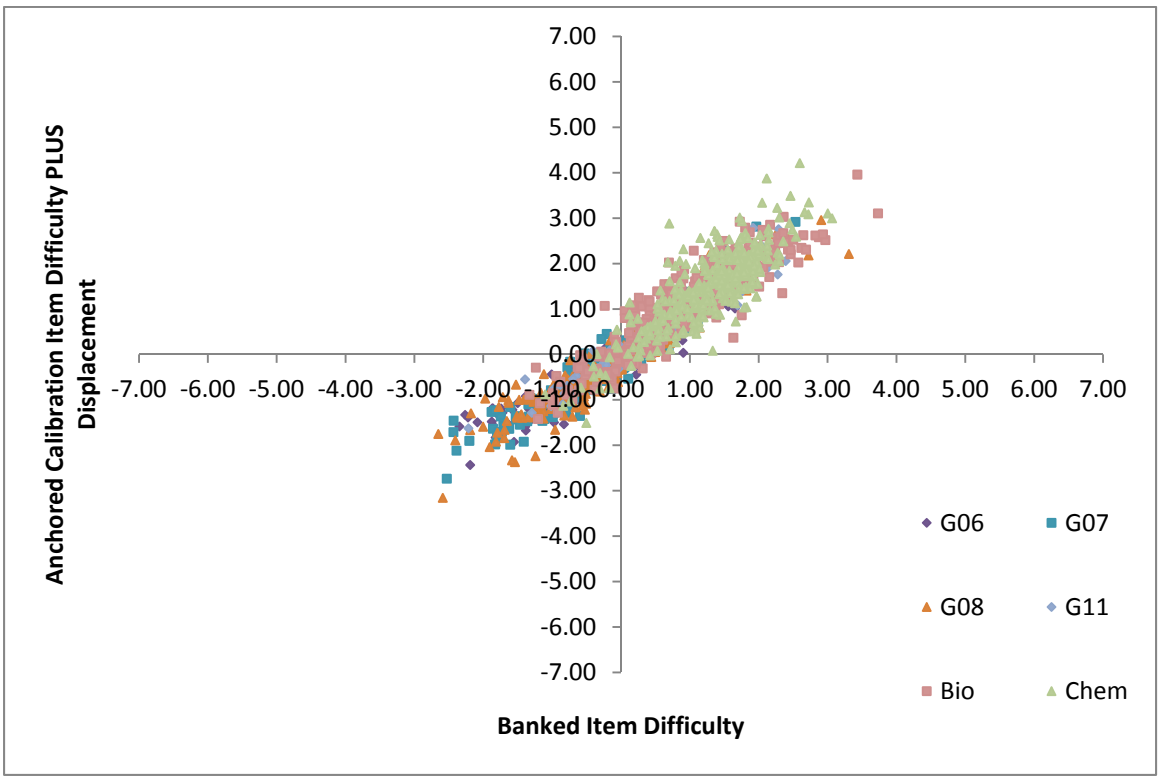


Table 18–10. Number of Science Items by Grade/Course and Displacement Interval

	G06	G07	G08	G11	BIO	CHEM	Total
Disp. ≤ -1.0	0	0	1	0	1	2	4
-1.0 < Disp. ≤ -0.9	0	0	1	0	1	1	3
-0.9 < Disp. ≤ -0.8	1	0	1	0	1	0	3
-0.8 < Disp. ≤ -0.7	1	1	2	0	1	2	7
-0.7 < Disp. ≤ -0.6	2	2	2	1	3	4	14
-0.6 < Disp. ≤ -0.5	3	3	10	1	3	7	27
-0.5 < Disp. ≤ -0.4	2	7	7	1	8	13	38
-0.4 < Disp. ≤ -0.3	15	19	19	5	19	15	92
-0.3 < Disp. ≤ -0.2	14	39	27	6	27	18	131
-0.2 < Disp. ≤ -0.1	25	36	55	14	35	17	182
-0.1 < Disp. ≤ 0.0	30	42	45	18	41	35	211
0.0 < Disp. ≤ 0.1	21	38	54	19	42	18	192
0.1 < Disp. ≤ 0.2	26	23	40	14	36	42	181
0.2 < Disp. ≤ 0.3	5	24	24	12	30	36	131
0.3 < Disp. ≤ 0.4	10	18	21	3	33	27	112
0.4 < Disp. ≤ 0.5	5	6	9	2	17	17	56
0.5 < Disp. ≤ 0.6	4	3	4	3	19	16	49
0.6 < Disp. ≤ 0.7	1	4	6	0	14	10	35
0.7 < Disp. ≤ 0.8	1	2	2	0	10	10	25
0.8 < Disp. ≤ 0.9	1	2	2	3	6	10	24
0.9 < Disp. ≤ 1.0	1	1	3	0	9	5	19
1.0 < Disp.	0	0	0	0	5	19	24
TOTAL	168	270	335	102	361	324	1560

Figure 18–16. Science Banked Item Parameters vs. Anchored Calibration — All Items in Grade 6 and Above





An examination of the items with larger differences between banked values and operational estimates revealed that a number of these have low *n*-counts in the operational calibration. To investigate whether this had an impact on the stability of the item parameter estimates, a concurrent anchored calibration of all items in grade 6 and above with larger *n*-counts was run.

Figure 18–17 and Table 18–11 summarize the displacements from a concurrent anchored calibration of all items in grade 6 and above with at least 100 administrations. Eighty-six percent of the items in the calibration have displacement less than 0.5 in magnitude (gray shaded in Table 18–11). Figure 18–18 shows banked item difficulties plotted against the item difficulties plus displacement. Again, a line of best fit is included in the upper plot.

Figure 18–17. Science Anchored Calibration Displacements — All Items in Grade 6 and Above with N>100

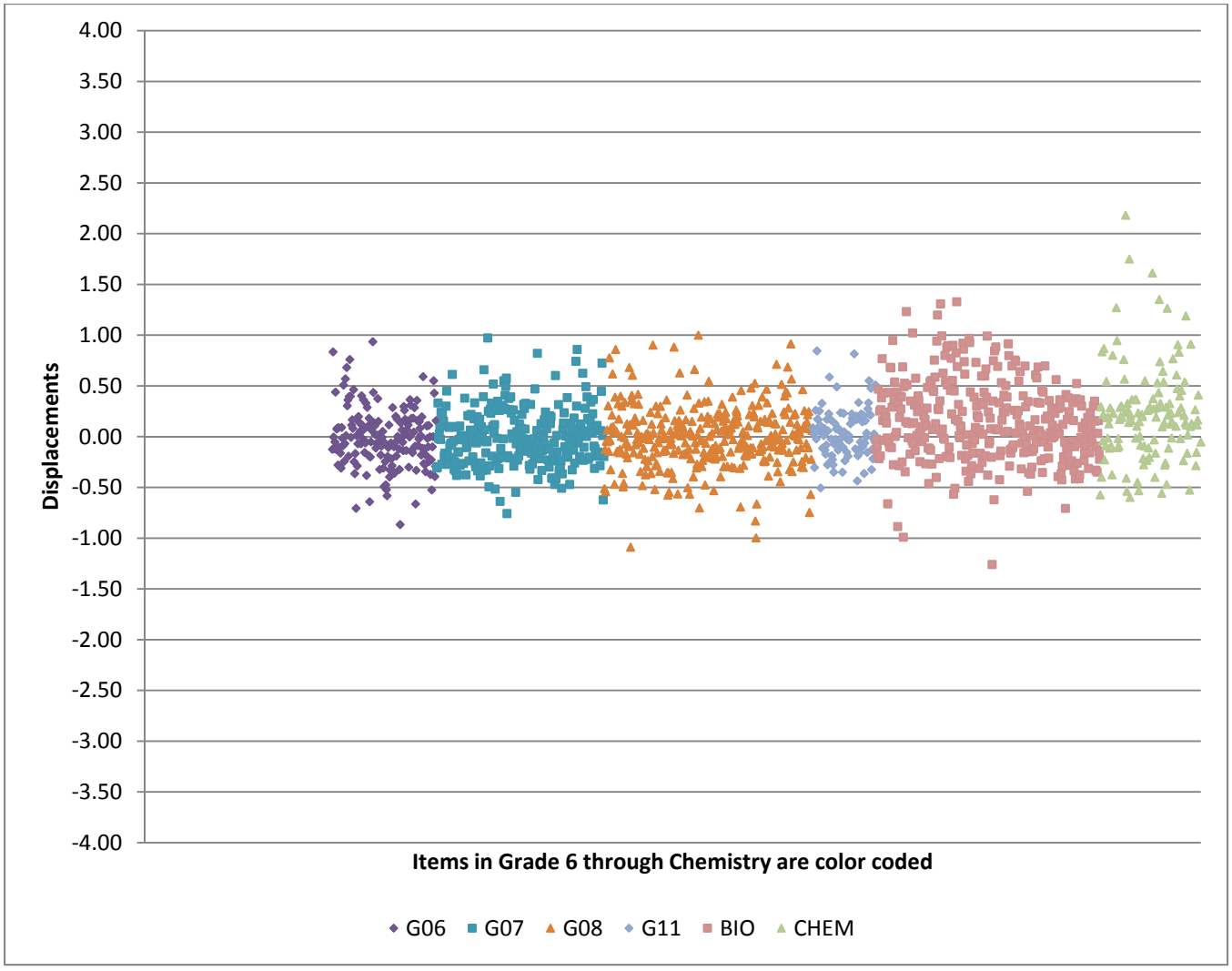
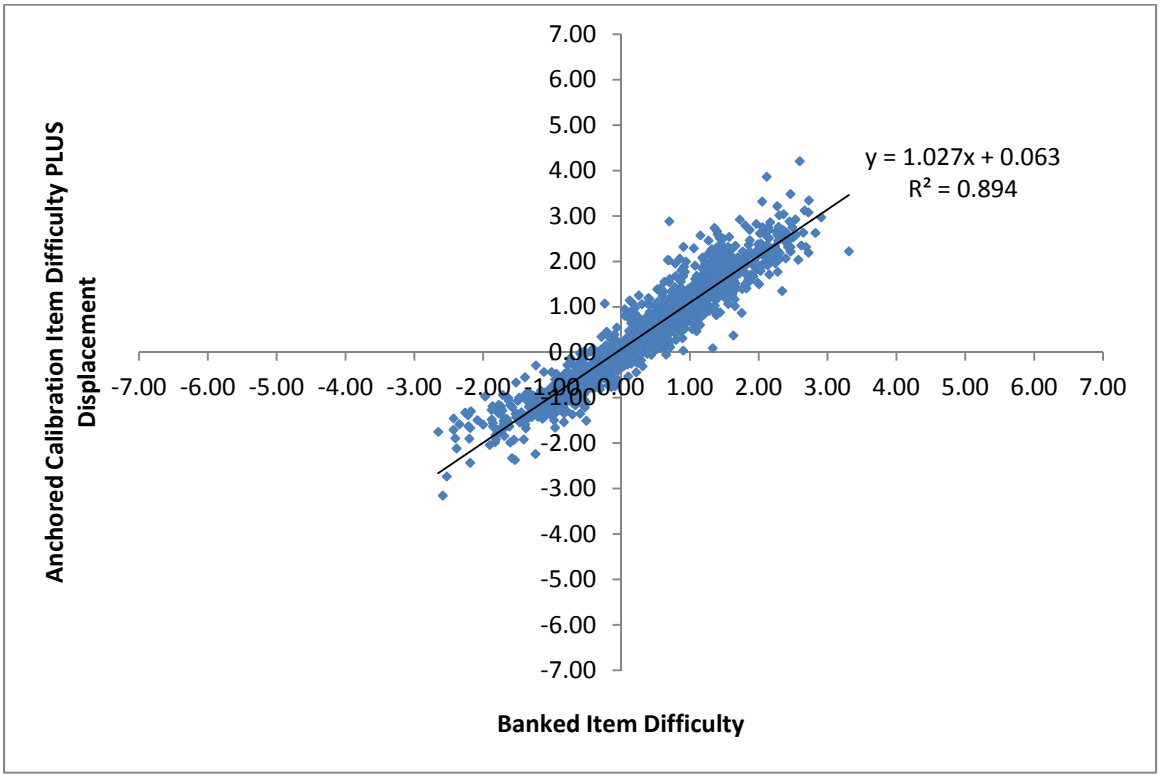
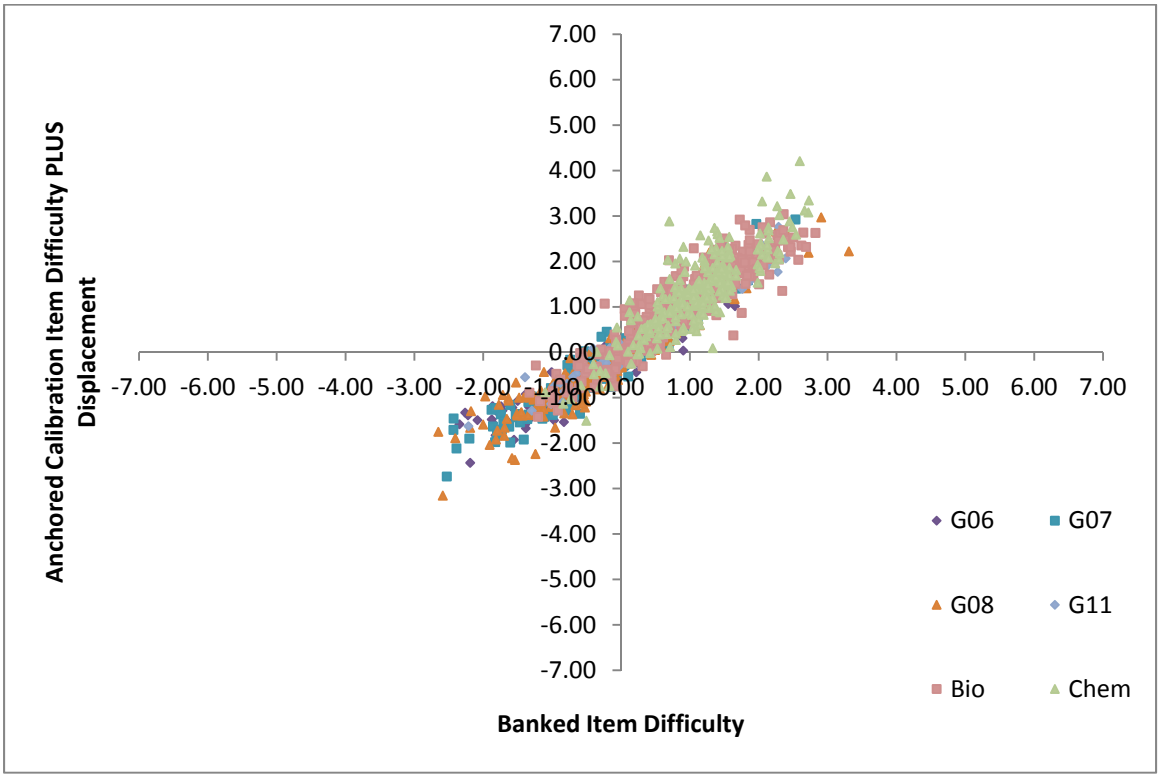


Table 18–11. Number of Science Items by Grade/Course and Displacement Interval

	G06	G07	G08	G11	BIO	CHEM	Total
Disp. ≤ -1.0	0	0	1	0	1	2	4
-1.0 < Disp. ≤ -0.9	0	0	1	0	1	0	2
-0.9 < Disp. ≤ -0.8	1	0	1	0	1	0	3
-0.8 < Disp. ≤ -0.7	1	1	2	0	1	0	5
-0.7 < Disp. ≤ -0.6	2	2	2	0	2	1	9
-0.6 < Disp. ≤ -0.5	3	3	10	1	3	7	27
-0.5 < Disp. ≤ -0.4	2	7	7	1	7	9	33
-0.4 < Disp. ≤ -0.3	15	19	19	5	17	10	85
-0.3 < Disp. ≤ -0.2	14	39	27	6	24	14	124
-0.2 < Disp. ≤ -0.1	25	36	55	14	35	15	180
-0.1 < Disp. ≤ 0.0	30	41	45	16	40	26	198
0.0 < Disp. ≤ 0.1	21	38	54	19	43	9	184
0.1 < Disp. ≤ 0.2	26	24	40	14	35	30	169
0.2 < Disp. ≤ 0.3	5	23	24	12	30	31	125
0.3 < Disp. ≤ 0.4	10	19	20	3	32	18	102
0.4 < Disp. ≤ 0.5	5	6	10	2	18	14	55
0.5 < Disp. ≤ 0.6	4	3	4	3	18	14	46
0.6 < Disp. ≤ 0.7	1	4	6	0	14	8	33
0.7 < Disp. ≤ 0.8	1	2	2	0	9	7	21
0.8 < Disp. ≤ 0.9	1	2	2	2	8	5	20
0.9 < Disp. ≤ 1.0	1	1	3	0	8	6	19
1.0 < Disp.	0	0	0	0	5	17	22
TOTAL	168	270	335	98	352	243	1466

Figure 18–18. Science Banked Item Parameters vs. Anchored Calibration — All Items in Grade 6 and Above with N>100





It is evident from this series of plots that the item parameter estimates are reasonably stable for the items in grade 6 and above.

For each of the three anchored calibrations described in this section, banked item parameters were compared to the banked item parameters plus the displacements by calculating a robust Z statistic for each item pairing. Table 18–12 shows the number of items in each grade/course and the number and percent of items with absolute value of robust Z greater than 1.645 in each of the three calibrations.

Table 18–12. Summary of Robust Z Across Three Anchored Calibrations in Science

Grade/ Course	Cal. 1 — All Items			Cal. 2 — Items in G6+			Cal. 3 — Items in G6+ N>100		
	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645
Grade 3	0	0	N/A	0	0	N/A	0	0	N/A
Grade 4	31	11	35%	0	0	N/A	0	0	N/A
Grade 5	98	7	7%	0	0	N/A	0	0	N/A
Grade 6	168	15	9%	168	15	9%	168	16	10%
Grade 7	270	18	7%	270	18	7%	270	18	7%
Grade 8	335	34	10%	335	34	10%	335	35	10%
Grade 11	102	7	7%	102	7	7%	98	5	5%
Biology	361	64	18%	361	64	18%	352	66	19%
Chemistry	324	79	24%	324	79	24%	243	64	26%
Total	1689	235	14%	1560	217	14%	1466	204	14%

For the most part, whether we used high absolute displacement values or robust Z to identify items with operational estimates that differ from banked values, the same items were identified. For example, in calibration 1, all items with absolute displacement greater than 0.53 have an absolute value of robust Z greater than 1.645. In the displacement range of 0.48 to 0.53, some items have absolute value of robust Z greater than 1.645 while others do not. No items with absolute displacement less than 0.48 have absolute value of robust Z greater than 1.645.

WRITING/ENGLISH COMPOSITION

Figure 18–19 shows the displacements from a concurrent anchored calibration of all writing items using the operational data set. Items are color-coded by grade/course.

Figure 18–19. Writing Anchored Calibration Displacements — All Items

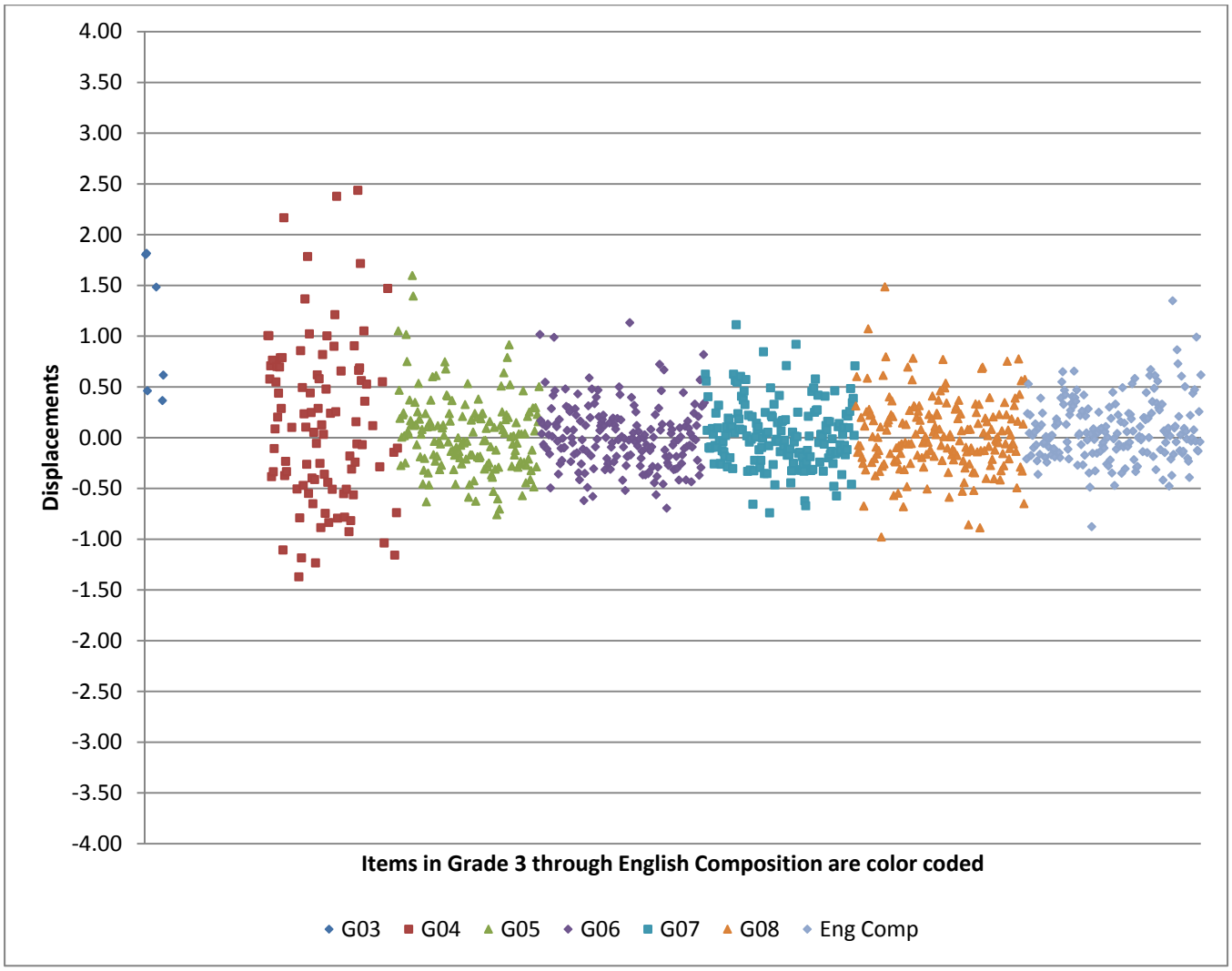


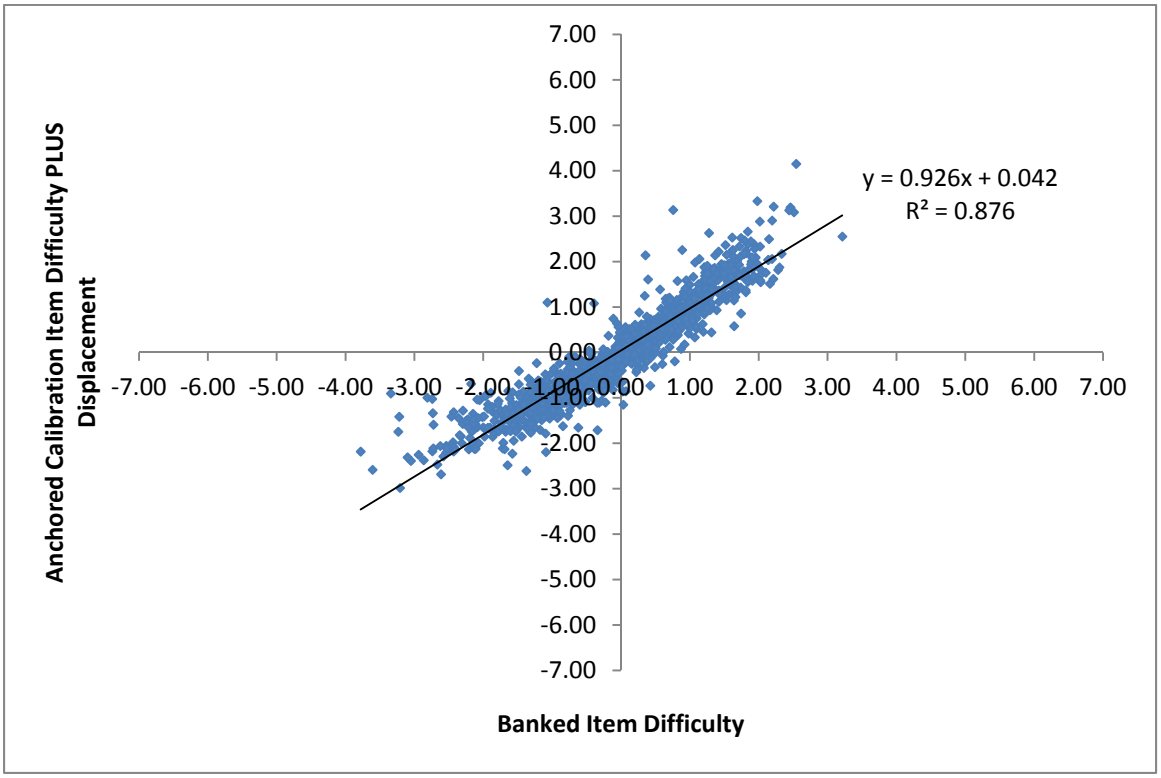
Table 18–13 summarizes the data in Figure 18–19. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Eighty-five percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–13).

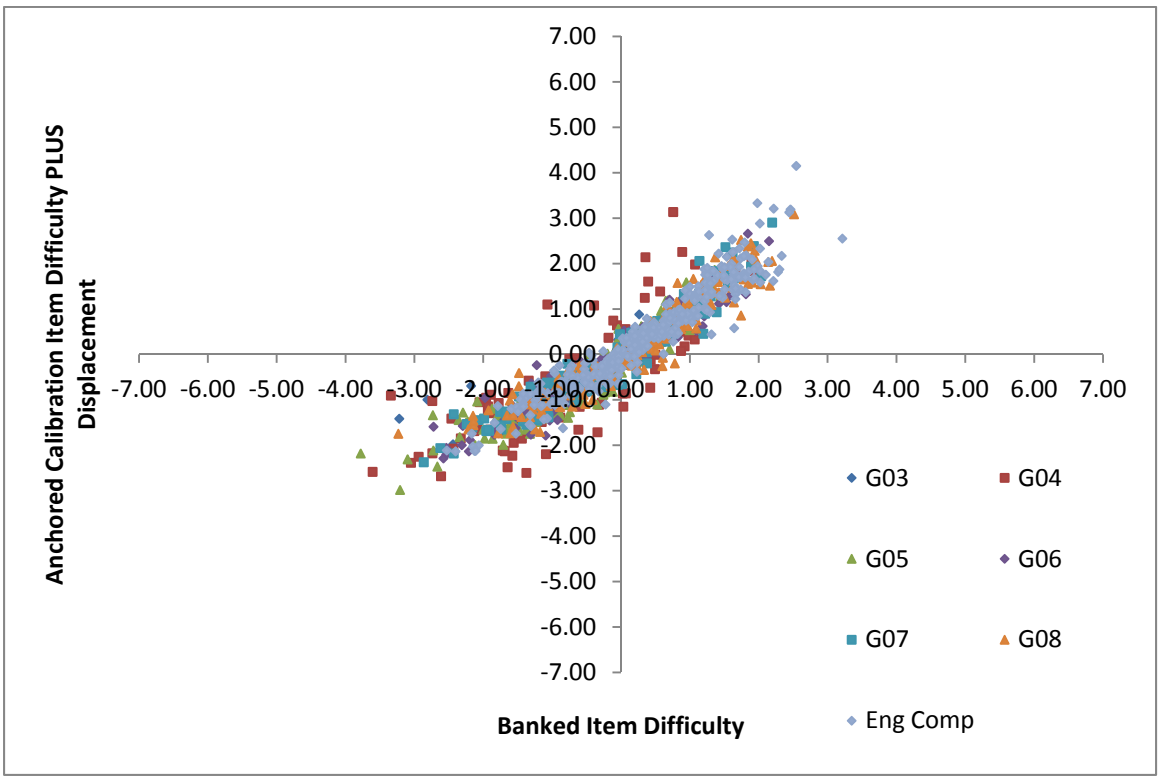
Table 18–13. Number of Writing Items by Grade/Course and Displacement Interval

	G03	G04	G05	G06	G07	G08	COMP	Total
Disp. ≤ -1.0	0	6	0	0	0	0	1	7
-1.0 < Disp. ≤ -0.9	0	1	0	0	0	1	0	2
-0.9 < Disp. ≤ -0.8	0	3	0	0	0	2	2	7
-0.8 < Disp. ≤ -0.7	0	5	2	0	1	0	1	9
-0.7 < Disp. ≤ -0.6	0	1	3	2	3	3	3	15
-0.6 < Disp. ≤ -0.5	0	6	3	3	1	6	2	21
-0.5 < Disp. ≤ -0.4	0	3	8	9	4	6	11	41
-0.4 < Disp. ≤ -0.3	0	7	9	15	14	10	16	71
-0.3 < Disp. ≤ -0.2	0	5	19	18	13	20	32	107
-0.2 < Disp. ≤ -0.1	0	4	18	20	24	28	44	138
-0.1 < Disp. ≤ 0.0	0	3	16	33	23	22	57	154
0.0 < Disp. ≤ 0.1	0	3	18	21	26	22	52	142
0.1 < Disp. ≤ 0.2	0	5	21	25	17	18	34	120
0.2 < Disp. ≤ 0.3	0	7	17	13	15	18	33	103
0.3 < Disp. ≤ 0.4	1	1	6	10	6	15	23	62
0.4 < Disp. ≤ 0.5	1	4	4	9	11	5	19	53
0.5 < Disp. ≤ 0.6	0	6	5	4	5	5	6	31
0.6 < Disp. ≤ 0.7	1	5	4	1	3	5	11	30
0.7 < Disp. ≤ 0.8	0	5	3	1	2	5	1	17
0.8 < Disp. ≤ 0.9	0	2	0	1	1	0	2	6
0.9 < Disp. ≤ 1.0	0	2	1	1	1	0	2	7
1.0 < Disp.	3	13	4	2	1	2	3	28
TOTAL	6	97	161	188	171	193	355	1171

Figure 18–20 shows banked item difficulties plotted against the item difficulties plus displacement from the anchored concurrent calibration of operational data for the writing item bank. A line of best fit is included in the upper plot. If item difficulties from the operational calibration are close to the banked values, the line will approach an intercept of zero and a slope of one. The lower plot displays the same data as the upper, but color codes items by grade/course in an attempt to lend insight into the possible causes for the deviations.

Figure 18–20. Writing Banked Item Parameters vs. Anchored Calibration — All Items





Based on Figure 18–20, one can see that there are a number of items with operational estimates that differ from their banked values. Many of these are in grades 3 through 5. Recall that the operational CDT is available to students in grade 6 and above. While items were developed to sample content in grades 3 through 5 to provide better diagnostic information for lower performing students, the data from the operational administration (in contrast to the field test, where students from grades lower than 6 were included) did not include students below grade 6. To investigate whether this had an impact on the stability of the item parameter estimates, a concurrent anchored calibration of all items in grade 6 and above was run.

Figure 18–21 and Table 18–14 summarize the displacements from a concurrent anchored calibration of all items in grade 6 and above. Eighty-nine percent of the items in the calibration have displacement less than 0.5 in magnitude (gray shaded in Table 18–14). Figure 18–22 shows banked item difficulties plotted against the item difficulties plus displacement. Again, a line of best fit is included in the upper plot.

Figure 18–21. Writing Anchored Calibration Displacements — All Items in Grade 6 and Above

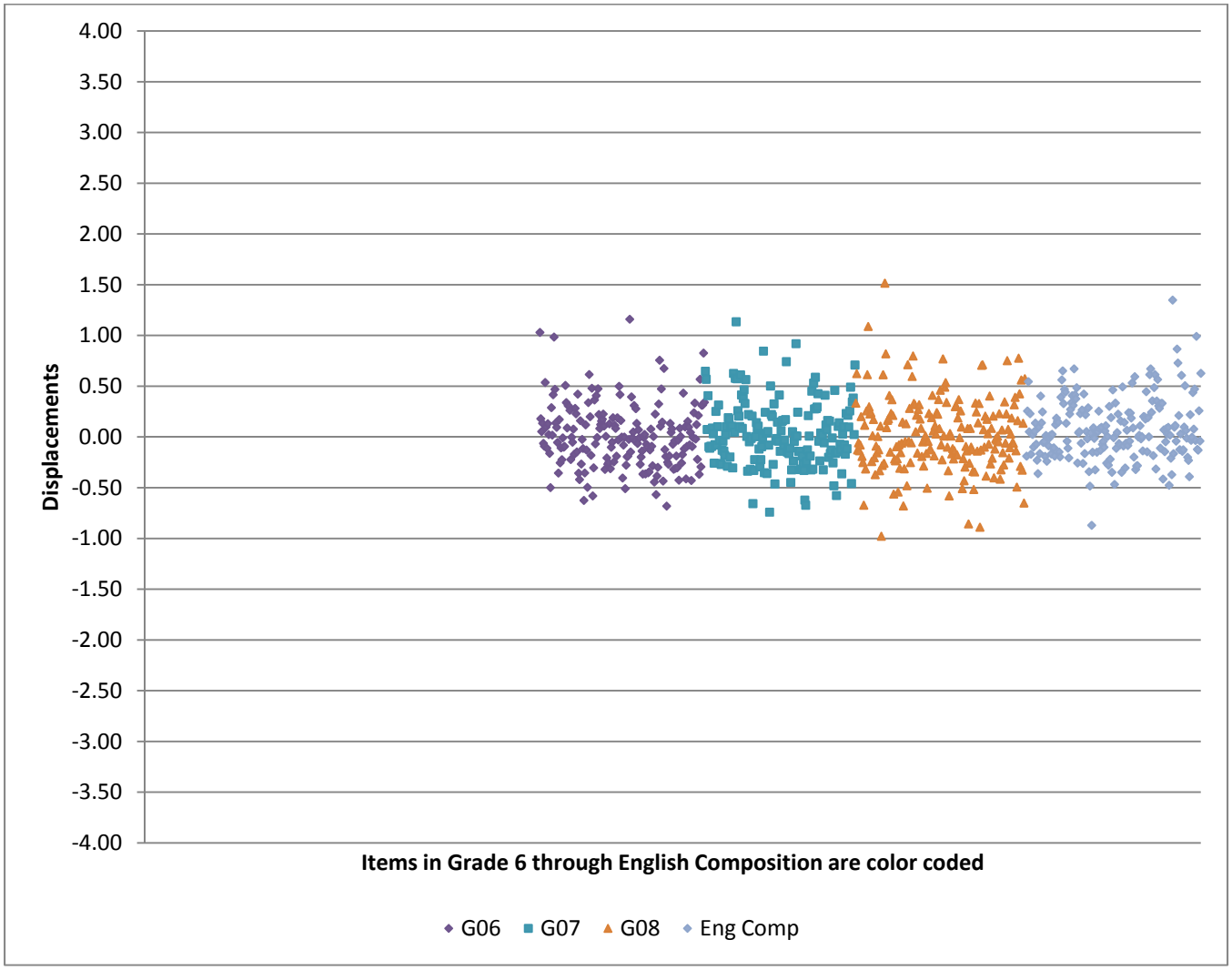
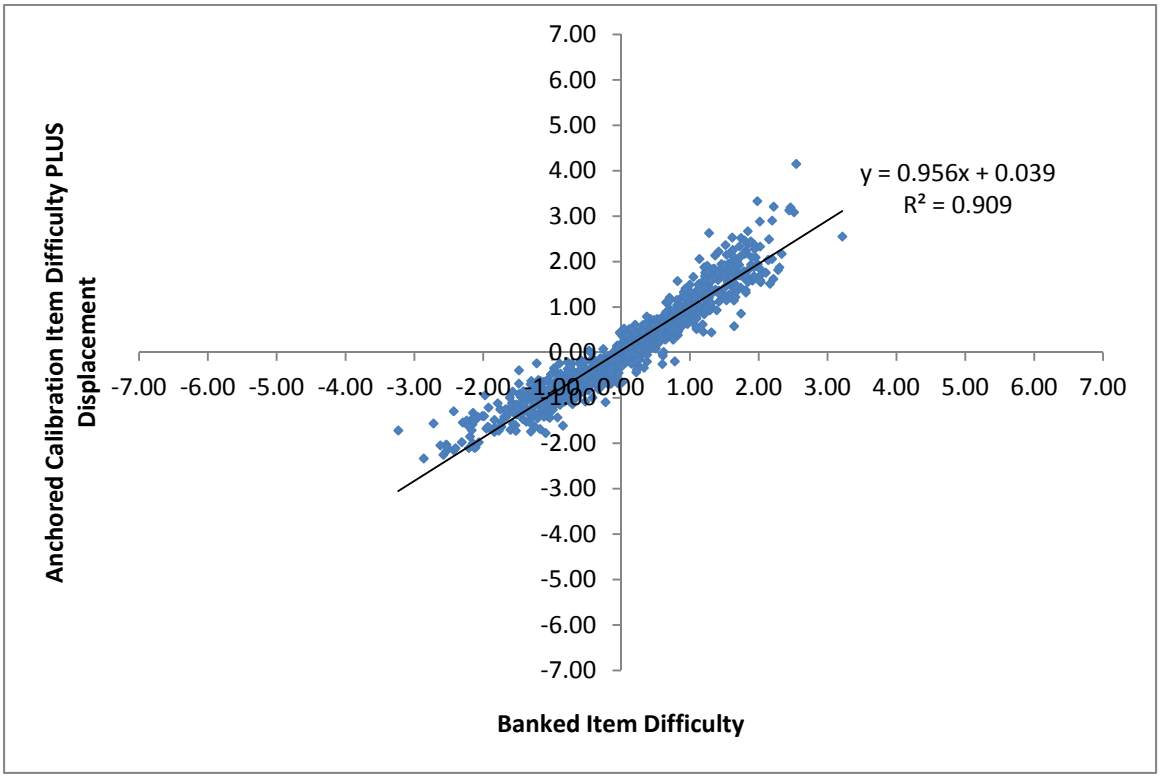
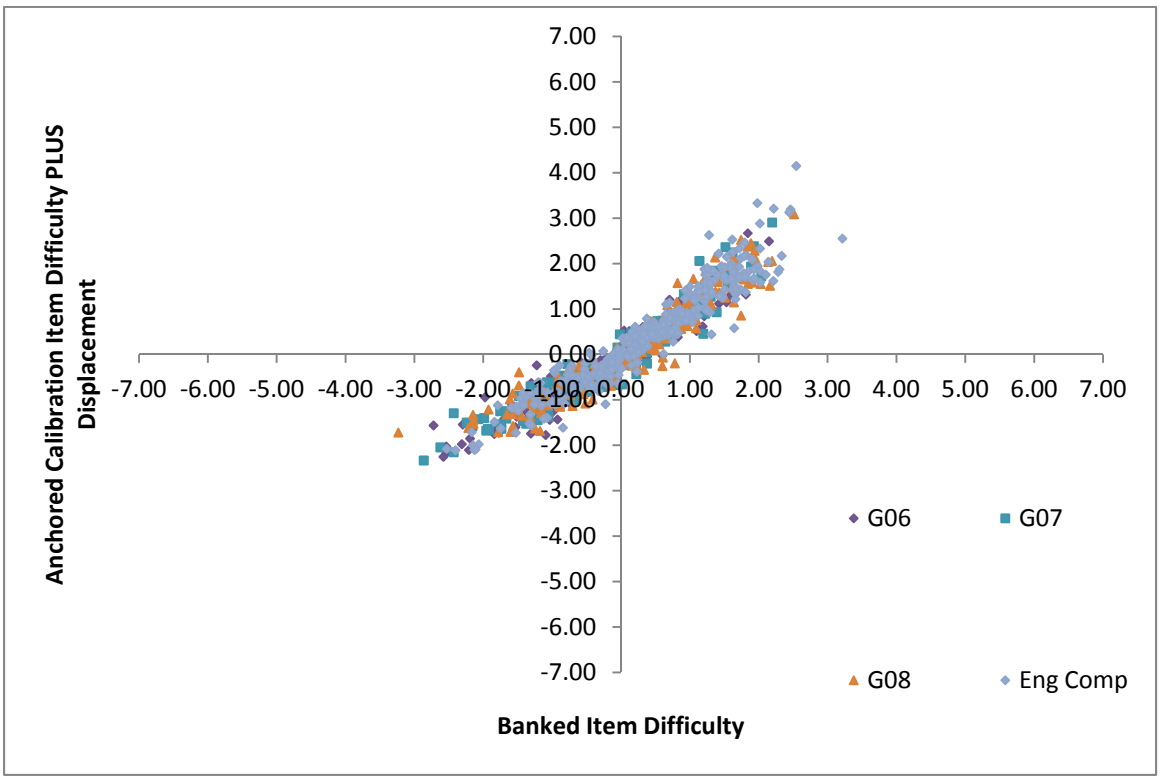


Table 18–14. Number of Writing Items by Grade/Course and Displacement Interval

	G06	G07	G08	COMP	Total
Disp. ≤ -1.0	0	0	0	1	1
-1.0 < Disp. ≤ -0.9	0	0	1	0	1
-0.9 < Disp. ≤ -0.8	0	0	2	2	4
-0.8 < Disp. ≤ -0.7	0	1	0	1	2
-0.7 < Disp. ≤ -0.6	2	3	3	3	11
-0.6 < Disp. ≤ -0.5	3	1	6	2	12
-0.5 < Disp. ≤ -0.4	9	4	5	11	29
-0.4 < Disp. ≤ -0.3	15	14	11	15	55
-0.3 < Disp. ≤ -0.2	17	14	20	29	80
-0.2 < Disp. ≤ -0.1	24	23	26	48	121
-0.1 < Disp. ≤ 0.0	31	23	24	55	133
0.0 < Disp. ≤ 0.1	22	24	22	54	122
0.1 < Disp. ≤ 0.2	23	18	16	33	90
0.2 < Disp. ≤ 0.3	10	16	20	33	79
0.3 < Disp. ≤ 0.4	12	6	14	22	54
0.4 < Disp. ≤ 0.5	10	9	6	21	46
0.5 < Disp. ≤ 0.6	3	7	4	6	20
0.6 < Disp. ≤ 0.7	2	3	3	11	19
0.7 < Disp. ≤ 0.8	1	2	7	1	11
0.8 < Disp. ≤ 0.9	1	1	1	2	5
0.9 < Disp. ≤ 1.0	1	1	0	2	4
1.0 < Disp.	2	1	2	3	8
TOTAL	188	171	193	355	907

Figure 18–22. Writing Banked Item Parameters vs. Anchored Calibration — All Items in Grade 6 and Above





As with the other content areas, a concurrent calibration of all writing items in grade 6 and above with at least 100 administrations was run. Figure 18–23 and Table 18–15 summarize the displacements from a concurrent anchored calibration that excludes items in grades 3 through 5 and items with fewer than 100 administrations. Eighty-nine percent of the items in the calibration have displacement less than 0.5 in magnitude (gray shaded in Table 18–15). Figure 18–24 shows banked item difficulties plotted against the item difficulties plus displacement. Again, a line of best fit is included in the upper plot. Note that Figure 18–23 is identical to Figure 18–21, Figure 18–24 is identical to Figure 18–22, and Table 18–15 is identical to Table 18–14 because there are no items with fewer than 100 administrations.

Figure 18–23. Writing Anchored Calibration Displacements — All Items in Grade 6 and Above with N>100

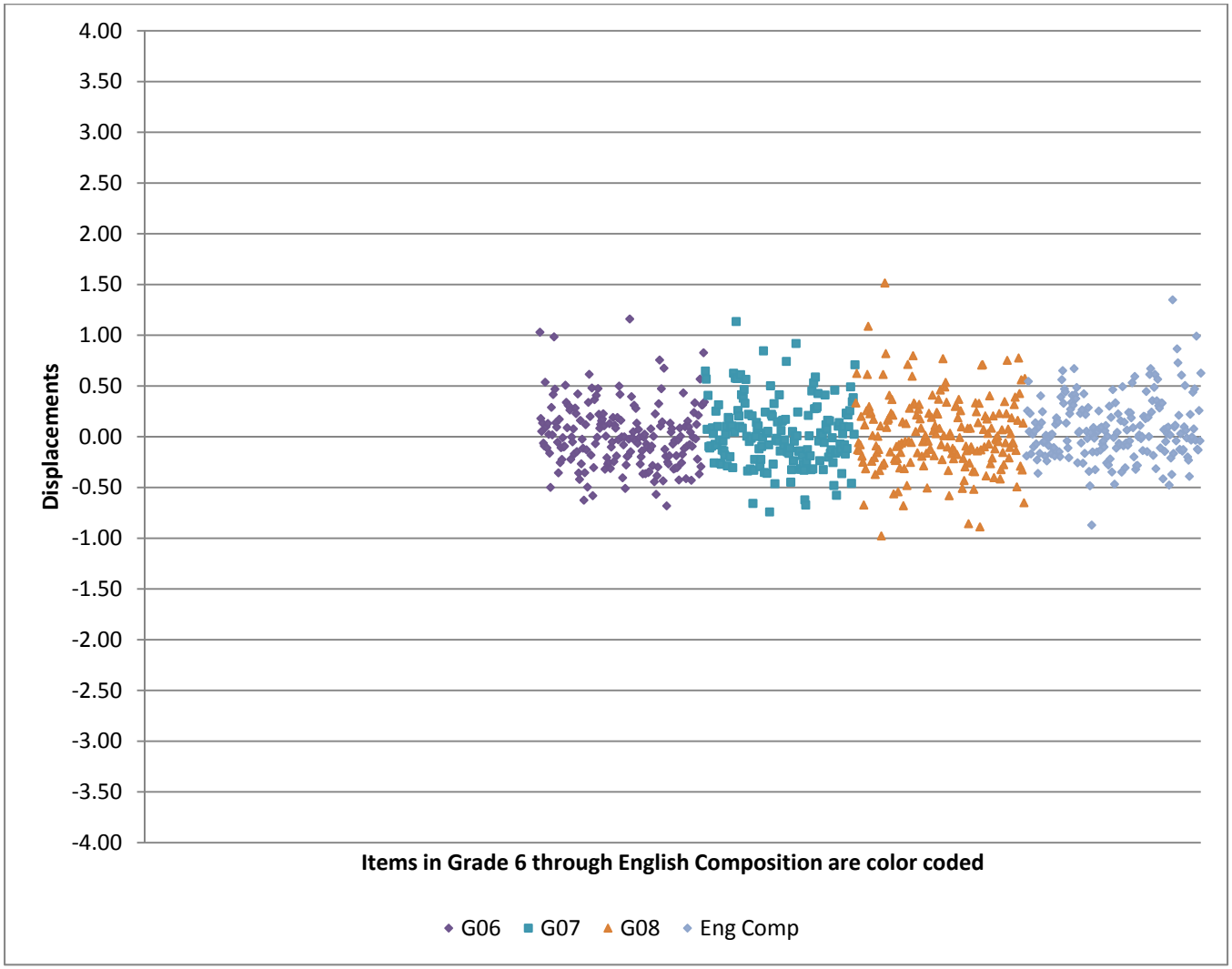
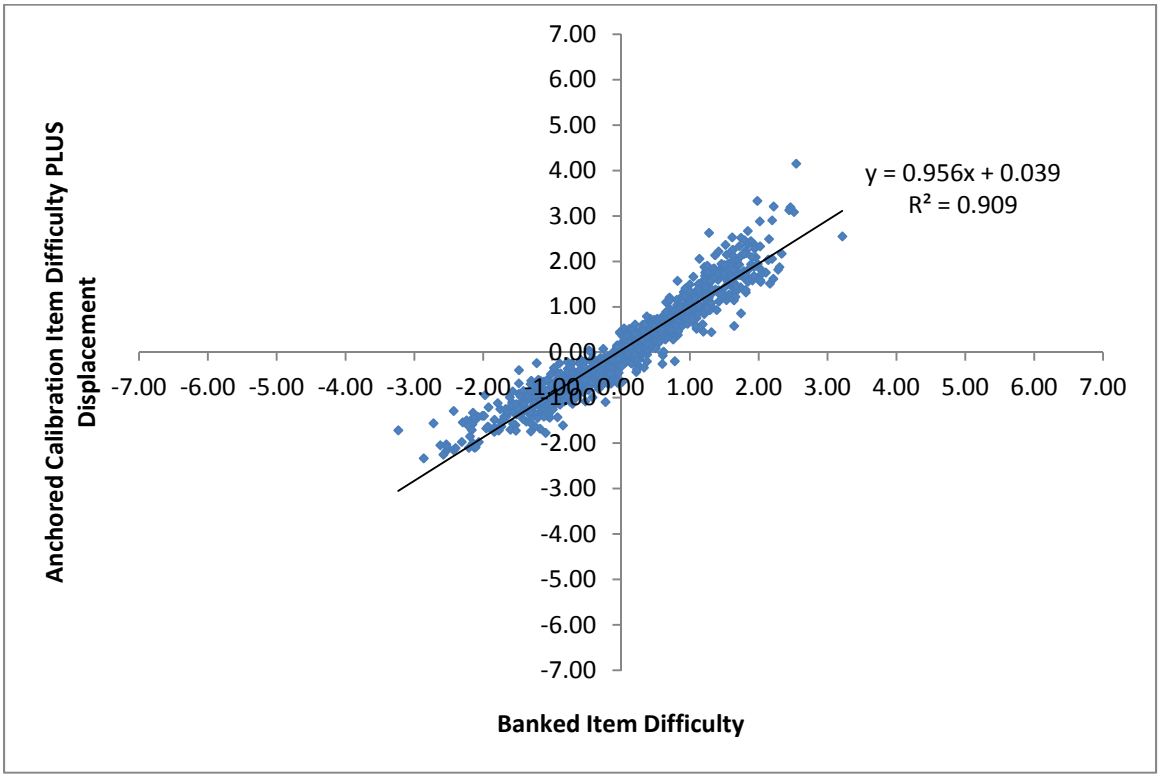
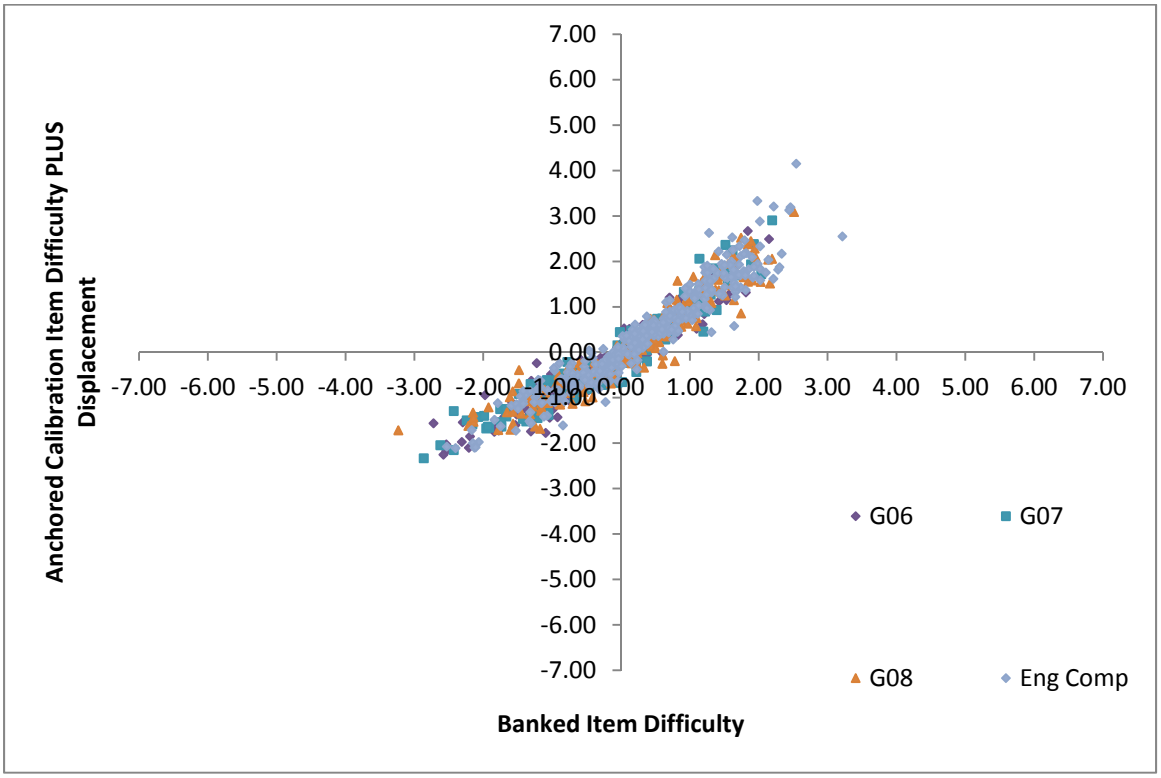


Table 18–15. Number of Writing Items by Grade/Course and Displacement Interval

	G06	G07	G08	COMP	Total
Disp. ≤ -1.0	0	0	0	1	1
-1.0 < Disp. ≤ -0.9	0	0	1	0	1
-0.9 < Disp. ≤ -0.8	0	0	2	2	4
-0.8 < Disp. ≤ -0.7	0	1	0	1	2
-0.7 < Disp. ≤ -0.6	2	3	3	3	11
-0.6 < Disp. ≤ -0.5	3	1	6	2	12
-0.5 < Disp. ≤ -0.4	9	4	5	11	29
-0.4 < Disp. ≤ -0.3	15	14	11	15	55
-0.3 < Disp. ≤ -0.2	17	14	20	29	80
-0.2 < Disp. ≤ -0.1	24	23	26	48	121
-0.1 < Disp. ≤ 0.0	31	23	24	55	133
0.0 < Disp. ≤ 0.1	22	24	22	54	122
0.1 < Disp. ≤ 0.2	23	18	16	33	90
0.2 < Disp. ≤ 0.3	10	16	20	33	79
0.3 < Disp. ≤ 0.4	12	6	14	22	54
0.4 < Disp. ≤ 0.5	10	9	6	21	46
0.5 < Disp. ≤ 0.6	3	7	4	6	20
0.6 < Disp. ≤ 0.7	2	3	3	11	19
0.7 < Disp. ≤ 0.8	1	2	7	1	11
0.8 < Disp. ≤ 0.9	1	1	1	2	5
0.9 < Disp. ≤ 1.0	1	1	0	2	4
1.0 < Disp.	2	1	2	3	8
TOTAL	188	171	193	355	907

Figure 18–24. Writing Banked Item Parameters vs. Anchored Calibration — All Items in Grade 6 and Above with N>100





It is evident from this series of plots that the item parameter estimates are reasonably stable for the items in grade 6 and above.

For each of the three anchored calibrations described in this section, banked item parameters were compared to the banked item parameters plus the displacements by calculating a robust Z statistic for each item pairing. Table 18–16 shows the number of items in each grade/course and the number and percent of items with absolute value of robust Z greater than 1.645 in each of the three calibrations.

Table 18–16. Summary of Robust Z Across Three Anchored Calibrations in Writing

Grade/ Course	Cal. 1 — All Items			Cal. 2 — Items in G6+			Cal. 3 — Items in G6+ N>100		
	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645
Grade 3	6	4	67%	0	N/A	N/A	0	N/A	N/A
Grade 4	97	54	56%	0	N/A	N/A	0	N/A	N/A
Grade 5	161	22	14%	0	N/A	N/A	0	N/A	N/A
Grade 6	188	14	7%	188	19	10%	188	19	10%
Grade 7	171	18	11%	171	22	13%	171	22	13%
Grade 8	193	28	15%	193	32	17%	193	32	17%
English Composition	355	33	9%	355	41	12%	355	41	12%
Total	1171	173	15%	907	114	13%	907	114	13%

For the most part, whether we used high absolute displacement values or robust Z to identify items with operational estimates that differ from banked values, the same items were identified. For example, in calibration 1, all items with absolute displacement greater than 0.52 have an absolute value of robust Z greater than 1.645. In the displacement range of 0.50 to 0.52, some items have absolute value of robust Z greater than 1.645 while others do not. No items with absolute displacement less than 0.50 have absolute value of robust Z greater than 1.645.

ANCHORED GRADE LEVEL CALIBRATIONS

While the CDT content area item banks are vertically scaled with items from grade 3 through high school courses, the assessments themselves are first made available in grade 6. Also, while the items are selected adaptively, most students take a large number of items at grade level. Given these conditions, item parameters were also evaluated by running anchored grade level item calibrations – grade 6 items calibrated with grade 6 students, and so on. This is similar to how field test items were calibrated. Table 18–17 shows the number of students in each grade level calibration.

Table 18–17. Number of Students in Grade Level Calibrations

Grade/Course		Number of Students
Mathematics	6	35,412
	7	42,248
	8	23,769
	High School	3,227
	Algebra I	203,685
	Geometry	11,056
	Algebra II	10,284
Reading	6	27,361
	7	34,608
	8	33,297
	Literature	171,492
Science	6	8,247
	7	13,261
	8	15,973
	High School	2,853
	Biology	117,154
	Chemistry	8,081
Writing	6	2,406
	7	4,670
	8	4,464
	English Composition	10,360

MATHEMATICS

Figure 18–25 shows the displacements from the grade level anchored calibrations of operational data for the mathematics item bank. Items are color-coded by grade/course.

Figure 18–25. Mathematics Anchored Grade Level Calibrations Displacements — All Items in Grade 6 and Above

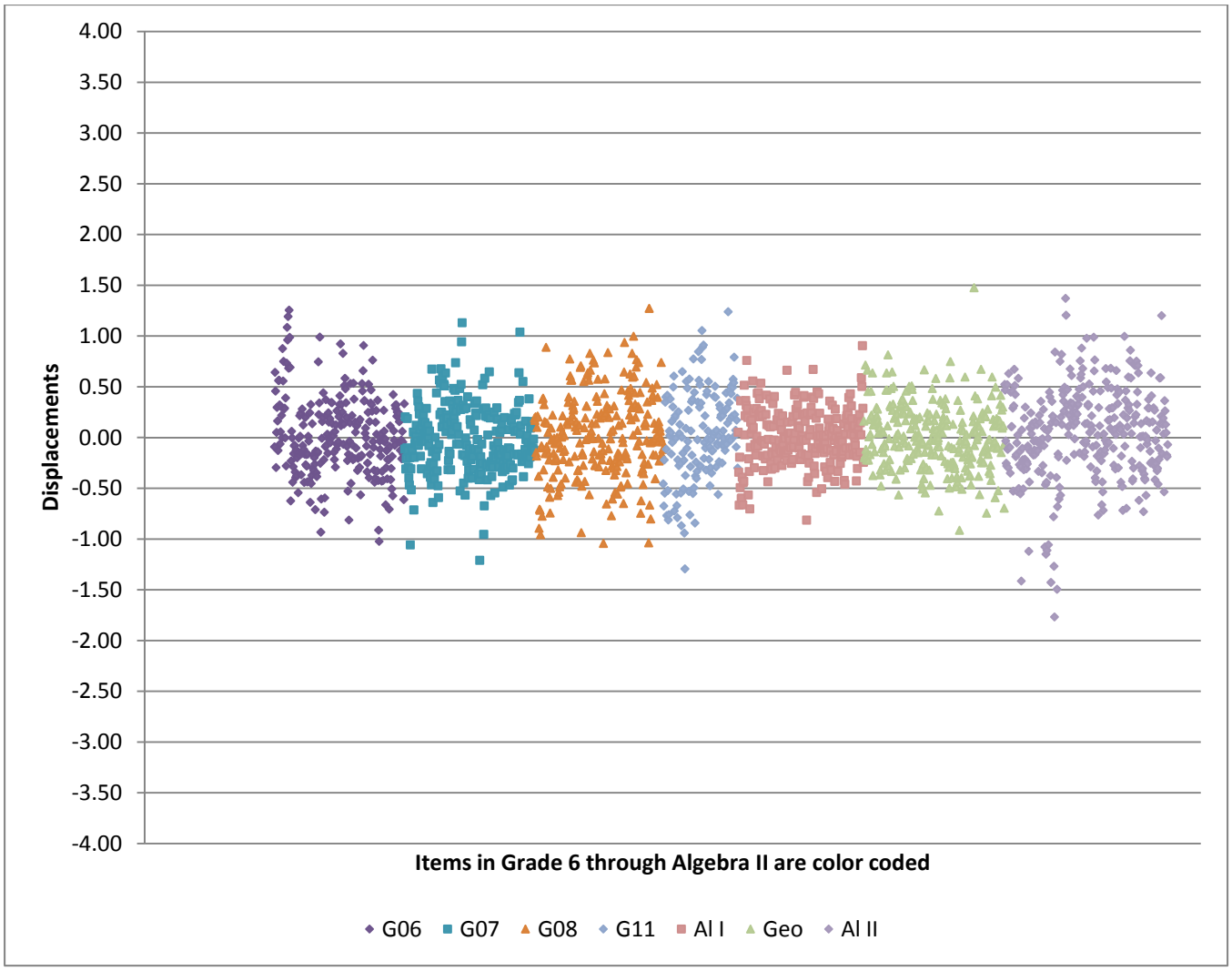


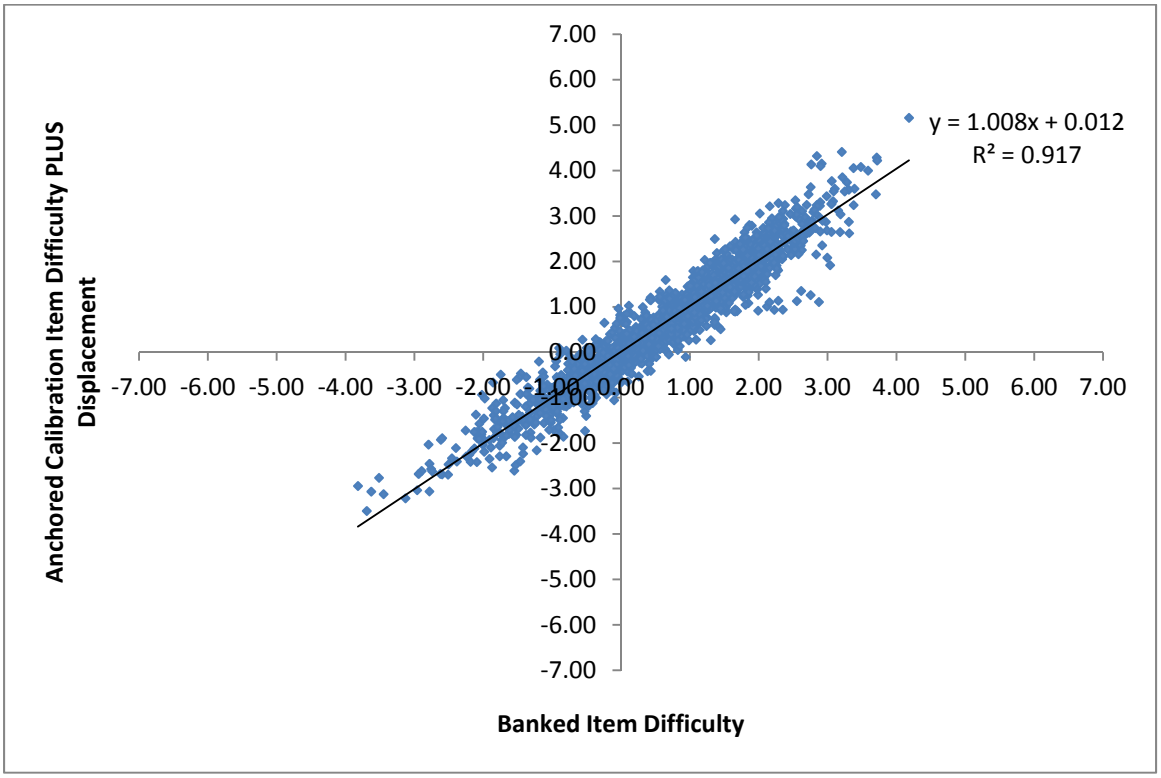
Table 18–18 summarizes the data in Figure 18–25. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Eighty-four percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–18).

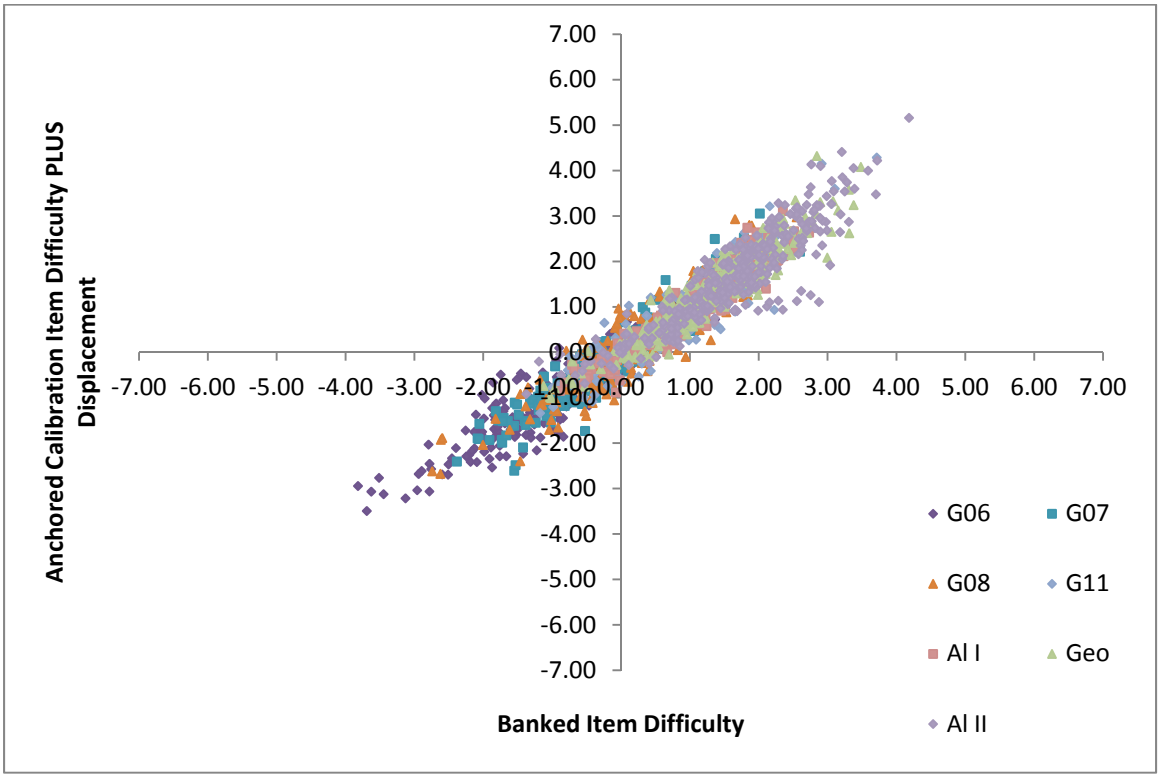
Table 18–18. Number of Mathematics Items by Grade/Course and Displacement Interval

	G06	G07	G08	G11	ALI	GEO	ALII	Total
Disp. ≤ -1.0	1	2	2	1	0	0	10	16
-1.0 < Disp. ≤ -0.9	2	1	2	1	0	1	0	7
-0.9 < Disp. ≤ -0.8	1	0	2	3	1	0	0	7
-0.8 < Disp. ≤ -0.7	3	1	6	5	1	2	5	23
-0.7 < Disp. ≤ -0.6	5	2	5	2	3	1	5	23
-0.6 < Disp. ≤ -0.5	6	6	7	8	4	7	9	47
-0.5 < Disp. ≤ -0.4	13	11	13	4	9	13	15	78
-0.4 < Disp. ≤ -0.3	16	21	15	6	12	19	15	104
-0.3 < Disp. ≤ -0.2	21	26	20	14	17	26	25	149
-0.2 < Disp. ≤ -0.1	33	50	30	9	44	32	30	228
-0.1 < Disp. ≤ 0.0	37	23	27	17	34	37	30	205
0.0 < Disp. ≤ 0.1	18	24	18	16	35	28	27	166
0.1 < Disp. ≤ 0.2	24	26	27	8	28	41	38	192
0.2 < Disp. ≤ 0.3	25	27	18	13	29	27	28	167
0.3 < Disp. ≤ 0.4	20	13	19	12	14	17	22	117
0.4 < Disp. ≤ 0.5	7	6	10	11	10	12	24	80
0.5 < Disp. ≤ 0.6	9	8	9	9	5	7	12	59
0.6 < Disp. ≤ 0.7	4	6	9	2	2	6	12	41
0.7 < Disp. ≤ 0.8	4	1	7	3	1	2	8	26
0.8 < Disp. ≤ 0.9	2	0	4	2	0	1	4	13
0.9 < Disp. ≤ 1.0	5	1	2	1	1	0	3	13
1.0 < Disp.	3	2	1	2	0	1	3	12
TOTAL	259	257	253	149	250	280	325	1773

Figure 18–26 shows banked item difficulties plotted against the item difficulties plus displacement from the anchored grade level calibrations of all items using the operational data set. Again, a line of best fit is included in the upper plot.

Figure 18–26. Mathematics Banked Item Parameters vs. Anchored Grade Level Calibrations — All Items in Grade 6 and Above





An examination of the items with larger differences between banked values and operational estimates revealed that a number of these have low *n*-counts in the operational calibration. To investigate whether this had an impact on the stability of the item parameter estimates, grade level anchored calibrations of all items in grade 6 and above with larger *n*-counts were run. Figure 18–27 shows the displacements from these calibrations. Items are color-coded by grade/course.

Figure 18–27. Mathematics Anchored Grade Level Calibrations Displacements — All Items in Grade 6 and Above with N>100

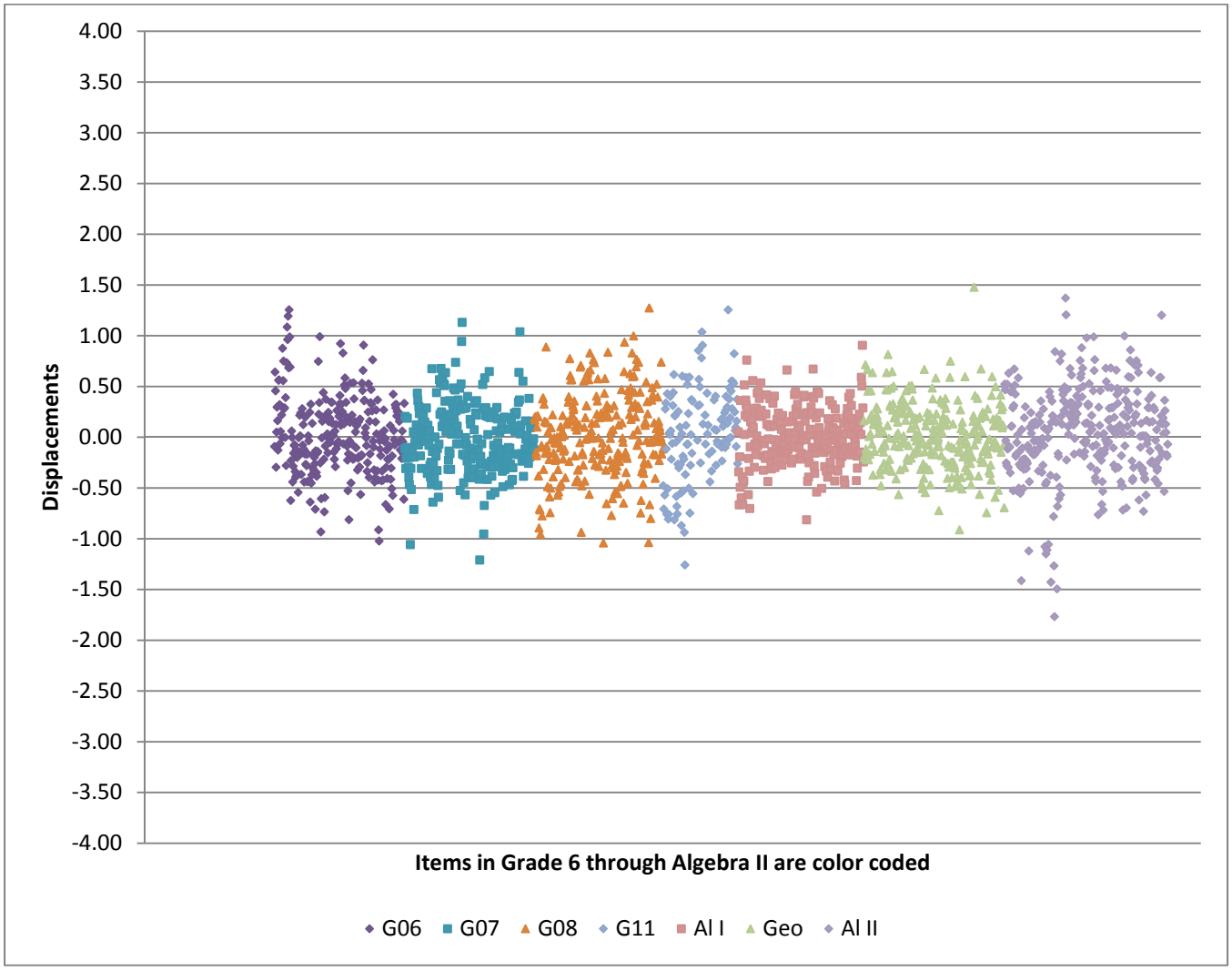


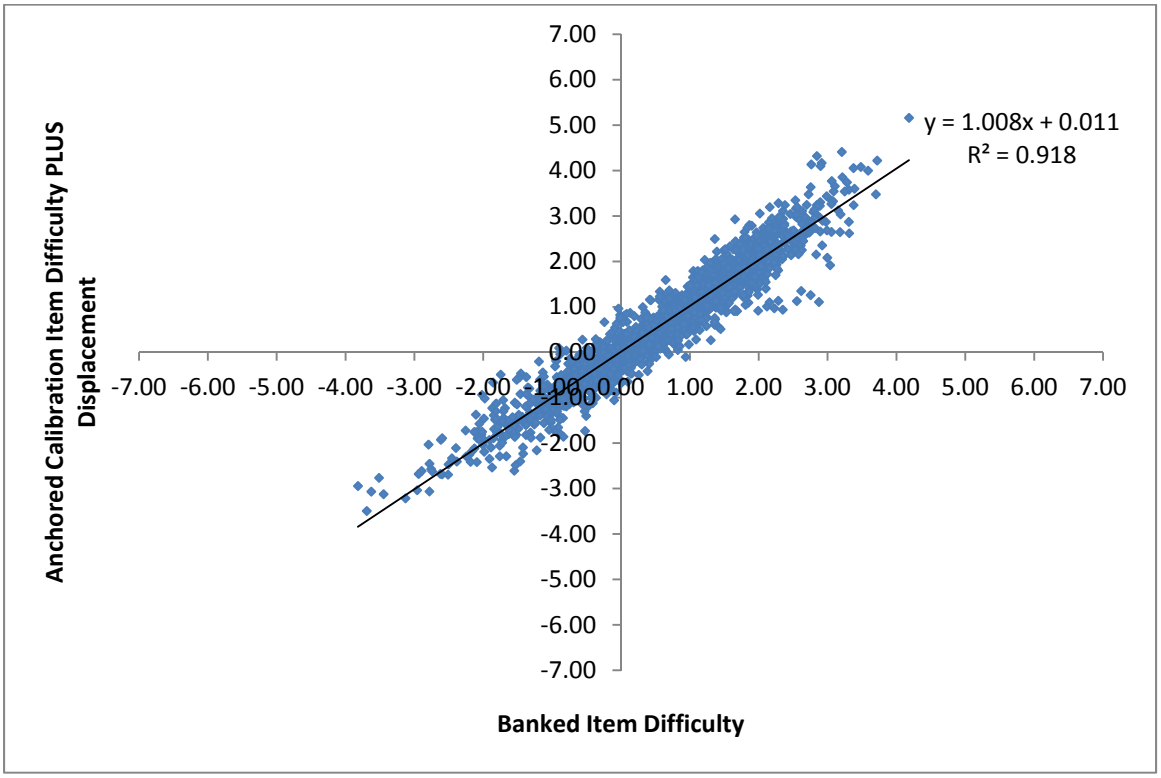
Table 18–19 summarizes the data in Figure 18–27. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Eighty-four percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–19).

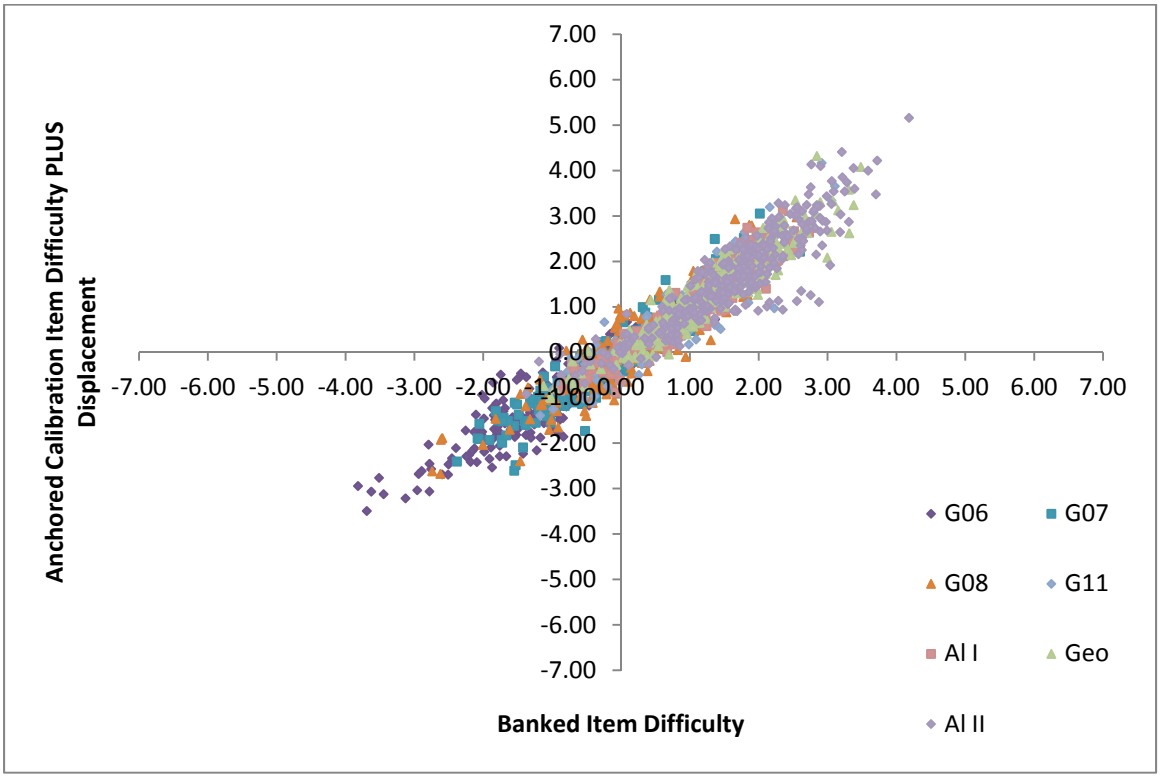
Table 18–19. Number of Mathematics Items by Grade/Course and Displacement Interval

	G06	G07	G08	G11	ALI	GEO	ALII	Total
Disp. ≤ -1.0	1	2	2	1	0	0	10	16
-1.0 < Disp. ≤ -0.9	2	1	2	1	0	1	0	7
-0.9 < Disp. ≤ -0.8	1	0	2	3	1	0	0	7
-0.8 < Disp. ≤ -0.7	3	1	6	5	1	2	5	23
-0.7 < Disp. ≤ -0.6	5	2	5	1	3	1	5	22
-0.6 < Disp. ≤ -0.5	6	6	7	7	4	7	9	46
-0.5 < Disp. ≤ -0.4	13	11	13	2	9	13	15	76
-0.4 < Disp. ≤ -0.3	16	21	15	3	12	19	15	101
-0.3 < Disp. ≤ -0.2	21	26	20	9	17	26	25	144
-0.2 < Disp. ≤ -0.1	33	50	30	6	44	32	30	225
-0.1 < Disp. ≤ 0.0	37	23	27	16	34	37	30	204
0.0 < Disp. ≤ 0.1	18	24	18	11	35	28	27	161
0.1 < Disp. ≤ 0.2	24	26	27	9	28	41	38	193
0.2 < Disp. ≤ 0.3	25	27	18	11	29	27	28	165
0.3 < Disp. ≤ 0.4	20	13	19	9	14	17	22	114
0.4 < Disp. ≤ 0.5	7	6	10	9	10	12	24	78
0.5 < Disp. ≤ 0.6	9	8	9	7	5	7	12	57
0.6 < Disp. ≤ 0.7	4	6	9	2	2	6	12	41
0.7 < Disp. ≤ 0.8	4	1	7	1	1	2	8	24
0.8 < Disp. ≤ 0.9	2	0	4	2	0	1	4	13
0.9 < Disp. ≤ 1.0	5	1	2	1	1	0	3	13
1.0 < Disp.	3	2	1	2	0	1	3	12
TOTAL	259	257	253	118	250	280	325	1742

Figure 18–28 mirrors Figure 18–26, except the calibrations exclude items with fewer than 100 administrations. Again, a line of best fit is included in the upper plot.

Figure 18–28. Mathematics Banked Item Parameters vs. Anchored Grade Level Calibrations — All Items in Grade 6 and Above with N>100





For the two sets of anchored grade level calibrations described above, banked item parameters were compared to the newly calibrated values by calculating a robust Z statistic for each item pairing. Table 18–20 shows the number of items in each grade/course and the number and percent of items with absolute value of robust Z greater than 1.645 in the calibrations.

Table 18–20. Summary of Robust Z Across Two Sets of Anchored Grade Level Calibrations in Mathematics

Grade/ Course	Cal. 1 — Items in G6+			Cal. 2 — Items in G6+ N>100		
	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645
Grade 3	0	0	N/A	0	0	N/A
Grade 4	0	0	N/A	0	0	N/A
Grade 5	0	0	N/A	0	0	N/A
Grade 6	259	37	14%	259	37	14%
Grade 7	257	22	9%	257	23	9%
Grade 8	253	51	20%	253	51	20%
Grade 11	149	29	19%	118	28	24%
Algebra I	250	13	5%	250	13	5%
Geometry	280	21	8%	280	22	8%
Algebra II	325	59	18%	325	60	18%
Total	1773	232	13%	1742	234	13%

For the most part, whether we used high absolute displacement values or robust Z to identify items with operational estimates that differ from banked values, the same items were identified. For example, in calibration 1, all items with absolute displacement greater than 0.55 have an absolute value of robust Z greater than 1.645. No items with absolute displacement less than 0.55 have absolute value of robust Z greater than 1.645.

READING/LITERATURE

Figure 18–29 shows the displacements from the grade level anchored calibrations of operational data for the reading item bank. Items are color-coded by grade/course.

Figure 18–29. Reading Anchored Grade Level Calibrations Displacements — All Items in Grade 6 and Above

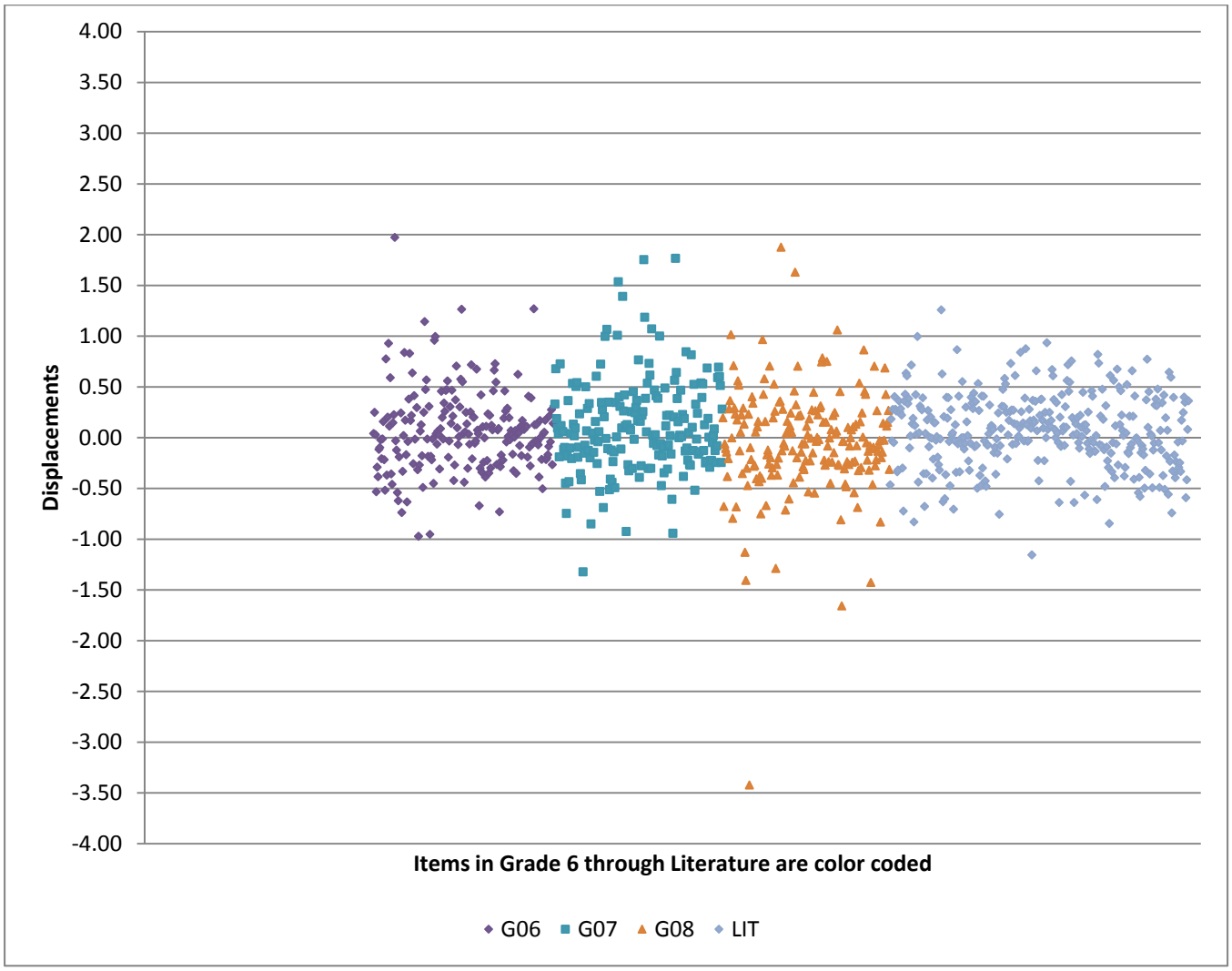


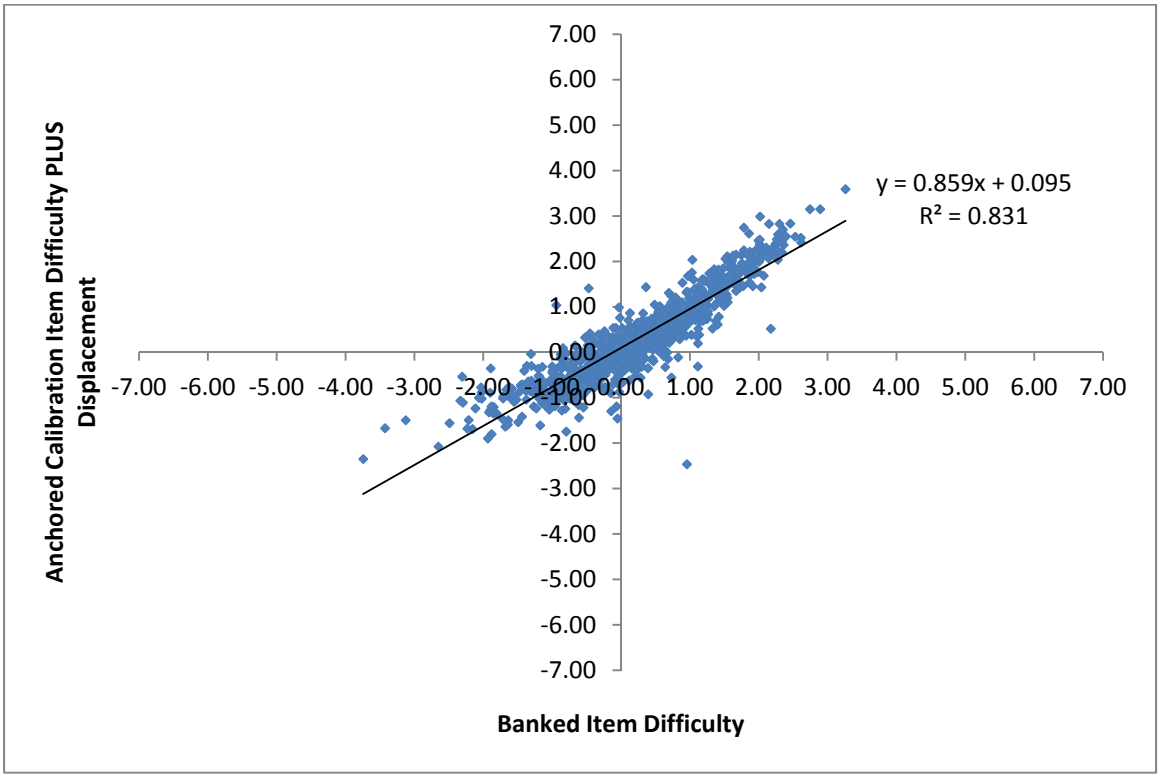
Table 18–21 summarizes the data in Figure 18–29. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Eighty-two percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–21).

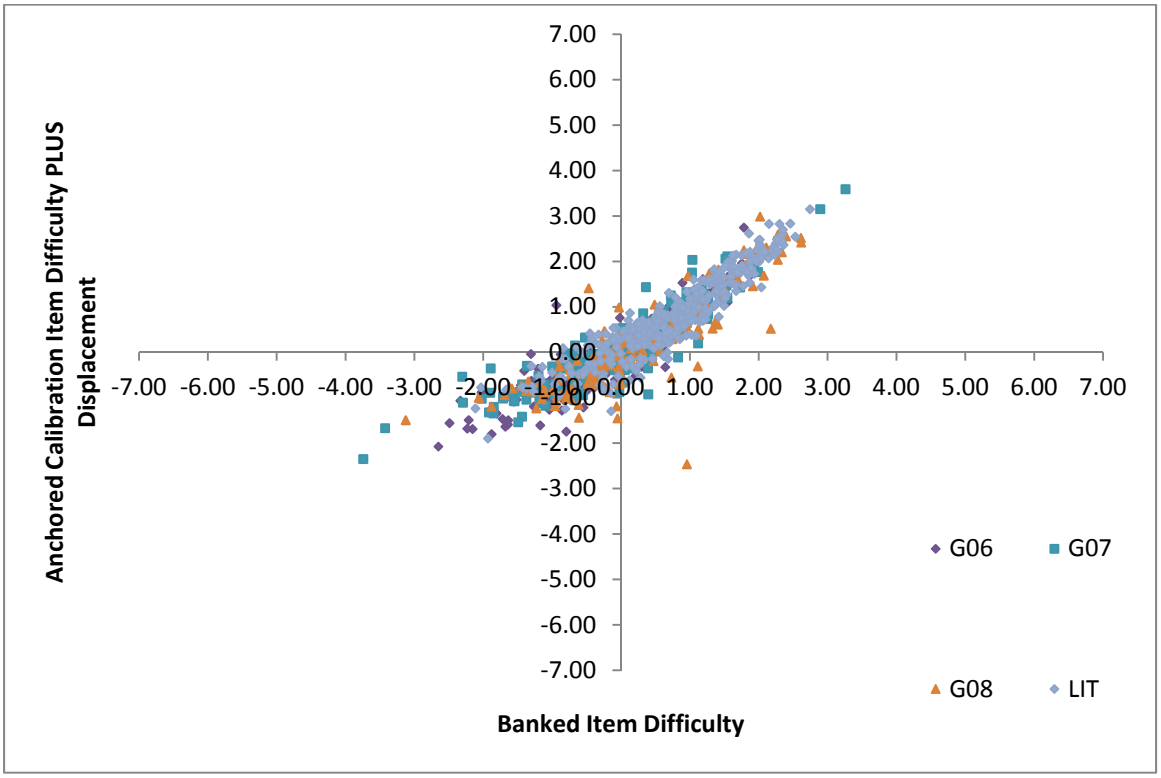
Table 18–21. Number of Reading Items by Grade/Course and Displacement Interval

	G06	G07	G08	LIT	Total
Disp. ≤ -1.0	0	1	6	1	8
-1.0 < Disp. ≤ -0.9	2	2	0	0	4
-0.9 < Disp. ≤ -0.8	0	1	2	2	5
-0.8 < Disp. ≤ -0.7	2	1	3	4	10
-0.7 < Disp. ≤ -0.6	3	2	5	6	16
-0.6 < Disp. ≤ -0.5	4	3	3	6	16
-0.5 < Disp. ≤ -0.4	5	7	9	15	36
-0.4 < Disp. ≤ -0.3	14	9	12	23	58
-0.3 < Disp. ≤ -0.2	19	15	25	16	75
-0.2 < Disp. ≤ -0.1	14	23	17	21	75
-0.1 < Disp. ≤ 0.0	27	15	23	48	113
0.0 < Disp. ≤ 0.1	30	24	12	40	106
0.1 < Disp. ≤ 0.2	24	14	20	40	98
0.2 < Disp. ≤ 0.3	19	16	20	32	87
0.3 < Disp. ≤ 0.4	8	13	6	32	59
0.4 < Disp. ≤ 0.5	10	7	8	20	45
0.5 < Disp. ≤ 0.6	6	11	5	10	32
0.6 < Disp. ≤ 0.7	4	7	1	11	23
0.7 < Disp. ≤ 0.8	4	4	7	6	21
0.8 < Disp. ≤ 0.9	2	2	1	4	9
0.9 < Disp. ≤ 1.0	3	1	1	2	7
1.0 < Disp.	4	9	4	1	18
TOTAL	204	187	190	340	921

Figure 18–30 shows banked item difficulties plotted against the item difficulties plus displacement from the anchored grade level calibrations of all items using the operational data set. Again, a line of best fit is included in the upper plot.

Figure 18–30. Reading Banked Item Parameters vs. Anchored Grade Level Calibrations — All Items in Grade 6 and Above





An examination of the items with larger differences between banked values and operational estimates revealed that a number of these have low *n*-counts in the operational calibration. To investigate whether this had an impact on the stability of the item parameter estimates, grade level anchored calibrations of all items in grade 6 and above with larger *n*-counts were run. Figure 18–31 shows the displacements from these calibrations. Items are color-coded by grade/course.

Figure 18–31. Reading Anchored Grade Level Calibrations Displacements — All Items in Grade 6 and Above with N>100

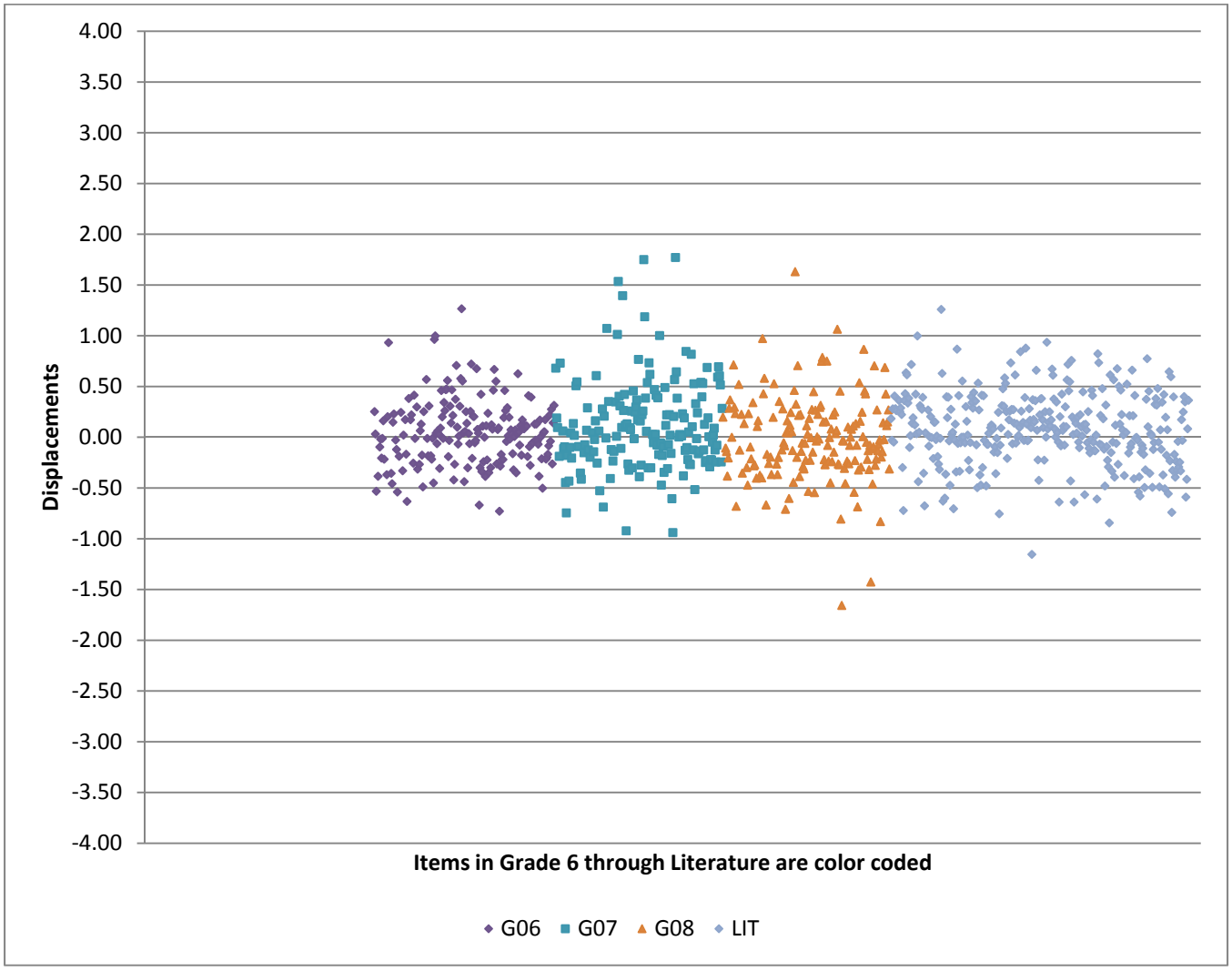


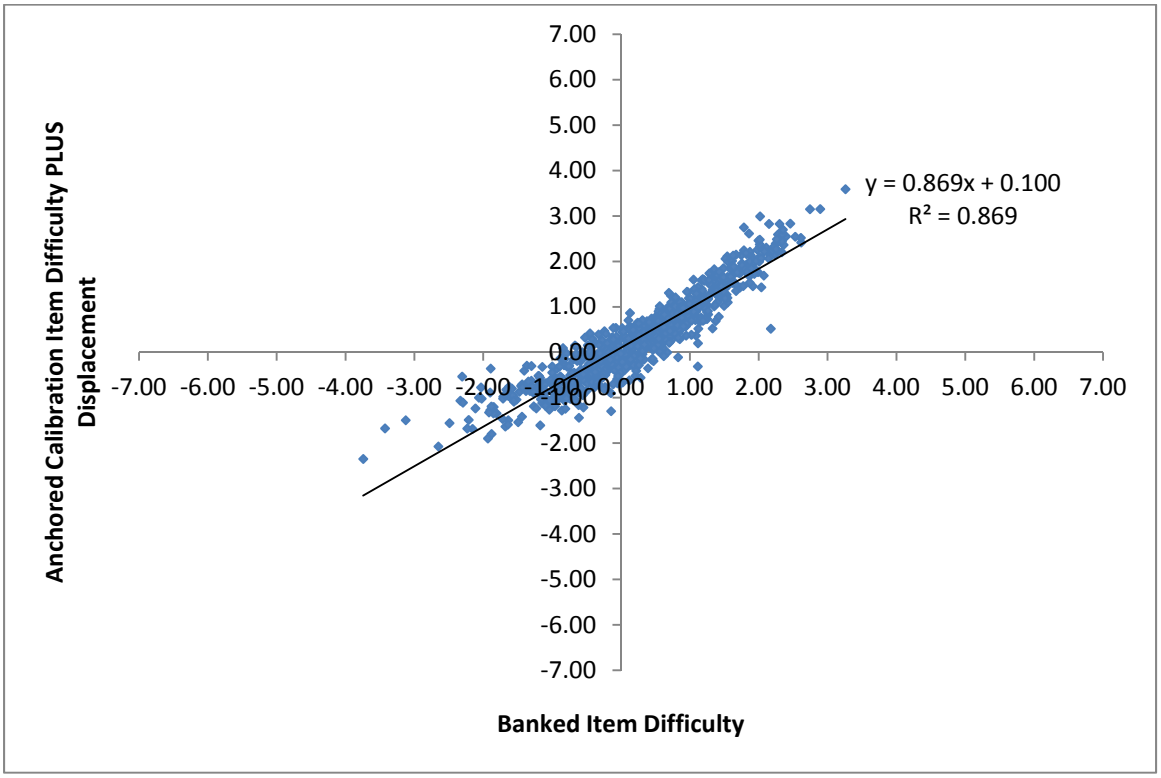
Table 18–22 summarizes the data in Figure 18–31. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Eighty-four percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–22).

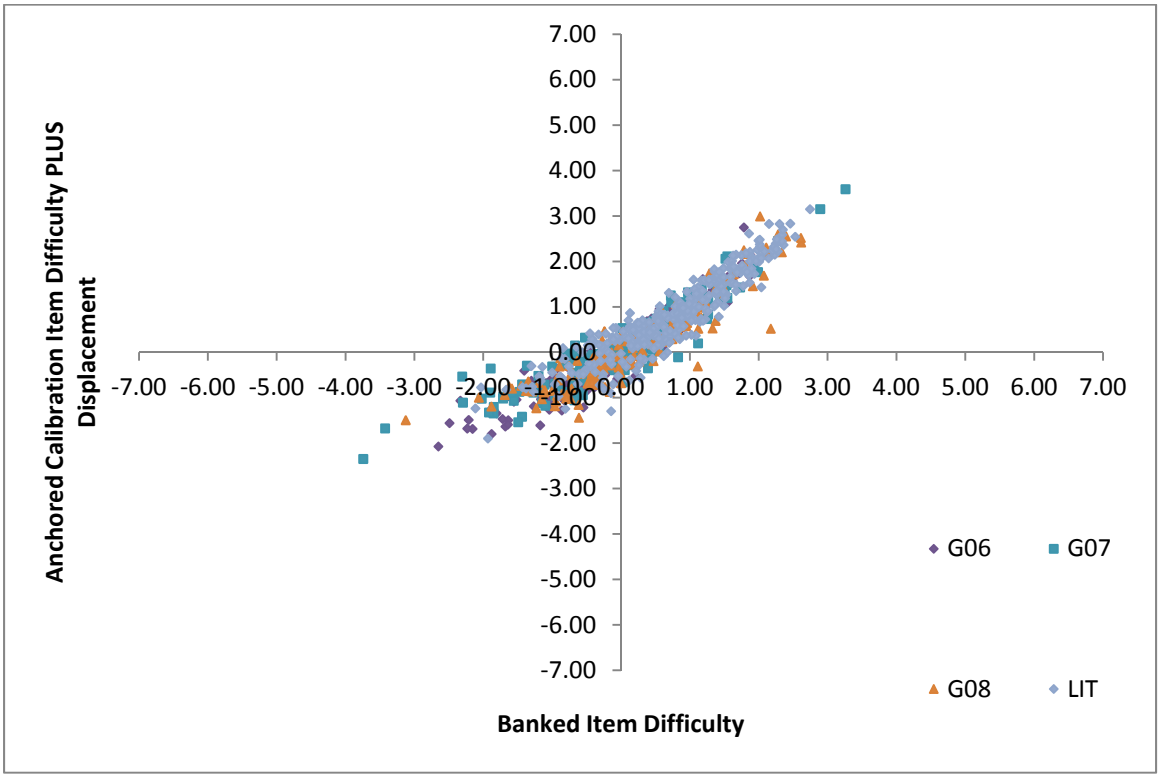
Table 18–22. Number of Reading Items by Grade/Course and Displacement Interval

	G06	G07	G08	LIT	Total
Disp. ≤ -1.0	0	0	2	1	3
-1.0 < Disp. ≤ -0.9	0	2	0	0	2
-0.9 < Disp. ≤ -0.8	0	0	2	1	3
-0.8 < Disp. ≤ -0.7	1	1	1	4	7
-0.7 < Disp. ≤ -0.6	2	2	4	6	14
-0.6 < Disp. ≤ -0.5	3	2	3	6	14
-0.5 < Disp. ≤ -0.4	5	5	7	13	30
-0.4 < Disp. ≤ -0.3	15	9	11	19	54
-0.3 < Disp. ≤ -0.2	17	15	24	15	71
-0.2 < Disp. ≤ -0.1	13	21	16	19	69
-0.1 < Disp. ≤ 0.0	26	14	21	47	108
0.0 < Disp. ≤ 0.1	29	22	12	40	103
0.1 < Disp. ≤ 0.2	22	12	17	39	90
0.2 < Disp. ≤ 0.3	19	15	18	32	84
0.3 < Disp. ≤ 0.4	8	9	5	30	52
0.4 < Disp. ≤ 0.5	9	6	7	20	42
0.5 < Disp. ≤ 0.6	5	9	4	10	28
0.6 < Disp. ≤ 0.7	3	7	1	11	22
0.7 < Disp. ≤ 0.8	2	3	6	6	17
0.8 < Disp. ≤ 0.9	0	2	1	4	7
0.9 < Disp. ≤ 1.0	3	0	1	2	6
1.0 < Disp.	1	8	2	1	12
TOTAL	183	164	165	326	838

Figure 18–32 mirrors Figure 18–30, except the calibrations exclude items with fewer than 100 administrations. Again, a line of best fit is included in the upper plot.

Figure 18–32. Reading Banked Item Parameters vs. Anchored Grade Level Calibrations — All Items in Grade 6 and Above with N>100





For the two sets of anchored grade level calibrations described above, banked item parameters were compared to the newly calibrated values by calculating a robust Z statistic for each item pairing. Table 18–23 shows the number of items in each grade/course and the number and percent of items with absolute value of robust Z greater than 1.645 in the calibrations.

Table 18–23. Summary of Robust Z Across Two Sets of Anchored Grade Level Calibrations in Reading

Grade/ Course	Cal. 1 — Items in G6+			Cal. 2 — Items in G6+ N>100		
	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645
Grade 3	0	0	N/A	0	0	N/A
Grade 4	0	0	N/A	0	0	N/A
Grade 5	0	0	N/A	0	0	N/A
Grade 6	204	16	8%	183	9	5%
Grade 7	187	20	11%	164	18	11%
Grade 8	190	24	13%	165	18	11%
Literature	340	19	6%	326	23	7%
Total	921	79	9%	838	68	8%

For the most part, whether we used high absolute displacement values or robust Z to identify items with operational estimates that differ from banked values, the same items were identified. For example, in calibration 1, all items with absolute displacement greater than 0.73 have an absolute value of robust Z greater than 1.645. In the displacement range of 0.66 to 0.73, some items have absolute value of robust Z greater than 1.645 while others do not. No items with absolute displacement less than 0.66 have absolute value of robust Z greater than 1.645.

SCIENCE

Figure 18–33 shows the displacements from the grade level anchored calibrations of operational data for the science item bank. Items are color-coded by grade/course.

Figure 18–33. Science Anchored Grade Level Calibrations Displacements — All Items in Grade 6 and Above

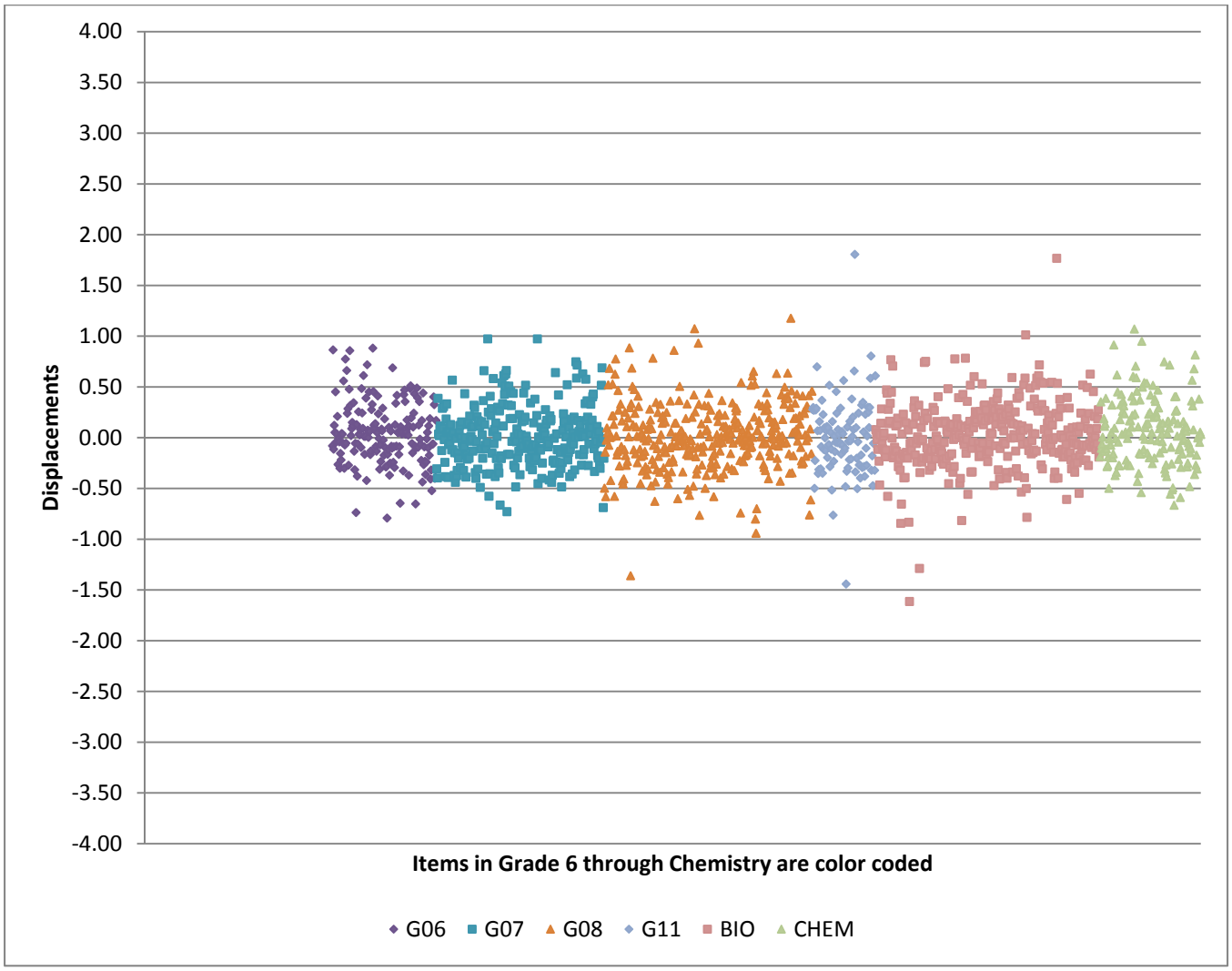


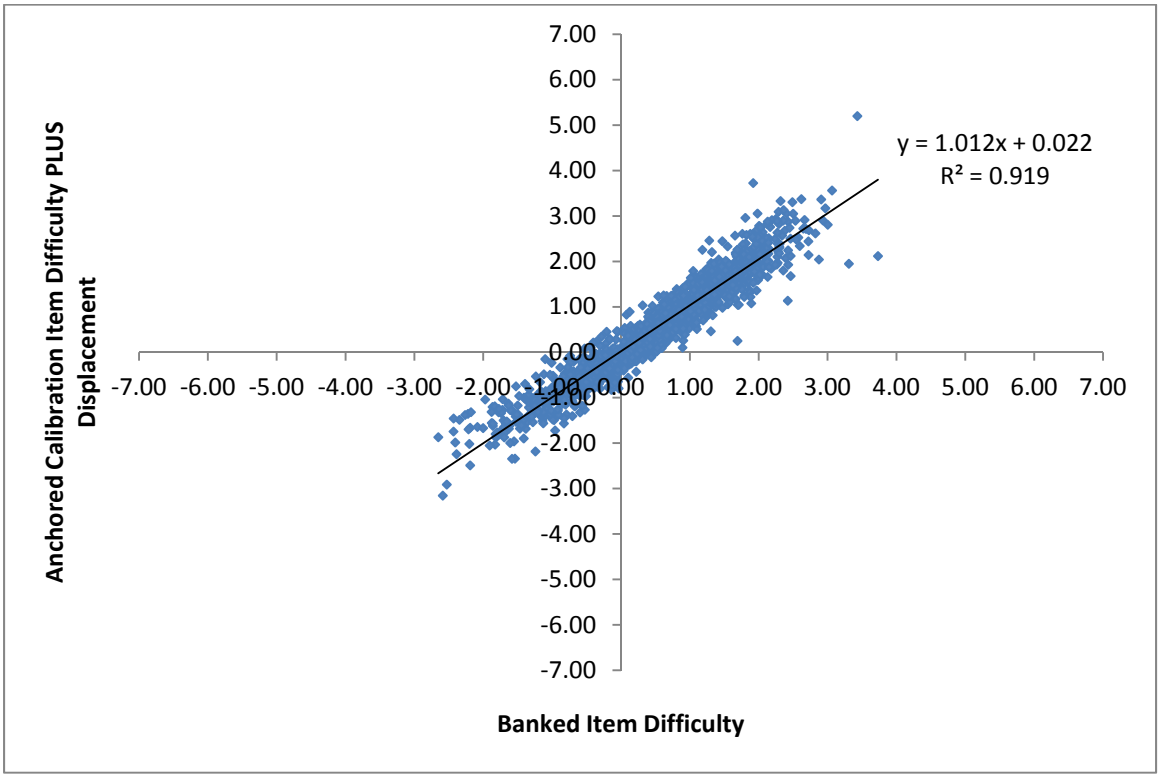
Table 18–24 summarizes the data in Figure 18–33. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Ninety percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–24).

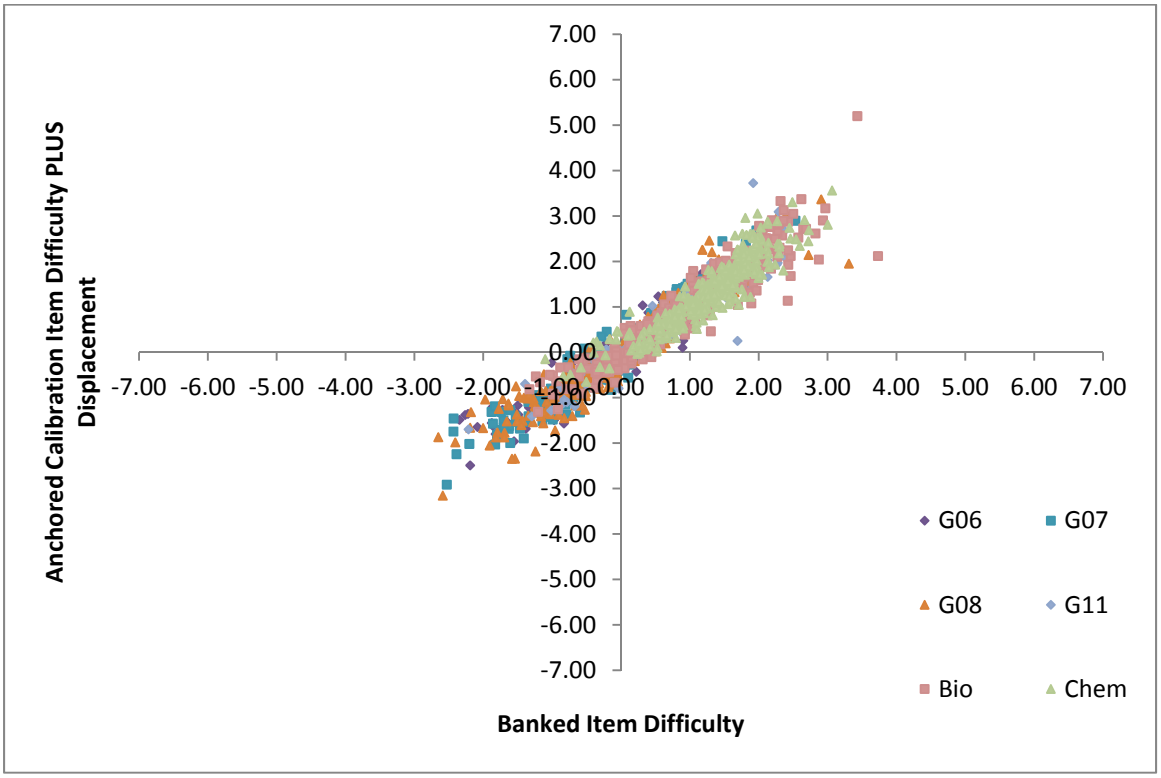
Table 18–24. Number of Science Items by Grade/Course and Displacement Interval

	G06	G07	G08	G11	BIO	CHEM	Total
Disp. ≤ -1.0	0	0	1	1	2	0	4
-1.0 < Disp. ≤ -0.9	0	0	1	0	0	0	1
-0.9 < Disp. ≤ -0.8	0	0	1	0	3	0	4
-0.8 < Disp. ≤ -0.7	2	1	3	1	1	0	8
-0.7 < Disp. ≤ -0.6	2	2	4	0	2	2	12
-0.6 < Disp. ≤ -0.5	1	1	5	2	5	6	20
-0.5 < Disp. ≤ -0.4	3	9	13	3	7	9	44
-0.4 < Disp. ≤ -0.3	12	25	20	10	20	16	103
-0.3 < Disp. ≤ -0.2	13	27	26	12	25	28	131
-0.2 < Disp. ≤ -0.1	15	35	37	11	64	39	201
-0.1 < Disp. ≤ 0.0	29	34	51	12	53	40	219
0.0 < Disp. ≤ 0.1	29	39	55	18	42	56	239
0.1 < Disp. ≤ 0.2	20	37	34	5	49	35	180
0.2 < Disp. ≤ 0.3	9	16	27	13	35	29	129
0.3 < Disp. ≤ 0.4	9	14	22	5	16	23	89
0.4 < Disp. ≤ 0.5	14	9	14	1	12	14	64
0.5 < Disp. ≤ 0.6	2	10	7	3	13	9	44
0.6 < Disp. ≤ 0.7	3	7	7	3	3	6	29
0.7 < Disp. ≤ 0.8	2	2	2	0	7	6	19
0.8 < Disp. ≤ 0.9	3	0	2	1	0	2	8
0.9 < Disp. ≤ 1.0	0	2	1	0	0	2	5
1.0 < Disp.	0	0	2	1	2	2	7
TOTAL	168	270	335	102	361	324	1560

Figure 18–34 shows banked item difficulties plotted against the item difficulties plus displacement from the anchored grade level calibrations of all items using the operational data set. Again, a line of best fit is included in the upper plot.

Figure 18–34. Science Banked Item Parameters vs. Anchored Grade Level Calibrations — All Items in Grade 6 and Above





An examination of the items with larger differences between banked values and operational estimates revealed that a number of these have low *n*-counts in the operational calibration. To investigate whether this had an impact on the stability of the item parameter estimates, grade level anchored calibrations of all items in grade 6 and above with larger *n*-counts were run. Figure 18–35 shows the displacements from these calibrations. Items are color-coded by grade/course.

Figure 18–35. Science Anchored Grade Level Calibrations Displacements — All Items in Grade 6 and Above with N>100

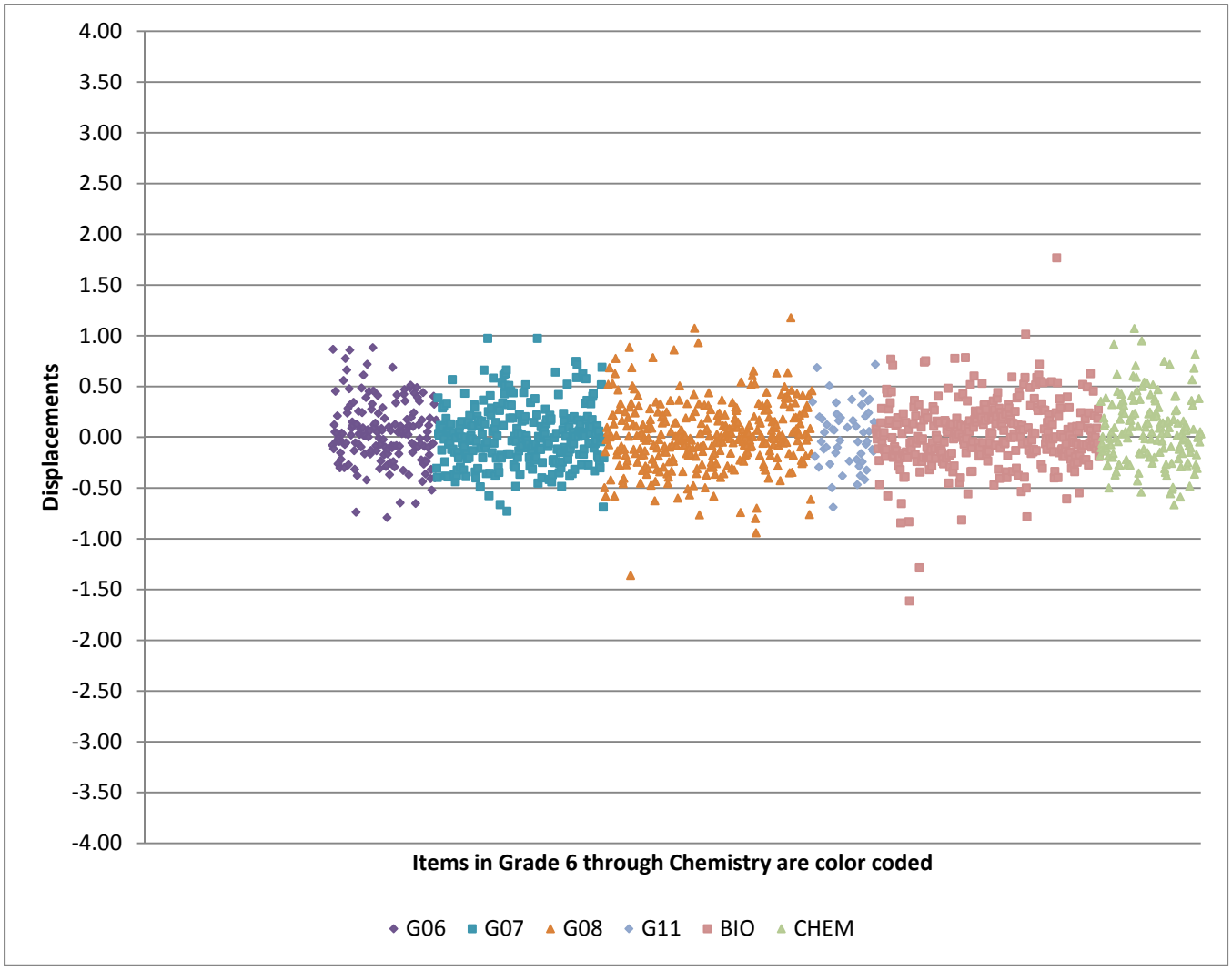


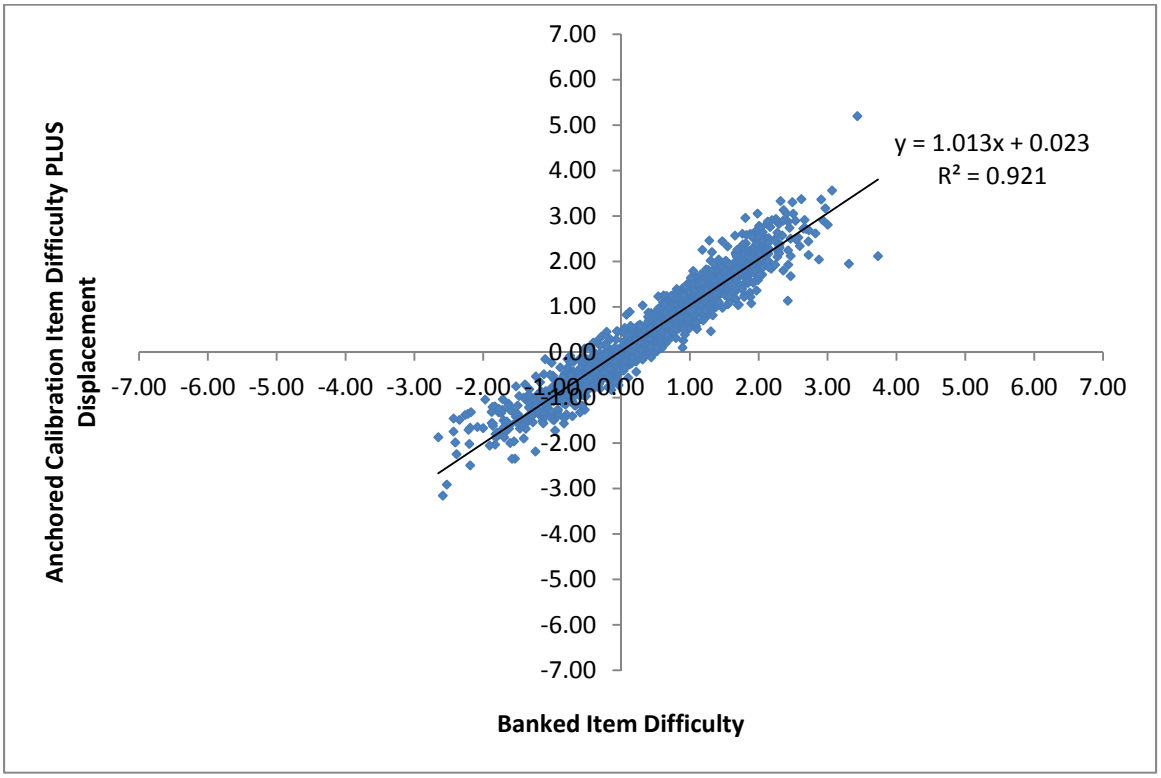
Table 18–25 summarizes the data in Figure 18–34. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Ninety percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–25).

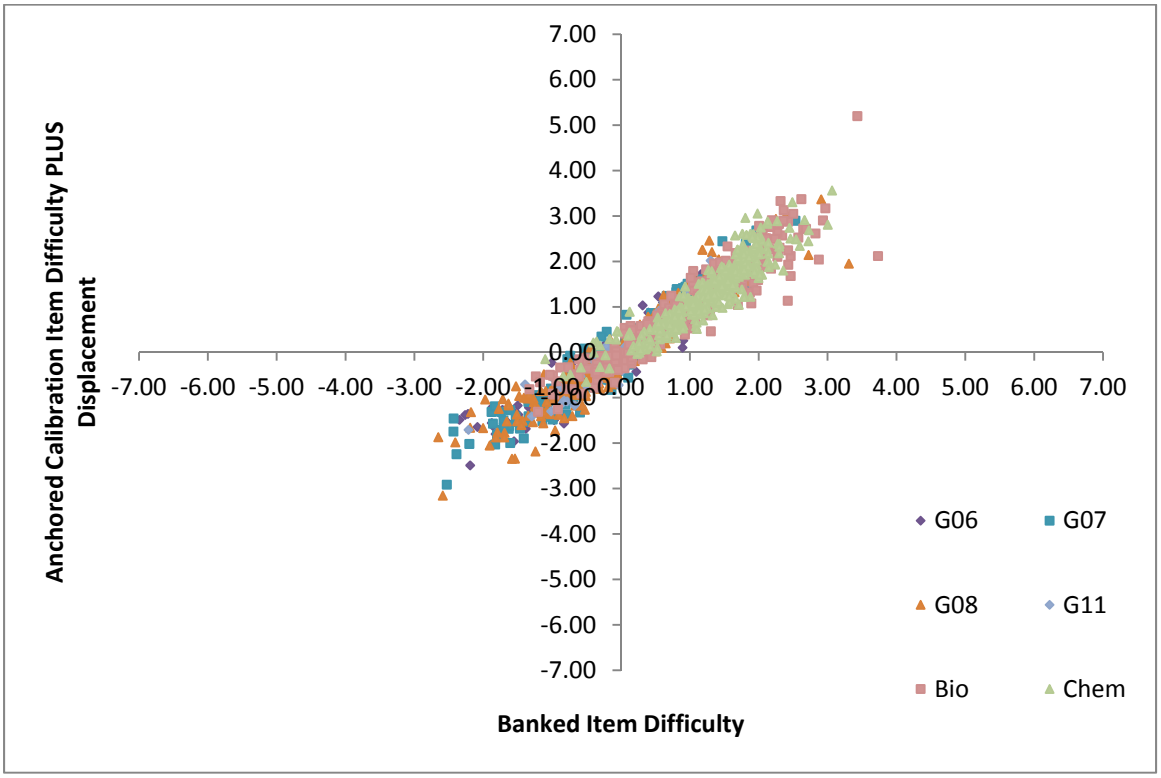
Table 18–25. Number of Science Items by Grade/Course and Displacement Interval

	G06	G07	G08	G11	BIO	CHEM	Total
Disp. ≤ -1.0	0	0	1	0	2	0	3
-1.0 < Disp. ≤ -0.9	0	0	1	0	0	0	1
-0.9 < Disp. ≤ -0.8	0	0	1	0	3	0	4
-0.8 < Disp. ≤ -0.7	2	1	3	0	1	0	7
-0.7 < Disp. ≤ -0.6	2	2	4	1	2	2	13
-0.6 < Disp. ≤ -0.5	1	1	5	0	5	6	18
-0.5 < Disp. ≤ -0.4	3	9	13	3	7	9	44
-0.4 < Disp. ≤ -0.3	12	25	20	3	20	16	96
-0.3 < Disp. ≤ -0.2	13	27	26	6	25	28	125
-0.2 < Disp. ≤ -0.1	15	35	37	6	64	39	196
-0.1 < Disp. ≤ 0.0	29	34	51	7	53	40	214
0.0 < Disp. ≤ 0.1	29	39	55	6	42	56	227
0.1 < Disp. ≤ 0.2	20	37	34	7	49	35	182
0.2 < Disp. ≤ 0.3	9	16	27	4	35	29	120
0.3 < Disp. ≤ 0.4	9	14	22	6	16	23	90
0.4 < Disp. ≤ 0.5	14	9	14	1	12	14	64
0.5 < Disp. ≤ 0.6	2	10	7	1	13	9	42
0.6 < Disp. ≤ 0.7	3	7	7	1	3	6	27
0.7 < Disp. ≤ 0.8	2	2	2	1	7	6	20
0.8 < Disp. ≤ 0.9	3	0	2	0	0	2	7
0.9 < Disp. ≤ 1.0	0	2	1	0	0	2	5
1.0 < Disp.	0	0	2	0	2	2	6
TOTAL	168	270	335	53	361	324	1511

Figure 18–36 mirrors Figure 18–34, except the calibrations exclude items with fewer than 100 administrations. Again, a line of best fit is included in the upper plot.

Figure 18–36. Science Banked Item Parameters vs. Anchored Grade Level Calibrations — All Items in Grade 6 and Above with N>100





For the two sets of anchored grade level calibrations described above, banked item parameters were compared to the newly calibrated values by calculating a robust Z statistic for each item pairing. Table 18–26 shows the number of items in each grade/course and the number and percent of items with absolute value of robust Z greater than 1.645 in the calibrations.

Table 18–26. Summary of Robust Z Across Two Sets of Anchored Grade Level Calibrations in Science

Grade/ Course	Cal. 1 — All FT Items in G6+			Cal. 2 — FT Items in G6+ N>100		
	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645
Grade 3	0	0	N/A	0	0	N/A
Grade 4	0	0	N/A	0	0	N/A
Grade 5	0	0	N/A	0	0	N/A
Grade 6	168	21	13%	168	22	13%
Grade 7	270	31	11%	270	31	11%
Grade 8	335	48	14%	335	49	15%
Grade 11	102	15	15%	53	6	11%
Biology	361	46	13%	361	47	13%
Chemistry	324	48	15%	324	50	15%
Total	1560	209	13%	1511	205	14%

For the most part, whether we used high absolute displacement values or robust Z to identify items with operational estimates that differ from banked values, the same items were identified. For example, in calibration 1, all items with absolute displacement greater than 0.46 have an absolute value of robust Z greater than 1.645. In the displacement range of 0.43 to 0.46, some items have absolute value of robust Z greater than 1.645 while others do not. No items with absolute displacement less than 0.43 have absolute value of robust Z greater than 1.645.

WRITING/ENGLISH COMPOSITION

Figure 18–37 shows the displacements from the grade level anchored calibrations of operational data for the writing item bank. Items are color-coded by grade/course.

Figure 18–37. Writing Anchored Grade Level Calibrations Displacements — All Items in Grade 6 and Above

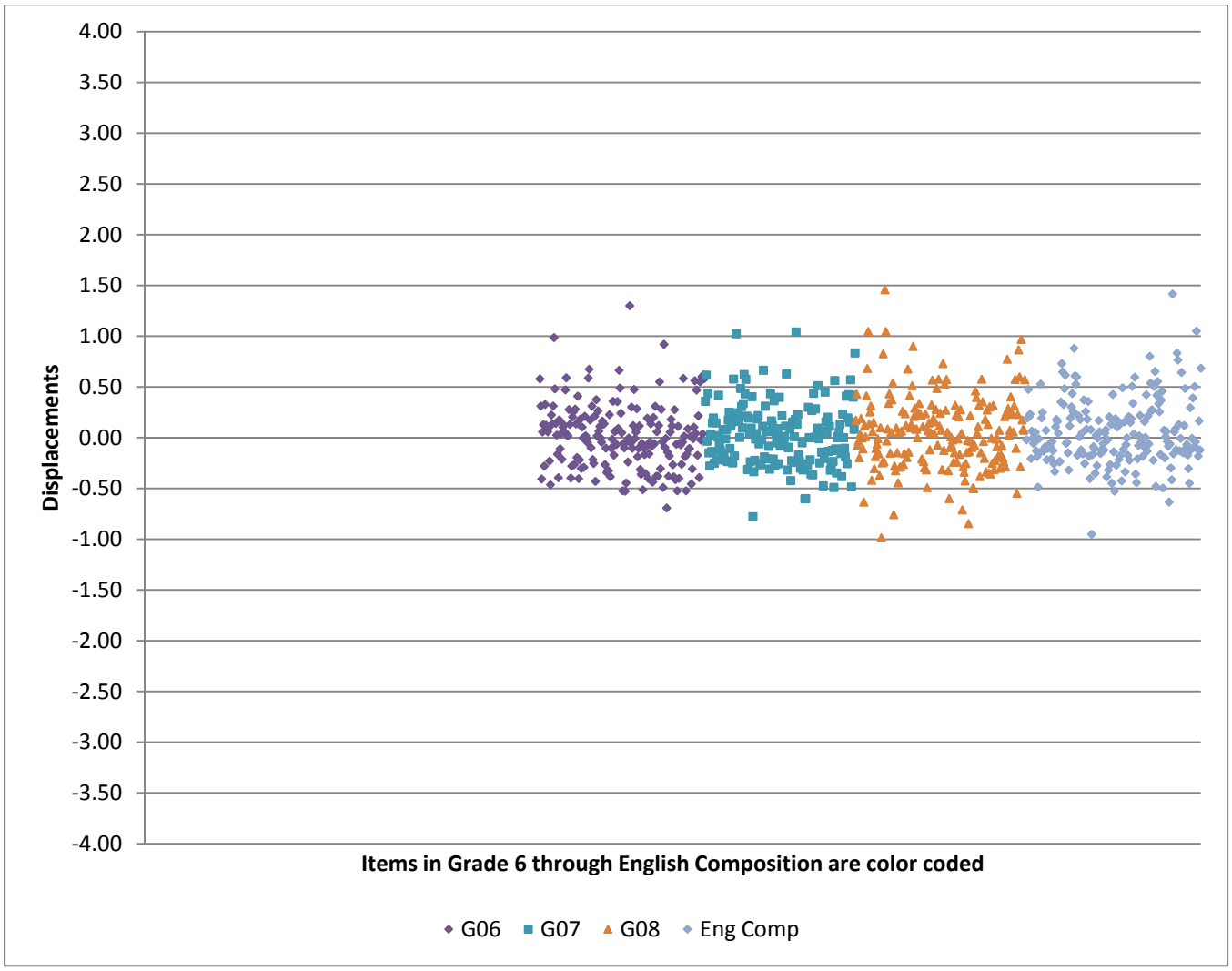


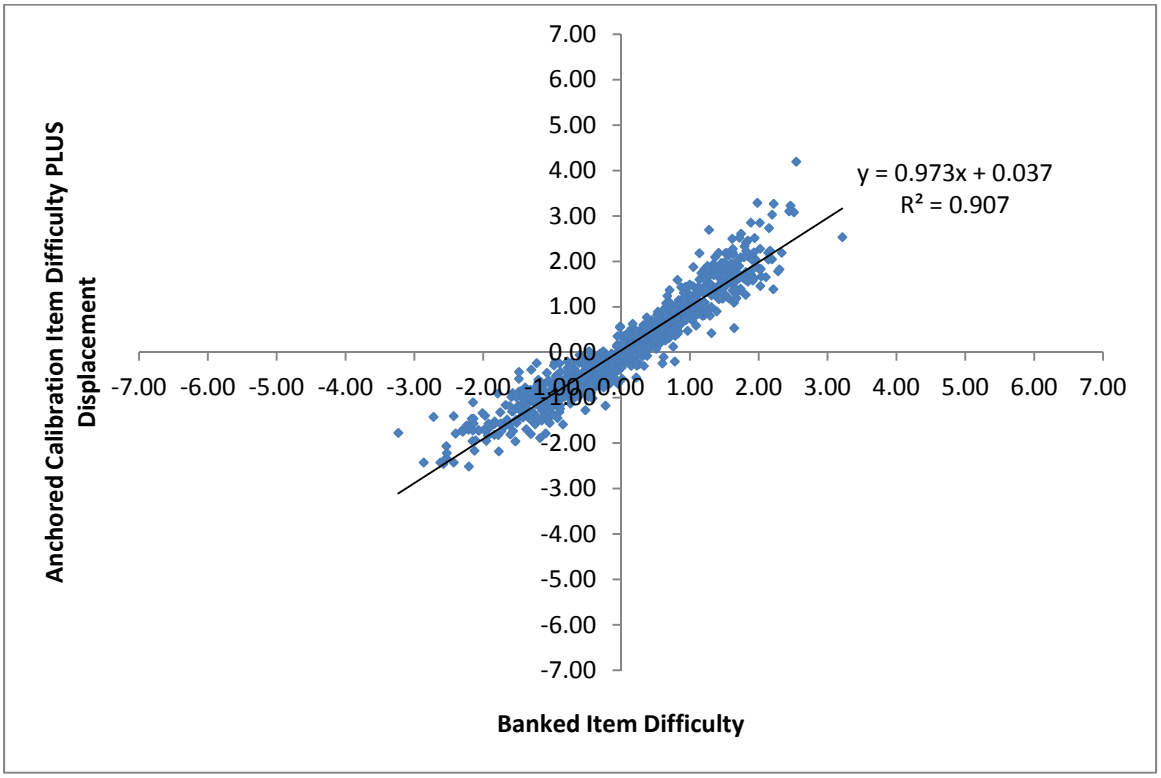
Table 18–27 summarizes the data in Figure 18–37. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Eighty-eight percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–27).

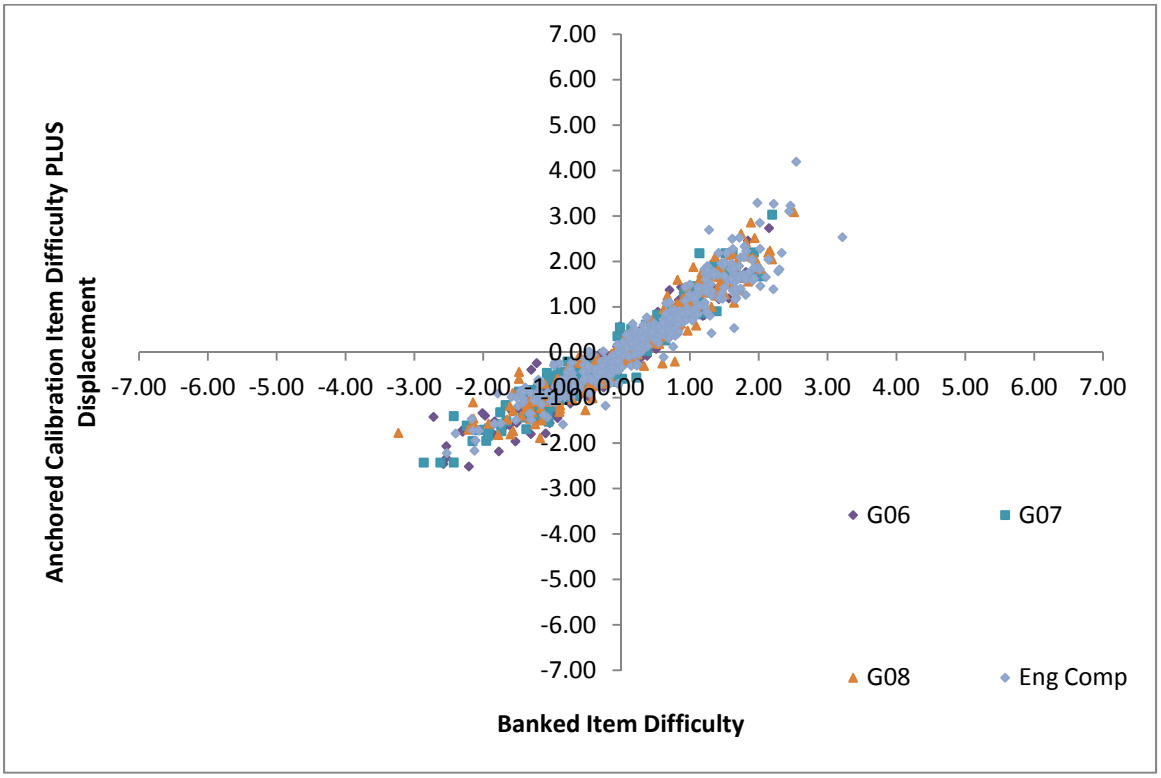
Table 18–27. Number of Writing Items by Grade/Course and Displacement Interval

	G06	G07	G08	COMP	Total
Disp. ≤ -1.0	0	0	0	1	1
-1.0 < Disp. ≤ -0.9	0	0	1	1	2
-0.9 < Disp. ≤ -0.8	0	0	1	2	3
-0.8 < Disp. ≤ -0.7	0	1	2	2	5
-0.7 < Disp. ≤ -0.6	1	2	1	3	7
-0.6 < Disp. ≤ -0.5	5	0	3	4	12
-0.5 < Disp. ≤ -0.4	11	4	5	12	32
-0.4 < Disp. ≤ -0.3	17	10	13	19	59
-0.3 < Disp. ≤ -0.2	13	28	20	30	91
-0.2 < Disp. ≤ -0.1	19	17	20	54	110
-0.1 < Disp. ≤ 0.0	28	15	22	58	123
0.0 < Disp. ≤ 0.1	24	30	26	42	122
0.1 < Disp. ≤ 0.2	26	22	16	36	100
0.2 < Disp. ≤ 0.3	14	12	23	24	73
0.3 < Disp. ≤ 0.4	9	6	12	20	47
0.4 < Disp. ≤ 0.5	6	12	7	14	39
0.5 < Disp. ≤ 0.6	9	5	10	10	34
0.6 < Disp. ≤ 0.7	3	4	2	11	20
0.7 < Disp. ≤ 0.8	0	0	2	4	6
0.8 < Disp. ≤ 0.9	0	1	3	4	8
0.9 < Disp. ≤ 1.0	2	0	1	0	3
1.0 < Disp.	1	2	3	4	10
TOTAL	188	171	193	355	907

Figure 18–38 shows banked item difficulties plotted against the item difficulties plus displacement from the anchored grade level calibrations of all items using the operational data set. Again, a line of best fit is included in the upper plot.

Figure 18–38. Writing Banked Item Parameters vs. Anchored Grade Level Calibrations — All Items in Grade 6 and Above





An examination of the items with larger differences between banked values and operational estimates revealed that a number of these have low *n*-counts in the operational calibration. To investigate whether this had an impact on the stability of the item parameter estimates, grade level anchored calibrations of all items in grade 6 and above with larger *n*-counts were run. Figure 18–39 shows the displacements from these calibrations. Items are color-coded by grade/course.

Figure 18–39. Writing Anchored Grade Level Calibrations Displacements — All Items in Grade 6 and Above with N>100

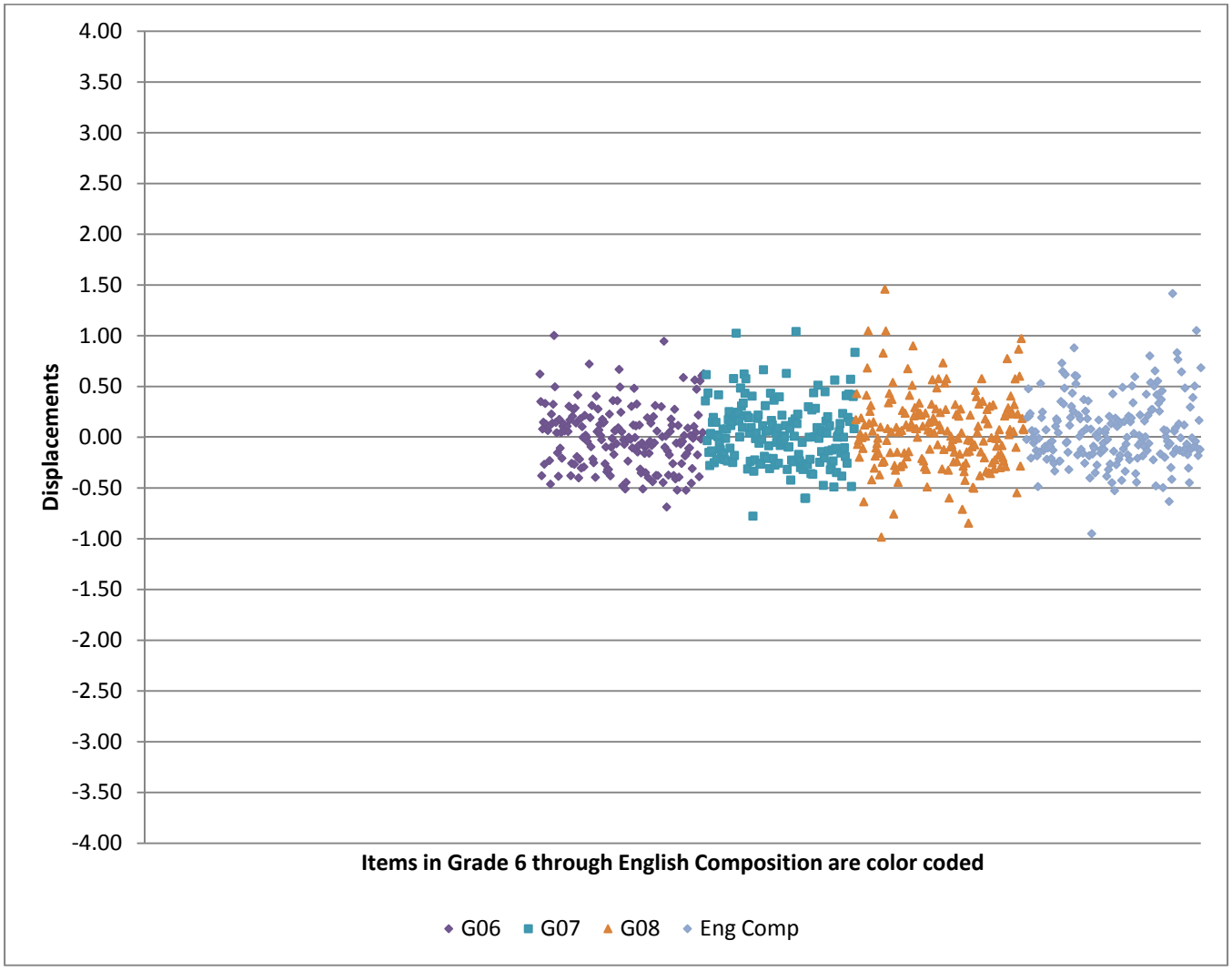


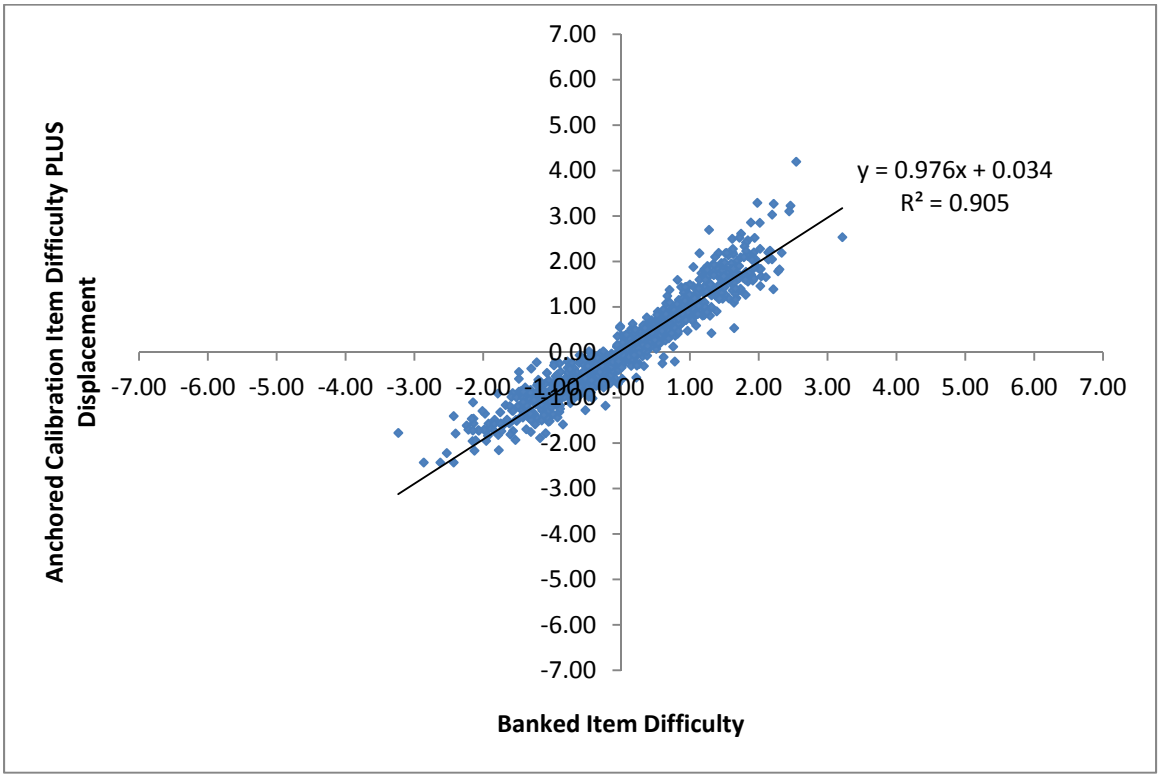
Table 18–28 summarizes the data in Figure 18–39. It contains item counts by grade/course and displacements in intervals of 0.1 logits. According to the WINSTEPS manual, in an anchored calibration, half of the displacements are expected to be negative and half positive. Displacements less than 0.5 in magnitude are considered small (unlikely to have much impact). Eighty-eight percent of the items in the bank have a displacement less than 0.5 in magnitude (gray shaded in Table 18–28).

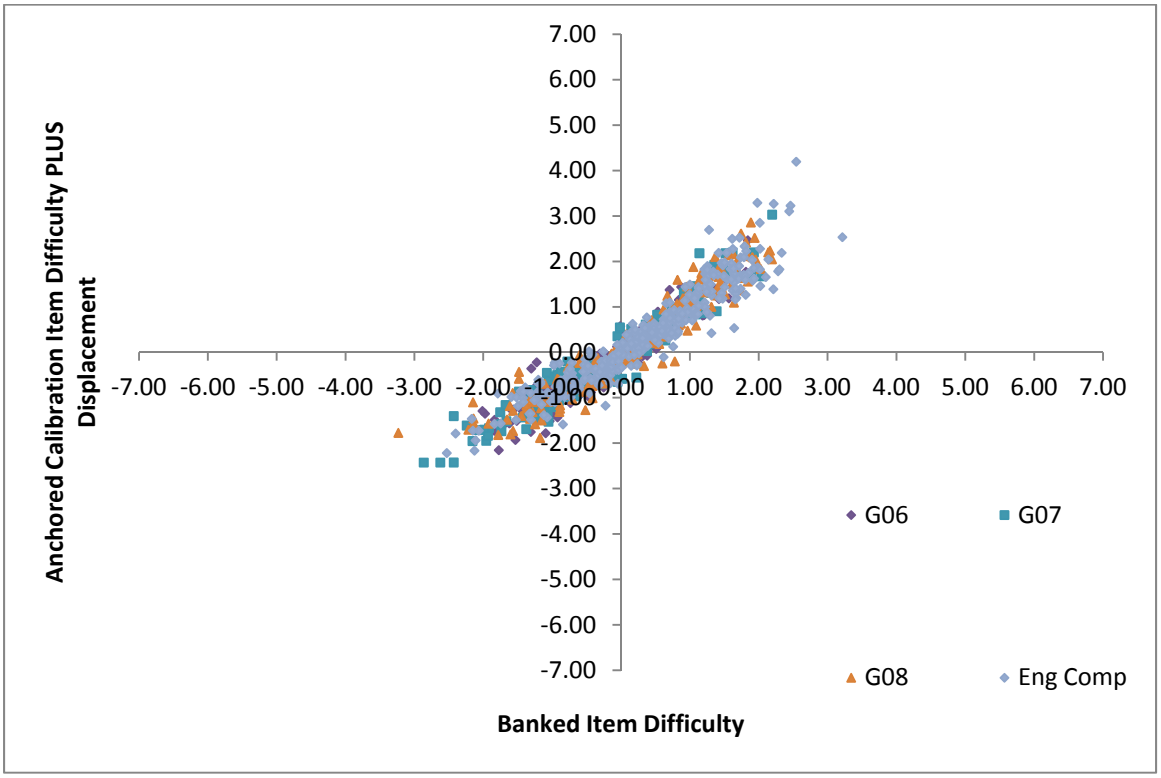
Table 18–28. Number of Writing Items by Grade/Course and Displacement Interval

	G06	G07	G08	COMP	Total
Disp. ≤ -1.0	0	0	0	1	1
-1.0 < Disp. ≤ -0.9	0	0	1	1	2
-0.9 < Disp. ≤ -0.8	0	0	1	2	3
-0.8 < Disp. ≤ -0.7	0	1	2	2	5
-0.7 < Disp. ≤ -0.6	1	2	1	3	7
-0.6 < Disp. ≤ -0.5	4	0	3	4	11
-0.5 < Disp. ≤ -0.4	8	4	5	12	29
-0.4 < Disp. ≤ -0.3	20	10	13	19	62
-0.3 < Disp. ≤ -0.2	13	28	20	30	91
-0.2 < Disp. ≤ -0.1	15	17	20	54	106
-0.1 < Disp. ≤ 0.0	29	15	22	58	124
0.0 < Disp. ≤ 0.1	24	30	26	42	122
0.1 < Disp. ≤ 0.2	27	22	16	36	101
0.2 < Disp. ≤ 0.3	11	12	23	24	70
0.3 < Disp. ≤ 0.4	11	6	12	20	49
0.4 < Disp. ≤ 0.5	6	12	7	14	39
0.5 < Disp. ≤ 0.6	3	5	8	10	26
0.6 < Disp. ≤ 0.7	4	4	3	11	22
0.7 < Disp. ≤ 0.8	1	0	2	4	7
0.8 < Disp. ≤ 0.9	0	1	3	4	8
0.9 < Disp. ≤ 1.0	1	0	1	0	2
1.0 < Disp.	1	2	3	4	10
TOTAL	179	171	192	355	897

Figure 18–40 mirrors Figure 18–38, except the calibrations exclude items with fewer than 100 administrations. Again, a line of best fit is included in the upper plot.

Figure 18–40. Writing Banked Item Parameters vs. Anchored Grade Level Calibrations — All Items in Grade 6 and Above with N>100





For the two sets of anchored grade level calibrations described above, banked item parameters were compared to the newly calibrated values by calculating a robust Z statistic for each item pairing. Table 18–29 shows the number of items in each grade/course and the number and percent of items with absolute value of robust Z greater than 1.645 in the calibrations.

Table 18–29. Summary of Robust Z Across Two Sets of Anchored Grade Level Calibrations in Writing

Grade/ Course	Cal. 1 — Items in G6+			Cal. 2 — Items in G6+ N>100		
	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645	Number of Items	Number of Items with ABS(Z) > 1.645	Percent of Items with ABS(Z) > 1.645
Grade 3	0	0	N/A	0	0	N/A
Grade 4	0	0	N/A	0	0	N/A
Grade 5	0	0	N/A	0	0	N/A
Grade 6	188	13	7%	179	9	5%
Grade 7	171	10	6%	171	13	8%
Grade 8	193	18	9%	192	22	11%
English Composition	355	33	9%	355	34	10%
Total	907	74	8%	897	78	9%

For the most part, whether we used high absolute displacement values or robust Z to identify items with operational estimates that differ from banked values, the same items were identified. For example, in calibration 1, all items with absolute displacement greater than 0.57 have an absolute value of robust Z greater than 1.645. No items with absolute displacement less than 0.57 have absolute value of robust Z greater than 1.645.

For each of the content areas, it is evident from this series of plots that the item parameter estimates are reasonably stable for the items in grade 6 and above.

CHAPTER NINETEEN: REVISION OF BENCHMARK CUTS

As described in Chapter Fourteen, CDT scores are placed along a continuum from "Areas of Need" to "Strengths to Build On." These are represented in the dynamic reporting suite with colors red, green, and blue. "Areas of Need" are depicted in the red range, while "Strengths to Build On" are depicted in the green and blue ranges. The center of the green range for each CDT grade or course was established by panels of Pennsylvania educators during preliminary benchmarking activities (see Chapter Ten for details).

The preliminary benchmarking activities took place prior to the first operational administration in each content area so that, once operational, immediate score reports would be available to students and teachers. Given that the preliminary benchmark cuts were set prior to the operational administration and based on field test data, it was planned at that time to revisit the location of the cut scores after enough operational data had been collected.

This chapter summarizes changes to the preliminary benchmark cuts.

REVISED BENCHMARK CUTS FOR ALL GRADES AND COURSES

Cut points in the mathematics content area were analyzed and revised following the 2010–2011 school year. See Chapter Nineteen of the 2010–2011 technical report for details.

Cut points in the reading, science, and writing content areas were analyzed and revised following the 2011–2012 school year. See Chapter Nineteen of the 2011–2012 technical report for details.

Table 19–1 provides a summary of the changes to the CDT benchmark cuts in the mathematics, reading, science, and writing content areas.

Chapter Nineteen: Revision of Benchmark Cuts

Table 19–1. Summary of CDT Benchmark Cuts Revision

	Preliminary Cuts		Revised Cuts		Difference	
	Logit	Scale Score Green Range	Logit	Scale Score Green Range	Logit	Scale Score
Grade 5	-0.292	896 - 1058	-0.792	833 - 995	-0.500	-63
Grade 6	0.526	998 - 1160	0.026	936 - 1098	-0.500	-62
Grade 7	1.495	1119 - 1281	0.495	994 - 1156	-1.000	-125
Grade 8	2.238	1212 - 1374	0.838	1037 - 1199	-1.400	-175
Math High School	3.363	1352 - 1514	1.613	1134 - 1296	-1.750	-218
Algebra I	3.363	1352 - 1514	1.613	1134 - 1296	-1.750	-218
Geometry	3.614	1384 - 1546	1.864	1165 - 1327	-1.750	-219
Algebra II	4.117	1447 - 1609	2.367	1228 - 1390	-1.750	-219
Reading Grade 5	1.529	983 - 1197	0.529	840 - 1054	-1.000	-143
Reading Grade 6	2.015	1052 - 1266	1.015	910 - 1124	-1.000	-142
Reading Grade 7	2.299	1093 - 1307	1.299	950 - 1164	-1.000	-143
Reading Grade 8	2.500	1122 - 1336	1.500	979 - 1193	-1.000	-143
Literature	2.657	1144 - 1358	1.657	1001 - 1215	-1.000	-143
Science Grade 5	1.099	1010 - 1182	-0.451	804 - 976	-1.550	-206
Science Grade 6	1.522	1067 - 1239	-0.028	861 - 1033	-1.550	-206
Science Grade 7	1.879	1114 - 1286	0.329	908 - 1080	-1.550	-206
Science Grade 8	2.189	1155 - 1327	0.639	949 - 1121	-1.550	-206
Science High School	2.462	1191 - 1363	1.112	1012 - 1184	-1.350	-179
Biology	2.462	1191 - 1363	1.112	1012 - 1184	-1.350	-179
Chemistry	2.706	1224 - 1396	1.356	1045 - 1217	-1.350	-179
Writing Grade 5	0.731	960 - 1132	-0.569	787 - 959	-1.300	-173
Writing Grade 6	1.363	1044 - 1216	0.063	872 - 1044	-1.300	-172
Writing Grade 7	1.886	1114 - 1286	0.586	941 - 1113	-1.300	-173
Writing Grade 8	2.219	1158 - 1330	0.919	985 - 1157	-1.300	-173
English Composition	2.281	1167 - 1339	0.981	994 - 1166	-1.300	-173

Chapter Nineteen: Revision of Benchmark Cuts

Table 19–2 shows the benchmark cuts used for student reporting during the 2012–2013 school year in the logit metric for each content area. Also presented are the scale score ranges for each color on the CDT reports.

Table 19–2. Benchmark Cuts and Scale Score Ranges for the 2012–2013 School Year

Grade or Course		Logit Cut Point (Center of Green)	Red Scale Score Range	Green Scale Score Range	Blue Scale Score Range
Mathematics	Grade 5	-0.792	400 - 832	833 - 995	996 - 2000
	Grade 6	0.026	400 - 935	936 - 1098	1099 - 2000
	Grade 7	0.495	400 - 993	994 - 1156	1157 - 2000
	Grade 8	0.838	400 - 1036	1037 - 1199	1200 - 2000
	High School	1.613	400 - 1133	1134 - 1296	1297 - 2000
	Algebra I	1.613	400 - 1133	1134 - 1296	1297 - 2000
	Geometry	1.864	400 - 1164	1165 - 1327	1328 - 2000
	Algebra II	2.367	400 - 1227	1228 - 1390	1391 - 2000
Reading	Grade 5	0.529	400 - 839	840 - 1054	1055 - 2000
	Grade 6	1.015	400 - 909	910 - 1124	1125 - 2000
	Grade 7	1.299	400 - 949	950 - 1164	1165 - 2000
	Grade 8	1.500	400 - 978	979 - 1193	1194 - 2000
	Literature	1.657	400 - 1000	1001 - 1215	1216 - 2000
Science	Grade 5	-0.451	400 - 803	804 - 976	977 - 2000
	Grade 6	-0.028	400 - 860	861 - 1033	1034 - 2000
	Grade 7	0.329	400 - 907	908 - 1080	1081 - 2000
	Grade 8	0.639	400 - 948	949 - 1121	1122 - 2000
	High School	1.112	400 - 1011	1012 - 1184	1185 - 2000
	Biology	1.112	400 - 1011	1012 - 1184	1185 - 2000
	Chemistry	1.356	400 - 1044	1045 - 1217	1218 - 2000
Writing	Grade 5	-0.569	400 - 786	787 - 959	960 - 2000
	Grade 6	0.063	400 - 871	872 - 1044	1045 - 2000
	Grade 7	0.586	400 - 940	941 - 1113	1114 - 2000
	Grade 8	0.919	400 - 984	985 - 1157	1158 - 2000
	English Composition	0.981	400 - 993	994 - 1166	1167 - 2000

Chapter Nineteen: Revision of Benchmark Cuts

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APPENDIX A: GENERAL DEVELOPMENT AND FIELD TEST CYCLE FOR THE CLASSROOM DIAGNOSTIC TOOLS

Table A–1. General Development and Field Test Cycle for the Classroom Diagnostic Tools

		Content Area			
		Mathematics	**Reading/Literature**	**Science**	**Writing/English Composition**
Events Occurring in Calendar Year	**Summer 2009**	Item Development and Internal Reviews			
	Fall 2009				
	Winter 2010/2011	Item Review by Pennsylvania Educators	Item Development and Internal Reviews	Item Development and Internal Reviews	
	Spring 2010	Standalone Field Test			
	Summer 2010	Data Review, Items Aligned to the Learning Progression Map, and Benchmarking	Item Review by Pennsylvania Educators	Item Review by Pennsylvania Educators	Item Development and Internal Reviews
	Fall 2010	Operational Assessments Available	Standalone Field Test	Standalone Field Test	
	Winter 2010/2011	Operational Assessments Available	Data Review, Items Aligned to the Learning Progression Map, and Benchmarking	Data Review, Items Aligned to the Learning Progression Map, and Benchmarking	Item Review by Pennsylvania Educators
	Spring 2011	Operational Assessments Available	Operational Assessments Available	Operational Assessments Available	Standalone Field Test
	Summer 2011				Data Review, Items Aligned to the Learning Progression Map, and Benchmarking
	Fall 2011	Operational Assessments Available	Operational Assessments Available	Operational Assessments Available	Operational Assessments Available
	Winter 2011/2012	Operational Assessments Available	Operational Assessments Available	Operational Assessments Available	Operational Assessments Available

Table A–1 (continued). General Development and Field Test Cycle for the Classroom Diagnostic Tools

		Content Area			
		Mathematics	**Reading/Literature**	**Science**	**Writing/English Composition**
Events Occurring in Calendar Year	**Spring 2012**	Operational Assessments Available	Operational Assessments Available	Operational Assessments Available	Operational Assessments Available
	Summer 2012	Item Development and Internal Reviews of Items Aligned to Pennsylvania Core Standards Begins	Item Development and Internal Reviews of Items Aligned to Pennsylvania Core Standards Begins		
	Fall 2012	Operational Assessments Available and Completion of Item Development and Internal Reviews of Items Aligned to Pennsylvania Core Standards	Operational Assessments Available and Completion of Item Development and Internal Reviews of Items Aligned to Pennsylvania Core Standards	Operational Assessments Available	Operational Assessments Available
	Winter 2012/2013	Operational Assessments Available and Item Review by Pennsylvania Educators for Items Aligned to Pennsylvania Core Standards	Operational Assessments Available and Item Review by Pennsylvania Educators for Items Aligned to Pennsylvania Core Standards	Operational Assessments Available	Operational Assessments Available
	Spring 2013	Operational Assessments with Embedded Field Test Items Aligned to the Pennsylvania Core Standards Available	Operational Assessments with Embedded Field Test Items Aligned to the Pennsylvania Core Standards Available	Operational Assessments Available	Operational Assessments Available

APPENDIX B: FIELD TEST ITEM STATISTICS

Table B–1. Item Statistics

Column Heading	Definition
Ref	Reference line number
ID	Item ID
Grade	Item grade or course
N	Number of students
PVal	P-Value
P( )	Proportion selecting given response (- = blank)
PtBis	Point biserial
PT( )	Point biserial of response
Meas	Rasch item difficulty measure estimate
MSE	Standard error of Rasch item difficulty measure estimate
t	t fit statistic
MS	Mean square fit statistic
M/F	Male/female DIF statistic
W/B	White/black DIF statistic

Appendix B: Field Test Item Statistics

MATHEMATICS MULTIPLE-CHOICE ITEMS

Table B–2. Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rash		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1	600437	3	1282	.921	.921	.045	.013	.019	.003	.400	.400	-.276	-.193	-.166	-3.932	0.117	-1.2	0.9	-1.6	0.8	A+	B-
2	601973	3	1282	.818	.060	.818	.082	.036	.005	.439	-.233	.439	-.228	-.223	-2.648	0.086	0.9	1.0	0.6	1.1	A+	A-
3	601588	3	1925	.872	.872	.057	.042	.027	.003	.459	.459	-.269	-.280	-.184	-3.199	0.078	-1.6	0.9	-2.0	0.8	A+	B-
4	603742	3	1285	.850	.850	.090	.036	.016	.008	.338	.338	-.133	-.215	-.198	-2.989	0.090	2.2	1.1	4.5	1.6	A-	A+
5	600920	3	1285	.662	.183	.069	.074	.662	.013	.547	-.353	-.205	-.181	.547	-1.530	0.071	-1.7	0.9	-0.4	1.0	A+	A-
6	601977	3	1285	.788	.040	.083	.788	.078	.012	.483	-.227	-.256	.483	-.228	-2.439	0.080	-0.2	1.0	-0.3	1.0	A-	A+
7	601978	3	1282	.857	.040	.056	.857	.044	.003	.415	-.178	-.232	.415	-.260	-3.009	0.092	-0.1	1.0	-0.2	1.0	A+	A+
8	600863	3	1286	.686	.071	.065	.686	.177	.002	.504	-.250	-.223	.504	-.291	-1.765	0.072	0.3	1.0	0.4	1.0	A+	A-
9	601558	3	1286	.453	.080	.453	.134	.331	.003	.506	-.106	.506	-.162	-.346	-0.286	0.071	1.9	1.1	6.2	1.5	A+	B+
10	602676	3	1286	.641	.083	.214	.641	.060	.002	.489	-.236	-.268	.489	-.234	-1.474	0.070	1.2	1.0	1.0	1.1	A+	A-
11	600424	3	1286	.785	.084	.061	.785	.065	.004	.482	-.302	-.244	.482	-.192	-2.497	0.079	-1.9	0.9	-2.2	0.8	B+	A-
12	601559	3	1287	.649	.079	.066	.649	.202	.004	.517	-.112	-.177	.517	-.417	-1.605	0.070	0.9	1.0	0.8	1.0	A-	A+
13	601898	3	1287	.781	.781	.069	.136	.009	.005	.438	.438	-.182	-.355	-.040	-2.538	0.078	1.5	1.1	1.2	1.1	A+	A-
14	600864	3	1287	.772	.113	.057	.054	.772	.005	.536	-.318	-.237	-.267	.536	-2.462	0.077	-3.9	0.9	-3.9	0.7	A+	A-
15	600413	3	644	.792	.109	.028	.071	.792	.000	.441	-.278	-.226	-.214	.441	-2.535	0.110	0.2	1.0	0.6	1.1	A+	A-
16	600867	3	1283	.658	.658	.150	.066	.123	.003	.560	.560	-.280	-.196	-.346	-1.559	0.069	-1.6	1.0	-1.6	0.9	A+	A-
17	602677	3	1286	.547	.547	.180	.085	.182	.007	.539	.539	-.216	-.230	-.284	-0.901	0.067	0.4	1.0	1.1	1.1	A-	B-
18	600425	3	1286	.663	.081	.663	.149	.102	.005	.498	-.188	.498	-.292	-.244	-1.582	0.069	0.5	1.0	1.8	1.1	A+	A-
19	600423	3	1281	.881	.881	.045	.063	.006	.005	.412	.412	-.242	-.253	-.152	-3.262	0.096	-0.4	1.0	-0.8	0.9	A-	B+
20	601438	3	1280	.883	.049	.054	.883	.013	.002	.427	-.277	-.254	.427	-.153	-3.250	0.097	-0.9	0.9	-0.9	0.9	A+	A+
21	601976	3	639	.664	.105	.052	.180	.664	.000	.532	-.234	-.312	-.288	.532	-1.508	0.099	0.2	1.0	0.1	1.0	A-	A-
22	600868	3	639	.833	.022	.089	.833	.056	.000	.386	-.199	-.219	.386	-.229	-2.750	0.119	1.4	1.1	0.9	1.1	A+	A+
23	601900	3	1280	.896	.038	.896	.021	.045	.001	.399	-.224	.399	-.186	-.243	-3.411	0.101	-0.5	1.0	-1.1	0.9	B+	A+
24	600439	3	1281	.786	.003	.786	.050	.159	.002	.481	-.049	.481	-.237	-.374	-2.345	0.078	-0.4	1.0	-1.6	0.9	A-	A-
25	601216	3	641	.939	.037	.019	.939	.005	.000	.387	-.268	-.262	.387	-.090	-4.083	0.180	-1.2	0.9	-0.5	0.9	A+	A-
26	602675	3	1283	.894	.048	.894	.030	.020	.008	.407	-.220	.407	-.209	-.199	-3.429	0.103	-0.2	1.0	-1.3	0.8	B+	A-
27	600866	3	641	.903	.017	.044	.034	.903	.002	.432	-.206	-.224	-.278	.432	-3.488	0.149	-0.8	0.9	-1.9	0.7	A-	A-
28	601439	3	1283	.933	.018	.021	.933	.025	.003	.373	-.209	-.217	.373	-.176	-4.009	0.124	-1.1	0.9	-0.6	0.9	A+	A-
29	600431	3	1285	.834	.024	.083	.834	.051	.009	.469	-.241	-.301	.469	-.166	-2.828	0.087	-1.1	1.0	-1.3	0.9	A-	A-
30	601975	3	1283	.723	.098	.723	.067	.110	.002	.460	-.224	.460	-.315	-.188	-1.977	0.072	1.9	1.1	1.8	1.1	A+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
31	600865	3	1280	.913	.027	.913	.046	.014	.001	.362	-.208	.362	-.227	-.162	-3.637	0.108	-0.2	1.0	-0.7	0.9	A-	B+
32	601897	3	1286	.799	.098	.089	.799	.011	.003	.438	-.233	-.293	.438	-.152	-2.613	0.081	0.8	1.0	0.2	1.0	A+	A-
33	601437	3	1280	.891	.066	.018	.020	.891	.005	.436	-.257	-.228	-.239	.436	-3.380	0.101	-2.1	0.9	0.0	1.0	A+	A+
34	600438	3	1283	.782	.782	.183	.007	.023	.005	.492	.492	-.441	-.097	-.115	-2.418	0.078	-0.9	1.0	-1.4	0.9	A-	A-
35	601587	3	1285	.544	.143	.135	.171	.544	.007	.475	-.246	-.283	-.103	.475	-0.770	0.068	2.5	1.1	3.5	1.2	A-	A+
36	600921	3	1282	.708	.022	.030	.708	.232	.009	.511	-.183	-.235	.511	-.359	-1.770	0.075	-0.3	1.0	-0.1	1.0	B+	B-
37	600872	3	1282	.906	.906	.027	.058	.008	.002	.328	.328	-.240	-.168	-.166	-3.615	0.107	0.1	1.0	2.7	1.4	B+	B-
38	601441	3	1282	.701	.120	.083	.701	.093	.003	.492	-.259	-.249	.492	-.240	-1.700	0.074	1.3	1.0	1.8	1.1	A+	A+
39	603743	3	1286	.924	.015	.924	.016	.044	.002	.382	-.161	.382	-.219	-.241	-4.042	0.116	-1.2	0.9	-0.7	0.9	B+	B-
40	604350	3	1283	.929	.019	.929	.023	.023	.006	.378	-.174	.378	-.221	-.207	-4.075	0.120	-1.5	0.9	-0.9	0.8	B+	A+
41	600870	3	639	.836	.077	.044	.836	.042	.002	.431	-.247	-.289	.431	-.168	-2.790	0.120	0.1	1.0	-0.1	1.0	A-	A+
42	604351	3	639	.917	.030	.917	.022	.028	.003	.344	-.190	.344	-.234	-.151	-3.777	0.157	-0.5	0.9	1.1	1.2	B+	A-
43	600922	3	641	.435	.086	.435	.236	.237	.006	.606	-.104	.606	-.246	-.369	0.052	0.103	-0.4	1.0	2.7	1.3	C-	A+
44	600441	3	1283	.917	.009	.029	.917	.041	.006	.345	-.089	-.176	.345	-.225	-3.743	0.114	0.7	1.1	0.6	1.1	A-	B-
45	600426	3	1283	.470	.108	.470	.246	.165	.010	.545	-.226	.545	-.236	-.216	-0.305	0.068	1.2	1.0	4.2	1.3	B-	A+
46	600869	3	1283	.794	.023	.794	.114	.067	.002	.424	-.184	.424	-.291	-.204	-2.505	0.079	1.1	1.1	1.5	1.1	A-	A+
47	600871	3	1285	.938	.035	.938	.013	.007	.008	.383	-.252	.383	-.202	-.148	-4.307	0.133	-1.1	0.9	-2.6	0.5	A+	A-
48	601980	3	1286	.831	.063	.831	.047	.054	.005	.407	-.225	.407	-.214	-.196	-2.809	0.084	0.6	1.0	0.7	1.1	A-	B-
49	600440	3	641	.861	.034	.861	.023	.078	.003	.354	-.156	.354	-.080	-.277	-2.978	0.130	1.8	1.2	2.2	1.4	A+	C-
50	601440	3	1285	.628	.205	.628	.079	.078	.010	.443	-.258	.443	-.227	-.116	-1.305	0.069	4.2	1.1	4.3	1.2	A+	A+
51	601905	3	1924	.952	.024	.008	.015	.952	.002	.293	-.138	-.175	-.186	.293	-4.502	0.116	0.3	1.0	0.7	1.1	A+	B-
52	601906	3	1282	.939	.009	.939	.016	.035	.002	.295	-.121	.295	-.152	-.216	-4.189	0.128	0.1	1.0	0.9	1.2	A+	A-
53	600923	3	1930	.749	.204	.749	.041	.004	.003	.405	-.325	.405	-.162	-.131	-2.214	0.061	4.2	1.1	2.5	1.1	A-	A-
54	600443	3	1286	.904	.002	.904	.002	.086	.006	.276	-.087	.276	-.100	-.221	-3.648	0.106	2.1	1.2	2.7	1.5	A-	A-
55	601442	3	1283	.973	.973	.016	.006	.002	.004	.247	.247	-.167	-.142	-.049	-5.264	0.189	-0.3	0.9	-0.7	0.8	A+	A-
56	600873	3	1283	.669	.669	.072	.017	.239	.004	.510	.510	-.191	-.090	-.405	-1.628	0.070	1.1	1.0	1.4	1.1	A+	A-
57	601443	3	1280	.850	.096	.021	.029	.850	.004	.332	-.167	-.174	-.227	.332	-2.910	0.089	3.1	1.2	4.5	1.5	A+	A-
58	600874	3	1280	.927	.009	.927	.046	.012	.006	.341	-.135	.341	-.257	-.123	-3.971	0.121	0.2	1.0	-0.6	0.9	B+	A-
59	601982	3	1283	.958	.013	.017	.007	.958	.006	.310	-.160	-.163	-.144	.310	-4.688	0.158	-0.2	1.0	-0.5	0.9	A+	A+
60	601981	3	641	.892	.006	.084	.013	.892	.005	.355	-.184	-.276	-.097	.355	-3.377	0.145	0.9	1.1	1.3	1.3	A+	A+
61	600442	3	1287	.987	.004	.987	.002	.002	.005	.205	-.111	.205	-.046	-.097	-6.641	0.323	-0.1	0.9	-2.1	0.4	A+	A-
62	600427	3	1286	.766	.766	.105	.090	.036	.003	.379	.379	-.264	-.177	-.153	-2.266	0.075	3.5	1.1	2.4	1.2	A+	A+
63	600875	3	1282	.909	.909	.037	.027	.024	.002	.496	.496	-.295	-.245	-.267	-3.714	0.110	-3.3	0.8	-4.0	0.5	A+	B-
64	600428	3	1282	.846	.846	.073	.021	.055	.005	.357	.357	-.213	-.154	-.182	-2.937	0.091	2.5	1.1	3.1	1.3	A+	A-
65	600876	3	1282	.889	.022	.036	.889	.050	.004	.409	-.219	-.232	.409	-.235	-3.392	0.101	-0.9	0.9	-1.3	0.8	A-	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
66	600924	3	1282	.830	.830	.047	.037	.083	.003	.397	.397	-.224	-.201	-.220	-2.730	0.086	1.3	1.1	0.6	1.1	A+	A+
67	601983	3	1283	.877	.877	.083	.023	.016	.001	.434	.434	-.354	-.167	-.162	-3.273	0.094	-1.7	0.9	-2.6	0.7	A+	A-
68	604353	3	644	.863	.056	.863	.036	.045	.000	.457	-.271	.457	-.234	-.246	-3.177	0.127	-1.4	0.9	-1.8	0.7	A+	A+
69	600444	3	1283	.964	.011	.016	.964	.004	.005	.349	-.200	-.217	.349	-.091	-4.881	0.170	-0.8	0.9	-3.0	0.4	A-	A-
70	601444	3	641	.881	.047	.881	.030	.036	.006	.373	-.172	.373	-.218	-.176	-3.236	0.140	0.9	1.1	1.8	1.3	A-	A-
71	601445	3	1283	.914	.015	.041	.022	.914	.009	.425	-.205	-.249	-.192	.425	-3.744	0.114	-1.2	0.9	-1.4	0.8	A-	A-
72	604352	3	1287	.682	.079	.159	.076	.682	.005	.509	-.287	-.249	-.229	.509	-1.826	0.071	0.1	1.0	0.7	1.0	A+	B-
73	601589	3	641	.964	.964	.006	.019	.008	.003	.270	.270	-.105	-.132	-.186	-4.842	0.235	0.2	1.0	0.2	1.0	A+	A-
74	601984	3	1280	.895	.035	.023	.045	.895	.002	.390	-.148	-.194	-.295	.390	-3.408	0.101	-1.1	0.9	1.4	1.2	A+	A-
75	601447	3	1282	.954	.008	.022	.954	.008	.009	.302	-.113	-.213	.302	-.099	-4.824	0.158	-0.3	1.0	-1.0	0.8	C+	A+
76	601570	3	1925	.757	.074	.757	.117	.049	.003	.522	-.194	.522	-.323	-.296	-2.203	0.063	-2.7	0.9	-1.3	0.9	A+	A-
77	601986	3	644	.938	.011	.938	.040	.008	.003	.261	-.076	.261	-.212	-.122	-4.257	0.177	0.3	1.0	0.2	1.0	A+	A+
78	600878	3	644	.880	.053	.880	.033	.034	.000	.348	-.257	.348	-.111	-.198	-3.365	0.133	0.5	1.0	1.0	1.2	B+	A-
79	600445	3	1281	.980	.980	.006	.000	.013	.002	.293	.293	-.141	.000	-.246	-5.492	0.216	-1.0	0.8	-3.5	0.2	A+	A+
80	601909	3	1280	.950	.007	.950	.026	.013	.004	.282	-.141	.282	-.167	-.146	-4.438	0.141	0.2	1.0	0.4	1.1	A+	A-
81	600446	3	1280	.921	.041	.921	.018	.016	.004	.393	-.257	.393	-.199	-.164	-3.824	0.115	-1.4	0.9	0.2	1.0	B+	A-
82	601908	3	1281	.913	.063	.016	.913	.006	.002	.371	-.290	-.178	.371	-.114	-3.678	0.109	-0.8	0.9	-0.3	1.0	A+	A-
83	600429	3	641	.793	.016	.119	.793	.072	.002	.507	-.192	-.363	.507	-.233	-2.316	0.113	-1.2	0.9	0.3	1.0	A+	C-
84	601446	3	1283	.711	.090	.083	.711	.108	.007	.545	-.254	-.179	.545	-.361	-1.773	0.072	-2.6	0.9	-0.6	1.0	A+	A+
85	601985	3	1287	.929	.009	.929	.012	.047	.002	.380	-.115	.380	-.187	-.292	-4.173	0.119	-1.9	0.9	-2.5	0.6	B+	A-
86	600877	3	1287	.938	.024	.938	.013	.022	.003	.351	-.227	.351	-.179	-.161	-4.369	0.127	-1.1	0.9	-1.2	0.8	A+	B-
87	604186	4	965	.442	.442	.167	.354	.037	.000	.449	.449	-.293	-.150	-.221	0.131	0.076	2.9	1.1	2.8	1.2	A-	A+
88	601958	4	962	.859	.013	.036	.859	.092	.001	.397	-.131	-.186	.397	-.301	-2.572	0.101	-0.7	1.0	-1.6	0.8	A+	A-
89	604488	4	962	.844	.844	.077	.054	.021	.004	.424	.424	-.257	-.252	-.146	-2.486	0.099	-0.9	0.9	-0.3	1.0	A+	A+
90	604492	4	964	.766	.041	.766	.099	.092	.003	.448	-.138	.448	-.259	-.267	-1.928	0.084	-1.1	1.0	-1.4	0.9	A-	B-
91	601962	4	964	.639	.173	.126	.639	.060	.002	.377	-.148	-.241	.377	-.175	-0.917	0.078	3.7	1.1	2.8	1.1	A-	A+
92	601987	4	963	.720	.044	.181	.720	.054	.002	.458	-.195	-.302	.458	-.204	-1.604	0.080	-0.8	1.0	-0.6	1.0	C-	A+
93	604187	4	966	.655	.154	.099	.088	.655	.003	.494	-.249	-.257	-.219	.494	-1.006	0.078	-0.5	1.0	-0.5	1.0	B-	A-
94	601638	4	965	.729	.056	.157	.729	.058	.001	.529	-.197	-.379	.529	-.218	-1.512	0.082	-3.2	0.9	-3.1	0.8	A+	B+
95	602968	4	1926	.822	.822	.111	.034	.032	.001	.408	.408	-.248	-.211	-.218	-2.250	0.066	-0.7	1.0	-0.2	1.0	A+	B-
96	601988	4	965	.911	.911	.029	.042	.018	.001	.391	.391	-.226	-.252	-.160	-3.156	0.122	-1.4	0.9	-1.6	0.7	A-	A+
97	602969	4	966	.611	.611	.198	.104	.088	.000	.485	.485	-.239	-.176	-.309	-0.735	0.077	1.3	1.0	1.1	1.1	A+	A+
98	604348	4	966	.582	.114	.191	.582	.113	.001	.454	-.301	-.229	.454	-.116	-0.576	0.076	0.9	1.0	1.4	1.1	A-	A+
99	604184	4	964	.809	.032	.060	.097	.809	.002	.471	-.169	-.277	-.291	.471	-2.059	0.092	-2.0	0.9	-3.2	0.7	A+	A+
100	604968	4	1445	.857	.041	.074	.857	.024	.004	.411	-.195	-.265	.411	-.198	-2.577	0.083	-1.0	1.0	-2.2	0.8	A-	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
101	602970	4	964	.845	.014	.099	.845	.041	.002	.410	-.124	-.305	.410	-.201	-2.379	0.099	-0.5	1.0	-1.2	0.9	A+	A+
102	604877	4	1445	.762	.015	.046	.762	.172	.005	.359	-.155	-.195	.359	-.220	-1.822	0.069	2.0	1.1	1.5	1.1	A-	A+
103	601963	4	964	.627	.185	.111	.627	.076	.002	.327	-.112	-.202	.327	-.181	-1.072	0.076	4.7	1.2	4.1	1.2	A+	A+
104	604878	4	964	.302	.066	.302	.269	.358	.005	.312	-.094	.312	-.167	-.083	0.781	0.082	4.0	1.2	7.0	1.7	A-	A+
105	602004	4	964	.439	.082	.453	.023	.439	.003	.505	-.314	-.253	-.206	.505	-0.026	0.075	-1.3	1.0	-0.7	1.0	A-	C-
106	601959	4	964	.416	.503	.048	.416	.030	.003	.489	-.374	-.172	.489	-.060	0.100	0.076	0.6	1.0	0.6	1.0	A+	A-
107	601960	4	963	.863	.011	.062	.863	.062	.001	.296	-.165	-.246	.296	-.101	-2.680	0.102	0.9	1.1	0.9	1.1	B+	A-
108	602005	4	963	.733	.733	.061	.070	.135	.001	.521	.521	-.233	-.338	-.257	-1.649	0.082	-3.5	0.9	-2.7	0.8	A-	A-
109	601640	4	963	.713	.074	.156	.713	.057	.000	.500	-.277	-.292	.500	-.205	-1.518	0.080	-2.3	0.9	-1.6	0.9	A+	A+
110	602001	4	962	.632	.039	.267	.632	.060	.002	.442	-.194	-.241	.442	-.286	-0.976	0.078	0.8	1.0	1.3	1.1	A+	B+
111	602006	4	1443	.675	.189	.031	.105	.675	.001	.440	-.120	-.230	-.386	.440	-1.274	0.064	0.2	1.0	0.5	1.0	A+	B-
112	601641	4	961	.512	.149	.278	.512	.058	.003	.411	-.351	-.117	.411	-.102	-0.378	0.075	4.0	1.1	3.8	1.2	A-	A-
113	602002	4	961	.605	.226	.605	.090	.071	.009	.495	-.221	.495	-.313	-.190	-0.909	0.076	-1.1	1.0	-1.3	0.9	A+	A-
114	601636	4	481	.578	.094	.578	.154	.173	.002	.435	-.165	.435	-.229	-.209	-0.828	0.104	1.1	1.1	1.0	1.1	A-	A+
115	604484	4	481	.628	.206	.628	.092	.073	.002	.502	-.230	.502	-.274	-.253	-1.097	0.106	-1.2	1.0	-1.4	0.9	B+	A-
116	601965	4	963	.758	.022	.119	.097	.758	.004	.401	-.193	-.291	-.146	.401	-1.863	0.084	0.7	1.0	0.4	1.0	A+	A+
117	604349	4	963	.722	.722	.166	.058	.051	.003	.486	.486	-.275	-.192	-.303	-1.619	0.080	-1.9	0.9	-2.1	0.9	A+	A-
118	601637	4	963	.709	.068	.116	.709	.104	.003	.520	-.218	-.258	.520	-.306	-1.544	0.079	-3.1	0.9	-3.1	0.8	A-	A+
119	604490	4	963	.910	.025	.033	.030	.910	.002	.350	-.106	-.230	-.232	.350	-3.248	0.120	-1.0	0.9	-1.2	0.8	A-	A-
120	604185	4	482	.764	.133	.764	.081	.021	.002	.456	-.256	.456	-.269	-.219	-1.868	0.119	-0.9	0.9	0.0	1.0	A-	
121	601961	4	966	.674	.227	.053	.046	.674	.001	.478	-.289	-.264	-.204	.478	-1.115	0.079	-0.1	1.0	-0.7	1.0	A+	A+
122	601639	4	964	.687	.042	.219	.687	.049	.004	.385	-.153	-.258	.385	-.167	-1.402	0.078	2.0	1.1	1.3	1.1	A-	B-
123	601991	4	963	.558	.558	.131	.149	.159	.004	.546	.546	-.200	-.268	-.281	-0.693	0.074	-3.3	0.9	-2.5	0.9	A-	A-
124	601964	4	963	.566	.051	.566	.358	.023	.002	.465	-.193	.465	-.325	-.192	-0.730	0.074	0.6	1.0	1.0	1.1	A+	C-
125	604967	4	963	.914	.914	.028	.034	.023	.001	.359	.359	-.228	-.189	-.185	-3.294	0.123	-1.2	0.9	-1.4	0.8	B+	B-
126	603609	4	963	.581	.060	.581	.320	.035	.004	.390	-.101	.390	-.294	-.144	-0.815	0.074	4.4	1.1	3.9	1.2	A-	A-
127	604189	4	964	.573	.024	.573	.274	.128	.002	.476	-.157	.476	-.294	-.239	-0.748	0.075	-1.8	1.0	-1.7	0.9	A-	A-
128	603744	4	482	.826	.826	.135	.019	.019	.002	.446	.446	-.334	-.198	-.189	-2.342	0.132	-1.2	0.9	-1.0	0.9	A+	
129	604493	4	1443	.634	.213	.074	.634	.079	.000	.433	-.260	-.235	.433	-.151	-1.015	0.063	1.2	1.0	1.3	1.1	B-	A+
130	602008	4	965	.636	.125	.636	.032	.205	.001	.485	-.237	.485	-.188	-.298	-0.950	0.077	0.2	1.0	-0.1	1.0	A+	A+
131	601999	4	966	.684	.112	.684	.054	.149	.001	.404	-.212	.404	-.148	-.241	-1.178	0.080	2.5	1.1	2.1	1.1	A-	B-
132	601992	4	962	.633	.633	.082	.251	.029	.005	.484	.484	-.198	-.324	-.194	-0.990	0.077	-0.7	1.0	-1.0	1.0	B-	A-
133	604188	4	964	.681	.030	.681	.111	.173	.005	.431	-.133	.431	-.299	-.195	-1.394	0.078	0.4	1.0	0.0	1.0	C-	A-
134	604494	4	961	.857	.014	.062	.857	.065	.002	.384	-.164	-.256	.384	-.215	-2.632	0.101	-0.7	1.0	-1.4	0.8	B-	A+
135	602007	4	482	.849	.095	.849	.029	.027	.000	.317	-.222	.317	-.173	-.121	-2.527	0.138	1.1	1.1	0.2	1.0	A+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
136	602885	4	965	.755	.110	.755	.123	.011	.000	.309	-.163	.309	-.196	-.163	-1.687	0.084	4.2	1.2	4.1	1.3	A+	A+
137	602971	4	481	.796	.023	.121	.796	.058	.002	.395	-.033	-.355	.395	-.152	-2.154	0.124	0.0	1.0	-0.3	1.0	C-	A-
138	601993	4	1447	.748	.130	.748	.065	.057	.000	.427	-.243	.427	-.255	-.176	-1.566	0.069	1.3	1.1	0.9	1.1	A-	A-
139	602010	4	964	.906	.906	.062	.009	.020	.003	.363	.363	-.226	-.184	-.176	-3.188	0.118	-0.8	0.9	-1.3	0.8	A+	A-
140	602009	4	964	.966	.016	.011	.966	.006	.001	.243	-.103	-.186	.243	-.128	-4.388	0.183	-0.4	0.9	-0.3	0.9	A+	A-
141	604514	4	482	.907	.050	.021	.907	.021	.002	.311	-.189	-.167	.311	-.162	-3.198	0.168	0.2	1.0	-0.3	0.9	A-	
142	604190	4	962	.730	.093	.730	.060	.118	.000	.395	-.134	.395	-.171	-.298	-1.574	0.083	2.0	1.1	1.3	1.1	A+	A-
143	604191	4	961	.681	.074	.168	.073	.681	.005	.450	-.154	-.287	-.209	.450	-1.340	0.079	1.3	1.1	0.8	1.0	A+	A-
144	604495	4	963	.543	.057	.543	.173	.223	.003	.415	-.216	.415	-.172	-.212	-0.619	0.074	3.5	1.1	3.0	1.1	A+	A+
145	602887	4	964	.836	.130	.836	.020	.012	.002	.309	-.212	.309	-.148	-.171	-2.292	0.097	1.2	1.1	2.7	1.3	B+	A-
146	604969	4	481	.466	.046	.316	.466	.171	.002	.444	-.083	-.297	.444	-.162	-0.240	0.104	1.4	1.1	1.7	1.1	A-	B+
147	602000	4	962	.418	.136	.147	.418	.296	.003	.464	-.260	-.215	.464	-.127	0.235	0.078	2.1	1.1	2.2	1.1	A+	A+
148	602973	4	965	.775	.169	.775	.039	.016	.001	.474	-.330	.474	-.267	-.170	-1.834	0.087	-1.3	0.9	-1.4	0.9	A-	A+
149	604193	4	964	.829	.079	.053	.829	.034	.005	.434	-.210	-.251	.434	-.230	-2.421	0.094	-1.6	0.9	-1.7	0.8	A-	A-
150	601646	4	962	.882	.006	.882	.079	.031	.002	.332	-.146	.332	-.213	-.199	-2.827	0.109	0.3	1.0	0.0	1.0	A+	A-
151	604195	4	482	.849	.035	.849	.079	.035	.002	.478	-.176	.478	-.307	-.293	-2.546	0.139	-1.8	0.9	-2.8	0.6	A-	
152	604497	4	1448	.870	.870	.019	.022	.089	.000	.330	.330	-.174	-.192	-.207	-2.657	0.085	0.4	1.0	1.1	1.1	B+	A-
153	604498	4	964	.829	.020	.829	.078	.072	.002	.402	-.155	.402	-.229	-.252	-2.227	0.095	0.1	1.0	0.0	1.0	A+	A+
154	604192	4	962	.819	.021	.111	.819	.045	.004	.402	-.202	-.274	.402	-.170	-2.238	0.093	-1.0	1.0	-1.3	0.9	A+	A-
155	601647	4	964	.902	.048	.018	.902	.032	.001	.322	-.185	-.153	.322	-.198	-3.139	0.115	-0.6	1.0	-0.8	0.9	A-	B-
156	604485	4	962	.837	.049	.078	.837	.033	.003	.394	-.185	-.219	.394	-.227	-2.408	0.097	-0.2	1.0	-0.5	1.0	A+	A+
157	602012	4	961	.851	.051	.055	.851	.040	.003	.366	-.194	-.177	.366	-.203	-2.570	0.099	0.1	1.0	-0.2	1.0	A-	A+
158	601995	4	963	.781	.135	.781	.043	.042	.000	.410	-.215	.410	-.231	-.248	-2.003	0.086	-0.5	1.0	0.6	1.1	A+	B-
159	601994	4	481	.703	.135	.106	.052	.703	.004	.476	-.187	-.321	-.231	.476	-1.542	0.112	-1.0	1.0	-1.3	0.9	A-	A+
160	604879	4	1446	.767	.767	.069	.082	.078	.004	.391	.391	-.211	-.287	-.120	-1.898	0.069	0.5	1.0	-0.1	1.0	A+	A+
161	602015	4	482	.927	.039	.023	.008	.927	.002	.267	-.174	-.158	-.115	.267	-3.513	0.187	-0.1	1.0	0.3	1.1	A+	
162	601972	4	966	.904	.017	.904	.018	.061	.001	.437	-.180	.437	-.168	-.344	-3.030	0.118	-2.5	0.8	-2.5	0.6	A+	A+
163	604501	4	962	.661	.661	.149	.060	.127	.003	.571	.571	-.254	-.245	-.346	-1.156	0.079	-4.9	0.8	-4.5	0.8	A-	C-
164	602890	4	962	.945	.027	.945	.017	.008	.003	.351	-.280	.351	-.127	-.139	-3.829	0.152	-1.1	0.9	-2.7	0.5	A+	A-
165	601996	4	1445	.945	.009	.945	.034	.010	.003	.336	-.162	.336	-.218	-.160	-3.871	0.122	-1.1	0.9	-2.8	0.5	A+	A-
166	601997	4	963	.816	.135	.041	.816	.007	.001	.294	-.188	-.205	.294	-.095	-2.254	0.092	2.3	1.1	3.0	1.3	A-	A+
167	604970	4	961	.881	.035	.032	.881	.049	.002	.355	-.226	-.155	.355	-.194	-2.880	0.108	-0.8	0.9	0.5	1.1	A+	B-
168	602014	4	963	.792	.138	.031	.792	.036	.002	.343	-.199	-.151	.343	-.223	-2.100	0.088	1.7	1.1	1.8	1.2	A+	A-
169	604499	4	963	.820	.099	.019	.820	.061	.001	.438	-.229	-.192	.438	-.304	-2.287	0.093	-1.9	0.9	-1.8	0.8	B-	B-
170	602889	4	964	.797	.797	.034	.143	.024	.002	.445	.445	-.279	-.273	-.192	-1.959	0.090	-1.6	0.9	-0.9	0.9	B+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
171	601998	4	962	.831	.004	.005	.158	.831	.002	.304	-.074	-.126	-.270	.304	-2.350	0.096	2.2	1.1	3.4	1.4	B+	A-
172	604486	4	481	.807	.067	.119	.008	.807	.000	.418	-.210	-.323	-.094	.418	-2.219	0.126	-0.9	0.9	-0.5	0.9	A+	A-
173	604956	5	1194	.628	.126	.142	.088	.628	.016	.598	-.349	-.240	-.236	.598	-0.587	0.069	-6.5	0.8	-5.5	0.8	A+	A-
174	604783	5	1189	.819	.819	.051	.041	.080	.008	.480	.480	-.212	-.217	-.296	-1.991	0.087	-2.3	0.9	-1.5	0.8	A-	B-
175	606159	5	1194	.757	.071	.757	.146	.023	.003	.427	-.139	.427	-.344	-.125	-1.334	0.075	-0.2	1.0	-0.5	1.0	A+	A-
176	601532	5	2383	.868	.868	.047	.048	.031	.006	.423	.423	-.217	-.240	-.204	-2.210	0.068	-2.0	0.9	-1.6	0.9	A+	A-
177	606160	5	1193	.796	.020	.068	.796	.114	.003	.453	-.226	-.237	.453	-.270	-1.490	0.080	-1.3	0.9	-1.4	0.9	A-	A-
178	604834	5	1192	.889	.014	.052	.889	.042	.003	.376	-.156	-.243	.376	-.213	-2.328	0.102	-0.3	1.0	-0.2	1.0	A+	B-
179	604865	5	1196	.830	.039	.085	.830	.042	.003	.476	-.176	-.340	.476	-.217	-1.714	0.087	-1.7	0.9	-2.3	0.8	A+	A+
180	604851	5	1191	.554	.140	.061	.554	.230	.015	.622	-.275	-.164	.622	-.355	-0.139	0.069	-6.4	0.8	-5.5	0.8	A-	A-
181	606169	5	1189	.485	.485	.188	.092	.229	.007	.570	.570	-.242	-.175	-.298	0.231	0.070	-3.0	0.9	-1.5	0.9	A+	A-
182	606168	5	1191	.474	.144	.474	.171	.201	.010	.404	-.193	.404	-.218	-.094	0.326	0.069	6.3	1.2	5.5	1.3	A-	A-
183	600850	5	1189	.495	.495	.158	.183	.146	.018	.611	.611	-.383	-.191	-.203	0.139	0.071	-5.0	0.9	-3.6	0.8	A+	A-
184	600851	5	1784	.529	.063	.215	.182	.529	.012	.639	-.198	-.392	-.237	.639	-0.022	0.057	-8.7	0.8	-5.9	0.8	A-	A-
185	601591	5	1786	.759	.165	.759	.040	.029	.008	.409	-.233	.409	-.215	-.196	-1.323	0.064	1.9	1.1	1.6	1.1	A+	A-
186	601537	5	1191	.503	.032	.191	.267	.503	.008	.575	-.174	-.340	-.248	.575	0.274	0.068	-5.1	0.9	-2.5	0.9	A-	A+
187	604837	5	1191	.348	.170	.228	.241	.348	.013	.403	-.177	-.184	-.061	.403	1.172	0.072	4.3	1.2	6.8	1.6	A-	B+
188	604788	5	1195	.936	.029	.936	.021	.012	.002	.346	-.193	.346	-.213	-.159	-2.973	0.127	-0.9	0.9	-2.8	0.6	A-	B-
189	604849	5	1195	.911	.027	.013	.047	.911	.002	.350	-.176	-.162	-.237	.350	-2.555	0.110	-0.9	0.9	-0.8	0.9	A+	A-
190	604838	5	1195	.604	.210	.604	.140	.044	.002	.548	-.433	.548	-.184	-.133	-0.164	0.068	-3.8	0.9	-3.5	0.9	A-	A+
191	601535	5	1195	.914	.914	.039	.017	.028	.003	.387	.387	-.233	-.198	-.188	-2.614	0.112	-1.7	0.9	-2.2	0.7	A-	A-
192	604850	5	1196	.673	.673	.120	.171	.036	.001	.476	.476	-.262	-.280	-.163	-0.556	0.071	-1.0	1.0	-0.4	1.0	A-	B-
193	601536	5	1196	.829	.829	.059	.039	.073	.001	.391	.391	-.172	-.166	-.277	-1.681	0.086	-0.1	1.0	1.1	1.1	A-	A+
194	604866	5	1790	.717	.063	.075	.139	.717	.007	.560	-.231	-.316	-.301	.560	-0.929	0.060	-6.1	0.8	-6.2	0.7	A+	A-
195	604786	5	1192	.790	.113	.790	.071	.023	.003	.430	-.328	.430	-.173	-.143	-1.357	0.081	0.1	1.0	0.6	1.0	B-	A-
196	606161	5	1193	.817	.057	.046	.075	.817	.004	.487	-.185	-.270	-.301	.487	-1.673	0.083	-2.7	0.9	-2.6	0.8	A+	B-
197	604854	5	1194	.580	.092	.203	.580	.121	.005	.482	-.159	-.285	.482	-.213	-0.280	0.067	0.4	1.0	0.2	1.0	A+	A-
198	606827	5	1194	.816	.037	.816	.080	.059	.009	.320	-.180	.320	-.147	-.154	-1.806	0.083	1.5	1.1	4.0	1.5	A+	A-
199	606274	5	1194	.768	.080	.768	.077	.064	.011	.495	-.180	.495	-.315	-.236	-1.446	0.077	-2.8	0.9	-3.1	0.8	A+	A-
200	604797	5	1194	.797	.096	.797	.071	.026	.010	.424	-.242	.424	-.200	-.192	-1.663	0.080	-0.5	1.0	0.0	1.0	A-	A-
201	604957	5	596	.760	.057	.059	.760	.112	.012	.490	-.162	-.179	.490	-.336	-1.396	0.108	-1.6	0.9	-1.1	0.9	A-	A+
202	606153	5	598	.798	.008	.018	.162	.798	.013	.468	-.106	-.176	-.379	.468	-1.681	0.114	-1.8	0.9	-1.8	0.8	A-	A-
203	606154	5	1196	.663	.100	.189	.663	.047	.001	.463	-.254	-.259	.463	-.195	-0.497	0.071	0.9	1.0	1.5	1.1	A-	A+
204	606826	5	598	.748	.179	.748	.040	.025	.008	.273	-.077	.273	-.209	-.217	-1.285	0.105	3.9	1.2	4.8	1.6	B+	B-
205	604836	5	1189	.546	.050	.546	.310	.084	.011	.470	-.155	.470	-.293	-.180	-0.136	0.070	3.0	1.1	5.7	1.3	A+	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
206	601590	5	2382	.639	.639	.263	.076	.019	.004	.494	.494	-.309	-.264	-.181	-0.574	0.050	-0.9	1.0	-1.2	1.0	A-	A-
207	604953	5	1189	.625	.625	.110	.204	.046	.015	.537	.537	-.181	-.327	-.242	-0.623	0.072	-1.2	1.0	-1.2	0.9	A-	A-
208	604853	5	1189	.601	.029	.279	.601	.078	.012	.604	-.120	-.476	.604	-.154	-0.470	0.071	-5.3	0.8	-3.8	0.8	A-	B-
209	604784	5	1190	.861	.861	.031	.055	.043	.010	.453	.453	-.173	-.299	-.198	-2.371	0.097	-1.7	0.9	-1.4	0.8	A+	A-
210	604856	5	1194	.594	.131	.130	.134	.594	.012	.526	-.179	-.207	-.322	.526	-0.380	0.068	-1.7	1.0	-1.8	0.9	A+	A+
211	604958	5	1191	.729	.729	.066	.085	.108	.013	.541	.541	-.228	-.345	-.215	-1.196	0.075	-3.4	0.9	-2.4	0.8	B-	A-
212	600853	5	1791	.774	.117	.047	.061	.774	.001	.360	-.172	-.191	-.220	.360	-1.224	0.064	2.9	1.1	3.2	1.2	A-	A-
213	606163	5	1191	.657	.265	.041	.657	.034	.003	.340	-.204	-.241	.340	-.112	-0.699	0.071	6.0	1.2	5.9	1.4	A-	A-
214	604960	5	596	.698	.030	.180	.089	.698	.003	.429	-.160	-.239	-.238	.429	-0.954	0.101	1.0	1.1	0.6	1.1	A-	A-
215	604959	5	1190	.834	.834	.060	.055	.046	.006	.514	.514	-.264	-.282	-.250	-2.048	0.089	-3.2	0.8	-2.6	0.7	A-	A-
216	604857	5	1191	.623	.623	.200	.045	.121	.012	.275	.275	-.025	-.113	-.254	-0.424	0.070	9.4	1.3	9.2	1.5	A-	A-
217	604796	5	1195	.610	.039	.223	.610	.127	.001	.405	-.129	-.214	.405	-.240	-0.192	0.068	2.7	1.1	1.8	1.1	A-	A-
218	606162	5	596	.611	.029	.017	.339	.611	.005	.293	-.221	-.206	-.139	.293	-0.451	0.096	6.7	1.3	6.0	1.5	A-	A-
219	604841	5	598	.881	.022	.881	.020	.070	.007	.270	-.109	.270	-.169	-.144	-2.413	0.137	0.6	1.1	2.0	1.4	B+	A-
220	604868	5	1189	.747	.034	.747	.074	.135	.011	.436	-.206	.436	-.293	-.166	-1.412	0.077	0.2	1.0	1.7	1.1	A+	A-
221	601542	5	1193	.575	.064	.575	.279	.079	.003	.417	-.144	.417	-.271	-.160	-0.111	0.068	3.8	1.1	3.7	1.2	A-	A-
222	604869	5	1194	.812	.078	.090	.812	.018	.003	.444	-.284	-.256	.444	-.142	-1.735	0.081	-1.6	0.9	-2.9	0.8	B+	A-
223	604790	5	596	.857	.025	.017	.084	.857	.017	.392	-.218	-.202	-.179	.392	-2.259	0.133	-0.3	1.0	-0.3	0.9	A-	A-
224	604843	5	1191	.615	.615	.170	.123	.088	.004	.528	.528	-.282	-.283	-.173	-0.358	0.069	-2.0	0.9	-1.9	0.9	A+	A-
225	604961	5	1195	.811	.091	.811	.034	.063	.002	.396	-.261	.396	-.155	-.195	-1.496	0.082	0.2	1.0	-0.1	1.0	A-	A-
226	604858	5	1191	.499	.073	.120	.499	.303	.005	.427	-.230	-.246	.427	-.140	0.199	0.068	5.4	1.2	5.9	1.3	A+	A+
227	606275	5	1193	.816	.117	.055	.008	.816	.004	.366	-.212	-.245	-.131	.366	-1.662	0.083	0.3	1.0	0.3	1.0	A+	A-
228	604962	5	1192	.763	.053	.148	.036	.763	.000	.381	-.148	-.294	-.131	.381	-1.141	0.078	3.2	1.1	2.4	1.2	A+	A+
229	604859	5	1784	.461	.163	.252	.114	.461	.010	.458	-.258	-.124	-.198	.458	0.402	0.058	5.7	1.2	4.8	1.2	A+	A+
230	606155	5	1194	.499	.434	.054	.499	.013	.001	.354	-.263	-.152	.354	-.097	0.162	0.067	7.2	1.2	8.6	1.4	A-	A-
231	606276	5	598	.610	.052	.197	.610	.127	.013	.344	-.132	-.176	.344	-.161	-0.479	0.096	5.2	1.2	4.9	1.4	A-	A-
232	604842	5	1190	.760	.063	.029	.760	.141	.007	.463	-.205	-.187	.463	-.299	-1.429	0.079	-0.2	1.0	-0.4	1.0	A+	A+
233	604862	5	1194	.670	.092	.116	.112	.670	.010	.570	-.259	-.284	-.274	.570	-0.809	0.070	-5.2	0.9	-5.2	0.7	A+	B+
234	600852	5	1191	.720	.056	.050	.720	.162	.011	.463	-.195	-.171	.463	-.284	-1.127	0.074	0.6	1.0	-1.0	0.9	A+	B-
235	606278	5	1191	.632	.632	.069	.248	.040	.012	.511	.511	-.191	-.325	-.202	-0.477	0.070	-1.4	1.0	-0.9	1.0	A+	A-
236	606165	5	1785	.740	.075	.740	.151	.025	.010	.394	-.163	.394	-.233	-.187	-1.318	0.062	3.5	1.1	3.1	1.2	A-	A-
237	601538	5	1189	.416	.121	.188	.262	.416	.013	.506	-.193	-.106	-.298	.506	0.645	0.072	2.2	1.1	5.1	1.4	A-	A-
238	601539	5	1190	.827	.101	.827	.037	.022	.013	.446	-.274	.446	-.183	-.202	-2.039	0.090	-0.8	1.0	-0.2	1.0	A-	A-
239	604793	5	1191	.900	.900	.030	.019	.041	.009	.309	.309	-.184	-.135	-.138	-2.662	0.109	0.5	1.0	0.9	1.1	B+	A+
240	606156	5	1792	.635	.085	.067	.635	.211	.002	.398	-.206	-.197	.398	-.200	-0.333	0.057	4.4	1.1	3.8	1.2	A+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
241	604872	5	1196	.729	.729	.161	.066	.041	.003	.489	.489	-.301	-.258	-.186	-0.922	0.075	-1.6	0.9	-1.6	0.9	A+	A-
242	604861	5	598	.679	.075	.147	.679	.097	.002	.394	-.147	-.258	.394	-.170	-0.833	0.099	2.1	1.1	1.6	1.1	A+	A+
243	606164	5	596	.894	.894	.027	.052	.024	.003	.450	.450	-.205	-.301	-.186	-2.548	0.143	-1.9	0.8	-2.8	0.5	A+	A-
244	606277	5	1190	.819	.819	.092	.019	.057	.013	.437	.437	-.271	-.148	-.205	-1.949	0.088	-0.2	1.0	1.6	1.2	A+	A-
245	604860	5	1193	.476	.086	.112	.319	.476	.008	.435	-.182	-.267	-.155	.435	0.432	0.068	3.6	1.1	4.3	1.2	A+	B-
246	606166	5	1189	.892	.892	.032	.043	.027	.007	.443	.443	-.220	-.265	-.190	-2.754	0.105	-2.3	0.9	-2.4	0.6	A+	A-
247	606157	5	1192	.750	.156	.040	.050	.750	.003	.422	-.274	-.198	-.184	.422	-1.055	0.077	-0.2	1.0	-0.6	1.0	A-	A+
248	604848	5	1790	.841	.024	.841	.080	.051	.003	.373	-.133	.373	-.261	-.177	-1.884	0.072	0.4	1.0	0.6	1.1	A+	A-
249	604966	5	598	.977	.005	.010	.977	.005	.003	.217	-.090	-.159	.217	-.155	-4.367	0.293	-0.4	0.9	-1.5	0.5	A+	A-
250	604965	5	1193	.916	.026	.916	.025	.030	.003	.359	-.210	.359	-.136	-.238	-2.742	0.112	-1.3	0.9	-1.7	0.7	A+	A-
251	606158	5	1189	.800	.054	.070	.067	.800	.009	.407	-.188	-.142	-.274	.407	-1.824	0.084	0.3	1.0	2.4	1.3	A+	A+
252	601540	5	1194	.666	.182	.666	.068	.080	.004	.500	-.257	.500	-.212	-.285	-0.766	0.070	-1.8	1.0	-2.0	0.9	A+	A+
253	606167	5	1190	.883	.039	.883	.040	.030	.008	.423	-.184	.423	-.242	-.215	-2.604	0.103	-0.9	0.9	-1.7	0.8	A+	B-
254	601592	5	596	.737	.114	.737	.082	.065	.002	.509	-.208	.509	-.303	-.307	-1.199	0.104	-2.3	0.9	-2.3	0.8	B+	A+
255	604964	5	1192	.953	.016	.953	.008	.022	.002	.275	-.198	.275	-.140	-.134	-3.436	0.147	-0.2	1.0	0.5	1.1	A+	A-
256	604794	5	1189	.853	.014	.100	.853	.024	.010	.359	-.104	-.254	.359	-.139	-2.302	0.093	0.0	1.0	1.7	1.2	A+	A+
257	606279	5	1196	.605	.605	.283	.062	.050	.000	.482	.482	-.304	-.272	-.151	-0.146	0.069	0.5	1.0	0.7	1.0	A-	A-
258	599668	6	611	.789	.084	.066	.789	.057	.005	.397	-.187	-.134	.397	-.295	-1.234	0.110	-0.3	1.0	-0.5	0.9	A+	A-
259	602174	6	1229	.513	.513	.197	.130	.144	.016	.467	.467	-.230	-.200	-.173	0.232	0.066	0.5	1.0	0.2	1.0	A+	A-
260	599670	6	1230	.795	.037	.795	.103	.040	.025	.417	-.246	.417	-.205	-.162	-1.499	0.084	0.0	1.0	0.5	1.0	A-	A+
261	599667	6	1230	.811	.046	.078	.063	.811	.003	.387	-.186	-.240	-.181	.387	-1.291	0.081	0.0	1.0	-0.1	1.0	A+	A-
262	599595	6	1228	.963	.015	.014	.963	.007	.002	.299	-.159	-.172	.299	-.136	-3.515	0.160	-0.8	0.9	-3.0	0.4	A+	A+
263	599591	6	1228	.913	.022	.913	.024	.030	.011	.360	-.164	.360	-.176	-.188	-2.598	0.114	-0.7	0.9	-1.3	0.8	A-	A-
264	599607	6	1228	.555	.555	.128	.245	.057	.015	.597	.597	-.163	-.415	-.184	0.167	0.067	-6.1	0.8	-5.0	0.8	A-	A+
265	599594	6	1228	.966	.005	.966	.016	.004	.009	.249	-.108	.249	-.137	-.115	-3.821	0.185	-0.4	0.9	-1.1	0.7	A+	A+
266	601812	6	1233	.592	.083	.142	.174	.592	.009	.411	-.188	-.187	-.189	.411	0.023	0.068	3.7	1.1	2.5	1.1	A+	A+
267	599644	6	1233	.542	.359	.040	.045	.542	.015	.449	-.229	-.260	-.204	.449	0.285	0.067	2.1	1.1	2.8	1.1	A+	A-
268	599598	6	1230	.780	.087	.039	.076	.780	.018	.545	-.322	-.204	-.270	.545	-1.311	0.081	-4.4	0.8	-4.4	0.6	A-	A+
269	599666	6	1230	.458	.458	.073	.224	.231	.014	.416	.416	-.069	-.340	-.068	0.751	0.069	5.5	1.2	5.0	1.3	A-	A+
270	599662	6	1230	.916	.046	.916	.009	.011	.018	.372	-.234	.372	-.168	-.146	-2.896	0.123	-0.7	0.9	-2.1	0.6	A+	A+
271	601794	6	1230	.816	.816	.055	.050	.060	.018	.471	.471	-.242	-.246	-.211	-1.632	0.086	-2.4	0.9	-2.3	0.8	A+	A+
272	599599	6	1230	.874	.066	.035	.024	.874	.001	.425	-.245	-.266	-.197	.425	-1.872	0.094	-2.6	0.9	-3.3	0.6	A+	A-
273	601795	6	1230	.828	.037	.067	.828	.063	.007	.413	-.193	-.206	.413	-.253	-1.461	0.085	-1.4	0.9	-1.3	0.9	A+	A+
274	599671	6	1230	.632	.259	.059	.632	.047	.002	.326	-.206	-.195	.326	-.093	-0.105	0.068	6.3	1.2	5.0	1.3	A+	A-
275	599663	6	1230	.968	.968	.007	.008	.014	.002	.245	.245	-.160	-.119	-.117	-3.627	0.175	-0.5	0.9	-1.5	0.6	B+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
276	599615	6	1228	.793	.038	.066	.793	.103	.000	.327	-.219	-.238	.327	-.104	-1.324	0.078	1.9	1.1	2.1	1.2	A+	B+
277	599654	6	1228	.384	.043	.415	.158	.384	.000	.525	-.193	-.238	-.271	.525	1.064	0.068	-2.4	0.9	-1.8	0.9	A-	A-
278	599700	6	1231	.549	.549	.243	.070	.133	.005	.545	.545	-.286	-.197	-.276	0.119	0.066	-5.1	0.9	-4.3	0.8	A-	A-
279	601071	6	1231	.652	.069	.067	.652	.208	.003	.424	-.209	-.281	.424	-.182	-0.447	0.068	0.6	1.0	-0.6	1.0	A+	A-
280	601789	6	1231	.802	.802	.087	.037	.066	.008	.377	.377	-.208	-.175	-.199	-1.456	0.080	-0.6	1.0	-0.1	1.0	A-	A-
281	599655	6	1231	.836	.077	.836	.055	.028	.003	.429	-.338	.429	-.219	-.085	-1.686	0.084	-2.1	0.9	-3.1	0.7	A-	A-
282	601072	6	1231	.644	.113	.106	.644	.129	.007	.437	-.258	-.264	.437	-.111	-0.417	0.068	0.1	1.0	-1.0	1.0	B+	A+
283	599617	6	1231	.668	.032	.187	.668	.099	.015	.317	-.092	-.090	.317	-.253	-0.577	0.069	4.7	1.2	4.6	1.3	A+	B+
284	601790	6	1231	.375	.437	.054	.120	.375	.013	.462	-.205	-.229	-.158	.462	1.016	0.067	-0.2	1.0	-0.4	1.0	A-	B+
285	599701	6	1231	.590	.590	.197	.122	.085	.007	.465	.465	-.339	-.178	-.094	-0.118	0.066	-0.5	1.0	-1.3	0.9	A-	A-
286	601115	6	1227	.569	.305	.033	.569	.091	.002	.444	-.279	-.220	.444	-.172	-0.052	0.065	0.8	1.0	1.4	1.1	A+	A-
287	599672	6	615	.810	.011	.106	.810	.070	.003	.412	-.164	-.209	.412	-.290	-1.508	0.113	-0.8	1.0	-1.1	0.9	A-	A-
288	601753	6	1227	.306	.547	.069	.074	.306	.004	.422	-.123	-.250	-.239	.422	1.365	0.070	1.2	1.0	3.4	1.2	A-	B+
289	599723	6	615	.485	.485	.304	.135	.067	.010	.447	.447	-.206	-.198	-.181	0.372	0.092	1.0	1.0	1.0	1.1	A-	A-
290	599676	6	615	.889	.007	.023	.065	.889	.016	.359	-.144	-.167	-.211	.359	-2.398	0.146	-0.5	1.0	-0.4	0.9	A-	A+
291	599674	6	1223	.583	.121	.227	.583	.058	.011	.419	-.199	-.225	.419	-.168	-0.162	0.066	2.9	1.1	1.9	1.1	B+	A-
292	601751	6	1223	.804	.018	.034	.135	.804	.010	.437	-.082	-.224	-.330	.437	-1.536	0.080	-1.8	0.9	-1.8	0.8	A-	A-
293	599678	6	1223	.680	.091	.159	.062	.680	.008	.424	-.167	-.245	-.208	.424	-0.696	0.069	1.0	1.0	1.3	1.1	A+	A-
294	601754	6	612	.925	.925	.036	.021	.016	.002	.328	.328	-.223	-.182	-.118	-2.783	0.162	-0.6	0.9	-1.0	0.8	A-	B-
295	599680	6	1223	.865	.065	.044	.865	.023	.003	.461	-.310	-.244	.461	-.177	-2.021	0.090	-3.5	0.8	-3.3	0.6	A-	A-
296	602147	6	1223	.499	.110	.499	.258	.128	.005	.487	-.144	.487	-.298	-.185	0.307	0.066	0.1	1.0	0.1	1.0	A+	A-
297	599677	6	612	.719	.023	.211	.719	.041	.007	.471	-.233	-.390	.471	-.044	-0.935	0.102	-0.6	1.0	-1.4	0.9	A+	B+
298	601116	6	612	.508	.170	.508	.178	.131	.013	.435	-.293	.435	-.143	-.119	0.229	0.093	2.1	1.1	1.8	1.1	A+	A-
299	599673	6	1227	.709	.097	.112	.064	.709	.018	.584	-.190	-.386	-.264	.584	-0.889	0.071	-6.3	0.8	-5.5	0.7	B-	A+
300	599724	6	612	.807	.023	.101	.044	.807	.025	.324	-.203	-.044	-.260	.324	-1.666	0.118	1.4	1.1	2.3	1.4	A+	B-
301	602148	6	1222	.930	.010	.012	.044	.930	.003	.275	-.119	-.113	-.190	.275	-2.782	0.120	-0.5	1.0	0.9	1.2	A+	B-
302	599681	6	1222	.858	.052	.034	.039	.858	.016	.469	-.287	-.221	-.207	.469	-1.979	0.092	-3.3	0.8	-3.7	0.6	A+	C-
303	601752	6	1222	.665	.056	.665	.111	.165	.004	.499	-.024	.499	-.264	-.382	-0.509	0.068	-2.9	0.9	-2.4	0.9	C-	A+
304	599679	6	1222	.717	.038	.717	.104	.133	.008	.457	-.154	.457	-.271	-.245	-0.838	0.071	-1.3	1.0	-1.4	0.9	A-	A-
305	599675	6	611	.452	.219	.232	.452	.080	.016	.474	-.245	-.169	.474	-.174	0.534	0.094	0.6	1.0	1.4	1.1	A-	A-
306	601787	6	611	.570	.211	.570	.156	.046	.018	.484	-.279	.484	-.219	-.170	0.035	0.094	-0.2	1.0	-0.2	1.0	A-	A-
307	599669	6	1225	.617	.136	.617	.118	.115	.015	.430	-.181	.430	-.240	-.164	-0.286	0.067	1.6	1.1	0.5	1.0	A+	A+
308	602151	6	611	.761	.761	.066	.092	.075	.007	.407	.407	-.208	-.262	-.147	-1.049	0.106	-0.3	1.0	-0.4	1.0	A+	A-
309	599661	6	1225	.557	.189	.106	.137	.557	.011	.567	-.247	-.244	-.268	.567	0.048	0.065	-5.4	0.9	-5.0	0.8	A-	A-
310	599620	6	611	.759	.077	.057	.080	.759	.026	.539	-.277	-.232	-.249	.539	-1.137	0.109	-3.2	0.8	-1.3	0.9	B+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
311	599656	6	611	.594	.111	.594	.234	.031	.030	.583	-.161	.583	-.391	-.189	-0.124	0.095	-3.3	0.9	-3.8	0.8	A+	A+
312	599621	6	1225	.845	.057	.038	.043	.845	.016	.464	-.302	-.196	-.219	.464	-1.859	0.089	-2.8	0.9	-3.5	0.6	B+	A-
313	601788	6	1225	.749	.019	.112	.099	.749	.021	.332	-.155	-.113	-.218	.332	-1.120	0.075	2.8	1.1	3.0	1.3	A+	A+
314	599601	6	1229	.560	.267	.560	.110	.059	.004	.505	-.364	.505	-.163	-.151	0.016	0.065	-2.2	0.9	-1.7	0.9	A+	A+
315	599641	6	1229	.683	.112	.125	.075	.683	.006	.402	-.200	-.206	-.187	.402	-0.664	0.069	1.8	1.1	0.7	1.0	A-	A-
316	599664	6	1229	.801	.033	.065	.094	.801	.007	.503	-.234	-.277	-.274	.503	-1.455	0.079	-3.9	0.8	-4.1	0.7	B+	A-
317	601791	6	1229	.515	.209	.515	.135	.133	.007	.529	-.342	.529	-.205	-.133	0.244	0.065	-3.3	0.9	-1.7	0.9	A-	B-
318	602153	6	614	.267	.235	.181	.285	.267	.033	.354	-.067	-.095	-.132	.354	1.522	0.103	1.8	1.1	4.0	1.4	A+	A-
319	599642	6	615	.581	.096	.581	.033	.289	.002	.378	-.187	.378	-.181	-.212	-0.031	0.094	3.7	1.2	2.9	1.2	A-	A-
320	599592	6	1226	.503	.065	.307	.503	.113	.012	.520	-.181	-.412	.520	-.041	0.356	0.066	-1.7	1.0	-1.6	0.9	A+	A+
321	599602	6	615	.558	.047	.558	.309	.083	.003	.529	-.149	.529	-.401	-.151	0.085	0.093	-2.3	0.9	-2.2	0.9	A-	A+
322	599596	6	1226	.879	.055	.879	.042	.019	.005	.415	-.235	.415	-.247	-.171	-2.108	0.095	-1.7	0.9	-3.2	0.6	A-	A-
323	601792	6	615	.932	.023	.932	.028	.008	.010	.275	-.145	.275	-.175	-.048	-2.960	0.179	-0.1	1.0	0.2	1.0	A+	A+
324	599665	6	615	.842	.039	.078	.842	.029	.011	.485	-.246	-.313	.485	-.169	-1.812	0.124	-2.4	0.8	-2.8	0.6	A+	A-
325	599608	6	611	.712	.070	.141	.712	.075	.002	.359	-.170	-.193	.359	-.191	-0.754	0.100	2.4	1.1	0.5	1.1	A-	B+
326	599597	6	1226	.848	.042	.052	.057	.848	.002	.430	-.242	-.245	-.214	.430	-1.747	0.085	-2.5	0.9	-3.0	0.7	A+	A+
327	601797	6	611	.841	.012	.121	.023	.841	.003	.345	-.096	-.253	-.175	.345	-1.688	0.121	0.1	1.0	0.9	1.1	B-	A-
328	602125	6	611	.611	.611	.106	.174	.092	.018	.550	.550	-.249	-.251	-.261	-0.229	0.095	-2.8	0.9	-2.6	0.8	A+	A-
329	602126	6	1226	.384	.218	.384	.324	.048	.026	.408	-.219	.408	-.102	-.160	0.896	0.066	2.0	1.1	3.8	1.2	A+	A-
330	599606	6	1228	.457	.457	.142	.303	.095	.003	.490	.490	-.105	-.347	-.142	0.590	0.065	-2.3	0.9	-1.6	0.9	A-	A-
331	601811	6	1228	.862	.059	.862	.037	.036	.007	.322	-.189	.322	-.125	-.176	-1.910	0.090	0.2	1.0	0.4	1.0	A+	A-
332	599590	6	2456	.818	.818	.156	.010	.011	.004	.355	.355	-.297	-.133	-.098	-1.523	0.058	0.3	1.0	-1.4	0.9	B-	A-
333	599643	6	1228	.512	.213	.235	.512	.032	.009	.298	-.058	-.182	.298	-.212	0.290	0.064	6.7	1.2	5.3	1.2	A-	A-
334	599593	6	1226	.483	.254	.100	.483	.160	.004	.504	-.323	-.068	.504	-.241	0.427	0.064	-2.7	0.9	-2.2	0.9	A+	A+
335	599609	6	1226	.651	.135	.651	.140	.060	.016	.430	-.211	.430	-.217	-.174	-0.483	0.067	0.0	1.0	0.2	1.0	A+	A-
336	601799	6	1226	.662	.662	.089	.080	.157	.012	.416	.416	-.273	-.128	-.192	-0.536	0.068	0.5	1.0	0.7	1.0	A-	A-
337	602175	6	615	.577	.085	.296	.577	.041	.002	.483	-.102	-.387	.483	-.154	-0.015	0.094	-0.5	1.0	0.3	1.0	A-	A+
338	602096	6	1227	.717	.060	.109	.717	.103	.011	.427	-.124	-.286	.427	-.200	-0.928	0.072	0.3	1.0	0.1	1.0	B-	A-
339	601730	6	1226	.665	.072	.223	.665	.038	.002	.465	-.276	-.284	.465	-.142	-0.492	0.068	-0.7	1.0	-0.9	1.0	A-	A+
340	602176	6	1233	.707	.035	.048	.707	.194	.016	.488	-.103	-.234	.488	-.333	-0.701	0.073	-0.9	1.0	-2.1	0.9	A-	A-
341	602104	6	611	.358	.403	.139	.093	.358	.007	.423	-.176	-.214	-.122	.423	1.148	0.096	0.8	1.0	2.5	1.2	B-	A-
342	601720	6	1228	.883	.883	.065	.033	.016	.003	.390	.390	-.239	-.234	-.148	-2.104	0.095	-1.7	0.9	-3.0	0.7	A+	A-
343	602127	6	1228	.655	.110	.057	.655	.169	.010	.396	-.246	-.184	.396	-.145	-0.465	0.067	1.2	1.0	0.5	1.0	A+	A-
344	602106	6	1228	.338	.091	.073	.486	.338	.012	.244	-.045	-.174	-.082	.244	1.210	0.068	6.4	1.2	8.4	1.5	A-	A+
345	602107	6	1233	.788	.048	.032	.126	.788	.007	.233	-.069	-.149	-.140	.233	-1.226	0.079	4.7	1.2	7.1	1.8	A+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
346	601721	6	1233	.884	.032	.884	.023	.050	.011	.421	-.207	.421	-.219	-.230	-2.203	0.101	-1.4	0.9	-2.2	0.7	A-	B-
347	602090	6	1229	.736	.079	.023	.736	.157	.006	.382	-.150	-.112	.382	-.279	-0.828	0.075	3.3	1.1	2.7	1.2	A-	B-
348	602091	6	1230	.594	.594	.023	.226	.158	.000	.413	.413	-.101	-.163	-.328	0.120	0.067	2.6	1.1	3.4	1.2	A-	A-
349	602083	6	1230	.685	.052	.092	.166	.685	.005	.436	-.166	-.220	-.258	.436	-0.430	0.071	0.2	1.0	0.6	1.0	A+	B-
350	602149	6	1230	.449	.215	.449	.264	.066	.006	.467	-.192	.467	-.238	-.167	0.904	0.068	0.8	1.0	4.2	1.2	A-	A+
351	602150	6	1231	.245	.039	.245	.176	.531	.009	.409	-.080	.409	-.123	-.200	1.896	0.076	-0.2	1.0	3.3	1.3	A-	A-
352	602092	6	1231	.744	.116	.005	.744	.132	.002	.398	-.189	-.075	.398	-.305	-1.007	0.073	0.4	1.0	0.4	1.0	A-	A-
353	602082	6	1231	.622	.053	.622	.154	.162	.010	.464	-.191	.464	-.258	-.201	-0.303	0.067	-0.9	1.0	-1.1	1.0	A-	A-
354	602094	6	1227	.688	.688	.212	.076	.022	.002	.457	.457	-.283	-.248	-.185	-0.711	0.069	-0.8	1.0	-0.4	1.0	A-	C-
355	602093	6	1230	.717	.153	.085	.717	.035	.011	.368	-.118	-.277	.368	-.179	-0.891	0.070	1.2	1.0	1.2	1.1	A-	A+
356	602097	6	612	.721	.093	.721	.155	.029	.002	.504	-.315	.504	-.316	-.110	-0.924	0.101	-2.7	0.9	-0.5	1.0	A-	A-
357	602098	6	1223	.700	.023	.154	.117	.700	.007	.479	-.179	-.325	-.208	.479	-0.807	0.070	-1.9	0.9	-2.0	0.9	A-	A-
358	602089	6	1222	.850	.042	.067	.850	.037	.004	.320	-.177	-.176	.320	-.149	-1.802	0.087	0.2	1.0	0.8	1.1	A+	A-
359	602099	6	1222	.750	.750	.145	.056	.043	.007	.387	.387	-.293	-.137	-.128	-1.039	0.074	0.6	1.0	0.1	1.0	A-	A+
360	601722	6	611	.777	.021	.082	.777	.120	.000	.363	-.187	-.288	.363	-.139	-1.125	0.107	0.3	1.0	0.7	1.1	A+	A+
361	602100	6	611	.727	.062	.727	.082	.105	.025	.418	-.265	.418	-.176	-.137	-0.899	0.104	0.3	1.0	0.6	1.1	A-	A-
362	601729	6	1229	.697	.111	.139	.697	.050	.004	.442	-.258	-.228	.442	-.180	-0.740	0.070	-0.7	1.0	-1.4	0.9	A-	A-
363	601728	6	614	.370	.199	.308	.370	.109	.015	.348	-.265	-.054	.348	-.060	0.941	0.095	3.6	1.2	4.0	1.3	A-	A-
364	602102	6	1229	.708	.056	.080	.143	.708	.013	.333	-.104	-.205	-.159	.333	-0.843	0.071	3.5	1.1	4.1	1.3	A+	A-
365	602103	6	615	.568	.062	.075	.294	.568	.002	.224	-.032	-.088	-.175	.224	0.035	0.093	8.8	1.4	7.9	1.6	A-	A+
366	601718	6	611	.856	.856	.108	.021	.012	.003	.374	.374	-.258	-.209	-.169	-1.829	0.125	-1.0	0.9	-0.5	0.9	B-	A-
367	601719	6	1226	.885	.055	.885	.020	.038	.002	.344	-.189	.344	-.152	-.216	-2.128	0.096	-0.6	1.0	-1.4	0.8	A-	A-
368	602105	6	1226	.448	.115	.083	.349	.448	.005	.355	.017	-.181	-.264	.355	0.601	0.064	4.6	1.1	4.7	1.2	A-	A-
369	602095	6	612	.722	.167	.025	.722	.077	.010	.376	-.160	-.182	.376	-.257	-0.976	0.102	1.8	1.1	1.9	1.2	A-	A-
370	602177	6	1230	.563	.070	.202	.155	.563	.011	.455	-.202	-.221	-.186	.455	0.154	0.069	2.5	1.1	1.8	1.1	A+	A-
371	601220	6	1229	.912	.041	.912	.021	.007	.020	.363	-.202	.363	-.193	-.121	-2.758	0.121	-0.6	1.0	-1.4	0.7	A+	B-
372	602101	6	614	.725	.147	.725	.073	.052	.003	.314	-.153	.314	-.188	-.144	-0.942	0.100	2.1	1.1	2.6	1.3	A-	A-
373	602088	6	1226	.874	.038	.068	.874	.020	.000	.373	-.194	-.282	.373	-.113	-2.028	0.091	-1.6	0.9	-2.6	0.7	A-	A-
374	601689	6	611	.784	.118	.075	.784	.020	.003	.431	-.269	-.267	.431	-.108	-1.331	0.108	-1.6	0.9	-0.2	1.0	A-	B-
375	601249	6	611	.849	.849	.084	.033	.016	.018	.394	.394	-.242	-.209	-.123	-1.889	0.128	-0.6	1.0	-0.6	0.9	A+	A+
376	601260	6	611	.728	.051	.095	.728	.124	.002	.407	-.177	-.149	.407	-.293	-0.806	0.101	0.7	1.0	-0.1	1.0	A+	A-
377	601716	6	1228	.953	.953	.009	.005	.015	.019	.315	.315	-.155	-.101	-.178	-3.693	0.175	-0.6	0.9	-2.9	0.4	A+	A-
378	601266	6	1228	.581	.023	.581	.077	.309	.010	.252	-.130	.252	-.298	-.028	-0.062	0.065	7.5	1.2	7.3	1.3	A-	A-
379	601258	6	1233	.778	.087	.778	.103	.026	.007	.447	-.187	.447	-.289	-.204	-1.145	0.078	-0.5	1.0	-1.5	0.9	A-	B-
380	601267	6	1233	.710	.192	.055	.710	.030	.013	.511	-.287	-.307	.511	-.177	-0.700	0.073	-2.4	0.9	-1.9	0.9	A-	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
381	601717	6	1233	.801	.025	.801	.029	.125	.020	.282	-.195	.282	-.221	-.067	-1.422	0.083	4.0	1.2	4.5	1.6	A+	A+
382	601239	6	1229	.945	.012	.008	.945	.030	.005	.235	-.099	-.134	.235	-.121	-3.130	0.138	0.4	1.0	0.8	1.2	A+	A+
383	601281	6	1229	.855	.054	.855	.027	.056	.008	.372	-.181	.372	-.180	-.202	-1.844	0.092	0.1	1.0	0.7	1.1	A-	A-
384	601268	6	1229	.732	.149	.050	.732	.058	.011	.465	-.258	-.215	.465	-.217	-0.830	0.076	-0.3	1.0	-1.3	0.9	A+	A+
385	602068	6	1230	.658	.158	.658	.072	.111	.002	.531	-.320	.531	-.305	-.177	-0.252	0.069	-3.9	0.9	-3.8	0.8	A+	B-
386	601241	6	1228	.501	.067	.326	.103	.501	.004	.462	-.229	-.242	-.186	.462	0.417	0.066	0.3	1.0	0.7	1.0	A+	A-
387	601283	6	1228	.725	.090	.725	.016	.168	.002	.449	-.228	.449	-.160	-.306	-0.856	0.072	-1.4	1.0	-1.0	0.9	A+	B-
388	601242	6	1231	.827	.074	.827	.019	.077	.003	.342	-.288	.342	-.190	-.085	-1.627	0.083	0.2	1.0	0.7	1.1	A+	A-
389	601276	6	1231	.865	.080	.033	.865	.019	.003	.320	-.194	-.156	.320	-.161	-1.982	0.091	0.2	1.0	-0.4	0.9	A-	A+
390	601228	6	615	.618	.050	.618	.104	.228	.000	.469	-.233	.469	-.273	-.224	-0.300	0.093	-0.9	1.0	-1.0	0.9	A+	B-
391	601221	6	1230	.800	.019	.103	.071	.800	.007	.409	-.179	-.248	-.215	.409	-1.436	0.078	-1.1	1.0	-1.1	0.9	A+	A+
392	601229	6	1227	.800	.800	.040	.063	.091	.007	.475	.475	-.221	-.330	-.199	-1.478	0.079	-2.8	0.9	-2.8	0.8	A-	A-
393	601243	6	615	.829	.829	.021	.109	.024	.016	.304	.304	-.163	-.195	-.062	-1.762	0.121	1.0	1.1	1.7	1.3	A-	A-
394	601223	6	1227	.680	.680	.129	.120	.055	.017	.495	.495	-.146	-.296	-.285	-0.721	0.070	-1.8	0.9	-1.7	0.9	A-	B-
395	601701	6	1227	.447	.447	.108	.105	.329	.011	.445	.445	-.202	-.210	-.173	0.566	0.066	1.4	1.0	1.2	1.1	A-	A-
396	601224	6	612	.724	.724	.172	.052	.051	.002	.363	.363	-.191	-.215	-.181	-0.941	0.101	2.1	1.1	0.9	1.1	A-	A-
397	601230	6	612	.814	.047	.814	.044	.072	.023	.485	-.161	.485	-.283	-.259	-1.709	0.120	-1.9	0.9	-1.3	0.8	A-	A+
398	601225	6	1226	.709	.709	.140	.103	.045	.003	.404	.404	-.206	-.264	-.141	-0.817	0.069	-0.4	1.0	-0.5	1.0	A-	A-
399	601259	6	1222	.751	.115	.032	.751	.097	.006	.339	-.204	-.161	.339	-.149	-1.044	0.074	2.1	1.1	2.2	1.2	A+	A-
400	601237	6	1222	.447	.360	.099	.447	.080	.014	.486	-.147	-.246	.486	-.293	0.638	0.066	0.2	1.0	1.0	1.0	A+	A+
401	601690	6	1222	.646	.195	.106	.646	.048	.006	.459	-.263	-.218	.459	-.191	-0.409	0.068	-0.6	1.0	-0.8	1.0	A+	A-
402	601235	6	611	.534	.534	.211	.134	.102	.020	.491	.491	-.204	-.246	-.203	0.085	0.094	-0.2	1.0	-0.7	1.0	A+	A+
403	601665	6	1225	.783	.783	.040	.039	.124	.014	.365	.365	-.154	-.202	-.185	-1.316	0.078	0.9	1.0	1.9	1.2	A+	A-
404	601695	6	1225	.441	.183	.242	.441	.114	.020	.474	-.242	-.198	.474	-.092	0.635	0.066	0.1	1.0	1.1	1.1	A-	A-
405	601668	6	1229	.821	.067	.821	.059	.053	.001	.368	-.190	.368	-.161	-.249	-1.576	0.081	-0.6	1.0	-0.2	1.0	A+	B-
406	602069	6	1229	.727	.136	.065	.068	.727	.003	.422	-.223	-.227	-.206	.422	-0.925	0.072	0.1	1.0	-1.2	0.9	A-	A-
407	601261	6	614	.518	.018	.422	.518	.033	.010	.391	-.170	-.268	.391	-.135	0.170	0.091	2.7	1.1	2.0	1.1	A+	A-
408	601265	6	1229	.578	.116	.137	.156	.578	.013	.486	-.210	-.252	-.188	.486	-0.104	0.066	-0.8	1.0	-1.0	1.0	A+	A+
409	601666	6	614	.749	.021	.104	.098	.749	.028	.454	-.207	-.222	-.235	.454	-1.223	0.107	-0.6	1.0	-1.7	0.8	A-	B-
410	601226	6	1226	.839	.839	.016	.122	.016	.007	.358	.358	-.150	-.264	-.128	-1.722	0.086	0.1	1.0	0.1	1.0	A-	A-
411	601248	6	1226	.879	.074	.007	.879	.032	.008	.357	-.244	-.139	.357	-.177	-2.132	0.096	-0.9	0.9	-0.5	0.9	A-	A-
412	601269	6	1226	.788	.043	.043	.111	.788	.015	.500	-.236	-.254	-.277	.500	-1.349	0.079	-3.6	0.9	-3.4	0.7	B-	A-
413	601270	6	611	.802	.074	.052	.802	.067	.005	.403	-.242	-.240	.403	-.154	-1.377	0.112	-0.2	1.0	-1.0	0.9	A-	A-
414	601227	6	611	.527	.527	.350	.066	.056	.002	.321	.321	-.142	-.174	-.193	0.263	0.092	5.3	1.2	4.2	1.3	A-	A-
415	601250	6	615	.852	.138	.007	.852	.003	.000	.326	-.283	-.144	.326	-.120	-1.786	0.120	-0.5	1.0	0.4	1.1	A+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
416	601257	6	1228	.888	.011	.070	.019	.888	.011	.369	-.105	-.269	-.149	.369	-2.258	0.102	-0.9	0.9	-1.1	0.8	A+	A-
417	601714	6	1226	.875	.015	.875	.019	.073	.019	.284	-.150	.284	-.223	-.111	-2.186	0.098	0.1	1.0	1.5	1.2	A+	A-
418	601700	6	1231	.876	.041	.066	.016	.876	.001	.382	-.171	-.291	-.141	.382	-2.076	0.093	-1.7	0.9	-1.7	0.8	A-	B-
419	601664	6	614	.682	.218	.034	.682	.042	.023	.507	-.331	-.148	.507	-.220	-0.767	0.099	-1.6	0.9	-2.2	0.8	A-	A-
420	601694	6	1226	.665	.081	.208	.665	.034	.012	.427	-.177	-.272	.427	-.170	-0.552	0.068	-0.1	1.0	-0.3	1.0	A-	A+
421	601702	6	612	.583	.583	.114	.018	.273	.011	.343	.343	-.184	-.073	-.193	-0.167	0.094	4.6	1.2	4.6	1.3	A+	A+
422	600989	6	1231	.223	.223	.430	.202	.139	.007	.272	.272	-.032	.003	-.259	2.062	0.079	4.0	1.2	8.3	1.9	A-	A+
423	601031	6	1233	.820	.076	.062	.820	.020	.022	.474	-.231	-.275	.474	-.218	-1.605	0.087	-2.3	0.9	-2.5	0.7	B+	A-
424	600978	6	615	.813	.813	.115	.050	.021	.000	.400	.400	-.234	-.248	-.188	-1.477	0.113	-0.6	1.0	0.3	1.0	A-	A-
425	601024	6	611	.696	.070	.696	.174	.056	.005	.447	-.282	.447	-.176	-.259	-0.668	0.099	-0.6	1.0	0.1	1.0	A+	A+
426	600997	6	1228	.873	.053	.024	.046	.873	.003	.370	-.200	-.207	-.186	.370	-1.991	0.094	-0.8	1.0	-1.8	0.8	A+	B+
427	601036	6	1228	.582	.228	.086	.090	.582	.014	.494	-.199	-.223	-.272	.494	0.021	0.067	-0.7	1.0	-0.6	1.0	A+	A+
428	601005	6	1233	.165	.078	.650	.090	.165	.018	.219	-.238	.196	-.315	.219	2.748	0.089	3.8	1.2	9.9	3.9	A-	A+
429	601041	6	1230	.711	.711	.059	.139	.067	.024	.518	.518	-.197	-.290	-.241	-0.837	0.075	-2.7	0.9	-2.8	0.8	A+	A-
430	601012	6	1229	.710	.055	.098	.126	.710	.011	.510	-.180	-.292	-.258	.510	-0.676	0.074	-1.9	0.9	-1.9	0.9	A-	A+
431	601013	6	1228	.815	.815	.041	.074	.067	.003	.517	.517	-.255	-.309	-.264	-1.515	0.082	-4.2	0.8	-4.4	0.6	A-	A-
432	601033	6	1228	.937	.033	.937	.025	.003	.002	.230	-.126	.230	-.164	-.075	-2.939	0.125	0.2	1.0	2.7	1.7	B+	A+
433	601014	6	1231	.849	.034	.849	.083	.028	.006	.426	-.167	.426	-.308	-.183	-1.849	0.088	-2.0	0.9	-2.6	0.7	A-	A-
434	601000	6	1231	.711	.217	.047	.021	.711	.004	.293	-.166	-.146	-.170	.293	-0.794	0.070	3.9	1.1	5.3	1.4	A+	A+
435	601001	6	615	.961	.034	.961	.005	.000	.000	.206	-.168	.206	-.137	.000	-3.448	0.214	0.0	1.0	0.3	1.1	A+	A-
436	601017	6	1227	.741	.086	.065	.099	.741	.010	.527	-.247	-.232	-.304	.527	-1.071	0.073	-3.9	0.9	-3.9	0.7	B+	A-
437	601016	6	615	.715	.062	.104	.114	.715	.005	.454	-.241	-.207	-.253	.454	-0.875	0.100	-1.2	0.9	-1.1	0.9	C+	A-
438	600992	6	615	.581	.581	.145	.208	.062	.005	.453	.453	-.190	-.239	-.222	-0.116	0.092	-0.2	1.0	-0.1	1.0	A-	A-
439	601002	6	1227	.623	.097	.095	.623	.177	.009	.439	-.175	-.197	.439	-.248	-0.364	0.067	1.2	1.0	0.1	1.0	A-	A+
440	601039	6	1227	.797	.025	.135	.797	.021	.021	.419	-.176	-.252	.419	-.214	-1.543	0.081	-0.7	1.0	-0.7	0.9	A-	A-
441	601020	6	1223	.927	.927	.041	.016	.015	.002	.331	.331	-.247	-.171	-.119	-2.796	0.116	-1.1	0.9	-2.6	0.6	A+	A-
442	601003	6	1223	.872	.034	.872	.053	.038	.003	.325	-.162	.325	-.159	-.209	-2.095	0.092	-0.1	1.0	-1.1	0.9	A-	A-
443	600981	6	1223	.429	.180	.429	.134	.231	.026	.449	-.125	.449	-.175	-.218	0.633	0.067	2.1	1.1	3.0	1.1	B+	A+
444	601004	6	611	.358	.358	.077	.038	.524	.003	.333	.333	-.180	-.178	-.162	1.073	0.097	4.4	1.2	5.7	1.5	A-	A+
445	600984	6	611	.483	.455	.033	.028	.483	.002	.451	-.337	-.192	-.148	.451	0.398	0.093	1.2	1.1	1.4	1.1	A-	A-
446	600983	6	1222	.619	.037	.033	.619	.304	.007	.216	-.177	-.113	.216	-.087	-0.263	0.067	9.9	1.4	8.7	1.5	A-	A-
447	600985	6	1222	.795	.025	.016	.153	.795	.010	.371	-.159	-.177	-.240	.371	-1.381	0.079	0.9	1.0	-0.4	1.0	A-	A+
448	600982	6	611	.612	.038	.082	.259	.612	.010	.461	-.113	-.184	-.322	.461	-0.311	0.095	0.0	1.0	-0.1	1.0	B+	A+
449	601022	6	1222	.726	.042	.069	.154	.726	.010	.428	-.161	-.192	-.282	.428	-0.905	0.072	-0.8	1.0	-0.2	1.0	A-	A-
450	601023	6	1225	.847	.049	.058	.847	.040	.006	.384	-.147	-.243	.384	-.235	-1.793	0.087	-1.3	0.9	-1.8	0.8	A-	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
451	601018	6	1225	.522	.522	.286	.087	.088	.016	.496	.496	-.238	-.214	-.203	0.216	0.065	-1.3	1.0	-1.1	1.0	B+	A+
452	600986	6	1225	.764	.053	.764	.069	.087	.028	.487	-.244	.487	-.246	-.210	-1.259	0.077	-2.4	0.9	-2.7	0.8	A+	A-
453	600987	6	614	.754	.754	.138	.088	.015	.005	.495	.495	-.380	-.182	-.162	-1.130	0.104	-2.5	0.9	-2.5	0.8	A+	A-
454	601670	6	614	.899	.023	.029	.899	.041	.008	.406	-.187	-.194	.406	-.251	-2.456	0.147	-1.4	0.9	-1.7	0.7	A+	A-
455	601019	6	614	.394	.090	.132	.352	.394	.033	.393	-.148	-.146	-.150	.393	0.768	0.094	2.4	1.1	2.9	1.2	A+	A+
456	600979	6	1226	.874	.874	.062	.042	.020	.002	.358	.358	-.229	-.196	-.149	-2.017	0.093	-0.7	1.0	-1.8	0.8	A+	A-
457	600998	6	615	.738	.738	.179	.044	.037	.002	.279	.279	-.190	-.139	-.096	-0.947	0.103	3.9	1.2	2.2	1.3	A-	A-
458	600999	6	1226	.550	.038	.051	.350	.550	.011	.534	-.170	-.208	-.358	.534	0.114	0.066	-2.8	0.9	-2.8	0.9	A+	A+
459	601691	6	1226	.803	.044	.102	.803	.033	.018	.458	-.214	-.294	.458	-.168	-1.489	0.081	-2.0	0.9	-2.6	0.8	A+	A-
460	601034	6	611	.722	.722	.170	.034	.070	.003	.465	.465	-.328	-.204	-.156	-0.813	0.101	-1.3	0.9	-1.2	0.9	A+	A-
461	601028	6	611	.658	.110	.658	.113	.093	.026	.490	-.185	.490	-.327	-.154	-0.527	0.098	-1.2	1.0	-0.2	1.0	C+	A+
462	601035	6	615	.732	.732	.197	.054	.016	.002	.306	.306	-.186	-.199	-.112	-0.927	0.099	1.5	1.1	2.3	1.2	A+	A-
463	601029	6	615	.514	.047	.046	.361	.514	.033	.231	-.083	-.167	-.071	.231	0.144	0.091	7.1	1.3	5.4	1.3	A+	A+
464	601026	6	615	.842	.041	.041	.075	.842	.002	.410	-.135	-.245	-.281	.410	-1.712	0.118	-1.7	0.9	-1.1	0.9	A+	A-
465	601032	6	1229	.850	.054	.850	.054	.028	.016	.423	-.194	.423	-.218	-.236	-1.853	0.093	-1.5	0.9	-2.0	0.8	A-	A+
466	601030	6	1228	.675	.073	.675	.204	.039	.009	.427	-.199	.427	-.261	-.141	-0.500	0.070	0.9	1.0	0.2	1.0	A+	A+
467	601678	6	1229	.862	.030	.064	.862	.037	.007	.374	-.179	-.218	.374	-.171	-1.987	0.091	-1.0	0.9	-1.0	0.9	A-	A-
468	601044	6	1229	.736	.118	.093	.736	.037	.016	.476	-.224	-.276	.476	-.185	-0.883	0.076	-1.2	1.0	-1.3	0.9	A-	A+
469	601040	6	611	.583	.146	.583	.072	.196	.003	.574	-.345	.574	-.162	-.296	-0.129	0.093	-5.0	0.8	-4.4	0.7	A+	A-
470	602081	6	1223	.499	.142	.499	.132	.209	.020	.390	-.038	.390	-.134	-.285	0.275	0.066	5.1	1.2	5.5	1.3	A+	A-
471	602070	6	615	.911	.055	.911	.018	.015	.002	.357	-.281	.357	-.187	-.079	-2.513	0.150	-0.9	0.9	-0.4	0.9	A+	A-
472	601706	6	1228	.722	.096	.722	.101	.065	.016	.471	-.238	.471	-.187	-.253	-0.830	0.074	-1.3	1.0	-0.3	1.0	B+	A+
473	602071	6	1230	.876	.038	.876	.050	.020	.016	.464	-.215	.464	-.286	-.190	-2.248	0.101	-2.4	0.9	-3.8	0.5	A-	A-
474	601712	6	1228	.626	.626	.164	.161	.041	.008	.487	.487	-.223	-.278	-.181	-0.213	0.068	-1.7	1.0	-1.1	0.9	A-	A-
475	601256	6	1228	.727	.071	.099	.727	.093	.011	.493	-.234	-.311	.493	-.167	-0.839	0.073	-2.2	0.9	-2.3	0.8	A+	A+
476	601253	6	1230	.673	.673	.111	.082	.124	.009	.463	.463	-.185	-.150	-.318	-0.514	0.072	1.6	1.1	0.7	1.0	A+	A+
477	601244	6	1230	.559	.559	.122	.222	.078	.020	.504	.504	-.289	-.222	-.146	0.142	0.069	-0.8	1.0	-0.2	1.0	A+	A-
478	601254	6	1229	.773	.028	.773	.081	.107	.012	.514	-.165	.514	-.273	-.304	-1.138	0.080	-3.2	0.9	-3.9	0.7	A+	A-
479	601711	6	1228	.841	.073	.041	.045	.841	.001	.399	-.187	-.207	-.272	.399	-1.727	0.086	-1.3	0.9	-1.3	0.9	A+	A-
480	602063	6	1228	.218	.218	.172	.119	.482	.009	.265	.265	-.077	-.143	-.048	2.139	0.080	4.3	1.2	6.5	1.8	A+	A-
481	602066	6	1228	.627	.627	.271	.033	.064	.005	.427	.427	-.223	-.233	-.240	-0.274	0.068	1.4	1.0	0.7	1.0	A-	A-
482	602067	6	1231	.599	.189	.164	.599	.046	.003	.396	-.257	-.111	.396	-.241	-0.158	0.066	2.2	1.1	1.8	1.1	A+	A+
483	602064	6	1231	.652	.652	.033	.160	.152	.003	.372	.372	-.161	-.257	-.129	-0.448	0.068	2.2	1.1	2.2	1.1	A-	B-
484	601279	6	615	.642	.215	.029	.111	.642	.003	.588	-.371	-.155	-.312	.588	-0.437	0.094	-5.3	0.8	-4.5	0.7	A-	B-
485	602074	6	1227	.621	.017	.621	.342	.017	.003	.524	-.192	.524	-.428	-.157	-0.337	0.067	-2.7	0.9	-3.0	0.9	A-	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
486	602075	6	1227	.307	.176	.307	.279	.218	.020	.186	-.020	.186	-.036	-.105	1.337	0.070	9.8	1.4	9.9	1.7	A+	A+
487	601042	6	1223	.609	.290	.047	.609	.052	.001	.524	-.389	-.213	.524	-.148	-0.269	0.067	-3.5	0.9	-2.4	0.9	A-	A-
488	602077	6	1223	.492	.492	.133	.230	.138	.007	.523	.523	-.149	-.313	-.205	0.337	0.066	-2.3	0.9	-1.8	0.9	A+	B-
489	601299	6	1227	.494	.214	.215	.494	.067	.010	.603	-.317	-.290	.603	-.162	0.308	0.065	-7.5	0.8	-6.1	0.8	A+	B-
490	602079	6	611	.696	.118	.129	.054	.696	.003	.415	-.197	-.248	-.173	.415	-0.755	0.098	0.2	1.0	0.5	1.0	A+	A-
491	602080	6	611	.902	.902	.049	.018	.021	.010	.342	.342	-.182	-.193	-.178	-2.505	0.150	-0.9	0.9	-0.2	0.9	A+	B-
492	600993	6	611	.658	.172	.124	.658	.043	.003	.532	-.363	-.231	.532	-.171	-0.397	0.096	-3.1	0.9	-2.8	0.8	A+	B-
493	601696	6	611	.444	.106	.242	.444	.198	.010	.264	-.215	.047	.264	-.167	0.736	0.093	6.8	1.3	6.6	1.4	A+	A+
494	602084	6	611	.393	.393	.182	.358	.051	.016	.305	.305	-.279	.046	-.178	0.996	0.095	5.6	1.2	4.8	1.3	A-	A-
495	600996	6	1225	.560	.257	.122	.560	.051	.011	.506	-.234	-.308	.506	-.149	0.036	0.066	-2.6	0.9	-1.3	0.9	A-	B-
496	602085	6	1225	.756	.084	.098	.039	.756	.023	.436	-.138	-.312	-.148	.436	-1.171	0.076	-0.8	1.0	-0.8	0.9	C+	A+
497	601303	6	614	.660	.155	.660	.067	.114	.005	.429	-.192	.429	-.153	-.293	-0.565	0.096	0.2	1.0	-0.5	1.0	A+	A-
498	601715	6	614	.759	.759	.065	.106	.065	.005	.449	.449	-.166	-.260	-.253	-1.166	0.105	-1.4	0.9	-0.7	0.9	A+	A-
499	601290	6	1229	.705	.705	.214	.058	.020	.003	.404	.404	-.251	-.221	-.168	-0.783	0.070	1.5	1.1	-0.2	1.0	A+	B-
500	601285	6	1226	.612	.126	.076	.612	.185	.002	.479	-.344	-.137	.479	-.210	-0.193	0.066	-1.3	1.0	-0.5	1.0	A+	A-
501	601697	6	1226	.533	.381	.533	.043	.040	.003	.270	-.121	.270	-.163	-.202	0.223	0.065	9.9	1.3	8.4	1.4	B+	A+
502	601709	6	615	.234	.502	.153	.102	.234	.008	.288	-.042	-.163	-.102	.288	1.982	0.110	3.8	1.2	6.3	2.0	A-	A-
503	601294	6	615	.753	.063	.753	.132	.041	.011	.491	-.246	.491	-.259	-.240	-1.093	0.106	-2.2	0.9	-1.7	0.8	A+	A-
504	601304	6	615	.782	.039	.049	.119	.782	.011	.364	-.164	-.159	-.211	.364	-1.309	0.110	0.8	1.1	1.4	1.2	A+	A+
505	601296	6	1226	.695	.047	.127	.119	.695	.011	.534	-.188	-.256	-.335	.534	-0.706	0.070	-4.5	0.9	-4.0	0.8	A+	A-
506	601692	6	1226	.850	.088	.017	.044	.850	.001	.316	-.207	-.150	-.158	.316	-1.762	0.086	-0.3	1.0	2.7	1.3	A+	A+
507	601274	6	1226	.598	.133	.598	.158	.099	.012	.512	-.261	.512	-.234	-.209	-0.186	0.066	-3.2	0.9	-3.1	0.9	A+	A-
508	601708	6	1226	.668	.101	.121	.098	.668	.012	.453	-.162	-.245	-.240	.453	-0.570	0.068	-0.8	1.0	-1.6	0.9	A+	A+
509	601255	6	615	.210	.652	.210	.075	.057	.007	.129	.081	.129	-.246	-.093	1.898	0.108	3.4	1.2	6.9	1.9	A-	B+
510	601693	6	615	.837	.034	.837	.018	.083	.028	.354	-.229	.354	-.117	-.162	-1.873	0.125	0.1	1.0	-0.7	0.9	A-	B-
511	601705	6	1225	.550	.009	.550	.233	.205	.003	.348	-.068	.348	-.113	-.289	0.102	0.065	5.5	1.2	4.3	1.2	B-	B-
512	601277	6	1231	.651	.093	.145	.651	.105	.007	.527	-.293	-.232	.527	-.243	-0.454	0.068	-4.5	0.9	-4.0	0.8	A+	A-
513	602073	6	615	.781	.047	.070	.083	.781	.020	.430	-.263	-.191	-.176	.430	-1.380	0.110	-0.5	1.0	-0.7	0.9	A+	A+
514	601275	6	615	.389	.187	.389	.306	.081	.037	.455	-.140	.455	-.174	-.203	0.782	0.093	-0.6	1.0	-0.1	1.0	A-	A+
515	601301	6	1229	.884	.055	.024	.030	.884	.007	.381	-.212	-.159	-.205	.381	-2.163	0.101	-1.0	0.9	-0.3	1.0	A+	A+
516	601245	6	1230	.595	.095	.186	.595	.120	.004	.447	-.258	-.275	.447	-.099	0.102	0.068	1.2	1.0	1.3	1.1	A+	A+
517	599720	7	797	.565	.565	.274	.079	.033	.050	.449	.449	-.238	-.184	-.155	-0.129	0.085	1.6	1.1	1.0	1.1	A+	A+
518	599734	7	799	.611	.131	.099	.150	.611	.009	.471	-.173	-.164	-.310	.471	-0.034	0.082	-1.7	0.9	-1.1	0.9	A-	A+
519	602189	7	800	.640	.110	.078	.148	.640	.025	.507	-.175	-.266	-.238	.507	-0.363	0.084	-2.0	0.9	-1.9	0.9	B-	B-
520	599633	7	800	.848	.069	.848	.063	.018	.004	.372	-.085	.372	-.342	-.176	-1.589	0.110	-0.9	0.9	0.4	1.1	A+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
521	599685	7	400	.840	.840	.083	.045	.033	.000	.417	.417	-.234	-.229	-.230	-1.510	0.146	-1.4	0.9	-1.8	0.7	B+	A-
522	599708	7	1592	.576	.162	.076	.168	.576	.018	.517	-.310	-.164	-.216	.517	0.058	0.060	-2.2	0.9	-3.2	0.9	A-	B+
523	599715	7	799	.593	.033	.307	.593	.045	.023	.314	-.159	-.136	.314	-.196	-0.054	0.082	6.0	1.2	3.9	1.3	A+	A+
524	599650	7	800	.566	.158	.566	.228	.046	.003	.395	-.200	.395	-.202	-.165	0.346	0.084	3.7	1.1	3.4	1.2	A-	A+
525	599630	7	800	.375	.375	.181	.270	.164	.010	.384	.384	-.113	-.208	-.107	1.117	0.084	3.2	1.1	3.5	1.2	A+	A+
526	599631	7	797	.502	.084	.153	.502	.220	.041	.497	-.172	-.277	.497	-.177	0.262	0.084	-0.7	1.0	0.3	1.0	A-	A-
527	599730	7	800	.758	.758	.128	.053	.054	.009	.458	.458	-.264	-.287	-.154	-1.030	0.092	-2.2	0.9	-1.9	0.8	B-	B-
528	599707	7	1600	.814	.056	.052	.068	.814	.010	.390	-.190	-.208	-.198	.390	-1.400	0.072	-0.7	1.0	-1.1	0.9	B+	A-
529	599719	7	800	.664	.071	.060	.664	.161	.044	.412	-.166	-.180	.412	-.184	-0.616	0.088	1.3	1.1	0.6	1.0	A-	B+
530	599721	7	800	.514	.514	.180	.156	.114	.036	.489	.489	-.201	-.205	-.181	0.196	0.080	-2.5	0.9	-2.8	0.9	A+	A-
531	599709	7	800	.573	.075	.245	.573	.066	.041	.553	-.174	-.362	.553	-.160	-0.133	0.082	-4.8	0.9	-4.3	0.8	A+	A+
532	599632	7	800	.471	.103	.193	.471	.170	.064	.458	-.190	-.163	.458	-.171	0.329	0.081	0.2	1.0	-0.2	1.0	A-	A+
533	599725	7	800	.820	.030	.108	.820	.040	.003	.464	-.202	-.342	.464	-.175	-1.319	0.103	-2.1	0.9	-3.1	0.6	A-	A-
534	599726	7	795	.684	.684	.102	.162	.047	.005	.491	.491	-.226	-.315	-.180	-0.399	0.091	-2.0	0.9	-2.1	0.8	A+	A+
535	599634	7	795	.538	.072	.538	.096	.292	.003	.491	-.291	.491	-.173	-.262	0.436	0.084	0.3	1.0	0.3	1.0	A-	A-
536	601120	7	795	.564	.174	.209	.564	.050	.004	.492	-.336	-.196	.492	-.163	0.288	0.085	-1.3	1.0	-0.4	1.0	A+	A-
537	599690	7	799	.801	.100	.801	.035	.059	.005	.515	-.309	.515	-.226	-.264	-1.204	0.097	-3.8	0.8	-4.1	0.6	A+	A+
538	601133	7	799	.383	.116	.383	.399	.093	.009	.417	-.176	.417	-.214	-.127	1.136	0.082	0.2	1.0	0.6	1.0	A-	A+
539	599683	7	799	.369	.179	.369	.115	.303	.034	.184	-.097	.184	-.233	.118	1.147	0.083	7.9	1.3	7.6	1.5	A+	A+
540	599691	7	400	.893	.015	.065	.023	.893	.005	.358	-.096	-.282	-.118	.358	-2.067	0.172	-0.5	0.9	-1.0	0.8	A+	
541	601134	7	798	.650	.650	.053	.266	.023	.009	.440	.440	-.197	-.278	-.215	-0.276	0.083	-1.0	1.0	-0.1	1.0	A+	A-
542	599733	7	400	.543	.040	.543	.230	.168	.020	.501	-.121	.501	-.196	-.284	0.197	0.112	-2.1	0.9	-2.2	0.9	B+	
543	599624	7	400	.335	.145	.178	.335	.315	.028	.363	-.109	-.229	.363	-.012	1.234	0.117	0.9	1.0	1.5	1.1	A+	
544	599710	7	398	.696	.108	.111	.696	.083	.003	.449	-.194	-.321	.449	-.156	-0.466	0.122	-1.0	0.9	-0.8	0.9	A+	A-
545	599625	7	398	.312	.312	.405	.194	.055	.035	.267	.267	-.078	-.023	-.126	1.536	0.122	3.4	1.2	4.3	1.5	B+	A+
546	599626	7	798	.556	.107	.246	.556	.054	.038	.474	-.172	-.259	.474	-.133	0.147	0.083	0.7	1.0	0.0	1.0	A+	A+
547	602161	7	798	.479	.234	.120	.479	.129	.038	.449	-.025	-.181	.449	-.345	0.566	0.082	1.7	1.1	1.3	1.1	A+	A+
548	599735	7	798	.538	.150	.538	.103	.167	.043	.499	-.078	.499	-.223	-.313	0.233	0.083	-1.0	1.0	-0.8	1.0	C-	B-
549	599736	7	400	.433	.160	.290	.433	.108	.010	.424	-.130	-.277	.424	-.103	0.856	0.116	1.4	1.1	1.6	1.1	A-	A-
550	599627	7	800	.751	.063	.080	.055	.751	.051	.527	-.201	-.257	-.245	.527	-1.196	0.097	-3.2	0.9	-3.2	0.7	C+	B+
551	599692	7	800	.324	.334	.164	.324	.146	.033	.122	.123	-.109	.122	-.113	1.329	0.085	9.6	1.4	9.1	1.7	A+	A+
552	599629	7	799	.820	.050	.084	.820	.029	.018	.454	-.241	-.261	.454	-.186	-1.544	0.103	-2.4	0.9	-2.5	0.7	A+	A-
553	599636	7	799	.348	.078	.388	.177	.348	.010	.440	-.176	-.193	-.149	.440	1.210	0.084	0.1	1.0	-0.1	1.0	A+	A+
554	599635	7	400	.408	.220	.408	.155	.190	.028	.300	-.107	.300	-.087	-.087	0.793	0.115	3.4	1.2	4.5	1.3	A-	A+
555	599628	7	400	.648	.648	.125	.095	.100	.033	.522	.522	-.246	-.277	-.140	-0.493	0.119	-2.3	0.9	-1.8	0.8	C+	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
556	601783	7	400	.723	.050	.723	.105	.088	.035	.483	-.191	.483	-.246	-.187	-0.967	0.128	-1.2	0.9	-1.3	0.8	A-	A+
557	601809	7	799	.601	.081	.601	.134	.163	.021	.483	-.140	.483	-.231	-.255	-0.157	0.082	-1.4	1.0	-1.6	0.9	A-	A-
558	599713	7	400	.248	.125	.390	.173	.248	.065	.299	-.214	.057	-.052	.299	1.649	0.130	2.1	1.1	3.7	1.5	C-	A-
559	599714	7	799	.543	.103	.543	.274	.039	.041	.378	-.272	.378	-.090	-.123	0.093	0.082	3.9	1.1	2.6	1.1	A-	A-
560	599647	7	799	.621	.621	.192	.116	.054	.018	.582	.582	-.313	-.277	-.211	-0.180	0.083	-5.9	0.8	-5.2	0.7	A+	A-
561	599648	7	400	.358	.358	.500	.095	.048	.000	.415	.415	-.191	-.222	-.181	1.295	0.119	1.2	1.1	1.3	1.1	A+	A-
562	599717	7	802	.858	.011	.062	.057	.858	.011	.368	-.109	-.172	-.231	.368	-1.732	0.111	-0.5	1.0	-0.4	0.9	C-	A+
563	599716	7	400	.820	.048	.820	.080	.025	.028	.310	-.124	.310	-.166	-.161	-1.551	0.149	0.5	1.0	1.0	1.2	A-	A+
564	599729	7	803	.407	.247	.189	.407	.152	.005	.430	-.091	-.111	.430	-.339	1.031	0.081	0.4	1.0	2.6	1.1	A-	A-
565	599693	7	402	.463	.082	.463	.087	.341	.027	.523	-.189	.523	-.238	-.213	0.696	0.114	-1.5	0.9	-1.2	0.9	B+	A-
566	599687	7	803	.493	.149	.493	.193	.137	.027	.435	-.234	.435	-.157	-.126	0.531	0.081	0.5	1.0	-0.1	1.0	A-	A-
567	599718	7	803	.765	.765	.079	.077	.037	.042	.396	.396	-.192	-.234	-.146	-1.147	0.097	-0.9	1.0	-0.3	1.0	B+	A+
568	602155	7	398	.626	.143	.626	.085	.138	.008	.402	-.274	.402	-.255	-.037	-0.089	0.117	1.2	1.1	0.8	1.1	A-	B-
569	599682	7	795	.755	.064	.755	.128	.050	.003	.487	-.227	.487	-.282	-.264	-0.882	0.096	-2.4	0.9	-0.6	0.9	A-	A-
570	599732	7	797	.531	.067	.215	.151	.531	.038	.505	-.214	-.213	-.249	.505	0.114	0.083	-3.1	0.9	-3.1	0.8	A+	A+
571	599727	7	799	.875	.034	.030	.875	.035	.026	.353	-.211	-.146	.353	-.171	-2.084	0.125	-0.8	0.9	-1.9	0.7	A-	B-
572	599686	7	802	.458	.458	.247	.166	.100	.030	.423	.423	-.176	-.173	-.166	0.689	0.082	1.8	1.1	1.3	1.1	A+	A+
573	599722	7	800	.741	.048	.048	.160	.741	.004	.468	-.167	-.229	-.321	.468	-0.729	0.093	-0.9	1.0	-1.3	0.9	A+	A-
574	599684	7	799	.677	.096	.677	.109	.093	.025	.449	-.186	.449	-.230	-.219	-0.539	0.086	-0.5	1.0	-0.6	1.0	A+	A+
575	599712	7	800	.299	.123	.299	.460	.090	.029	.018	-.075	.018	.166	-.128	1.377	0.086	9.9	1.5	8.7	1.7	A-	A-
576	599711	7	798	.525	.248	.132	.525	.078	.018	.548	-.246	-.254	.548	-.191	0.392	0.081	-2.9	0.9	-2.9	0.9	A+	A+
577	602215	7	797	.694	.129	.082	.055	.694	.040	.541	-.343	-.220	-.202	.541	-0.825	0.090	-5.0	0.8	-4.7	0.7	A+	A+
578	602190	7	799	.542	.170	.542	.194	.080	.014	.568	-.330	.568	-.211	-.204	0.257	0.081	-5.3	0.8	-4.1	0.8	A-	A-
579	602193	7	799	.492	.190	.492	.073	.237	.009	.457	-.399	.457	-.100	-.082	0.565	0.080	-0.5	1.0	-0.4	1.0	A-	A-
580	602180	7	803	.390	.131	.390	.364	.098	.017	.557	-.086	.557	-.319	-.215	1.103	0.082	-4.1	0.9	-3.2	0.8	A-	A-
581	602139	7	800	.383	.100	.383	.309	.183	.026	.306	-.162	.306	-.080	-.101	1.026	0.084	5.5	1.2	5.4	1.4	A-	A+
582	602197	7	800	.628	.134	.628	.033	.189	.018	.446	-.250	.446	-.206	-.195	-0.282	0.084	0.4	1.0	-0.1	1.0	A-	A+
583	602140	7	797	.344	.344	.083	.427	.109	.038	.489	.489	-.190	-.187	-.178	1.171	0.086	0.1	1.0	-0.1	1.0	A+	A-
584	602211	7	800	.659	.060	.659	.098	.154	.030	.486	-.201	.486	-.287	-.182	-0.569	0.085	-2.9	0.9	-2.5	0.8	A+	A-
585	602166	7	800	.313	.143	.355	.313	.131	.059	.235	-.116	.037	.235	-.139	1.221	0.086	5.3	1.2	6.4	1.5	A-	A-
586	602216	7	800	.453	.065	.155	.321	.453	.006	.556	-.087	-.322	-.296	.556	0.982	0.085	-3.4	0.9	-2.6	0.8	A-	B-
587	602178	7	800	.440	.440	.084	.375	.098	.004	.385	.385	-.113	-.336	.026	1.059	0.085	5.2	1.2	5.1	1.4	A-	A+
588	602192	7	795	.584	.205	.117	.584	.078	.016	.470	-.353	-.143	.470	-.092	0.131	0.086	0.4	1.0	0.1	1.0	A+	A-
589	602219	7	795	.531	.067	.235	.159	.531	.009	.573	-.279	-.267	-.256	.573	0.464	0.085	-4.2	0.9	-2.6	0.9	A-	A-
590	602220	7	799	.652	.145	.106	.652	.080	.016	.514	-.308	-.260	.514	-.119	-0.303	0.084	-3.4	0.9	-2.8	0.8	A-	B-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
591	602213	7	798	.297	.297	.335	.227	.104	.038	.396	.396	-.127	-.105	-.118	1.516	0.086	0.6	1.0	1.6	1.1	A+	A-
592	602198	7	798	.734	.051	.088	.734	.102	.025	.562	-.228	-.277	.562	-.268	-0.852	0.091	-4.2	0.8	-4.6	0.7	A+	A-
593	602194	7	798	.509	.150	.249	.509	.079	.013	.320	-.278	-.088	.320	-.022	0.485	0.081	5.7	1.2	4.1	1.2	A+	A-
594	602214	7	398	.523	.276	.523	.078	.085	.030	.420	-.228	.420	-.092	-.124	0.372	0.116	1.8	1.1	2.1	1.2	A+	A+
595	602199	7	398	.751	.053	.088	.751	.043	.065	.554	-.287	-.297	.554	-.182	-1.202	0.142	-2.5	0.8	-2.9	0.6	B-	A+
596	602195	7	800	.478	.273	.183	.478	.056	.011	.357	-.217	-.054	.357	-.178	0.549	0.080	3.7	1.1	3.4	1.2	A+	A+
597	602200	7	400	.510	.113	.158	.510	.205	.015	.343	-.133	-.172	.343	-.101	0.309	0.113	2.1	1.1	2.4	1.2	A-	A+
598	602179	7	400	.353	.200	.300	.353	.098	.050	.445	-.269	-.134	.445	.049	1.036	0.119	0.2	1.0	0.4	1.0	A+	A-
599	602217	7	799	.389	.389	.264	.190	.116	.040	.528	.528	-.142	-.237	-.200	0.997	0.084	-2.0	0.9	-1.4	0.9	B-	A+
600	602181	7	399	.494	.113	.256	.494	.065	.060	.611	-.250	-.366	.611	-.063	0.315	0.118	-4.4	0.8	-3.8	0.7	A-	A-
601	602201	7	399	.406	.206	.143	.188	.406	.058	.113	.091	-.004	-.144	.113	0.822	0.118	8.6	1.5	7.8	1.7	A-	A+
602	602164	7	400	.663	.020	.033	.285	.663	.000	.432	-.152	-.151	-.346	.432	-0.332	0.118	-0.3	1.0	-0.7	0.9	A-	A+
603	602228	7	400	.550	.178	.160	.550	.095	.018	.421	-.068	-.237	.421	-.267	0.217	0.115	1.5	1.1	1.1	1.1	A+	A-
604	602196	7	803	.659	.111	.659	.135	.088	.008	.515	-.346	.515	-.230	-.163	-0.298	0.083	-3.9	0.9	-3.6	0.8	A+	A-
605	602165	7	402	.468	.127	.291	.468	.087	.027	.456	-.238	-.195	.456	-.066	0.673	0.114	0.8	1.0	0.6	1.0	A-	A-
606	602231	7	402	.460	.187	.177	.460	.149	.027	.298	.092	-.245	.298	-.134	0.715	0.114	4.8	1.2	4.7	1.4	A-	A+
607	602182	7	402	.587	.065	.587	.110	.209	.030	.487	-.233	.487	-.203	-.196	0.025	0.116	-0.7	1.0	-1.2	0.9	C+	A+
608	602142	7	400	.415	.120	.415	.050	.405	.010	.560	-.327	.560	-.241	-.206	0.960	0.116	-2.5	0.9	-2.2	0.9	A-	B-
609	602144	7	800	.589	.120	.116	.165	.589	.010	.575	-.262	-.347	-.210	.575	-0.031	0.081	-5.7	0.8	-4.7	0.8	A-	A+
610	602141	7	799	.647	.138	.150	.647	.048	.004	.481	-.284	-.288	.481	-.049	-0.312	0.084	-2.1	0.9	-0.7	1.0	A-	A-
611	602143	7	798	.590	.123	.198	.590	.061	.028	.473	-.295	-.182	.473	-.174	0.008	0.083	-1.4	1.0	-0.5	1.0	A-	A-
612	601784	7	398	.744	.744	.058	.073	.063	.063	.545	.545	-.306	-.300	-.152	-1.128	0.140	-2.6	0.8	-2.2	0.7	A-	A-
613	601704	7	795	.847	.009	.025	.111	.847	.009	.395	-.108	-.177	-.285	.395	-1.686	0.111	-0.8	1.0	-1.0	0.8	B+	A-
614	601827	7	800	.529	.179	.114	.144	.529	.035	.491	-.217	-.174	-.213	.491	0.204	0.083	-0.6	1.0	-0.3	1.0	A+	A+
615	602202	7	795	.787	.126	.042	.045	.787	.000	.384	-.256	-.223	-.135	.384	-1.119	0.098	0.6	1.0	1.3	1.2	A+	A+
616	602236	7	800	.671	.671	.165	.105	.029	.030	.520	.520	-.255	-.286	-.200	-0.594	0.087	-2.7	0.9	-2.5	0.8	A+	A-
617	601761	7	800	.600	.600	.131	.101	.121	.046	.499	.499	-.233	-.236	-.162	-0.240	0.085	-1.3	1.0	0.0	1.0	A+	A-
618	602218	7	797	.606	.123	.168	.606	.068	.035	.359	-.158	-.145	.359	-.200	-0.294	0.084	3.0	1.1	2.7	1.2	A-	A-
619	601828	7	797	.297	.060	.129	.461	.297	.053	.388	-.122	-.068	-.174	.388	1.420	0.089	1.9	1.1	2.2	1.2	A+	A-
620	601762	7	797	.594	.078	.183	.594	.082	.064	.373	-.110	-.144	.373	-.210	-0.321	0.086	2.1	1.1	2.0	1.1	A-	A+
621	602221	7	802	.779	.060	.779	.107	.042	.011	.413	-.162	.413	-.229	-.225	-1.173	0.096	-0.9	1.0	-1.0	0.9	A+	A+
622	601786	7	802	.513	.172	.151	.137	.513	.027	.413	-.220	-.157	-.115	.413	0.351	0.081	0.5	1.0	-0.1	1.0	A+	A-
623	601765	7	802	.814	.814	.036	.050	.060	.040	.363	.363	-.121	-.240	-.162	-1.644	0.109	-0.4	1.0	-1.1	0.9	A+	A-
624	601766	7	800	.794	.013	.794	.065	.129	.000	.432	-.106	.432	-.343	-.234	-1.093	0.099	-0.9	1.0	-1.0	0.9	A-	B-
625	601822	7	800	.893	.893	.041	.043	.023	.001	.312	.312	-.128	-.196	-.197	-2.058	0.125	-0.3	1.0	0.2	1.0	A+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
626	602222	7	800	.706	.119	.054	.116	.706	.005	.431	-.157	-.270	-.244	.431	-0.502	0.090	0.4	1.0	1.5	1.1	A+	B-
627	601671	7	795	.501	.255	.501	.175	.057	.013	.391	-.137	.391	-.124	-.294	0.634	0.085	4.6	1.2	4.2	1.3	A-	A-
628	601815	7	798	.310	.310	.075	.361	.222	.033	.309	.309	-.183	-.134	-.009	1.451	0.085	3.2	1.1	3.5	1.2	A-	A-
629	602060	7	798	.399	.196	.295	.085	.399	.026	.407	-.208	-.071	-.193	.407	0.976	0.081	1.6	1.1	1.3	1.1	A+	A+
630	601684	7	798	.810	.104	.038	.810	.028	.021	.389	-.224	-.150	.389	-.160	-1.384	0.102	-0.4	1.0	0.0	1.0	A+	C-
631	602145	7	801	.621	.621	.075	.121	.152	.031	.506	.506	-.228	-.256	-.166	-0.217	0.083	-1.9	0.9	-0.7	1.0	A-	A-
632	601683	7	400	.630	.310	.033	.008	.630	.020	.345	-.224	-.090	-.153	.345	-0.254	0.115	1.6	1.1	2.0	1.2	A-	
633	602050	7	801	.562	.562	.065	.105	.210	.059	.473	.473	-.254	-.261	-.094	0.000	0.082	-0.3	1.0	-0.3	1.0	A-	A-
634	601674	7	398	.591	.091	.176	.116	.591	.028	.540	-.205	-.196	-.294	.540	0.024	0.117	-1.7	0.9	-1.6	0.9	A-	A-
635	601685	7	800	.795	.020	.043	.139	.795	.004	.214	-.099	-.034	-.164	.214	-1.238	0.095	2.8	1.2	4.9	1.6	A-	A+
636	601823	7	800	.801	.801	.099	.049	.016	.035	.517	.517	-.331	-.208	-.150	-1.486	0.103	-3.1	0.8	-3.6	0.6	A+	A+
637	601785	7	801	.832	.080	.832	.035	.036	.018	.456	-.258	.456	-.223	-.168	-1.554	0.106	-1.9	0.9	-2.0	0.7	A+	A-
638	602108	7	801	.463	.463	.112	.225	.160	.040	.500	.500	-.243	-.279	-.035	0.638	0.082	-0.4	1.0	-0.7	1.0	A-	A-
639	602109	7	800	.768	.059	.103	.058	.768	.014	.508	-.238	-.282	-.223	.508	-1.096	0.093	-3.2	0.9	-3.9	0.7	A+	B-
640	601824	7	400	.693	.185	.053	.068	.693	.003	.519	-.302	-.236	-.265	.519	-0.635	0.120	-3.0	0.9	-1.8	0.8	A-	A-
641	602110	7	400	.240	.240	.293	.233	.223	.013	.349	.349	-.197	-.279	.144	1.779	0.129	0.6	1.0	1.2	1.1	A+	B-
642	601710	7	799	.753	.120	.063	.753	.060	.004	.306	-.109	-.142	.306	-.217	-0.963	0.090	1.3	1.1	1.9	1.2	A-	A-
643	601825	7	399	.852	.038	.058	.852	.045	.008	.425	-.231	-.243	.425	-.191	-1.705	0.153	-1.4	0.9	-2.0	0.6	A-	A-
644	601767	7	399	.529	.053	.070	.336	.529	.013	.411	-.171	-.223	-.184	.411	0.316	0.114	1.3	1.1	1.2	1.1	A+	A+
645	601679	7	799	.764	.034	.168	.033	.764	.003	.404	-.199	-.265	-.181	.404	-0.968	0.091	-1.0	1.0	0.1	1.0	A-	A-
646	601768	7	799	.657	.031	.049	.657	.227	.036	.411	-.223	-.141	.411	-.221	-0.466	0.086	1.0	1.0	1.2	1.1	A-	A-
647	601833	7	799	.451	.081	.451	.303	.121	.044	.455	-.081	.455	-.219	-.215	0.641	0.082	1.1	1.0	1.5	1.1	A-	A+
648	601680	7	802	.698	.698	.075	.153	.067	.006	.385	.385	-.183	-.215	-.169	-0.537	0.086	0.5	1.0	1.5	1.1	A+	A-
649	601834	7	802	.334	.302	.197	.130	.334	.037	.427	-.136	-.119	-.169	.427	1.361	0.086	1.2	1.1	2.8	1.2	A+	B-
650	601688	7	402	.463	.463	.289	.102	.129	.017	.481	.481	-.082	-.342	-.260	0.714	0.114	-0.8	1.0	-1.3	0.9	A+	A-
651	601699	7	803	.553	.108	.553	.218	.079	.042	.446	-.232	.446	-.131	-.203	0.157	0.082	1.4	1.1	0.6	1.0	A-	A-
652	601703	7	803	.682	.682	.220	.054	.029	.015	.426	.426	-.244	-.189	-.175	-0.459	0.085	0.1	1.0	-0.2	1.0	A+	A-
653	601660	7	402	.711	.070	.087	.097	.711	.035	.546	-.134	-.265	-.327	.546	-0.721	0.127	-2.8	0.8	-2.1	0.8	A+	A-
654	601826	7	803	.736	.088	.051	.067	.736	.057	.457	-.151	-.185	-.243	.457	-1.021	0.096	-0.9	1.0	-0.8	0.9	B+	A+
655	601835	7	402	.455	.455	.182	.149	.154	.060	.485	.485	-.255	-.109	-.142	0.647	0.116	-0.5	1.0	-0.1	1.0	B+	A+
656	601677	7	399	.622	.025	.130	.198	.622	.025	.329	-.022	-.010	-.285	.329	-0.225	0.118	3.4	1.2	2.3	1.2	A+	B+
657	601687	7	802	.549	.077	.549	.165	.187	.022	.393	-.211	.393	-.212	-.111	0.229	0.081	2.2	1.1	3.1	1.2	A-	A-
658	601218	7	400	.645	.140	.040	.148	.645	.028	.511	-.243	-.203	-.247	.511	-0.336	0.120	-1.5	0.9	-0.9	0.9	A+	A+
659	602234	7	803	.269	.269	.088	.265	.347	.030	.215	.215	-.092	-.152	.079	1.783	0.090	5.8	1.3	6.4	1.6	A-	A+
660	602146	7	398	.636	.636	.043	.294	.028	.000	.285	.285	-.151	-.168	-.184	-0.116	0.117	3.7	1.2	2.7	1.3	A+	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rash		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
661	601287	7	400	.860	.860	.075	.028	.025	.013	.481	.481	-.316	-.211	-.159	-1.782	0.158	-1.7	0.8	-2.7	0.6	A+	
662	601772	7	795	.870	.029	.039	.870	.059	.003	.387	-.163	-.217	.387	-.261	-1.912	0.118	-1.0	0.9	-1.2	0.8	A-	A-
663	601273	7	800	.341	.341	.368	.145	.099	.048	.278	.278	.140	-.290	-.169	1.192	0.085	6.0	1.2	5.7	1.4	A+	B+
664	601278	7	402	.525	.045	.525	.197	.231	.003	.424	.000	.424	-.208	-.304	0.428	0.113	0.2	1.0	0.1	1.0	A-	A-
665	601067	7	799	.442	.063	.085	.388	.442	.023	.358	-.183	-.193	-.113	.358	0.752	0.082	4.8	1.2	5.2	1.3	A+	A-
666	601771	7	802	.531	.531	.168	.165	.092	.044	.534	.534	-.237	-.271	-.162	0.207	0.082	-3.3	0.9	-3.1	0.8	A+	A-
667	601271	7	798	.605	.605	.150	.130	.068	.046	.566	.566	-.301	-.245	-.186	-0.163	0.085	-3.8	0.9	-2.4	0.9	B+	B+
668	601355	7	400	.678	.678	.153	.113	.055	.003	.497	.497	-.278	-.269	-.204	-0.425	0.119	-2.4	0.9	-1.9	0.8	A-	A+
669	601769	7	800	.713	.220	.713	.025	.019	.024	.415	-.257	.415	-.191	-.174	-0.817	0.090	0.5	1.0	0.1	1.0	A+	A+
670	601305	7	797	.601	.113	.112	.144	.601	.030	.549	-.177	-.227	-.314	.549	-0.272	0.085	-3.8	0.9	-2.9	0.8	A-	A+
671	601284	7	797	.525	.033	.088	.525	.304	.051	.451	-.204	-.299	.451	-.137	0.093	0.084	1.7	1.1	1.0	1.1	A-	A-
672	601310	7	797	.783	.072	.107	.783	.018	.021	.406	-.212	-.224	.406	-.163	-1.424	0.099	-0.1	1.0	-0.4	1.0	A-	A-
673	601350	7	797	.705	.054	.119	.082	.705	.040	.492	-.233	-.259	-.214	.492	-0.958	0.092	-3.1	0.9	-2.6	0.8	B+	B+
674	601297	7	797	.724	.099	.122	.724	.049	.006	.536	-.296	-.315	.536	-.176	-0.861	0.089	-3.9	0.9	-4.1	0.7	A+	B-
675	601362	7	797	.464	.464	.154	.272	.070	.039	.464	.464	-.197	-.169	-.209	0.485	0.083	-0.3	1.0	-0.2	1.0	A+	A+
676	601319	7	797	.491	.073	.235	.491	.147	.055	.522	-.187	-.268	.522	-.169	0.293	0.083	-2.2	0.9	-2.4	0.9	A-	A+
677	601770	7	797	.591	.190	.156	.591	.021	.043	.551	-.307	-.249	.551	-.168	-0.218	0.084	-3.2	0.9	-2.5	0.9	A+	A-
678	601298	7	802	.594	.594	.180	.125	.087	.015	.535	.535	-.232	-.273	-.218	-0.051	0.082	-3.4	0.9	-3.0	0.8	A+	A-
679	601363	7	802	.294	.294	.243	.292	.137	.034	.306	.306	-.120	-.114	-.009	1.558	0.088	3.8	1.2	3.3	1.3	B-	A-
680	601320	7	802	.686	.037	.069	.686	.167	.041	.484	-.154	-.241	.484	-.274	-0.678	0.089	-1.7	0.9	-2.4	0.8	A+	A+
681	601321	7	795	.598	.218	.598	.126	.055	.004	.513	-.273	.513	-.261	-.220	0.142	0.087	-1.3	1.0	-0.6	1.0	A-	B-
682	601364	7	795	.601	.148	.107	.136	.601	.008	.562	-.222	-.258	-.315	.562	0.107	0.088	-2.2	0.9	-2.9	0.8	B+	A+
683	601351	7	795	.589	.374	.020	.018	.589	.000	.489	-.428	-.126	-.121	.489	0.207	0.087	0.1	1.0	-0.8	1.0	A-	A-
684	601316	7	795	.370	.313	.101	.213	.370	.004	.416	-.301	-.080	-.084	.416	1.411	0.088	2.9	1.1	3.6	1.3	A+	A-
685	601713	7	795	.767	.068	.128	.767	.029	.008	.461	-.261	-.303	.461	-.132	-1.010	0.096	-2.0	0.9	-1.8	0.8	A-	A+
686	601286	7	795	.864	.864	.055	.035	.043	.003	.430	.430	-.230	-.253	-.223	-1.817	0.114	-2.2	0.9	-2.1	0.7	A+	A+
687	601317	7	400	.473	.473	.108	.185	.223	.013	.431	.431	-.244	-.209	-.110	0.567	0.111	-0.7	1.0	-0.7	1.0	B+	
688	601356	7	798	.551	.551	.168	.214	.033	.034	.385	.385	-.291	-.058	-.177	0.152	0.081	2.5	1.1	1.4	1.1	A+	A+
689	601318	7	798	.717	.717	.125	.108	.036	.014	.521	.521	-.322	-.256	-.176	-0.684	0.088	-3.9	0.8	-3.8	0.7	A+	A-
690	601746	7	400	.913	.048	.010	.913	.020	.010	.371	-.192	-.127	.371	-.192	-2.385	0.193	-0.5	0.9	-1.4	0.7	A-	
691	601366	7	400	.380	.440	.380	.110	.040	.030	.229	.069	.229	-.247	-.156	0.985	0.114	4.4	1.2	5.4	1.4	B-	
692	601747	7	798	.703	.083	.140	.703	.043	.031	.343	-.146	-.189	.343	-.128	-0.689	0.088	1.8	1.1	1.5	1.1	A-	A+
693	601774	7	798	.456	.098	.456	.302	.109	.035	.406	-.149	.406	-.150	-.223	0.646	0.081	1.5	1.1	1.4	1.1	A-	A-
694	601352	7	798	.608	.078	.608	.179	.118	.018	.502	-.197	.502	-.293	-.164	-0.061	0.083	-1.2	1.0	-1.3	0.9	A+	A+
695	601781	7	798	.447	.447	.239	.143	.130	.040	.547	.547	-.197	-.213	-.226	0.731	0.082	-2.9	0.9	-2.4	0.9	A-	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
696	601748	7	398	.653	.653	.103	.091	.085	.068	.540	.540	-.290	-.178	-.227	-0.523	0.126	-1.8	0.9	-1.5	0.8	A-	B+
697	601749	7	400	.613	.128	.148	.613	.108	.005	.415	-.186	-.247	.415	-.151	-0.082	0.116	1.0	1.1	0.8	1.1	A+	A-
698	601750	7	800	.519	.204	.519	.150	.101	.026	.362	-.115	.362	-.121	-.202	0.293	0.081	4.4	1.2	3.0	1.2	A+	A-
699	601311	7	800	.830	.029	.055	.830	.055	.031	.500	-.182	-.304	.500	-.214	-1.719	0.109	-2.6	0.8	-3.7	0.6	A+	A+
700	601745	7	400	.613	.195	.613	.093	.085	.015	.490	-.151	.490	-.293	-.236	-0.101	0.117	-0.5	1.0	-0.2	1.0	A+	A-
701	601367	7	800	.658	.658	.121	.145	.066	.010	.419	.419	-.183	-.228	-.168	-0.402	0.084	0.3	1.0	0.7	1.1	A-	A-
702	601312	7	799	.760	.031	.095	.081	.760	.033	.500	-.196	-.253	-.249	.500	-1.160	0.095	-3.0	0.9	-2.7	0.7	A+	A+
703	601376	7	799	.770	.770	.046	.144	.033	.008	.407	.407	-.238	-.215	-.160	-1.085	0.092	-0.5	1.0	-1.3	0.9	A-	A-
704	601353	7	799	.339	.164	.263	.200	.339	.034	.409	-.132	-.196	-.054	.409	1.207	0.085	1.4	1.1	2.9	1.2	A+	A-
705	601686	7	799	.292	.119	.343	.292	.182	.065	.459	-.154	-.118	.459	-.118	1.426	0.088	-1.0	1.0	1.5	1.1	A-	A-
706	601313	7	399	.747	.075	.068	.747	.108	.003	.487	-.257	-.293	.487	-.199	-0.873	0.126	-1.9	0.9	-2.4	0.7	A+	A-
707	601354	7	399	.649	.113	.123	.110	.649	.005	.509	-.279	-.167	-.281	.509	-0.305	0.117	-2.1	0.9	-1.2	0.9	A-	A-
708	601314	7	799	.583	.174	.583	.184	.050	.009	.275	.042	.275	-.224	-.217	0.055	0.081	6.2	1.2	6.7	1.4	A+	A+
709	601322	7	399	.456	.173	.456	.186	.165	.020	.254	-.112	.254	-.215	.088	0.673	0.115	5.9	1.3	5.3	1.4	A-	A+
710	601307	7	802	.707	.032	.045	.187	.707	.029	.474	-.153	-.139	-.343	.474	-0.688	0.089	-1.8	0.9	-2.2	0.8	B+	A-
711	601323	7	400	.665	.158	.665	.115	.053	.010	.528	-.256	.528	-.305	-.197	-0.381	0.119	-2.4	0.9	-2.3	0.8	A-	A-
712	601324	7	802	.746	.050	.150	.746	.045	.010	.465	-.216	-.257	.465	-.220	-0.842	0.090	-2.0	0.9	-2.0	0.8	A-	A+
713	601291	7	802	.481	.119	.090	.481	.298	.013	.404	-.272	-.228	.404	-.079	0.609	0.081	3.0	1.1	2.7	1.1	A-	A+
714	601315	7	802	.692	.042	.692	.140	.102	.024	.530	-.184	.530	-.289	-.243	-0.568	0.087	-3.5	0.9	-3.0	0.8	A+	A+
715	601308	7	402	.796	.149	.032	.022	.796	.000	.410	-.334	-.103	-.189	.410	-1.120	0.134	-0.8	0.9	0.1	1.0	B+	A-
716	601306	7	402	.363	.363	.167	.336	.117	.017	.409	.409	-.285	-.116	-.019	1.260	0.118	1.5	1.1	1.5	1.1	C-	A+
717	601359	7	402	.406	.067	.406	.393	.065	.070	.472	-.146	.472	-.196	-.197	0.891	0.118	-0.1	1.0	0.2	1.0	B+	A+
718	601361	7	401	.511	.075	.511	.352	.050	.013	.411	-.147	.411	-.213	-.225	0.468	0.114	1.1	1.1	0.7	1.1	A-	A+
719	601282	7	401	.743	.125	.060	.743	.040	.032	.443	-.192	-.191	.443	-.210	-0.950	0.131	-0.1	1.0	-0.4	0.9	A-	A-
720	601309	7	401	.798	.100	.798	.030	.018	.055	.396	-.127	.396	-.244	-.153	-1.532	0.151	-0.2	1.0	0.8	1.2	A-	A-
721	601280	7	401	.464	.464	.125	.160	.192	.060	.423	.423	-.132	-.161	-.121	0.577	0.117	2.0	1.1	2.0	1.1	A-	A+
722	601365	7	799	.672	.083	.144	.672	.090	.011	.415	-.158	-.200	.415	-.209	-0.396	0.085	0.0	1.0	-0.3	1.0	B-	A-
723	601300	7	400	.720	.068	.143	.720	.050	.020	.533	-.202	-.313	.533	-.204	-0.748	0.126	-1.9	0.9	-2.1	0.8	B+	B+
724	601773	7	399	.679	.083	.095	.128	.679	.015	.558	-.227	-.253	-.280	.558	-0.511	0.121	-3.4	0.8	-3.0	0.7	A-	B-
725	601272	7	400	.280	.158	.300	.230	.280	.033	.399	-.137	-.040	-.186	.399	1.684	0.126	0.5	1.0	2.6	1.3	A-	B-
726	601357	7	800	.523	.523	.148	.280	.039	.011	.413	.413	-.230	-.167	-.171	0.218	0.079	0.5	1.0	1.2	1.1	A-	A-
727	601050	7	400	.785	.113	.038	.785	.063	.003	.478	-.297	-.189	.478	-.237	-1.211	0.132	-2.2	0.9	-2.4	0.7	A+	B+
728	601132	7	797	.655	.051	.198	.655	.054	.041	.535	-.193	-.343	.535	-.157	-0.626	0.088	-3.2	0.9	-2.9	0.8	A-	A-
729	601123	7	399	.579	.113	.188	.579	.085	.035	.586	-.260	-.286	.586	-.179	-0.030	0.117	-3.3	0.9	-3.0	0.8	A-	A-
730	601099	7	799	.615	.217	.615	.078	.064	.028	.385	-.111	.385	-.203	-.209	-0.137	0.083	2.4	1.1	1.5	1.1	A-	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
731	601124	7	797	.629	.036	.054	.266	.629	.015	.501	-.194	-.244	-.298	.501	-0.370	0.085	-1.2	1.0	-1.2	0.9	A+	C-
732	601379	7	795	.745	.115	.082	.057	.745	.003	.494	-.281	-.255	-.230	.494	-0.811	0.095	-2.5	0.9	-2.0	0.8	A+	A-
733	601079	7	797	.324	.217	.256	.173	.324	.030	.351	-.043	-.035	-.259	.351	1.325	0.089	4.7	1.2	5.5	1.5	A+	A+
734	601080	7	800	.251	.398	.251	.180	.131	.040	.161	.183	.161	-.150	-.204	1.648	0.091	4.7	1.2	5.9	1.6	A-	A-
735	601125	7	800	.468	.060	.168	.263	.468	.043	.496	-.216	-.255	-.149	.496	0.410	0.081	-2.0	0.9	-1.8	0.9	A-	A+
736	601049	7	800	.340	.089	.340	.393	.141	.038	.359	-.036	.359	-.113	-.216	1.107	0.084	1.7	1.1	2.0	1.1	A-	A-
737	601064	7	802	.417	.392	.070	.084	.417	.039	.490	-.181	-.190	-.241	.490	0.836	0.082	-1.1	1.0	-0.9	1.0	C-	A-
738	601108	7	802	.273	.426	.273	.137	.123	.040	.176	.132	.176	-.134	-.212	1.685	0.090	5.5	1.3	7.4	1.8	A+	B+
739	601077	7	795	.806	.060	.081	.806	.045	.008	.454	-.249	-.237	.454	-.208	-1.322	0.104	-1.0	1.0	-0.7	0.9	A+	B-
740	601111	7	795	.531	.043	.126	.299	.531	.001	.491	-.216	-.333	-.195	.491	0.553	0.087	2.1	1.1	2.9	1.2	A+	A-
741	601052	7	799	.473	.131	.262	.473	.126	.008	.525	-.278	-.211	.525	-.187	0.665	0.080	-3.9	0.9	-3.5	0.8	A+	A-
742	601112	7	400	.255	.255	.245	.170	.293	.038	.301	.301	-.181	-.144	.091	1.672	0.125	1.1	1.1	3.1	1.3	A+	
743	601045	7	798	.405	.285	.135	.405	.152	.024	.217	.040	-.149	.217	-.147	0.946	0.081	7.0	1.3	7.3	1.4	A-	A-
744	601043	7	400	.185	.185	.253	.415	.093	.055	.135	.135	.061	-.076	.002	2.118	0.138	2.4	1.2	3.7	1.6	A-	
745	601066	7	798	.585	.114	.140	.585	.107	.054	.566	-.246	-.282	.566	-.204	-0.101	0.083	-5.0	0.8	-4.3	0.8	A+	A-
746	601129	7	798	.568	.568	.155	.251	.023	.004	.579	.579	-.255	-.404	-.115	0.203	0.081	-5.4	0.8	-4.2	0.8	A-	B-
747	601113	7	799	.571	.178	.146	.571	.095	.010	.501	-.219	-.240	.501	-.213	0.179	0.081	-1.9	0.9	-1.8	0.9	A-	A-
748	601037	7	798	.862	.024	.862	.080	.030	.004	.323	-.168	.323	-.213	-.119	-1.726	0.111	-0.2	1.0	1.0	1.2	A+	A-
749	601046	7	798	.587	.158	.169	.587	.065	.021	.580	-.267	-.297	.580	-.177	0.043	0.082	-4.2	0.9	-3.8	0.8	A+	A-
750	601038	7	400	.663	.085	.663	.220	.033	.000	.439	-.254	.439	-.263	-.156	-0.336	0.119	0.2	1.0	0.8	1.1	A-	A+
751	601047	7	400	.163	.163	.470	.253	.098	.018	.316	.316	-.178	.143	-.197	2.598	0.149	0.4	1.0	2.2	1.4	B-	A+
752	601084	7	400	.405	.153	.278	.405	.153	.013	.389	-.214	-.131	.389	-.085	0.848	0.114	0.7	1.0	2.0	1.1	A-	A-
753	601109	7	799	.125	.125	.210	.269	.372	.024	.175	.175	-.092	-.057	.068	2.800	0.116	1.5	1.1	6.3	2.2	A-	A+
754	601118	7	799	.630	.080	.630	.141	.099	.050	.556	-.162	.556	-.222	-.300	-0.413	0.085	-3.6	0.9	-2.9	0.8	A+	B+
755	601085	7	799	.486	.131	.243	.100	.486	.040	.547	-.177	-.258	-.209	.547	0.404	0.081	-3.9	0.9	-3.0	0.9	A-	A-
756	601058	7	799	.479	.260	.105	.479	.149	.006	.498	-.371	-.079	.498	-.141	0.600	0.081	-1.9	0.9	-1.4	0.9	A+	A-
757	601101	7	399	.790	.083	.053	.790	.055	.020	.502	-.261	-.209	.502	-.258	-1.279	0.138	-1.8	0.9	-2.3	0.7	A+	A-
758	601081	7	400	.795	.030	.065	.108	.795	.003	.369	-.101	-.244	-.223	.369	-1.170	0.135	-0.3	1.0	-0.3	1.0	A+	A-
759	601075	7	802	.761	.060	.062	.112	.761	.005	.471	-.254	-.249	-.227	.471	-0.921	0.091	-2.5	0.9	-2.6	0.8	A+	A+
760	601060	7	802	.413	.084	.413	.278	.202	.024	.368	-.020	.368	-.207	-.126	0.954	0.082	3.8	1.1	4.9	1.3	A-	A-
761	601107	7	400	.835	.010	.835	.068	.063	.025	.338	-.061	.338	-.091	-.303	-1.666	0.153	0.1	1.0	-0.2	1.0	A+	B+
762	601065	7	802	.623	.147	.623	.104	.095	.031	.581	-.307	.581	-.239	-.215	-0.202	0.084	-5.2	0.8	-4.4	0.7	A+	A-
763	601059	7	400	.453	.210	.110	.453	.178	.050	.442	-.287	-.118	.442	-.096	0.633	0.117	1.4	1.1	1.4	1.1	B-	A-
764	601076	7	803	.768	.044	.093	.768	.075	.020	.456	-.182	-.312	.456	-.159	-1.051	0.094	-1.8	0.9	-1.6	0.8	A+	A-
765	601082	7	803	.543	.075	.294	.543	.061	.027	.379	-.246	-.089	.379	-.223	0.253	0.081	3.9	1.1	3.4	1.2	A-	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
766	601057	7	401	.726	.010	.192	.072	.726	.000	.359	-.086	-.283	-.156	.359	-0.665	0.123	0.3	1.0	2.4	1.3	C+	A+
767	601083	7	401	.641	.047	.641	.279	.022	.010	.474	-.279	.474	-.289	-.173	-0.206	0.117	-0.7	1.0	0.0	1.0	A-	A-
768	601131	7	401	.289	.150	.187	.344	.289	.030	.339	-.204	-.242	.110	.339	1.645	0.125	2.7	1.2	2.5	1.3	A-	A+
769	601054	7	400	.315	.133	.253	.315	.288	.013	.329	-.044	-.250	.329	-.041	1.339	0.120	1.3	1.1	2.5	1.2	A-	A-
770	601117	7	400	.195	.195	.163	.385	.238	.020	.208	.208	-.133	-.151	.124	2.121	0.135	1.4	1.1	3.0	1.5	A+	
771	601130	7	400	.528	.243	.528	.190	.040	.000	.532	-.346	.532	-.222	-.155	0.389	0.114	-1.9	0.9	-1.7	0.9	A+	B-
772	601051	7	799	.228	.434	.228	.143	.156	.039	.134	.156	.134	-.182	-.087	2.015	0.094	5.4	1.3	8.1	1.9	A-	A-
773	601110	7	802	.395	.395	.176	.186	.224	.019	.477	.477	-.126	-.364	-.044	1.009	0.082	-1.7	0.9	0.0	1.0	B+	A+
774	601086	7	803	.481	.481	.166	.249	.102	.003	.542	.542	-.240	-.320	-.137	0.654	0.080	-4.6	0.9	-4.3	0.8	C-	A-
775	599651	8	319	.426	.433	.078	.426	.060	.003	.421	-.292	-.137	.421	-.123	0.832	0.127	0.5	1.0	0.8	1.1	B+	A+
776	599610	8	160	.594	.131	.594	.100	.175	.000	.246	-.234	.246	-.108	-.024	-0.094	0.170	1.0	1.1	1.6	1.1	B+	
777	599698	8	158	.481	.057	.481	.291	.158	.013	.122	-.095	.122	-.004	-.100	0.287	0.171	3.4	1.2	3.1	1.2	A-	
778	599640	8	314	.350	.102	.280	.258	.350	.010	.373	-.059	-.155	-.168	.373	0.984	0.130	0.5	1.0	0.8	1.1	A+	
779	599613	8	318	.431	.113	.431	.157	.296	.003	.340	-.252	.340	-.229	.001	0.592	0.125	0.4	1.0	0.6	1.0	A-	A+
780	599583	8	639	.798	.064	.060	.798	.074	.005	.391	-.270	-.165	.391	-.187	-1.386	0.107	-1.5	0.9	-1.6	0.8	B+	A+
781	599645	8	160	.400	.069	.288	.400	.244	.000	.323	.136	-.255	.323	-.180	0.791	0.172	0.2	1.0	0.4	1.0	A-	
782	599611	8	314	.637	.137	.637	.140	.076	.010	.407	-.163	.407	-.199	-.168	-0.439	0.128	-0.3	1.0	-1.0	0.9	A+	
783	599612	8	313	.371	.371	.310	.198	.109	.013	.434	.434	-.146	-.173	-.165	0.747	0.128	-1.6	0.9	-1.4	0.9	A+	
784	599581	8	633	.713	.713	.120	.025	.136	.006	.453	.453	-.199	-.174	-.301	-0.700	0.096	-3.7	0.9	-1.8	0.9	B+	A+
785	599638	8	318	.550	.160	.157	.129	.550	.003	.456	-.245	-.194	-.180	.456	0.005	0.124	-1.3	0.9	-0.9	0.9	B-	A-
786	599600	8	316	.525	.095	.060	.288	.525	.032	.337	-.110	-.126	-.160	.337	-0.027	0.126	1.6	1.1	1.6	1.1	A+	A+
787	599696	8	316	.541	.032	.136	.272	.541	.019	.508	-.119	-.272	-.261	.508	-0.078	0.125	-2.8	0.9	-2.6	0.8	A-	A-
788	599704	8	316	.532	.142	.532	.161	.139	.025	.443	-.219	.443	-.195	-.120	-0.041	0.125	-1.4	0.9	-1.4	0.9	A-	A+
789	599603	8	315	.648	.191	.105	.648	.048	.010	.424	-.209	-.199	.424	-.175	-0.299	0.129	-1.2	0.9	-1.6	0.9	A+	A+
790	599705	8	315	.460	.184	.152	.187	.460	.016	.200	.035	-.124	-.129	.200	0.604	0.124	2.3	1.1	2.3	1.2	A+	A-
791	599616	8	318	.381	.236	.381	.167	.208	.009	.350	-.073	.350	-.077	-.251	1.206	0.128	0.9	1.1	2.8	1.2	A-	A+
792	599706	8	318	.692	.063	.082	.164	.692	.000	.334	-.158	-.175	-.183	.334	-0.343	0.132	0.4	1.0	0.1	1.0	A+	B-
793	599604	8	318	.742	.742	.098	.047	.104	.009	.515	.515	-.253	-.252	-.255	-0.666	0.140	-2.5	0.8	-1.9	0.8	A+	A-
794	599688	8	318	.692	.054	.692	.091	.164	.000	.377	-.026	.377	-.176	-.318	-0.514	0.133	-1.5	0.9	-1.2	0.9	A+	A-
795	599728	8	318	.456	.110	.239	.189	.456	.006	.485	-.153	-.237	-.224	.485	0.681	0.126	-1.1	1.0	-0.5	1.0	A-	B-
796	599689	8	319	.674	.260	.674	.047	.019	.000	.446	-.336	.446	-.210	-.129	-0.438	0.132	-1.7	0.9	-0.2	1.0	A+	A-
797	599622	8	319	.508	.144	.176	.508	.163	.009	.413	-.185	-.248	.413	-.098	0.401	0.126	1.6	1.1	0.2	1.0	A-	A-
798	599694	8	319	.630	.630	.125	.166	.069	.009	.534	.534	-.273	-.310	-.200	-0.413	0.125	-3.5	0.8	-3.4	0.8	B+	A-
799	599623	8	319	.536	.132	.536	.245	.082	.006	.285	-.163	.285	-.119	-.135	0.046	0.121	1.6	1.1	2.7	1.2	A-	A+
800	599652	8	319	.376	.216	.260	.138	.376	.009	.298	.082	-.285	-.143	.298	0.804	0.124	1.0	1.1	0.6	1.0	A-	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
801	599699	8	318	.849	.047	.019	.085	.849	.000	.338	-.073	-.139	-.312	.338	-1.617	0.161	-0.8	0.9	-0.6	0.9	A-	A-
802	599653	8	158	.253	.253	.177	.209	.361	.000	.372	.372	-.248	-.278	.096	1.464	0.193	-0.4	1.0	-0.6	0.9	A-	
803	599605	8	318	.582	.582	.195	.151	.069	.003	.247	.247	-.022	-.226	-.120	-0.097	0.121	1.6	1.1	2.2	1.1	A+	A+
804	599695	8	158	.563	.133	.234	.563	.051	.019	.401	-.197	-.232	.401	-.088	-0.101	0.173	-0.8	1.0	-0.8	0.9	A+	
805	599660	8	318	.519	.088	.230	.519	.129	.035	.465	-.219	-.188	.465	-.261	0.103	0.121	-2.9	0.9	-2.7	0.9	A-	A+
806	599584	8	317	.685	.148	.685	.114	.051	.003	.345	-.169	.345	-.192	-.166	-0.590	0.128	-0.5	1.0	-0.4	1.0	A+	B+
807	599658	8	317	.205	.205	.379	.208	.183	.025	.413	.413	.011	-.093	-.224	1.839	0.149	-1.0	0.9	-0.4	0.9	A-	A-
808	599614	8	160	.525	.119	.525	.219	.106	.031	.476	-.154	.476	-.293	-.134	0.144	0.171	-2.1	0.9	-2.0	0.9	A-	
809	599649	8	157	.452	.089	.420	.452	.032	.006	.232	-.126	-.119	.232	-.090	0.489	0.174	1.9	1.1	3.6	1.4	A-	
810	599659	8	317	.511	.297	.511	.104	.069	.019	.455	-.103	.455	-.235	-.281	0.237	0.123	-1.3	0.9	-1.2	0.9	A-	A-
811	601114	8	317	.495	.495	.120	.148	.211	.025	.463	.463	-.168	-.187	-.157	0.302	0.124	-1.3	0.9	-1.3	0.9	A+	A-
812	599702	8	319	.571	.028	.304	.571	.085	.013	.380	-.113	-.175	.380	-.234	-0.013	0.123	0.3	1.0	0.3	1.0	A-	A-
813	599586	8	160	.606	.125	.606	.150	.088	.031	.435	-.071	.435	-.228	-.171	-0.211	0.180	0.3	1.0	-0.6	0.9	A+	
814	601119	8	160	.638	.081	.088	.638	.150	.044	.558	-.150	-.245	.558	-.266	-0.432	0.185	-2.0	0.9	-2.0	0.8	B+	
815	599731	8	160	.719	.719	.094	.125	.019	.044	.526	.526	-.302	-.220	-.093	-0.913	0.200	-1.9	0.8	2.1	1.4	A+	
816	599587	8	319	.658	.053	.658	.147	.113	.028	.438	-.160	.438	-.191	-.189	-0.507	0.130	-0.9	1.0	-0.8	0.9	A-	A+
817	599703	8	159	.629	.031	.076	.629	.264	.000	.345	-.176	-.245	.345	-.161	-0.284	0.175	-0.2	1.0	-0.3	1.0	A-	
818	601122	8	159	.472	.063	.182	.472	.264	.019	.164	-.202	-.101	.164	.042	0.422	0.172	3.4	1.2	2.9	1.3	A+	
819	599589	8	317	.243	.079	.243	.309	.360	.010	.323	-.096	.323	-.192	-.001	1.669	0.141	0.4	1.0	1.7	1.2	A-	
820	599588	8	159	.201	.208	.277	.302	.201	.013	.200	-.129	.043	-.055	.200	1.898	0.211	1.0	1.1	1.5	1.3	A+	
821	601121	8	319	.699	.085	.088	.699	.119	.009	.407	-.184	-.148	.407	-.232	-0.658	0.132	-0.9	1.0	-1.2	0.9	A-	A-
822	599639	8	158	.411	.127	.203	.234	.411	.025	.414	-.106	-.127	-.177	.414	0.741	0.179	0.1	1.0	-0.1	1.0	A-	
823	599582	8	632	.737	.022	.051	.737	.179	.011	.406	-.153	-.169	.406	-.279	-0.987	0.099	-1.3	0.9	-1.1	0.9	A+	B-
824	599697	8	315	.283	.235	.295	.283	.184	.003	.365	-.254	.066	.365	-.201	1.557	0.136	-0.1	1.0	-0.2	1.0	A-	A+
825	599619	8	318	.324	.076	.324	.481	.107	.013	.290	-.063	.290	-.135	-.137	1.362	0.134	1.9	1.1	2.4	1.3	A+	A-
826	599585	8	317	.391	.391	.240	.202	.145	.022	.344	.344	.011	-.190	-.156	0.824	0.126	0.8	1.0	0.5	1.0	C+	A-
827	599637	8	313	.559	.559	.137	.109	.179	.016	.383	.383	-.207	-.185	-.100	-0.176	0.125	-0.9	1.0	-1.1	0.9	B+	
828	601801	8	158	.354	.165	.228	.228	.354	.025	.391	.001	-.219	-.130	.391	1.035	0.184	0.3	1.0	0.4	1.0	A+	
829	601725	8	318	.635	.072	.110	.176	.635	.006	.415	-.174	-.218	-.205	.415	-0.056	0.128	-0.2	1.0	-0.5	1.0	B-	A-
830	601744	8	160	.444	.094	.175	.269	.444	.019	.448	-.226	-.112	-.190	.448	0.625	0.175	-0.3	1.0	-0.6	0.9	C-	
831	601804	8	319	.382	.382	.376	.169	.069	.003	.250	.250	.008	-.262	-.111	0.783	0.124	1.8	1.1	1.2	1.1	A-	A+
832	602158	8	315	.457	.108	.457	.210	.210	.016	.402	-.176	.402	-.186	-.116	0.616	0.124	-1.0	1.0	-1.1	0.9	A-	A+
833	601759	8	314	.624	.194	.624	.089	.070	.022	.472	-.200	.472	-.211	-.205	-0.416	0.128	-2.2	0.9	-2.0	0.8	A+	
834	601778	8	313	.358	.121	.367	.358	.137	.016	.224	-.078	-.086	.224	-.051	0.816	0.129	2.5	1.1	3.0	1.2	A-	
835	601779	8	318	.682	.091	.682	.195	.028	.003	.463	-.161	.463	-.336	-.182	-0.678	0.132	-1.3	0.9	-1.6	0.8	A-	B-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
836	601741	8	318	.377	.245	.377	.176	.198	.003	.336	-.039	.336	-.212	-.150	0.863	0.127	1.8	1.1	1.8	1.2	A+	A-
837	601742	8	316	.541	.111	.541	.241	.098	.010	.433	-.056	.433	-.236	-.279	-0.050	0.124	-0.9	1.0	-1.3	0.9	A+	B-
838	602111	8	315	.337	.295	.194	.337	.171	.003	.157	-.012	-.086	.157	-.069	1.256	0.130	4.0	1.2	4.0	1.4	A-	A+
839	602114	8	318	.396	.082	.459	.396	.057	.006	.424	-.081	-.359	.424	-.019	0.980	0.128	-0.4	1.0	-0.4	1.0	A+	B-
840	601780	8	318	.418	.066	.387	.120	.418	.009	.394	-.226	-.152	-.164	.394	0.877	0.127	1.7	1.1	1.3	1.1	B-	A-
841	602054	8	319	.357	.260	.245	.357	.125	.013	.354	-.163	-.106	.354	-.130	0.889	0.126	0.3	1.0	0.1	1.0	A-	A+
842	602055	8	158	.298	.215	.310	.152	.298	.025	.440	-.193	-.157	-.102	.440	1.167	0.185	-1.2	0.9	-0.6	0.9	A-	
843	601726	8	318	.264	.267	.138	.296	.264	.035	.345	-.176	-.137	-.038	.345	1.385	0.136	-0.1	1.0	-0.2	1.0	B-	A-
844	602116	8	317	.716	.133	.057	.716	.069	.025	.417	-.258	-.137	.417	-.122	-0.842	0.135	-1.2	0.9	-1.1	0.9	B+	A+
845	601739	8	160	.300	.231	.325	.131	.300	.013	.445	-.200	-.112	-.164	.445	1.269	0.184	-1.1	0.9	-0.8	0.9	A-	
846	601734	8	317	.489	.123	.252	.489	.104	.032	.337	-.140	.007	.337	-.217	0.319	0.124	2.0	1.1	1.5	1.1	A+	A-
847	601735	8	160	.575	.575	.225	.150	.044	.006	.482	.482	-.242	-.222	-.199	0.017	0.175	-1.1	0.9	-1.1	0.9	A+	
848	601667	8	319	.583	.176	.583	.129	.091	.022	.400	-.088	.400	-.277	-.129	-0.101	0.124	-0.1	1.0	-0.4	1.0	A-	A-
849	601669	8	317	.644	.644	.076	.167	.104	.010	.478	.478	-.258	-.204	-.210	-0.381	0.127	-2.3	0.9	-2.1	0.8	A+	
850	601737	8	317	.353	.379	.145	.114	.353	.010	.391	-.192	-.193	-.026	.391	1.042	0.128	-0.3	1.0	0.2	1.0	A-	
851	601738	8	158	.449	.342	.146	.449	.044	.019	.406	-.104	-.223	.406	-.170	0.562	0.177	0.1	1.0	0.4	1.0	A+	
852	601740	8	313	.377	.102	.336	.163	.377	.022	.240	-.066	.001	-.179	.240	0.690	0.128	2.9	1.2	3.1	1.2	A-	
853	602118	8	319	.414	.075	.414	.414	.097	.000	.366	.016	-.309	.366	-.109	0.907	0.128	1.2	1.1	1.7	1.1	A+	B-
854	601733	8	157	.287	.255	.268	.153	.287	.038	.464	-.122	-.138	-.087	.464	1.293	0.192	-1.3	0.9	-0.7	0.9	A+	
855	602117	8	157	.325	.293	.325	.255	.089	.038	.201	.188	.201	-.137	-.195	1.078	0.186	2.4	1.2	2.2	1.3	A+	
856	601802	8	319	.777	.063	.060	.100	.777	.000	.415	-.203	-.228	-.232	.415	-1.071	0.146	-0.9	0.9	-1.6	0.8	B-	A-
857	601723	8	314	.248	.248	.258	.319	.150	.026	.344	.344	.047	-.175	-.129	1.554	0.143	0.5	1.0	0.7	1.1	A+	
858	601736	8	319	.351	.241	.226	.172	.351	.009	.349	-.161	-.101	-.112	.349	1.067	0.127	0.6	1.0	1.4	1.1	A+	A-
859	601782	8	158	.399	.127	.184	.399	.279	.013	.228	-.155	-.083	.228	-.070	0.673	0.174	1.5	1.1	1.3	1.1	A-	
860	602115	8	318	.220	.088	.346	.220	.343	.003	.165	-.266	-.119	.165	.138	1.710	0.143	1.4	1.1	2.3	1.3	A-	A+
861	601724	8	316	.418	.418	.279	.149	.136	.019	.514	.514	-.194	-.178	-.210	0.547	0.126	-2.6	0.9	-2.3	0.9	A-	A+
862	602113	8	318	.286	.261	.274	.170	.286	.009	.382	-.203	-.070	-.102	.382	1.733	0.136	-0.4	1.0	0.7	1.1	A-	A-
863	601743	8	317	.495	.129	.495	.230	.107	.038	.408	-.082	.408	-.129	-.194	0.274	0.124	0.2	1.0	0.0	1.0	A+	A-
864	601263	8	315	.781	.114	.781	.057	.029	.019	.409	-.212	.409	-.224	-.145	-1.146	0.150	-1.9	0.9	-2.4	0.7	B+	A+
865	602058	8	314	.908	.908	.026	.026	.019	.022	.358	.358	-.179	-.116	-.145	-2.624	0.226	-0.3	0.9	-1.2	0.7	B+	
866	602086	8	314	.385	.108	.172	.385	.319	.016	.327	-.076	-.188	.327	-.095	0.787	0.128	1.7	1.1	1.9	1.2	A-	
867	601328	8	318	.676	.110	.057	.676	.154	.003	.396	-.170	-.256	.396	-.186	-0.643	0.131	-0.3	1.0	-0.5	1.0	A-	A-
868	602129	8	318	.638	.239	.050	.066	.638	.006	.430	-.198	-.298	-.197	.430	-0.454	0.128	-0.9	1.0	-0.4	1.0	A+	A+
869	602209	8	315	.286	.168	.349	.286	.181	.016	.134	-.068	-.049	.134	.028	1.297	0.135	2.7	1.2	5.0	1.6	A+	A-
870	602203	8	315	.552	.552	.067	.302	.048	.032	.371	.371	-.149	-.159	-.149	-0.096	0.126	0.4	1.0	-0.1	1.0	A-	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
871	602210	8	315	.784	.048	.092	.784	.057	.019	.348	-.144	-.249	.348	-.065	-1.168	0.151	-0.2	1.0	-0.2	1.0	A-	A+
872	601264	8	319	.884	.884	.085	.022	.009	.000	.306	.306	-.272	-.057	-.147	-1.822	0.185	-0.6	0.9	-0.1	1.0	A+	A-
873	602206	8	318	.934	.934	.019	.031	.016	.000	.224	.224	-.181	-.127	-.072	-2.597	0.233	-0.1	1.0	0.0	1.0	B+	A-
874	602135	8	318	.371	.116	.208	.371	.299	.006	.247	-.128	-.207	.247	.012	1.116	0.130	3.1	1.2	3.6	1.3	A-	A-
875	602207	8	321	.925	.925	.028	.044	.003	.000	.337	.337	-.241	-.223	-.058	-2.617	0.222	-0.7	0.9	-2.0	0.5	B+	
876	602119	8	158	.203	.184	.354	.260	.203	.000	.344	.007	-.127	-.183	.344	1.784	0.207	-0.2	1.0	-0.5	0.9	A-	
877	602120	8	318	.428	.154	.208	.201	.428	.009	.264	-.082	-.092	-.129	.264	0.600	0.121	1.6	1.1	1.5	1.1	B+	A-
878	601325	8	158	.519	.108	.120	.247	.519	.006	.452	-.248	-.198	-.201	.452	0.132	0.170	-1.8	0.9	-1.8	0.9	A+	
879	602121	8	317	.316	.316	.385	.158	.136	.006	.345	.345	-.124	-.132	-.135	1.188	0.130	0.3	1.0	0.6	1.0	A-	A-
880	601327	8	317	.344	.110	.199	.344	.325	.022	.356	-.140	-.040	.356	-.188	1.012	0.128	0.2	1.0	0.3	1.0	B-	B-
881	601330	8	157	.325	.108	.325	.446	.089	.032	.096	-.009	.096	.082	-.060	1.099	0.186	3.8	1.3	3.4	1.4	A-	
882	601756	8	160	.494	.050	.494	.250	.206	.000	.080	-.042	.080	-.132	.065	0.421	0.173	4.4	1.3	3.5	1.4	A-	
883	602076	8	319	.674	.113	.674	.132	.069	.013	.364	-.163	.364	-.181	-.135	-0.538	0.130	-0.1	1.0	0.2	1.0	B-	A+
884	602062	8	160	.613	.094	.144	.613	.106	.044	.450	-.126	-.174	.450	-.188	-0.296	0.183	-0.1	1.0	-0.6	0.9	A+	
885	601732	8	159	.308	.189	.308	.258	.226	.019	.332	-.157	.332	-.160	.001	1.228	0.185	0.5	1.0	0.5	1.1	B+	
886	601217	8	317	.555	.054	.555	.117	.262	.013	.480	-.188	.480	-.088	-.328	0.047	0.123	-1.9	0.9	-1.9	0.9	A+	
887	601219	8	158	.779	.082	.082	.779	.044	.013	.432	-.118	-.236	.432	-.261	-1.177	0.208	-0.9	0.9	-0.9	0.8	A+	
888	602057	8	158	.823	.823	.019	.044	.108	.006	.153	.153	-.105	-.121	.017	-1.464	0.222	1.0	1.1	2.5	1.7	A+	
889	602078	8	158	.639	.057	.639	.203	.095	.006	.591	-.209	.591	-.314	-.289	-0.342	0.180	-3.5	0.8	-2.8	0.7	A+	
890	601222	8	314	.334	.089	.334	.092	.475	.010	.365	-.194	.365	-.102	-.147	1.069	0.132	0.3	1.0	0.6	1.1	A-	
891	602056	8	317	.454	.227	.199	.454	.085	.035	.397	-.114	-.119	.397	-.233	0.483	0.124	0.2	1.0	0.0	1.0	B-	
892	602059	8	157	.675	.675	.204	.083	.032	.006	.412	.412	-.235	-.217	-.133	-0.606	0.184	-0.7	1.0	-0.6	0.9	A+	
893	602133	8	321	.567	.567	.137	.190	.103	.003	.379	.379	-.223	-.193	-.120	-0.014	0.125	0.7	1.0	1.1	1.1	A+	
894	602128	8	317	.713	.085	.713	.066	.120	.016	.468	-.219	.468	-.221	-.230	-0.945	0.136	-1.4	0.9	-2.0	0.8	B+	A-
895	602205	8	319	.944	.006	.944	.044	.003	.003	.212	-.102	.212	-.196	-.090	-2.743	0.257	-0.2	1.0	-0.3	0.9	A-	B-
896	602208	8	318	.437	.230	.214	.437	.116	.003	.286	.016	-.199	.286	-.192	0.561	0.125	3.4	1.2	3.1	1.2	A-	A-
897	601326	8	318	.550	.214	.123	.550	.110	.003	.394	-.251	-.141	.394	-.151	0.049	0.120	-1.1	1.0	-1.4	0.9	A+	B-
898	601338	8	317	.716	.044	.079	.716	.142	.019	.496	-.134	-.306	.496	-.259	-0.973	0.137	-2.2	0.9	-2.2	0.8	B+	A-
899	601371	8	318	.465	.465	.242	.195	.091	.006	.422	.422	-.139	-.265	-.146	0.628	0.125	-0.2	1.0	0.2	1.0	A+	A+
900	602136	8	319	.555	.072	.166	.198	.555	.009	.321	-.137	-.215	-.110	.321	-0.049	0.122	1.2	1.1	1.1	1.1	A-	A+
901	601755	8	317	.432	.054	.237	.432	.243	.035	.215	-.182	-.209	.215	.166	0.590	0.125	4.2	1.2	3.5	1.2	A-	A+
902	601372	8	321	.408	.122	.231	.224	.408	.016	.443	-.024	-.243	-.216	.443	0.765	0.127	-1.3	0.9	-0.6	1.0	A+	
903	602204	8	315	.759	.051	.051	.118	.759	.022	.384	-.169	-.269	-.139	.384	-1.013	0.146	-0.2	1.0	0.4	1.1	A+	A-
904	602131	8	319	.511	.072	.119	.511	.292	.006	.287	-.177	-.151	.287	-.094	0.169	0.121	1.7	1.1	1.6	1.1	A-	B+
905	602061	8	317	.360	.123	.268	.240	.360	.010	.383	-.126	-.119	-.152	.383	1.009	0.127	0.1	1.0	0.0	1.0	A-	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
906	602087	8	317	.584	.584	.136	.123	.142	.016	.477	.477	-.212	-.262	-.160	-0.249	0.126	-1.6	0.9	-1.4	0.9	A+	A+
907	602212	8	319	.332	.370	.332	.219	.078	.000	.282	-.145	.282	-.106	-.072	1.445	0.131	2.2	1.1	2.3	1.2	A+	A-
908	601329	8	315	.702	.702	.098	.089	.070	.041	.488	.488	-.277	-.164	-.131	-0.940	0.139	-1.5	0.9	-1.2	0.9	B+	A-
909	601757	8	158	.810	.051	.101	.810	.038	.000	.451	-.345	-.271	.451	-.102	-1.353	0.215	-1.1	0.9	-1.2	0.7	B+	
910	601073	8	315	.664	.105	.664	.191	.038	.003	.355	-.233	.355	-.147	-.158	-0.368	0.129	-0.5	1.0	-0.1	1.0	A+	A+
911	601288	8	160	.244	.125	.544	.244	.069	.019	.042	-.141	.179	.042	-.141	1.591	0.196	2.1	1.2	2.9	1.4	A-	
912	601247	8	317	.580	.092	.580	.196	.117	.016	.387	-.113	.387	-.254	-.116	-0.233	0.125	-0.2	1.0	-0.8	0.9	A+	B+
913	601763	8	313	.534	.272	.093	.534	.080	.022	.550	-.264	-.192	.550	-.265	-0.075	0.124	-3.7	0.9	-3.4	0.8	B+	
914	602072	8	317	.656	.047	.066	.224	.656	.006	.431	-.208	-.233	-.223	.431	-0.450	0.128	-0.9	1.0	-1.2	0.9	A-	B+
915	601707	8	319	.596	.596	.113	.085	.201	.006	.496	.496	-.228	-.252	-.238	0.093	0.127	-2.9	0.9	-2.3	0.8	A-	A+
916	601332	8	317	.293	.215	.186	.290	.293	.016	.303	-.094	-.069	-.110	.303	1.352	0.134	1.0	1.1	1.5	1.1	A-	
917	601675	8	319	.589	.144	.141	.119	.589	.006	.509	-.296	-.271	-.160	.509	-0.013	0.127	-3.0	0.9	-1.9	0.8	A+	A+
918	601340	8	157	.420	.420	.293	.198	.083	.006	.456	.456	-.114	-.315	-.172	0.637	0.176	-2.2	0.9	-2.0	0.8	A-	
919	601344	8	321	.530	.246	.065	.159	.530	.000	.372	-.170	-.234	-.149	.372	0.184	0.124	1.0	1.1	0.9	1.1	C+	
920	601341	8	314	.354	.354	.293	.213	.127	.013	.404	.404	-.089	-.246	-.088	0.959	0.130	-0.1	1.0	-0.1	1.0	A+	
921	602132	8	314	.510	.121	.510	.277	.073	.019	.422	-.169	.422	-.166	-.173	0.169	0.124	-0.2	1.0	-0.9	0.9	A+	
922	601349	8	313	.201	.304	.201	.208	.259	.029	.142	.161	.142	-.180	-.067	1.715	0.152	2.0	1.2	2.1	1.3	A+	
923	601289	8	317	.562	.139	.186	.562	.098	.016	.415	-.100	-.285	.415	-.156	-0.132	0.125	-0.7	1.0	-0.8	1.0	B+	A-
924	602123	8	317	.227	.092	.249	.416	.227	.016	.194	.047	.044	-.201	.194	1.646	0.146	1.7	1.1	2.9	1.4	A-	A-
925	601233	8	318	.315	.315	.418	.192	.072	.003	.311	.311	.027	-.232	-.235	1.201	0.133	0.7	1.0	1.7	1.2	A-	A+
926	602124	8	318	.616	.154	.138	.616	.082	.009	.503	-.217	-.287	.503	-.223	-0.354	0.127	-2.5	0.9	-2.6	0.8	A-	B+
927	601295	8	316	.636	.076	.636	.203	.079	.006	.435	-.124	.435	-.270	-.208	-0.512	0.128	-0.9	1.0	-0.8	0.9	A+	A-
928	602137	8	315	.454	.073	.194	.244	.454	.035	.413	-.212	-.118	-.127	.413	0.387	0.125	-1.1	1.0	-0.8	1.0	A-	A-
929	602134	8	315	.524	.121	.524	.241	.089	.025	.351	-.060	.351	-.241	-.093	0.268	0.125	0.4	1.0	0.1	1.0	A+	A+
930	601342	8	318	.538	.132	.138	.186	.538	.006	.387	-.133	-.120	-.258	.387	0.440	0.124	-0.5	1.0	0.0	1.0	A+	A+
931	601074	8	319	.756	.756	.075	.091	.075	.003	.543	.543	-.263	-.322	-.255	-0.795	0.142	-3.8	0.8	-3.2	0.6	B+	A-
932	601343	8	319	.589	.589	.132	.066	.213	.000	.472	.472	-.328	-.238	-.153	0.141	0.126	-1.9	0.9	-1.5	0.9	A-	A+
933	601760	8	319	.542	.129	.542	.223	.100	.006	.445	-.110	.445	-.288	-.180	0.370	0.125	-1.5	0.9	-1.7	0.9	B+	A+
934	601240	8	319	.533	.144	.147	.172	.533	.003	.394	-.158	-.163	-.211	.394	0.295	0.126	0.7	1.0	0.2	1.0	A+	A+
935	600988	8	321	.321	.321	.305	.209	.162	.003	.423	.423	-.173	-.221	-.073	1.243	0.132	-1.6	0.9	-0.7	0.9	C+	
936	602053	8	321	.673	.673	.125	.069	.131	.003	.475	.475	-.223	-.208	-.283	-0.561	0.131	-1.9	0.9	-2.1	0.8	A+	
937	601676	8	321	.511	.206	.511	.162	.115	.006	.431	-.160	.431	-.194	-.233	0.265	0.124	-1.1	1.0	-0.6	1.0	A+	
938	602122	8	319	.317	.251	.317	.198	.232	.003	.207	-.206	.207	.084	-.093	1.118	0.129	2.4	1.1	1.5	1.1	B+	A+
939	601292	8	319	.796	.044	.796	.063	.097	.000	.434	-.203	.434	-.237	-.255	-1.322	0.146	-1.4	0.9	-2.2	0.7	B+	A+
940	601731	8	158	.329	.152	.260	.260	.329	.000	.374	-.069	-.132	-.213	.374	1.050	0.180	-0.2	1.0	0.4	1.0	B+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
941	601302	8	158	.557	.158	.184	.557	.101	.000	.324	-.128	-.235	.324	-.078	-0.020	0.170	0.1	1.0	-0.3	1.0	A-	
942	601251	8	318	.616	.167	.116	.098	.616	.003	.439	-.205	-.232	-.214	.439	-0.260	0.122	-2.5	0.9	-2.2	0.9	A+	A-
943	601336	8	318	.632	.050	.632	.223	.088	.006	.466	-.132	.466	-.300	-.244	-0.346	0.123	-2.9	0.9	-2.8	0.8	B+	A-
944	602130	8	158	.348	.348	.386	.184	.076	.006	.267	.267	-.108	-.137	-.069	0.938	0.178	0.8	1.1	0.8	1.1	B+	
945	601358	8	318	.456	.160	.456	.242	.116	.025	.337	-.195	.337	-.150	-.077	0.426	0.121	0.1	1.0	0.2	1.0	A+	A+
946	601337	8	160	.506	.244	.506	.181	.063	.006	.083	.011	.083	-.030	-.112	0.295	0.168	3.7	1.2	4.1	1.3	A+	
947	601339	8	317	.388	.256	.170	.180	.388	.006	.323	-.056	-.156	-.127	.323	0.824	0.124	0.3	1.0	0.9	1.1	A+	A+
948	601662	8	317	.492	.092	.492	.334	.082	.000	.289	-.054	.289	-.170	-.178	0.339	0.120	1.9	1.1	1.5	1.1	B-	A-
949	601252	8	160	.463	.125	.306	.463	.094	.013	.378	-.199	-.144	.378	-.152	0.471	0.169	-0.4	1.0	-0.4	1.0	A-	
950	601331	8	317	.290	.290	.325	.271	.095	.019	.309	.309	-.018	-.164	-.122	1.310	0.133	0.9	1.1	1.1	1.1	A+	A-
951	601661	8	160	.363	.194	.300	.363	.106	.038	.244	-.128	-.025	.244	-.081	0.905	0.177	1.3	1.1	1.5	1.1	B-	
952	601293	8	317	.508	.224	.107	.508	.158	.003	.343	-.073	-.171	.343	-.218	0.288	0.122	1.3	1.1	0.7	1.1	A+	A-
953	601262	8	157	.758	.083	.758	.089	.064	.006	.444	-.051	.444	-.391	-.204	-1.084	0.200	-1.2	0.9	-0.9	0.8	A+	
954	602138	8	317	.577	.107	.136	.158	.577	.022	.488	-.260	-.236	-.090	.488	-0.088	0.125	-2.1	0.9	-1.4	0.9	A+	A+
955	601333	8	317	.316	.202	.271	.186	.316	.025	.452	-.098	-.185	-.140	.452	1.214	0.132	-1.8	0.9	-1.1	0.9	A+	A-
956	602051	8	160	.581	.125	.194	.581	.094	.006	.225	-.056	-.028	.225	-.245	-0.016	0.175	2.1	1.1	2.0	1.2	A-	
957	601727	8	319	.583	.075	.176	.166	.583	.000	.372	-.043	-.221	-.236	.372	-0.037	0.123	-0.4	1.0	0.4	1.0	A+	A+
958	601246	8	319	.263	.263	.351	.188	.176	.022	.426	.426	-.075	-.214	-.095	1.529	0.137	-1.0	0.9	-0.4	1.0	A+	A+
959	601334	8	319	.665	.665	.063	.053	.194	.025	.358	.358	-.199	-.254	-.069	-0.529	0.130	0.5	1.0	0.8	1.1	A-	A-
960	601347	8	159	.208	.138	.579	.208	.069	.006	-.065	-.171	.344	-.065	-.313	1.863	0.208	2.9	1.4	3.2	1.7	A-	
961	601672	8	159	.528	.528	.138	.120	.214	.000	.448	.448	-.142	-.220	-.252	0.192	0.170	-1.5	0.9	-1.4	0.9	A-	
962	601698	8	317	.186	.120	.186	.360	.319	.016	.263	-.247	.263	.045	-.037	2.058	0.155	0.4	1.0	2.3	1.4	A-	
963	601673	8	317	.663	.663	.117	.117	.088	.016	.445	.445	-.253	-.204	-.116	-0.499	0.129	-1.3	0.9	-1.3	0.9	A+	
964	601335	8	159	.736	.057	.736	.113	.076	.019	.443	-.226	.443	-.244	-.164	-0.930	0.195	-1.1	0.9	-1.0	0.8	A+	
965	601758	8	158	.715	.063	.715	.082	.127	.013	.431	-.291	.431	-.262	-.136	-0.796	0.193	-1.0	0.9	-0.9	0.8	A+	
966	601238	8	158	.646	.646	.139	.152	.063	.000	.352	.352	-.239	-.178	-.089	-0.370	0.181	0.0	1.0	4.1	1.7	A+	
967	601345	8	158	.234	.120	.285	.354	.234	.006	.546	-.063	-.226	-.176	.546	1.774	0.204	-1.9	0.8	-2.4	0.6	A+	
968	601360	8	157	.580	.580	.178	.159	.070	.013	.420	.420	-.204	-.246	.024	-0.123	0.175	-1.0	0.9	0.4	1.0	A+	
969	601764	8	318	.689	.689	.072	.116	.116	.006	.496	.496	-.208	-.334	-.220	-0.354	0.132	-2.2	0.9	-2.4	0.8	A-	A+
970	602052	8	318	.569	.569	.173	.110	.148	.000	.518	.518	-.269	-.309	-.164	0.131	0.125	-2.6	0.9	-2.1	0.8	B+	B+
971	602065	8	157	.191	.548	.217	.191	.038	.006	.264	-.151	-.052	.264	.042	1.953	0.217	0.5	1.1	1.1	1.2	A-	
972	601346	8	315	.568	.054	.149	.200	.568	.029	.599	-.198	-.273	-.280	.599	-0.179	0.126	-3.7	0.8	-3.4	0.8	A+	B-
973	600980	8	318	.481	.104	.481	.305	.110	.000	.359	-.146	.359	-.186	-.157	0.569	0.125	1.5	1.1	1.2	1.1	A+	A-
974	601776	8	316	.468	.193	.468	.184	.139	.016	.492	-.193	.492	-.229	-.161	0.293	0.124	-2.6	0.9	-1.4	0.9	A-	A-
975	601232	8	158	.437	.437	.260	.158	.101	.044	.444	.444	-.161	-.263	-.160	0.414	0.174	-1.3	0.9	-1.3	0.9	A+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
976	601348	8	317	.215	.215	.170	.372	.224	.019	.163	.163	-.081	.061	-.079	1.843	0.148	2.3	1.2	2.9	1.4	A+	
977	601777	8	315	.549	.549	.152	.130	.143	.025	.427	.427	-.214	-.181	-.116	-0.064	0.125	-1.5	0.9	-0.7	1.0	A+	A+
978	601384	8	317	.628	.139	.628	.136	.098	.000	.441	-.309	.441	-.175	-.157	-0.296	0.124	-2.4	0.9	-1.2	0.9	A+	A+
979	601231	8	319	.489	.097	.223	.172	.489	.019	.468	-.108	-.159	-.319	.468	0.244	0.122	-2.3	0.9	-1.8	0.9	B+	A-
980	601663	8	159	.321	.201	.321	.220	.233	.025	.169	.022	.169	-.043	-.122	1.142	0.183	2.2	1.2	2.5	1.3	A+	
981	601234	8	315	.340	.178	.156	.289	.340	.038	.316	-.168	-.111	-.006	.316	0.964	0.131	0.6	1.0	0.2	1.0	A-	A+
982	601775	8	317	.338	.167	.123	.357	.338	.016	.359	-.205	-.151	-.047	.359	0.982	0.130	-0.2	1.0	-0.1	1.0	A-	A+
983	601069	8	313	.435	.115	.150	.284	.435	.016	.505	-.202	-.240	-.165	.505	0.418	0.125	-2.6	0.9	-2.0	0.9	A+	
984	601097	8	159	.610	.069	.270	.050	.610	.000	.568	-.275	-.352	-.233	.568	-0.193	0.174	-3.7	0.8	-2.9	0.7	A-	
985	601090	8	160	.288	.069	.131	.475	.288	.038	.381	-.108	-.264	-.051	.381	1.303	0.187	-0.4	1.0	0.1	1.0	A-	
986	601100	8	160	.588	.206	.094	.094	.588	.019	.491	-.238	-.128	-.268	.491	-0.084	0.177	-1.6	0.9	-1.3	0.9	A+	
987	600990	8	315	.413	.140	.216	.413	.203	.029	.329	-.154	-.178	.329	.015	0.603	0.126	1.0	1.1	1.6	1.1	B-	A+
988	601006	8	313	.150	.185	.150	.556	.080	.029	-.022	-.125	-.022	.190	-.013	2.136	0.169	2.2	1.3	4.1	1.9	A+	
989	601009	8	317	.120	.120	.328	.401	.145	.006	.023	.023	-.024	.028	-.005	2.551	0.184	1.3	1.2	2.6	1.7	A+	A-
990	601093	8	317	.205	.205	.148	.230	.401	.016	.292	.292	-.243	-.189	.140	1.792	0.150	1.0	1.1	1.2	1.2	A-	A-
991	601096	8	317	.555	.060	.180	.189	.555	.016	.468	-.208	-.194	-.225	.468	-0.107	0.125	-1.7	0.9	-2.0	0.9	A+	A-
992	601087	8	316	.475	.104	.475	.310	.092	.019	.253	-.092	.253	-.044	-.161	0.264	0.125	3.2	1.2	2.0	1.1	A-	A+
993	601055	8	316	.377	.101	.247	.260	.377	.016	.396	-.261	-.071	-.132	.396	0.753	0.128	0.1	1.0	0.4	1.0	A-	B-
994	601025	8	316	.453	.098	.203	.453	.234	.013	.301	-.215	-.084	.301	-.093	0.371	0.125	1.5	1.1	0.9	1.1	A+	A-
995	601007	8	315	.479	.118	.181	.479	.210	.013	.251	-.183	-.069	.251	-.040	0.308	0.124	3.0	1.1	2.8	1.2	A+	A+
996	601106	8	318	.440	.101	.176	.440	.283	.000	.365	-.175	-.252	.365	-.073	0.924	0.125	1.1	1.1	1.2	1.1	A-	A-
997	600991	8	318	.582	.204	.160	.054	.582	.000	.446	-.213	-.247	-.193	.446	0.230	0.125	-1.0	1.0	-1.3	0.9	A-	B-
998	601068	8	318	.252	.132	.550	.252	.060	.006	.189	-.169	.008	.189	-.097	1.951	0.141	1.7	1.1	2.6	1.3	A+	A+
999	601062	8	319	.314	.050	.314	.072	.564	.000	.208	-.171	.208	-.222	-.004	1.550	0.133	2.7	1.2	2.7	1.3	C+	A+
1000	601021	8	319	.451	.125	.238	.182	.451	.003	.150	-.170	.052	-.116	.150	0.814	0.125	4.4	1.2	3.6	1.3	B+	A+
1001	601008	8	319	.683	.025	.683	.207	.085	.000	.382	-.087	.382	-.297	-.157	-0.491	0.133	-0.2	1.0	-0.7	0.9	A-	A+
1002	601094	8	319	.304	.147	.304	.376	.163	.009	.296	-.238	.296	-.130	.048	1.494	0.137	2.3	1.2	2.8	1.3	A-	A-
1003	600994	8	321	.816	.140	.816	.022	.022	.000	.395	-.295	.395	-.142	-.206	-1.462	0.155	-0.4	1.0	-1.1	0.8	A+	
1004	601104	8	158	.323	.190	.323	.342	.146	.000	.177	-.175	.177	-.024	-.007	1.082	0.180	1.5	1.1	1.7	1.2	A+	
1005	601105	8	318	.657	.657	.248	.047	.038	.009	.342	.342	-.245	-.148	-.068	-0.475	0.126	-0.4	1.0	-0.4	1.0	A-	A-
1006	601056	8	318	.223	.107	.223	.230	.418	.022	.038	-.127	.038	-.126	.164	1.655	0.143	2.6	1.2	3.3	1.4	A-	A+
1007	600995	8	158	.532	.070	.152	.532	.196	.051	.236	-.061	-.108	.236	-.152	-0.063	0.175	1.5	1.1	1.2	1.1	A-	
1008	601128	8	317	.464	.079	.215	.230	.464	.013	.417	-.065	-.087	-.287	.417	0.454	0.121	-1.3	1.0	-1.4	0.9	B-	B+
1009	602112	8	160	.338	.125	.231	.288	.338	.019	.258	-.051	-.142	-.045	.258	1.068	0.179	1.1	1.1	1.1	1.1	A-	
1010	601681	8	317	.498	.306	.079	.498	.085	.032	.406	-.177	-.117	.406	-.155	0.247	0.122	-0.7	1.0	-0.7	1.0	A-	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1011	601098	8	157	.408	.204	.268	.408	.115	.006	.343	-.055	-.193	.343	-.145	0.701	0.177	0.7	1.1	0.7	1.1	A-	
1012	601095	8	317	.678	.678	.110	.107	.085	.019	.341	.341	-.040	-.206	-.182	-0.606	0.132	0.1	1.0	0.4	1.0	A-	A+
1013	601682	8	157	.516	.121	.191	.127	.516	.045	.440	-.172	-.247	-.006	.440	0.097	0.177	-0.7	1.0	-0.7	0.9	A-	
1014	601807	8	319	.884	.022	.031	.884	.056	.006	.352	-.201	-.172	.352	-.172	-2.006	0.185	-0.6	0.9	-0.6	0.9	C+	A+
1015	601027	8	319	.608	.608	.188	.122	.063	.019	.500	.500	-.253	-.202	-.188	-0.215	0.125	-2.4	0.9	-2.5	0.8	A-	B-
1016	601806	8	160	.525	.106	.525	.175	.150	.044	.356	-.264	.356	.023	-.117	0.156	0.177	1.4	1.1	1.0	1.1	A+	
1017	601063	8	160	.613	.613	.163	.094	.088	.044	.446	.446	-.126	-.146	-.230	-0.296	0.183	-0.4	1.0	-0.1	1.0	A-	
1018	601088	8	317	.672	.672	.047	.028	.249	.003	.523	.523	-.218	-.204	-.352	-0.507	0.128	-3.3	0.8	-2.3	0.8	A-	
1019	601061	8	159	.233	.233	.170	.359	.226	.013	.233	.233	-.138	.057	-.123	1.686	0.201	0.8	1.1	1.6	1.3	A+	
1020	601010	8	159	.654	.151	.069	.113	.654	.013	.583	-.274	-.196	-.339	.583	-0.447	0.180	-3.2	0.8	-2.8	0.7	A-	
1021	601015	8	317	.476	.177	.180	.139	.476	.028	.477	-.209	-.179	-.167	.477	0.385	0.124	-1.9	0.9	-1.9	0.9	A-	
1022	601011	8	317	.457	.107	.230	.457	.177	.028	.410	-.121	-.095	.410	-.247	0.477	0.124	-0.2	1.0	-0.2	1.0	A-	
1023	601053	8	158	.228	.253	.228	.342	.158	.019	.210	.043	.210	-.179	.046	1.795	0.207	1.4	1.2	2.4	1.5	B-	
1024	601070	8	158	.310	.367	.184	.310	.095	.044	.127	.136	-.102	.127	-.111	1.257	0.190	3.2	1.3	4.0	1.6	A-	
1025	601102	8	319	.749	.069	.091	.749	.063	.028	.423	-.243	-.188	.423	-.099	-1.044	0.143	-0.6	1.0	-1.0	0.9	A+	A-
1026	601127	8	160	.475	.100	.113	.300	.475	.013	.404	-.237	-.146	-.159	.404	0.413	0.169	-0.7	1.0	-1.0	0.9	B-	
1027	601092	8	313	.326	.185	.326	.310	.157	.022	.391	-.053	.391	-.173	-.139	0.965	0.132	-0.4	1.0	0.2	1.0	B-	
1028	601091	8	317	.716	.047	.716	.164	.063	.010	.470	-.183	.470	-.327	-.159	-0.790	0.133	-2.4	0.9	-2.0	0.8	B+	A-
1029	601126	8	315	.083	.054	.768	.073	.083	.022	-.153	-.088	.343	-.156	-.153	2.985	0.213	1.6	1.3	3.9	2.4	A-	A+
1030	601089	8	158	.279	.139	.481	.057	.279	.044	.191	-.209	.095	-.032	.191	1.443	0.196	2.3	1.2	2.8	1.5	A-	
1031	601103	8	321	.277	.146	.277	.371	.199	.006	.170	-.177	.170	.020	-.050	1.490	0.138	2.7	1.2	3.6	1.5	A-	
1032	600842	11	718	.403	.403	.074	.096	.426	.001	.315	.315	-.195	-.246	-.062	1.254	0.081	-0.1	1.0	0.1	1.0	A-	A-
1033	600646	11	714	.775	.775	.130	.050	.039	.006	.335	.335	-.200	-.144	-.121	-0.672	0.094	-1.6	0.9	-1.9	0.9	A-	
1034	601630	11	719	.655	.022	.655	.056	.266	.001	.372	-.124	.372	-.189	-.257	0.005	0.084	-1.2	1.0	-1.8	0.9	A+	B-
1035	600826	11	717	.728	.014	.036	.728	.220	.001	.333	-.098	-.158	.333	-.257	-0.384	0.089	-0.5	1.0	-0.2	1.0	A-	
1036	602260	11	717	.459	.159	.459	.195	.187	.000	.255	-.031	.255	-.172	-.121	0.951	0.081	3.4	1.1	3.1	1.1	C-	
1037	602644	11	719	.349	.330	.195	.349	.120	.007	.126	.090	-.175	.126	-.084	1.450	0.084	5.4	1.2	6.3	1.3	A+	A+
1038	604162	11	715	.435	.435	.106	.066	.392	.001	.290	.290	-.214	-.264	-.020	1.179	0.081	2.6	1.1	2.5	1.1	C-	A-
1039	601556	11	717	.374	.314	.190	.374	.121	.001	.341	-.103	-.199	.341	-.111	1.361	0.084	0.6	1.0	1.6	1.1	A-	
1040	601524	11	717	.520	.520	.272	.127	.078	.003	.445	.445	-.201	-.251	-.174	0.659	0.081	-3.2	0.9	-3.0	0.9	B-	
1041	601502	11	717	.713	.202	.713	.050	.034	.001	.449	-.348	.449	-.159	-.156	-0.297	0.088	-2.5	0.9	-2.6	0.8	A+	
1042	601455	11	717	.593	.593	.144	.163	.093	.007	.518	.518	-.309	-.225	-.197	0.301	0.082	-5.9	0.8	-5.1	0.8	A-	
1043	601458	11	719	.752	.013	.752	.141	.089	.006	.412	-.133	.412	-.272	-.216	-0.540	0.092	-2.2	0.9	-3.0	0.8	A+	A-
1044	601557	11	719	.577	.129	.234	.057	.577	.003	.455	-.209	-.294	-.113	.455	0.380	0.081	-4.9	0.9	-4.5	0.8	A+	A+
1045	600825	11	719	.604	.043	.604	.291	.061	.001	.364	-.111	.364	-.286	-.106	0.258	0.082	-1.7	1.0	-1.9	0.9	A-	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1046	601503	11	719	.665	.131	.665	.131	.061	.013	.429	-.211	.429	-.191	-.169	-0.082	0.085	-2.1	0.9	-2.2	0.9	A-	A+
1047	604829	11	715	.859	.859	.042	.046	.053	.000	.380	.380	-.188	-.212	-.223	-1.175	0.112	-1.4	0.9	-2.6	0.7	A-	A-
1048	601523	11	715	.720	.720	.084	.164	.028	.004	.475	.475	-.263	-.301	-.173	-0.231	0.089	-3.5	0.9	-3.8	0.8	A+	A-
1049	600548	11	715	.333	.076	.137	.333	.445	.010	.176	-.119	-.236	.176	.056	1.665	0.085	3.8	1.1	4.0	1.2	A+	A+
1050	600836	11	718	.740	.070	.740	.086	.095	.010	.357	-.178	.357	-.216	-.143	-0.414	0.091	-1.2	1.0	-2.2	0.9	A-	A-
1051	604515	11	718	.717	.050	.105	.121	.717	.007	.403	.000	-.269	-.257	.403	-0.276	0.088	-2.1	0.9	-1.9	0.9	A-	B-
1052	602658	11	718	.447	.107	.306	.447	.125	.014	.302	-.165	-.139	.302	-.044	1.014	0.080	0.7	1.0	0.9	1.0	A+	A-
1053	602659	11	714	.415	.242	.269	.415	.062	.013	.261	-.103	-.121	.261	-.045	1.090	0.081	1.6	1.0	1.5	1.1	A-	
1054	600843	11	714	.740	.029	.740	.063	.167	.001	.383	-.159	.383	-.168	-.260	-0.447	0.089	-2.7	0.9	-3.6	0.8	A-	
1055	601629	11	714	.266	.177	.325	.266	.217	.015	.215	-.093	-.124	.215	.056	1.850	0.090	1.4	1.1	1.7	1.1	A+	
1056	602261	11	962	.288	.090	.288	.190	.429	.002	.281	-.023	.281	-.208	-.071	2.299	0.077	2.1	1.1	2.9	1.2	C-	A-
1057	604176	11	482	.255	.635	.255	.042	.069	.000	.420	-.284	.420	-.065	-.132	2.453	0.113	-1.1	0.9	-0.9	0.9	C-	
1058	604516	11	480	.473	.213	.473	.190	.110	.015	.338	-.197	.338	-.180	-.026	1.435	0.099	0.9	1.0	0.3	1.0	B-	A-
1059	600837	11	483	.443	.110	.099	.348	.443	.000	.488	-.120	-.224	-.290	.488	1.689	0.100	-3.3	0.9	-2.0	0.9	A-	A-
1060	602661	11	532	.790	.790	.043	.111	.055	.002	.396	.396	-.126	-.277	-.211	-0.441	0.113	-1.5	0.9	-2.3	0.8	A-	
1061	604163	11	531	.836	.030	.068	.066	.836	.000	.399	-.226	-.271	-.165	.399	-0.741	0.123	-1.8	0.9	-2.8	0.7	B+	
1062	604799	11	532	.227	.278	.120	.367	.227	.008	.381	.008	-.193	-.191	.381	2.527	0.112	-0.4	1.0	-0.2	1.0	A-	
1063	600651	11	532	.603	.258	.603	.062	.075	.002	.433	-.221	.433	-.219	-.220	0.574	0.095	-3.2	0.9	-2.9	0.9	A-	A-
1064	604180	11	533	.289	.113	.289	.467	.122	.009	.373	-.174	.373	-.111	-.167	2.171	0.104	-0.6	1.0	0.8	1.1	A-	A-
1065	601544	11	533	.675	.038	.026	.675	.259	.002	.460	-.207	-.162	.460	-.333	0.251	0.099	-2.6	0.9	-2.5	0.8	C-	
1066	600749	11	533	.411	.411	.306	.201	.079	.004	.527	.527	-.230	-.221	-.231	1.520	0.095	-5.2	0.8	-4.7	0.8	A-	
1067	600844	11	533	.257	.158	.257	.317	.250	.019	.241	-.060	.241	-.174	.028	2.319	0.107	1.8	1.1	3.2	1.3	A-	
1068	604798	11	533	.863	.863	.032	.075	.030	.000	.356	.356	-.177	-.220	-.196	-0.985	0.131	-1.0	0.9	-2.4	0.7	A+	
1069	602258	11	533	.462	.462	.096	.387	.047	.009	.403	.403	-.271	-.210	-.060	1.268	0.095	-0.9	1.0	-0.8	1.0	A-	
1070	602647	11	532	.376	.126	.244	.241	.376	.013	.407	-.152	-.166	-.171	.407	1.657	0.098	-1.1	1.0	-1.1	0.9	A+	
1071	600845	11	532	.329	.098	.284	.329	.276	.013	.219	-.151	-.064	.219	-.047	1.907	0.101	3.2	1.1	3.6	1.2	A-	
1072	604801	11	532	.481	.085	.481	.235	.149	.006	.262	-.161	.262	-.159	-.139	1.029	0.096	0.2	1.0	0.0	1.0	A+	
1073	602263	11	531	.663	.196	.663	.098	.032	.011	.304	-.138	.304	-.202	-.078	0.301	0.100	0.8	1.0	0.2	1.0	A-	
1074	600846	11	531	.420	.138	.420	.316	.090	.036	.375	-.238	.375	-.108	-.098	1.421	0.096	-0.5	1.0	-0.3	1.0	A+	
1075	604517	11	533	.499	.499	.266	.206	.024	.004	.444	.444	-.289	-.166	-.151	1.132	0.094	-3.7	0.9	-3.3	0.9	A-	A+
1076	600712	11	533	.413	.069	.308	.413	.205	.006	.164	-.098	.054	.164	-.190	1.538	0.096	5.2	1.2	4.3	1.2	A+	B-
1077	604165	11	532	.652	.152	.652	.160	.026	.009	.246	-.196	.246	-.062	-.111	0.308	0.098	1.2	1.1	1.9	1.1	A+	A-
1078	600828	11	532	.630	.032	.179	.630	.156	.004	.278	-.069	-.208	.278	-.095	0.443	0.096	1.4	1.1	1.1	1.1	A+	A-
1079	604177	11	481	.599	.119	.195	.599	.077	.010	.189	-.098	-.192	.189	.066	0.747	0.100	2.3	1.1	4.0	1.2	A+	
1080	601545	11	481	.738	.738	.081	.146	.035	.000	.343	.343	-.166	-.238	-.116	0.064	0.109	-0.9	1.0	-0.9	0.9	A-	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1081	602646	11	482	.448	.268	.448	.237	.035	.012	.142	-.059	.142	-.077	-.031	1.419	0.099	6.0	1.2	5.3	1.3	A-	
1082	601525	11	482	.320	.309	.214	.320	.156	.002	.241	-.182	-.085	.241	.020	2.080	0.106	2.5	1.1	2.2	1.1	B-	
1083	602262	11	480	.567	.223	.567	.135	.046	.029	.097	.031	.097	-.057	-.100	0.944	0.101	6.9	1.2	7.6	1.5	A-	A+
1084	600827	11	480	.429	.429	.231	.315	.017	.008	.465	.465	-.088	-.359	-.172	1.657	0.100	-3.2	0.9	-2.4	0.9	A+	A-
1085	604949	11	483	.329	.420	.128	.329	.104	.019	.369	-.294	-.071	.369	.008	2.226	0.107	0.4	1.0	0.5	1.0	A-	A-
1086	605040	11	483	.590	.031	.259	.590	.120	.000	.338	-.106	-.149	.338	-.254	0.985	0.100	0.8	1.0	0.8	1.1	B+	A-
1087	601547	11	481	.568	.220	.568	.141	.062	.008	.268	-.045	.268	-.197	-.168	0.920	0.099	1.9	1.1	1.0	1.1	A+	
1088	604164	11	481	.453	.223	.262	.453	.048	.015	.268	-.133	-.127	.268	-.049	1.446	0.100	2.0	1.1	1.3	1.1	A-	
1089	601543	11	481	.778	.058	.013	.778	.152	.000	.326	-.187	-.058	.326	-.237	-0.159	0.115	-1.3	0.9	-0.2	1.0	C-	
1090	604178	11	532	.853	.853	.066	.055	.024	.002	.363	.363	-.145	-.254	-.209	-0.928	0.128	-1.2	0.9	-2.3	0.7	A-	
1091	600785	11	531	.290	.073	.290	.401	.234	.002	.182	-.212	.182	-.055	.010	2.159	0.103	2.6	1.1	3.6	1.3	A-	
1092	604522	11	533	.743	.032	.143	.743	.083	.000	.423	-.143	-.286	.423	-.217	-0.099	0.105	-2.3	0.9	-2.9	0.8	A+	A-
1093	602650	11	533	.433	.058	.176	.327	.433	.006	.528	-.115	-.310	-.240	.528	1.406	0.095	-4.5	0.9	-3.5	0.9	A+	
1094	601550	11	532	.620	.030	.620	.032	.314	.004	.216	-.173	.216	-.185	-.085	0.486	0.096	3.1	1.1	2.3	1.1	A+	A-
1095	604170	11	532	.596	.079	.164	.596	.154	.008	.502	-.208	-.189	.502	-.305	0.598	0.095	-4.3	0.9	-4.1	0.8	A-	A-
1096	601549	11	533	.762	.762	.098	.064	.071	.006	.454	.454	-.284	-.229	-.190	-0.243	0.109	-2.9	0.9	-3.0	0.7	A+	A-
1097	602268	11	531	.567	.567	.260	.083	.083	.008	.489	.489	-.284	-.245	-.151	0.791	0.095	-3.2	0.9	-2.7	0.9	A-	
1098	601528	11	533	.330	.161	.330	.250	.250	.009	.197	.029	.197	-.152	-.074	1.914	0.100	3.6	1.2	2.9	1.2	A-	
1099	602266	11	533	.589	.071	.180	.589	.146	.013	.465	-.161	-.197	.465	-.305	0.641	0.096	-2.6	0.9	-2.7	0.9	A+	
1100	604803	11	533	.478	.227	.203	.478	.086	.006	.501	-.208	-.312	.501	-.111	1.195	0.094	-3.8	0.9	-3.2	0.9	A-	
1101	604831	11	533	.353	.109	.158	.368	.353	.013	.310	-.075	-.236	-.058	.310	1.792	0.098	1.7	1.1	0.9	1.1	A-	
1102	600803	11	532	.380	.290	.241	.380	.085	.006	.362	-.249	-.026	.362	-.163	1.662	0.097	0.8	1.0	0.9	1.1	A+	
1103	601954	11	532	.355	.105	.397	.355	.141	.002	.263	-.134	-.074	.263	-.128	1.792	0.099	2.3	1.1	3.6	1.2	A+	
1104	604518	11	532	.509	.017	.118	.509	.344	.011	.141	-.104	-.171	.141	.020	1.024	0.095	7.7	1.3	5.6	1.3	A-	
1105	601548	11	532	.696	.696	.105	.139	.056	.004	.457	.457	-.217	-.254	-.235	0.113	0.101	-3.4	0.9	-3.2	0.8	A+	
1106	604158	11	531	.840	.030	.040	.840	.090	.000	.395	-.220	-.139	.395	-.280	-0.772	0.124	-1.8	0.9	-3.0	0.7	A-	
1107	602666	11	531	.733	.733	.151	.072	.043	.002	.485	.485	-.315	-.288	-.141	-0.053	0.105	-3.7	0.8	-3.8	0.7	A-	
1108	600688	11	531	.271	.104	.428	.271	.185	.013	.304	-.081	-.154	.304	-.066	2.246	0.105	-0.4	1.0	0.3	1.0	A-	
1109	600829	11	531	.782	.089	.782	.109	.019	.002	.320	-.171	.320	-.249	-.055	-0.357	0.112	-0.5	1.0	-1.1	0.9	A+	
1110	604519	11	531	.567	.234	.567	.147	.032	.021	.278	-.124	.278	-.157	-.082	0.746	0.096	2.1	1.1	1.6	1.1	A-	
1111	600838	11	533	.475	.263	.161	.475	.084	.017	.350	-.141	-.149	.350	-.173	1.208	0.095	0.8	1.0	0.0	1.0	A-	A-
1112	600833	11	533	.814	.066	.045	.066	.814	.009	.365	-.225	-.213	-.154	.365	-0.624	0.119	-1.3	0.9	-1.6	0.8	B-	A-
1113	604179	11	533	.672	.111	.071	.145	.672	.002	.417	-.200	-.185	-.254	.417	0.287	0.099	-1.8	0.9	-2.2	0.9	A+	A-
1114	604159	11	533	.752	.028	.086	.752	.126	.008	.281	-.107	-.240	.281	-.097	-0.195	0.108	-0.1	1.0	0.9	1.1	A+	A+
1115	604520	11	533	.533	.291	.533	.096	.066	.015	.287	-.036	.287	-.250	-.164	0.932	0.095	2.8	1.1	2.6	1.1	A-	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1116	602648	11	532	.632	.632	.102	.218	.045	.004	.543	.543	-.185	-.411	-.177	0.430	0.097	-6.2	0.8	-5.1	0.7	A-	C-
1117	604830	11	532	.624	.038	.199	.624	.124	.015	.222	-.130	-.066	.222	-.149	0.432	0.097	2.7	1.1	2.2	1.1	B-	B-
1118	601527	11	532	.743	.058	.081	.743	.107	.011	.373	-.134	-.200	.373	-.214	-0.197	0.107	-1.0	1.0	-1.2	0.9	A+	B-
1119	600834	11	532	.541	.290	.083	.541	.087	.000	.320	-.102	-.222	.320	-.185	0.873	0.094	1.3	1.0	1.3	1.1	A-	A-
1120	602267	11	532	.607	.607	.239	.073	.075	.006	.303	.303	-.150	-.226	-.077	0.543	0.096	1.0	1.0	0.4	1.0	B+	A+
1121	602649	11	481	.638	.119	.127	.638	.110	.006	.223	.000	-.175	.223	-.161	0.564	0.101	1.6	1.1	2.2	1.1	A+	
1122	601632	11	481	.572	.083	.572	.158	.187	.000	.408	-.158	.408	-.239	-.182	0.904	0.098	-2.2	0.9	-1.4	0.9	A-	
1123	600848	11	481	.289	.210	.405	.089	.289	.006	.395	-.166	-.229	.006	.395	2.259	0.108	-1.0	1.0	-0.1	1.0	B-	
1124	600849	11	482	.228	.430	.272	.228	.066	.004	.340	-.077	-.197	.340	-.064	2.620	0.117	0.3	1.0	0.4	1.0	A-	
1125	604521	11	482	.772	.029	.060	.772	.139	.000	.365	-.101	-.155	.365	-.287	-0.164	0.114	-1.4	0.9	-2.1	0.8	A-	
1126	601504	11	482	.473	.102	.288	.135	.473	.002	.471	-.133	-.283	-.201	.471	1.325	0.098	-3.3	0.9	-3.2	0.9	A-	
1127	604168	11	480	.752	.031	.060	.752	.152	.004	.359	-.141	-.172	.359	-.237	0.069	0.112	-1.1	0.9	-1.4	0.9	A-	A-
1128	601529	11	480	.773	.040	.058	.127	.773	.002	.303	-.087	-.132	-.233	.303	-0.052	0.115	-0.9	1.0	1.0	1.1	A+	B-
1129	601505	11	480	.506	.094	.506	.290	.106	.004	.456	-.175	.456	-.208	-.263	1.304	0.099	-4.0	0.9	-3.1	0.9	A+	A-
1130	601530	11	483	.406	.087	.236	.248	.406	.023	.462	-.139	-.255	-.147	.462	1.824	0.102	-1.3	1.0	-1.3	0.9	A+	B-
1131	600815	11	483	.625	.091	.139	.625	.128	.017	.435	-.210	-.246	.435	-.144	0.760	0.103	-1.6	0.9	-1.4	0.9	A+	A+
1132	604169	11	483	.747	.116	.747	.091	.035	.010	.387	-.221	.387	-.214	-.138	0.109	0.113	-1.2	0.9	-1.5	0.8	A-	A-
1133	601631	11	481	.518	.100	.518	.106	.270	.006	.416	-.112	.416	-.146	-.274	1.163	0.099	-2.2	0.9	-1.7	0.9	A-	
1134	600847	11	481	.526	.133	.526	.262	.056	.023	.364	-.112	.364	-.197	-.150	1.090	0.100	-1.0	1.0	-0.3	1.0	A+	
1135	602669	11	717	.194	.292	.163	.340	.194	.011	.216	.008	-.137	-.071	.216	2.400	0.101	1.3	1.1	2.7	1.3	A-	
1136	601551	11	715	.455	.455	.175	.179	.180	.011	.401	.401	-.265	-.160	-.089	1.068	0.081	-1.4	1.0	-1.7	0.9	A+	A+
1137	601552	11	718	.216	.078	.297	.400	.216	.010	.153	.000	-.118	-.001	.153	2.240	0.095	1.6	1.1	3.2	1.3	A-	A+
1138	602668	11	714	.224	.279	.224	.270	.209	.018	.140	-.106	.140	-.042	.059	2.089	0.095	2.6	1.1	3.2	1.2	A+	
1139	604832	11	481	.472	.260	.156	.472	.112	.000	.327	-.118	-.197	.327	-.126	1.363	0.098	0.5	1.0	0.2	1.0	A-	
1140	602653	11	481	.815	.052	.037	.815	.096	.000	.407	-.186	-.152	.407	-.299	-0.427	0.122	-1.7	0.9	-2.8	0.7	A+	
1141	604950	11	482	.506	.243	.203	.506	.039	.008	.422	-.225	-.215	.422	-.132	1.158	0.098	-2.1	0.9	-2.0	0.9	A-	
1142	602269	11	482	.486	.486	.208	.212	.085	.010	.439	.439	-.186	-.245	-.148	1.250	0.098	-2.8	0.9	-2.7	0.9	A+	
1143	602270	11	480	.675	.071	.675	.217	.027	.010	.378	-.103	.378	-.267	-.157	0.471	0.104	-1.5	0.9	-0.4	1.0	A-	A+
1144	604524	11	483	.621	.162	.621	.184	.025	.008	.433	-.266	.433	-.193	-.156	0.811	0.102	-2.3	0.9	-1.9	0.9	A-	A-
1145	602657	11	481	.568	.052	.220	.568	.146	.015	.255	-.106	-.091	.255	-.141	0.908	0.100	2.7	1.1	1.7	1.1	A-	
1146	604171	11	481	.405	.137	.152	.405	.297	.008	.424	-.110	-.219	.424	-.179	1.691	0.101	-1.5	1.0	-1.2	0.9	B-	
1147	602259	11	717	.580	.580	.153	.204	.059	.004	.422	.422	-.194	-.274	-.120	0.367	0.082	-2.8	0.9	-2.5	0.9	A-	
1148	604952	11	718	.586	.159	.586	.163	.081	.011	.499	-.188	.499	-.290	-.176	0.375	0.081	-5.5	0.9	-5.3	0.8	A+	B-
1149	601554	11	714	.468	.157	.186	.468	.185	.004	.284	-.056	-.177	.284	-.128	0.858	0.080	0.7	1.0	0.1	1.0	A-	
1150	604806	11	714	.727	.035	.163	.727	.070	.006	.381	-.088	-.306	.381	-.114	-0.390	0.089	-2.5	0.9	-2.8	0.8	A-	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1151	600839	11	715	.836	.056	.039	.066	.836	.003	.332	-.203	-.152	-.174	.332	-1.000	0.107	-0.9	0.9	-1.0	0.9	A-	A-
1152	601461	11	718	.673	.673	.146	.082	.089	.010	.387	.387	-.218	-.119	-.181	-0.049	0.085	-1.4	1.0	-1.6	0.9	A+	A-
1153	604804	11	719	.125	.388	.136	.331	.125	.020	.028	.035	-.138	.102	.028	2.913	0.118	1.8	1.2	4.7	1.7	A-	A+
1154	602274	11	715	.197	.050	.197	.697	.053	.003	.287	-.098	.287	-.186	-.015	2.484	0.099	-0.3	1.0	1.9	1.2	B-	A-
1155	601507	11	717	.782	.024	.782	.134	.059	.001	.348	-.145	.348	-.209	-.211	-0.717	0.096	-1.1	0.9	-1.0	0.9	A+	
1156	604805	11	717	.565	.565	.163	.156	.113	.003	.314	.314	-.195	-.215	-.028	0.442	0.081	1.3	1.0	1.1	1.1	A+	
1157	600822	11	719	.545	.118	.235	.545	.099	.003	.393	-.233	-.197	.393	-.108	0.528	0.080	-2.0	1.0	-2.1	0.9	B-	A+
1158	604160	11	719	.239	.239	.271	.104	.378	.007	.238	.238	-.019	-.231	-.031	2.051	0.093	1.0	1.1	1.8	1.1	A-	A+
1159	604181	11	719	.143	.435	.210	.143	.199	.013	.052	.048	-.022	.052	-.053	2.746	0.111	1.7	1.1	4.6	1.6	A-	A-
1160	602654	11	715	.376	.376	.115	.123	.382	.004	.400	.400	-.193	-.220	-.119	1.458	0.083	-2.0	0.9	-1.4	0.9	B-	A-
1161	600823	11	715	.685	.043	.685	.208	.063	.000	.369	-.217	.369	-.230	-.138	-0.022	0.086	-0.8	1.0	-1.2	0.9	B+	A-
1162	601955	11	715	.439	.201	.090	.439	.264	.006	.313	-.065	-.246	.313	-.110	1.154	0.081	1.5	1.0	1.3	1.1	A+	A+
1163	600824	11	718	.625	.164	.127	.625	.081	.003	.307	-.106	-.179	.307	-.179	0.218	0.082	0.1	1.0	0.6	1.0	A+	A-
1164	601463	11	718	.652	.652	.152	.148	.046	.003	.378	.378	-.225	-.157	-.202	0.088	0.083	-1.5	1.0	-1.5	0.9	A+	A-
1165	602655	11	718	.220	.178	.220	.542	.057	.003	.314	.095	.314	-.321	-.018	2.230	0.095	-0.5	1.0	-0.2	1.0	A-	A-
1166	601506	11	714	.633	.633	.165	.136	.060	.006	.403	.403	-.140	-.232	-.209	0.098	0.082	-4.4	0.9	-3.3	0.9	A+	
1167	601555	11	714	.325	.325	.444	.130	.083	.018	.244	.244	.076	-.224	-.151	1.524	0.085	2.1	1.1	1.7	1.1	A+	
1168	604808	11	714	.457	.118	.284	.457	.125	.017	.316	-.134	-.081	.316	-.147	0.884	0.080	0.1	1.0	0.4	1.0	A-	
1169	604174	11	481	.102	.761	.102	.112	.025	.000	.080	.124	.080	-.176	-.139	3.713	0.159	1.4	1.2	2.8	1.5	A-	
1170	600835	11	481	.805	.031	.062	.100	.805	.002	.383	-.158	-.200	-.254	.383	-0.367	0.121	-1.7	0.9	-2.4	0.8	A+	
1171	600840	11	482	.315	.058	.529	.315	.095	.002	.234	-.192	-.189	.234	.109	2.104	0.106	2.2	1.1	1.8	1.1	A-	
1172	604175	11	482	.280	.125	.280	.098	.496	.002	.309	-.081	.309	-.125	-.145	2.304	0.110	0.8	1.0	1.4	1.1	A-	
1173	604951	11	480	.181	.148	.096	.575	.181	.000	.147	-.263	-.173	.178	.147	3.105	0.127	2.5	1.2	2.8	1.3	A-	A+
1174	600841	11	480	.485	.015	.038	.454	.485	.008	.329	-.062	-.056	-.289	.329	1.391	0.099	0.4	1.0	1.5	1.1	A+	A+
1175	602656	11	480	.367	.175	.367	.310	.142	.006	.331	-.129	.331	-.306	.092	1.965	0.103	1.2	1.1	0.7	1.0	A-	B+
1176	602271	11	483	.364	.385	.364	.184	.050	.017	.304	-.122	.304	-.153	-.092	2.042	0.104	2.3	1.1	1.8	1.1	A-	A-
1177	604833	11	483	.354	.095	.360	.354	.186	.004	.330	-.105	-.214	.330	-.059	2.123	0.105	1.0	1.0	1.4	1.1	A+	A-
1178	601508	11	483	.286	.166	.379	.286	.170	.000	.238	-.266	-.130	.238	.145	2.517	0.111	2.4	1.1	2.8	1.2	A-	A+
1179	604527	11	481	.370	.027	.366	.370	.235	.002	.371	-.176	-.224	.371	-.090	1.879	0.103	0.0	1.0	0.0	1.0	A-	
1180	604526	11	481	.179	.139	.179	.044	.634	.004	.383	-.107	.383	-.063	-.183	3.056	0.130	0.0	1.0	0.7	1.1	B-	
1181	600930	A1	717	.569	.087	.569	.243	.088	.014	.403	-.184	.403	-.234	-.113	0.396	0.082	-0.3	1.0	-0.7	1.0	A-	
1182	600929	A1	1433	.356	.161	.316	.356	.117	.050	.252	-.049	-.028	.252	-.084	1.308	0.059	2.4	1.1	2.9	1.1	A+	A+
1183	600933	A1	2870	.504	.076	.266	.125	.504	.029	.390	-.185	-.079	-.225	.390	0.670	0.041	-3.1	1.0	-3.2	0.9	A+	A+
1184	600937	A1	1436	.218	.329	.218	.169	.219	.066	.218	.057	.218	-.065	-.042	2.005	0.068	0.9	1.0	1.5	1.1	A-	A-
1185	600935	A1	2868	.398	.398	.154	.257	.144	.047	.484	.484	-.195	-.151	-.141	1.105	0.042	-7.4	0.9	-6.5	0.9	A+	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1186	600942	A1	1432	.207	.207	.235	.298	.185	.075	.279	.279	-.019	-.066	-.066	2.103	0.070	0.7	1.0	1.5	1.1	A-	A-
1187	600944	A1	2867	.509	.128	.148	.190	.509	.026	.415	-.092	-.188	-.206	.415	0.655	0.040	-6.0	0.9	-5.2	0.9	A-	A-
1188	600951	A1	1434	.335	.335	.132	.236	.285	.013	.344	.344	-.109	-.137	-.113	1.418	0.059	-2.5	0.9	-1.9	0.9	A-	A-
1189	600965	A1	1432	.262	.262	.256	.241	.214	.027	.169	.169	-.022	-.028	-.066	1.878	0.064	2.4	1.1	2.8	1.1	A-	A+
1190	600949	A1	1432	.511	.511	.108	.124	.245	.013	.461	.461	-.193	-.241	-.146	0.685	0.056	-6.4	0.9	-5.9	0.9	A+	B-
1191	600950	A1	1433	.311	.311	.381	.170	.125	.013	.187	.187	.095	-.162	-.138	1.747	0.061	4.3	1.1	4.5	1.2	A-	B-
1192	600927	A1	717	.658	.151	.658	.116	.070	.006	.352	-.178	.352	-.124	-.221	-0.019	0.085	-0.1	1.0	-0.7	1.0	C+	
1193	600955	A1	1434	.667	.069	.667	.131	.089	.045	.503	-.172	.503	-.231	-.199	-0.150	0.063	-4.2	0.9	-3.9	0.8	A-	A-
1194	600934	A1	1434	.416	.195	.416	.243	.094	.053	.255	.034	.255	-.112	-.105	1.099	0.059	5.7	1.1	5.2	1.2	A+	A-
1195	600956	A1	1433	.470	.470	.239	.132	.140	.019	.400	.400	-.104	-.195	-.162	0.939	0.057	-2.6	1.0	-2.6	0.9	A-	B-
1196	600940	A1	1433	.352	.107	.352	.279	.218	.043	.397	-.048	.397	-.178	-.122	1.448	0.060	-1.9	1.0	-1.6	1.0	A+	B+
1197	600945	A1	1432	.341	.142	.341	.180	.316	.022	.441	-.204	.441	-.068	-.150	1.470	0.060	-4.0	0.9	-3.3	0.9	A-	A+
1198	600963	A1	1432	.244	.136	.348	.207	.244	.065	.193	-.017	.125	-.151	.193	1.914	0.066	2.8	1.1	3.6	1.2	A-	A+
1199	600975	A1	1429	.402	.250	.402	.190	.107	.051	.244	.007	.244	-.116	-.058	1.086	0.058	4.5	1.1	4.1	1.1	A-	A+
1200	600952	A1	1429	.471	.066	.216	.471	.200	.047	.435	-.142	-.168	.435	-.155	0.771	0.057	-5.0	0.9	-4.6	0.9	A-	A-
1201	600976	A1	715	.297	.164	.297	.393	.133	.014	.228	-.049	.228	-.053	-.130	1.730	0.086	1.3	1.1	1.9	1.1	A-	
1202	600936	A1	714	.475	.475	.132	.167	.205	.022	.461	.461	-.137	-.217	-.172	0.790	0.080	-4.7	0.9	-3.8	0.9	B+	A+
1203	600941	A1	717	.179	.488	.085	.179	.230	.018	-.015	.080	-.168	-.015	.088	2.350	0.102	3.0	1.2	5.5	1.5	A-	A+
1204	600946	A1	1434	.436	.126	.436	.281	.116	.041	.338	-.081	.338	-.174	-.126	0.932	0.057	-0.8	1.0	-0.7	1.0	A+	A-
1205	600954	A1	717	.273	.511	.116	.273	.095	.006	.277	-.029	-.189	.277	-.140	1.878	0.088	0.2	1.0	1.1	1.1	A-	A+
1206	600964	A1	1433	.268	.069	.208	.428	.268	.027	.261	-.111	-.147	.039	.261	1.837	0.063	1.4	1.0	1.2	1.1	A+	A-
1207	600928	A1	1429	.400	.400	.351	.106	.126	.017	.414	.414	-.232	-.132	-.082	1.177	0.057	-3.5	0.9	-3.4	0.9	A+	A+
1208	600926	A1	2866	.588	.171	.102	.588	.121	.017	.376	-.266	-.175	.376	-.005	0.342	0.041	-2.3	1.0	-2.8	1.0	B-	A-
1209	600953	A1	715	.365	.101	.365	.152	.304	.078	.387	-.069	.387	-.008	-.197	1.241	0.084	-1.3	1.0	-1.2	1.0	A+	
1210	600966	A1	1433	.350	.131	.350	.280	.214	.027	.139	-.078	.139	-.110	.078	1.509	0.060	5.8	1.1	5.7	1.2	A+	A-
1211	601837	A1	717	.658	.658	.121	.117	.080	.024	.535	.535	-.197	-.247	-.236	-0.014	0.085	-5.5	0.8	-5.2	0.8	A+	A-
1212	602184	A1	1432	.756	.756	.186	.026	.024	.008	.312	.312	-.188	-.152	-.116	-0.547	0.065	-1.0	1.0	0.5	1.0	A+	A-
1213	602171	A1	1434	.514	.514	.248	.105	.097	.036	.393	.393	-.163	-.173	-.130	0.672	0.058	-1.5	1.0	-1.9	1.0	A+	A-
1214	601841	A1	1434	.759	.048	.087	.070	.759	.036	.458	-.192	-.227	-.219	.458	-0.681	0.069	-3.2	0.9	-4.5	0.7	A-	A-
1215	602241	A1	1433	.626	.114	.091	.159	.626	.009	.477	-.200	-.154	-.290	.477	0.224	0.059	-6.5	0.9	-5.9	0.8	A+	A-
1216	601793	A1	1433	.572	.043	.572	.066	.313	.006	.419	-.105	.419	-.151	-.310	0.502	0.057	-4.1	0.9	-4.3	0.9	B-	A+
1217	602159	A1	1433	.239	.239	.309	.214	.227	.012	.146	.146	.050	-.149	-.039	1.981	0.065	3.0	1.1	3.4	1.2	A-	A+
1218	601144	A1	1434	.445	.213	.445	.141	.188	.013	.387	-.067	.387	-.257	-.133	1.058	0.058	-0.9	1.0	-0.8	1.0	A-	A+
1219	601370	A1	1434	.551	.100	.130	.551	.170	.049	.409	-.105	-.174	.409	-.167	0.377	0.058	-2.8	1.0	-2.4	0.9	A+	A+
1220	600931	A1	1429	.326	.154	.197	.285	.326	.038	.283	.030	-.007	-.225	.283	1.503	0.060	1.2	1.0	1.2	1.0	A+	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1221	601410	A1	1433	.500	.112	.223	.500	.128	.038	.396	-.128	-.140	.396	-.136	0.650	0.057	-2.7	1.0	-2.0	1.0	A+	A+
1222	600939	A1	1436	.229	.172	.282	.277	.229	.040	.228	-.019	.012	-.073	.228	1.974	0.066	0.7	1.0	1.2	1.1	A-	B+
1223	602247	A1	1436	.352	.217	.237	.352	.158	.036	.171	.007	-.024	.171	-.063	1.298	0.059	4.0	1.1	4.0	1.1	A-	A+
1224	601168	A1	1433	.668	.116	.126	.668	.064	.026	.446	-.167	-.199	.446	-.171	-0.130	0.060	-3.5	0.9	-4.0	0.9	A+	A-
1225	601858	A1	1436	.719	.070	.719	.091	.066	.054	.480	-.149	.480	-.212	-.207	-0.610	0.066	-3.3	0.9	-4.3	0.8	B+	A-
1226	601412	A1	1433	.373	.155	.202	.219	.373	.050	.364	-.013	-.198	-.076	.364	1.222	0.058	-1.6	1.0	-1.9	1.0	A+	A-
1227	601831	A1	1436	.297	.082	.219	.297	.351	.052	.162	-.060	-.110	.162	.109	1.557	0.062	3.4	1.1	3.6	1.1	A-	A+
1228	602229	A1	1433	.211	.211	.272	.306	.165	.047	.174	.174	.017	-.018	-.079	2.129	0.068	1.6	1.1	2.3	1.1	A-	A+
1229	601387	A1	1433	.386	.451	.386	.085	.039	.039	.356	-.111	.356	-.196	-.106	1.184	0.058	-2.6	1.0	-1.8	1.0	A+	A+
1230	601855	A1	1436	.467	.467	.092	.295	.093	.052	.461	.461	-.148	-.172	-.168	0.707	0.057	-5.7	0.9	-5.4	0.9	A-	A-
1231	601864	A1	1436	.210	.210	.347	.233	.144	.067	.126	.126	.092	-.031	-.048	2.054	0.069	2.4	1.1	3.6	1.2	A+	A+
1232	601181	A1	1435	.676	.676	.064	.130	.102	.028	.507	.507	-.178	-.205	-.240	-0.280	0.062	-4.9	0.9	-5.1	0.8	A+	B-
1233	601810	A1	1435	.221	.221	.145	.501	.081	.052	.243	.243	-.172	.131	-.159	2.026	0.068	0.9	1.0	2.6	1.1	A+	A+
1234	601411	A1	1435	.558	.181	.114	.558	.112	.036	.380	-.123	-.109	.380	-.192	0.298	0.058	-1.1	1.0	-1.5	1.0	A+	A-
1235	601856	A1	1435	.399	.399	.165	.167	.208	.063	.302	.302	-.164	-.090	.031	0.998	0.059	1.6	1.0	1.8	1.1	A+	A+
1236	602169	A1	1435	.516	.516	.268	.105	.052	.061	.458	.458	-.150	-.181	-.176	0.430	0.059	-5.0	0.9	-4.4	0.9	A+	A+
1237	601414	A1	1435	.422	.422	.205	.213	.105	.056	.402	.402	-.142	-.080	-.117	0.908	0.059	-2.6	1.0	-2.2	0.9	A+	A+
1238	601832	A1	1435	.240	.235	.215	.240	.240	.070	.228	.005	-.137	.228	.059	1.863	0.067	2.4	1.1	2.5	1.1	A+	A+
1239	602255	A1	1435	.265	.105	.265	.381	.192	.056	.311	-.047	.311	-.060	-.061	1.742	0.065	0.6	1.0	1.0	1.0	A+	A+
1240	602232	A1	1435	.408	.096	.408	.285	.137	.075	.320	-.069	.320	-.098	-.058	0.929	0.059	2.3	1.1	1.5	1.0	A+	A+
1241	601861	A1	1435	.262	.088	.140	.452	.262	.059	.330	-.086	-.193	.022	.330	1.752	0.065	0.3	1.0	1.2	1.1	A-	A-
1242	601417	A1	1432	.644	.141	.644	.122	.064	.029	.394	-.169	.394	-.196	-.116	-0.089	0.061	-2.7	0.9	-1.4	0.9	B+	A-
1243	602235	A1	1432	.409	.115	.409	.309	.136	.031	.344	-.105	.344	-.092	-.149	1.060	0.058	0.5	1.0	0.8	1.0	A-	A-
1244	601182	A1	1432	.380	.147	.204	.212	.380	.057	.341	-.014	-.114	-.166	.341	1.133	0.060	-0.2	1.0	-0.8	1.0	A+	A+
1245	601420	A1	1432	.360	.134	.167	.279	.360	.059	.383	-.004	-.192	-.124	.383	1.230	0.060	-1.5	1.0	-1.5	1.0	A+	A-
1246	602162	A1	1432	.437	.183	.173	.437	.136	.072	.391	-.105	-.151	.391	-.121	0.808	0.059	-2.1	1.0	-1.9	1.0	A-	A-
1247	600957	A1	1432	.292	.143	.262	.222	.292	.082	.350	-.079	-.072	-.116	.350	1.553	0.063	-0.5	1.0	-0.3	1.0	A+	A-
1248	602183	A1	1434	.301	.301	.224	.206	.250	.020	.312	.312	-.077	-.168	-.052	1.586	0.061	-1.9	1.0	-1.5	1.0	A+	A+
1249	602256	A1	1434	.213	.213	.273	.215	.271	.027	.319	.319	-.074	-.108	-.046	2.083	0.068	-1.5	1.0	-1.2	0.9	A-	A-
1250	602156	A1	1434	.350	.156	.253	.350	.206	.036	.099	.066	-.058	.099	-.036	1.292	0.059	5.4	1.1	4.7	1.2	A+	A+
1251	602239	A1	1434	.258	.114	.258	.227	.386	.016	.083	-.112	.083	-.139	.158	1.823	0.064	3.6	1.1	4.2	1.2	B-	A+
1252	600961	A1	1434	.291	.234	.250	.291	.195	.029	.247	-.134	-.018	.247	-.054	1.609	0.062	0.2	1.0	-0.1	1.0	A-	A+
1253	601857	A1	1434	.221	.181	.376	.171	.221	.051	.249	-.034	.027	-.151	.249	1.980	0.067	0.2	1.0	1.7	1.1	A-	A+
1254	602240	A1	1434	.409	.170	.199	.219	.409	.004	.369	-.197	-.096	-.153	.369	1.095	0.057	-3.7	0.9	-3.4	0.9	A+	A-
1255	602157	A1	1434	.236	.149	.446	.151	.236	.017	.055	-.083	.057	-.006	.055	1.968	0.065	3.8	1.1	3.6	1.2	A-	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1256	601421	A1	1434	.423	.190	.186	.423	.185	.017	.301	-.071	-.164	.301	-.088	1.006	0.057	-2.8	1.0	-2.1	1.0	A-	A-
1257	602244	A1	1434	.635	.635	.121	.110	.125	.010	.491	.491	-.207	-.231	-.223	0.048	0.058	-5.6	0.9	-5.7	0.8	A-	C-
1258	601185	A1	1434	.214	.214	.226	.469	.081	.011	.188	.188	-.028	-.019	-.111	2.121	0.067	0.6	1.0	0.4	1.0	A-	A+
1259	602163	A1	1434	.238	.186	.315	.245	.238	.017	.210	-.029	.037	-.141	.210	1.959	0.065	0.4	1.0	0.4	1.0	A-	A+
1260	602238	A1	1434	.414	.141	.414	.217	.201	.027	.314	-.054	.314	-.153	-.064	1.023	0.057	-1.3	1.0	-0.6	1.0	A+	A+
1261	602254	A1	1434	.426	.172	.219	.426	.167	.017	.200	-.043	-.068	.200	-.041	0.991	0.057	3.1	1.1	2.6	1.1	A+	A+
1262	602257	A1	1434	.312	.306	.312	.249	.115	.017	.232	.022	.232	-.129	-.091	1.539	0.060	0.8	1.0	0.6	1.0	A-	A+
1263	601424	A1	1434	.345	.151	.163	.317	.345	.026	.375	-.109	-.224	-.019	.375	1.364	0.059	-3.0	0.9	-3.1	0.9	A-	A-
1264	600968	A1	1432	.233	.313	.269	.161	.233	.024	.167	.101	-.118	-.093	.167	2.063	0.066	1.7	1.1	3.2	1.2	A+	A+
1265	601846	A1	1432	.423	.145	.423	.253	.171	.008	.365	-.046	.365	-.300	-.073	1.097	0.057	-3.8	0.9	-3.1	0.9	A-	A+
1266	601374	A1	1432	.333	.244	.333	.187	.214	.022	.260	-.053	.260	-.086	-.076	1.503	0.060	1.3	1.0	2.1	1.1	A-	A+
1267	601395	A1	1432	.545	.545	.103	.129	.211	.012	.309	.309	-.156	-.167	-.061	0.527	0.057	0.3	1.0	-0.5	1.0	A-	A-
1268	601186	A1	1432	.322	.149	.322	.400	.108	.021	.245	-.069	.245	-.059	-.073	1.566	0.060	1.9	1.1	2.2	1.1	A+	A+
1269	601137	A1	1433	.646	.112	.086	.142	.646	.014	.455	-.252	-.161	-.194	.455	0.110	0.060	-5.2	0.9	-4.9	0.8	A+	A-
1270	601381	A1	1433	.299	.230	.299	.180	.271	.020	.111	-.027	.111	-.131	.062	1.798	0.062	5.8	1.2	5.6	1.2	A-	A+
1271	600972	A1	1433	.300	.125	.292	.264	.300	.019	.323	-.100	-.080	-.118	.323	1.793	0.062	-0.7	1.0	-0.9	1.0	A+	A+
1272	602252	A1	1433	.392	.365	.098	.121	.392	.024	.481	-.110	-.172	-.272	.481	1.314	0.058	-5.5	0.9	-5.1	0.9	A-	A-
1273	601382	A1	1434	.554	.554	.224	.085	.114	.024	.267	.267	-.121	-.114	-.064	0.515	0.058	3.9	1.1	3.4	1.1	A-	A+
1274	601375	A1	1434	.280	.266	.197	.216	.280	.040	.237	-.039	-.041	-.105	.237	1.862	0.064	3.0	1.1	3.4	1.2	A+	A-
1275	602185	A1	1434	.381	.256	.175	.176	.381	.012	.458	-.195	-.132	-.188	.458	1.376	0.059	-4.8	0.9	-3.4	0.9	A+	A-
1276	601400	A1	1434	.602	.602	.149	.149	.070	.031	.398	.398	-.158	-.156	-.169	0.252	0.059	-1.4	1.0	-1.4	1.0	A+	A-
1277	601847	A1	1434	.452	.452	.280	.151	.084	.032	.447	.447	-.099	-.244	-.171	0.985	0.058	-3.7	0.9	-2.4	0.9	A-	A-
1278	601796	A1	1434	.267	.096	.267	.395	.199	.043	.294	-.102	.294	-.081	-.019	1.938	0.065	1.5	1.1	2.7	1.1	A+	A-
1279	602172	A1	1436	.593	.593	.095	.174	.123	.015	.353	.353	-.208	-.139	-.110	0.273	0.058	0.7	1.0	0.6	1.0	A+	B-
1280	601842	A1	1436	.395	.478	.395	.087	.024	.016	.387	-.112	.387	-.290	-.146	1.226	0.059	-0.5	1.0	0.6	1.0	A-	A+
1281	601403	A1	1436	.516	.516	.171	.231	.064	.017	.365	.365	-.131	-.194	-.111	0.638	0.058	-0.8	1.0	-1.5	1.0	A+	A+
1282	600943	A1	1436	.349	.183	.328	.349	.118	.022	.179	.043	-.031	.179	-.194	1.437	0.060	5.6	1.1	6.0	1.2	A-	A+
1283	601147	A1	1436	.361	.163	.219	.236	.361	.021	.281	.026	-.073	-.201	.281	1.380	0.060	2.7	1.1	2.6	1.1	A-	A+
1284	601383	A1	1436	.330	.453	.087	.330	.111	.020	.171	-.007	-.074	.171	-.086	1.539	0.061	6.7	1.2	6.7	1.3	A-	A-
1285	601141	A1	1436	.655	.093	.655	.131	.076	.046	.559	-.222	.559	-.282	-.194	-0.156	0.062	-7.6	0.8	-7.1	0.7	A+	A-
1286	602186	A1	1436	.733	.113	.056	.072	.733	.027	.531	-.243	-.213	-.264	.531	-0.526	0.066	-5.9	0.8	-6.3	0.7	A+	A-
1287	601798	A1	1436	.305	.305	.265	.277	.100	.053	.368	.368	-.115	-.056	-.115	1.617	0.062	0.1	1.0	0.8	1.0	A+	A-
1288	601377	A1	1436	.375	.155	.287	.375	.134	.048	.156	-.009	-.029	.156	-.063	1.242	0.060	7.5	1.2	8.2	1.3	A+	A-
1289	601848	A1	1436	.323	.323	.217	.225	.183	.053	.399	.399	-.152	-.150	-.045	1.513	0.062	-1.6	1.0	-0.4	1.0	A-	A-
1290	600947	A1	1434	.215	.215	.163	.224	.351	.048	.182	.182	-.071	-.102	.068	2.220	0.068	2.7	1.1	3.4	1.2	A+	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1291	601385	A1	1434	.515	.515	.204	.158	.107	.016	.383	.383	-.130	-.209	-.135	0.703	0.058	-0.6	1.0	-0.4	1.0	A+	A+
1292	601849	A1	1434	.563	.074	.563	.174	.137	.052	.464	-.137	.464	-.266	-.119	0.370	0.059	-4.3	0.9	-4.1	0.9	A-	A-
1293	602173	A1	1434	.519	.064	.283	.114	.519	.020	.470	-.170	-.169	-.271	.470	0.672	0.058	-3.5	0.9	-3.3	0.9	A+	A+
1294	601378	A1	1434	.182	.038	.182	.628	.114	.037	.124	-.007	.124	.037	-.027	2.486	0.072	3.0	1.1	6.0	1.5	A-	A+
1295	601157	A1	1434	.467	.467	.181	.206	.096	.050	.514	.514	-.209	-.138	-.200	0.851	0.058	-6.6	0.9	-6.1	0.9	A-	B-
1296	601142	A1	1434	.666	.666	.090	.096	.117	.032	.540	.540	-.222	-.289	-.201	-0.109	0.062	-6.7	0.8	-6.7	0.8	A+	A-
1297	602187	A1	1434	.648	.058	.648	.156	.096	.043	.529	-.140	.529	-.305	-.188	-0.047	0.062	-5.5	0.9	-5.6	0.8	A+	A-
1298	601407	A1	1434	.592	.155	.090	.592	.117	.046	.347	-.052	-.189	.347	-.134	0.238	0.060	2.0	1.1	0.8	1.0	A+	A-
1299	601820	A1	1433	.733	.040	.054	.141	.733	.033	.439	-.107	-.217	-.250	.439	-0.474	0.067	-2.8	0.9	-3.4	0.8	A-	A-
1300	601388	A1	1433	.320	.320	.240	.248	.161	.031	.224	.224	-.059	-.042	-.072	1.640	0.061	3.0	1.1	3.5	1.1	A+	A-
1301	601843	A1	1433	.518	.040	.193	.218	.518	.032	.489	-.140	-.118	-.308	.489	0.675	0.058	-5.6	0.9	-4.6	0.9	B-	A+
1302	601850	A1	1433	.246	.214	.281	.236	.246	.024	.086	.042	.046	-.084	.086	2.077	0.065	4.9	1.2	5.6	1.3	A-	A+
1303	600958	A1	1433	.385	.144	.154	.286	.385	.031	.118	-.043	-.037	.037	.118	1.316	0.058	9.0	1.2	9.1	1.3	A+	A+
1304	601169	A1	1433	.373	.373	.241	.222	.136	.029	.321	.321	-.054	-.159	-.066	1.390	0.059	0.5	1.0	0.6	1.0	A+	A-
1305	601413	A1	1433	.214	.214	.472	.137	.144	.034	.270	.270	.022	-.109	-.103	2.260	0.068	0.3	1.0	2.5	1.1	A+	A-
1306	601145	A1	1433	.736	.736	.112	.080	.036	.036	.578	.578	-.282	-.287	-.198	-0.493	0.067	-6.5	0.8	-7.5	0.7	A+	A+
1307	602225	A1	1433	.168	.168	.405	.215	.140	.073	.211	.211	.232	-.224	-.113	2.526	0.074	0.8	1.0	3.1	1.2	A-	B+
1308	601183	A1	1432	.261	.163	.297	.230	.261	.050	.195	-.043	.074	-.093	.195	1.851	0.064	2.9	1.1	3.9	1.2	A-	A+
1309	601844	A1	1432	.607	.122	.607	.164	.078	.030	.502	-.192	.502	-.219	-.162	0.178	0.059	-5.3	0.9	-5.2	0.9	A-	A-
1310	602242	A1	1432	.363	.233	.201	.363	.151	.052	.301	.087	-.145	.301	-.157	1.283	0.059	1.6	1.0	1.9	1.1	A-	A+
1311	601390	A1	1432	.330	.330	.215	.195	.207	.052	.315	.315	-.059	-.120	-.012	1.454	0.060	0.4	1.0	0.3	1.0	A+	B+
1312	601415	A1	1432	.433	.095	.233	.202	.433	.037	.307	-.085	-.076	-.092	.307	0.981	0.058	0.2	1.0	-0.5	1.0	A+	A-
1313	601851	A1	1432	.325	.325	.208	.219	.205	.043	.274	.274	-.043	-.142	.015	1.499	0.060	1.5	1.0	1.4	1.1	A+	A-
1314	601821	A1	1432	.467	.087	.159	.211	.467	.078	.457	-.090	-.169	-.150	.457	0.709	0.058	-5.1	0.9	-4.9	0.9	A+	A+
1315	600962	A1	1432	.383	.137	.307	.383	.107	.066	.069	.094	.082	.069	-.098	1.151	0.059	9.9	1.2	9.9	1.3	A-	A+
1316	601146	A1	1432	.520	.074	.159	.520	.172	.076	.400	-.151	-.185	.400	-.040	0.452	0.059	-2.2	1.0	-2.1	1.0	A+	A+
1317	601391	A1	1429	.304	.231	.253	.304	.183	.029	.277	.022	-.105	.277	-.119	1.634	0.061	2.2	1.1	2.0	1.1	A+	A+
1318	601865	A1	1429	.348	.222	.325	.348	.081	.025	.194	-.007	-.058	.194	-.081	1.414	0.059	4.8	1.1	4.7	1.2	A+	A+
1319	600969	A1	1429	.268	.127	.268	.356	.202	.048	.143	.057	.143	-.055	.015	1.796	0.064	4.7	1.2	4.9	1.2	A-	A+
1320	601153	A1	1429	.529	.529	.132	.116	.205	.018	.437	.437	-.178	-.221	-.122	0.580	0.057	-6.3	0.9	-5.5	0.9	A+	A-
1321	602227	A1	714	.343	.343	.161	.223	.228	.045	.274	.274	-.069	-.067	-.010	1.367	0.085	1.6	1.1	1.8	1.1	A-	
1322	601845	A1	1429	.640	.112	.640	.169	.047	.032	.481	-.220	.481	-.224	-.081	0.008	0.060	-5.2	0.9	-5.0	0.8	A-	B-
1323	601852	A1	1429	.377	.267	.164	.165	.377	.027	.372	-.043	-.187	-.127	.372	1.271	0.058	-2.9	0.9	-2.1	0.9	A-	A-
1324	601184	A1	1429	.547	.060	.547	.316	.032	.046	.369	-.114	.369	-.178	-.135	0.413	0.058	-2.5	1.0	-2.5	0.9	A-	A+
1325	601389	A1	714	.338	.153	.276	.338	.142	.092	.203	-.043	-.032	.203	.070	1.282	0.086	3.9	1.1	3.5	1.2	A-	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1326	602243	A1	1429	.314	.314	.185	.199	.231	.071	.407	.407	-.032	-.130	-.096	1.501	0.061	-2.6	0.9	-2.1	0.9	A+	A+
1327	601174	A1	715	.674	.122	.674	.063	.136	.006	.320	-.178	.320	-.191	-.118	-0.030	0.084	-1.0	1.0	-0.7	1.0	A+	
1328	601393	A1	1429	.349	.134	.222	.349	.276	.019	.202	-.105	-.106	.202	.013	1.423	0.059	4.2	1.1	4.1	1.1	A+	A+
1329	601860	A1	715	.182	.102	.182	.271	.438	.007	.193	-.131	.193	-.212	.135	2.457	0.101	0.6	1.0	1.4	1.1	B-	
1330	602233	A1	1429	.792	.053	.069	.792	.067	.020	.410	-.214	-.194	.410	-.149	-0.820	0.070	-2.3	0.9	-4.3	0.8	A+	A-
1331	601853	A1	1429	.299	.276	.254	.299	.130	.042	.300	-.022	-.045	.300	-.192	1.637	0.061	0.8	1.0	1.1	1.0	A-	A+
1332	601862	A1	1429	.515	.071	.113	.515	.294	.006	.348	-.161	-.135	.348	-.171	0.677	0.056	-1.7	1.0	-1.9	1.0	B-	A+
1333	601867	A1	1429	.457	.457	.289	.145	.074	.036	.459	.459	-.139	-.189	-.171	0.879	0.057	-5.6	0.9	-4.9	0.9	A+	A-
1334	601392	A1	715	.407	.132	.119	.407	.325	.018	.303	-.141	-.104	.303	-.055	1.181	0.081	1.3	1.0	1.0	1.0	A-	
1335	602248	A1	715	.539	.154	.104	.539	.179	.025	.442	-.166	-.215	.442	-.120	0.559	0.080	-3.4	0.9	-3.1	0.9	A+	
1336	601422	A1	715	.382	.087	.192	.304	.382	.036	.367	-.084	-.118	-.108	.367	1.258	0.082	-0.8	1.0	-1.1	1.0	A-	
1337	602152	A1	1429	.361	.169	.259	.361	.178	.033	.116	.030	-.035	.116	-.042	1.328	0.059	7.3	1.2	7.4	1.2	A-	A-
1338	601416	A1	1431	.247	.140	.201	.358	.247	.054	.287	-.080	-.091	.017	.287	1.905	0.065	0.4	1.0	1.2	1.1	A+	A+
1339	602230	A1	715	.509	.509	.084	.260	.088	.059	.571	.571	-.171	-.256	-.171	0.604	0.081	-7.8	0.8	-7.0	0.8	A+	
1340	601418	A1	1429	.476	.191	.476	.172	.113	.048	.419	-.043	.419	-.171	-.195	0.755	0.057	-3.2	1.0	-3.0	0.9	A+	A+
1341	602249	A1	1429	.359	.359	.195	.272	.136	.039	.382	.382	-.134	-.096	-.124	1.330	0.059	-2.2	1.0	-1.7	1.0	A+	A+
1342	601396	A1	1431	.331	.152	.331	.335	.128	.055	.162	-.045	.162	-.041	.057	1.440	0.060	5.3	1.1	5.8	1.2	A+	A+
1343	601866	A1	715	.513	.183	.513	.148	.077	.078	.416	-.103	.416	-.125	-.193	0.518	0.082	-2.2	1.0	-2.2	0.9	A+	
1344	602250	A1	714	.466	.466	.212	.240	.074	.008	.341	.341	-.134	-.189	-.121	0.856	0.080	-2.0	1.0	-2.1	0.9	A-	A-
1345	601178	A1	1430	.218	.618	.094	.066	.218	.004	.132	.089	-.184	-.149	.132	2.137	0.067	2.8	1.1	3.5	1.2	A+	A+
1346	600938	A1	714	.416	.185	.164	.416	.212	.024	.378	-.187	-.143	.378	-.068	1.057	0.081	-0.9	1.0	-1.2	1.0	A-	A-
1347	601404	A1	1434	.290	.259	.222	.204	.290	.025	.278	-.077	-.090	-.061	.278	1.708	0.062	0.5	1.0	1.3	1.1	A+	A-
1348	601401	A1	717	.349	.349	.307	.172	.160	.013	.272	.272	-.119	-.101	-.070	1.377	0.083	0.3	1.0	1.3	1.1	A-	A+
1349	601369	A1	717	.513	.513	.172	.179	.134	.003	.383	.383	-.113	-.193	-.205	0.636	0.079	-3.2	0.9	-3.0	0.9	A-	A+
1350	602170	A1	717	.251	.134	.165	.441	.251	.010	.229	-.095	-.123	-.031	.229	1.899	0.091	1.0	1.1	1.1	1.1	A-	A-
1351	601800	A1	717	.357	.357	.133	.336	.163	.011	.283	.283	-.214	-.078	-.042	1.331	0.082	0.7	1.0	0.3	1.0	A+	A+
1352	601808	A1	1434	.327	.130	.327	.211	.315	.017	.290	-.123	.290	-.128	-.033	1.525	0.060	0.2	1.0	1.0	1.0	A-	A-
1353	600959	A1	717	.324	.324	.121	.276	.251	.028	.376	.376	-.188	-.095	-.087	1.458	0.084	-1.3	1.0	-1.4	0.9	A+	A-
1354	601399	A1	717	.346	.346	.177	.247	.191	.039	.335	.335	-.097	-.144	-.058	1.319	0.083	-0.3	1.0	-0.4	1.0	A+	A+
1355	601814	A1	717	.441	.159	.441	.240	.124	.036	.354	-.101	.354	-.153	-.106	0.870	0.080	-0.6	1.0	-0.7	1.0	A+	A-
1356	601143	A1	1434	.289	.289	.324	.188	.146	.053	.320	.320	-.033	-.160	-.052	1.642	0.062	0.4	1.0	0.1	1.0	A+	A+
1357	601402	A1	1434	.517	.517	.140	.251	.066	.026	.359	.359	-.175	-.130	-.138	0.596	0.057	-1.5	1.0	-1.7	1.0	A+	A-
1358	600967	A1	1434	.310	.262	.167	.227	.310	.034	.278	.035	-.141	-.147	.278	1.569	0.061	1.0	1.0	1.7	1.1	A-	A+
1359	602223	A1	1434	.361	.203	.222	.361	.153	.061	.297	-.058	-.102	.297	-.059	1.252	0.059	1.6	1.0	2.4	1.1	A-	A-
1360	601816	A1	717	.791	.082	.080	.791	.042	.006	.369	-.189	-.169	.369	-.230	-0.709	0.096	-1.6	0.9	-2.3	0.8	A-	C-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1361	601817	A1	1433	.580	.169	.105	.121	.580	.026	.350	-.161	-.121	-.121	.350	0.331	0.057	-0.5	1.0	-0.7	1.0	A-	A+
1362	602245	A1	1433	.816	.059	.816	.064	.058	.004	.312	-.117	.312	-.159	-.193	-0.888	0.071	-0.9	1.0	-1.8	0.9	A-	B-
1363	600970	A1	717	.276	.294	.198	.227	.276	.004	.385	-.099	-.093	-.209	.385	1.864	0.088	-2.1	0.9	-1.7	0.9	A+	A-
1364	601839	A1	1433	.735	.078	.072	.735	.098	.017	.374	-.058	-.201	.374	-.217	-0.432	0.064	-1.9	0.9	-1.9	0.9	A-	A-
1365	601405	A1	717	.464	.464	.180	.198	.142	.015	.477	.477	-.227	-.151	-.223	0.910	0.080	-5.2	0.9	-5.0	0.9	A-	A-
1366	601373	A1	717	.110	.110	.367	.206	.310	.007	.077	.077	.079	-.161	.033	3.099	0.123	1.4	1.1	2.7	1.4	A-	A-
1367	602168	A1	717	.400	.145	.400	.173	.259	.022	.138	-.006	.138	-.141	.049	1.203	0.081	5.7	1.2	5.2	1.2	A+	A+
1368	601160	A1	1433	.366	.276	.366	.184	.158	.016	.272	-.024	.272	-.167	-.054	1.347	0.058	2.3	1.1	2.1	1.1	A+	A+
1369	601406	A1	717	.286	.286	.174	.223	.276	.040	.160	.160	-.020	-.086	.054	1.746	0.088	3.5	1.1	3.8	1.2	A+	B+
1370	601829	A1	1433	.244	.183	.244	.288	.260	.025	.161	-.001	.161	-.059	-.026	1.978	0.065	2.8	1.1	4.3	1.2	A+	A-
1371	601803	A1	717	.368	.140	.269	.368	.158	.066	.193	-.055	.015	.193	-.061	1.261	0.084	4.3	1.1	4.3	1.2	A+	A-
1372	601818	A1	717	.234	.120	.264	.318	.234	.064	.252	-.051	-.051	-.018	.252	2.005	0.094	1.0	1.1	1.6	1.1	A-	A+
1373	601154	A1	717	.499	.499	.173	.170	.095	.063	.476	.476	-.156	-.164	-.201	0.631	0.082	-4.3	0.9	-3.8	0.9	B+	B-
1374	602224	A1	1433	.433	.062	.103	.433	.355	.047	.241	-.114	-.147	.241	.008	0.957	0.057	4.4	1.1	4.3	1.1	A-	A-
1375	601819	A1	1433	.315	.315	.184	.341	.102	.059	.305	.305	-.098	-.039	-.091	1.516	0.061	0.5	1.0	1.0	1.0	A+	A-
1376	601408	A1	716	.437	.437	.143	.193	.217	.011	.408	.408	-.160	-.188	-.157	0.992	0.079	-4.6	0.9	-3.9	0.9	A+	A+
1377	601386	A1	716	.584	.109	.144	.584	.163	.000	.439	-.200	-.237	.439	-.191	0.362	0.079	-4.4	0.9	-4.0	0.9	A+	A-
1378	601863	A1	716	.349	.068	.133	.349	.441	.008	.263	-.054	-.178	.263	-.070	1.407	0.082	-0.1	1.0	0.5	1.0	A+	A-
1379	601838	A1	716	.732	.048	.127	.732	.074	.020	.478	-.153	-.294	.478	-.159	-0.447	0.090	-3.0	0.9	-3.5	0.8	B+	A-
1380	601840	A1	716	.620	.189	.073	.620	.091	.028	.403	-.123	-.114	.403	-.220	0.114	0.082	-1.7	1.0	-1.9	0.9	A-	A-
1381	601830	A1	716	.247	.314	.205	.186	.247	.048	.242	-.079	-.047	.037	.242	1.880	0.091	0.7	1.0	1.2	1.1	A-	B+
1382	602246	A1	716	.318	.226	.233	.318	.173	.049	.172	.004	-.051	.172	.011	1.486	0.085	3.0	1.1	3.7	1.2	A-	A+
1383	601409	A1	716	.439	.102	.254	.439	.149	.056	.235	-.051	-.048	.235	-.048	0.885	0.081	3.4	1.1	3.0	1.1	A+	A-
1384	602226	A1	716	.235	.144	.225	.335	.235	.062	.228	-.006	-.047	-.026	.228	1.931	0.093	0.8	1.0	1.8	1.1	A-	A-
1385	602167	A1	714	.233	.289	.212	.249	.233	.018	.244	-.021	-.104	-.072	.244	2.026	0.093	0.7	1.0	1.7	1.1	A+	C+
1386	601423	A1	714	.314	.478	.314	.142	.060	.007	.291	-.081	.291	-.183	-.111	1.588	0.085	0.4	1.0	0.6	1.0	A+	A-
1387	602188	A1	714	.395	.084	.395	.360	.153	.008	.273	-.040	.273	-.176	-.096	1.182	0.081	1.5	1.0	1.9	1.1	A+	A-
1388	600971	A1	1433	.419	.156	.251	.419	.156	.018	.271	-.113	-.050	.271	-.119	1.089	0.057	2.2	1.0	2.6	1.1	A+	A+
1389	601180	A1	1431	.674	.069	.079	.137	.674	.041	.440	-.137	-.174	-.249	.440	-0.250	0.062	-3.9	0.9	-4.7	0.8	A+	A-
1390	601854	A1	714	.214	.199	.294	.231	.214	.062	.311	-.023	.004	-.133	.311	2.074	0.096	0.1	1.0	-0.1	1.0	A+	A-
1391	602253	A1	714	.328	.377	.328	.200	.083	.013	.237	.063	.237	-.196	-.150	1.510	0.084	2.2	1.1	2.0	1.1	A-	A+
1392	601419	A1	714	.265	.265	.209	.217	.280	.029	.171	.171	-.088	-.049	.063	1.816	0.090	2.4	1.1	3.1	1.2	A-	B+
1393	602251	A1	1431	.323	.341	.323	.150	.144	.042	.278	-.045	.278	-.067	-.152	1.461	0.060	0.9	1.0	1.3	1.0	A-	A-
1394	602237	A1	714	.620	.128	.105	.074	.620	.073	.472	-.240	-.190	-.133	.472	-0.073	0.086	-3.7	0.9	-3.8	0.8	B+	C-
1395	601394	A1	714	.452	.210	.452	.210	.104	.024	.392	-.174	.392	-.128	-.120	0.885	0.080	-1.5	1.0	-1.6	1.0	A+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1396	600973	A1	715	.241	.208	.250	.241	.255	.046	.246	.088	-.146	.246	-.038	1.997	0.093	1.1	1.1	1.4	1.1	A-	
1397	601397	A1	1431	.157	.274	.142	.390	.157	.037	.141	-.019	-.118	.090	.141	2.511	0.076	1.8	1.1	3.1	1.2	A-	A+
1398	601368	A1	1431	.203	.099	.203	.317	.340	.040	.171	-.183	.171	-.103	.120	2.154	0.069	1.9	1.1	3.1	1.2	A-	A+
1399	601136	A1	717	.395	.174	.227	.395	.193	.011	.353	-.111	-.183	.353	-.095	1.152	0.081	-0.3	1.0	-0.6	1.0	A+	A-
1400	601836	A1	717	.590	.063	.085	.590	.257	.006	.344	-.174	-.229	.344	-.127	0.282	0.080	-1.7	1.0	-1.7	0.9	A-	A-
1401	602160	A1	1434	.579	.579	.091	.098	.207	.026	.411	.411	-.200	-.171	-.139	0.317	0.057	-3.2	0.9	-3.4	0.9	A+	A-
1402	601813	A1	1431	.475	.224	.103	.475	.194	.005	.306	-.217	-.191	.306	-.001	0.817	0.056	0.4	1.0	0.2	1.0	A+	A-
1403	601805	A1	1431	.181	.181	.375	.236	.150	.058	.175	.175	.007	-.010	-.074	2.281	0.072	1.4	1.1	2.8	1.2	A+	A+
1404	600932	A1	1433	.369	.369	.244	.262	.110	.015	.423	.423	-.174	-.141	-.133	1.316	0.058	-4.8	0.9	-3.8	0.9	A-	A+
1405	601398	A1	1431	.551	.112	.551	.139	.183	.015	.335	-.181	.335	-.183	-.080	0.444	0.056	-1.8	1.0	-1.4	1.0	A+	A-
1406	602154	A1	1431	.595	.105	.100	.595	.169	.031	.363	-.099	-.187	.363	-.144	0.195	0.058	-1.1	1.0	-0.8	1.0	A-	A+
1407	601380	A1	1431	.382	.382	.250	.187	.153	.027	.314	.314	-.098	-.155	-.057	1.190	0.058	-0.3	1.0	-0.4	1.0	A-	A+
1408	601135	A1	1433	.637	.038	.137	.178	.637	.011	.465	-.136	-.161	-.309	.465	0.107	0.058	-6.1	0.9	-5.1	0.9	A-	A-
1409	601138	A1	1433	.645	.060	.203	.645	.054	.038	.506	-.130	-.282	.506	-.186	-0.048	0.060	-5.1	0.9	-5.4	0.8	A-	A-
1410	601139	A1	1433	.504	.133	.134	.504	.215	.014	.388	-.197	-.146	.388	-.121	0.798	0.057	-3.3	0.9	-2.3	0.9	A-	A+
1411	601140	A1	1430	.713	.126	.713	.111	.036	.015	.405	-.200	.405	-.209	-.145	-0.332	0.062	-3.2	0.9	-3.4	0.9	A-	B-
1412	601152	A1	1436	.297	.198	.306	.297	.143	.057	.084	.003	.059	.084	-.015	1.545	0.062	6.2	1.2	5.8	1.2	A-	A+
1413	601158	A1	1436	.364	.253	.220	.364	.132	.032	.402	-.158	-.132	.402	-.046	1.250	0.059	-2.3	1.0	-2.0	0.9	A-	B-
1414	601167	A1	1432	.180	.180	.270	.226	.276	.050	.264	.264	-.133	-.094	.078	2.360	0.074	0.5	1.0	2.0	1.1	A-	A+
1415	601159	A1	1432	.490	.068	.268	.490	.116	.058	.387	-.125	-.120	.387	-.173	0.584	0.058	-1.0	1.0	-1.6	1.0	A-	A-
1416	601162	A1	1434	.483	.184	.181	.483	.119	.034	.349	-.080	-.123	.349	-.135	0.663	0.057	-1.5	1.0	-1.1	1.0	A-	A-
1417	601173	A1	1434	.330	.204	.202	.220	.330	.043	-.030	-.090	.053	.127	-.030	1.373	0.060	9.4	1.2	9.4	1.3	A+	A+
1418	601171	A1	1432	.480	.119	.182	.480	.205	.015	.314	-.123	-.127	.314	-.123	0.817	0.057	0.1	1.0	0.0	1.0	A-	A-
1419	601179	A1	1432	.269	.066	.133	.269	.515	.017	.097	-.019	-.119	.097	.046	1.859	0.063	4.1	1.1	5.1	1.2	A-	A-
1420	601151	A1	1436	.218	.057	.218	.585	.095	.045	.010	-.109	.010	.237	-.144	2.159	0.069	7.0	1.3	9.1	1.6	A+	B+
1421	601163	A1	1434	.386	.149	.192	.222	.386	.052	.305	-.141	-.001	-.096	.305	1.249	0.059	3.5	1.1	2.9	1.1	A-	A-
1422	601165	A1	1433	.283	.223	.119	.357	.283	.017	.307	.059	-.168	-.160	.307	1.876	0.062	-0.1	1.0	1.1	1.1	A-	A-
1423	601166	A1	1432	.571	.049	.571	.244	.069	.066	.461	-.140	.461	-.156	-.199	0.229	0.059	-4.0	0.9	-4.0	0.9	A-	A-
1424	601172	A1	1429	.451	.451	.078	.291	.099	.081	.470	.470	-.167	-.129	-.160	0.776	0.058	-5.6	0.9	-5.3	0.9	A+	A-
1425	601177	A1	715	.702	.034	.702	.151	.036	.077	.332	-.103	.332	-.124	-.095	-0.499	0.095	0.3	1.0	0.0	1.0	A+	
1426	601150	A1	1431	.384	.180	.162	.231	.384	.043	.459	-.100	-.180	-.160	.459	1.147	0.058	-5.0	0.9	-4.5	0.9	A-	A-
1427	600960	A1	1431	.248	.430	.220	.248	.066	.036	.229	.034	-.084	.229	-.147	1.879	0.065	1.6	1.1	3.0	1.1	A-	A-
1428	600974	A1	717	.365	.179	.292	.146	.365	.018	.269	-.074	-.030	-.213	.269	1.275	0.082	0.7	1.0	0.6	1.0	A-	A+
1429	601156	A1	717	.530	.039	.239	.183	.530	.010	.406	-.034	-.183	-.264	.406	0.539	0.079	-3.8	0.9	-3.3	0.9	A+	A-
1430	600977	A1	1434	.658	.110	.097	.112	.658	.024	.430	-.151	-.234	-.179	.430	-0.069	0.060	-3.8	0.9	-4.1	0.9	A+	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1431	601161	A1	1434	.402	.263	.402	.249	.067	.019	.295	-.039	.295	-.188	-.097	1.142	0.057	1.5	1.0	2.0	1.1	A-	A+
1432	601170	A1	1433	.341	.519	.341	.078	.043	.020	.323	-.071	.323	-.186	-.144	1.465	0.059	-0.2	1.0	0.2	1.0	A-	A+
1433	601149	A1	717	.138	.138	.343	.315	.144	.060	.214	.214	.083	-.034	-.120	2.731	0.113	0.3	1.0	2.1	1.2	A-	A+
1434	601176	A1	717	.600	.082	.600	.191	.070	.057	.407	-.156	.407	-.171	-.135	0.154	0.084	-1.6	1.0	-1.8	0.9	B+	A-
1435	601148	A1	1433	.265	.125	.392	.265	.193	.027	-.006	-.081	.162	-.006	-.054	1.835	0.063	6.4	1.2	6.3	1.3	A-	B+
1436	600948	A1	1429	.232	.107	.190	.232	.442	.029	.151	-.067	-.081	.151	.062	2.043	0.066	3.3	1.1	4.6	1.2	A+	A-
1437	604671	Ge	2127	.592	.035	.592	.162	.134	.027	.376	-.155	.376	-.233	-.236	0.413	0.051	-5.6	0.9	-5.3	0.9	A+	A-
1438	604400	Ge	1065	.678	.052	.678	.128	.074	.069	.475	-.123	.475	-.209	-.213	-0.069	0.075	-3.0	0.9	-3.3	0.8	A+	A-
1439	604389	Ge	1063	.410	.114	.209	.209	.410	.058	.493	-.169	-.164	-.167	.493	1.398	0.069	-4.2	0.9	-3.5	0.9	A-	A-
1440	604418	Ge	532	.397	.243	.160	.397	.100	.102	.283	-.009	-.130	.283	-.119	1.304	0.099	2.7	1.1	2.7	1.1	A-	
1441	604707	Ge	1064	.468	.168	.180	.174	.468	.010	.253	-.108	-.057	-.122	.253	1.175	0.066	3.5	1.1	3.0	1.1	A+	B+
1442	604378	Ge	1065	.573	.027	.099	.285	.573	.016	.515	-.130	-.258	-.300	.515	0.711	0.068	-6.0	0.9	-5.6	0.8	A+	A+
1443	604392	Ge	1067	.504	.166	.172	.145	.504	.013	.374	-.178	-.149	-.128	.374	1.055	0.065	-1.9	1.0	-2.0	1.0	A-	A+
1444	604395	Ge	1064	.603	.057	.085	.603	.217	.038	.419	-.092	-.244	.419	-.140	0.460	0.069	-1.7	1.0	-0.9	1.0	B-	A+
1445	604763	Ge	532	.265	.107	.265	.359	.214	.055	.307	-.069	.307	-.170	.138	2.122	0.105	0.3	1.0	1.4	1.1	A-	
1446	604474	Ge	1065	.621	.051	.621	.102	.154	.072	.512	-.168	.512	-.225	-.206	0.265	0.072	-4.6	0.9	-4.7	0.8	A-	A+
1447	604600	Ge	1064	.199	.192	.243	.356	.199	.010	.344	-.018	-.188	-.082	.344	2.751	0.082	-1.3	0.9	-1.8	0.9	A+	A-
1448	604361	Ge	530	.213	.449	.211	.117	.213	.009	.429	-.149	-.126	-.100	.429	2.524	0.115	-1.5	0.9	-0.4	1.0	A-	A-
1449	604360	Ge	1064	.346	.346	.190	.196	.248	.021	.322	.322	-.085	-.202	-.046	1.765	0.070	1.7	1.1	2.1	1.1	A+	A+
1450	604354	Ge	1070	.249	.139	.234	.320	.249	.005	.252	-.095	-.120	-.108	.252	2.257	0.075	-0.1	1.0	0.6	1.0	A-	A+
1451	604453	Ge	1065	.684	.058	.684	.091	.064	.055	.352	-.137	.352	-.219	-.253	-0.294	0.080	-2.9	0.9	-3.5	0.8	A+	A+
1452	604718	Ge	1064	.834	.049	.834	.051	.032	.035	.390	-.148	.390	-.202	-.085	-1.016	0.094	-0.7	1.0	-1.0	0.9	A-	A-
1453	605047	Ge	1064	.410	.087	.382	.410	.107	.015	.324	-.184	-.106	.324	-.112	1.447	0.067	0.3	1.0	1.1	1.0	A+	A-
1454	604658	Ge	2128	.304	.372	.304	.219	.072	.034	.234	.053	.234	-.134	-.127	2.006	0.051	4.8	1.1	5.6	1.2	A+	A-
1455	604371	Ge	1064	.118	.091	.329	.434	.118	.028	.106	-.048	-.028	.063	.106	3.308	0.100	1.5	1.1	4.3	1.5	A-	A-
1456	604417	Ge	1064	.627	.071	.138	.136	.627	.028	.497	-.158	-.252	-.187	.497	0.374	0.069	-4.4	0.9	-3.9	0.9	A-	A-
1457	604742	Ge	1065	.465	.465	.303	.155	.055	.022	.331	.331	-.190	-.089	-.083	1.209	0.067	1.8	1.0	1.8	1.1	A+	A+
1458	604358	Ge	1065	.585	.165	.154	.585	.080	.016	.436	-.220	-.268	.436	-.053	0.644	0.068	-2.9	0.9	-2.9	0.9	A+	A-
1459	604758	Ge	1064	.681	.039	.681	.167	.071	.043	.396	-.197	.396	-.135	-.115	0.031	0.073	-0.3	1.0	0.1	1.0	A+	A-
1460	604740	Ge	1064	.403	.137	.102	.403	.334	.024	.358	.014	.000	.358	-.315	1.458	0.067	-0.4	1.0	-0.2	1.0	A+	A-
1461	604437	Ge	1065	.319	.511	.319	.108	.046	.016	.377	-.182	.377	-.126	-.107	1.956	0.071	-1.7	1.0	-1.3	0.9	A-	A-
1462	604729	Ge	1065	.612	.612	.116	.203	.052	.018	.362	.362	-.235	-.110	-.158	0.498	0.069	0.0	1.0	0.4	1.0	A+	A+
1463	604659	Ge	1598	.287	.287	.213	.272	.188	.040	.263	.263	-.161	-.016	-.033	2.087	0.060	2.8	1.1	4.6	1.2	A-	A+
1464	604405	Ge	1065	.590	.590	.132	.124	.135	.020	.436	.436	-.169	-.212	-.185	0.605	0.068	-2.7	0.9	-2.3	0.9	A+	A+
1465	604693	Ge	1065	.421	.421	.227	.247	.085	.020	.405	.405	-.060	-.215	-.219	1.425	0.068	-2.7	0.9	-2.1	0.9	A-	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1466	604438	Ge	1065	.361	.318	.216	.361	.081	.024	.291	-.040	-.213	.291	-.028	1.721	0.070	0.8	1.0	2.2	1.1	A-	A-
1467	604764	Ge	1065	.580	.031	.170	.580	.195	.024	.409	-.083	-.268	.409	-.164	0.637	0.068	-2.1	1.0	-2.1	0.9	C-	B-
1468	604393	Ge	1064	.472	.060	.331	.472	.044	.038	.234	-.067	-.129	.234	-.124	0.932	0.069	2.0	1.0	1.3	1.0	A+	A+
1469	604753	Ge	1065	.255	.082	.281	.347	.255	.037	.347	-.051	-.162	-.070	.347	2.293	0.076	-0.2	1.0	0.5	1.0	A+	A+
1470	604397	Ge	1067	.533	.080	.371	.533	.012	.004	.437	-.165	-.325	.437	-.139	0.965	0.067	-4.2	0.9	-3.7	0.9	A+	A-
1471	604375	Ge	1067	.150	.088	.150	.250	.504	.008	.148	-.024	.148	-.070	-.028	3.153	0.091	1.4	1.1	4.7	1.5	A+	A+
1472	604751	Ge	1067	.492	.058	.167	.271	.492	.012	.285	-.178	-.105	-.115	.285	1.141	0.067	2.1	1.1	1.8	1.1	A-	A-
1473	604708	Ge	1067	.209	.130	.229	.414	.209	.018	.187	.024	-.181	.037	.187	2.673	0.081	2.7	1.1	5.5	1.5	A-	A+
1474	604755	Ge	1067	.458	.082	.458	.330	.113	.017	.316	-.146	.316	-.160	-.067	1.289	0.067	1.8	1.0	1.6	1.1	A+	A+
1475	605048	Ge	1067	.369	.187	.331	.369	.105	.008	.316	-.211	-.078	.316	-.076	1.755	0.069	0.5	1.0	0.4	1.0	A+	A+
1476	604423	Ge	1067	.685	.685	.090	.187	.031	.007	.292	.292	-.130	-.171	-.114	0.195	0.071	1.8	1.1	1.2	1.1	A+	A+
1477	604427	Ge	1067	.794	.094	.047	.794	.057	.008	.500	-.297	-.237	.500	-.222	-0.480	0.082	-3.8	0.8	-4.7	0.7	A-	A-
1478	604641	Ge	1067	.370	.135	.377	.370	.090	.028	.199	-.106	-.013	.199	-.069	1.707	0.069	5.5	1.2	5.0	1.2	A-	A+
1479	604765	Ge	1067	.521	.085	.521	.344	.040	.009	.493	-.097	.493	-.384	-.107	1.010	0.067	-6.7	0.9	-6.0	0.8	A-	A-
1480	604408	Ge	1064	.396	.396	.181	.337	.073	.012	.423	.423	-.200	-.186	-.102	1.625	0.068	-3.0	0.9	-3.1	0.9	A+	A-
1481	604709	Ge	1064	.270	.446	.270	.214	.038	.033	.154	-.074	.154	.011	-.093	2.253	0.074	3.6	1.1	4.0	1.2	A-	A+
1482	604448	Ge	1064	.316	.470	.141	.060	.316	.013	.393	-.086	-.248	-.148	.393	2.029	0.071	-2.8	0.9	-1.7	0.9	A+	A+
1483	604442	Ge	1064	.533	.039	.187	.533	.207	.035	.415	-.151	-.123	.415	-.256	0.896	0.068	-3.2	0.9	-3.0	0.9	A-	B+
1484	604367	Ge	1064	.343	.157	.284	.186	.343	.030	.556	-.235	-.161	-.197	.556	1.847	0.070	-6.6	0.8	-5.1	0.8	A-	A-
1485	604730	Ge	1064	.574	.132	.167	.574	.086	.041	.391	-.103	-.218	.391	-.150	0.671	0.069	-1.6	1.0	-0.8	1.0	A+	A-
1486	604409	Ge	1064	.511	.079	.198	.193	.511	.019	.357	-.078	-.080	-.249	.357	1.046	0.067	0.8	1.0	1.4	1.1	A-	A-
1487	604464	Ge	1063	.596	.596	.191	.151	.053	.009	.389	.389	-.180	-.197	-.170	0.649	0.068	-2.3	1.0	-2.3	0.9	C+	A+
1488	604589	Ge	1063	.228	.228	.192	.477	.064	.040	.421	.421	-.279	-.022	-.119	2.470	0.078	-2.6	0.9	-1.9	0.9	A+	A+
1489	604646	Ge	1063	.121	.100	.121	.412	.326	.041	.002	.089	.002	-.072	.081	3.317	0.098	2.8	1.2	4.8	1.6	A-	A-
1490	604428	Ge	1063	.412	.412	.224	.215	.128	.021	.328	.328	-.149	-.112	-.082	1.502	0.067	1.2	1.0	1.6	1.1	A+	B+
1491	605049	Ge	1063	.687	.085	.097	.687	.095	.037	.480	-.216	-.245	.480	-.202	0.080	0.073	-3.7	0.9	-4.2	0.8	A+	A+
1492	604766	Ge	1063	.178	.104	.321	.363	.178	.034	.264	-.134	-.072	.004	.264	2.832	0.085	0.7	1.0	1.5	1.1	A+	A-
1493	604601	Ge	1063	.294	.280	.240	.294	.143	.043	.148	-.025	-.102	.148	.060	2.064	0.073	4.5	1.2	4.3	1.2	A+	A+
1494	604390	Ge	1063	.214	.214	.204	.379	.142	.061	.213	.213	-.032	-.037	-.064	2.518	0.080	1.6	1.1	4.3	1.3	A-	A-
1495	604762	Ge	1063	.570	.081	.176	.570	.135	.039	.387	-.094	-.141	.387	-.232	0.689	0.068	-0.6	1.0	-1.0	1.0	A-	A-
1496	604752	Ge	1063	.342	.205	.307	.342	.091	.055	.178	.047	-.101	.178	-.062	1.779	0.070	5.6	1.2	4.4	1.2	A-	A+
1497	605887	Ge	1065	.499	.058	.108	.499	.316	.019	.265	-.097	-.117	.265	-.128	1.056	0.067	4.0	1.1	4.0	1.1	A-	A-
1498	605050	Ge	1065	.578	.234	.092	.578	.068	.029	.397	-.191	-.160	.397	-.192	0.632	0.068	-0.9	1.0	-0.8	1.0	A+	A-
1499	604767	Ge	1065	.523	.112	.523	.239	.112	.014	.344	-.226	.344	-.123	-.104	0.956	0.067	1.2	1.0	1.4	1.1	A-	C-
1500	604672	Ge	533	.636	.165	.124	.066	.636	.009	.470	-.185	-.347	-.143	.470	0.431	0.097	-3.1	0.9	-3.1	0.8	A+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1501	604412	Ge	1065	.424	.245	.424	.247	.064	.021	.346	-.217	.346	-.014	-.215	1.412	0.068	1.8	1.1	0.8	1.0	A-	A+
1502	604471	Ge	1065	.645	.070	.167	.090	.645	.027	.469	-.145	-.249	-.267	.469	0.291	0.071	-4.6	0.9	-4.2	0.8	A+	A-
1503	604402	Ge	1065	.324	.158	.324	.317	.180	.021	.373	-.122	.373	-.188	-.053	1.932	0.071	0.3	1.0	1.6	1.1	A-	A-
1504	604602	Ge	1065	.120	.266	.272	.314	.120	.028	.230	.031	-.121	-.014	.230	3.377	0.100	0.6	1.0	3.2	1.4	A-	A-
1505	604757	Ge	533	.584	.081	.229	.584	.088	.019	.339	-.099	-.158	.339	-.164	0.668	0.095	0.0	1.0	-0.4	1.0	A-	
1506	604425	Ge	1065	.803	.803	.060	.057	.069	.011	.447	.447	-.206	-.226	-.230	-0.584	0.083	-2.6	0.9	-3.8	0.7	A+	A-
1507	604710	Ge	1065	.622	.133	.111	.096	.622	.039	.402	-.137	-.204	-.176	.402	0.379	0.070	-1.2	1.0	-1.3	0.9	A-	A+
1508	604451	Ge	1065	.404	.227	.404	.211	.111	.047	.459	-.187	.459	-.150	-.156	1.447	0.069	-2.6	0.9	-1.5	1.0	A-	A+
1509	604653	Ge	1065	.341	.189	.341	.307	.108	.055	.139	-.017	.139	-.050	-.002	1.757	0.071	8.1	1.3	7.0	1.3	A-	A+
1510	604466	Ge	1063	.456	.209	.241	.456	.048	.046	.373	-.127	-.138	.373	-.120	1.202	0.068	0.2	1.0	0.6	1.0	A+	A+
1511	605882	Ge	1063	.587	.143	.587	.150	.079	.041	.521	-.209	.521	-.252	-.162	0.563	0.069	-5.4	0.9	-5.1	0.8	A-	A+
1512	604720	Ge	1063	.353	.165	.353	.181	.249	.053	.190	.021	.190	-.198	.066	1.709	0.071	6.8	1.2	6.3	1.3	A-	A+
1513	605903	Ge	1063	.457	.120	.277	.457	.085	.062	.341	-.126	-.079	.341	-.149	1.148	0.069	2.6	1.1	2.0	1.1	A-	A-
1514	604439	Ge	1063	.433	.062	.106	.377	.433	.022	.501	-.162	-.237	-.215	.501	1.379	0.068	-4.8	0.9	-4.2	0.9	A+	A-
1515	604479	Ge	1063	.535	.136	.150	.130	.535	.050	.458	-.157	-.167	-.189	.458	0.789	0.069	-2.7	0.9	-2.6	0.9	A+	A-
1516	604695	Ge	1063	.612	.224	.078	.612	.052	.034	.426	-.208	-.203	.426	-.141	0.446	0.070	-2.1	1.0	-2.0	0.9	A-	A-
1517	604379	Ge	1063	.509	.037	.213	.205	.509	.037	.343	-.135	-.208	-.075	.343	0.958	0.068	0.6	1.0	1.0	1.0	A-	B-
1518	604426	Ge	1063	.612	.051	.115	.154	.612	.068	.541	-.155	-.241	-.272	.541	0.317	0.072	-5.8	0.8	-5.7	0.8	A+	B-
1519	604435	Ge	1063	.350	.202	.350	.202	.175	.071	.420	-.028	.420	-.199	-.138	1.678	0.071	-0.7	1.0	0.2	1.0	A+	A-
1520	604655	Ge	531	.371	.245	.313	.371	.049	.023	.095	.014	.006	.095	-.146	1.690	0.097	6.0	1.2	5.0	1.3	A+	
1521	604581	Ge	1064	.562	.064	.149	.562	.191	.034	.396	-.169	-.197	.396	-.119	0.732	0.068	-0.6	1.0	-0.4	1.0	A+	A-
1522	604440	Ge	1064	.601	.070	.107	.160	.601	.014	.406	-.254	-.219	-.200	.406	0.432	0.071	-4.8	0.9	-4.3	0.8	A+	A-
1523	604399	Ge	1064	.315	.124	.407	.315	.095	.059	.361	-.165	-.142	.361	-.023	1.900	0.072	-0.6	1.0	0.7	1.0	B-	A-
1524	604667	Ge	1064	.615	.057	.126	.615	.149	.053	.366	-.080	-.231	.366	-.127	0.383	0.071	-0.7	1.0	-0.8	1.0	A-	A+
1525	604748	Ge	1064	.295	.441	.160	.295	.051	.054	.243	-.037	-.092	.243	-.086	2.023	0.073	3.4	1.1	4.3	1.2	A-	A+
1526	604769	Ge	1064	.172	.170	.172	.322	.278	.057	-.019	.060	-.019	-.065	.148	2.843	0.087	5.6	1.3	7.4	1.7	A-	C+
1527	604715	Ge	1064	.591	.116	.591	.157	.084	.053	.485	-.145	.485	-.247	-.175	0.520	0.070	-5.0	0.9	-4.0	0.9	A+	A+
1528	605883	Ge	1064	.326	.054	.097	.479	.326	.044	.162	-.114	-.154	.094	.162	1.882	0.071	6.4	1.2	5.3	1.2	A-	A+
1529	604663	Ge	1064	.527	.527	.160	.214	.056	.043	.498	.498	-.124	-.270	-.181	0.870	0.068	-5.8	0.9	-5.7	0.8	B+	A+
1530	604603	Ge	1064	.139	.139	.196	.454	.134	.076	.140	.140	-.021	.099	-.092	3.079	0.094	2.0	1.1	4.8	1.5	A-	A+
1531	604382	Ge	1064	.364	.364	.390	.120	.066	.060	.426	.426	-.018	-.293	-.155	1.649	0.070	-1.7	1.0	-1.3	1.0	A+	A+
1532	604359	Ge	1065	.369	.085	.369	.397	.109	.040	.386	-.047	.386	-.211	-.100	1.641	0.070	0.2	1.0	0.1	1.0	A-	A-
1533	606225	Ge	1065	.455	.048	.224	.455	.248	.025	.246	-.112	-.175	.246	-.002	1.236	0.067	6.0	1.2	4.8	1.2	A-	A-
1534	604386	Ge	1065	.670	.670	.174	.092	.049	.015	.470	.470	-.272	-.193	-.181	0.208	0.071	-3.2	0.9	-3.3	0.8	A+	A-
1535	604716	Ge	1065	.571	.052	.085	.270	.571	.023	.356	-.099	-.179	-.169	.356	0.694	0.068	-0.3	1.0	0.3	1.0	A+	A+

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1536	604665	Ge	1065	.512	.154	.204	.512	.101	.029	.470	-.172	-.229	.470	-.156	0.958	0.067	-3.2	0.9	-3.3	0.9	A-	A-
1537	604669	Ge	1065	.493	.100	.493	.294	.068	.046	.376	-.061	.376	-.177	-.187	0.999	0.068	0.2	1.0	0.9	1.0	B-	A-
1538	604694	Ge	1065	.327	.327	.311	.226	.074	.062	.391	.391	.015	-.230	-.181	1.808	0.072	-0.2	1.0	-0.3	1.0	A+	B+
1539	604483	Ge	1065	.222	.222	.108	.159	.398	.066	.366	.366	-.160	-.119	-.084	2.333	0.080	-2.0	0.9	-1.2	0.9	A-	A-
1540	604713	Ge	533	.540	.051	.540	.231	.111	.068	.505	-.142	.505	-.271	-.174	0.723	0.098	-3.1	0.9	-2.7	0.9	A+	A+
1541	605884	Ge	1065	.335	.158	.335	.289	.111	.059	.230	-.026	.230	-.094	-.143	1.644	0.072	3.1	1.1	2.2	1.1	A-	A-
1542	604443	Ge	1065	.445	.445	.193	.185	.097	.081	.414	.414	-.164	-.142	-.124	1.137	0.069	-0.8	1.0	-1.0	1.0	A+	A+
1543	604460	Ge	1064	.221	.177	.197	.348	.221	.057	.267	.018	-.094	-.091	.267	2.417	0.080	1.8	1.1	2.5	1.2	A+	A+
1544	604712	Ge	1064	.440	.419	.440	.055	.082	.005	.493	-.269	.493	-.173	-.234	1.330	0.067	-5.6	0.9	-5.0	0.9	A+	A-
1545	604746	Ge	1064	.411	.089	.249	.411	.203	.048	.498	-.185	-.140	.498	-.220	1.375	0.068	-5.0	0.9	-4.5	0.9	A-	A+
1546	604363	Ge	1064	.280	.155	.324	.175	.280	.066	.379	-.105	-.073	-.137	.379	2.031	0.074	-1.0	1.0	-0.1	1.0	A-	A+
1547	604727	Ge	1064	.562	.168	.142	.102	.562	.026	.438	-.193	-.133	-.225	.438	0.700	0.067	-3.6	0.9	-3.3	0.9	A+	A-
1548	604768	Ge	1064	.355	.065	.438	.355	.120	.022	.307	-.143	-.131	.307	-.056	1.716	0.069	1.6	1.1	2.1	1.1	A-	A-
1549	604388	Ge	1064	.608	.079	.608	.181	.100	.032	.399	-.157	.399	-.249	-.079	0.454	0.069	-1.1	1.0	-1.6	0.9	A-	A+
1550	604413	Ge	532	.438	.167	.438	.103	.231	.060	.346	-.105	.346	-.267	.001	1.207	0.097	1.0	1.0	0.4	1.0	A+	A-
1551	604454	Ge	1064	.428	.039	.428	.360	.134	.040	.375	-.104	.375	-.203	-.124	1.309	0.068	-0.5	1.0	0.7	1.0	A-	A+
1552	604731	Ge	1064	.290	.466	.290	.137	.050	.056	.144	.107	.144	-.145	-.125	2.006	0.074	6.1	1.2	5.8	1.3	A+	A-
1553	604714	Ge	1064	.255	.102	.255	.314	.251	.078	.280	-.132	.280	.009	-.076	2.168	0.077	1.9	1.1	2.7	1.2	A-	A+
1554	604364	Ge	532	.256	.196	.395	.256	.139	.015	.289	.027	-.186	.289	-.108	2.281	0.107	1.4	1.1	1.1	1.1	A+	
1555	604743	Ge	532	.692	.692	.194	.056	.049	.009	.371	.371	-.240	-.104	-.163	0.115	0.100	-1.0	1.0	0.0	1.0	A+	
1556	604455	Ge	1065	.566	.049	.207	.566	.166	.012	.463	-.063	-.235	.463	-.260	0.723	0.067	-4.9	0.9	-4.4	0.9	A-	B-
1557	604728	Ge	1065	.804	.059	.056	.804	.044	.037	.430	-.199	-.196	.430	-.169	-0.757	0.087	-2.1	0.9	-3.4	0.7	B+	B-
1558	605898	Ge	1064	.531	.090	.200	.138	.531	.040	.408	-.139	-.138	-.156	.408	0.818	0.067	-1.8	1.0	-1.8	1.0	A+	
1559	604698	Ge	532	.442	.256	.239	.442	.058	.006	.372	-.195	-.136	.372	-.128	1.329	0.094	0.1	1.0	0.1	1.0	A-	
1560	604741	Ge	532	.269	.269	.241	.325	.141	.024	.423	.423	-.017	-.187	-.188	2.194	0.106	-1.4	0.9	-1.3	0.9	A-	
1561	604745	Ge	1065	.425	.061	.105	.368	.425	.040	.436	-.146	-.107	-.205	.436	1.320	0.068	-2.0	1.0	-1.9	0.9	A-	A-
1562	604436	Ge	532	.579	.064	.203	.579	.139	.015	.427	-.183	-.202	.427	-.182	0.660	0.095	-2.7	0.9	-2.1	0.9	A+	
1563	604381	Ge	532	.363	.363	.387	.188	.045	.017	.316	.316	-.016	-.202	-.191	1.695	0.098	0.7	1.0	0.9	1.1	A+	
1564	604385	Ge	1064	.599	.190	.599	.126	.056	.030	.468	-.194	.468	-.192	-.172	0.520	0.068	-3.8	0.9	-3.6	0.9	A-	
1565	604431	Ge	1065	.409	.312	.409	.161	.081	.038	.354	-.103	.354	-.169	-.053	1.406	0.068	1.4	1.0	1.4	1.1	A-	A+
1566	604369	Ge	1065	.572	.034	.126	.572	.246	.023	.354	-.128	-.119	.354	-.205	0.664	0.067	0.1	1.0	0.2	1.0	A+	A-
1567	605899	Ge	1065	.259	.200	.301	.259	.196	.044	.169	.027	-.031	.169	-.069	2.192	0.076	4.7	1.2	4.9	1.3	A-	A+
1568	604702	Ge	1065	.527	.527	.243	.138	.048	.044	.436	.436	-.184	-.186	-.095	0.820	0.067	-2.1	1.0	-2.5	0.9	A+	A-
1569	605886	Ge	1065	.556	.067	.140	.556	.208	.030	.441	-.191	-.245	.441	-.148	0.720	0.067	-4.5	0.9	-3.9	0.9	A+	A-
1570	604469	Ge	532	.145	.145	.199	.421	.158	.077	.375	.375	.061	-.098	-.127	2.995	0.132	-1.0	0.9	0.0	1.0	A+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1571	604419	Ge	1065	.255	.278	.268	.151	.255	.049	.145	.021	-.074	.022	.145	2.218	0.076	5.0	1.2	6.1	1.4	A+	A+
1572	605885	Ge	532	.487	.197	.487	.100	.122	.094	.398	-.043	.398	-.195	-.184	0.874	0.098	-0.3	1.0	-0.9	1.0	A-	
1573	604394	Ge	1065	.318	.177	.214	.238	.318	.054	.421	-.186	-.135	-.090	.421	1.834	0.072	-2.1	0.9	-2.0	0.9	A+	A+
1574	604457	Ge	1065	.549	.147	.187	.549	.106	.010	.382	-.069	-.255	.382	-.190	0.833	0.066	-1.8	1.0	-1.7	0.9	A-	A+
1575	604377	Ge	1065	.290	.167	.290	.390	.133	.020	.219	-.001	.219	-.160	-.043	2.040	0.072	2.5	1.1	2.7	1.1	A-	A+
1576	604747	Ge	533	.328	.328	.257	.263	.135	.017	.376	.376	-.073	-.152	-.202	1.856	0.100	-1.3	0.9	-1.2	0.9	A-	A-
1577	604456	Ge	533	.557	.353	.557	.030	.056	.004	.422	-.310	.422	-.148	-.137	0.786	0.094	-2.3	0.9	-1.2	1.0	A+	A+
1578	604734	Ge	1065	.501	.501	.214	.077	.204	.005	.164	.164	-.091	-.103	-.026	1.077	0.066	8.3	1.2	7.0	1.2	A-	B+
1579	604420	Ge	1065	.439	.439	.325	.093	.132	.011	.273	.273	-.125	-.108	-.093	1.350	0.067	4.0	1.1	3.7	1.1	A-	A-
1580	604387	Ge	1065	.473	.473	.226	.212	.076	.012	.467	.467	-.201	-.241	-.148	1.186	0.066	-4.6	0.9	-4.1	0.9	A+	A-
1581	604403	Ge	1065	.403	.101	.329	.403	.130	.038	.412	-.086	-.208	.412	-.138	1.463	0.068	-1.4	1.0	-1.6	1.0	A-	A-
1582	605900	Ge	533	.351	.167	.268	.351	.191	.023	.229	-.105	-.074	.229	-.022	1.726	0.098	3.6	1.2	4.0	1.2	A-	B-
1583	604406	Ge	533	.460	.460	.068	.295	.161	.017	.316	.316	-.153	-.098	-.125	1.207	0.094	1.0	1.0	1.2	1.1	A-	A+
1584	604462	Ge	533	.533	.141	.148	.533	.150	.028	.460	-.077	-.264	.460	-.189	0.828	0.095	-2.3	0.9	-2.4	0.9	A-	C-
1585	604756	Ge	533	.619	.060	.101	.619	.191	.028	.431	-.074	-.174	.431	-.233	0.408	0.097	-1.5	1.0	-1.8	0.9	B-	A+
1586	604749	Ge	1065	.488	.027	.410	.056	.488	.018	.504	-.076	-.357	-.154	.504	1.104	0.067	-6.8	0.9	-5.7	0.8	A+	A-
1587	604370	Ge	533	.433	.103	.433	.240	.178	.045	.421	-.158	.421	-.143	-.093	1.265	0.096	-0.8	1.0	-0.5	1.0	A+	A-
1588	604365	Ge	1065	.320	.169	.111	.335	.320	.065	.362	-.055	-.105	-.070	.362	1.796	0.071	0.5	1.0	0.8	1.0	A+	A-
1589	604754	Ge	1065	.208	.208	.238	.327	.181	.047	.309	.309	-.022	-.100	-.076	2.564	0.081	0.8	1.0	1.1	1.1	A-	A-
1590	604421	Ge	1065	.681	.072	.057	.681	.155	.035	.418	-.135	-.198	.418	-.195	0.084	0.072	-2.3	0.9	-1.8	0.9	A+	A-
1591	604356	Ge	1065	.482	.482	.212	.178	.056	.071	.449	.449	-.141	-.159	-.159	0.986	0.068	-2.1	1.0	-2.0	0.9	A+	A+
1592	604546	Ge	533	.342	.197	.268	.342	.109	.084	.316	-.115	-.034	.316	-.045	1.639	0.101	2.2	1.1	2.1	1.1	A-	A+
1593	605901	Ge	1065	.405	.047	.405	.397	.100	.052	.381	-.122	.381	-.171	-.072	1.424	0.069	0.4	1.0	0.3	1.0	A-	A+
1594	604590	Ge	1065	.506	.125	.506	.212	.077	.080	.339	-.131	.339	-.081	-.098	0.833	0.069	3.1	1.1	1.4	1.1	A-	A-
1595	604482	Ge	1062	.420	.051	.143	.308	.420	.024	.293	-.075	-.183	-.140	.293	1.248	0.069	1.1	1.0	0.8	1.0	A-	A-
1596	604380	Ge	1062	.702	.073	.702	.172	.051	.002	.385	-.140	.385	-.291	-.108	0.063	0.071	-2.7	0.9	-1.9	0.9	A+	A+
1597	604366	Ge	1062	.299	.299	.282	.261	.118	.041	.307	.307	-.129	-.114	.013	1.980	0.073	1.9	1.1	2.2	1.1	A+	A+
1598	604410	Ge	1062	.545	.107	.545	.271	.063	.013	.143	-.012	.143	-.060	-.154	0.804	0.067	8.0	1.2	7.6	1.3	A+	A-
1599	604432	Ge	532	.404	.355	.177	.404	.047	.017	.396	-.216	-.179	.396	-.033	1.535	0.096	-1.2	1.0	-0.2	1.0	A-	
1600	606220	Ge	532	.453	.098	.333	.453	.092	.024	.226	-.091	-.091	.226	-.070	1.283	0.095	4.0	1.1	4.0	1.2	A-	
1601	604750	Ge	1062	.706	.026	.706	.170	.084	.014	.432	-.113	.432	-.269	-.192	-0.005	0.073	-3.2	0.9	-3.9	0.8	A+	A-
1602	604661	Ge	1064	.550	.043	.139	.550	.246	.022	.367	-.109	-.182	.367	-.173	0.800	0.067	-1.0	1.0	-1.1	1.0	A-	
1603	604422	Ge	532	.305	.526	.085	.068	.305	.017	.421	-.163	-.157	-.148	.421	2.059	0.102	-0.9	1.0	-1.0	0.9	A+	
1604	604429	Ge	1062	.606	.606	.151	.095	.120	.029	.517	.517	-.196	-.256	-.180	0.479	0.069	-5.7	0.9	-4.8	0.8	A+	A-
1605	604759	Ge	532	.624	.624	.092	.154	.098	.032	.468	.468	-.208	-.247	-.094	0.435	0.098	-2.7	0.9	-1.7	0.9	A+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1606	604401	Ge	532	.374	.141	.337	.374	.096	.053	.361	-.110	-.107	.361	-.098	1.617	0.098	0.7	1.0	1.6	1.1	A+	
1607	604475	Ge	1062	.489	.148	.275	.489	.057	.031	.383	-.151	-.158	.383	-.097	1.037	0.067	0.6	1.0	1.4	1.1	A-	B-
1608	604591	Ge	1062	.187	.187	.191	.412	.174	.036	.380	.380	-.054	-.180	-.039	2.702	0.085	-1.0	1.0	-0.1	1.0	A-	A-
1609	604673	Ge	1062	.557	.199	.099	.557	.103	.042	.427	-.105	-.166	.427	-.230	0.665	0.068	-2.0	1.0	-1.7	0.9	A-	A-
1610	604433	Ge	1062	.501	.104	.501	.243	.114	.039	.459	-.157	.459	-.215	-.158	0.949	0.068	-3.2	0.9	-2.6	0.9	A+	A+
1611	604407	Ge	532	.214	.214	.425	.258	.047	.056	.112	.112	.180	-.125	-.102	2.531	0.114	3.7	1.3	4.3	1.4	A+	
1612	605902	Ge	532	.696	.062	.073	.696	.107	.062	.497	-.138	-.177	.497	-.283	-0.094	0.108	-2.8	0.9	-2.8	0.8	A+	
1613	604447	Ge	532	.382	.382	.214	.188	.139	.077	.422	.422	-.062	-.124	-.182	1.511	0.099	-0.4	1.0	-0.7	1.0	A+	
1614	606221	Ge	1062	.332	.246	.332	.195	.184	.044	.238	.006	.238	-.032	-.162	1.791	0.071	4.6	1.2	4.7	1.2	B-	A-
1615	604470	Ge	1064	.333	.333	.174	.285	.162	.047	.378	.378	-.151	-.143	-.035	1.789	0.070	-0.4	1.0	-0.8	1.0	A+	
1616	605041	Ge	532	.293	.293	.265	.271	.090	.081	.441	.441	-.162	-.095	-.093	1.988	0.105	-1.2	1.0	-1.3	0.9	B+	
1617	604670	Ge	1062	.138	.121	.196	.497	.138	.049	.028	.032	-.101	.102	.028	3.122	0.095	4.3	1.3	6.6	1.8	A+	A-
1618	604461	Ge	530	.381	.162	.406	.381	.047	.004	.124	-.094	-.005	.124	-.077	1.563	0.097	6.7	1.3	6.0	1.4	A-	A+
1619	604373	Ge	530	.300	.070	.266	.351	.300	.013	.381	-.161	-.247	-.050	.381	1.965	0.103	-1.0	1.0	-0.9	0.9	A+	B-
1620	605043	Ge	1065	.242	.206	.272	.270	.242	.009	.296	-.046	-.077	-.133	.296	2.363	0.077	1.8	1.1	1.1	1.1	B-	A+
1621	604676	Ge	530	.291	.243	.336	.291	.106	.025	.204	-.100	-.034	.204	-.058	1.996	0.104	2.9	1.2	4.1	1.3	A-	A-
1622	604633	Ge	1065	.250	.094	.308	.307	.250	.041	.412	-.093	-.151	-.115	.412	2.254	0.077	-1.7	0.9	-0.7	1.0	A+	A+
1623	606223	Ge	1062	.477	.127	.165	.477	.215	.016	.471	-.151	-.164	.471	-.230	1.095	0.066	-5.2	0.9	-5.1	0.9	A-	A-
1624	604674	Ge	530	.383	.383	.115	.266	.221	.015	.440	.440	-.098	-.196	-.171	1.533	0.098	-1.5	0.9	-1.4	0.9	A+	B-
1625	604449	Ge	1065	.575	.575	.052	.254	.110	.010	.460	.460	-.151	-.314	-.120	0.664	0.067	-4.1	0.9	-3.6	0.9	A+	A+
1626	606222	Ge	1065	.637	.056	.637	.146	.141	.021	.406	-.086	.406	-.190	-.223	0.322	0.069	-1.8	1.0	-1.9	0.9	A-	A+
1627	604477	Ge	1065	.677	.025	.075	.677	.201	.022	.481	-.140	-.232	.481	-.259	0.102	0.071	-3.9	0.9	-2.9	0.9	A-	A-
1628	606224	Ge	1065	.701	.033	.149	.701	.098	.019	.446	-.098	-.273	.446	-.184	-0.020	0.073	-2.7	0.9	-2.7	0.9	A-	A-
1629	604444	Ge	1065	.458	.102	.162	.232	.458	.046	.454	-.110	-.101	-.239	.454	1.128	0.068	-2.4	0.9	-1.8	0.9	A-	A-
1630	604459	Ge	1065	.482	.110	.482	.255	.121	.033	.481	-.147	.481	-.250	-.122	1.044	0.067	-3.5	0.9	-3.4	0.9	A+	A-
1631	604677	Ge	1065	.305	.305	.290	.218	.139	.048	.381	.381	-.119	-.113	-.073	1.907	0.073	0.2	1.0	-0.1	1.0	A+	A+
1632	605042	Ge	1062	.458	.102	.210	.458	.170	.061	.279	-.031	-.094	.279	-.041	1.081	0.068	4.9	1.1	4.5	1.1	A-	A+
1633	604411	Ge	1065	.362	.168	.198	.362	.237	.036	.266	-.067	-.157	.266	.007	1.631	0.070	4.4	1.1	4.7	1.2	A-	A+
1634	604398	Ge	1065	.514	.107	.514	.192	.144	.044	.487	-.094	.487	-.205	-.233	0.855	0.068	-4.1	0.9	-4.0	0.9	A+	A+
1635	604434	Ge	530	.262	.204	.270	.194	.262	.070	.452	-.135	-.097	-.095	.452	2.082	0.109	-1.4	0.9	-1.1	0.9	A+	A+
1636	604476	Ge	530	.294	.164	.251	.211	.294	.079	.505	-.154	-.130	-.128	.505	1.865	0.105	-2.9	0.9	-2.6	0.8	B-	A-
1637	604579	Ge	530	.557	.076	.557	.202	.083	.083	.420	-.085	.420	-.192	-.160	0.471	0.099	-1.1	1.0	-0.8	1.0	A+	A+
1638	604592	Ge	530	.277	.277	.343	.181	.108	.091	.216	.216	.043	-.106	-.054	1.935	0.107	3.5	1.2	3.4	1.3	A-	A+
1639	604593	Ge	1065	.614	.108	.614	.146	.068	.065	.407	-.126	.407	-.181	-.176	0.270	0.071	-1.5	1.0	-1.0	1.0	A+	A-
1640	604445	Ge	535	.566	.170	.566	.165	.088	.011	.323	-.216	.323	-.230	.025	0.739	0.094	0.1	1.0	1.5	1.1	A+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1641	604362	Ge	535	.267	.224	.344	.155	.267	.009	.203	.025	-.251	.056	.203	2.238	0.105	1.9	1.1	2.6	1.2	A-	A+
1642	605044	Ge	535	.191	.191	.581	.194	.030	.004	.294	.294	.096	-.326	-.171	2.748	0.117	0.5	1.0	0.1	1.0	A+	A-
1643	604683	Ge	535	.411	.127	.183	.273	.411	.006	.407	-.154	-.057	-.282	.407	1.489	0.095	-1.6	0.9	-1.3	0.9	A+	B-
1644	604580	Ge	1070	.612	.148	.612	.127	.102	.011	.332	-.186	.332	-.173	-.073	0.567	0.067	0.2	1.0	0.9	1.0	A+	A-
1645	604415	Ge	1070	.426	.207	.426	.159	.198	.010	.265	-.090	.265	-.129	-.090	1.438	0.066	3.6	1.1	3.5	1.1	A-	A+
1646	604383	Ge	535	.862	.019	.026	.862	.088	.006	.305	-.107	-.172	.305	-.191	-1.031	0.132	-0.3	1.0	0.2	1.0	A+	B-
1647	604414	Ge	535	.639	.639	.043	.194	.118	.006	.546	.546	-.214	-.339	-.225	0.402	0.097	-5.4	0.8	-5.0	0.7	A-	A-
1648	604596	Ge	1070	.877	.019	.877	.058	.040	.007	.324	-.167	.324	-.154	-.195	-1.125	0.098	-0.9	0.9	-1.2	0.9	B+	A-
1649	604721	Ge	535	.497	.213	.497	.230	.037	.022	.342	-.138	.342	-.180	-.072	1.037	0.094	1.1	1.0	0.7	1.0	A+	B-
1650	604430	Ge	535	.421	.060	.322	.187	.421	.011	.403	-.073	-.188	-.186	.403	1.428	0.095	-0.6	1.0	-0.4	1.0	A-	A+
1651	604441	Ge	1070	.336	.161	.272	.214	.336	.018	.401	-.168	-.034	-.223	.401	1.865	0.069	-1.7	1.0	-0.9	1.0	A-	B-
1652	604682	Ge	1070	.209	.209	.269	.333	.149	.040	.183	.183	-.033	-.055	-.010	2.567	0.080	2.3	1.1	3.8	1.3	A-	A-
1653	604472	Ge	535	.254	.254	.234	.335	.151	.026	.205	.205	-.034	-.127	.062	2.288	0.107	2.7	1.2	3.3	1.3	A-	A+
1654	604696	Ge	535	.594	.594	.150	.187	.039	.030	.270	.270	-.111	-.103	-.081	0.542	0.097	3.3	1.1	2.9	1.2	A-	A-
1655	604458	Ge	535	.230	.379	.122	.234	.230	.036	.378	-.016	-.077	-.198	.378	2.422	0.110	-0.4	1.0	0.2	1.0	A+	A+
1656	604639	Ge	1070	.244	.127	.244	.220	.358	.051	.214	-.025	.214	-.048	-.035	2.324	0.076	2.7	1.1	3.9	1.2	A-	A-
1657	604478	Ge	1070	.694	.064	.694	.153	.064	.025	.446	-.229	.446	-.212	-.170	0.089	0.072	-2.8	0.9	-3.1	0.9	A+	A-
1658	604699	Ge	1070	.286	.286	.193	.353	.131	.037	.445	.445	-.153	-.106	-.152	2.100	0.073	-2.8	0.9	-2.3	0.9	A-	A-
1659	604384	Ge	1070	.394	.165	.394	.316	.098	.027	.338	.002	.338	-.178	-.180	1.556	0.067	0.7	1.0	0.9	1.0	A-	A-
1660	604468	Ge	1070	.551	.066	.146	.551	.201	.036	.460	-.157	-.207	.460	-.212	0.783	0.067	-4.0	0.9	-4.0	0.9	B+	A-
1661	604372	Ge	1070	.343	.326	.208	.343	.090	.033	.276	-.052	-.152	.276	-.055	1.800	0.069	2.3	1.1	2.9	1.1	A+	A+
1662	604368	Ge	1067	.274	.160	.274	.393	.136	.038	.113	-.015	.113	-.020	-.016	2.134	0.073	5.0	1.2	4.7	1.2	A-	A-
1663	604761	Ge	535	.445	.355	.142	.445	.056	.002	.419	-.119	-.311	.419	-.188	1.401	0.092	-2.0	0.9	-2.1	0.9	A-	A+
1664	604737	Ge	535	.536	.054	.082	.325	.536	.002	.490	-.219	-.190	-.303	.490	0.984	0.092	-5.3	0.9	-5.0	0.8	A+	A-
1665	604640	Ge	535	.251	.608	.251	.069	.065	.008	.204	-.102	.204	-.087	-.056	2.371	0.105	1.5	1.1	2.1	1.2	A-	A+
1666	604717	Ge	1067	.642	.100	.642	.207	.023	.028	.468	-.183	.468	-.247	-.149	0.360	0.069	-3.9	0.9	-3.8	0.9	A+	A-
1667	604733	Ge	1067	.473	.099	.307	.473	.095	.026	.258	-.092	-.104	.258	-.137	1.156	0.066	2.7	1.1	3.7	1.1	A-	A-
1668	604599	Ge	535	.843	.032	.086	.843	.039	.000	.337	-.169	-.202	.337	-.187	-0.704	0.123	-0.8	0.9	-1.7	0.8	B+	B-
1669	604719	Ge	535	.544	.054	.150	.544	.230	.022	.318	-.136	-.159	.318	-.103	0.902	0.093	1.1	1.0	0.9	1.0	A-	A+
1670	604374	Ge	1067	.310	.370	.147	.310	.157	.016	.249	-.104	-.182	.249	.069	1.977	0.070	2.2	1.1	2.2	1.1	A-	A+
1671	605046	Ge	1067	.509	.200	.105	.177	.509	.009	.462	-.240	-.160	-.189	.462	1.045	0.065	-6.2	0.9	-5.5	0.9	A+	A-
1672	604463	Ge	535	.626	.051	.107	.626	.196	.021	.293	-.153	-.032	.293	-.168	0.517	0.096	1.1	1.0	1.4	1.1	B+	A+
1673	604736	Ge	535	.365	.105	.351	.365	.153	.026	.417	-.127	-.172	.417	-.111	1.742	0.096	-2.2	0.9	-1.2	1.0	A-	A+
1674	604701	Ge	535	.161	.198	.286	.312	.161	.043	.172	-.014	.008	-.025	.172	2.941	0.123	0.9	1.1	1.8	1.2	A-	A-
1675	604355	Ge	535	.587	.587	.135	.204	.049	.026	.308	.308	-.157	-.076	-.142	0.695	0.095	1.2	1.0	1.6	1.1	A+	B-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1676	604416	Ge	1067	.609	.241	.609	.091	.037	.023	.354	-.148	.354	-.201	-.133	0.542	0.067	-0.6	1.0	-1.3	1.0	B-	A-
1677	604738	Ge	1067	.352	.075	.330	.187	.352	.056	.276	-.119	.025	-.112	.276	1.692	0.069	2.6	1.1	2.6	1.1	A+	A-
1678	605045	Ge	535	.256	.256	.258	.280	.155	.051	.290	.290	-.002	-.130	-.056	2.267	0.105	0.3	1.0	1.2	1.1	A+	A+
1679	604668	Ge	535	.402	.232	.200	.120	.402	.047	.426	-.058	-.225	-.141	.426	1.509	0.095	-2.0	0.9	-1.7	0.9	A-	A-
1680	604662	Ge	1067	.350	.157	.350	.126	.191	.057	.318	-.127	.318	-.141	-.060	1.420	0.072	-1.3	1.0	-1.0	1.0	A+	A+
1681	604679	Ge	1067	.147	.518	.183	.120	.147	.032	.037	.069	.006	-.076	.037	3.013	0.090	2.7	1.2	4.5	1.4	A+	A-
1682	604473	Ge	1067	.320	.481	.098	.320	.041	.060	.374	-.042	-.187	.374	-.141	1.852	0.070	-1.1	1.0	-0.4	1.0	A+	B+
1683	604739	Ge	1067	.366	.080	.366	.369	.128	.057	.364	-.071	.364	-.081	-.146	1.619	0.069	-0.4	1.0	0.5	1.0	A-	A-
1684	604691	Ge	532	.656	.656	.167	.109	.060	.008	.254	.254	-.105	-.184	-.032	0.306	0.097	0.9	1.0	1.1	1.1	A-	
1685	604376	Ge	532	.368	.056	.368	.391	.124	.004	.143	-.038	.143	-.082	-.145	1.517	0.097	2.4	1.1	2.2	1.1	A-	
1686	604404	Ge	532	.115	.479	.280	.120	.115	.006	.273	-.024	-.023	-.168	.273	3.314	0.141	-0.4	1.0	0.4	1.1	C-	
1687	604357	Ge	532	.451	.271	.451	.175	.070	.034	.317	-.186	.317	-.042	-.011	1.203	0.094	1.1	1.0	1.0	1.0	A-	
1688	604547	Ge	532	.466	.139	.235	.466	.117	.043	.274	-.115	-.077	.274	-.094	1.129	0.097	4.5	1.2	3.9	1.2	A-	
1689	604548	Ge	1064	.479	.069	.253	.479	.137	.062	.419	-.118	-.152	.419	-.154	1.051	0.068	-0.7	1.0	-0.8	1.0	A-	A-
1690	604604	Ge	1065	.310	.082	.287	.286	.310	.035	.399	-.133	-.046	-.218	.399	1.966	0.072	-1.2	1.0	-1.0	1.0	A+	A+
1691	604605	Ge	1064	.102	.321	.217	.312	.102	.047	.118	.003	-.112	.087	.118	3.482	0.106	1.6	1.1	3.3	1.4	A-	A+
1692	604732	Ge	1065	.153	.508	.120	.135	.153	.084	.164	.023	-.088	.063	.164	2.893	0.091	2.4	1.1	3.8	1.4	A-	A+
1693	604735	Ge	533	.550	.550	.175	.084	.184	.008	.396	.396	-.110	-.181	-.232	0.810	0.094	-1.8	1.0	-1.4	0.9	C-	A-
1694	603086	A2	963	.146	.648	.056	.099	.146	.051	.166	.109	-.118	-.142	.166	3.205	0.098	2.2	1.1	4.1	1.5	A+	
1695	603043	A2	962	.577	.078	.162	.577	.152	.031	.351	-.087	-.194	.351	-.167	0.815	0.072	-0.4	1.0	-0.1	1.0	A-	A+
1696	603000	A2	480	.483	.204	.483	.131	.163	.019	.443	-.152	.443	-.205	-.200	1.293	0.100	-2.5	0.9	-2.3	0.9	A-	
1697	603018	A2	964	.729	.729	.117	.085	.041	.028	.466	.466	-.232	-.208	-.148	0.058	0.080	-3.2	0.9	-3.6	0.7	A+	A-
1698	603098	A2	960	.281	.230	.314	.158	.281	.017	.379	-.145	-.233	.037	.379	2.370	0.077	-0.5	1.0	-0.2	1.0	A-	
1699	603042	A2	960	.718	.034	.138	.718	.085	.025	.325	-.123	-.156	.325	-.186	0.111	0.078	-0.2	1.0	-0.8	0.9	A+	A+
1700	603094	A2	960	.804	.041	.804	.078	.044	.033	.392	-.120	.392	-.249	-.151	-0.562	0.092	-1.0	0.9	-1.9	0.8	A+	A-
1701	603038	A2	1440	.553	.553	.282	.083	.065	.017	.432	.432	-.217	-.195	-.173	0.998	0.058	-4.0	0.9	-2.7	0.9	A-	A+
1702	603047	A2	1444	.433	.085	.240	.433	.234	.008	.473	-.150	-.297	.473	-.124	1.595	0.059	-4.5	0.9	-3.8	0.9	A-	A+
1703	603051	A2	964	.492	.492	.048	.174	.270	.017	.428	.428	.021	-.216	-.277	1.247	0.071	-2.1	1.0	-1.4	0.9	A+	A-
1704	603064	A2	960	.312	.045	.312	.115	.502	.027	.458	-.097	.458	-.135	-.264	2.157	0.076	-2.0	0.9	-0.7	1.0	A-	A+
1705	603083	A2	960	.208	.279	.349	.208	.109	.054	.075	.102	-.047	.075	-.091	2.763	0.087	5.6	1.3	7.0	1.6	A-	A+
1706	603050	A2	960	.597	.069	.597	.159	.141	.034	.447	-.161	.447	-.253	-.202	0.698	0.073	-4.8	0.9	-3.7	0.8	B+	A-
1707	603067	A2	963	.486	.130	.486	.159	.206	.020	.382	-.193	.382	-.146	-.122	1.346	0.071	0.9	1.0	0.3	1.0	A+	A-
1708	603095	A2	963	.869	.040	.070	.020	.869	.002	.300	-.118	-.224	-.125	.300	-0.884	0.101	-0.6	1.0	-1.8	0.8	A-	C-
1709	603084	A2	963	.121	.121	.425	.119	.292	.044	.350	.350	-.104	-.053	-.053	3.700	0.110	-0.2	1.0	0.4	1.0	A-	A-
1710	603112	A2	962	.826	.060	.039	.826	.054	.021	.347	-.192	-.140	.347	-.126	-0.666	0.094	-1.2	0.9	-1.9	0.8	A+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1711	603065	A2	1440	.485	.163	.173	.485	.133	.047	.443	-.230	-.118	.443	-.137	1.261	0.059	-2.9	0.9	-2.5	0.9	A+	B-
1712	603074	A2	962	.614	.035	.163	.614	.161	.026	.511	-.124	-.254	.511	-.262	0.648	0.073	-5.3	0.9	-4.5	0.8	A+	
1713	603085	A2	962	.367	.075	.232	.367	.258	.069	.425	-.133	-.142	.425	-.140	1.815	0.075	-2.1	0.9	-1.8	0.9	A-	
1714	603075	A2	962	.342	.209	.229	.174	.342	.047	.494	-.189	-.127	-.135	.494	1.906	0.075	-4.4	0.9	-3.6	0.8	A-	A-
1715	603070	A2	1442	.514	.514	.233	.132	.092	.029	.495	.495	-.165	-.257	-.197	1.123	0.058	-6.3	0.9	-5.2	0.8	A-	A-
1716	603071	A2	963	.437	.437	.130	.372	.043	.019	.518	.518	-.202	-.276	-.141	1.478	0.071	-5.9	0.9	-5.6	0.8	A-	
1717	603127	A2	481	.187	.187	.349	.312	.096	.056	.364	.364	.125	-.267	-.130	2.833	0.126	-0.2	1.0	-0.5	0.9	A+	
1718	603087	A2	962	.442	.152	.442	.174	.167	.066	.355	-.192	.355	-.139	-.053	1.383	0.072	0.6	1.0	0.0	1.0	A-	A+
1719	603088	A2	482	.504	.147	.504	.201	.141	.006	.317	-.135	.317	-.172	-.107	1.171	0.099	0.6	1.0	1.2	1.1	B+	
1720	603120	A2	963	.677	.064	.118	.108	.677	.032	.423	-.133	-.185	-.192	.423	0.392	0.076	-2.2	0.9	-2.9	0.8	A+	A-
1721	603063	A2	963	.493	.133	.195	.493	.157	.022	.431	-.198	-.225	.431	-.099	1.360	0.071	-2.9	0.9	-2.9	0.9	A+	A+
1722	603116	A2	963	.357	.357	.163	.191	.232	.057	.443	.443	-.186	-.110	-.098	1.954	0.075	-1.2	1.0	-1.5	0.9	A+	B-
1723	603096	A2	963	.247	.178	.247	.216	.262	.098	.265	.031	.265	-.162	.030	2.533	0.084	3.5	1.2	3.8	1.3	A+	A-
1724	603082	A2	964	.441	.132	.193	.441	.206	.028	.435	-.130	-.148	.435	-.200	1.550	0.072	-2.6	0.9	-2.2	0.9	A-	A+
1725	603041	A2	964	.260	.146	.132	.435	.260	.027	.485	-.186	-.027	-.209	.485	2.553	0.081	-2.1	0.9	-2.0	0.9	A+	B-
1726	603117	A2	964	.404	.164	.182	.176	.404	.075	.508	-.067	-.221	-.194	.508	1.630	0.074	-5.6	0.9	-4.6	0.8	A+	A-
1727	603052	A2	961	.497	.056	.084	.341	.497	.021	.377	-.111	-.136	-.203	.377	1.270	0.071	1.0	1.0	0.0	1.0	A+	A-
1728	603099	A2	961	.798	.050	.798	.084	.027	.041	.453	-.176	.453	-.227	-.140	-0.527	0.092	-2.6	0.9	-3.5	0.7	B+	A-
1729	603039	A2	961	.339	.189	.247	.339	.161	.064	.183	.023	-.003	.183	-.073	1.978	0.076	8.3	1.3	7.6	1.4	A-	A-
1730	603101	A2	964	.445	.445	.213	.163	.162	.018	.453	.453	-.133	-.217	-.177	1.583	0.071	-2.2	0.9	-2.5	0.9	A+	A+
1731	603019	A2	958	.545	.153	.157	.132	.545	.014	.433	-.081	-.246	-.242	.433	1.081	0.071	-3.4	0.9	-2.3	0.9	A-	A-
1732	603053	A2	964	.258	.258	.404	.060	.268	.010	.447	.447	-.330	-.138	.028	2.616	0.081	-1.4	0.9	-0.7	1.0	A-	A-
1733	603020	A2	964	.590	.590	.125	.137	.114	.034	.481	.481	-.227	-.232	-.092	0.824	0.072	-4.7	0.9	-2.0	0.9	A+	A-
1734	603048	A2	964	.341	.341	.110	.090	.396	.062	.460	.460	-.214	-.173	-.085	2.015	0.076	-1.2	1.0	-0.6	1.0	A-	A-
1735	603072	A2	484	.337	.337	.362	.128	.161	.012	.521	.521	-.174	-.189	-.243	2.156	0.106	-3.2	0.9	-2.4	0.9	A-	A-
1736	603045	A2	484	.632	.632	.207	.087	.068	.006	.466	.466	-.260	-.205	-.225	0.705	0.102	-3.9	0.9	-3.1	0.8	A+	A+
1737	603111	A2	484	.205	.205	.322	.236	.198	.039	.370	.370	-.122	-.096	-.100	2.921	0.125	0.0	1.0	0.7	1.1	A+	A-
1738	603066	A2	966	.288	.288	.068	.152	.465	.027	.595	.595	-.121	-.076	-.350	2.349	0.078	-6.3	0.8	-6.3	0.7	A-	A+
1739	603073	A2	966	.461	.083	.306	.461	.116	.034	.399	-.112	-.194	.399	-.108	1.440	0.071	-0.4	1.0	-0.7	1.0	A-	A-
1740	603049	A2	484	.322	.322	.252	.165	.192	.068	.567	.567	-.100	-.212	-.243	2.100	0.109	-3.9	0.8	-3.6	0.8	A-	A+
1741	603100	A2	964	.566	.087	.566	.080	.247	.020	.423	-.138	.423	-.218	-.189	0.959	0.070	-3.1	0.9	-3.1	0.9	A-	
1742	603076	A2	964	.331	.163	.156	.331	.301	.050	.319	-.043	-.042	.319	-.157	2.033	0.074	1.4	1.0	1.5	1.1	A+	
1743	603089	A2	964	.197	.102	.547	.113	.197	.042	.504	-.143	-.154	-.117	.504	2.874	0.087	-3.4	0.8	-3.0	0.8	A-	
1744	603097	A2	964	.577	.106	.577	.122	.148	.047	.412	-.188	.412	-.127	-.158	0.831	0.071	-2.6	0.9	-2.5	0.9	A-	
1745	603046	A2	482	.535	.095	.129	.170	.535	.071	.457	-.118	-.211	-.215	.457	0.927	0.101	-3.9	0.9	-2.9	0.8	B+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1746	602999	A2	962	.194	.278	.329	.149	.194	.051	.482	-.128	-.079	-.197	.482	2.888	0.089	-2.3	0.9	-1.8	0.9	A+	
1747	603118	A2	962	.283	.283	.246	.246	.197	.028	.374	.374	-.143	-.087	-.112	2.339	0.078	0.5	1.0	0.3	1.0	A+	
1748	603077	A2	482	.145	.259	.299	.257	.145	.039	.298	-.069	-.092	-.012	.298	3.308	0.138	0.0	1.0	0.1	1.0	A-	
1749	603121	A2	482	.355	.079	.154	.369	.355	.044	.448	-.081	-.146	-.186	.448	1.933	0.104	-1.8	0.9	-1.4	0.9	A-	
1750	603102	A2	482	.483	.483	.230	.168	.058	.060	.436	.436	-.057	-.291	-.076	1.260	0.101	-1.6	1.0	-1.7	0.9	A+	
1751	603103	A2	480	.506	.027	.135	.323	.506	.008	.418	-.049	-.189	-.272	.418	1.214	0.099	-1.8	0.9	-1.6	0.9	A+	
1752	603023	A2	960	.376	.194	.376	.201	.185	.044	.356	-.097	.356	-.175	-.115	1.807	0.074	1.7	1.1	1.8	1.1	A+	A-
1753	603119	A2	960	.185	.241	.317	.224	.185	.033	.315	-.030	-.032	-.174	.315	3.036	0.092	1.8	1.1	2.9	1.3	A-	A+
1754	603104	A2	960	.459	.124	.223	.190	.459	.004	.502	-.268	-.166	-.217	.502	1.492	0.071	-4.7	0.9	-3.7	0.9	A+	A-
1755	603040	A2	958	.656	.113	.656	.075	.149	.007	.435	-.144	.435	-.193	-.290	0.554	0.073	-3.5	0.9	-2.3	0.9	A-	A-
1756	603105	A2	958	.255	.255	.341	.281	.105	.018	.469	.469	-.109	-.246	-.080	2.579	0.081	-2.0	0.9	-1.8	0.9	A+	A-
1757	603024	A2	958	.264	.264	.298	.258	.157	.024	.423	.423	-.128	-.167	-.098	2.505	0.080	-1.2	1.0	0.1	1.0	A+	A+
1758	603062	A2	958	.224	.399	.261	.224	.090	.026	.379	-.155	-.121	.379	-.032	2.752	0.084	0.0	1.0	0.0	1.0	A+	A+
1759	604700	A2	961	.533	.533	.071	.306	.055	.035	.325	.325	-.167	-.086	-.138	1.057	0.072	2.4	1.1	4.3	1.2	A-	B-
1760	603013	A2	966	.619	.063	.619	.227	.082	.009	.421	-.147	.421	-.254	-.163	0.751	0.071	-3.9	0.9	-1.9	0.9	B-	A-
1761	604570	A2	482	.531	.531	.077	.214	.137	.042	.396	.396	-.161	-.157	-.087	1.074	0.100	-0.7	1.0	0.7	1.0	A-	
1762	604625	A2	958	.573	.573	.161	.184	.072	.010	.449	.449	-.243	-.203	-.177	0.950	0.071	-3.1	0.9	-2.1	0.9	A-	A+
1763	604530	A2	962	.393	.393	.226	.197	.157	.028	.476	.476	-.170	-.183	-.147	1.727	0.072	-3.6	0.9	-3.0	0.9	B+	A-
1764	604686	A2	478	.333	.153	.297	.333	.151	.067	.332	-.074	-.116	.332	-.052	1.992	0.106	1.3	1.1	1.8	1.1	A-	
1765	603037	A2	964	.510	.189	.104	.183	.510	.015	.457	-.147	-.203	-.222	.457	1.276	0.071	-4.0	0.9	-3.3	0.9	A-	C+
1766	604572	A2	484	.628	.155	.628	.099	.054	.064	.384	-.191	.384	-.126	-.133	0.511	0.107	-0.6	1.0	0.5	1.0	A-	A+
1767	604537	A2	964	.569	.165	.569	.163	.046	.058	.414	-.168	.414	-.147	-.137	0.852	0.073	-1.1	1.0	0.5	1.0	A+	B-
1768	604685	A2	480	.500	.119	.150	.500	.223	.008	.320	-.186	-.217	.320	-.043	1.323	0.100	3.2	1.1	2.2	1.1	A-	A+
1769	604539	A2	958	.310	.411	.310	.190	.071	.018	.387	-.134	.387	-.195	-.078	2.240	0.076	0.5	1.0	0.8	1.0	C-	A+
1770	604540	A2	963	.299	.299	.290	.233	.102	.077	.464	.464	-.086	-.168	-.116	2.238	0.079	-2.2	0.9	-1.1	0.9	A+	A-
1771	604703	A2	480	.904	.904	.046	.031	.017	.002	.257	.257	-.143	-.154	-.132	-1.193	0.160	-0.3	1.0	0.3	1.0	A+	A-
1772	604629	A2	964	.403	.403	.152	.240	.142	.064	.485	.485	-.153	-.191	-.121	1.658	0.074	-4.3	0.9	-3.5	0.9	A+	A-
1773	603003	A2	484	.349	.176	.271	.349	.182	.023	.439	-.121	-.208	.439	-.114	2.057	0.105	-0.8	1.0	0.6	1.0	A+	A+
1774	604550	A2	961	.459	.074	.204	.459	.240	.023	.316	-.121	-.111	.316	-.125	1.452	0.071	3.1	1.1	2.7	1.1	A+	A-
1775	604544	A2	482	.324	.143	.440	.324	.050	.044	.398	-.071	-.191	.398	-.108	2.059	0.105	-0.9	1.0	-1.0	0.9	B-	
1776	604627	A2	963	.342	.291	.177	.181	.342	.010	.293	-.039	-.207	-.092	.293	2.099	0.075	2.7	1.1	2.8	1.1	A-	A+
1777	604626	A2	964	.217	.483	.112	.174	.217	.014	.390	-.181	-.193	-.006	.390	2.792	0.086	-0.6	1.0	0.2	1.0	A+	A-
1778	604552	A2	964	.525	.139	.144	.525	.175	.017	.335	.041	-.242	.335	-.211	1.085	0.071	1.4	1.0	0.2	1.0	A+	A-
1779	604619	A2	964	.231	.084	.231	.230	.441	.014	.281	-.129	.281	-.147	-.017	2.696	0.084	2.0	1.1	3.4	1.3	A-	A+
1780	604578	A2	964	.327	.074	.327	.381	.186	.033	.461	-.119	.461	-.220	-.161	2.063	0.077	-2.6	0.9	-1.7	0.9	A-	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1781	604654	A2	964	.191	.238	.306	.246	.191	.020	.236	.005	.001	-.189	.236	2.986	0.091	2.4	1.1	3.3	1.3	A+	A-
1782	604607	A2	960	.731	.098	.056	.107	.731	.007	.354	-.081	-.195	-.243	.354	0.080	0.078	-1.7	0.9	0.1	1.0	A+	A-
1783	604568	A2	960	.579	.579	.084	.164	.129	.044	.524	.524	-.194	-.274	-.184	0.763	0.073	-6.3	0.8	-4.5	0.8	A+	A-
1784	603004	A2	960	.243	.243	.333	.257	.117	.050	.418	.418	-.063	-.196	-.111	2.539	0.083	-1.4	0.9	-0.1	1.0	A+	A+
1785	604660	A2	964	.402	.183	.402	.243	.130	.044	.457	-.249	.457	-.143	-.120	1.637	0.074	-2.9	0.9	-2.5	0.9	A+	A+
1786	604582	A2	963	.345	.345	.137	.347	.159	.013	.448	.448	-.171	-.165	-.173	2.083	0.075	-2.5	0.9	-2.4	0.9	A-	A-
1787	604621	A2	963	.680	.080	.680	.102	.132	.006	.255	-.048	.255	-.140	-.157	0.404	0.075	1.6	1.1	2.1	1.1	A+	A-
1788	604614	A2	963	.407	.327	.407	.145	.108	.013	.379	-.180	.379	-.173	-.096	1.753	0.073	-0.1	1.0	-0.8	1.0	B-	A-
1789	604556	A2	963	.514	.151	.257	.514	.058	.021	.402	-.128	-.236	.402	-.096	1.208	0.071	-2.1	1.0	-0.5	1.0	A+	A-
1790	603005	A2	963	.118	.561	.118	.137	.152	.032	.175	.056	.175	-.077	-.132	3.720	0.110	2.5	1.2	4.8	1.8	A-	A+
1791	604609	A2	963	.638	.638	.189	.128	.034	.011	.486	.486	-.258	-.253	-.162	0.609	0.073	-5.4	0.9	-4.5	0.8	A+	B-
1792	604656	A2	962	.364	.126	.248	.364	.227	.035	.174	.036	-.133	.174	-.024	1.889	0.075	6.4	1.2	7.0	1.4	A+	
1793	604664	A2	962	.539	.169	.096	.539	.183	.014	.415	-.180	-.171	.415	-.183	1.072	0.071	-2.6	0.9	-2.5	0.9	A-	
1794	603001	A2	962	.381	.105	.282	.381	.204	.029	.382	-.151	-.240	.382	-.008	1.815	0.074	-0.2	1.0	0.1	1.0	A-	
1795	603010	A2	962	.202	.202	.195	.293	.241	.069	.387	.387	-.129	.006	-.140	2.843	0.089	-0.6	1.0	0.1	1.0	A-	
1796	604657	A2	962	.296	.246	.286	.296	.124	.048	.190	-.126	-.048	.190	.074	2.147	0.078	4.7	1.2	4.4	1.3	A+	A-
1797	603011	A2	962	.277	.277	.188	.260	.207	.069	.244	.244	-.059	-.058	-.047	2.213	0.079	2.7	1.1	3.7	1.2	A-	A-
1798	604558	A2	962	.278	.411	.147	.278	.129	.036	.081	.096	-.146	.081	.026	2.286	0.079	7.0	1.3	7.2	1.5	A+	A+
1799	604632	A2	962	.356	.113	.229	.232	.356	.071	.428	-.128	-.116	-.161	.428	1.768	0.075	-2.4	0.9	-1.4	0.9	A+	A+
1800	604610	A2	962	.730	.053	.730	.129	.063	.025	.469	-.139	.469	-.296	-.171	-0.046	0.080	-3.2	0.9	-3.4	0.8	A+	B-
1801	604622	A2	962	.629	.049	.159	.629	.107	.056	.358	-.121	-.087	.358	-.200	0.408	0.075	0.4	1.0	0.9	1.1	A+	B-
1802	604666	A2	962	.519	.113	.519	.075	.250	.044	.380	-.188	.380	-.137	-.096	1.019	0.072	-0.2	1.0	-0.3	1.0	A+	A+
1803	604615	A2	962	.214	.162	.329	.232	.214	.063	.361	-.119	-.056	-.055	.361	2.645	0.086	-0.4	1.0	-0.1	1.0	A-	A+
1804	604553	A2	963	.393	.172	.283	.142	.393	.010	.423	-.136	-.180	-.175	.423	1.708	0.072	-2.3	0.9	-2.3	0.9	A+	
1805	603014	A2	963	.415	.271	.171	.415	.095	.048	.422	-.214	-.168	.422	-.063	1.513	0.072	-1.7	1.0	-1.7	0.9	A+	
1806	603002	A2	963	.422	.157	.160	.234	.422	.028	.480	-.145	-.171	-.212	.480	1.531	0.071	-4.7	0.9	-4.4	0.9	A+	
1807	604616	A2	963	.603	.603	.200	.105	.062	.029	.447	.447	-.190	-.216	-.174	0.650	0.072	-3.5	0.9	-2.3	0.9	A-	
1808	604623	A2	963	.903	.035	.903	.038	.014	.009	.267	-.112	.267	-.168	-.113	-1.377	0.117	-0.1	1.0	-1.2	0.8	A+	
1809	604678	A2	963	.202	.224	.185	.375	.202	.015	.295	-.144	-.169	.047	.295	2.807	0.087	0.7	1.0	1.8	1.1	A+	
1810	604576	A2	963	.419	.419	.182	.217	.164	.019	.417	.417	-.200	-.192	-.066	1.566	0.071	-2.6	0.9	-2.1	0.9	A-	
1811	604706	A2	963	.388	.117	.430	.388	.046	.019	.257	-.201	-.047	.257	-.073	1.711	0.072	4.1	1.1	3.9	1.2	A-	
1812	604635	A2	963	.216	.216	.090	.586	.087	.021	.307	.307	-.127	-.070	-.125	2.693	0.085	1.2	1.1	1.7	1.1	A-	
1813	603015	A2	963	.559	.088	.559	.166	.118	.069	.248	-.026	.248	-.143	-.066	0.734	0.073	2.9	1.1	1.8	1.1	A+	
1814	604577	A2	962	.208	.306	.192	.271	.208	.023	.348	-.086	-.136	-.091	.348	2.818	0.087	0.2	1.0	0.1	1.0	A+	A+
1815	603016	A2	962	.398	.208	.398	.243	.107	.044	.444	-.170	.444	-.162	-.131	1.658	0.073	-2.5	0.9	-2.2	0.9	A+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1816	603031	A2	962	.212	.084	.366	.290	.212	.048	.370	-.072	-.116	-.079	.370	2.754	0.087	-0.3	1.0	1.7	1.1	A+	A-
1817	604681	A2	962	.377	.377	.287	.138	.172	.026	.358	.358	-.002	-.187	-.199	1.807	0.073	1.4	1.0	1.5	1.1	A+	C+
1818	604650	A2	962	.259	.264	.291	.259	.152	.034	.290	-.174	.004	.290	-.039	2.457	0.081	2.4	1.1	3.2	1.2	A-	A+
1819	603025	A2	962	.569	.194	.569	.130	.071	.036	.428	-.121	.428	-.241	-.163	0.847	0.072	-2.1	1.0	-1.2	1.0	A+	A-
1820	604624	A2	962	.728	.097	.061	.728	.052	.062	.433	-.229	-.205	.433	-.128	-0.156	0.084	-2.5	0.9	-2.5	0.8	A+	A-
1821	604569	A2	963	.263	.283	.346	.263	.076	.033	.185	.137	-.150	.185	-.112	2.557	0.081	5.2	1.2	6.2	1.4	A-	A+
1822	603026	A2	963	.378	.188	.378	.277	.110	.047	.356	.021	.356	-.206	-.122	1.868	0.074	1.5	1.1	1.6	1.1	A+	A-
1823	604697	A2	963	.479	.118	.479	.267	.094	.043	.393	-.119	.393	-.188	-.084	1.367	0.072	-0.1	1.0	0.0	1.0	A-	A-
1824	604704	A2	480	.585	.129	.142	.585	.106	.038	.367	-.144	-.143	.367	-.116	0.813	0.102	0.4	1.0	1.1	1.1	A-	A-
1825	603032	A2	963	.409	.142	.296	.409	.088	.064	.323	-.053	-.185	.323	-.044	1.668	0.073	2.7	1.1	1.9	1.1	A+	A+
1826	604532	A2	963	.354	.229	.354	.128	.239	.051	.430	-.111	.430	-.166	-.117	1.988	0.075	-0.7	1.0	-0.1	1.0	A+	A-
1827	603027	A2	964	.767	.049	.767	.089	.056	.039	.433	-.153	.433	-.215	-.199	-0.259	0.087	-2.4	0.9	-3.2	0.7	A-	A-
1828	604705	A2	964	.183	.108	.183	.253	.395	.061	.246	-.129	.246	-.119	.086	3.060	0.093	2.6	1.2	3.5	1.3	A+	A+
1829	603033	A2	964	.143	.139	.380	.254	.143	.084	.363	-.005	-.089	-.033	.363	3.375	0.102	0.1	1.0	1.5	1.2	A+	B+
1830	604651	A2	964	.299	.155	.230	.227	.299	.089	.472	-.099	-.142	-.137	.472	2.191	0.079	-2.5	0.9	-2.1	0.9	A+	A-
1831	603017	A2	483	.313	.139	.313	.375	.073	.101	.339	-.082	.339	-.041	-.114	2.155	0.111	1.6	1.1	1.3	1.1	A+	A+
1832	604574	A2	964	.313	.143	.313	.241	.226	.077	.366	-.009	.366	-.190	-.050	2.124	0.078	1.6	1.1	1.6	1.1	A+	A-
1833	603021	A2	961	.408	.408	.267	.164	.115	.046	.468	.468	-.228	-.171	-.051	1.649	0.073	-3.5	0.9	-2.6	0.9	A-	A-
1834	604652	A2	961	.353	.330	.154	.353	.132	.031	.320	-.059	-.177	.320	-.047	1.973	0.075	3.5	1.1	3.3	1.2	A-	A-
1835	604575	A2	961	.309	.179	.182	.284	.309	.046	.511	-.093	-.173	-.174	.511	2.190	0.077	-3.3	0.9	-2.7	0.9	A-	A-
1836	604543	A2	481	.171	.171	.270	.299	.214	.046	.342	.342	-.090	-.054	-.033	3.087	0.134	0.8	1.1	3.3	1.5	A-	
1837	604541	A2	961	.306	.306	.351	.179	.125	.040	.375	.375	-.163	-.112	-.044	2.208	0.078	1.0	1.0	1.7	1.1	A-	A-
1838	604636	A2	961	.372	.166	.372	.300	.116	.048	.369	-.154	.369	-.111	-.095	1.843	0.074	0.5	1.0	1.2	1.1	B-	B+
1839	603006	A2	480	.410	.215	.410	.244	.092	.040	.270	-.081	.270	-.185	-.002	1.703	0.103	3.8	1.2	3.0	1.2	A+	B+
1840	604613	A2	964	.491	.160	.491	.269	.064	.017	.445	-.175	.445	-.269	-.109	1.362	0.071	-2.6	0.9	-2.7	0.9	A-	A+
1841	603079	A2	964	.338	.138	.152	.351	.338	.022	.385	-.110	-.153	-.144	.385	2.121	0.075	-0.1	1.0	0.3	1.0	A-	A+
1842	603022	A2	480	.367	.367	.206	.206	.185	.035	.334	.334	-.126	-.126	-.100	1.932	0.105	1.8	1.1	1.6	1.1	A-	A-
1843	604637	A2	480	.544	.158	.196	.544	.092	.010	.339	-.206	-.144	.339	-.079	1.118	0.100	1.1	1.0	0.5	1.0	A-	B+
1844	603078	A2	958	.570	.206	.570	.133	.066	.026	.417	-.080	.417	-.261	-.208	0.928	0.071	-1.8	1.0	-1.0	1.0	A+	A-
1845	604566	A2	480	.263	.204	.277	.242	.263	.015	.434	-.108	-.120	-.147	.434	2.577	0.114	-1.0	0.9	-0.3	1.0	A-	A-
1846	604680	A2	480	.288	.292	.327	.288	.054	.040	.228	-.033	-.041	.228	-.063	2.380	0.112	3.4	1.2	4.1	1.3	A-	A+
1847	604587	A2	480	.735	.083	.060	.079	.735	.042	.456	-.161	-.221	-.143	.456	-0.019	0.116	-1.8	0.9	-1.8	0.8	A-	A-
1848	604611	A2	480	.567	.102	.067	.223	.567	.042	.507	-.157	-.197	-.217	.507	0.916	0.102	-3.7	0.9	-2.8	0.8	B+	A-
1849	604551	A2	964	.387	.198	.167	.213	.387	.035	.405	-.027	-.172	-.193	.405	1.835	0.073	0.2	1.0	0.5	1.0	A+	A+
1850	604542	A2	480	.381	.167	.252	.381	.133	.067	.364	.011	-.156	.364	-.108	1.795	0.105	2.0	1.1	1.7	1.1	A+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1851	603012	A2	964	.081	.084	.252	.518	.081	.065	.132	-.095	.044	.008	.132	4.181	0.129	2.0	1.2	4.6	1.9	A+	A+
1852	603090	A2	966	.311	.241	.212	.311	.213	.023	.061	.089	-.090	.061	-.024	2.227	0.076	8.6	1.3	8.7	1.5	A-	A+
1853	604647	A2	966	.595	.089	.595	.173	.108	.035	.415	-.119	.415	-.211	-.158	0.782	0.072	-2.5	0.9	-2.4	0.9	A+	A-
1854	604573	A2	966	.505	.109	.505	.252	.123	.011	.419	-.091	.419	-.232	-.181	1.288	0.070	-3.2	0.9	-2.9	0.9	A+	A+
1855	604642	A2	966	.122	.144	.533	.163	.122	.038	.213	-.058	.095	-.160	.213	3.587	0.106	1.6	1.1	3.4	1.4	A+	A+
1856	604649	A2	966	.149	.206	.246	.343	.149	.056	.214	.021	-.019	-.083	.214	3.280	0.098	1.8	1.1	4.4	1.5	A-	A+
1857	604564	A2	966	.275	.166	.322	.275	.178	.059	.398	-.140	-.175	.398	-.005	2.342	0.079	-0.5	1.0	0.3	1.0	A-	A+
1858	604726	A2	962	.388	.072	.388	.220	.274	.046	.309	-.127	.309	-.090	-.074	1.776	0.073	3.6	1.1	2.7	1.1	A-	A-
1859	604538	A2	966	.386	.156	.386	.266	.134	.058	.245	.005	.245	-.169	-.006	1.733	0.073	5.3	1.2	4.3	1.2	A-	A-
1860	604562	A2	966	.380	.270	.182	.380	.111	.057	.378	-.146	-.182	.378	-.002	1.771	0.073	0.4	1.0	0.6	1.0	A-	B-
1861	604638	A2	962	.523	.116	.523	.223	.101	.037	.475	-.136	.475	-.200	-.226	1.126	0.071	-4.0	0.9	-3.4	0.9	A+	A-
1862	604588	A2	484	.310	.310	.229	.324	.085	.052	.394	.394	-.072	-.117	-.157	2.222	0.110	0.9	1.0	1.1	1.1	A-	A-
1863	604648	A2	482	.535	.535	.176	.212	.066	.010	.319	.319	-.157	-.098	-.192	1.126	0.097	0.1	1.0	-0.5	1.0	A-	
1864	604585	A2	964	.599	.071	.156	.165	.599	.010	.412	-.180	-.207	-.187	.412	0.833	0.070	-4.3	0.9	-3.4	0.9	A-	
1865	603009	A2	964	.232	.232	.319	.164	.247	.038	.377	.377	-.164	-.029	-.099	2.630	0.082	-1.2	1.0	-0.4	1.0	A+	
1866	604531	A2	964	.481	.221	.165	.481	.087	.046	.389	-.171	-.122	.389	-.131	1.292	0.070	-2.1	1.0	-1.8	0.9	A-	
1867	603034	A2	482	.195	.017	.104	.195	.678	.006	.460	-.062	-.192	.460	-.225	2.928	0.123	-1.3	0.9	-1.1	0.9	C-	
1868	603035	A2	964	.367	.367	.178	.248	.155	.052	.228	.228	-.160	.034	-.054	1.829	0.073	4.9	1.1	4.7	1.2	A-	
1869	603109	A2	482	.504	.033	.504	.371	.066	.025	.260	-.073	.260	-.071	-.168	1.235	0.098	2.7	1.1	2.5	1.1	A+	
1870	603008	A2	482	.353	.255	.139	.353	.183	.071	.208	.057	-.139	.208	-.093	1.832	0.104	3.2	1.1	4.0	1.2	A+	
1871	604675	A2	482	.322	.322	.145	.216	.268	.050	.397	.397	-.099	-.010	-.213	2.066	0.106	-0.6	1.0	-0.7	1.0	A+	
1872	604565	A2	482	.357	.189	.357	.249	.133	.073	.254	-.127	.254	-.024	-.049	1.806	0.104	2.7	1.1	2.1	1.1	A-	
1873	604563	A2	482	.226	.226	.266	.247	.191	.071	.283	.283	-.068	-.087	-.052	2.549	0.117	0.7	1.0	1.7	1.2	A-	
1874	604545	A2	964	.595	.074	.119	.176	.595	.035	.302	-.098	-.184	-.067	.302	0.762	0.071	1.0	1.0	1.4	1.1	A+	
1875	604643	A2	964	.571	.056	.154	.167	.571	.053	.442	-.131	-.219	-.166	.442	0.827	0.072	-4.0	0.9	-2.7	0.9	A+	
1876	604594	A2	960	.543	.275	.064	.079	.543	.040	.305	-.153	-.100	-.124	.305	1.007	0.071	2.0	1.1	2.1	1.1	A-	A-
1877	604630	A2	960	.378	.438	.076	.100	.378	.008	.431	-.272	-.132	-.109	.431	1.878	0.072	-2.8	0.9	-2.6	0.9	A+	A+
1878	604533	A2	962	.194	.194	.211	.370	.175	.050	.337	.337	-.139	-.050	-.075	2.893	0.089	0.5	1.0	1.9	1.2	A+	
1879	604725	A2	482	.467	.278	.467	.145	.093	.017	.366	-.105	.366	-.231	-.090	1.446	0.099	-0.1	1.0	-0.5	1.0	A+	
1880	603028	A2	962	.639	.133	.072	.144	.639	.013	.448	-.201	-.166	-.242	.448	0.597	0.072	-5.1	0.9	-4.0	0.8	A+	
1881	604559	A2	962	.405	.096	.273	.405	.156	.070	.224	-.073	-.112	.224	.002	1.583	0.073	6.8	1.2	5.7	1.2	A-	
1882	604595	A2	962	.296	.148	.319	.225	.296	.013	.268	-.028	-.029	-.193	.268	2.296	0.077	3.5	1.1	3.3	1.2	A+	
1883	604645	A2	962	.519	.157	.103	.519	.203	.019	.390	-.177	-.225	.390	-.071	1.168	0.070	-1.2	1.0	-0.6	1.0	A+	
1884	603036	A2	962	.429	.144	.109	.296	.429	.022	.357	-.082	-.153	-.163	.357	1.579	0.071	0.5	1.0	0.5	1.0	A-	
1885	604534	A2	962	.338	.165	.148	.297	.338	.052	.296	-.090	-.121	-.084	.296	1.963	0.075	2.4	1.1	2.5	1.1	A-	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1886	604571	A2	962	.686	.099	.067	.686	.120	.029	.352	-.145	-.109	.352	-.168	0.287	0.076	-0.6	1.0	1.1	1.1	A+	
1887	604586	A2	482	.440	.274	.176	.440	.081	.029	.290	-.025	-.118	.290	-.154	1.543	0.100	2.6	1.1	1.9	1.1	A+	
1888	604631	A2	962	.350	.350	.209	.255	.123	.063	.493	.493	-.239	-.147	-.078	1.889	0.075	-3.7	0.9	-3.3	0.9	A-	
1889	604606	A2	962	.313	.155	.206	.274	.313	.052	.439	-.124	-.119	-.157	.439	2.124	0.077	-1.7	0.9	-1.1	1.0	A-	
1890	604644	A2	482	.328	.307	.328	.191	.066	.108	.414	-.041	.414	-.145	-.146	1.958	0.108	-0.6	1.0	-0.2	1.0	A+	
1891	604560	A2	480	.392	.392	.219	.169	.200	.021	.313	.313	-.133	-.156	-.073	1.729	0.102	2.2	1.1	1.8	1.1	A+	
1892	604583	A2	960	.224	.224	.384	.167	.183	.042	.325	.325	-.008	-.126	-.172	2.723	0.086	2.1	1.1	2.7	1.2	A+	A+
1893	604535	A2	480	.215	.083	.331	.350	.215	.021	.344	-.119	-.172	-.045	.344	2.769	0.123	0.6	1.0	0.8	1.1	A-	
1894	604684	A2	960	.380	.103	.380	.245	.247	.025	.403	-.107	.403	-.220	-.100	1.837	0.074	0.6	1.0	0.4	1.0	A-	B-
1895	604722	A2	480	.458	.067	.244	.215	.458	.017	.458	-.143	-.173	-.234	.458	1.422	0.100	-2.8	0.9	-2.3	0.9	A+	
1896	603007	A2	960	.287	.287	.380	.241	.070	.023	.334	.334	-.192	-.090	.014	2.369	0.079	1.8	1.1	2.7	1.2	A+	A-
1897	603110	A2	480	.500	.500	.183	.185	.100	.031	.451	.451	-.264	-.175	-.111	1.177	0.100	-3.6	0.9	-2.6	0.9	A-	
1898	603029	A2	480	.160	.235	.294	.260	.160	.050	.483	-.109	-.126	-.083	.483	3.188	0.139	-1.2	0.9	-0.1	1.0	A-	
1899	604597	A2	480	.154	.075	.342	.388	.154	.042	.404	-.119	-.097	-.074	.404	3.248	0.141	0.1	1.0	1.2	1.2	A-	
1900	604608	A2	960	.367	.367	.232	.205	.164	.032	.447	.447	-.174	-.267	-.026	1.893	0.074	-1.6	1.0	-1.5	0.9	A+	A-
1901	603030	A2	960	.298	.092	.298	.369	.199	.043	.420	-.112	.420	-.148	-.163	2.241	0.078	-0.3	1.0	0.3	1.0	A+	A+
1902	604557	A2	960	.453	.453	.201	.181	.100	.065	.488	.488	-.240	-.212	-.105	1.357	0.073	-4.3	0.9	-3.6	0.9	A+	A-
1903	604584	A2	480	.408	.096	.367	.408	.090	.040	.336	-.109	-.160	.336	-.140	1.707	0.104	2.0	1.1	2.2	1.1	A-	A-
1904	604618	A2	958	.314	.216	.156	.314	.291	.023	.274	-.108	-.097	.274	-.074	2.208	0.076	3.6	1.1	3.7	1.2	A+	A+
1905	604555	A2	958	.810	.810	.087	.041	.056	.006	.418	.418	-.269	-.168	-.200	-0.367	0.087	-2.6	0.9	-3.4	0.7	A+	A-
1906	604554	A2	480	.744	.744	.127	.090	.035	.004	.437	.437	-.258	-.250	-.161	0.082	0.112	-2.1	0.9	-2.7	0.7	A+	A-
1907	604724	A2	480	.410	.410	.148	.202	.213	.027	.309	.309	-.084	-.159	-.121	1.725	0.103	2.5	1.1	2.3	1.1	A+	A+
1908	604561	A2	480	.815	.040	.815	.079	.056	.010	.369	-.217	.369	-.203	-.144	-0.419	0.126	-1.0	0.9	-1.9	0.7	A+	A-
1909	604617	A2	480	.619	.142	.619	.094	.127	.019	.354	-.103	.354	-.142	-.220	0.705	0.103	0.5	1.0	1.5	1.1	A+	A-
1910	603091	A2	958	.311	.096	.311	.336	.208	.049	.400	-.080	.400	-.155	-.121	2.174	0.077	0.2	1.0	0.8	1.0	A+	A-
1911	604598	A2	480	.204	.190	.235	.304	.204	.067	.470	-.120	-.251	.011	.470	2.889	0.126	-1.0	0.9	-0.6	0.9	A-	A-
1912	604612	A2	480	.581	.581	.169	.117	.088	.046	.469	.469	-.243	-.180	-.145	0.817	0.104	-1.5	0.9	-2.0	0.9	A-	A-
1913	604549	A2	958	.202	.138	.243	.353	.202	.065	.333	-.074	-.085	-.062	.333	2.850	0.088	0.9	1.0	1.9	1.2	A+	B-
1914	604628	A2	478	.157	.391	.157	.218	.209	.025	.105	-.009	.105	-.037	-.015	3.214	0.134	2.2	1.2	3.0	1.4	A+	
1915	604567	A2	478	.339	.084	.339	.375	.140	.063	.246	-.159	.246	-.023	-.063	1.962	0.106	3.1	1.1	2.9	1.2	A-	
1916	604620	A2	478	.425	.195	.193	.119	.425	.069	.480	-.203	-.156	-.130	.480	1.502	0.102	-2.6	0.9	-2.2	0.9	A+	
1917	604634	A2	480	.654	.060	.654	.117	.152	.017	.377	-.138	.377	-.181	-.186	0.470	0.104	-1.7	0.9	-0.1	1.0	B-	
1918	603106	A2	963	.505	.085	.081	.262	.505	.068	.374	-.168	-.175	-.070	.374	1.165	0.073	1.0	1.0	1.6	1.1	A-	A+
1919	603057	A2	482	.270	.145	.270	.303	.228	.054	.187	-.032	.187	-.009	-.010	2.395	0.112	3.5	1.2	3.8	1.3	A-	
1920	603055	A2	960	.485	.071	.217	.184	.485	.043	.423	-.156	-.120	-.248	.423	1.255	0.072	-1.4	1.0	-1.3	1.0	A-	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1921	603126	A2	482	.494	.106	.494	.293	.091	.017	.302	-.096	.302	-.116	-.197	1.307	0.099	1.5	1.1	1.2	1.1	B-	
1922	603056	A2	964	.193	.246	.421	.193	.103	.037	.045	.008	.044	.045	-.009	2.896	0.088	5.2	1.3	6.2	1.5	A+	
1923	603115	A2	964	.465	.065	.164	.284	.465	.022	.390	-.126	-.066	-.268	.390	1.369	0.072	-1.6	1.0	-1.3	1.0	A-	B-
1924	603124	A2	960	.345	.345	.283	.210	.146	.016	.379	.379	-.188	-.094	-.120	2.003	0.074	-0.1	1.0	-0.5	1.0	A+	A-
1925	603080	A2	960	.428	.083	.114	.352	.428	.023	.237	-.141	-.148	-.027	.237	1.561	0.072	4.1	1.1	5.0	1.2	A+	A-
1926	603128	A2	964	.493	.103	.266	.493	.099	.041	.236	-.048	-.147	.236	-.027	1.176	0.072	6.7	1.2	7.0	1.3	A-	A+
1927	605889	A2	962	.168	.600	.168	.061	.137	.033	.236	-.017	.236	-.076	-.070	3.180	0.094	2.4	1.1	1.6	1.2	B-	
1928	603122	A2	962	.297	.150	.297	.305	.216	.032	.402	-.082	.402	-.138	-.154	2.262	0.078	-0.6	1.0	0.1	1.0	A-	
1929	604690	A2	481	.302	.351	.302	.225	.100	.023	.265	-.022	.265	-.105	-.143	2.168	0.107	1.6	1.1	2.2	1.2	B-	
1930	605890	A2	481	.212	.040	.195	.212	.489	.064	.121	-.096	-.126	.121	.121	2.631	0.121	3.3	1.2	3.8	1.4	A+	
1931	605891	A2	962	.264	.450	.264	.087	.165	.033	.351	-.142	.351	-.090	-.083	2.425	0.080	2.0	1.1	2.4	1.1	A-	A+
1932	604692	A2	962	.458	.112	.215	.458	.177	.037	.380	-.096	-.162	.380	-.154	1.383	0.071	-0.6	1.0	-0.2	1.0	A+	A+
1933	605904	A2	963	.243	.243	.084	.572	.073	.028	.390	.390	-.143	-.156	-.071	2.689	0.083	0.4	1.0	1.2	1.1	A-	A-
1934	603123	A2	964	.744	.032	.120	.744	.062	.042	.477	-.137	-.249	.477	-.187	-0.107	0.084	-3.4	0.9	-3.7	0.7	A+	A-
1935	605905	A2	964	.449	.216	.449	.219	.069	.048	.303	-.128	.303	-.017	-.118	1.474	0.072	4.6	1.1	4.6	1.2	A-	A-
1936	603060	A2	961	.801	.030	.098	.801	.034	.036	.428	-.177	-.198	.428	-.145	-0.525	0.092	-2.2	0.9	-2.6	0.7	B-	C-
1937	604687	A2	961	.386	.073	.386	.376	.126	.040	.302	-.184	.302	-.030	-.086	1.779	0.073	4.3	1.1	4.6	1.2	A-	A+
1938	604688	A2	964	.524	.137	.185	.116	.524	.038	.370	.020	-.169	-.224	.370	1.143	0.072	2.0	1.1	2.4	1.1	A+	C-
1939	603061	A2	964	.546	.089	.156	.182	.546	.028	.449	-.152	-.189	-.194	.449	1.064	0.071	-1.7	1.0	-1.6	0.9	A-	B-
1940	604689	A2	484	.736	.035	.736	.116	.099	.015	.336	-.115	.336	-.189	-.145	0.116	0.111	-0.3	1.0	-0.2	1.0	A-	B-
1941	604723	A2	966	.598	.101	.598	.220	.036	.045	.182	-.090	.182	-.020	-.066	0.726	0.072	5.2	1.1	8.4	1.5	A+	A+
1942	603092	A2	484	.843	.033	.843	.050	.035	.039	.389	-.119	.389	-.195	-.164	-0.867	0.146	-0.9	0.9	-1.6	0.7	A+	C-
1943	603093	A2	960	.643	.075	.116	.643	.156	.010	.331	-.126	-.174	.331	-.161	0.609	0.072	-0.5	1.0	0.2	1.0	A-	
1944	603113	A2	964	.553	.082	.553	.209	.119	.037	.463	-.151	.463	-.216	-.168	0.968	0.071	-4.6	0.9	-3.9	0.9	A-	
1945	603107	A2	960	.325	.020	.293	.341	.325	.022	.391	-.067	-.219	-.106	.391	2.139	0.076	1.2	1.0	0.4	1.0	A-	A-
1946	603068	A2	480	.581	.073	.154	.581	.144	.048	.258	-.049	-.166	.258	-.045	0.732	0.103	2.9	1.1	3.2	1.3	A-	
1947	603054	A2	480	.331	.331	.113	.302	.185	.069	.482	.482	-.134	-.204	-.149	1.942	0.108	-2.3	0.9	-2.0	0.9	A-	
1948	603069	A2	958	.228	.152	.204	.366	.228	.050	.351	-.078	-.086	-.106	.351	2.700	0.085	1.0	1.0	1.3	1.1	A-	A+
1949	603108	A2	958	.161	.120	.311	.161	.372	.037	-.043	.079	-.096	-.043	.111	3.226	0.095	6.1	1.4	8.4	2.0	A-	A-
1950	657875	6	162	.463	.179	.204	.154	.463	.000	.000	.004	-.061	.064	.000	-0.073	0.177	6.4	1.5	5.5	1.7	A+	
1951	657876	6	298	.245	.101	.245	.138	.517	.000	-.096	-.149	-.096	-.172	.290	1.338	0.144	4.5	1.3	6.9	2.2	B-	
1952	657877	6	304	.181	.049	.181	.359	.411	.000	.044	-.041	.044	-.036	.019	1.711	0.158	2.0	1.2	5.1	2.2	A-	
1953	657878	6	306	.049	.049	.098	.775	.078	.000	-.137	-.137	-.318	.380	-.129	3.389	0.273	0.7	1.1	5.2	4.8	A-	
1954	657879	6	172	.442	.081	.215	.262	.442	.000	.422	-.210	-.218	-.142	.422	0.012	0.169	-0.7	1.0	-0.4	1.0	B+	
1955	657880	6	169	.278	.077	.278	.414	.231	.000	.243	-.008	.243	-.354	.160	0.950	0.187	0.8	1.1	2.3	1.4	A-	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1956	657881	6	326	.442	.138	.163	.258	.442	.000	.167	.025	-.170	-.066	.167	0.231	0.123	4.7	1.2	4.9	1.4	A+	
1957	657882	6	152	.283	.276	.105	.336	.283	.000	.070	.055	-.120	-.041	.070	0.908	0.195	2.6	1.2	3.7	1.7	A+	
1958	657883	6	167	.659	.659	.156	.072	.114	.000	.447	.447	-.353	-.086	-.194	-1.078	0.184	-0.2	1.0	-0.5	0.9	A-	
1959	657884	6	169	.325	.172	.361	.142	.325	.000	.322	-.032	-.142	-.202	.322	0.592	0.182	1.0	1.1	1.1	1.2	A-	
1960	657885	6	286	.217	.364	.294	.126	.217	.000	.158	-.126	-.192	.250	.158	1.485	0.153	1.0	1.1	4.9	2.0	A+	A+
1961	657886	6	182	.176	.401	.176	.236	.187	.000	.046	-.072	.046	-.079	.132	1.608	0.206	1.3	1.2	4.4	2.3	A-	
1962	657887	6	182	.418	.236	.154	.418	.192	.000	.131	-.062	-.079	.131	-.026	0.150	0.168	4.4	1.3	4.5	1.6	A+	
1963	657888	6	295	.176	.176	.278	.407	.139	.000	.160	.160	-.040	-.165	.108	1.687	0.162	0.5	1.1	4.3	2.1	B-	
1964	657899	6	284	.873	.873	.035	.053	.039	.000	.368	.368	-.340	-.119	-.171	-2.453	0.194	-0.3	1.0	0.1	1.0	C+	
1965	657936	6	181	.204	.204	.343	.249	.204	.000	.306	-.191	-.039	-.065	.306	1.392	0.198	-0.1	1.0	0.4	1.1	A-	
1966	657937	6	183	.404	.208	.404	.219	.169	.000	.292	-.021	.292	-.273	-.059	0.202	0.168	1.5	1.1	2.8	1.3	A-	
1967	657938	6	177	.492	.107	.141	.260	.492	.000	.513	-.196	-.183	-.302	.513	-0.038	0.168	-1.8	0.9	-2.0	0.8	A+	
1968	657939	6	165	.655	.061	.206	.655	.079	.000	.490	-.231	-.266	.490	-.262	-1.017	0.183	-1.0	0.9	-1.4	0.8	B-	
1969	657940	6	318	.478	.031	.399	.478	.091	.000	.385	-.068	-.292	.385	-.130	0.071	0.124	0.1	1.0	0.0	1.0	A-	
1970	657941	6	300	.510	.263	.143	.510	.083	.000	.416	-.205	-.214	.416	-.156	-0.169	0.128	-0.5	1.0	-0.3	1.0	A+	
1971	657942	6	307	.254	.254	.248	.186	.313	.000	.260	.260	-.141	.005	-.118	1.081	0.142	0.3	1.0	5.3	1.9	A-	
1972	657943	6	287	.718	.038	.098	.718	.146	.000	.262	-.185	-.109	.262	-.142	-1.224	0.144	1.9	1.1	1.4	1.2	A+	
1973	657944	6	276	.605	.094	.605	.199	.101	.000	.264	-.080	.264	-.146	-.157	-0.568	0.135	1.8	1.1	1.5	1.1	A-	
1974	657945	6	178	.332	.320	.332	.264	.084	.000	.218	-.043	.218	-.113	-.119	0.527	0.174	1.8	1.1	2.0	1.3	B-	
1975	657946	6	177	.401	.401	.322	.203	.073	.000	.098	.098	.014	-.008	-.196	0.358	0.169	4.4	1.3	3.7	1.5	A+	
1976	657947	6	176	.426	.426	.284	.216	.074	.000	.304	.304	-.158	-.220	.042	0.091	0.171	1.7	1.1	2.5	1.3	A+	
1977	657948	6	152	.355	.217	.224	.355	.204	.000	.245	-.150	-.346	.245	.220	0.276	0.188	1.7	1.1	2.8	1.5	A+	
1978	657949	6	166	.139	.139	.217	.530	.115	.000	-.089	-.089	.049	.151	-.204	1.908	0.240	1.7	1.3	5.2	3.5	A+	
1979	657950	6	161	.441	.180	.273	.441	.106	.000	.210	-.097	-.189	.210	.057	0.054	0.176	2.8	1.2	3.5	1.4	A-	
1980	657976	6	306	.556	.232	.095	.556	.118	.000	.351	-.069	-.245	.351	-.229	-0.347	0.129	1.2	1.1	2.2	1.2	A+	
1981	657977	6	180	.450	.161	.450	.261	.128	.000	.353	.008	.353	-.325	-.107	0.047	0.166	0.6	1.0	1.3	1.1	A-	
1982	657978	6	159	.226	.082	.484	.208	.226	.000	.391	-.111	-.291	.030	.391	1.177	0.204	-0.8	0.9	-0.8	0.8	A+	
1983	657979	6	174	.132	.132	.132	.207	.529	.000	.312	.312	-.063	-.206	-.002	2.034	0.235	-0.5	0.9	-0.2	0.9	A+	
1984	657980	6	319	.495	.097	.138	.495	.270	.000	.346	-.094	-.169	.346	-.195	-0.185	0.125	1.3	1.1	1.6	1.1	A+	
1985	657981	6	310	.319	.136	.329	.216	.319	.000	.376	-.191	-.100	-.153	.376	0.759	0.135	-0.5	1.0	1.9	1.2	A-	
1986	657982	6	340	.382	.382	.391	.153	.074	.000	.384	.384	-.217	-.203	-.030	0.595	0.123	-0.2	1.0	1.4	1.1	A+	
1987	657983	6	182	.330	.028	.489	.330	.154	.000	.289	-.150	-.129	.289	-.130	0.624	0.172	1.0	1.1	1.3	1.2	A-	
1988	657984	6	177	.429	.102	.322	.147	.429	.000	.392	-.142	-.234	-.117	.392	0.200	0.167	-0.1	1.0	-0.3	1.0	A+	
1989	657985	6	317	.350	.271	.186	.192	.350	.000	.335	.000	-.238	-.171	.335	0.550	0.129	0.1	1.0	2.8	1.3	B+	
1990	657986	6	312	.401	.157	.282	.401	.160	.000	.214	-.207	-.076	.214	.012	0.394	0.127	3.0	1.2	4.0	1.4	A+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1991	657987	6	302	.358	.070	.113	.460	.358	.000	.260	-.150	-.221	-.033	.260	0.513	0.133	2.0	1.1	3.8	1.4	A+	
1992	657988	6	180	.122	.122	.233	.206	.439	.000	.215	.215	-.138	-.144	.093	1.917	0.240	-0.3	1.0	2.1	1.8	A+	
1993	657989	6	154	.188	.175	.474	.162	.188	.000	.342	-.228	.010	-.140	.342	1.510	0.221	-0.4	0.9	0.0	1.0	A-	
1994	657990	6	154	.494	.494	.130	.162	.214	.000	.365	.365	-.173	-.137	-.179	-0.243	0.178	0.1	1.0	0.1	1.0	A+	
1995	657991	6	307	.407	.195	.248	.407	.150	.000	.271	-.144	-.052	.271	-.151	0.360	0.127	1.5	1.1	3.2	1.3	A+	
1996	657992	6	155	.477	.477	.348	.084	.090	.000	.341	.341	-.090	-.321	-.134	-0.266	0.181	0.9	1.1	3.1	1.4	A-	
1997	657993	6	288	.663	.663	.146	.115	.076	.000	.430	.430	-.201	-.289	-.152	-0.863	0.138	-0.4	1.0	-0.8	0.9	A-	
1998	657994	6	314	.455	.210	.172	.455	.162	.000	.350	-.083	-.196	.350	-.181	0.230	0.126	0.8	1.0	1.6	1.1	A-	
1999	657995	6	326	.896	.028	.896	.068	.009	.000	.386	-.107	.386	-.325	-.197	-2.689	0.194	-0.8	0.9	-1.2	0.7	A+	
2000	657996	6	311	.621	.174	.621	.100	.106	.000	.349	-.180	.349	-.221	-.114	-0.777	0.130	1.1	1.1	0.4	1.0	A-	B-
2001	657997	6	290	.521	.300	.114	.066	.521	.000	.450	-.153	-.213	-.351	.450	-0.338	0.133	-0.5	1.0	-0.6	1.0	A+	
2002	657998	6	295	.268	.563	.102	.268	.068	.000	.056	.249	-.351	.056	-.167	1.111	0.142	3.4	1.2	5.5	1.9	A-	
2003	657999	6	291	.409	.175	.409	.282	.134	.000	.261	.122	.261	-.149	-.316	0.270	0.131	2.4	1.1	2.8	1.3	B-	
2004	658000	6	301	.535	.535	.269	.136	.060	.000	.417	.417	-.290	-.187	-.064	-0.398	0.129	-0.5	1.0	0.3	1.0	A-	
2005	658051	6	305	.315	.338	.315	.193	.154	.000	.062	-.114	.062	-.047	.121	0.786	0.135	4.2	1.3	6.8	1.9	A-	
2006	658052	6	281	.644	.164	.644	.146	.046	.000	.345	-.292	.345	-.113	-.081	-1.035	0.140	1.6	1.1	1.2	1.1	A+	
2007	658053	6	303	.419	.178	.419	.185	.218	.000	.069	.016	.069	-.153	.046	0.281	0.128	6.0	1.3	7.3	1.7	A-	
2008	658056	6	300	.553	.133	.553	.243	.070	.000	.433	-.124	.433	-.324	-.133	-0.342	0.129	-1.0	1.0	0.5	1.0	A-	
2009	658057	6	185	.730	.038	.103	.130	.730	.000	.556	-.268	-.329	-.285	.556	-1.576	0.185	-1.9	0.8	-2.2	0.7	A+	
2010	658058	6	167	.287	.216	.353	.144	.287	.000	.300	-.186	-.073	-.068	.300	1.065	0.189	0.3	1.0	5.5	2.3	A+	
2011	658059	6	301	.621	.621	.140	.176	.063	.000	.430	.430	-.304	-.106	-.258	-0.611	0.131	-0.9	1.0	-0.7	0.9	A+	
2012	658061	6	291	.608	.096	.608	.131	.165	.000	.430	-.152	.430	-.238	-.228	-0.700	0.135	-0.2	1.0	-0.5	1.0	A-	
2013	658062	6	174	.207	.362	.293	.138	.207	.000	.407	-.219	-.008	-.163	.407	1.434	0.202	-1.3	0.9	1.2	1.3	A+	
2014	658064	6	184	.788	.054	.788	.103	.054	.000	.342	-.232	.342	-.251	-.046	-1.802	0.199	0.4	1.0	0.2	1.0	B+	
2015	658065	6	318	.682	.082	.129	.107	.682	.000	.497	-.179	-.297	-.268	.497	-1.037	0.134	-1.7	0.9	-1.9	0.8	B+	
2016	658066	6	306	.229	.360	.206	.206	.229	.000	.414	-.063	-.267	-.089	.414	1.429	0.146	-1.5	0.9	-1.2	0.8	A+	
2017	658067	6	167	.329	.365	.174	.329	.132	.000	.368	-.107	-.303	.368	-.019	0.662	0.180	-0.4	1.0	0.8	1.1	A-	
2018	658068	6	286	.465	.224	.189	.122	.465	.000	.395	-.173	-.213	-.127	.395	0.074	0.132	-0.1	1.0	0.4	1.0	A-	
2019	658069	6	298	.440	.440	.208	.302	.050	.000	.189	.189	-.074	-.060	-.165	0.315	0.129	4.1	1.2	4.5	1.4	A-	
2020	658071	6	324	.460	.111	.460	.244	.185	.000	.263	-.181	.263	-.177	.005	0.085	0.123	2.7	1.1	4.0	1.3	A+	
2021	658119	6	169	.462	.462	.231	.201	.107	.000	.362	.362	-.260	-.163	-.019	-0.054	0.174	1.0	1.1	1.9	1.2	A+	
2022	658135	6	174	.529	.161	.529	.126	.184	.000	.391	-.266	.391	-.185	-.092	-0.408	0.170	0.3	1.0	1.2	1.1	A-	
2023	658164	6	184	.620	.620	.152	.130	.098	.000	.311	.311	-.184	-.109	-.162	-0.718	0.170	1.5	1.1	1.5	1.2	B+	
2024	658176	6	168	.417	.089	.250	.244	.417	.000	.300	-.198	-.201	-.011	.300	0.163	0.176	1.3	1.1	3.1	1.4	B+	
2025	658225	6	292	.394	.171	.240	.195	.394	.000	.375	-.100	-.116	-.242	.375	0.424	0.133	-0.3	1.0	2.1	1.2	A+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
2026	658252	6	307	.280	.147	.189	.384	.280	.000	.164	-.087	.040	-.120	.164	1.068	0.138	1.9	1.1	4.9	1.7	B-	
2027	658263	6	321	.421	.268	.168	.421	.143	.000	.264	-.175	-.100	.264	-.044	0.356	0.125	2.8	1.1	2.6	1.2	A-	
2028	658277	6	167	.281	.281	.222	.281	.216	.000	.079	.079	-.157	.052	.016	0.880	0.186	2.2	1.2	5.0	2.1	A+	
2029	658298	6	172	.233	.233	.204	.413	.151	.000	.279	.279	-.105	-.058	-.130	1.118	0.198	-0.2	1.0	4.2	2.2	A+	
2030	658299	6	278	.619	.119	.619	.119	.144	.000	.478	-.254	.478	-.179	-.263	-0.865	0.139	-0.8	1.0	-1.3	0.9	A-	
2031	658309	6	315	.311	.311	.321	.333	.035	.000	.384	.384	-.232	-.104	-.112	0.871	0.132	-0.9	1.0	-0.5	0.9	A-	
2032	658313	6	307	.251	.352	.238	.160	.251	.000	.368	-.158	.001	-.230	.368	1.239	0.143	-0.8	1.0	0.1	1.0	A-	
2033	658329	6	288	.559	.243	.139	.559	.059	.000	.427	-.104	-.341	.427	-.208	-0.308	0.133	0.0	1.0	-0.6	1.0	A-	
2034	658380	6	156	.321	.295	.167	.321	.218	.000	.320	-.111	-.258	.320	-.007	0.633	0.190	0.7	1.1	1.8	1.3	A-	
2035	658381	6	309	.327	.282	.301	.327	.091	.000	.285	-.005	-.182	.285	-.168	0.737	0.132	1.3	1.1	1.3	1.1	A-	
2036	658392	6	294	.422	.248	.174	.422	.157	.000	.383	-.056	-.158	.383	-.290	0.130	0.132	0.5	1.0	1.5	1.1	A-	
2037	658395	6	286	.654	.654	.122	.147	.077	.000	.369	.369	-.164	-.281	-.083	-0.971	0.140	0.9	1.1	1.5	1.1	A-	
2038	658411	6	179	.553	.235	.553	.145	.067	.000	.016	-.119	.016	.118	.005	-0.503	0.169	6.2	1.5	6.0	1.7	A+	
2039	658430	6	179	.363	.156	.363	.363	.117	.000	.225	-.205	.225	-.093	.035	0.475	0.171	2.2	1.2	2.1	1.3	A-	
2040	658466	6	311	.788	.080	.788	.090	.042	.000	.393	-.158	.393	-.216	-.279	-1.785	0.152	-0.3	1.0	0.0	1.0	A+	
2041	658467	6	314	.481	.131	.481	.319	.070	.000	.260	-.228	.260	-.013	-.184	-0.067	0.126	2.9	1.1	4.1	1.3	A-	
2042	658523	6	306	.814	.065	.814	.039	.082	.000	.385	-.163	.385	-.090	-.336	-1.937	0.161	0.0	1.0	-0.8	0.9	A-	
2043	658557	6	167	.557	.186	.557	.150	.108	.000	.420	-.315	.420	-.119	-.140	-0.475	0.175	0.1	1.0	0.4	1.0	A+	
2044	658571	6	317	.530	.142	.088	.240	.530	.000	.364	-.211	-.358	-.016	.364	-0.315	0.125	1.0	1.1	0.6	1.0	A+	
2045	658572	6	166	.398	.169	.319	.398	.115	.000	.378	-.073	-.141	.378	-.290	0.154	0.175	0.1	1.0	0.4	1.0	A+	
2046	658574	6	159	.635	.635	.094	.069	.201	.000	.546	.546	-.290	-.299	-.255	-0.960	0.187	-1.6	0.9	-1.7	0.8	A-	
2047	658575	6	312	.869	.869	.055	.032	.045	.000	.412	.412	-.295	-.215	-.167	-2.460	0.182	-0.5	0.9	-1.7	0.7	A+	B-
2048	658586	6	283	.357	.357	.297	.166	.180	.000	.397	.397	-.154	-.118	-.199	0.681	0.136	-0.9	1.0	0.1	1.0	A-	
2049	658587	6	321	.564	.100	.212	.125	.564	.000	.546	-.165	-.272	-.334	.546	-0.409	0.126	-3.0	0.9	-2.6	0.8	A+	
2050	659340	6	313	.425	.329	.115	.425	.131	.000	.363	-.184	-.213	.363	-.075	0.222	0.128	1.0	1.1	1.3	1.1	B-	
2051	659341	6	298	.681	.060	.681	.235	.024	.000	.283	-.276	.283	-.110	-.129	-0.976	0.139	2.1	1.2	2.3	1.2	A-	
2052	659342	6	195	.436	.226	.190	.436	.149	.000	.245	-.103	-.028	.245	-.190	0.354	0.161	2.7	1.2	2.9	1.3	A+	
2053	659344	6	307	.599	.599	.042	.124	.235	.000	.492	.492	-.218	-.294	-.237	-0.611	0.130	-1.6	0.9	-2.0	0.9	A-	
2054	659345	6	320	.678	.100	.678	.113	.109	.000	.172	-.089	.172	-.111	-.059	-1.074	0.133	3.9	1.3	3.5	1.4	A-	
2055	659346	6	170	.177	.241	.177	.406	.177	.000	.346	-.031	-.166	-.113	.346	1.570	0.216	-0.4	1.0	0.2	1.0	A-	
2056	659347	6	193	.358	.078	.358	.497	.067	.000	-.068	-.056	-.068	.147	-.103	0.393	0.166	5.9	1.5	7.2	2.2	A-	
2057	659348	6	291	.557	.103	.165	.557	.175	.000	.428	-.228	-.210	.428	-.172	-0.373	0.130	-1.2	0.9	-0.7	1.0	A-	
2058	659349	6	298	.732	.091	.111	.732	.067	.000	.412	-.163	-.274	.412	-.199	-1.205	0.145	0.0	1.0	-0.8	0.9	A-	A+
2059	659381	6	177	.367	.311	.243	.367	.079	.000	.177	.092	-.296	.177	-.002	0.400	0.173	3.5	1.3	2.6	1.3	B-	
2060	659383	6	270	.107	.415	.156	.107	.322	.000	-.106	.059	-.172	-.106	.141	2.392	0.204	1.2	1.2	6.6	4.2	A-	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
2061	659385	6	181	.370	.238	.370	.238	.155	.000	.001	-.033	.001	.023	.011	0.506	0.168	4.6	1.3	5.3	1.7	A+	
2062	659386	6	158	.051	.222	.209	.519	.051	.000	.045	-.348	-.051	.311	.045	3.255	0.372	0.1	1.0	3.3	3.8	A-	
2063	659387	6	307	.332	.147	.332	.355	.166	.000	.220	-.232	.220	.048	-.119	0.684	0.134	2.7	1.2	4.3	1.5	A-	
2064	659389	6	279	.416	.172	.212	.201	.416	.000	.370	-.090	-.123	-.246	.370	0.330	0.135	-0.2	1.0	2.2	1.2	A-	
2065	660528	6	189	.497	.497	.323	.122	.058	.000	.531	.531	-.162	-.390	-.266	-0.299	0.165	-2.2	0.9	-0.6	0.9	A+	
2066	660529	6	173	.809	.041	.110	.809	.041	.000	.332	-.181	-.202	.332	-.160	-2.067	0.212	0.4	1.1	-0.2	0.9	A+	
2067	660530	6	172	.180	.238	.279	.302	.180	.000	.171	.083	-.220	-.005	.171	1.606	0.213	0.7	1.1	3.1	2.1	A-	
2068	660531	6	321	.277	.576	.277	.081	.065	.000	.010	.187	.010	-.290	-.072	1.077	0.134	3.6	1.2	6.5	1.9	A+	
2069	660562	6	184	.250	.250	.179	.342	.228	.000	-.034	-.034	-.013	.169	-.144	1.098	0.184	3.4	1.3	4.8	2.0	A+	
2070	660563	6	167	.413	.275	.198	.413	.114	.000	.249	-.124	-.095	.249	-.093	0.164	0.173	2.4	1.2	1.8	1.2	A-	
2071	662164	6	172	.256	.297	.256	.331	.116	.000	.229	.210	.229	-.279	-.201	1.066	0.192	1.3	1.1	2.4	1.5	A+	
2072	662165	6	304	.543	.171	.095	.191	.543	.000	.488	-.154	-.248	-.286	.488	-0.265	0.128	-1.8	0.9	-1.8	0.9	A+	
2073	662166	6	186	.538	.118	.296	.048	.538	.000	.445	-.290	-.188	-.199	.445	-0.385	0.167	0.1	1.0	-0.3	1.0	A+	
2074	662167	6	283	.657	.081	.230	.657	.032	.000	.377	-.149	-.291	.377	-.093	-0.992	0.140	0.5	1.0	0.6	1.1	B+	
2075	662168	6	169	.391	.231	.172	.391	.207	.000	.319	-.043	-.203	.319	-.150	0.341	0.176	1.3	1.1	1.5	1.2	A-	
2076	662169	6	159	.509	.509	.220	.170	.101	.000	.303	.303	.086	-.246	-.315	-0.198	0.177	2.1	1.2	1.1	1.1	A+	
2077	662170	6	189	.217	.217	.286	.138	.360	.000	-.017	-.017	.039	-.056	.018	1.445	0.190	2.3	1.2	7.1	3.5	B-	
2078	662171	6	162	.241	.432	.241	.117	.210	.000	.214	-.190	.214	-.019	.020	1.171	0.199	0.7	1.1	3.5	1.9	B-	
2079	662172	6	141	.326	.121	.199	.355	.326	.000	.194	-.191	-.008	-.054	.194	0.630	0.198	1.6	1.1	4.7	2.0	A-	
2080	662173	6	169	.254	.254	.178	.509	.059	.000	.115	.115	-.118	.038	-.104	0.934	0.192	2.0	1.2	4.5	2.0	A+	
2081	662175	6	167	.521	.114	.204	.521	.162	.000	.454	-.043	-.180	.454	-.383	-0.402	0.177	-0.2	1.0	0.8	1.1	A+	
2082	662176	6	172	.552	.052	.145	.552	.250	.000	.243	-.008	-.083	.243	-.207	-0.518	0.175	3.2	1.3	3.2	1.4	A+	
2083	662204	6	165	.424	.424	.182	.182	.212	.000	.125	.125	-.086	-.131	.054	0.269	0.174	3.8	1.3	4.9	1.7	A-	
2084	662205	6	267	.794	.015	.142	.049	.794	.000	.419	-.250	-.271	-.207	.419	-1.724	0.167	-0.5	1.0	-0.5	0.9	B+	
2085	662207	6	297	.306	.199	.306	.391	.104	.000	.008	-.250	.008	.184	.021	0.912	0.137	5.3	1.3	6.5	2.0	A-	
2086	662208	6	303	.861	.020	.861	.050	.069	.000	.410	-.147	.410	-.320	-.205	-2.298	0.181	-0.7	0.9	-0.8	0.8	B-	
2087	662209	6	171	.515	.129	.281	.515	.076	.000	.443	-.275	-.184	.443	-.175	-0.311	0.170	-0.8	1.0	-0.3	1.0	B-	
2088	662210	6	282	.553	.167	.177	.553	.103	.000	.510	-.279	-.189	.510	-.255	-0.308	0.133	-2.8	0.9	-1.7	0.9	A-	
2089	662211	6	198	.288	.222	.253	.237	.288	.000	.332	-.177	-.173	-.004	.332	0.819	0.171	-0.4	1.0	2.1	1.3	A+	
2090	662212	6	300	.443	.283	.203	.443	.070	.000	.349	-.074	-.170	.349	-.280	0.200	0.130	1.3	1.1	1.6	1.1	A-	
2091	662214	6	167	.569	.084	.287	.569	.060	.000	.402	-.264	-.256	.402	-.043	-0.523	0.175	0.1	1.0	0.0	1.0	B+	
2092	662215	6	174	.793	.086	.109	.012	.793	.000	.345	-.205	-.212	-.152	.345	-1.977	0.210	1.1	1.1	-0.1	1.0	A+	
2093	662216	6	182	.901	.039	.901	.033	.028	.000	.389	-.269	.389	-.067	-.321	-2.792	0.270	-0.3	0.9	-0.3	0.9	A+	
2094	662241	6	166	.127	.187	.530	.157	.127	.000	.249	-.001	-.005	-.220	.249	2.064	0.245	0.1	1.0	-0.2	0.9	A+	A-
2095	662242	6	178	.848	.848	.039	.023	.090	.000	.546	.546	-.240	-.174	-.432	-2.425	0.229	-1.7	0.8	-2.1	0.5	A+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
2096	662243	6	161	.311	.385	.311	.155	.149	.000	.005	.191	.005	-.259	-.004	0.827	0.187	4.3	1.4	4.5	1.9	A+	
2097	662244	6	157	.459	.159	.459	.147	.236	.000	.032	-.187	.032	-.023	.143	0.013	0.179	5.7	1.5	5.6	1.7	A-	
2098	662245	6	159	.711	.088	.088	.711	.113	.000	.412	-.242	-.186	.412	-.208	-1.306	0.194	0.0	1.0	-0.3	0.9	B-	
2099	662246	6	278	.543	.194	.543	.184	.079	.000	.333	-.089	.333	-.161	-.254	-0.302	0.134	1.3	1.1	1.3	1.1	A+	
2100	662247	6	173	.642	.064	.156	.642	.139	.000	.244	-.004	-.071	.244	-.260	-0.882	0.180	2.8	1.3	2.1	1.3	B-	
2101	662248	6	304	.500	.112	.500	.362	.026	.000	.156	-.321	.156	.097	-.147	-0.201	0.128	5.4	1.3	4.8	1.4	A+	
2102	662249	6	291	.491	.491	.151	.217	.141	.000	.485	.485	-.320	-.176	-.160	-0.137	0.131	-2.1	0.9	-0.8	0.9	A+	
2103	662250	6	295	.515	.125	.264	.095	.515	.000	.537	-.038	-.390	-.285	.537	-0.227	0.130	-3.2	0.9	-2.6	0.8	A+	
2104	662251	6	194	.371	.371	.150	.345	.134	.000	.315	.315	-.214	.047	-.289	0.377	0.166	1.3	1.1	1.6	1.2	A+	
2105	662252	6	290	.348	.166	.348	.255	.231	.000	.099	.033	.099	-.069	-.070	0.748	0.136	4.6	1.3	6.6	1.8	A-	
2106	657795	7	653	.294	.294	.279	.340	.087	.000	.291	.291	-.138	-.105	-.074	1.227	0.094	1.2	1.1	3.6	1.3	B-	
2107	657797	7	661	.239	.239	.362	.235	.165	.000	-.069	-.069	.130	-.116	.044	1.526	0.099	7.4	1.4	9.9	2.6	A-	
2108	657798	7	715	.259	.340	.298	.259	.104	.000	.059	-.020	-.023	.059	-.019	1.458	0.092	5.2	1.2	9.9	2.4	A+	
2109	657799	7	690	.457	.151	.457	.259	.133	.000	.165	-.126	.165	.039	-.159	0.423	0.085	7.0	1.2	8.6	1.5	A+	A-
2110	657801	7	758	.416	.410	.416	.119	.055	.000	.237	-.057	.237	-.203	-.101	0.612	0.082	4.3	1.1	7.6	1.5	A+	
2111	657804	7	706	.140	.568	.140	.255	.037	.000	-.183	.259	-.183	-.117	-.073	2.391	0.114	3.4	1.3	9.9	4.7	A-	A+
2112	657805	7	661	.581	.581	.272	.077	.070	.000	.471	.471	-.226	-.260	-.247	-0.249	0.088	-1.7	0.9	-1.7	0.9	A+	A+
2113	657807	7	699	.385	.385	.270	.157	.187	.000	.148	.148	-.080	-.200	.093	0.719	0.086	7.1	1.3	8.8	1.6	A-	
2114	657808	7	723	.261	.170	.375	.261	.194	.000	.039	.057	-.044	.039	-.043	1.468	0.092	5.7	1.3	9.9	2.2	A+	A+
2115	657809	7	696	.316	.122	.300	.262	.316	.000	.144	-.030	-.065	-.062	.144	1.058	0.090	5.7	1.2	8.1	1.8	A+	
2116	657810	7	665	.134	.071	.108	.687	.134	.000	.219	-.244	-.248	.140	.219	2.394	0.120	-0.4	1.0	4.2	1.8	A+	B+
2117	657811	7	720	.631	.044	.631	.118	.207	.000	.384	-.183	.384	-.262	-.155	-0.497	0.087	1.4	1.1	1.2	1.1	A-	A-
2118	657815	7	709	.484	.210	.205	.484	.102	.000	.336	-.215	-.129	.336	-.093	0.312	0.084	2.1	1.1	3.3	1.2	A-	A-
2119	657816	7	718	.362	.373	.362	.127	.138	.000	.087	.113	.087	-.260	-.029	0.814	0.086	8.4	1.3	9.9	1.9	A-	
2120	657819	7	705	.184	.562	.200	.184	.054	.000	-.030	.205	-.125	-.030	-.176	1.988	0.104	4.0	1.3	9.9	3.0	A+	
2121	657820	7	749	.768	.039	.081	.112	.768	.000	.494	-.254	-.316	-.232	.494	-1.354	0.098	-1.3	0.9	-1.6	0.9	B+	B-
2122	657821	7	675	.453	.287	.169	.453	.090	.000	.365	-.130	-.229	.365	-.129	0.405	0.086	0.1	1.0	4.3	1.3	A-	A-
2123	657822	7	687	.272	.080	.234	.413	.272	.000	.265	-.180	-.189	.021	.265	1.299	0.093	1.0	1.0	4.1	1.4	A-	A+
2124	657823	7	701	.411	.181	.243	.411	.166	.000	.224	-.050	-.127	.224	-.097	0.603	0.085	5.0	1.2	6.0	1.4	A-	A-
2125	657824	7	694	.343	.130	.287	.241	.343	.000	.151	-.109	-.045	-.034	.151	0.897	0.089	7.0	1.3	6.7	1.6	A+	
2126	657825	7	712	.291	.143	.275	.291	.291	.000	.261	-.088	-.063	-.131	.261	1.212	0.090	2.0	1.1	3.7	1.3	A-	
2127	657826	7	708	.482	.041	.482	.356	.122	.000	.207	-.251	.207	-.091	-.030	0.255	0.084	6.4	1.2	6.7	1.4	A+	
2128	657827	7	706	.465	.062	.465	.217	.256	.000	.334	-.188	.334	-.264	-.029	0.329	0.084	2.0	1.1	4.4	1.3	A-	A-
2129	657828	7	693	.222	.228	.432	.222	.118	.000	.024	-.006	-.079	.024	.099	1.711	0.099	4.6	1.3	9.4	2.4	A+	
2130	657829	7	724	.699	.113	.699	.087	.101	.000	.300	-.222	.300	-.104	-.126	-0.942	0.092	4.2	1.2	2.5	1.2	A+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
2131	657830	7	713	.467	.140	.467	.286	.107	.000	.235	-.177	.235	-.082	-.061	0.330	0.084	5.8	1.2	7.5	1.5	A+	A+
2132	657831	7	721	.609	.108	.609	.207	.076	.000	.341	-.296	.341	-.086	-.149	-0.456	0.086	2.4	1.1	3.0	1.2	A-	
2133	657832	7	646	.098	.173	.060	.098	.669	.000	-.095	-.135	-.298	-.095	.319	2.893	0.138	1.5	1.2	8.2	3.6	C-	
2134	657833	7	710	.549	.549	.190	.130	.131	.000	.475	.475	-.253	-.267	-.141	-0.077	0.085	-1.9	0.9	-1.8	0.9	A-	A-
2135	657834	7	707	.359	.023	.311	.307	.359	.000	.493	-.210	-.282	-.162	.493	0.970	0.087	-4.2	0.9	-0.6	1.0	A-	A-
2136	657835	7	684	.624	.091	.624	.173	.113	.000	.353	-.199	.353	-.226	-.090	-0.421	0.089	2.4	1.1	1.8	1.1	A+	A-
2137	657836	7	686	.523	.156	.523	.184	.137	.000	.273	-.109	.273	-.188	-.071	0.086	0.085	4.2	1.1	5.2	1.3	A+	
2138	657837	7	672	.274	.429	.167	.131	.274	.000	.430	-.134	-.145	-.213	.430	1.334	0.094	-2.9	0.9	0.3	1.0	A-	B-
2139	657838	7	683	.583	.231	.129	.583	.057	.000	.573	-.348	-.313	.573	-.133	-0.222	0.087	-5.2	0.8	-4.9	0.8	A-	A+
2140	657839	7	691	.489	.151	.182	.489	.178	.000	.231	-.114	-.069	.231	-.126	0.178	0.085	5.4	1.2	6.8	1.4	A+	
2141	657840	7	722	.562	.223	.562	.137	.078	.000	.289	.006	.289	-.260	-.210	-0.148	0.084	3.9	1.1	4.1	1.2	A+	A-
2142	657841	7	734	.375	.375	.180	.199	.247	.000	.276	.276	-.161	-.235	.052	0.754	0.084	3.0	1.1	5.6	1.4	A+	
2143	657842	7	738	.472	.472	.305	.113	.111	.000	.093	.093	.016	-.162	-.007	0.353	0.082	9.9	1.4	9.5	1.5	A-	A+
2144	657843	7	741	.619	.619	.174	.144	.062	.000	.235	.235	-.056	-.136	-.187	-0.435	0.086	6.0	1.3	6.0	1.4	A+	
2145	657844	7	722	.231	.298	.380	.231	.091	.000	-.004	-.024	.090	-.004	-.109	1.610	0.095	5.2	1.3	9.9	3.1	A+	
2146	657845	7	724	.192	.160	.413	.235	.192	.000	.169	-.075	-.011	-.079	.169	1.915	0.101	1.7	1.1	5.0	1.7	A-	B-
2147	657846	7	722	.247	.114	.314	.326	.247	.000	.097	-.110	.015	-.030	.097	1.505	0.093	4.3	1.2	7.7	1.9	A+	
2148	657847	7	671	.560	.064	.560	.288	.088	.000	.451	-.163	.451	-.257	-.239	-0.182	0.089	0.1	1.0	0.2	1.0	A-	
2149	657848	7	682	.485	.249	.202	.485	.063	.000	.422	-.202	-.260	.422	-.080	0.298	0.085	-1.2	1.0	1.3	1.1	A-	
2150	657849	7	676	.681	.118	.681	.120	.081	.000	.344	-.118	.344	-.178	-.236	-0.769	0.093	2.3	1.1	2.0	1.2	A+	
2151	657889	7	667	.411	.210	.411	.271	.108	.000	.299	-.056	.299	-.095	-.264	0.618	0.088	2.8	1.1	4.9	1.3	A-	
2152	657890	7	722	.622	.127	.105	.145	.622	.000	.521	-.255	-.346	-.174	.521	-0.496	0.087	-2.7	0.9	-2.4	0.9	A-	
2153	657891	7	674	.407	.407	.151	.349	.094	.000	.172	.172	-.104	.073	-.281	0.612	0.087	5.6	1.2	9.9	1.7	A-	
2154	657892	7	696	.263	.263	.430	.158	.149	.000	.176	.176	-.077	-.008	-.102	1.434	0.093	2.5	1.1	6.8	1.8	A+	A-
2155	657893	7	665	.265	.241	.168	.326	.265	.000	.349	.037	-.245	-.167	.349	1.402	0.096	-0.6	1.0	2.1	1.2	A+	A+
2156	658825	7	691	.177	.177	.201	.439	.184	.000	.161	.161	-.144	.061	-.088	2.007	0.106	1.7	1.1	3.9	1.6	A-	A-
2157	658828	7	687	.176	.176	.236	.435	.153	.000	.161	.161	-.037	-.006	-.119	2.081	0.107	0.7	1.0	8.1	2.5	A+	
2158	658830	7	653	.891	.020	.072	.017	.891	.000	.264	-.067	-.170	-.225	.264	-2.341	0.136	0.7	1.1	1.2	1.2	A-	
2159	660526	7	673	.213	.400	.224	.163	.213	.000	.276	-.135	-.069	-.048	.276	1.782	0.101	-0.3	1.0	4.8	1.7	A-	
2160	660527	7	734	.279	.326	.279	.151	.244	.000	.033	-.169	.033	.010	.142	1.342	0.090	6.6	1.3	9.9	2.2	A+	A+
2161	660777	7	716	.334	.334	.201	.406	.059	.000	.091	.091	-.289	.179	-.063	1.070	0.086	6.8	1.3	7.9	1.7	A-	
2162	660778	7	704	.553	.263	.046	.139	.553	.000	.415	-.238	-.227	-.158	.415	-0.050	0.085	0.0	1.0	0.3	1.0	A+	
2163	661063	7	682	.911	.028	.911	.048	.013	.000	.414	-.164	.414	-.322	-.194	-2.882	0.147	-0.8	0.9	-1.1	0.8	B+	
2164	661064	7	686	.251	.216	.348	.185	.251	.000	.202	-.010	-.062	-.138	.202	1.478	0.096	2.8	1.1	5.7	1.7	A+	A-
2165	661065	7	691	.180	.172	.460	.188	.180	.000	.073	-.138	.123	-.095	.073	2.023	0.106	2.6	1.2	7.1	2.3	A+	A-

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
2166	662340	7	740	.401	.127	.354	.401	.118	.000	.266	-.216	-.030	.266	-.138	0.625	0.083	3.1	1.1	8.4	1.6	A-	A+
2167	662341	7	726	.657	.657	.125	.091	.127	.000	.484	.484	-.280	-.243	-.202	-0.662	0.089	-1.4	0.9	-1.2	0.9	A+	B-
2168	662342	7	749	.486	.164	.166	.486	.184	.000	.328	-.246	-.293	.328	.094	0.284	0.081	2.0	1.1	4.4	1.2	A-	A-
2169	662343	7	668	.537	.192	.537	.142	.129	.000	.401	-.228	.401	-.194	-.128	-0.024	0.087	0.4	1.0	1.2	1.1	A-	
2170	662344	7	679	.356	.138	.356	.331	.174	.000	.084	.098	.084	-.021	-.169	0.860	0.089	8.8	1.4	8.5	1.7	A+	
2171	662346	7	713	.498	.498	.220	.184	.098	.000	.440	.440	-.160	-.218	-.233	0.154	0.084	-1.4	1.0	1.2	1.1	A+	
2172	662347	7	679	.390	.390	.253	.199	.158	.000	.169	.169	-.208	-.120	.154	0.746	0.088	6.9	1.3	8.0	1.6	A+	A+
2173	662348	7	708	.735	.047	.735	.110	.109	.000	.376	-.097	.376	-.243	-.222	-1.109	0.095	1.0	1.1	0.4	1.0	A+	
2174	662349	7	702	.739	.148	.073	.739	.040	.000	.447	-.237	-.251	.447	-.239	-1.194	0.097	-0.2	1.0	-1.2	0.9	A+	A-
2175	662350	7	655	.415	.415	.194	.308	.082	.000	.363	.363	-.191	-.191	-.055	0.594	0.088	0.6	1.0	2.3	1.1	A-	A+
2176	662352	7	730	.785	.785	.080	.099	.037	.000	.464	.464	-.269	-.257	-.219	-1.418	0.100	-1.4	0.9	-2.2	0.8	A+	A+
2177	662353	7	666	.476	.476	.165	.237	.122	.000	.436	.436	-.199	-.222	-.151	0.285	0.086	-1.5	1.0	0.5	1.0	A+	
2178	662354	7	691	.511	.245	.511	.152	.093	.000	.325	-.209	.325	-.153	-.061	0.053	0.086	3.4	1.1	4.8	1.3	A-	
2179	657850	8	160	.288	.144	.275	.288	.294	.000	.092	-.053	-.141	.092	.088	1.179	0.188	2.7	1.2	2.4	1.5	A+	
2180	657851	8	200	.345	.205	.265	.345	.185	.000	.146	-.104	-.074	.146	.013	0.760	0.164	3.4	1.2	2.9	1.4	A-	
2181	657852	8	215	.251	.335	.247	.167	.251	.000	.210	-.044	-.122	-.048	.210	1.484	0.173	1.2	1.1	4.7	2.1	A-	A-
2182	657853	8	185	.357	.270	.189	.357	.184	.000	.109	.011	-.058	.109	-.087	0.586	0.171	4.4	1.3	5.2	1.9	B+	B-
2183	657854	8	213	.310	.225	.263	.310	.202	.000	.245	-.155	.005	.245	-.126	1.066	0.164	1.9	1.1	2.8	1.4	A-	
2184	657855	8	148	.257	.257	.230	.291	.223	.000	.104	.104	-.168	.008	.052	1.268	0.202	2.3	1.2	2.3	1.6	A+	
2185	657856	8	142	.204	.078	.254	.204	.465	.000	.267	-.244	-.206	.267	.095	1.592	0.220	-0.3	1.0	0.6	1.1	A+	
2186	657857	8	196	.097	.097	.316	.194	.393	.000	.010	.010	.044	-.030	-.024	2.738	0.254	0.9	1.2	3.2	2.5	A-	
2187	657858	8	200	.200	.035	.080	.200	.685	.000	.235	.053	-.133	.235	-.146	1.753	0.192	0.1	1.0	4.2	2.3	B-	
2188	657859	8	196	.235	.158	.235	.372	.235	.000	.108	-.028	.108	.097	-.195	1.371	0.185	2.0	1.2	5.3	2.6	A+	
2189	657860	8	159	.365	.126	.365	.138	.371	.000	.319	-.174	.319	-.027	-.179	0.720	0.184	0.4	1.0	2.9	1.5	A+	
2190	657861	8	203	.365	.232	.365	.335	.069	.000	.191	-.015	.191	-.106	-.140	0.731	0.161	2.9	1.2	3.9	1.5	A-	
2191	657862	8	176	.205	.415	.205	.108	.273	.000	-.060	.074	-.060	-.159	.083	1.565	0.204	2.9	1.4	5.4	2.8	B-	
2192	657863	8	193	.176	.197	.404	.176	.223	.000	-.110	.012	-.047	-.110	.144	1.745	0.203	2.7	1.4	5.2	2.8	A-	
2193	657864	8	201	.199	.159	.199	.448	.194	.000	-.108	.022	-.108	.065	.007	1.675	0.193	3.7	1.4	5.9	2.8	A+	
2194	657865	8	197	.223	.066	.152	.558	.223	.000	.099	-.223	-.150	.137	.099	1.622	0.186	2.0	1.2	3.6	1.9	A-	
2195	657866	8	184	.495	.125	.332	.495	.049	.000	.294	-.155	-.097	.294	-.234	-0.044	0.165	2.2	1.1	2.3	1.2	A+	
2196	657867	8	202	.515	.515	.183	.158	.144	.000	.342	.342	-.154	-.300	-.005	-0.283	0.159	1.4	1.1	1.6	1.2	A+	
2197	657868	8	142	.183	.183	.197	.423	.197	.000	.173	.173	-.243	.133	-.089	1.900	0.229	0.4	1.1	1.3	1.3	A-	
2198	657869	8	154	.221	.279	.201	.299	.221	.000	.188	-.007	-.150	-.032	.188	1.504	0.208	0.6	1.1	2.6	1.6	A-	
2199	657870	8	154	.318	.299	.266	.117	.318	.000	.177	-.043	-.053	-.122	.177	1.039	0.188	1.4	1.1	3.5	1.6	B-	
2200	657871	8	181	.541	.149	.541	.243	.066	.000	.317	-.154	.317	-.251	.018	-0.270	0.171	2.3	1.2	2.5	1.3	A-	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
2201	657872	8	204	.270	.343	.270	.186	.201	.000	.127	-.088	.127	-.138	.098	1.202	0.172	2.7	1.2	3.7	1.8	B-	
2202	657873	8	204	.172	.172	.289	.427	.113	.000	.102	.102	.025	.037	-.215	1.820	0.197	1.4	1.2	3.0	1.9	A+	A-
2203	657874	8	147	.333	.048	.333	.442	.177	.000	.307	.025	.307	-.146	-.204	0.903	0.192	0.6	1.1	1.7	1.3	A+	
2204	657894	8	141	.461	.170	.461	.213	.156	.000	.184	-.026	.184	-.189	-.012	0.266	0.184	2.6	1.2	2.1	1.2	A+	
2205	657895	8	188	.293	.293	.330	.133	.245	.000	.329	.329	-.096	-.336	.022	1.082	0.177	0.4	1.0	1.3	1.2	A+	
2206	657896	8	196	.260	.219	.245	.260	.276	.000	.213	-.014	-.193	.213	-.010	1.383	0.176	0.6	1.1	4.9	2.1	A+	
2207	657897	8	190	.347	.211	.347	.190	.253	.000	.098	.009	.098	-.092	-.033	0.773	0.169	4.0	1.3	6.0	2.1	A+	
2208	657898	8	209	.215	.215	.263	.163	.359	.000	.164	.164	-.004	-.143	-.027	1.456	0.183	0.9	1.1	6.2	3.1	A+	
2209	657900	8	202	.455	.203	.455	.238	.104	.000	.237	.077	.237	-.266	-.117	0.214	0.157	3.1	1.2	2.4	1.3	A+	
2210	657901	8	159	.377	.377	.428	.151	.044	.000	.347	.347	-.174	-.088	-.246	0.573	0.181	0.7	1.1	0.8	1.1	A+	
2211	657902	8	140	.536	.107	.236	.536	.121	.000	.359	-.155	-.175	.359	-.173	-0.188	0.189	0.9	1.1	0.5	1.1	A+	
2212	657903	8	182	.610	.192	.610	.148	.050	.000	.451	-.267	.451	-.212	-.181	-0.526	0.171	-0.5	1.0	-0.8	0.9	A+	
2213	657904	8	186	.247	.226	.183	.344	.247	.000	.177	-.077	-.128	.011	.177	1.306	0.185	1.8	1.2	2.3	1.4	A-	
2214	657905	8	209	.191	.191	.325	.292	.191	.000	.031	.031	-.009	-.031	.016	1.718	0.190	2.0	1.2	4.5	2.3	A-	
2215	657906	8	145	.372	.310	.372	.207	.110	.000	.144	.068	.144	-.082	-.216	0.536	0.190	2.8	1.2	4.5	1.7	A-	
2216	657907	8	134	.276	.299	.276	.276	.149	.000	.184	-.129	.184	.013	-.082	1.124	0.210	1.0	1.1	3.4	1.9	A+	
2217	657908	8	133	.218	.150	.399	.233	.218	.000	.245	-.058	-.167	.004	.245	1.489	0.225	0.3	1.0	1.3	1.3	A+	
2218	657909	8	123	.407	.073	.301	.220	.407	.000	.271	-.341	-.021	-.084	.271	0.468	0.199	0.9	1.1	1.3	1.2	A-	
2219	657910	8	137	.256	.256	.329	.270	.146	.000	-.034	-.034	-.110	-.024	.220	1.257	0.213	3.0	1.3	5.8	2.9	A+	
2220	657911	8	160	.456	.119	.206	.456	.219	.000	.161	-.172	.018	.161	-.077	0.024	0.176	3.4	1.2	3.7	1.4	A-	
2221	657912	8	167	.389	.132	.264	.389	.216	.000	.232	-.118	-.159	.232	-.008	0.549	0.175	2.1	1.1	2.3	1.3	A+	
2222	657913	8	206	.660	.660	.087	.136	.117	.000	.203	.203	-.131	-.113	-.064	-0.967	0.166	3.3	1.3	2.8	1.4	A+	
2223	657914	8	130	.315	.315	.246	.146	.292	.000	.424	.424	-.122	-.266	-.111	0.945	0.209	-0.8	0.9	0.2	1.0	A+	
2224	657915	8	151	.238	.265	.272	.225	.238	.000	.315	-.134	-.183	.015	.315	1.308	0.205	-0.3	1.0	1.0	1.2	A+	
2225	657916	8	146	.288	.288	.288	.274	.151	.000	.051	-.053	.051	-.101	.129	1.029	0.198	2.9	1.3	4.0	1.9	A-	
2226	657917	8	143	.378	.112	.420	.378	.091	.000	.222	-.149	-.040	.222	-.143	0.696	0.190	2.0	1.2	2.8	1.5	B+	
2227	657918	8	183	.312	.230	.257	.202	.312	.000	.264	.021	-.153	-.160	.264	0.862	0.175	1.2	1.1	3.0	1.5	A+	
2228	657919	8	153	.248	.248	.386	.301	.065	.000	.012	.012	-.015	-.090	.175	1.260	0.202	2.2	1.2	6.7	3.3	A-	
2229	657920	8	146	.288	.418	.288	.116	.178	.000	-.061	.104	-.061	-.143	.059	1.117	0.195	3.2	1.3	4.4	1.8	A+	
2230	657921	8	135	.415	.415	.363	.141	.082	.000	.357	.357	-.145	-.222	-.105	0.479	0.195	0.8	1.1	0.7	1.1	C+	
2231	657922	8	144	.243	.417	.194	.146	.243	.000	.248	.054	-.171	-.186	.248	1.354	0.208	0.1	1.0	2.5	1.6	B-	
2232	657923	8	190	.642	.063	.200	.642	.095	.000	.414	-.176	-.226	.414	-.222	-0.681	0.173	0.8	1.1	0.0	1.0	A-	
2233	657924	8	139	.648	.086	.648	.216	.050	.000	.426	-.036	.426	-.327	-.270	-0.758	0.199	-0.1	1.0	-0.4	1.0	A-	
2234	657951	8	139	.525	.194	.525	.201	.079	.000	.348	-.233	.348	-.186	-.026	-0.126	0.193	1.4	1.1	1.6	1.2	B-	
2235	657952	8	151	.517	.185	.185	.517	.113	.000	.339	-.016	-.281	.339	-.171	-0.067	0.183	1.5	1.1	1.4	1.2	A-	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
2236	657953	8	182	.291	.269	.291	.319	.121	.000	-.039	.182	-.039	-.120	-.022	1.001	0.178	4.4	1.4	5.4	2.1	A+	
2237	657954	8	149	.490	.161	.490	.269	.081	.000	.310	-.180	.310	-.126	-.122	-0.047	0.186	2.1	1.2	2.0	1.3	A+	
2238	657955	8	201	.468	.239	.468	.169	.124	.000	.110	-.058	.110	-.077	-.004	-0.028	0.159	5.4	1.4	4.7	1.5	A-	
2239	657956	8	205	.220	.293	.220	.249	.239	.000	-.134	-.097	-.134	.054	.179	1.612	0.183	3.8	1.4	7.2	3.3	A-	
2240	657957	8	188	.484	.229	.484	.229	.059	.000	.262	-.006	.262	-.259	-.083	0.167	0.160	1.9	1.1	1.8	1.2	A-	
2241	657958	8	214	.463	.084	.463	.215	.238	.000	.167	-.004	.167	-.055	-.139	0.187	0.152	3.6	1.2	5.1	1.5	A-	
2242	657959	8	145	.393	.166	.131	.310	.393	.000	.280	-.116	-.179	-.072	.280	0.514	0.188	1.6	1.1	1.3	1.2	A-	A+
2243	657960	8	157	.459	.166	.191	.459	.185	.000	.316	-.348	-.157	.316	.086	0.246	0.175	0.8	1.1	0.6	1.1	B+	
2244	657961	8	137	.292	.168	.292	.409	.131	.000	.165	.020	.165	-.012	-.226	1.211	0.204	2.0	1.2	2.7	1.6	A-	
2245	657962	8	198	.313	.232	.197	.313	.258	.000	.121	-.042	-.026	.121	-.065	1.079	0.169	3.3	1.3	4.3	1.7	B-	
2246	657963	8	130	.454	.092	.108	.454	.346	.000	.235	-.162	-.244	.235	.012	0.192	0.198	2.5	1.2	2.3	1.3	A+	
2247	657964	8	131	.389	.084	.389	.305	.221	.000	.212	-.061	.212	-.176	-.012	0.525	0.202	2.5	1.2	4.0	1.7	B-	
2248	657965	8	159	.365	.270	.239	.365	.126	.000	.111	.276	-.176	.111	-.304	0.671	0.180	3.3	1.2	3.9	1.6	B+	
2249	657966	8	153	.340	.340	.203	.288	.170	.000	.274	.274	-.228	-.038	-.056	0.790	0.188	1.2	1.1	1.0	1.1	A+	
2250	657967	8	167	.611	.611	.174	.144	.072	.000	.493	.493	-.357	-.211	-.121	-0.628	0.177	-1.4	0.9	-1.3	0.9	A+	
2251	657968	8	147	.293	.204	.293	.299	.204	.000	.138	.183	.138	-.262	-.041	1.073	0.196	2.0	1.2	2.4	1.5	A+	
2252	657969	8	138	.449	.123	.449	.225	.203	.000	.266	-.030	.266	-.167	-.132	0.407	0.186	1.1	1.1	2.0	1.2	A-	
2253	657970	8	153	.438	.275	.157	.438	.131	.000	.243	-.230	-.187	.243	.149	0.391	0.179	1.9	1.1	2.6	1.3	A-	
2254	657971	8	189	.497	.169	.497	.249	.085	.000	.207	-.127	.207	-.108	-.034	0.034	0.161	3.3	1.2	2.9	1.3	A-	
2255	657972	8	145	.324	.235	.324	.324	.117	.000	.016	-.025	-.016	.016	.033	0.725	0.192	3.8	1.3	3.5	1.6	B+	
2256	657973	8	140	.400	.371	.400	.150	.079	.000	.211	.047	.211	-.240	-.148	0.461	0.191	2.9	1.2	1.9	1.3	A+	
2257	657974	8	210	.281	.557	.281	.114	.048	.000	.411	-.130	.411	-.277	-.151	1.058	0.167	-0.6	1.0	-0.9	0.9	A+	
2258	657975	8	217	.286	.286	.055	.203	.456	.000	.229	.229	-.219	.028	-.130	1.149	0.163	1.3	1.1	2.4	1.4	A+	A-
2259	658001	8	145	.283	.283	.207	.166	.345	.000	.176	.176	-.302	-.096	.165	1.314	0.200	1.3	1.1	3.6	1.8	A+	
2260	658002	8	139	.237	.245	.216	.302	.237	.000	.323	.123	-.253	-.187	.323	1.522	0.213	-0.2	1.0	-0.1	1.0	A+	
2261	658003	8	154	.240	.318	.292	.149	.240	.000	.196	.095	-.154	-.163	.196	1.352	0.205	1.3	1.1	2.0	1.5	B+	
2262	658004	8	153	.203	.307	.248	.242	.203	.000	.052	.085	-.019	-.121	.052	1.800	0.213	1.6	1.2	2.9	1.8	A-	
2263	658005	8	196	.194	.138	.194	.225	.444	.000	-.042	-.105	-.042	-.269	.332	1.809	0.196	2.9	1.4	6.2	3.5	A+	
2264	658006	8	210	.514	.110	.210	.514	.167	.000	.356	-.170	-.314	.356	.009	-0.125	0.154	0.8	1.1	1.1	1.1	A-	
2265	658007	8	185	.405	.222	.178	.195	.405	.000	.417	-.183	-.327	-.009	.417	0.365	0.165	-1.1	0.9	0.1	1.0	A-	
2266	658008	8	197	.269	.178	.198	.355	.269	.000	.346	-.089	-.344	.037	.346	1.124	0.175	-0.3	1.0	1.3	1.2	A-	
2267	658009	8	195	.456	.200	.456	.226	.118	.000	.380	-.268	.380	-.188	-.010	0.243	0.161	0.6	1.0	1.2	1.1	A-	
2268	658010	8	167	.431	.431	.240	.174	.156	.000	.449	.449	-.290	-.193	-.070	0.305	0.175	-0.7	1.0	0.0	1.0	A-	
2269	658011	8	125	.688	.688	.160	.120	.032	.000	.351	.351	-.297	-.093	-.134	-0.901	0.217	0.9	1.1	0.7	1.1	A+	
2270	658012	8	147	.483	.252	.191	.483	.075	.000	.017	-.066	.022	.017	.042	0.108	0.185	5.6	1.5	5.8	1.8	A+	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
2271	658013	8	159	.396	.101	.333	.170	.396	.000	.355	-.180	-.198	-.070	.355	0.640	0.180	-0.2	1.0	3.5	1.5	A-	
2272	658014	8	138	.645	.044	.645	.094	.217	.000	.388	-.263	.388	-.282	-.120	-0.677	0.197	0.2	1.0	-0.3	1.0	A+	
2273	658015	8	198	.131	.263	.475	.131	.131	.000	-.005	-.024	.135	-.164	-.005	2.098	0.220	1.1	1.2	3.8	2.5	B+	
2274	658016	8	195	.385	.139	.364	.385	.113	.000	.300	-.222	-.146	.300	.002	0.541	0.167	1.9	1.1	2.8	1.4	A-	
2275	658017	8	138	.297	.297	.174	.333	.196	.000	.233	.233	-.329	.062	-.028	1.057	0.202	0.7	1.1	3.4	1.8	A+	
2276	658018	8	149	.362	.175	.362	.309	.154	.000	.046	-.103	.046	-.036	.093	0.766	0.187	3.5	1.3	5.9	2.1	A-	
2277	658019	8	161	.236	.205	.236	.447	.112	.000	.111	.028	.111	-.033	-.133	1.397	0.200	1.9	1.2	2.6	1.6	A+	
2278	658020	8	203	.177	.187	.330	.305	.177	.000	.169	-.172	-.133	.142	.169	1.780	0.195	0.7	1.1	3.4	2.0	A-	A-
2279	658021	8	141	.418	.128	.312	.418	.142	.000	.107	-.093	-.044	.107	-.004	0.381	0.190	3.7	1.3	6.2	2.1	A+	
2280	658022	8	151	.470	.133	.232	.470	.166	.000	.117	.070	-.041	.117	-.175	0.093	0.181	4.1	1.3	4.0	1.5	B+	
2281	658023	8	144	.326	.340	.250	.326	.083	.000	.257	.139	-.391	.257	-.062	0.937	0.196	1.5	1.1	1.5	1.3	A+	
2282	658024	8	147	.170	.122	.415	.170	.293	.000	-.133	-.336	.168	-.133	.170	1.801	0.234	2.5	1.4	4.5	2.9	A-	
2283	658025	8	214	.332	.262	.243	.164	.332	.000	.299	-.012	-.219	-.112	.299	0.857	0.159	0.4	1.0	2.3	1.3	A-	
2284	658026	8	137	.131	.131	.336	.402	.131	.000	.152	.143	-.128	-.080	.152	2.194	0.263	0.3	1.0	2.0	1.8	A-	
2285	658027	8	219	.215	.343	.324	.119	.215	.000	-.012	-.001	.081	-.101	-.012	1.548	0.179	3.1	1.3	5.1	2.5	A+	
2286	658028	8	188	.261	.356	.261	.218	.165	.000	-.051	.276	-.051	-.139	-.141	1.089	0.178	3.2	1.3	5.4	2.1	A-	
2287	658029	8	143	.154	.441	.154	.252	.154	.000	.099	.239	.099	-.276	-.095	2.068	0.244	0.8	1.1	2.2	1.7	A+	
2288	658030	8	146	.349	.123	.274	.253	.349	.000	.289	-.140	-.088	-.120	.289	0.892	0.190	1.2	1.1	0.7	1.1	A+	
2289	658031	8	194	.299	.139	.294	.268	.299	.000	.141	.126	-.133	-.108	.141	1.000	0.172	3.0	1.3	2.8	1.4	A+	
2290	658032	8	150	.193	.193	.353	.353	.100	.000	.141	.141	-.016	-.082	-.030	1.757	0.221	0.8	1.1	3.4	2.1	A+	
2291	658033	8	211	.152	.251	.341	.256	.152	.000	.005	.259	-.202	-.042	.005	2.211	0.203	1.3	1.2	4.6	2.6	A+	
2292	658034	8	117	.222	.120	.513	.145	.222	.000	.045	-.165	.000	.099	.045	1.517	0.239	1.7	1.2	3.2	2.0	A-	
2293	658035	8	152	.375	.079	.336	.375	.211	.000	.168	-.024	-.182	.168	.027	0.758	0.185	2.9	1.2	3.7	1.6	B-	
2294	658036	8	152	.296	.197	.217	.290	.296	.000	.177	.010	-.095	-.101	.177	1.223	0.196	1.9	1.2	4.0	2.0	A+	
2295	658037	8	219	.292	.393	.192	.292	.123	.000	-.023	.070	-.085	-.023	.029	1.052	0.163	4.6	1.4	6.4	2.2	A-	
2296	658038	8	197	.376	.376	.244	.234	.147	.000	.306	.306	-.088	-.190	-.086	0.596	0.163	1.4	1.1	1.6	1.2	A+	
2297	658039	8	154	.546	.546	.221	.130	.104	.000	.271	.271	-.155	-.110	-.110	-0.323	0.181	2.1	1.2	1.9	1.2	A+	
2298	658040	8	137	.423	.423	.263	.248	.066	.000	.257	.257	-.137	-.151	-.006	0.336	0.194	2.6	1.2	1.6	1.2	A-	
2299	658041	8	172	.209	.209	.361	.273	.157	.000	.188	.188	-.012	-.153	-.008	1.659	0.202	1.0	1.1	2.0	1.5	B-	
2300	658042	8	201	.299	.299	.224	.309	.169	.000	.479	.479	-.149	-.134	-.254	1.043	0.171	-1.7	0.9	-1.0	0.9	A+	
2301	658043	8	147	.259	.211	.286	.259	.245	.000	-.098	-.024	.129	-.098	-.014	1.263	0.200	2.6	1.3	6.9	3.0	A-	
2302	658044	8	143	.035	.035	.161	.357	.448	.000	-.080	-.080	.146	-.049	-.031	3.651	0.465	0.4	1.1	2.2	3.1	A+	
2303	658045	8	158	.114	.108	.462	.317	.114	.000	.212	-.126	-.061	.005	.212	2.484	0.264	-0.4	0.9	3.5	3.1	A-	
2304	658046	8	199	.241	.266	.286	.241	.206	.000	.131	-.075	-.010	.131	-.046	1.427	0.179	1.3	1.1	5.8	2.5	A-	
2305	658047	8	204	.490	.265	.490	.113	.132	.000	.310	-.094	.310	-.201	-.148	-0.171	0.158	2.1	1.1	2.3	1.2	A-	

Table B–2 (continued). Mathematics Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
2306	658048	8	196	.270	.480	.148	.270	.102	.000	.339	-.149	-.147	.339	-.080	1.192	0.176	0.1	1.0	0.7	1.1	A-	
2307	658049	8	146	.507	.130	.507	.253	.110	.000	.338	.056	.338	-.377	-.077	0.175	0.181	0.4	1.0	0.3	1.0	A+	
2308	658050	8	159	.572	.572	.214	.126	.088	.000	.379	.379	-.265	-.157	-.095	-0.400	0.181	0.8	1.1	1.3	1.1	A-	
2309	662217	8	207	.440	.440	.203	.271	.087	.000	.307	.307	-.205	-.227	.109	0.372	0.154	1.2	1.1	1.3	1.1	A-	A+
2310	662218	8	136	.434	.118	.434	.338	.110	.000	.042	.149	.042	-.150	.006	0.308	0.195	5.3	1.5	5.1	1.9	B-	
2311	662221	8	194	.505	.113	.505	.304	.077	.000	.120	.180	.120	-.194	-.104	-0.114	0.159	4.9	1.3	4.3	1.5	A+	
2312	662222	8	184	.429	.332	.429	.179	.060	.000	.005	.115	.005	-.138	-.013	0.354	0.164	5.9	1.4	6.4	1.9	A-	
2313	662223	8	227	.238	.256	.410	.238	.097	.000	.069	-.082	.060	.069	-.079	1.424	0.170	3.0	1.3	5.2	2.3	A-	
2314	662224	8	134	.299	.149	.246	.306	.299	.000	.340	-.042	-.301	-.024	.340	1.063	0.205	-0.7	0.9	2.9	1.6	A+	
2315	662225	8	215	.219	.112	.219	.181	.488	.000	.155	-.294	.155	-.028	.078	1.485	0.178	1.1	1.1	4.8	2.2	A-	
2316	662453	8	154	.409	.409	.130	.292	.169	.000	.297	.297	-.131	-.223	.000	0.473	0.182	1.2	1.1	2.6	1.4	A+	
2317	662454	8	209	.407	.297	.177	.407	.120	.000	.225	-.038	-.297	.225	.062	0.465	0.156	2.6	1.2	3.7	1.5	A+	
2318	662455	8	216	.662	.056	.028	.255	.662	.000	.379	-.263	-.256	-.177	.379	-0.766	0.163	0.9	1.1	0.8	1.1	A-	
2319	662456	8	203	.301	.301	.237	.360	.103	.000	.245	.245	-.204	.040	-.147	0.936	0.167	1.7	1.1	0.9	1.1	A-	
2320	662457	8	230	.587	.091	.191	.587	.130	.000	.264	-.241	-.120	.264	-.040	-0.425	0.149	2.6	1.2	1.8	1.2	A-	
2321	662458	8	209	.632	.110	.177	.081	.632	.000	.414	-.091	-.239	-.292	.414	-0.654	0.161	-0.1	1.0	0.6	1.1	A+	
2322	662459	8	210	.262	.310	.262	.281	.148	.000	-.073	.004	-.073	.022	.058	1.187	0.170	4.1	1.4	6.6	2.5	B-	
2323	662460	8	138	.261	.261	.225	.319	.196	.000	.194	.194	-.172	.092	-.142	1.118	0.209	1.1	1.1	2.2	1.5	A+	
2324	662461	8	212	.198	.198	.198	.377	.226	.000	.303	.303	-.205	-.040	-.048	1.562	0.185	-0.2	1.0	1.5	1.3	A-	A-
2325	662462	8	230	.522	.074	.239	.522	.165	.000	.351	-.132	-.122	.351	-.239	-0.266	0.147	1.0	1.1	1.8	1.2	A+	
2326	662463	8	156	.539	.096	.263	.103	.539	.000	.491	-.035	-.435	-.142	.491	-0.293	0.181	-1.1	0.9	-0.9	0.9	A+	
2327	662464	8	186	.237	.237	.409	.220	.134	.000	.275	.275	.109	-.179	-.281	1.360	0.187	0.3	1.0	2.8	1.6	A-	
2328	662465	8	224	.571	.054	.571	.317	.058	.000	.296	-.007	.296	-.256	-.112	-0.500	0.151	2.0	1.1	1.8	1.2	A+	
2329	662466	8	145	.614	.110	.186	.614	.090	.000	.466	-.190	-.262	.466	-.229	-0.656	0.194	-0.3	1.0	-0.2	1.0	A-	
2330	662467	8	213	.455	.127	.455	.282	.136	.000	.306	-.221	.306	-.142	-.044	0.191	0.155	2.2	1.1	2.5	1.3	A+	
2331	662468	8	214	.500	.500	.094	.294	.112	.000	.453	.453	-.104	-.273	-.228	-0.137	0.153	-0.9	1.0	0.1	1.0	A+	
2332	662469	8	190	.400	.168	.142	.290	.400	.000	.385	-.323	-.155	-.030	.385	0.380	0.163	-0.3	1.0	0.7	1.1	C+	
2333	662470	8	220	.455	.155	.205	.186	.455	.000	.404	-.176	-.191	-.155	.404	0.178	0.152	-0.1	1.0	1.4	1.1	A+	
2334	662778	8	206	.243	.194	.408	.243	.155	.000	-.045	.018	.129	-.045	-.141	1.342	0.178	3.9	1.4	5.9	2.3	A+	
2335	662779	8	188	.489	.154	.245	.489	.112	.000	.142	-.161	.016	.142	-.062	-0.117	0.163	4.2	1.3	4.5	1.5	A-	

Items with reference line numbers 1-1949 were field tested during the stand-alone field test administered in spring 2010. Items with reference line numbers 1950-2335 were field tested during the embedded field test administered in spring 2013.

Appendix B: Field Test Item Statistics

READING/LITERATURE MULTIPLE-CHOICE ITEMS

Table B–3. Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1	613600	3	765	.378	.346	.133	.141	.378	.001	.459	-.140	-.243	-.208	.459	0.282	0.086	-1.6	0.9	-0.5	1.0	A+	A+
2	613567	3	760	.446	.254	.446	.138	.159	.003	.377	-.186	.377	-.135	-.131	-0.213	0.081	1.8	1.1	2.7	1.1	A-	A-
3	613576	3	760	.571	.125	.076	.217	.571	.011	.449	-.164	-.262	-.166	.449	-0.876	0.082	0.3	1.0	0.2	1.0	A-	A+
4	613575	3	760	.425	.100	.425	.257	.203	.016	.298	-.322	.298	-.011	-.035	-0.140	0.082	5.3	1.2	5.7	1.3	A+	A-
5	613448	3	760	.649	.649	.071	.104	.155	.021	.549	.549	-.220	-.222	-.276	-1.322	0.086	-3.5	0.9	-3.5	0.8	B+	B-
6	613587	3	1535	.930	.930	.012	.029	.026	.003	.432	.432	-.175	-.236	-.234	-3.761	0.113	-1.6	0.9	-4.4	0.4	A+	B-
7	613588	3	1535	.572	.228	.572	.178	.014	.008	.404	-.196	.404	-.212	-.144	-0.847	0.059	3.5	1.1	2.3	1.1	A+	A+
8	613589	3	1535	.240	.259	.419	.074	.240	.009	.267	-.167	.057	-.179	.267	1.013	0.066	3.8	1.1	5.4	1.4	A+	A+
9	613595	3	1530	.680	.153	.680	.116	.043	.009	.511	-.307	.511	-.211	-.211	-1.452	0.061	-4.5	0.9	-5.4	0.8	A+	A-
10	613596	3	1530	.285	.498	.074	.137	.285	.006	.292	.028	-.220	-.198	.292	0.620	0.062	1.9	1.1	5.6	1.3	A+	A-
11	613571	3	760	.695	.159	.093	.032	.695	.021	.461	-.120	-.306	-.182	.461	-1.589	0.088	-0.8	1.0	-0.7	1.0	A+	A+
12	613572	3	760	.709	.101	.111	.054	.709	.025	.606	-.257	-.319	-.214	.606	-1.685	0.089	-5.6	0.8	-5.2	0.7	A-	A-
13	613465	3	760	.238	.401	.128	.204	.238	.029	.320	-.019	-.259	.020	.320	0.832	0.092	1.1	1.1	0.6	1.0	A-	A-
14	613466	3	760	.491	.228	.100	.150	.491	.032	.501	-.122	-.252	-.210	.501	-0.548	0.081	-3.1	0.9	-2.4	0.9	A-	A+
15	613563	3	770	.768	.053	.078	.068	.768	.034	.530	-.246	-.246	-.241	.530	-2.143	0.098	-2.9	0.9	-3.1	0.7	A-	
16	613467	3	771	.658	.078	.097	.658	.147	.021	.531	-.243	-.272	.531	-.162	-1.355	0.087	-2.1	0.9	-2.4	0.8	A-	A-
17	613455	3	771	.510	.143	.510	.087	.237	.023	.372	-.255	.372	-.244	.052	-0.552	0.082	3.3	1.1	3.5	1.2	A+	A+
18	613456	3	771	.822	.053	.051	.822	.051	.023	.590	-.268	-.284	.590	-.242	-2.560	0.111	-3.2	0.8	-4.3	0.5	B+	B+
19	613457	3	771	.734	.734	.060	.110	.067	.029	.450	.450	-.254	-.128	-.178	-1.867	0.095	0.5	1.0	-0.3	1.0	A-	A-
20	613458	3	771	.658	.048	.198	.067	.658	.029	.534	-.268	-.189	-.268	.534	-1.375	0.087	-2.6	0.9	-1.5	0.9	A+	A+
21	613592	3	5356	.760	.166	.037	.760	.027	.010	.474	-.246	-.247	.474	-.210	-1.967	0.036	-2.8	1.0	-4.5	0.9	A+	A-
22	613593	3	5356	.827	.827	.063	.036	.065	.010	.429	.429	-.165	-.224	-.207	-2.500	0.041	-1.3	1.0	-2.3	0.9	A+	A+
23	613461	3	5356	.523	.047	.523	.062	.354	.014	.242	-.213	.242	-.201	.016	-0.619	0.031	9.9	1.3	9.9	1.4	A-	A-
24	613462	3	5356	.642	.073	.173	.642	.098	.014	.504	-.234	-.229	.504	-.198	-1.253	0.032	-4.5	0.9	-4.9	0.9	A+	A-
25	613445	3	764	.736	.100	.110	.736	.039	.016	.554	-.233	-.288	.554	-.264	-1.881	0.094	-2.7	0.9	-2.7	0.8	B+	
26	613443	3	764	.542	.126	.152	.542	.149	.031	.513	-.159	-.277	.513	-.182	-0.788	0.085	-0.3	1.0	-1.0	1.0	A-	
27	613442	3	764	.695	.695	.103	.094	.071	.037	.459	.459	-.277	-.218	-.101	-1.727	0.093	0.6	1.0	0.8	1.1	A+	
28	613441	3	764	.584	.130	.111	.136	.584	.039	.518	-.215	-.276	-.165	.518	-1.053	0.086	-0.8	1.0	-0.8	1.0	A+	
29	613447	3	760	.583	.226	.090	.583	.083	.018	.443	-.197	-.148	.443	-.214	-0.959	0.083	0.5	1.0	0.6	1.0	A+	A+
30	613450	3	770	.408	.247	.244	.082	.408	.020	.199	-.107	.001	-.045	.199	-0.051	0.082	8.1	1.3	7.4	1.4	A-	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
31	613451	3	770	.449	.268	.140	.120	.449	.023	.395	-.165	-.150	-.092	.395	-0.286	0.081	2.0	1.1	2.4	1.1	A+	
32	613452	3	770	.384	.384	.026	.331	.236	.022	.193	.193	-.181	-.049	.001	0.069	0.082	8.2	1.3	7.0	1.4	A+	
33	613468	3	771	.532	.253	.078	.119	.532	.018	.461	-.134	-.152	-.261	.461	-0.659	0.082	-0.1	1.0	0.0	1.0	A-	A-
34	613463	3	5356	.854	.854	.033	.034	.066	.013	.486	.486	-.203	-.201	-.261	-2.782	0.044	-4.5	0.9	-6.5	0.7	A-	A-
35	613444	3	764	.747	.094	.106	.038	.747	.014	.576	-.315	-.260	-.238	.576	-1.946	0.095	-3.7	0.8	-3.7	0.7	A+	
36	613438	3	764	.656	.096	.656	.169	.048	.031	.540	-.225	.540	-.238	-.291	-1.447	0.089	-1.8	0.9	-1.7	0.9	A-	
37	613581	3	766	.573	.573	.165	.088	.151	.024	.303	.303	-.176	-.110	-.026	-0.944	0.084	6.1	1.2	5.1	1.3	A+	A+
38	613601	3	765	.761	.059	.076	.761	.099	.005	.527	-.241	-.303	.527	-.261	-1.937	0.096	-2.4	0.9	-3.4	0.7	A+	A-
39	613577	3	760	.765	.765	.076	.086	.063	.011	.446	.446	-.207	-.200	-.198	-2.006	0.096	-0.3	1.0	-0.7	0.9	A-	A-
40	613598	3	1530	.712	.712	.110	.102	.070	.006	.322	.322	-.185	-.122	-.141	-1.626	0.062	2.9	1.1	4.2	1.2	A+	A-
41	613597	3	1530	.282	.191	.282	.158	.361	.008	.268	-.171	.268	.068	-.119	0.641	0.062	3.9	1.1	4.1	1.2	A-	A-
42	613562	3	770	.617	.617	.094	.117	.146	.027	.513	.513	-.232	-.262	-.155	-1.169	0.084	-2.1	0.9	-2.4	0.9	A+	
43	613583	3	766	.608	.158	.107	.103	.608	.024	.472	-.199	-.196	-.176	.472	-1.142	0.085	-0.7	1.0	-1.3	0.9	A+	A-
44	613584	3	766	.571	.151	.128	.125	.571	.025	.449	-.130	-.232	-.163	.449	-0.936	0.084	0.9	1.0	1.1	1.1	A+	A-
45	613585	3	766	.710	.086	.072	.107	.710	.025	.519	-.316	-.188	-.174	.519	-1.757	0.091	-2.9	0.9	-2.7	0.8	A+	A+
46	613586	3	766	.682	.095	.102	.682	.095	.026	.501	-.180	-.274	.501	-.178	-1.581	0.089	-1.9	0.9	-2.4	0.8	A+	A+
47	613602	3	765	.771	.077	.072	.076	.771	.004	.527	-.279	-.242	-.301	.527	-2.022	0.098	-2.6	0.9	-1.4	0.9	A+	A-
48	613603	3	765	.399	.218	.216	.157	.399	.011	.400	-.112	-.245	-.088	.400	0.134	0.085	1.9	1.1	2.1	1.2	A+	A+
49	613568	3	760	.743	.040	.087	.743	.126	.004	.466	-.157	-.269	.466	-.252	-1.824	0.092	-1.3	0.9	-1.7	0.9	A+	A-
50	613579	3	760	.486	.070	.107	.328	.486	.011	.382	-.173	-.228	-.099	.382	-0.441	0.081	2.9	1.1	2.9	1.1	A-	A+
51	613580	3	760	.740	.072	.740	.133	.045	.011	.448	-.201	.448	-.192	-.239	-1.828	0.092	-0.1	1.0	-0.7	0.9	A+	B-
52	613578	3	760	.365	.365	.154	.258	.209	.015	.306	.306	-.200	.027	-.135	0.187	0.084	4.1	1.2	4.1	1.3	A-	A+
53	613590	3	1535	.584	.044	.584	.259	.106	.008	.458	-.112	.458	-.262	-.218	-0.926	0.059	0.4	1.0	0.2	1.0	A+	A-
54	613591	3	1535	.371	.371	.212	.141	.265	.011	.267	.267	-.112	-.199	.027	0.200	0.059	8.1	1.2	9.6	1.5	A-	A+
55	613573	3	760	.445	.224	.166	.445	.145	.021	.393	-.098	-.135	.393	-.155	-0.289	0.080	1.3	1.0	1.1	1.1	A+	A+
56	613574	3	760	.613	.255	.032	.613	.076	.024	.564	-.292	-.175	.564	-.258	-1.140	0.083	-4.9	0.8	-4.7	0.8	A-	B-
57	613564	3	770	.410	.410	.107	.166	.287	.030	.421	.421	-.200	-.208	-.054	-0.104	0.082	0.8	1.0	1.4	1.1	A-	
58	613565	3	770	.513	.175	.125	.513	.156	.031	.482	-.217	-.078	.482	-.251	-0.625	0.081	-1.6	1.0	-1.3	0.9	A-	
59	613599	3	765	.777	.042	.050	.129	.777	.003	.432	-.234	-.265	-.214	.432	-2.034	0.098	-1.0	1.0	-1.1	0.9	A+	A+
60	613566	3	760	.203	.263	.140	.391	.203	.004	.207	-.062	-.051	-.053	.207	1.216	0.099	2.6	1.2	3.4	1.4	A-	A+
61	613610	3	760	.888	.042	.036	.032	.888	.003	.511	-.225	-.276	-.301	.511	-3.035	0.125	-2.6	0.8	-3.9	0.5	A+	A-
62	613611	3	760	.803	.803	.074	.034	.082	.008	.428	.428	-.243	-.187	-.195	-2.282	0.102	-0.1	1.0	-1.1	0.9	B-	A-
63	613615	3	760	.703	.130	.124	.038	.703	.005	.563	-.319	-.285	-.201	.563	-1.583	0.088	-4.3	0.8	-3.9	0.7	B-	A-
64	613449	3	760	.736	.122	.736	.070	.051	.021	.533	-.185	.533	-.314	-.257	-1.852	0.093	-2.7	0.9	-2.9	0.8	A+	B-
65	613606	3	764	.547	.101	.123	.221	.547	.008	.351	-.269	-.243	.014	.351	-0.736	0.083	5.1	1.2	4.3	1.3	A-	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
66	613594	3	760	.321	.353	.220	.321	.099	.008	.256	.015	-.153	.256	-.180	0.378	0.084	2.7	1.1	4.0	1.3	A-	A+
67	613608	3	760	.372	.168	.372	.296	.157	.007	.274	-.150	.274	-.029	-.113	0.118	0.082	3.1	1.1	4.2	1.2	A-	B+
68	613570	3	760	.529	.529	.258	.047	.146	.020	.301	.301	-.016	-.220	-.141	-0.698	0.080	4.8	1.2	3.9	1.2	A-	A-
69	613569	3	760	.665	.115	.101	.099	.665	.021	.357	-.138	-.149	-.109	.357	-1.415	0.085	2.4	1.1	2.2	1.1	A+	A-
70	613464	3	760	.508	.508	.149	.137	.179	.028	.417	.417	-.201	-.212	-.039	-0.622	0.081	0.8	1.0	0.3	1.0	A-	A-
71	613616	3	770	.399	.157	.308	.131	.399	.005	.414	-.197	-.126	-.156	.414	0.025	0.082	0.4	1.0	0.1	1.0	B-	
72	613560	3	770	.643	.226	.643	.065	.042	.025	.482	-.220	.482	-.240	-.182	-1.300	0.085	-1.0	1.0	-1.0	0.9	A+	
73	613561	3	770	.551	.162	.117	.143	.551	.027	.524	-.227	-.193	-.198	.524	-0.813	0.082	-2.7	0.9	-2.8	0.9	B-	
74	613612	3	771	.140	.067	.514	.272	.140	.007	.130	-.158	.017	.034	.130	1.855	0.115	1.2	1.1	3.1	1.5	A-	A-
75	613609	3	771	.816	.053	.087	.038	.816	.007	.545	-.239	-.296	-.237	.545	-2.391	0.106	-2.6	0.8	-3.2	0.7	A-	A+
76	613453	3	771	.423	.398	.423	.083	.075	.021	.443	-.229	.443	-.125	-.090	-0.107	0.082	-0.2	1.0	0.4	1.0	B-	A-
77	613454	3	771	.700	.700	.127	.043	.105	.025	.478	.478	-.175	-.204	-.227	-1.630	0.091	-0.3	1.0	-1.4	0.9	A+	A+
78	613605	3	5356	.572	.572	.128	.067	.226	.008	.356	.356	-.251	-.146	-.075	-0.856	0.031	9.2	1.1	8.3	1.2	A+	A+
79	613613	3	5356	.623	.094	.172	.623	.103	.009	.468	-.198	-.222	.468	-.194	-1.133	0.032	-1.3	1.0	-1.8	1.0	A-	A+
80	613614	3	5356	.884	.040	.031	.884	.037	.008	.497	-.260	-.240	.497	-.213	-3.064	0.048	-5.2	0.8	-8.8	0.5	A-	B-
81	613460	3	5356	.578	.241	.578	.066	.103	.012	.494	-.191	.494	-.237	-.232	-0.904	0.031	-3.5	1.0	-3.7	0.9	A-	A-
82	613459	3	5356	.641	.117	.641	.106	.122	.013	.502	-.207	.502	-.234	-.206	-1.253	0.032	-4.4	0.9	-4.4	0.9	A+	A+
83	613607	3	770	.896	.026	.046	.896	.027	.005	.444	-.181	-.247	.444	-.229	-3.150	0.130	-1.4	0.9	-2.5	0.6	B+	
84	613446	3	764	.763	.072	.080	.071	.763	.014	.624	-.285	-.293	-.311	.624	-2.068	0.097	-5.4	0.7	-4.8	0.6	B+	
85	613440	3	764	.759	.042	.094	.080	.759	.025	.575	-.207	-.291	-.306	.575	-2.109	0.099	-3.1	0.8	-3.7	0.7	B-	
86	613439	3	764	.656	.656	.106	.097	.111	.030	.606	.606	-.278	-.277	-.258	-1.431	0.089	-4.8	0.8	-3.9	0.7	A-	
87	613400	4	6629	.571	.176	.213	.036	.571	.005	.438	-.219	-.192	-.204	.438	-0.240	0.028	1.7	1.0	1.9	1.0	A+	A-
88	613401	4	6629	.780	.090	.046	.780	.079	.005	.562	-.281	-.301	.562	-.265	-1.486	0.033	-9.9	0.8	-9.9	0.7	A+	A-
89	613214	4	818	.752	.059	.100	.075	.752	.015	.546	-.253	-.262	-.233	.546	-1.460	0.093	-3.1	0.9	-3.3	0.7	A+	A-
90	613388	4	829	.695	.022	.232	.695	.052	.000	.345	-.275	-.176	.345	-.200	-0.895	0.083	1.8	1.1	1.8	1.1	A+	A-
91	613389	4	829	.776	.776	.050	.050	.126	.000	.407	.407	-.223	-.291	-.176	-1.408	0.091	-0.3	1.0	-0.2	1.0	A-	A-
92	613390	4	829	.487	.122	.487	.215	.175	.001	.341	-.262	.341	-.115	-.099	0.198	0.078	2.6	1.1	2.5	1.1	A+	A+
93	613375	4	824	.470	.058	.299	.171	.470	.002	.354	-.214	-.170	-.104	.354	0.199	0.079	3.2	1.1	3.0	1.2	A+	C+
94	613376	4	824	.716	.716	.114	.098	.069	.002	.452	.452	-.246	-.291	-.119	-1.129	0.086	-0.8	1.0	-1.4	0.9	A-	A-
95	613377	4	824	.659	.041	.204	.093	.659	.002	.444	-.223	-.187	-.281	.444	-0.796	0.082	-0.8	1.0	-1.2	0.9	A-	A-
96	608190	4	825	.778	.148	.033	.040	.778	.001	.488	-.312	-.261	-.227	.488	-1.348	0.093	-1.9	0.9	-2.5	0.8	A+	A-
97	613216	4	825	.689	.090	.142	.689	.079	.001	.466	-.218	-.268	.466	-.210	-0.768	0.084	-0.8	1.0	-0.8	1.0	A-	A-
98	613175	4	825	.596	.069	.596	.150	.178	.006	.362	-.197	.362	-.131	-.185	-0.277	0.080	3.7	1.1	3.2	1.2	A-	A+
99	613380	4	842	.797	.797	.093	.033	.071	.006	.509	.509	-.286	-.177	-.276	-1.661	0.096	-2.3	0.9	-2.1	0.8	A+	A-
100	613365	4	823	.583	.351	.022	.583	.039	.005	.387	-.258	-.152	.387	-.133	-0.276	0.079	2.2	1.1	1.6	1.1	A-	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
101	613366	4	823	.712	.153	.712	.038	.092	.005	.451	-.246	.451	-.182	-.207	-0.989	0.085	-0.5	1.0	-1.4	0.9	A-	
102	613207	4	823	.521	.521	.086	.061	.323	.009	.372	.372	-.286	-.144	-.082	0.031	0.078	3.3	1.1	3.4	1.2	A-	
103	613206	4	823	.490	.332	.095	.073	.490	.011	.379	-.095	-.148	-.273	.379	0.180	0.078	2.7	1.1	3.5	1.2	A+	
104	613405	4	1657	.776	.776	.127	.041	.047	.010	.513	.513	-.269	-.248	-.233	-1.422	0.066	-3.4	0.9	-3.8	0.8	A-	A+
105	613404	4	1657	.786	.022	.036	.146	.786	.010	.524	-.215	-.229	-.324	.524	-1.501	0.067	-3.9	0.9	-4.2	0.7	A+	A-
106	613393	4	834	.705	.077	.104	.705	.109	.005	.456	-.232	-.211	.456	-.224	-0.934	0.086	0.6	1.0	-0.2	1.0	A-	A+
107	613394	4	834	.767	.124	.068	.038	.767	.002	.478	-.247	-.284	-.201	.478	-1.340	0.092	-1.0	1.0	-0.9	0.9	A+	A+
108	613171	4	834	.781	.089	.034	.781	.092	.005	.498	-.304	-.199	.498	-.234	-1.436	0.094	-1.3	0.9	-2.4	0.8	A+	A-
109	613172	4	834	.694	.052	.694	.083	.164	.007	.519	-.254	.519	-.267	-.242	-0.868	0.085	-1.8	0.9	-1.4	0.9	A-	A+
110	613173	4	834	.784	.784	.092	.048	.070	.006	.533	.533	-.246	-.263	-.287	-1.474	0.095	-2.4	0.9	-2.8	0.7	A-	B-
111	613211	4	834	.637	.215	.637	.091	.053	.005	.479	-.314	.479	-.208	-.104	-0.584	0.080	-2.2	0.9	-2.3	0.9	A+	A-
112	613210	4	834	.644	.023	.644	.113	.215	.006	.432	-.230	.432	-.242	-.187	-0.626	0.081	-0.1	1.0	-0.6	1.0	A+	A+
113	613370	4	825	.617	.103	.617	.093	.177	.010	.517	-.169	.517	-.278	-.275	-0.396	0.081	-2.1	0.9	-2.1	0.9	A+	A-
114	613371	4	825	.772	.772	.136	.041	.041	.010	.490	.490	-.289	-.274	-.185	-1.342	0.093	-1.8	0.9	-1.7	0.9	A+	A-
115	613220	4	6629	.550	.227	.139	.079	.550	.005	.383	-.178	-.133	-.200	.383	-0.129	0.028	8.1	1.1	6.6	1.1	A+	A+
116	613219	4	6629	.689	.689	.153	.049	.103	.005	.447	.447	-.134	-.216	-.315	-0.892	0.030	-1.2	1.0	-0.4	1.0	A+	A-
117	613213	4	818	.621	.621	.087	.212	.065	.016	.498	.498	-.209	-.238	-.193	-0.633	0.083	-0.6	1.0	-0.2	1.0	A-	A+
118	613378	4	824	.686	.039	.182	.091	.686	.002	.544	-.221	-.274	-.331	.544	-0.948	0.083	-4.2	0.9	-3.9	0.8	A-	A-
119	608188	4	825	.748	.063	.044	.748	.146	.000	.395	-.266	-.255	.395	-.155	-1.120	0.089	0.1	1.0	2.5	1.2	A+	A-
120	608189	4	825	.552	.552	.085	.218	.144	.001	.483	.483	-.302	-.131	-.279	-0.033	0.079	-1.4	1.0	-1.2	0.9	A+	A-
121	613177	4	825	.533	.131	.533	.147	.184	.005	.362	-.137	.362	-.216	-.126	0.048	0.078	4.2	1.1	3.6	1.2	A+	A+
122	613176	4	825	.358	.136	.358	.410	.091	.006	.282	-.126	.282	-.091	-.127	0.974	0.081	5.4	1.2	5.2	1.4	A+	A+
123	613189	4	842	.799	.799	.128	.021	.049	.002	.431	.431	-.296	-.128	-.206	-1.649	0.096	-0.4	1.0	-1.2	0.9	A-	A-
124	613190	4	842	.534	.330	.018	.112	.534	.006	.391	-.176	-.124	-.240	.391	-0.084	0.078	3.2	1.1	3.3	1.2	A+	A+
125	613188	4	842	.169	.448	.169	.352	.027	.005	.203	-.091	.203	.031	-.183	2.177	0.103	1.3	1.1	3.5	1.5	A+	A+
126	613208	4	823	.626	.158	.626	.088	.120	.009	.438	-.197	.438	-.122	-.224	-0.508	0.080	0.3	1.0	0.3	1.0	A+	
127	613209	4	823	.623	.239	.060	.623	.069	.009	.472	-.184	-.199	.472	-.278	-0.495	0.080	-0.9	1.0	-1.5	0.9	A+	
128	613174	4	834	.614	.162	.614	.124	.092	.008	.455	-.203	.455	-.204	-.201	-0.403	0.081	1.2	1.0	0.8	1.0	A+	A-
129	613402	4	6629	.622	.091	.172	.622	.109	.006	.397	-.185	-.169	.397	-.184	-0.513	0.029	5.9	1.1	4.8	1.1	A-	A-
130	613403	4	6629	.626	.174	.626	.108	.086	.006	.470	-.212	.470	-.285	-.143	-0.534	0.029	-2.4	1.0	-2.8	1.0	A+	A-
131	619041	4	842	.663	.663	.131	.109	.083	.014	.579	.579	-.304	-.281	-.193	-0.803	0.083	-4.2	0.9	-4.5	0.7	A-	A-
132	619042	4	842	.556	.099	.556	.081	.251	.014	.362	-.237	.362	-.216	-.050	-0.219	0.079	4.6	1.2	4.0	1.2	A+	A+
133	613395	4	834	.826	.043	.085	.826	.043	.002	.567	-.275	-.382	.567	-.207	-1.803	0.102	-3.7	0.8	-4.0	0.6	A+	B-
134	613372	4	825	.741	.056	.078	.741	.116	.010	.540	-.284	-.237	.540	-.290	-1.134	0.089	-3.1	0.9	-3.2	0.8	A-	B-
135	613391	4	829	.876	.876	.036	.033	.056	.000	.491	.491	-.251	-.312	-.261	-2.260	0.113	-2.1	0.9	-3.1	0.6	A+	A-

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
136	613392	4	829	.742	.103	.742	.064	.091	.001	.450	-.287	.450	-.210	-.200	-1.186	0.088	-1.4	0.9	-1.3	0.9	A-	A-
137	613381	4	842	.462	.217	.462	.182	.133	.006	.398	-.206	.398	-.096	-.175	0.301	0.078	2.7	1.1	2.3	1.1	A-	A+
138	619044	4	842	.840	.057	.045	.840	.046	.012	.437	-.171	-.259	.437	-.184	-2.040	0.106	-1.0	0.9	-0.5	0.9	A+	A+
139	619043	4	842	.808	.057	.055	.808	.069	.012	.523	-.252	-.250	.523	-.246	-1.796	0.099	-2.4	0.9	-2.8	0.7	A+	A-
140	619045	4	842	.840	.840	.055	.049	.044	.013	.561	.561	-.276	-.261	-.279	-2.095	0.108	-3.1	0.8	-4.4	0.5	A+	B-
141	619046	4	842	.599	.170	.599	.057	.160	.014	.520	-.204	.520	-.231	-.257	-0.447	0.080	-2.2	0.9	-1.9	0.9	B+	B-
142	613367	4	823	.842	.026	.024	.842	.103	.005	.402	-.206	-.183	.402	-.215	-1.919	0.104	-0.4	1.0	-1.1	0.9	A+	
143	613368	4	823	.478	.478	.114	.081	.322	.005	.328	.328	-.086	-.157	-.156	0.254	0.078	4.8	1.2	5.6	1.3	A+	
144	613397	4	834	.592	.082	.179	.592	.145	.002	.450	-.170	-.232	.450	-.214	-0.277	0.080	1.3	1.1	0.9	1.1	A-	A-
145	613398	4	834	.881	.014	.881	.041	.061	.002	.482	-.154	.482	-.295	-.287	-2.358	0.118	-2.1	0.8	-2.3	0.7	A+	A-
146	613396	4	834	.706	.706	.116	.096	.078	.004	.452	.452	-.182	-.189	-.289	-0.933	0.086	0.3	1.0	0.7	1.1	A+	A-
147	613373	4	825	.506	.126	.219	.138	.506	.011	.414	-.162	-.206	-.156	.414	0.183	0.078	1.8	1.1	3.0	1.1	A-	A-
148	613399	4	6629	.577	.082	.145	.577	.190	.006	.425	-.196	-.270	.425	-.114	-0.272	0.028	3.6	1.0	2.6	1.1	B-	A-
149	613288	4	6629	.773	.140	.035	.047	.773	.006	.448	-.237	-.224	-.218	.448	-1.437	0.033	-2.2	1.0	-2.8	0.9	A-	A-
150	613291	4	6629	.506	.167	.506	.150	.170	.006	.301	-.129	.301	-.198	-.034	0.098	0.028	9.9	1.2	9.9	1.3	A+	A+
151	613295	4	6629	.836	.836	.044	.067	.048	.007	.484	.484	-.266	-.261	-.186	-1.946	0.037	-5.7	0.9	-6.4	0.8	A-	A-
152	613289	4	818	.868	.045	.868	.034	.038	.015	.545	-.277	.545	-.245	-.240	-2.492	0.119	-2.6	0.8	-3.4	0.6	A-	A-
153	613292	4	818	.782	.049	.782	.059	.097	.013	.490	-.297	.490	-.283	-.121	-1.680	0.097	-0.9	1.0	-1.8	0.8	A+	A-
154	613215	4	818	.654	.654	.159	.106	.067	.013	.509	.509	-.213	-.265	-.186	-0.819	0.085	-1.5	0.9	-1.6	0.9	A+	A-
155	613374	4	824	.737	.737	.170	.063	.028	.002	.415	.415	-.246	-.198	-.200	-1.257	0.087	-0.2	1.0	0.2	1.0	A+	B-
156	613217	4	825	.944	.013	.024	.944	.018	.000	.376	-.134	-.280	.376	-.209	-3.242	0.164	-1.3	0.8	-3.7	0.3	A-	A-
157	613218	4	825	.593	.593	.109	.064	.234	.000	.398	.398	-.161	-.259	-.194	-0.241	0.079	2.5	1.1	1.5	1.1	A+	A+
158	613298	4	825	.790	.790	.070	.073	.063	.004	.500	.500	-.291	-.257	-.223	-1.445	0.094	-1.9	0.9	-3.0	0.7	A-	A-
159	613379	4	842	.910	.910	.037	.026	.023	.005	.391	.391	-.210	-.206	-.150	-2.886	0.137	-0.4	1.0	-1.3	0.7	A+	A-
160	613287	4	842	.336	.340	.062	.336	.254	.008	.321	-.109	-.303	.321	-.004	0.955	0.081	3.8	1.1	4.7	1.3	C-	A+
161	613290	4	842	.673	.124	.061	.133	.673	.010	.494	-.174	-.292	-.229	.494	-0.854	0.083	-0.8	1.0	-1.4	0.9	A-	A-
162	613294	4	842	.672	.249	.050	.672	.019	.010	.496	-.318	-.243	.496	-.112	-0.833	0.083	-1.1	1.0	-1.9	0.9	A-	B-
163	613363	4	823	.700	.040	.700	.063	.192	.005	.341	-.123	.341	-.192	-.160	-0.910	0.084	2.7	1.1	1.8	1.1	A-	
164	613364	4	823	.683	.683	.103	.058	.150	.006	.379	.379	-.189	-.194	-.160	-0.830	0.083	1.7	1.1	1.6	1.1	A-	
165	613296	4	1657	.778	.022	.778	.152	.042	.006	.472	-.209	.472	-.287	-.195	-1.417	0.066	-1.9	0.9	-1.8	0.9	A-	A+
166	613205	4	823	.930	.016	.930	.034	.012	.009	.385	-.163	.385	-.155	-.159	-3.040	0.150	-0.6	0.9	-1.5	0.7	A+	
167	613204	4	823	.687	.165	.097	.043	.687	.009	.477	-.258	-.186	-.188	.477	-0.845	0.083	-1.4	1.0	-1.7	0.9	A+	
168	613169	4	834	.287	.287	.374	.195	.140	.004	.225	.225	.081	-.227	-.104	1.395	0.086	6.3	1.3	5.8	1.6	A-	B+
169	613168	4	834	.459	.218	.459	.218	.100	.005	.461	-.158	.461	-.187	-.238	0.426	0.079	0.2	1.0	1.5	1.1	A+	A-
170	613293	4	834	.651	.097	.120	.130	.651	.002	.476	-.208	-.192	-.275	.476	-0.656	0.081	-1.9	0.9	-2.4	0.9	A-	A-

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
171	613297	4	834	.531	.079	.029	.531	.357	.004	.371	-.155	-.201	.371	-.202	-0.022	0.078	2.3	1.1	3.3	1.2	A-	A-
172	613212	4	834	.362	.315	.175	.143	.362	.005	.240	-.078	-.143	-.032	.240	0.835	0.080	5.8	1.2	4.3	1.3	A-	A+
173	613369	4	825	.778	.778	.138	.039	.038	.007	.493	.493	-.260	-.326	-.210	-1.385	0.093	-2.0	0.9	-2.2	0.8	A-	A-
174	613006	5	7652	.245	.245	.185	.203	.360	.009	.232	.232	-.042	-.089	-.043	1.886	0.029	7.7	1.1	9.4	1.3	A+	A-
175	611374	5	7652	.698	.110	.071	.698	.111	.011	.490	-.261	-.237	.490	-.163	-0.546	0.028	-6.2	0.9	-6.2	0.9	A-	A-
176	611375	5	7652	.575	.235	.575	.097	.082	.011	.320	-.108	.320	-.125	-.163	0.124	0.026	9.9	1.1	8.4	1.1	A-	A-
177	611244	5	954	.703	.091	.101	.080	.703	.025	.463	-.204	-.173	-.206	.463	-0.707	0.081	-1.6	0.9	-1.6	0.9	A+	A-
178	611270	5	960	.852	.047	.042	.852	.055	.004	.450	-.193	-.268	.450	-.204	-1.767	0.103	-0.6	1.0	-1.7	0.8	A-	B+
179	611271	5	960	.649	.188	.013	.146	.649	.005	.519	-.245	-.204	-.307	.519	-0.324	0.076	-2.9	0.9	-3.5	0.8	A+	A-
180	611432	5	973	.700	.700	.060	.104	.116	.021	.470	.470	-.116	-.282	-.182	-0.673	0.079	-2.1	0.9	-1.8	0.9	A+	A-
181	611438	5	973	.519	.249	.124	.519	.086	.022	.432	-.108	-.150	.432	-.271	0.311	0.072	-0.8	1.0	-1.4	0.9	A+	A+
182	614009	5	948	.876	.039	.033	.051	.876	.002	.414	-.192	-.237	-.233	.414	-1.894	0.109	-1.4	0.9	-2.4	0.7	A+	A-
183	614010	5	948	.856	.856	.032	.075	.036	.002	.433	.433	-.204	-.295	-.174	-1.709	0.104	-1.2	0.9	-1.9	0.8	A+	A-
184	611242	5	954	.390	.390	.433	.054	.117	.006	.119	.119	.077	-.219	-.073	1.039	0.072	7.0	1.2	7.0	1.3	A+	A-
185	611222	5	960	.397	.400	.137	.059	.397	.007	.479	-.306	-.111	-.084	.479	1.057	0.073	-2.8	0.9	-2.8	0.9	A+	A-
186	611223	5	960	.743	.743	.065	.040	.147	.006	.440	.440	-.216	-.210	-.204	-0.801	0.082	-0.3	1.0	-1.4	0.9	A-	A-
187	611224	5	960	.400	.102	.400	.227	.264	.007	.396	-.215	.396	-.127	-.114	1.034	0.073	1.1	1.0	2.1	1.1	A+	A+
188	611275	5	1910	.798	.097	.042	.798	.054	.008	.493	-.204	-.287	.493	-.237	-1.120	0.063	-3.3	0.9	-4.2	0.8	A+	A+
189	614003	5	960	.745	.745	.075	.065	.083	.032	.551	.551	-.142	-.260	-.310	-0.938	0.085	-3.5	0.9	-3.7	0.7	A-	C-
190	614004	5	960	.799	.064	.799	.051	.053	.033	.499	-.247	.499	-.158	-.233	-1.361	0.093	-1.9	0.9	-2.5	0.8	A+	B+
191	611190	5	950	.304	.211	.304	.107	.365	.013	.241	-.067	.241	-.202	.016	1.603	0.076	3.6	1.1	4.5	1.3	A-	A+
192	611173	5	950	.418	.418	.070	.259	.238	.016	.341	.341	-.255	-.174	.008	1.001	0.072	2.4	1.1	3.2	1.1	A+	A+
193	611170	5	950	.508	.104	.277	.092	.508	.019	.485	-.204	-.210	-.189	.485	0.556	0.071	-3.3	0.9	-2.8	0.9	A+	A-
194	611207	5	950	.717	.078	.108	.073	.717	.024	.567	-.270	-.256	-.265	.567	-0.576	0.080	-4.5	0.8	-5.1	0.7	B+	A-
195	611267	5	953	.892	.892	.028	.048	.030	.001	.394	.394	-.197	-.243	-.215	-1.956	0.111	-1.4	0.9	-1.9	0.8	B+	A+
196	611266	5	953	.727	.727	.064	.114	.091	.003	.390	.390	-.230	-.171	-.205	-0.661	0.079	0.0	1.0	-0.5	1.0	A-	A+
197	611212	5	953	.879	.051	.039	.879	.022	.008	.484	-.292	-.191	.484	-.215	-1.865	0.108	-2.1	0.9	-3.1	0.7	A+	A+
198	611211	5	953	.751	.097	.079	.063	.751	.011	.524	-.253	-.247	-.244	.524	-0.834	0.082	-3.5	0.9	-3.7	0.8	A+	A+
199	611213	5	953	.630	.276	.630	.058	.022	.015	.367	-.075	.367	-.357	-.224	-0.155	0.073	1.3	1.0	2.2	1.1	A-	A-
200	611249	5	960	.547	.158	.090	.192	.547	.014	.531	-.100	-.233	-.326	.531	0.189	0.073	-4.0	0.9	-3.7	0.9	B+	A+
201	611248	5	960	.228	.072	.228	.351	.335	.014	.122	-.096	.122	-.046	.060	1.964	0.084	4.2	1.2	6.2	1.6	A-	A-
202	611278	5	960	.677	.121	.120	.067	.677	.016	.501	-.228	-.333	-.071	.501	-0.539	0.079	-1.3	1.0	-0.9	0.9	A-	A-
203	613007	5	7652	.764	.099	.061	.764	.069	.008	.439	-.197	-.223	.439	-.192	-0.957	0.030	-2.7	1.0	-3.5	0.9	A+	A-
204	613005	5	7652	.282	.135	.448	.282	.126	.008	.149	-.177	.103	.149	-.094	1.657	0.028	9.9	1.2	9.9	1.5	A-	A+
205	611245	5	954	.550	.126	.550	.213	.089	.022	.425	-.159	.425	-.193	-.126	0.154	0.073	1.1	1.0	0.4	1.0	A+	A+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
206	611246	5	954	.751	.751	.027	.064	.136	.022	.532	.532	-.205	-.226	-.286	-1.013	0.085	-3.4	0.9	-3.6	0.7	A-	A-
207	611243	5	954	.629	.247	.082	.629	.037	.005	.313	-.122	-.170	.313	-.204	-0.119	0.073	1.8	1.1	0.7	1.0	A+	C+
208	611237	5	960	.803	.078	.074	.803	.039	.006	.471	-.187	-.283	.471	-.192	-1.220	0.089	-1.4	0.9	-2.5	0.8	A-	A+
209	611236	5	960	.650	.117	.147	.077	.650	.009	.478	-.203	-.183	-.264	.478	-0.263	0.076	-1.5	1.0	-1.5	0.9	A+	A-
210	611235	5	960	.696	.194	.696	.052	.051	.007	.478	-.262	.478	-.211	-.188	-0.518	0.078	-0.7	1.0	-2.0	0.9	A+	A+
211	611168	5	950	.793	.057	.793	.084	.052	.015	.508	-.188	.508	-.324	-.191	-1.037	0.088	-2.4	0.9	-3.4	0.7	A+	A+
212	611153	5	950	.503	.218	.076	.503	.186	.017	.508	-.212	-.197	.508	-.215	0.577	0.071	-4.1	0.9	-3.6	0.9	A+	B-
213	611208	5	950	.594	.594	.132	.096	.157	.022	.463	.463	-.213	-.268	-.117	0.114	0.073	-1.5	1.0	-1.4	0.9	A+	B-
214	611209	5	950	.662	.238	.662	.041	.037	.022	.493	-.264	.493	-.238	-.212	-0.249	0.076	-2.5	0.9	-2.3	0.9	A+	A+
215	611215	5	953	.718	.104	.101	.718	.069	.008	.425	-.195	-.226	.425	-.154	-0.616	0.078	-0.9	1.0	-0.3	1.0	A+	A-
216	611214	5	953	.897	.897	.028	.036	.028	.011	.530	.530	-.236	-.290	-.254	-2.107	0.117	-2.6	0.8	-5.0	0.4	B+	A-
217	611219	5	953	.537	.089	.269	.088	.537	.017	.454	-.223	-.201	-.159	.454	0.306	0.071	-2.2	0.9	-2.1	0.9	A+	A-
218	611220	5	953	.489	.214	.489	.136	.143	.018	.318	-.158	.318	-.074	-.115	0.537	0.071	3.5	1.1	3.9	1.2	A+	A+
219	611221	5	953	.664	.087	.142	.664	.086	.021	.495	-.238	-.236	.495	-.201	-0.365	0.076	-3.0	0.9	-3.2	0.8	A+	A-
220	611251	5	960	.835	.835	.044	.053	.056	.012	.517	.517	-.233	-.256	-.244	-1.696	0.101	-1.3	0.9	-2.5	0.7	A+	A-
221	611250	5	960	.749	.075	.103	.749	.059	.014	.495	-.257	-.227	.495	-.192	-0.999	0.085	-0.8	1.0	-1.3	0.9	A+	A-
222	611376	5	7652	.825	.101	.026	.039	.825	.009	.530	-.297	-.214	-.254	.530	-1.427	0.033	-7.6	0.9	-9.9	0.7	A+	B-
223	611272	5	960	.914	.914	.046	.025	.013	.003	.424	.424	-.279	-.176	-.189	-2.562	0.134	-0.7	0.9	-2.1	0.6	B+	A+
224	611439	5	973	.694	.694	.069	.082	.137	.019	.511	.511	-.256	-.259	-.164	-0.606	0.078	-3.1	0.9	-2.7	0.8	A+	A+
225	611440	5	973	.632	.063	.160	.123	.632	.022	.512	-.200	-.230	-.214	.512	-0.286	0.075	-3.2	0.9	-3.1	0.8	C+	A+
226	614011	5	948	.732	.114	.732	.043	.107	.004	.450	-.268	.450	-.260	-.169	-0.722	0.082	-1.6	0.9	-1.6	0.9	A-	A-
227	614012	5	948	.812	.032	.037	.812	.115	.004	.427	-.201	-.255	.427	-.229	-1.313	0.093	-0.8	1.0	-1.7	0.8	A-	A-
228	611276	5	1910	.742	.742	.044	.057	.149	.008	.418	.418	-.227	-.246	-.148	-0.731	0.058	-0.6	1.0	0.3	1.0	A+	A-
229	614005	5	960	.443	.133	.293	.100	.443	.031	.509	-.257	-.133	-.173	.509	0.764	0.073	-2.9	0.9	-2.3	0.9	A+	B-
230	611377	5	7652	.585	.117	.585	.159	.131	.009	.401	-.156	.401	-.159	-.181	0.078	0.026	1.3	1.0	1.4	1.0	A+	A+
231	611390	5	7652	.408	.238	.167	.176	.408	.010	.360	-.109	-.104	-.162	.360	0.962	0.026	4.2	1.0	6.5	1.1	A-	A-
232	611274	5	960	.941	.941	.024	.018	.014	.004	.468	.468	-.243	-.254	-.182	-3.201	0.171	-0.9	0.9	-2.6	0.5	B+	A-
233	611273	5	960	.289	.230	.229	.289	.245	.007	.300	-.066	-.077	.300	-.120	1.575	0.078	1.2	1.0	4.2	1.3	A-	A-
234	611277	5	1910	.585	.031	.175	.585	.198	.010	.403	-.194	-.153	.403	-.194	0.142	0.051	1.8	1.0	1.0	1.0	A+	A-
235	614006	5	960	.652	.652	.087	.143	.093	.026	.448	.448	-.189	-.171	-.175	-0.329	0.077	0.6	1.0	0.3	1.0	A+	A-
236	614007	5	960	.651	.651	.100	.076	.144	.029	.449	.449	-.176	-.231	-.132	-0.332	0.077	0.6	1.0	0.0	1.0	A+	A-
237	611268	5	953	.689	.689	.102	.120	.085	.004	.336	.336	-.131	-.180	-.155	-0.438	0.076	1.7	1.1	1.4	1.1	B+	A+
238	611309	5	960	.760	.760	.085	.097	.043	.015	.519	.519	-.271	-.252	-.185	-1.070	0.087	-1.8	0.9	-2.1	0.8	A+	A-
239	611291	5	960	.806	.806	.050	.057	.068	.019	.608	.608	-.232	-.293	-.351	-1.506	0.097	-3.9	0.8	-4.3	0.6	A+	A-
240	611554	5	7652	.472	.366	.472	.068	.089	.006	.359	-.121	.359	-.234	-.139	0.645	0.025	5.0	1.1	6.6	1.1	A-	A+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
241	611354	5	7652	.583	.067	.583	.052	.290	.008	.400	-.200	.400	-.232	-.150	0.095	0.026	1.6	1.0	0.1	1.0	A-	A-
242	611550	5	954	.763	.763	.049	.090	.083	.015	.528	.528	-.288	-.246	-.180	-1.067	0.086	-2.2	0.9	-2.7	0.8	B-	A-
243	611269	5	960	.857	.025	.857	.091	.025	.002	.447	-.280	.447	-.237	-.219	-1.822	0.105	-0.6	1.0	-2.1	0.8	B+	A-
244	611429	5	973	.699	.699	.070	.079	.135	.018	.493	.493	-.209	-.290	-.153	-0.651	0.078	-2.1	0.9	-1.7	0.9	A-	A-
245	614008	5	948	.769	.769	.197	.018	.015	.001	.491	.491	-.417	-.117	-.170	-0.968	0.086	-2.2	0.9	-2.3	0.8	A-	B-
246	611544	5	954	.541	.118	.203	.122	.541	.016	.527	-.174	-.235	-.210	.527	0.229	0.073	-3.9	0.9	-3.6	0.9	A+	A+
247	611241	5	954	.884	.039	.043	.031	.884	.003	.405	-.197	-.229	-.171	.405	-1.864	0.108	-0.9	0.9	-2.7	0.7	A+	A+
248	611555	5	960	.691	.064	.691	.120	.121	.005	.410	-.214	.410	-.093	-.270	-0.560	0.079	1.0	1.0	0.8	1.1	A-	A+
249	611549	5	960	.880	.880	.046	.038	.029	.007	.453	.453	-.221	-.240	-.172	-1.948	0.108	-1.4	0.9	-3.0	0.6	A-	A-
250	611551	5	1903	.720	.145	.113	.019	.720	.004	.325	-.270	-.027	-.206	.325	-0.557	0.055	2.0	1.1	3.3	1.2	B-	B+
251	611546	5	950	.844	.041	.061	.048	.844	.005	.417	-.208	-.224	-.203	.417	-1.401	0.097	-1.2	0.9	-1.5	0.8	A+	B+
252	611547	5	950	.798	.798	.043	.052	.102	.005	.370	.370	-.227	-.129	-.215	-1.019	0.087	0.1	1.0	-0.6	1.0	A-	A-
253	611181	5	950	.850	.850	.095	.027	.016	.013	.467	.467	-.281	-.228	-.150	-1.500	0.100	-1.6	0.9	-2.3	0.8	A+	A-
254	611548	5	953	.570	.124	.570	.288	.015	.004	.339	-.191	.339	-.181	-.069	0.183	0.071	2.1	1.1	2.0	1.1	A+	B-
255	611552	5	953	.607	.104	.172	.110	.607	.007	.333	-.145	-.199	-.083	.333	-0.011	0.072	2.5	1.1	1.6	1.1	A+	A-
256	611210	5	953	.639	.639	.176	.134	.042	.008	.382	.382	-.149	-.228	-.121	-0.182	0.073	0.8	1.0	1.0	1.0	A-	A+
257	611247	5	960	.868	.024	.047	.050	.868	.012	.540	-.229	-.290	-.258	.540	-2.055	0.113	-1.7	0.9	-3.6	0.6	B+	A-
258	611545	5	954	.484	.484	.212	.193	.102	.009	.419	.419	-.150	-.213	-.125	0.581	0.071	-2.5	0.9	-2.4	0.9	A-	B-
259	611553	5	954	.782	.072	.782	.049	.090	.006	.446	-.245	.446	-.178	-.202	-1.014	0.085	-1.4	0.9	-1.8	0.9	A-	A+
260	610133	6	7268	.646	.224	.646	.070	.041	.019	.499	-.195	.499	-.245	-.250	-0.194	0.028	-4.3	1.0	-4.4	0.9	A+	A-
261	610355	6	7268	.569	.090	.078	.569	.243	.020	.413	-.215	-.237	.413	-.075	0.220	0.027	6.0	1.1	5.3	1.1	A+	A-
262	610134	6	7268	.696	.159	.072	.696	.052	.021	.515	-.176	-.256	.515	-.257	-0.504	0.029	-5.2	0.9	-5.0	0.9	A+	A-
263	612248	6	7268	.735	.067	.094	.735	.076	.027	.535	-.176	-.233	.535	-.259	-0.796	0.031	-6.7	0.9	-6.3	0.8	A+	A-
264	610305	6	721	.614	.614	.173	.112	.072	.028	.621	.621	-.297	-.269	-.219	-0.057	0.088	-5.6	0.8	-5.0	0.7	A-	A-
265	610142	6	721	.490	.137	.490	.147	.191	.035	.346	-.269	.346	-.173	.086	0.595	0.085	4.8	1.2	4.4	1.2	A+	A+
266	610143	6	721	.731	.126	.731	.056	.051	.036	.603	-.274	.603	-.258	-.289	-0.812	0.098	-4.1	0.8	-4.2	0.7	A-	B-
267	610309	6	730	.893	.893	.019	.055	.030	.003	.413	.413	-.166	-.256	-.195	-2.027	0.131	-0.7	0.9	-1.6	0.7	A+	A-
268	612265	6	725	.430	.334	.101	.131	.430	.004	.231	-.003	-.184	-.142	.231	0.880	0.085	6.7	1.3	6.5	1.4	A+	A+
269	610330	6	725	.461	.283	.461	.083	.131	.043	.358	-.051	.358	-.232	-.080	0.642	0.086	4.3	1.2	4.4	1.3	A-	A+
270	612294	6	731	.594	.130	.108	.167	.594	.001	.381	-.230	-.122	-.174	.381	0.145	0.084	0.9	1.0	0.5	1.0	A-	A-
271	612237	6	731	.781	.019	.781	.044	.155	.001	.395	-.101	.395	-.243	-.257	-0.970	0.099	-0.3	1.0	-1.1	0.9	A-	A+
272	612232	6	731	.762	.082	.097	.762	.051	.008	.502	-.231	-.212	.502	-.292	-0.877	0.098	-2.2	0.9	-1.8	0.8	A+	B-
273	612255	6	731	.289	.348	.201	.289	.089	.074	.208	.171	-.168	.208	-.103	1.612	0.091	4.4	1.2	5.7	1.5	A+	A+
274	610318	6	730	.799	.115	.799	.032	.049	.006	.449	-.264	.449	-.157	-.194	-1.109	0.104	-0.2	1.0	-1.6	0.8	A+	B-
275	610335	6	730	.449	.096	.060	.449	.352	.043	.296	-.281	-.267	.296	.161	0.891	0.087	7.1	1.3	6.7	1.4	A-	A+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
276	609238	6	725	.506	.036	.506	.419	.035	.004	.472	-.140	.472	-.330	-.186	0.443	0.083	-2.7	0.9	-2.2	0.9	A+	A-
277	609239	6	725	.738	.738	.050	.150	.058	.004	.285	.285	-.226	-.035	-.193	-0.815	0.093	2.0	1.1	3.5	1.3	A+	B-
278	612221	6	725	.596	.168	.596	.073	.156	.007	.431	-.244	.431	-.214	-.120	-0.018	0.085	-0.5	1.0	-0.5	1.0	A+	B-
279	612293	6	725	.414	.047	.124	.403	.414	.012	.296	-.185	-.133	-.058	.296	0.909	0.085	3.9	1.1	3.9	1.2	A+	A-
280	612262	6	725	.259	.259	.030	.550	.152	.008	.186	.186	-.139	-.023	-.047	1.783	0.093	4.3	1.2	6.3	1.6	A-	A-
281	612225	6	725	.559	.188	.072	.559	.095	.087	.557	-.206	-.247	.557	-.208	-0.088	0.089	-3.8	0.9	-3.9	0.8	A+	A+
282	609091	6	730	.547	.241	.088	.547	.114	.011	.409	-.094	-.195	.409	-.232	0.380	0.084	1.9	1.1	1.4	1.1	A+	A-
283	609092	6	730	.451	.177	.127	.234	.451	.011	.263	-.011	-.113	-.130	.263	0.871	0.084	6.5	1.2	5.5	1.3	A+	B-
284	612211	6	730	.704	.112	.071	.085	.704	.027	.650	-.283	-.306	-.272	.650	-0.580	0.094	-5.7	0.8	-5.6	0.6	B-	A-
285	612306	6	730	.426	.426	.121	.125	.292	.037	.325	.325	-.309	-.215	.156	0.935	0.085	5.1	1.2	4.4	1.3	A+	A-
286	609196	6	730	.725	.725	.063	.101	.053	.058	.632	.632	-.296	-.292	-.229	-0.874	0.101	-4.6	0.8	-4.6	0.6	A+	A-
287	609197	6	730	.455	.307	.084	.092	.455	.063	.388	.031	-.317	-.188	.388	0.713	0.086	3.1	1.1	3.0	1.2	A+	A+
288	609275	6	730	.682	.127	.682	.063	.058	.070	.531	-.155	.531	-.261	-.297	-0.650	0.097	-2.0	0.9	-2.0	0.8	A+	A+
289	612257	6	721	.792	.185	.792	.011	.008	.004	.450	-.355	.450	-.193	-.091	-1.074	0.102	-0.7	1.0	-1.1	0.9	A+	A-
290	610117	6	721	.775	.040	.025	.155	.775	.004	.418	-.234	-.188	-.228	.418	-0.960	0.099	-0.1	1.0	0.0	1.0	A+	A-
291	610074	6	721	.376	.067	.376	.257	.295	.006	.291	-.148	.291	-.168	-.027	1.252	0.086	4.4	1.2	4.9	1.3	A+	B-
292	608010	6	721	.559	.104	.089	.241	.559	.007	.420	-.263	-.253	-.081	.420	0.302	0.085	1.5	1.1	1.6	1.1	A+	A+
293	610062	6	721	.354	.291	.221	.354	.083	.051	.309	-.032	-.059	.309	-.160	1.289	0.088	4.3	1.2	5.3	1.4	A-	A-
294	610060	6	721	.501	.501	.164	.119	.158	.058	.509	.509	-.210	-.190	-.149	0.464	0.087	-1.4	1.0	-1.4	0.9	B-	A+
295	610061	6	721	.363	.221	.198	.148	.363	.069	.454	-.022	-.176	-.219	.454	1.195	0.088	-0.5	1.0	0.7	1.0	A+	A-
296	610127	6	731	.289	.294	.220	.289	.192	.006	.226	.022	-.084	.226	-.159	1.755	0.090	3.7	1.2	6.1	1.6	A-	A-
297	610128	6	731	.358	.424	.079	.358	.133	.006	.337	-.060	-.192	.337	-.185	1.367	0.086	2.0	1.1	3.3	1.2	A+	B+
298	610129	6	731	.296	.042	.296	.116	.539	.007	.191	-.194	.191	-.112	.003	1.717	0.089	5.0	1.2	6.2	1.6	A+	B+
299	609234	6	731	.705	.160	.074	.049	.705	.012	.422	-.208	-.165	-.159	.422	-0.503	0.092	0.2	1.0	0.0	1.0	A-	B-
300	609235	6	731	.547	.070	.547	.285	.083	.015	.384	-.198	.384	-.105	-.187	0.376	0.084	2.4	1.1	1.5	1.1	A-	A+
301	608003	6	731	.501	.140	.093	.224	.501	.042	.466	-.097	-.254	-.104	.466	0.543	0.085	0.7	1.0	1.2	1.1	A+	A-
302	608007	6	731	.743	.058	.743	.067	.083	.049	.656	-.223	.656	-.273	-.293	-0.939	0.101	-5.2	0.7	-5.6	0.5	A+	A-
303	610068	6	731	.565	.565	.163	.137	.071	.064	.486	.486	-.107	-.160	-.212	0.118	0.088	0.2	1.0	-0.2	1.0	A-	A-
304	610067	6	731	.592	.218	.051	.071	.592	.068	.529	-.131	-.212	-.251	.529	-0.052	0.089	-1.2	1.0	-1.7	0.9	A+	A-
305	609089	6	731	.505	.145	.103	.505	.159	.089	.449	-.062	-.249	.449	-.072	0.389	0.087	1.4	1.1	1.0	1.1	A+	A+
306	610137	6	729	.600	.086	.600	.252	.059	.003	.363	-.183	.363	-.166	-.195	0.141	0.085	2.6	1.1	2.3	1.1	A+	A+
307	610138	6	729	.325	.191	.082	.325	.392	.010	.132	-.056	-.163	.132	.035	1.550	0.087	7.3	1.3	8.0	1.7	B-	A+
308	610159	6	1453	.792	.070	.045	.089	.792	.003	.363	-.201	-.220	-.134	.363	-1.023	0.073	1.3	1.1	1.1	1.1	A-	B-
309	610160	6	1453	.646	.044	.285	.646	.019	.007	.373	-.233	-.216	.373	-.130	-0.104	0.062	3.4	1.1	2.0	1.1	A-	A+
310	610161	6	1453	.776	.081	.776	.041	.096	.006	.511	-.255	.511	-.225	-.266	-0.931	0.071	-2.6	0.9	-3.6	0.8	A-	A+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
311	612299	6	729	.593	.080	.145	.593	.156	.026	.477	-.313	-.192	.477	-.105	0.107	0.086	0.1	1.0	0.6	1.0	A+	A+
312	612300	6	729	.689	.093	.084	.102	.689	.033	.561	-.156	-.272	-.301	.561	-0.486	0.093	-3.1	0.9	-1.1	0.9	A+	B-
313	609048	6	729	.531	.097	.240	.092	.531	.040	.471	-.199	-.097	-.286	.471	0.394	0.085	0.3	1.0	0.8	1.0	A+	A+
314	609043	6	729	.565	.086	.244	.059	.565	.045	.434	-.213	-.072	-.277	.434	0.198	0.087	1.9	1.1	2.2	1.1	A-	A+
315	608008	6	729	.744	.744	.062	.108	.030	.056	.542	.542	-.313	-.221	-.198	-0.993	0.103	-2.0	0.9	-2.4	0.8	A-	B-
316	612269	6	722	.137	.216	.137	.068	.572	.007	-.072	-.205	-.072	-.205	.371	2.980	0.119	2.5	1.2	5.8	2.2	A+	A-
317	612270	6	722	.691	.071	.091	.691	.140	.007	.371	-.207	-.284	.371	-.040	-0.339	0.091	1.5	1.1	0.8	1.1	A+	A-
318	609189	6	722	.445	.287	.445	.114	.107	.049	.385	.018	.385	-.265	-.144	0.871	0.085	1.5	1.1	1.6	1.1	A-	A+
319	609186	6	722	.338	.324	.141	.145	.338	.051	.420	.067	-.284	-.157	.420	1.401	0.087	-0.5	1.0	0.5	1.0	A-	A-
320	609188	6	722	.772	.054	.039	.083	.772	.053	.608	-.305	-.224	-.246	.608	-1.165	0.110	-2.8	0.8	-4.1	0.6	A-	A+
321	612235	6	722	.770	.043	.089	.770	.035	.064	.593	-.227	-.296	.593	-.212	-1.204	0.112	-2.7	0.8	-4.1	0.6	A+	A+
322	612154	6	724	.684	.684	.116	.036	.155	.010	.435	.435	-.251	-.251	-.121	-0.317	0.092	0.1	1.0	1.0	1.1	A+	A-
323	612155	6	724	.920	.025	.920	.026	.021	.008	.458	-.211	.458	-.200	-.197	-2.492	0.165	-1.3	0.8	-2.1	0.5	B+	B-
324	612156	6	724	.547	.044	.029	.370	.547	.010	.358	-.195	-.217	-.147	.358	0.452	0.085	3.2	1.1	2.9	1.2	A+	A-
325	610079	6	724	.413	.090	.207	.233	.413	.057	.415	-.216	-.170	-.026	.415	1.044	0.087	1.0	1.0	1.6	1.1	A+	A+
326	610081	6	724	.634	.634	.095	.082	.124	.065	.513	.513	-.275	-.225	-.128	-0.229	0.093	-2.1	0.9	-2.6	0.8	A+	A+
327	609083	6	724	.225	.240	.101	.225	.358	.076	.077	.058	-.153	.077	.108	2.214	0.102	5.3	1.3	9.3	2.3	A+	B+
328	610071	6	730	.490	.490	.169	.110	.181	.051	.488	.488	-.179	-.192	-.100	0.633	0.087	-0.4	1.0	-0.5	1.0	A-	A+
329	610070	6	730	.573	.573	.127	.077	.169	.055	.513	.513	-.208	-.208	-.141	0.151	0.089	-0.9	1.0	-1.5	0.9	A-	A-
330	609023	6	1453	.773	.027	.169	.028	.773	.003	.324	-.183	-.165	-.218	.324	-0.897	0.070	2.2	1.1	0.2	1.0	B+	A-
331	609024	6	1453	.641	.025	.172	.160	.641	.003	.367	-.135	-.185	-.205	.367	-0.078	0.061	2.5	1.1	2.1	1.1	A+	A+
332	610135	6	7268	.862	.862	.042	.034	.046	.016	.559	.559	-.276	-.255	-.237	-1.808	0.039	-8.6	0.8	-9.9	0.5	A+	A-
333	610136	6	7268	.648	.081	.100	.150	.648	.022	.589	-.234	-.265	-.250	.589	-0.221	0.028	-9.9	0.8	-9.9	0.7	A+	A-
334	610144	6	721	.689	.069	.178	.689	.037	.026	.456	-.150	-.234	.456	-.201	-0.494	0.093	0.4	1.0	0.4	1.0	A+	A+
335	610145	6	721	.574	.194	.574	.094	.103	.035	.557	-.142	.557	-.248	-.299	0.149	0.087	-2.8	0.9	-2.9	0.8	A+	A-
336	612251	6	725	.585	.105	.095	.149	.585	.066	.579	-.232	-.249	-.185	.579	-0.118	0.090	-3.8	0.9	-4.0	0.8	B+	A-
337	612252	6	725	.577	.577	.090	.088	.174	.072	.506	.506	-.281	-.168	-.122	-0.091	0.090	-0.5	1.0	-1.0	0.9	A+	A+
338	612253	6	725	.272	.059	.272	.508	.088	.073	.320	-.168	.320	.081	-.246	1.663	0.095	2.3	1.1	4.8	1.5	A+	A-
339	610320	6	730	.704	.126	.085	.704	.081	.004	.405	-.136	-.239	.405	-.198	-0.449	0.093	1.4	1.1	1.3	1.1	A+	A-
340	610319	6	730	.492	.099	.314	.090	.492	.006	.366	-.206	-.187	-.047	.366	0.749	0.085	2.9	1.1	2.6	1.1	A+	A-
341	612222	6	725	.749	.749	.044	.149	.052	.006	.473	.473	-.242	-.219	-.252	-0.893	0.095	-1.5	0.9	-1.7	0.9	A-	A+
342	612223	6	725	.546	.178	.117	.150	.546	.008	.369	-.163	-.210	-.091	.369	0.233	0.084	2.0	1.1	2.0	1.1	A-	A-
343	612226	6	725	.592	.106	.148	.079	.592	.076	.556	-.239	-.202	-.212	.556	-0.239	0.090	-3.0	0.9	-3.0	0.8	A+	A+
344	612227	6	725	.469	.123	.469	.236	.092	.080	.462	-.183	.462	-.066	-.243	0.435	0.087	0.0	1.0	-0.1	1.0	A-	A-
345	609162	6	730	.597	.208	.597	.156	.033	.006	.291	-.030	.291	-.241	-.145	0.122	0.085	5.2	1.2	5.0	1.3	A-	A+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
346	609164	6	730	.392	.107	.392	.310	.186	.006	.293	-.049	.293	-.156	-.099	1.187	0.084	4.5	1.2	4.0	1.3	A+	A+
347	609198	6	730	.749	.049	.749	.119	.029	.053	.615	-.271	.615	-.329	-.203	-1.042	0.104	-4.1	0.8	-4.3	0.6	A+	A+
348	609199	6	730	.721	.048	.090	.086	.721	.055	.617	-.180	-.250	-.352	.617	-0.832	0.100	-4.2	0.8	-4.2	0.7	A-	A+
349	609200	6	730	.606	.190	.069	.606	.081	.055	.465	-.202	-.200	.465	-.105	-0.086	0.089	1.1	1.1	0.0	1.0	A+	B-
350	612258	6	721	.578	.087	.287	.578	.043	.004	.297	-.245	-.067	.297	-.173	0.208	0.085	5.4	1.2	4.1	1.2	A-	A+
351	608011	6	721	.477	.204	.185	.477	.129	.006	.301	-.123	-.134	.301	-.088	0.724	0.084	5.2	1.2	5.6	1.3	A-	B+
352	610130	6	731	.662	.040	.066	.223	.662	.010	.314	-.072	-.258	-.118	.314	-0.238	0.088	4.1	1.2	2.8	1.2	A+	A+
353	610131	6	731	.639	.093	.639	.223	.040	.006	.479	-.265	.479	-.272	-.129	-0.098	0.087	-1.6	0.9	-2.3	0.9	A-	A-
354	608014	6	731	.814	.049	.066	.814	.033	.038	.595	-.233	-.267	.595	-.201	-1.457	0.114	-2.9	0.8	-3.9	0.6	A-	A+
355	609087	6	731	.695	.695	.067	.088	.068	.082	.619	.619	-.207	-.294	-.194	-0.771	0.100	-4.1	0.8	-4.3	0.6	A-	A-
356	609088	6	731	.532	.137	.170	.075	.532	.086	.539	-.122	-.161	-.248	.539	0.245	0.088	-2.3	0.9	-2.5	0.9	A+	A+
357	610162	6	1453	.822	.019	.044	.822	.109	.006	.494	-.218	-.274	.494	-.274	-1.303	0.078	-2.3	0.9	-3.7	0.7	A+	A+
358	612224	6	729	.494	.232	.494	.084	.170	.021	.304	-.044	.304	-.267	-.053	0.645	0.084	5.8	1.2	5.3	1.3	A+	A+
359	609036	6	729	.855	.026	.855	.058	.026	.036	.503	-.222	.503	-.296	-.139	-1.880	0.128	-1.8	0.9	-1.4	0.8	B-	A-
360	609035	6	729	.694	.070	.110	.694	.086	.040	.456	-.125	-.224	.456	-.185	-0.547	0.094	0.7	1.0	0.9	1.1	A+	A-
361	609031	6	729	.759	.759	.066	.054	.082	.040	.515	.515	-.256	-.282	-.136	-1.002	0.103	-1.3	0.9	-1.2	0.9	A+	A+
362	608009	6	729	.787	.045	.060	.055	.787	.052	.648	-.238	-.333	-.338	.648	-1.332	0.111	-5.1	0.7	-5.3	0.5	A-	B-
363	608012	6	729	.479	.141	.479	.134	.192	.054	.546	-.180	.546	-.286	-.132	0.638	0.086	-2.8	0.9	-2.3	0.9	A+	A-
364	607993	6	722	.751	.062	.060	.751	.096	.032	.531	-.220	-.242	.531	-.196	-0.887	0.102	-1.1	0.9	-1.4	0.9	A+	A-
365	609184	6	722	.518	.518	.238	.100	.100	.044	.394	.394	-.130	-.195	-.045	0.477	0.085	2.4	1.1	3.1	1.2	A-	A-
366	609187	6	722	.790	.049	.790	.044	.069	.049	.586	-.203	.586	-.256	-.280	-1.268	0.113	-2.7	0.8	-3.5	0.6	A-	B+
367	612157	6	724	.856	.856	.028	.043	.066	.007	.478	.478	-.232	-.218	-.233	-1.635	0.124	-1.2	0.9	-1.4	0.8	A+	A-
368	612158	6	724	.620	.233	.065	.072	.620	.010	.448	-.171	-.254	-.202	.448	0.030	0.088	0.5	1.0	0.3	1.0	A+	A-
369	609084	6	724	.736	.133	.073	.736	.032	.026	.430	-.201	-.198	.430	-.106	-0.679	0.099	0.5	1.0	0.0	1.0	A-	B-
370	609085	6	724	.634	.175	.634	.058	.099	.033	.479	-.173	.479	-.183	-.217	-0.128	0.091	-0.1	1.0	-0.8	1.0	A-	A-
371	609086	6	724	.481	.102	.286	.481	.097	.035	.292	-.154	.016	.292	-.160	0.732	0.086	7.0	1.3	6.9	1.4	A+	A+
372	609082	6	724	.105	.408	.105	.115	.304	.069	-.063	.193	-.063	-.206	.120	3.580	0.147	1.9	1.2	5.4	2.7	A+	A+
373	609081	6	724	.377	.377	.159	.158	.228	.079	.312	.312	-.181	-.115	.047	1.182	0.089	4.8	1.2	5.7	1.4	A+	A-
374	610328	6	725	.683	.075	.066	.683	.120	.057	.600	-.215	-.269	.600	-.238	-0.679	0.096	-3.2	0.9	-3.5	0.7	A-	A+
375	610329	6	725	.719	.719	.052	.079	.090	.061	.492	.492	-.156	-.301	-.097	-0.956	0.101	0.4	1.0	-0.5	1.0	A+	A-
376	610066	6	730	.348	.255	.348	.201	.144	.052	.378	-.085	.378	-.128	-.038	1.442	0.090	2.2	1.1	4.3	1.3	A-	B+
377	610078	6	730	.537	.177	.136	.093	.537	.058	.508	-.116	-.202	-.216	.508	0.347	0.088	-1.5	1.0	-1.0	0.9	A+	A-
378	609025	6	1453	.395	.158	.180	.395	.264	.003	.247	-.228	-.052	.247	-.023	1.175	0.059	5.9	1.1	5.6	1.2	A-	A-
379	609026	6	1453	.315	.315	.079	.103	.500	.003	.203	.203	-.238	-.224	.094	1.610	0.062	5.8	1.2	7.8	1.4	A-	A-
380	610310	6	730	.529	.529	.047	.406	.016	.003	.431	.431	-.130	-.322	-.130	0.493	0.083	0.2	1.0	0.3	1.0	B-	A-

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
381	612264	6	725	.641	.641	.028	.046	.284	.001	.346	.346	-.156	-.214	-.197	-0.230	0.088	3.2	1.1	2.8	1.2	A-	A-
382	610331	6	725	.731	.731	.066	.069	.092	.041	.563	.563	-.207	-.319	-.181	-0.949	0.099	-2.7	0.9	-2.6	0.8	B-	A-
383	612233	6	731	.323	.323	.301	.137	.227	.012	.231	.231	-.101	-.146	.039	1.547	0.088	3.0	1.1	4.8	1.4	A-	B-
384	612254	6	731	.565	.565	.120	.109	.131	.074	.539	.539	-.214	-.250	-.111	0.058	0.088	-2.2	0.9	-1.8	0.9	A+	A+
385	609271	6	725	.484	.259	.484	.065	.189	.003	.268	-.147	.268	-.161	-.042	0.558	0.083	5.3	1.2	4.8	1.3	A-	A-
386	609240	6	725	.247	.175	.117	.457	.247	.004	.222	-.239	-.233	.169	.222	1.866	0.095	2.7	1.1	4.6	1.5	A-	A+
387	612263	6	725	.501	.313	.501	.092	.083	.011	.396	-.141	.396	-.132	-.228	0.463	0.084	1.6	1.1	3.0	1.2	A-	A-
388	609093	6	730	.877	.877	.038	.030	.044	.011	.516	.516	-.246	-.244	-.246	-1.900	0.126	-2.3	0.8	-2.5	0.6	A-	B-
389	612212	6	730	.769	.080	.064	.769	.060	.027	.547	-.223	-.229	.547	-.257	-1.020	0.102	-2.1	0.9	-3.2	0.7	B+	A-
390	610076	6	721	.795	.078	.054	.795	.067	.007	.439	-.199	-.293	.439	-.156	-1.109	0.103	-0.6	1.0	-1.4	0.9	A-	A-
391	610077	6	721	.494	.494	.243	.092	.168	.004	.249	.249	-.077	-.225	-.027	0.643	0.084	7.4	1.3	6.2	1.4	A-	A+
392	610063	6	721	.603	.100	.169	.065	.603	.062	.487	-.194	-.136	-.278	.487	-0.120	0.090	-0.3	1.0	-0.8	1.0	A-	A-
393	609236	6	731	.486	.486	.066	.289	.149	.011	.280	.280	-.054	-.076	-.167	0.700	0.083	5.4	1.2	5.8	1.3	A-	A+
394	610069	6	731	.720	.056	.101	.063	.720	.060	.555	-.175	-.233	-.196	.555	-0.833	0.100	-2.1	0.9	-1.7	0.8	A+	A+
395	610139	6	729	.755	.755	.071	.129	.038	.007	.494	.494	-.308	-.253	-.209	-0.799	0.097	-1.6	0.9	-2.1	0.8	A-	A-
396	612271	6	722	.801	.801	.111	.043	.040	.006	.465	.465	-.264	-.195	-.221	-1.090	0.105	-1.2	0.9	-1.3	0.9	A+	A-
397	610080	6	724	.815	.028	.041	.815	.068	.048	.581	-.173	-.254	.581	-.335	-1.642	0.126	-2.6	0.8	-3.8	0.5	A+	A-
398	612249	6	7268	.498	.313	.498	.034	.129	.026	.450	-.216	.450	-.203	-.101	0.580	0.027	0.8	1.0	2.8	1.0	A+	A-
399	612259	6	725	.309	.015	.666	.309	.008	.001	.210	-.139	-.132	.210	-.121	1.551	0.090	5.2	1.2	5.1	1.5	A-	A-
400	610333	6	725	.559	.559	.121	.075	.201	.044	.487	.487	-.254	-.191	-.103	0.108	0.087	0.5	1.0	0.0	1.0	A+	A-
401	612236	6	731	.824	.037	.824	.101	.037	.001	.443	-.208	.443	-.296	-.177	-1.309	0.107	-1.6	0.9	-2.2	0.8	A+	A+
402	610337	6	730	.537	.078	.537	.104	.240	.041	.385	-.193	.385	-.223	.011	0.405	0.087	4.2	1.2	4.4	1.3	A+	A-
403	610336	6	730	.775	.067	.048	.064	.775	.045	.587	-.221	-.197	-.283	.587	-1.164	0.107	-3.0	0.8	-3.3	0.6	A-	A-
404	609260	6	730	.685	.685	.078	.188	.041	.008	.382	.382	-.131	-.189	-.212	-0.373	0.090	1.9	1.1	2.0	1.2	A-	A+
405	609094	6	730	.738	.062	.738	.097	.095	.008	.427	-.208	.427	-.155	-.214	-0.709	0.095	0.6	1.0	0.9	1.1	B-	A-
406	612214	6	730	.358	.285	.358	.199	.132	.027	.241	.005	.241	-.095	-.080	1.328	0.086	5.6	1.2	8.0	1.6	A-	A+
407	612213	6	730	.644	.111	.093	.123	.644	.029	.479	-.285	-.201	-.084	.479	-0.208	0.089	-0.5	1.0	0.4	1.0	A+	A+
408	612215	6	730	.752	.070	.752	.069	.077	.033	.561	-.201	.561	-.273	-.236	-0.933	0.100	-2.1	0.9	-3.2	0.7	A+	A-
409	609268	6	731	.605	.033	.323	.605	.027	.012	.385	-.109	-.209	.385	-.196	0.073	0.086	1.9	1.1	2.0	1.1	A-	A-
410	609270	6	731	.583	.086	.583	.186	.130	.015	.462	-.186	.462	-.135	-.242	0.187	0.085	-0.2	1.0	-0.4	1.0	A-	A-
411	610116	6	731	.644	.644	.092	.131	.060	.073	.550	.550	-.209	-.197	-.163	-0.381	0.093	-1.7	0.9	-2.1	0.9	A+	A-
412	610115	6	731	.293	.322	.293	.148	.156	.082	.207	.112	.207	-.061	-.063	1.619	0.091	5.8	1.3	7.0	1.6	A-	B-
413	610140	6	729	.778	.029	.066	.128	.778	.000	.419	-.217	-.209	-.258	.419	-0.923	0.099	-0.7	1.0	-0.6	0.9	A+	B-
414	610302	6	729	.562	.353	.033	.562	.051	.001	.244	-.019	-.278	.244	-.275	0.340	0.084	6.9	1.3	6.2	1.4	A+	A-
415	610298	6	1453	.516	.516	.061	.127	.294	.003	.360	.360	-.187	-.153	-.161	0.603	0.059	5.1	1.1	4.5	1.2	A-	A-

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
416	612273	6	722	.395	.152	.395	.220	.226	.007	.330	-.149	.330	-.049	-.151	1.196	0.084	1.7	1.1	2.4	1.1	A-	C+
417	612272	6	722	.215	.237	.206	.334	.215	.008	.179	-.012	-.173	.053	.179	2.232	0.097	2.2	1.1	3.5	1.4	A-	A-
418	607992	6	722	.655	.086	.073	.150	.655	.036	.494	-.149	-.196	-.219	.494	-0.263	0.091	-0.3	1.0	-1.2	0.9	A+	A+
419	612298	6	722	.542	.184	.136	.079	.542	.060	.464	-.027	-.268	-.189	.464	0.304	0.087	0.3	1.0	0.6	1.0	B+	A+
420	610107	6	724	.695	.695	.077	.112	.066	.050	.561	.561	-.180	-.273	-.249	-0.579	0.098	-2.8	0.9	-3.1	0.7	A+	C-
421	610082	6	724	.735	.097	.735	.046	.055	.068	.541	-.200	.541	-.246	-.282	-1.033	0.109	-2.0	0.9	-2.4	0.7	A-	A+
422	610132	6	7268	.660	.660	.065	.069	.190	.015	.453	.453	-.270	-.233	-.124	-0.268	0.028	0.8	1.0	-1.8	1.0	A+	A-
423	607918	6	7268	.790	.790	.112	.044	.044	.010	.457	.457	-.278	-.215	-.118	-1.098	0.033	-2.9	1.0	-2.9	0.9	B-	A-
424	607921	6	7268	.907	.036	.029	.018	.907	.011	.488	-.252	-.211	-.212	.488	-2.333	0.046	-5.1	0.8	-9.2	0.5	A+	A-
425	607927	6	721	.479	.316	.082	.114	.479	.010	.401	-.124	-.194	-.204	.401	0.708	0.084	2.2	1.1	1.6	1.1	C-	A-
426	607917	6	721	.487	.155	.085	.487	.268	.006	.280	-.116	-.160	.280	-.078	0.674	0.084	6.5	1.2	6.2	1.4	A+	B-
427	610141	6	721	.534	.228	.122	.093	.534	.024	.470	-.101	-.269	-.203	.470	0.392	0.085	-0.2	1.0	0.1	1.0	A-	A+
428	607911	6	725	.476	.139	.270	.088	.476	.026	.479	-.170	-.156	-.222	.479	0.591	0.085	-0.7	1.0	-0.1	1.0	A+	A+
429	607915	6	725	.812	.062	.058	.812	.040	.028	.524	-.250	-.278	.524	-.148	-1.518	0.112	-1.9	0.9	-2.6	0.7	A-	A-
430	607929	6	725	.548	.548	.321	.059	.037	.035	.366	.366	-.119	-.236	-.065	0.190	0.087	4.7	1.2	3.2	1.2	B-	A+
431	612231	6	731	.792	.052	.792	.120	.027	.008	.436	-.246	.436	-.215	-.198	-1.085	0.102	-0.7	1.0	-0.3	1.0	A-	A+
432	607928	6	731	.744	.096	.022	.744	.127	.011	.340	-.091	-.171	.340	-.206	-0.746	0.095	2.1	1.1	1.1	1.1	A+	B-
433	612250	6	731	.417	.178	.242	.417	.093	.070	.301	-.185	.116	.301	-.163	0.877	0.086	6.0	1.2	5.7	1.3	A-	A+
434	607913	6	730	.553	.081	.084	.553	.249	.033	.458	-.211	-.294	.458	-.038	0.338	0.087	1.4	1.1	1.0	1.1	A-	B-
435	607920	6	730	.908	.908	.019	.019	.021	.033	.529	.529	-.202	-.179	-.194	-2.653	0.166	-1.1	0.9	-3.1	0.4	A-	B-
436	607924	6	730	.556	.138	.127	.141	.556	.037	.530	-.181	-.222	-.148	.530	0.309	0.087	-2.3	0.9	-1.6	0.9	A-	A+
437	607926	6	730	.832	.027	.832	.052	.051	.038	.524	-.165	.524	-.246	-.177	-1.638	0.120	-1.5	0.9	-2.2	0.7	A-	A-
438	609237	6	725	.469	.166	.142	.469	.219	.004	.394	-.179	-.126	.394	-.180	0.636	0.083	0.4	1.0	0.4	1.0	A-	B-
439	607923	6	725	.463	.112	.463	.188	.221	.017	.362	-.111	.362	-.283	.007	0.640	0.084	2.9	1.1	2.6	1.1	A-	B-
440	609050	6	730	.753	.047	.081	.753	.116	.003	.400	-.177	-.239	.400	-.177	-0.781	0.096	0.3	1.0	-0.6	1.0	C-	A-
441	609090	6	730	.607	.111	.607	.159	.116	.007	.448	-.268	.448	-.169	-.170	0.070	0.086	-0.6	1.0	-0.9	1.0	A-	A-
442	607906	6	730	.641	.049	.114	.641	.186	.010	.327	-.208	-.208	.327	-.035	-0.118	0.087	3.6	1.2	3.8	1.3	A+	A-
443	607914	6	730	.514	.385	.038	.052	.514	.011	.397	-.127	-.256	-.247	.397	0.547	0.084	2.5	1.1	2.4	1.1	A-	A+
444	612256	6	721	.796	.796	.057	.068	.075	.004	.401	.401	-.266	-.101	-.230	-1.112	0.102	-0.2	1.0	0.2	1.0	A+	C-
445	610075	6	721	.746	.046	.176	.746	.029	.003	.383	-.249	-.193	.383	-.167	-0.760	0.096	0.9	1.0	0.5	1.1	A-	A-
446	608013	6	721	.820	.820	.058	.067	.047	.008	.496	.496	-.336	-.216	-.187	-1.337	0.108	-2.2	0.9	-2.7	0.7	A-	C-
447	610058	6	721	.773	.773	.069	.076	.039	.043	.597	.597	-.308	-.294	-.187	-1.173	0.106	-4.0	0.8	-4.4	0.6	A-	B+
448	610059	6	721	.614	.028	.614	.056	.254	.049	.471	-.194	.471	-.235	-.183	-0.122	0.090	0.5	1.0	0.1	1.0	A-	A+
449	610126	6	731	.851	.851	.033	.047	.067	.003	.425	.425	-.176	-.204	-.280	-1.556	0.115	-1.2	0.9	-1.9	0.8	A+	A+
450	607916	6	731	.852	.042	.058	.034	.852	.014	.478	-.244	-.238	-.115	.478	-1.636	0.118	-1.2	0.9	-1.2	0.8	A-	A+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
451	607930	6	731	.900	.900	.023	.051	.012	.014	.476	.476	-.223	-.226	-.140	-2.213	0.141	-1.3	0.9	-1.5	0.7	A+	A-
452	610064	6	731	.274	.274	.123	.510	.033	.060	.173	.173	-.216	.215	-.127	1.756	0.092	6.2	1.3	7.4	1.7	A+	A-
453	607908	6	729	.702	.033	.702	.229	.029	.007	.366	-.179	.366	-.185	-.242	-0.453	0.091	2.3	1.1	1.8	1.1	B+	A+
454	607912	6	729	.366	.366	.140	.353	.133	.008	.203	.203	-.136	-.020	-.083	1.329	0.086	6.7	1.3	8.7	1.7	A-	A+
455	607919	6	729	.910	.910	.023	.026	.037	.004	.400	.400	-.251	-.155	-.213	-2.234	0.140	-0.9	0.9	-1.9	0.7	C-	A-
456	609049	6	729	.744	.744	.067	.106	.049	.034	.419	.419	-.121	-.193	-.198	-0.861	0.099	1.5	1.1	0.7	1.1	B-	A+
457	612268	6	722	.726	.726	.035	.103	.132	.006	.410	.410	-.293	-.183	-.159	-0.557	0.094	0.4	1.0	-0.4	1.0	A-	A-
458	607909	6	722	.269	.269	.194	.241	.290	.007	.251	.251	-.033	-.136	-.035	1.880	0.091	1.7	1.1	4.0	1.4	A-	A-
459	607925	6	722	.760	.176	.036	.760	.024	.004	.259	-.065	-.218	.259	-.184	-0.747	0.098	2.7	1.2	2.9	1.3	A+	A+
460	607991	6	722	.849	.033	.849	.053	.037	.028	.582	-.267	.582	-.271	-.228	-1.721	0.127	-2.2	0.8	-4.0	0.5	A+	A-
461	609185	6	722	.759	.097	.035	.759	.072	.037	.438	-.140	-.239	.438	-.142	-0.933	0.103	0.7	1.0	-0.1	1.0	A-	A-
462	612234	6	722	.824	.824	.037	.028	.060	.051	.561	.561	-.286	-.241	-.190	-1.680	0.127	-1.9	0.9	-1.9	0.7	A+	A-
463	612153	6	724	.902	.025	.046	.902	.021	.007	.377	-.208	-.160	.377	-.131	-2.157	0.146	-0.4	1.0	0.1	1.0	B+	A-
464	607907	6	724	.832	.024	.090	.044	.832	.011	.525	-.184	-.252	-.291	.525	-1.406	0.116	-1.9	0.9	-2.6	0.7	A-	C-
465	607922	6	724	.562	.218	.562	.087	.123	.010	.422	-.181	.422	-.223	-.112	0.398	0.086	0.3	1.0	0.9	1.1	A-	A-
466	610174	6	724	.617	.140	.070	.129	.617	.044	.544	-.251	-.252	-.146	.544	-0.057	0.090	-2.5	0.9	-2.2	0.9	A+	A-
467	610327	6	725	.752	.066	.088	.041	.752	.052	.557	-.251	-.252	-.146	.557	-1.156	0.105	-2.0	0.9	-2.5	0.7	A+	A-
468	610065	6	730	.510	.152	.189	.104	.510	.045	.419	-.152	-.080	-.149	.419	0.543	0.087	2.7	1.1	2.3	1.1	A-	A+
469	609022	6	1453	.729	.084	.729	.058	.127	.002	.397	-.220	.397	-.198	-.187	-0.582	0.066	0.3	1.0	-0.3	1.0	A+	C-
470	609661	7	5029	.650	.081	.158	.650	.103	.008	.399	-.217	-.189	.399	-.125	0.321	0.033	1.6	1.0	1.4	1.0	A+	A+
471	610325	7	5029	.710	.710	.145	.064	.072	.009	.484	.484	-.243	-.268	-.164	-0.025	0.034	-5.6	0.9	-4.7	0.9	A+	A+
472	610147	7	572	.766	.033	.098	.094	.766	.009	.369	-.176	-.175	-.130	.369	-0.522	0.109	0.3	1.0	-0.2	1.0	A-	A+
473	610148	7	572	.809	.039	.046	.809	.098	.009	.439	-.173	-.244	.439	-.161	-0.829	0.117	-1.0	0.9	-1.5	0.8	A+	A+
474	609053	7	554	.776	.776	.065	.069	.074	.016	.550	.550	-.246	-.268	-.226	-0.435	0.114	-2.7	0.8	-3.0	0.7	A-	C-
475	609219	7	554	.673	.673	.126	.076	.108	.016	.477	.477	-.240	-.219	-.142	0.220	0.101	-1.6	0.9	-1.6	0.9	A+	A-
476	609038	7	556	.682	.682	.034	.095	.184	.005	.387	.387	-.207	-.143	-.207	0.084	0.100	0.5	1.0	0.3	1.0	A+	A-
477	609039	7	556	.504	.092	.198	.200	.504	.007	.453	-.145	-.207	-.203	.453	0.972	0.093	-2.1	0.9	-2.0	0.9	A-	A+
478	608015	7	554	.717	.166	.087	.027	.717	.004	.308	-.121	-.187	-.131	.308	0.005	0.104	1.7	1.1	2.2	1.2	A+	A+
479	607994	7	554	.690	.143	.690	.112	.051	.005	.316	-.218	.316	-.066	-.136	0.156	0.102	2.4	1.1	2.2	1.2	A-	A-
480	609073	7	5029	.844	.028	.844	.046	.072	.010	.474	-.166	.474	-.250	-.244	-1.006	0.043	-4.5	0.9	-6.4	0.7	A+	A-
481	610316	7	554	.538	.103	.316	.538	.042	.002	.390	-.214	-.173	.390	-.219	1.036	0.096	1.0	1.0	0.7	1.0	A-	A+
482	609799	7	554	.827	.042	.114	.014	.827	.004	.445	-.217	-.307	-.170	.445	-0.724	0.123	-1.1	0.9	-2.1	0.8	A+	A-
483	607982	7	554	.718	.718	.070	.199	.009	.004	.367	.367	-.256	-.196	-.139	0.043	0.105	0.7	1.0	-0.1	1.0	A-	A+
484	610175	7	552	.732	.732	.058	.056	.138	.016	.499	.499	-.243	-.177	-.292	-0.322	0.107	-2.2	0.9	-2.6	0.8	A+	
485	610343	7	552	.683	.109	.683	.091	.103	.015	.459	-.328	.459	-.180	-.119	-0.020	0.102	-1.8	0.9	-1.4	0.9	A-	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
486	610176	7	552	.563	.054	.067	.299	.563	.016	.204	-.148	-.260	.045	.204	0.616	0.096	6.7	1.3	5.0	1.3	A+	
487	609034	7	552	.388	.388	.045	.404	.140	.024	.392	.392	-.259	-.063	-.220	1.503	0.098	0.3	1.0	1.1	1.1	A+	
488	609044	7	552	.504	.190	.504	.071	.208	.027	.335	-.174	.335	-.243	-.017	0.893	0.096	2.8	1.1	2.0	1.1	A+	
489	609272	7	552	.649	.065	.071	.649	.188	.027	.520	-.251	-.215	.520	-.259	0.127	0.101	-3.0	0.9	-2.8	0.8	B+	
490	609033	7	552	.518	.170	.190	.518	.094	.027	.403	-.106	-.198	.403	-.184	0.819	0.096	0.7	1.0	0.3	1.0	B+	
491	614852	7	552	.882	.045	.024	.045	.882	.004	.221	-.086	-.129	-.151	.221	-1.375	0.143	0.9	1.1	0.7	1.1	A+	B-
492	614853	7	552	.741	.020	.143	.741	.096	.000	.322	-.241	-.155	.322	-.180	-0.198	0.107	1.1	1.1	1.3	1.1	A-	A-
493	609222	7	552	.772	.772	.100	.087	.038	.004	.478	.478	-.285	-.235	-.211	-0.410	0.111	-2.2	0.9	-2.2	0.8	B-	B-
494	609278	7	552	.768	.768	.116	.047	.067	.002	.416	.416	-.147	-.281	-.249	-0.376	0.111	-0.6	1.0	-1.0	0.9	A+	A+
495	609221	7	552	.806	.069	.100	.806	.024	.002	.439	-.321	-.160	.439	-.247	-0.650	0.117	-1.4	0.9	-2.0	0.8	A+	A+
496	612228	7	552	.462	.246	.462	.100	.172	.020	.471	-.224	.471	-.196	-.128	1.265	0.097	-1.4	1.0	-0.3	1.0	A+	A-
497	612313	7	566	.629	.629	.097	.210	.060	.004	.322	.322	-.160	-.118	-.212	0.528	0.097	2.9	1.1	2.3	1.2	A+	A+
498	612260	7	566	.530	.194	.136	.530	.136	.004	.360	-.237	-.109	.360	-.112	1.050	0.093	1.8	1.1	1.4	1.1	A-	A-
499	612314	7	566	.458	.484	.019	.037	.458	.002	.382	-.211	-.242	-.233	.382	1.393	0.093	1.1	1.0	1.6	1.1	B-	A+
500	609202	7	566	.574	.247	.117	.051	.574	.011	.500	-.284	-.184	-.185	.500	0.803	0.095	-1.8	0.9	-2.0	0.9	A+	A-
501	609201	7	566	.617	.094	.617	.156	.120	.014	.500	-.286	.500	-.256	-.118	0.572	0.097	-1.8	0.9	-1.5	0.9	A-	A-
502	609203	7	566	.479	.062	.389	.051	.479	.019	.390	-.268	-.102	-.221	.390	1.261	0.094	0.8	1.0	2.5	1.1	A+	A+
503	612207	7	566	.489	.288	.489	.120	.076	.027	.381	-.074	.381	-.196	-.201	1.196	0.094	1.9	1.1	1.8	1.1	A+	A+
504	612320	7	566	.518	.175	.518	.138	.138	.032	.424	-.234	.424	-.177	-.076	1.030	0.095	0.1	1.0	1.4	1.1	A-	A+
505	610155	7	570	.807	.016	.012	.161	.807	.004	.389	-.183	-.101	-.269	.389	-0.597	0.116	0.2	1.0	-0.1	1.0	A+	A-
506	610153	7	570	.658	.658	.054	.075	.209	.004	.419	.419	-.258	-.288	-.107	0.339	0.097	-0.7	1.0	0.2	1.0	A+	A-
507	610156	7	570	.163	.083	.019	.163	.730	.005	-.016	-.128	-.252	-.016	.216	3.071	0.121	2.7	1.2	5.9	2.0	A-	A+
508	609819	7	570	.639	.142	.095	.105	.639	.019	.427	-.114	-.149	-.242	.427	0.394	0.097	0.0	1.0	0.3	1.0	A-	A-
509	612239	7	570	.618	.054	.086	.618	.223	.019	.376	-.187	-.281	.376	-.035	0.515	0.096	1.0	1.0	1.1	1.1	A+	B-
510	612238	7	570	.611	.611	.156	.067	.142	.025	.391	.391	-.112	-.235	-.126	0.537	0.095	0.7	1.0	-0.2	1.0	A+	A-
511	612308	7	570	.698	.698	.077	.081	.118	.026	.483	.483	-.216	-.252	-.141	0.025	0.103	-1.8	0.9	-0.3	1.0	A+	A+
512	612209	7	570	.818	.039	.083	.818	.030	.032	.512	-.169	-.277	.512	-.220	-0.862	0.127	-1.6	0.9	-2.6	0.7	A+	A+
513	610257	7	572	.453	.248	.453	.185	.105	.009	.384	-.109	.384	-.134	-.183	1.167	0.093	0.5	1.0	2.3	1.1	A-	A-
514	610354	7	572	.708	.708	.054	.117	.108	.012	.373	.373	-.171	-.236	-.048	-0.152	0.102	0.5	1.0	-0.1	1.0	A-	A-
515	610261	7	572	.867	.082	.012	.028	.867	.011	.453	-.219	-.151	-.224	.453	-1.368	0.136	-1.1	0.9	-2.2	0.7	A-	A-
516	612244	7	572	.778	.115	.052	.778	.037	.018	.497	-.226	-.197	.497	-.196	-0.655	0.113	-1.7	0.9	-2.0	0.8	A+	A+
517	609030	7	572	.663	.663	.080	.079	.150	.028	.518	.518	-.222	-.238	-.159	0.060	0.099	-3.0	0.9	-3.0	0.8	A+	A+
518	609032	7	572	.615	.100	.136	.119	.615	.030	.549	-.177	-.282	-.155	.549	0.298	0.097	-4.0	0.9	-3.9	0.8	B+	A-
519	609028	7	572	.754	.052	.040	.124	.754	.030	.560	-.249	-.203	-.240	.560	-0.534	0.110	-3.1	0.8	-3.5	0.7	A+	A+
520	612247	7	572	.607	.080	.607	.128	.149	.037	.427	-.107	.427	-.185	-.138	0.332	0.097	0.2	1.0	-0.6	1.0	A+	A+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
521	609176	7	556	.685	.070	.043	.685	.196	.005	.350	-.201	-.255	.350	-.087	0.054	0.100	1.4	1.1	0.5	1.0	A+	A+
522	609177	7	556	.860	.034	.032	.067	.860	.007	.528	-.256	-.252	-.258	.528	-1.200	0.133	-2.2	0.8	-2.9	0.6	B+	A+
523	609178	7	556	.734	.153	.734	.083	.025	.005	.443	-.176	.443	-.266	-.222	-0.230	0.105	-0.7	1.0	-1.2	0.9	A-	A+
524	609179	7	556	.709	.709	.068	.036	.182	.005	.345	.345	-.180	-.232	-.112	-0.079	0.102	1.6	1.1	1.6	1.1	A+	B+
525	612267	7	556	.649	.128	.155	.052	.649	.016	.585	-.250	-.319	-.192	.585	0.210	0.099	-4.7	0.8	-4.4	0.7	A+	A-
526	612274	7	556	.509	.331	.043	.509	.095	.022	.266	.016	-.194	.266	-.210	0.906	0.094	5.0	1.2	4.3	1.2	A-	A+
527	610270	7	556	.579	.130	.579	.189	.079	.023	.431	-.149	.431	-.208	-.155	0.548	0.096	-0.4	1.0	-0.2	1.0	A-	A-
528	610269	7	556	.543	.126	.543	.201	.101	.029	.197	-.051	.197	-.007	-.103	0.720	0.095	6.6	1.3	6.4	1.4	A+	A+
529	610271	7	556	.595	.201	.121	.058	.595	.025	.393	-.063	-.163	-.309	.393	0.461	0.096	0.9	1.0	1.2	1.1	A+	A-
530	612311	7	1109	.519	.227	.116	.519	.121	.016	.395	-.109	-.210	.395	-.184	0.949	0.067	1.2	1.0	1.5	1.1	A-	A+
531	609167	7	553	.801	.801	.056	.033	.109	.002	.380	.380	-.269	-.223	-.158	-0.523	0.115	-0.2	1.0	-0.7	0.9	A+	
532	609169	7	553	.637	.089	.179	.637	.094	.002	.458	-.240	-.240	.458	-.196	0.478	0.098	-1.0	1.0	-1.3	0.9	A-	
533	609229	7	553	.561	.052	.071	.561	.300	.016	.457	-.250	-.272	.457	-.153	0.839	0.096	-0.3	1.0	-0.5	1.0	A+	
534	609230	7	553	.633	.137	.633	.175	.038	.016	.383	-.167	.383	-.162	-.183	0.459	0.099	1.8	1.1	0.7	1.1	A+	
535	609046	7	553	.640	.137	.157	.042	.640	.024	.520	-.242	-.227	-.253	.520	0.391	0.100	-2.0	0.9	-2.7	0.8	A+	
536	609069	7	553	.653	.653	.060	.118	.145	.025	.511	.511	-.300	-.256	-.166	0.311	0.101	-2.3	0.9	-1.8	0.9	A-	
537	609274	7	553	.514	.174	.118	.165	.514	.031	.368	-.050	-.174	-.198	.368	1.035	0.096	2.4	1.1	3.0	1.2	A-	
538	614856	7	566	.896	.021	.896	.016	.064	.004	.368	-.296	.368	-.225	-.125	-1.436	0.151	-0.6	0.9	-0.3	0.9	A+	A-
539	614857	7	566	.922	.004	.058	.922	.012	.004	.258	-.103	-.130	.258	-.214	-1.853	0.175	0.3	1.0	0.0	1.0	A+	A-
540	609072	7	553	.821	.047	.087	.042	.821	.004	.465	-.239	-.249	-.239	.465	-0.686	0.120	-1.6	0.9	-2.2	0.7	A+	
541	609208	7	554	.783	.099	.783	.063	.045	.009	.375	-.295	.375	-.109	-.124	-0.417	0.115	0.6	1.0	0.1	1.0	A+	B-
542	609663	7	5029	.809	.080	.809	.034	.070	.007	.443	-.239	.443	-.253	-.158	-0.681	0.039	-3.0	0.9	-3.9	0.9	A-	A+
543	610149	7	572	.526	.434	.526	.016	.019	.005	.153	-.029	.153	-.069	-.181	0.828	0.092	8.1	1.3	7.0	1.4	A-	A-
544	610338	7	572	.378	.086	.145	.378	.381	.011	.314	-.258	-.190	.314	.052	1.544	0.095	2.3	1.1	2.1	1.1	A+	A+
545	609243	7	554	.863	.018	.052	.863	.051	.016	.474	-.199	-.236	.474	-.191	-1.185	0.139	-1.3	0.9	-1.8	0.7	A+	A+
546	609074	7	5029	.840	.840	.026	.087	.039	.009	.442	.442	-.230	-.203	-.213	-0.956	0.042	-2.6	0.9	-3.9	0.8	A+	A-
547	609075	7	5029	.835	.106	.016	.033	.835	.011	.410	-.192	-.185	-.223	.410	-0.928	0.042	-1.1	1.0	-2.4	0.9	A+	A-
548	610073	7	554	.668	.076	.139	.103	.668	.014	.476	-.286	-.142	-.199	.476	0.253	0.101	-1.6	0.9	-0.5	1.0	A-	A+
549	610119	7	554	.491	.098	.321	.491	.074	.016	.388	-.169	-.152	.388	-.131	1.170	0.095	1.1	1.0	1.4	1.1	A-	A-
550	610118	7	554	.894	.034	.894	.038	.018	.016	.546	-.242	.546	-.290	-.227	-1.559	0.156	-2.3	0.8	-3.9	0.4	A-	A-
551	609058	7	554	.565	.123	.186	.565	.108	.018	.450	-.184	-.148	.450	-.212	0.788	0.096	-0.1	1.0	-0.9	1.0	B+	A-
552	609056	7	554	.560	.123	.152	.146	.560	.020	.429	-.108	-.196	-.193	.429	0.809	0.096	0.1	1.0	-0.2	1.0	A+	A+
553	609057	7	554	.614	.043	.614	.045	.276	.022	.230	-.113	.230	-.132	-.049	0.520	0.098	5.4	1.2	5.5	1.4	A-	A+
554	609800	7	554	.655	.655	.170	.081	.092	.002	.379	.379	-.160	-.182	-.217	0.419	0.100	1.3	1.1	1.0	1.1	A-	A+
555	609801	7	554	.803	.074	.060	.061	.803	.002	.395	-.243	-.152	-.209	.395	-0.523	0.117	-0.3	1.0	0.3	1.0	A+	A+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
556	607983	7	554	.937	.014	.029	.937	.018	.002	.424	-.225	-.261	.424	-.190	-2.024	0.185	-1.1	0.8	-2.9	0.4	A-	A-
557	609045	7	552	.594	.062	.134	.185	.594	.025	.406	-.179	-.188	-.160	.406	0.431	0.098	0.5	1.0	0.5	1.0	A+	
558	609042	7	552	.692	.080	.692	.083	.120	.025	.466	-.145	.466	-.264	-.224	-0.116	0.104	-1.4	0.9	-2.0	0.8	B+	
559	614854	7	552	.897	.060	.007	.897	.031	.005	.322	-.211	-.128	.322	-.185	-1.548	0.152	-0.1	1.0	-1.4	0.7	B+	A-
560	612229	7	552	.516	.516	.228	.136	.100	.020	.451	.451	-.292	-.108	-.116	0.985	0.096	-0.3	1.0	-0.2	1.0	A+	A-
561	612230	7	552	.429	.299	.107	.145	.429	.020	.430	-.103	-.158	-.244	.430	1.434	0.097	-0.4	1.0	0.1	1.0	A+	A-
562	609277	7	566	.767	.092	.095	.767	.034	.012	.507	-.319	-.196	.507	-.216	-0.302	0.111	-1.9	0.9	-2.4	0.8	A+	B-
563	609204	7	566	.647	.161	.647	.129	.048	.016	.431	-.236	.431	-.087	-.278	0.414	0.099	0.2	1.0	-0.2	1.0	A+	A-
564	612208	7	566	.664	.048	.143	.664	.120	.025	.474	-.175	-.197	.474	-.247	0.281	0.101	-0.8	1.0	-1.0	0.9	A+	A+
565	615199	7	570	.951	.028	.014	.004	.951	.004	.443	-.235	-.267	-.082	.443	-2.307	0.207	-1.0	0.8	-3.0	0.4	A-	A-
566	610154	7	570	.633	.175	.149	.633	.039	.004	.274	-.038	-.175	.274	-.180	0.478	0.095	3.6	1.2	3.9	1.2	A-	B+
567	609820	7	570	.912	.026	.912	.028	.018	.016	.537	-.232	.537	-.288	-.159	-1.849	0.175	-1.3	0.8	-3.0	0.4	A+	A+
568	609029	7	572	.844	.037	.056	.844	.039	.025	.553	-.199	-.246	.553	-.243	-1.273	0.134	-2.3	0.8	-3.0	0.6	B+	A-
569	609027	7	572	.512	.512	.189	.063	.210	.026	.445	.445	-.263	-.216	-.021	0.831	0.093	-0.8	1.0	-0.7	1.0	A+	A-
570	612310	7	1109	.400	.333	.172	.079	.400	.015	.325	-.074	-.196	-.106	.325	1.543	0.068	3.8	1.1	3.7	1.2	A+	A-
571	609170	7	553	.723	.723	.013	.224	.038	.002	.229	.229	-.145	-.122	-.185	-0.013	0.104	3.2	1.2	2.5	1.2	A-	
572	609070	7	553	.881	.040	.881	.036	.020	.024	.445	-.217	.445	-.221	-.207	-1.439	0.152	-1.2	0.9	-2.4	0.6	A-	
573	609071	7	553	.430	.118	.152	.430	.277	.024	.426	-.189	-.270	.426	-.047	1.474	0.096	0.4	1.0	1.0	1.1	A-	
574	614859	7	566	.822	.822	.023	.085	.069	.002	.386	.386	-.233	-.221	-.195	-0.677	0.121	-0.4	1.0	-0.1	1.0	A+	A-
575	614858	7	566	.758	.027	.129	.085	.758	.002	.395	-.139	-.195	-.265	.395	-0.201	0.108	0.0	1.0	-0.1	1.0	A-	A-
576	609209	7	554	.489	.107	.323	.489	.072	.009	.388	-.255	-.114	.388	-.184	1.267	0.096	1.5	1.1	1.7	1.1	A+	A+
577	609210	7	554	.646	.067	.150	.128	.646	.009	.428	-.244	-.207	-.165	.428	0.443	0.100	0.0	1.0	-0.6	1.0	A+	A-
578	609040	7	556	.800	.029	.800	.074	.094	.004	.480	-.141	.480	-.258	-.277	-0.669	0.115	-1.9	0.9	-1.8	0.8	A-	A-
579	607995	7	554	.625	.099	.625	.087	.184	.005	.334	-.209	.334	-.156	-.083	0.519	0.097	2.7	1.1	2.0	1.1	A-	A+
580	609223	7	552	.473	.375	.473	.098	.051	.004	.281	-.112	.281	-.148	-.147	1.249	0.096	5.0	1.2	4.5	1.3	A-	A+
581	612261	7	566	.156	.156	.477	.205	.159	.004	.168	.168	.029	-.051	-.131	3.259	0.126	1.3	1.1	2.7	1.5	A-	A+
582	612309	7	570	.419	.246	.419	.291	.025	.019	.349	-.120	.349	-.095	-.187	1.517	0.093	0.1	1.0	1.5	1.1	A-	B-
583	612210	7	570	.768	.768	.061	.111	.032	.028	.460	.460	-.180	-.255	-.121	-0.451	0.113	-0.7	1.0	-1.2	0.9	A+	B-
584	612316	7	570	.670	.112	.091	.097	.670	.030	.444	-.168	-.223	-.137	.444	0.176	0.100	-0.5	1.0	-0.5	1.0	B-	A-
585	610265	7	572	.542	.131	.542	.112	.206	.009	.347	-.126	.347	-.107	-.151	0.737	0.093	1.7	1.1	1.8	1.1	A-	A+
586	610272	7	556	.644	.644	.110	.148	.072	.027	.507	.507	-.260	-.202	-.179	0.197	0.099	-2.2	0.9	-2.3	0.9	A-	A+
587	609231	7	553	.624	.101	.624	.159	.103	.013	.351	-.257	.351	-.059	-.147	0.517	0.098	2.4	1.1	2.0	1.1	A+	
588	609232	7	553	.664	.215	.071	.036	.664	.015	.396	-.164	-.171	-.258	.396	0.294	0.100	0.8	1.0	1.2	1.1	C+	
589	609152	7	553	.588	.074	.257	.588	.076	.005	.448	-.242	-.304	.448	-.054	0.723	0.096	-0.7	1.0	-0.2	1.0	A+	
590	609041	7	556	.558	.558	.038	.279	.121	.005	.298	.298	-.100	-.165	-.109	0.714	0.094	2.8	1.1	2.3	1.1	A-	A-

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
591	610317	7	554	.825	.137	.825	.022	.014	.002	.402	-.346	.402	-.142	-.108	-0.693	0.122	-0.9	0.9	-1.0	0.9	A-	B-
592	607984	7	554	.545	.177	.153	.545	.121	.004	.337	-.148	-.140	.337	-.164	0.994	0.096	2.2	1.1	2.8	1.2	A-	C+
593	610157	7	552	.690	.690	.105	.080	.111	.015	.363	.363	-.207	-.102	-.169	-0.062	0.102	0.6	1.0	2.4	1.2	A+	
594	610177	7	552	.400	.230	.092	.400	.261	.016	.346	-.238	-.098	.346	-.035	1.451	0.097	2.3	1.1	2.2	1.1	A-	
595	609224	7	552	.732	.141	.065	.732	.056	.005	.370	-.215	-.210	.370	-.112	-0.152	0.106	0.6	1.0	-0.2	1.0	A-	A+
596	612315	7	566	.859	.051	.037	.051	.859	.002	.428	-.213	-.254	-.212	.428	-1.000	0.132	-0.9	0.9	-1.4	0.8	A+	A-
597	612217	7	566	.876	.876	.023	.035	.034	.032	.408	.408	-.124	-.239	-.201	-1.494	0.156	-0.6	0.9	-0.5	0.9	A+	A-
598	610170	7	570	.667	.667	.023	.105	.202	.004	.349	.349	-.208	-.193	-.133	0.292	0.097	1.1	1.1	0.7	1.0	A-	A+
599	610171	7	570	.712	.125	.081	.712	.075	.007	.357	-.151	-.179	.357	-.164	0.017	0.102	1.0	1.1	-0.2	1.0	A+	A-
600	610173	7	570	.653	.146	.140	.054	.653	.007	.414	-.111	-.239	-.238	.414	0.364	0.097	-1.0	1.0	-0.9	0.9	A-	A-
601	610172	7	570	.897	.058	.030	.897	.011	.005	.366	-.137	-.244	.366	-.152	-1.475	0.152	0.0	1.0	-0.5	0.9	B-	A-
602	610169	7	570	.679	.028	.679	.197	.093	.004	.411	-.125	.411	-.235	-.197	0.224	0.098	-0.2	1.0	-0.7	1.0	A+	A-
603	612240	7	570	.335	.146	.335	.216	.283	.021	.344	-.181	.344	-.069	-.050	1.931	0.096	-0.3	1.0	1.3	1.1	A-	A+
604	610353	7	572	.701	.100	.701	.046	.147	.007	.239	-.136	.239	-.169	.004	-0.106	0.101	4.3	1.2	3.0	1.3	A+	A+
605	612245	7	572	.904	.019	.904	.037	.025	.016	.531	-.197	.531	-.271	-.168	-1.918	0.165	-1.2	0.9	-3.3	0.4	A+	A-
606	612317	7	572	.892	.892	.040	.032	.021	.016	.478	.478	-.207	-.168	-.181	-1.714	0.153	-1.0	0.9	-1.7	0.7	A+	A+
607	612318	7	572	.612	.612	.089	.110	.157	.032	.380	.380	-.211	-.213	.024	0.311	0.097	1.7	1.1	1.6	1.1	B-	A+
608	612266	7	556	.639	.639	.137	.176	.036	.013	.441	.441	-.149	-.225	-.211	0.284	0.098	-0.9	1.0	-0.4	1.0	B+	A-
609	610273	7	556	.714	.056	.115	.090	.714	.025	.394	-.173	-.168	-.148	.394	-0.206	0.105	0.2	1.0	1.9	1.2	A+	A+
610	609172	7	553	.825	.045	.016	.825	.114	.000	.351	-.131	-.207	.351	-.252	-0.692	0.120	-0.3	1.0	-0.4	1.0	A-	
611	609171	7	553	.872	.052	.872	.060	.016	.000	.400	-.236	.400	-.233	-.205	-1.110	0.134	-1.2	0.9	-1.9	0.7	A-	
612	615229	7	553	.633	.633	.174	.130	.049	.015	.457	.457	-.208	-.242	-.146	0.463	0.099	-0.5	1.0	-0.7	1.0	A+	
613	609233	7	553	.336	.333	.213	.103	.336	.015	.374	-.036	-.207	-.154	.374	1.989	0.099	0.4	1.0	3.1	1.2	A-	
614	609658	7	5029	.735	.735	.102	.116	.041	.007	.443	.443	-.264	-.203	-.146	-0.165	0.035	-2.6	1.0	-3.2	0.9	A-	A-
615	610324	7	5029	.643	.199	.097	.643	.054	.007	.405	-.123	-.266	.405	-.186	0.361	0.033	1.5	1.0	1.7	1.0	A-	A+
616	610146	7	572	.909	.909	.021	.021	.042	.007	.384	.384	-.130	-.201	-.193	-1.901	0.163	-0.2	1.0	-0.7	0.8	A-	A+
617	607933	7	554	.661	.126	.024	.175	.661	.014	.402	-.184	-.213	-.153	.402	0.294	0.100	0.8	1.0	0.8	1.1	A+	B+
618	607936	7	554	.601	.051	.033	.601	.301	.014	.316	-.159	-.223	.316	-.090	0.616	0.097	3.8	1.2	3.3	1.2	B-	B+
619	609037	7	556	.856	.020	.086	.856	.034	.004	.349	-.228	-.201	.349	-.078	-1.134	0.130	0.1	1.0	-0.4	0.9	B-	A+
620	607939	7	5029	.764	.083	.764	.093	.056	.005	.419	-.218	.419	-.214	-.164	-0.346	0.036	-1.6	1.0	-2.1	0.9	A+	A+
621	607945	7	5029	.593	.593	.026	.231	.145	.006	.217	.217	-.186	-.020	-.140	0.629	0.032	9.9	1.2	9.9	1.3	A+	A-
622	607938	7	554	.731	.731	.094	.045	.114	.016	.531	.531	-.298	-.176	-.221	-0.129	0.107	-3.1	0.8	-2.9	0.8	A-	A+
623	610315	7	554	.841	.088	.034	.036	.841	.000	.379	-.200	-.196	-.247	.379	-0.819	0.126	-0.5	1.0	-0.9	0.9	B-	A-
624	607937	7	554	.928	.024	.036	.011	.928	.002	.391	-.240	-.214	-.171	.391	-1.893	0.176	-1.2	0.9	-2.3	0.5	A+	A-
625	607943	7	554	.709	.052	.709	.200	.034	.004	.293	-.206	.293	-.105	-.210	0.099	0.104	2.3	1.1	2.3	1.2	A-	A+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
626	607949	7	554	.811	.047	.054	.811	.085	.004	.455	-.258	-.207	.455	-.251	-0.591	0.119	-1.1	0.9	-2.3	0.7	A+	B-
627	607932	7	552	.770	.053	.103	.069	.770	.005	.381	-.153	-.250	-.147	.381	-0.516	0.111	0.4	1.0	-0.5	0.9	C-	
628	607940	7	552	.549	.089	.313	.549	.044	.005	.352	-.159	-.187	.352	-.121	0.729	0.095	2.3	1.1	1.2	1.1	A-	
629	607941	7	552	.573	.304	.063	.056	.573	.004	.557	-.432	-.185	-.078	.557	0.613	0.096	-4.5	0.8	-3.6	0.8	C-	
630	610158	7	552	.823	.054	.074	.823	.044	.005	.419	-.178	-.279	.419	-.142	-0.901	0.121	-0.8	0.9	-1.2	0.8	A+	
631	609220	7	552	.723	.091	.161	.022	.723	.004	.502	-.263	-.297	-.229	.502	-0.093	0.105	-1.9	0.9	-2.6	0.8	A-	A-
632	607935	7	552	.652	.652	.190	.054	.098	.005	.362	.362	-.162	-.209	-.171	0.315	0.100	1.8	1.1	0.7	1.0	A+	A+
633	607946	7	552	.824	.085	.038	.051	.824	.002	.428	-.192	-.243	-.256	.428	-0.793	0.121	-1.0	0.9	-1.1	0.9	A+	A-
634	607953	7	552	.944	.013	.015	.025	.944	.004	.308	-.043	-.245	-.187	.308	-2.296	0.198	-0.4	0.9	-1.2	0.7	A-	A+
635	612312	7	566	.917	.046	.009	.917	.027	.002	.323	-.138	-.146	.323	-.243	-1.711	0.166	-0.3	1.0	0.1	1.0	A-	A+
636	607931	7	566	.403	.223	.237	.134	.403	.004	.290	-.150	-.182	.020	.290	1.675	0.094	3.6	1.1	2.5	1.2	B-	A-
637	607947	7	566	.564	.564	.163	.129	.138	.007	.368	.368	-.184	-.078	-.204	0.881	0.094	1.9	1.1	2.1	1.1	A-	C-
638	609205	7	566	.838	.018	.113	.838	.023	.009	.440	-.236	-.254	.440	-.189	-0.854	0.127	-0.4	1.0	-1.3	0.8	C+	A+
639	612206	7	566	.763	.763	.062	.051	.099	.025	.404	.404	-.156	-.216	-.159	-0.364	0.113	0.9	1.1	-0.1	1.0	A+	A+
640	612319	7	566	.848	.090	.019	.848	.014	.028	.387	-.184	-.221	.387	-.162	-1.147	0.140	-0.1	1.0	0.1	1.0	A-	A-
641	610152	7	570	.507	.186	.507	.081	.223	.004	.127	-.014	.127	-.151	.009	1.118	0.092	8.2	1.3	6.6	1.3	A-	A-
642	607944	7	570	.905	.025	.042	.905	.023	.005	.426	-.169	-.245	.426	-.161	-1.571	0.157	-0.8	0.9	-1.9	0.7	B-	A-
643	607950	7	570	.883	.086	.014	.012	.883	.005	.379	-.238	-.184	-.076	.379	-1.322	0.144	-0.1	1.0	-0.5	0.9	A-	A-
644	609818	7	570	.840	.021	.097	.028	.840	.014	.519	-.137	-.298	-.247	.519	-0.955	0.129	-1.4	0.9	-2.4	0.7	A-	A+
645	612307	7	570	.793	.019	.119	.053	.793	.016	.501	-.185	-.237	-.243	.501	-0.556	0.116	-1.4	0.9	-1.9	0.8	A-	A+
646	610255	7	572	.385	.302	.198	.385	.108	.007	.265	-.017	-.112	.265	-.134	1.531	0.095	3.6	1.1	4.7	1.3	A+	A+
647	607951	7	572	.729	.231	.011	.019	.729	.011	.273	-.088	-.153	-.195	.273	-0.289	0.104	2.7	1.2	3.5	1.3	A+	A-
648	607952	7	572	.969	.007	.011	.969	.005	.009	.451	-.125	-.184	.451	-.130	-3.427	0.307	-0.2	0.9	-2.2	0.3	A-	A+
649	609047	7	572	.248	.316	.248	.308	.101	.026	.273	.073	.273	-.110	-.134	2.278	0.106	1.2	1.1	3.4	1.4	A-	A+
650	612246	7	572	.698	.061	.156	.056	.698	.030	.391	-.156	-.110	-.155	.391	-0.169	0.103	1.1	1.1	1.0	1.1	A-	A+
651	609175	7	556	.351	.081	.259	.302	.351	.007	.188	-.091	-.050	-.047	.188	1.728	0.096	4.1	1.2	6.2	1.5	A+	B-
652	609174	7	556	.858	.059	.041	.036	.858	.005	.426	-.248	-.224	-.140	.426	-1.168	0.132	-0.8	0.9	-1.9	0.7	A+	A-
653	607934	7	556	.795	.144	.795	.040	.018	.004	.235	-.078	.235	-.204	-.057	-0.617	0.114	2.2	1.2	2.8	1.3	A-	A-
654	607948	7	556	.166	.662	.079	.088	.166	.005	.205	.056	-.219	-.082	.205	2.892	0.120	0.6	1.0	1.9	1.3	A+	B-
655	610268	7	556	.838	.031	.094	.838	.018	.020	.531	-.256	-.270	.531	-.250	-1.100	0.130	-2.0	0.8	-3.1	0.6	A-	A-
656	612216	7	1109	.748	.061	.124	.748	.050	.016	.511	-.203	-.306	.511	-.213	-0.305	0.077	-3.2	0.9	-4.1	0.7	A+	A+
657	609166	7	553	.687	.259	.029	.025	.687	.000	.250	-.130	-.132	-.234	.250	0.206	0.101	3.6	1.2	3.0	1.3	B-	
658	607942	7	553	.881	.013	.083	.881	.020	.004	.379	-.209	-.255	.379	-.138	-1.236	0.140	-0.9	0.9	-1.1	0.8	A+	
659	607954	7	553	.883	.029	.022	.063	.883	.004	.365	-.128	-.201	-.234	.365	-1.256	0.141	-0.5	1.0	-1.4	0.8	A-	
660	609273	7	553	.694	.109	.694	.103	.072	.022	.402	-.160	.402	-.286	-.062	0.088	0.104	0.6	1.0	1.0	1.1	A-	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
661	614855	7	566	.982	.009	.002	.007	.982	.000	.231	-.188	-.113	-.096	.231	-3.744	0.385	-0.3	0.9	-2.3	0.2	A-	A-
662	609059	8	4712	.430	.107	.430	.288	.162	.013	.147	-.211	.147	.064	.020	1.449	0.032	9.9	1.3	9.9	1.4	A-	A+
663	607999	8	4712	.435	.097	.123	.327	.435	.018	.295	-.113	-.166	-.014	.295	1.415	0.032	8.0	1.1	9.3	1.2	A+	A-
664	609143	8	534	.307	.155	.212	.307	.322	.004	.120	-.128	-.057	.120	.061	2.019	0.100	3.9	1.2	3.2	1.2	A+	B+
665	609140	8	534	.787	.081	.064	.787	.067	.002	.409	-.152	-.264	.409	-.201	-0.416	0.112	-1.2	0.9	-1.6	0.9	A-	A-
666	609265	8	521	.781	.013	.163	.781	.029	.013	.433	-.224	-.158	.433	-.215	-0.487	0.117	-0.7	1.0	0.3	1.0	A-	
667	609266	8	521	.639	.144	.119	.639	.086	.012	.390	-.174	-.067	.390	-.181	0.371	0.100	0.2	1.0	0.4	1.0	A+	
668	609076	8	521	.726	.169	.067	.726	.033	.006	.404	-.202	-.165	.404	-.166	-0.039	0.107	-0.8	1.0	-0.1	1.0	A+	A+
669	607997	8	4712	.568	.568	.168	.127	.115	.023	.399	.399	-.127	-.172	-.110	0.755	0.033	0.8	1.0	0.6	1.0	A+	A+
670	610166	8	521	.422	.271	.422	.054	.205	.048	.262	.014	.262	-.248	.038	1.404	0.097	4.5	1.2	4.3	1.2	A-	A-
671	610186	8	521	.530	.111	.111	.186	.530	.061	.512	-.075	-.210	-.167	.512	0.837	0.099	-3.0	0.9	-2.7	0.9	A-	B-
672	610199	8	521	.599	.154	.075	.599	.109	.063	.505	-.072	-.230	.505	-.182	0.472	0.102	-2.3	0.9	-2.5	0.9	A+	B-
673	610198	8	521	.507	.507	.146	.104	.177	.067	.460	.460	-.081	-.232	-.069	0.942	0.099	-1.3	1.0	-1.1	1.0	A+	A-
674	610180	8	520	.896	.033	.039	.896	.029	.004	.485	-.254	-.259	.485	-.192	-1.452	0.154	-1.5	0.8	-3.1	0.5	B+	
675	610181	8	520	.719	.092	.719	.129	.056	.004	.483	-.184	.483	-.285	-.208	-0.036	0.106	-2.7	0.9	-2.8	0.8	A-	
676	610308	8	520	.348	.252	.146	.348	.248	.006	.138	-.041	-.087	.138	.013	1.822	0.099	4.8	1.2	5.7	1.4	A+	
677	610312	8	520	.308	.308	.252	.283	.089	.069	.293	.293	.011	-.041	-.065	1.958	0.104	1.3	1.1	2.4	1.2	A-	
678	609114	8	516	.337	.161	.355	.337	.101	.047	.252	-.179	.117	.252	-.152	1.806	0.102	3.1	1.1	3.3	1.3	B-	A-
679	609097	8	516	.514	.159	.114	.155	.514	.058	.504	-.068	-.254	-.214	.504	0.869	0.100	-2.3	0.9	-2.0	0.9	A+	B-
680	610188	8	516	.607	.145	.109	.607	.070	.070	.568	-.182	-.326	.568	-.170	0.326	0.105	-3.6	0.8	-3.0	0.8	A+	A-
681	609121	8	527	.884	.023	.044	.884	.042	.008	.460	-.161	-.197	.460	-.234	-1.292	0.148	-1.5	0.9	-2.6	0.6	A+	
682	609118	8	527	.666	.216	.666	.030	.078	.010	.475	-.307	.475	-.127	-.145	0.311	0.102	-2.0	0.9	-2.8	0.8	B-	
683	609122	8	527	.890	.890	.047	.034	.019	.010	.422	.422	-.099	-.233	-.233	-1.381	0.153	-1.0	0.9	-1.5	0.7	A+	
684	609099	8	527	.696	.044	.127	.696	.125	.008	.350	-.150	-.217	.350	-.074	0.142	0.104	0.3	1.0	-0.3	1.0	A+	
685	610163	8	527	.602	.602	.108	.154	.072	.065	.491	.491	-.222	-.120	-.235	0.452	0.103	-2.0	0.9	-1.9	0.9	A+	
686	610164	8	527	.550	.137	.177	.550	.072	.065	.471	-.119	-.235	.471	-.141	0.731	0.100	-1.4	1.0	-1.1	0.9	A+	
687	612283	8	529	.159	.779	.030	.027	.159	.006	-.001	.225	-.204	-.195	-.001	3.093	0.126	2.4	1.2	5.0	1.8	A+	
688	612281	8	529	.822	.059	.822	.042	.062	.015	.504	-.206	.504	-.142	-.236	-0.746	0.126	-1.6	0.9	-2.4	0.7	A+	
689	609062	8	529	.522	.151	.113	.522	.174	.040	.404	-.032	-.215	.404	-.079	0.971	0.097	0.5	1.0	0.6	1.0	A+	
690	610507	8	529	.677	.108	.062	.083	.677	.070	.531	-.123	-.214	-.190	.531	0.000	0.110	-1.8	0.9	-2.0	0.8	A-	
691	610506	8	529	.544	.544	.176	.130	.074	.076	.499	.499	-.167	-.119	-.125	0.747	0.100	-2.0	0.9	-1.3	0.9	A+	
692	610522	8	529	.425	.062	.320	.115	.425	.078	.370	-.194	.082	-.192	.370	1.359	0.099	1.8	1.1	2.3	1.1	A+	
693	610521	8	529	.499	.129	.142	.499	.142	.089	.501	-.233	-.151	.501	-.019	0.942	0.100	-2.4	0.9	-2.0	0.9	B+	
694	610537	8	516	.785	.074	.089	.045	.785	.008	.543	-.268	-.250	-.256	.543	-0.393	0.117	-2.8	0.8	-3.4	0.7	A-	
695	610538	8	516	.878	.037	.041	.878	.039	.006	.461	-.166	-.251	.461	-.229	-1.192	0.145	-1.3	0.9	-2.4	0.6	A+	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
696	610539	8	516	.680	.010	.289	.680	.016	.006	.323	-.220	-.184	.323	-.160	0.264	0.104	2.0	1.1	1.6	1.1	A+	
697	610213	8	516	.620	.159	.074	.111	.620	.037	.522	-.185	-.183	-.231	.522	0.487	0.102	-2.5	0.9	-2.8	0.8	A+	
698	610341	8	516	.475	.196	.475	.155	.111	.064	.458	-.040	.458	-.186	-.209	1.163	0.100	-1.0	1.0	-0.6	1.0	A+	
699	610224	8	516	.485	.485	.200	.165	.083	.068	.486	.486	-.156	-.181	-.117	1.092	0.100	-1.9	0.9	-1.8	0.9	A-	
700	610232	8	516	.531	.169	.128	.097	.531	.076	.474	-.061	-.182	-.219	.474	0.841	0.101	-0.9	1.0	-1.1	0.9	A+	
701	609829	8	516	.684	.056	.684	.072	.109	.080	.585	-.186	.585	-.305	-.187	-0.065	0.114	-3.3	0.8	-3.4	0.7	A-	
702	612288	8	521	.488	.488	.031	.432	.042	.008	.199	.199	-.198	.004	-.156	1.117	0.095	6.0	1.2	4.8	1.3	A-	
703	612289	8	521	.837	.025	.837	.035	.090	.013	.412	-.117	.412	-.169	-.153	-0.928	0.131	-0.3	1.0	0.2	1.0	A+	
704	612327	8	521	.758	.758	.042	.058	.127	.015	.447	.447	-.242	-.202	-.105	-0.338	0.113	-0.6	1.0	-1.2	0.9	A-	
705	612285	8	521	.480	.140	.148	.211	.480	.021	.480	-.234	-.196	-.048	.480	1.133	0.096	-3.6	0.9	-2.8	0.9	B+	
706	612286	8	521	.772	.075	.058	.772	.073	.023	.508	-.185	-.211	.508	-.175	-0.470	0.117	-1.6	0.9	-2.1	0.8	B+	
707	610543	8	521	.561	.052	.561	.171	.192	.025	.472	-.178	.472	-.185	-.137	0.729	0.097	-2.2	0.9	-2.0	0.9	B+	
708	610544	8	521	.729	.125	.046	.063	.729	.037	.575	-.211	-.215	-.257	.575	-0.251	0.112	-3.3	0.8	-3.7	0.7	A+	
709	610545	8	521	.495	.134	.240	.495	.090	.040	.349	-.091	-.065	.349	-.133	1.012	0.097	1.6	1.1	2.9	1.2	A-	
710	612334	8	521	.353	.255	.267	.353	.073	.052	.257	-.010	.021	.257	-.197	1.704	0.100	3.2	1.1	3.2	1.2	A-	
711	615618	8	528	.856	.032	.057	.053	.856	.002	.436	-.195	-.203	-.273	.436	-0.911	0.133	-1.4	0.9	-2.2	0.7	A+	
712	615614	8	528	.748	.059	.070	.119	.748	.004	.523	-.279	-.244	-.253	.523	-0.100	0.110	-2.4	0.9	-3.0	0.8	A-	
713	615615	8	528	.314	.025	.314	.612	.046	.004	.068	-.123	.068	.071	-.144	2.176	0.102	6.9	1.3	6.7	1.6	A-	
714	612295	8	528	.852	.852	.046	.044	.055	.004	.561	.561	-.205	-.311	-.333	-0.893	0.133	-2.8	0.8	-3.9	0.5	A-	
715	612296	8	528	.794	.044	.097	.794	.063	.004	.456	-.202	-.311	.456	-.142	-0.411	0.117	-1.2	0.9	-1.7	0.8	A-	
716	612220	8	1062	.694	.082	.133	.694	.049	.042	.498	-.159	-.250	.498	-.226	0.026	0.076	-2.4	0.9	-3.2	0.8	A+	A-
717	612276	8	528	.542	.117	.144	.165	.542	.032	.520	-.246	-.226	-.123	.520	0.964	0.098	-2.3	0.9	-2.0	0.9	A+	
718	612275	8	528	.623	.100	.089	.623	.150	.038	.434	-.201	-.145	.434	-.137	0.516	0.102	0.8	1.0	0.2	1.0	A+	
719	612277	8	528	.580	.146	.580	.153	.078	.044	.460	-.110	.460	-.122	-.301	0.736	0.101	0.0	1.0	-0.1	1.0	A+	
720	610332	8	528	.703	.102	.059	.703	.083	.053	.593	-.226	-.230	.593	-.314	-0.030	0.112	-3.5	0.8	-3.9	0.7	A+	
721	610314	8	528	.705	.034	.055	.152	.705	.055	.571	-.227	-.246	-.283	.571	-0.052	0.112	-2.8	0.9	-3.6	0.7	A+	
722	612331	8	534	.828	.015	.079	.828	.073	.006	.368	-.188	-.287	.368	-.095	-0.740	0.123	-0.5	1.0	-0.8	0.9	A+	A-
723	612242	8	534	.781	.047	.781	.140	.024	.008	.458	-.283	.458	-.195	-.253	-0.405	0.113	-1.6	0.9	-1.7	0.9	A-	B-
724	612243	8	534	.661	.056	.077	.202	.661	.004	.452	-.156	-.212	-.259	.452	0.309	0.098	-2.1	0.9	-2.1	0.9	A+	A-
725	612333	8	534	.524	.311	.524	.111	.051	.004	.320	-.099	.320	-.146	-.232	0.971	0.093	1.7	1.1	1.5	1.1	A+	A+
726	611455	8	534	.710	.060	.133	.075	.710	.023	.551	-.277	-.222	-.250	.551	-0.030	0.105	-3.4	0.8	-3.8	0.7	A+	A+
727	611456	8	534	.517	.333	.079	.517	.047	.024	.223	.116	-.232	.223	-.279	0.956	0.094	4.9	1.2	4.4	1.2	A+	A+
728	612305	8	534	.581	.200	.109	.069	.581	.041	.564	-.220	-.219	-.249	.564	0.604	0.097	-5.1	0.8	-4.6	0.8	A+	A-
729	612304	8	534	.277	.277	.185	.305	.184	.049	.222	.222	-.117	.006	.005	2.108	0.103	1.5	1.1	4.0	1.3	A-	A-
730	612301	8	534	.195	.303	.358	.195	.086	.058	.240	.022	.079	.240	-.296	2.615	0.115	0.1	1.0	3.1	1.4	A+	B+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
731	612279	8	520	.627	.065	.173	.627	.129	.006	.334	-.114	-.105	.334	-.211	0.461	0.099	0.7	1.0	0.4	1.0	A-	
732	609245	8	529	.667	.023	.032	.667	.268	.010	.257	-.160	-.168	.257	-.060	0.291	0.101	3.1	1.2	3.2	1.2	A+	
733	609252	8	529	.741	.741	.034	.195	.021	.010	.319	.319	-.208	-.109	-.126	-0.140	0.109	1.0	1.1	1.5	1.1	A+	
734	608016	8	4712	.722	.722	.146	.052	.064	.017	.505	.505	-.222	-.260	-.163	-0.061	0.036	-6.7	0.9	-7.2	0.8	A-	C-
735	609267	8	521	.503	.284	.050	.148	.503	.015	.330	-.034	-.226	-.111	.330	1.035	0.096	2.0	1.1	1.8	1.1	A+	
736	609269	8	521	.513	.213	.513	.106	.156	.013	.430	-.290	.430	-.091	-.025	0.993	0.096	-1.6	1.0	-1.1	1.0	A+	
737	609153	8	521	.493	.142	.493	.140	.217	.008	.253	-.100	.253	-.154	-.004	1.149	0.095	3.3	1.1	3.3	1.2	A+	A+
738	607996	8	4712	.813	.104	.813	.037	.026	.020	.500	-.218	.500	-.237	-.185	-0.718	0.042	-4.4	0.9	-6.7	0.8	A+	A-
739	610167	8	521	.555	.555	.117	.161	.119	.048	.356	.356	-.138	-.016	-.100	0.746	0.099	1.4	1.1	1.5	1.1	A-	A+
740	610168	8	521	.660	.134	.060	.096	.660	.050	.504	-.223	-.251	-.027	.504	0.170	0.105	-2.0	0.9	-1.9	0.9	A+	A-
741	610182	8	520	.937	.937	.025	.017	.017	.004	.471	.471	-.248	-.225	-.199	-2.065	0.192	-1.4	0.8	-2.8	0.4	A+	
742	610183	8	520	.698	.154	.106	.037	.698	.006	.453	-.252	-.178	-.226	.453	0.078	0.104	-1.5	0.9	-2.0	0.9	A+	
743	610313	8	520	.367	.129	.194	.240	.367	.069	.305	-.067	-.023	-.030	.305	1.635	0.100	2.3	1.1	3.2	1.2	A+	
744	609212	8	516	.446	.446	.306	.105	.140	.004	.260	.260	-.026	-.087	-.219	1.336	0.097	3.2	1.1	4.0	1.2	A+	A+
745	609213	8	516	.291	.205	.384	.118	.291	.002	.210	-.109	-.025	-.088	.210	2.132	0.104	2.4	1.1	3.1	1.3	A-	A-
746	609214	8	516	.601	.049	.049	.300	.601	.002	.434	-.223	-.210	-.237	.434	0.585	0.098	-1.0	1.0	-1.1	0.9	A-	A+
747	609117	8	516	.746	.062	.093	.746	.056	.043	.566	-.254	-.231	.566	-.235	-0.421	0.117	-2.8	0.8	-3.4	0.7	A+	A-
748	609100	8	527	.463	.463	.177	.190	.161	.010	.336	.336	-.118	-.118	-.107	1.329	0.096	1.1	1.0	1.4	1.1	B+	
749	609180	8	527	.843	.843	.034	.065	.049	.010	.460	.460	-.212	-.164	-.230	-0.882	0.131	-1.6	0.9	-2.5	0.7	A+	
750	610529	8	529	.698	.096	.698	.076	.051	.079	.573	-.154	.573	-.233	-.190	-0.180	0.114	-2.5	0.9	-3.3	0.7	A+	
751	610523	8	529	.643	.643	.087	.106	.085	.079	.650	.650	-.182	-.234	-.264	0.176	0.107	-5.5	0.8	-5.8	0.6	A-	
752	609218	8	529	.448	.174	.130	.448	.146	.102	.343	-.037	-.017	.343	-.107	1.172	0.100	2.8	1.1	3.4	1.2	A+	
753	609261	8	529	.645	.645	.183	.044	.025	.104	.369	.369	.027	-.218	-.196	0.042	0.111	1.7	1.1	2.7	1.2	A-	
754	609217	8	529	.378	.310	.151	.378	.055	.106	.360	.010	-.062	.360	-.186	1.537	0.101	1.6	1.1	1.8	1.1	A-	
755	610540	8	516	.702	.702	.138	.047	.109	.006	.444	.444	-.186	-.317	-.148	0.143	0.106	-0.8	1.0	-1.1	0.9	A+	
756	610541	8	516	.603	.176	.056	.159	.603	.006	.416	-.106	-.176	-.265	.416	0.675	0.099	-0.8	1.0	-0.5	1.0	A+	
757	610214	8	516	.758	.758	.105	.045	.062	.031	.508	.508	-.243	-.180	-.179	-0.325	0.117	-1.7	0.9	-1.7	0.8	A+	
758	609832	8	516	.717	.132	.031	.717	.043	.078	.539	-.166	-.264	.539	-.239	-0.285	0.119	-2.1	0.9	-2.0	0.8	A-	
759	609853	8	516	.580	.070	.114	.155	.580	.081	.492	-.113	-.236	-.130	.492	0.562	0.104	-1.4	0.9	-0.8	1.0	A+	
760	610546	8	521	.758	.081	.100	.758	.029	.033	.583	-.266	-.294	.583	-.081	-0.427	0.116	-3.3	0.8	-3.6	0.7	A+	
761	610547	8	521	.424	.424	.271	.077	.194	.035	.304	.304	.027	-.274	-.033	1.374	0.097	3.0	1.1	1.6	1.1	A+	
762	615616	8	528	.314	.316	.292	.314	.072	.006	.155	-.114	.089	.155	-.154	2.175	0.102	4.8	1.2	5.6	1.5	A+	
763	615617	8	528	.769	.059	.769	.121	.047	.004	.424	-.238	.424	-.133	-.292	-0.238	0.113	-0.5	1.0	-0.6	0.9	A+	
764	612219	8	1062	.581	.581	.075	.215	.091	.038	.486	.486	-.189	-.251	-.125	0.671	0.070	-2.4	0.9	-3.0	0.9	A+	A-
765	612218	8	1062	.491	.164	.246	.491	.061	.039	.421	-.204	-.077	.421	-.217	1.122	0.068	-0.5	1.0	-0.3	1.0	A-	A+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
766	610334	8	528	.284	.284	.123	.267	.273	.053	.171	.171	-.180	-.065	.166	2.277	0.105	4.6	1.2	5.2	1.5	A+	
767	611457	8	534	.545	.545	.079	.187	.167	.023	.325	.325	-.222	-.067	-.088	0.827	0.094	2.0	1.1	1.7	1.1	A+	A-
768	609254	8	529	.469	.299	.053	.469	.170	.010	.339	-.025	-.214	.339	-.183	1.282	0.095	1.6	1.1	1.9	1.1	A-	
769	609279	8	529	.677	.132	.095	.085	.677	.011	.367	-.116	-.171	-.142	.367	0.244	0.102	0.8	1.0	0.6	1.0	A-	
770	609060	8	4712	.700	.139	.700	.122	.026	.013	.437	-.165	.437	-.217	-.185	0.085	0.035	-2.4	1.0	-3.2	0.9	A+	A-
771	609135	8	534	.251	.251	.234	.461	.051	.004	.160	.160	-.125	-.026	.051	2.334	0.106	2.1	1.1	3.8	1.4	A-	A+
772	609131	8	534	.916	.039	.011	.032	.916	.002	.461	-.235	-.198	-.285	.461	-1.624	0.163	-1.6	0.8	-2.8	0.6	A+	A+
773	609125	8	527	.763	.082	.087	.059	.763	.010	.489	-.248	-.217	-.202	.489	-0.275	0.112	-2.7	0.9	-2.8	0.8	A+	
774	610165	8	527	.579	.116	.171	.074	.579	.061	.513	-.233	-.165	-.187	.513	0.590	0.101	-2.6	0.9	-2.3	0.9	A-	
775	612284	8	529	.745	.745	.142	.062	.045	.006	.444	.444	-.179	-.309	-.147	-0.152	0.109	-1.7	0.9	-1.3	0.9	B-	
776	612983	8	529	.828	.091	.023	.828	.053	.006	.455	-.205	-.209	.455	-.245	-0.753	0.126	-1.3	0.9	-1.2	0.9	A+	
777	610228	8	516	.438	.275	.167	.438	.056	.064	.387	-.034	-.124	.387	-.221	1.342	0.100	1.0	1.0	1.1	1.1	A-	
778	612328	8	521	.407	.025	.407	.505	.050	.013	.207	-.215	.207	.084	-.236	1.500	0.097	4.8	1.2	4.5	1.3	A-	
779	612332	8	528	.462	.241	.091	.203	.462	.004	.439	-.229	-.205	-.112	.439	1.421	0.096	-0.9	1.0	0.4	1.0	A+	
780	612278	8	528	.761	.072	.072	.059	.761	.036	.584	-.233	-.240	-.289	.584	-0.344	0.118	-2.9	0.8	-3.1	0.7	B+	
781	612302	8	534	.418	.049	.090	.412	.418	.032	.361	-.226	-.198	-.041	.361	1.415	0.095	0.4	1.0	1.0	1.0	A-	A-
782	610087	8	516	.928	.021	.033	.928	.014	.004	.362	-.159	-.194	.362	-.214	-1.882	0.184	-0.7	0.9	-2.3	0.5	A+	
783	610260	8	516	.888	.012	.035	.058	.888	.008	.372	-.157	-.142	-.246	.372	-1.347	0.153	-0.8	0.9	-1.0	0.8	A+	
784	610090	8	516	.723	.107	.723	.037	.130	.004	.338	-.198	.338	-.193	-.104	0.018	0.108	1.1	1.1	1.6	1.1	A-	
785	610089	8	516	.684	.684	.173	.062	.076	.006	.337	.337	-.082	-.194	-.202	0.243	0.104	1.5	1.1	1.4	1.1	A-	
786	610088	8	516	.543	.109	.233	.543	.109	.008	.350	-.143	-.162	.350	-.113	0.959	0.097	1.2	1.0	2.1	1.1	A-	
787	609120	8	534	.622	.064	.622	.090	.223	.002	.424	-.205	.424	-.216	-.197	0.511	0.096	-2.0	0.9	-1.9	0.9	A-	A-
788	607998	8	4712	.628	.056	.243	.052	.628	.021	.337	-.165	-.046	-.223	.337	0.449	0.033	5.7	1.1	5.9	1.1	A+	A-
789	610184	8	521	.401	.259	.132	.401	.140	.067	.301	.064	-.153	.301	-.056	1.476	0.099	2.3	1.1	2.5	1.1	A-	A+
790	610197	8	521	.518	.294	.056	.518	.061	.071	.370	-.006	-.158	.370	-.158	0.879	0.099	1.4	1.1	1.8	1.1	A+	A+
791	609112	8	516	.479	.112	.186	.171	.479	.052	.532	-.242	-.207	-.114	.532	1.062	0.099	-4.0	0.9	-3.5	0.8	A+	A-
792	609096	8	516	.488	.080	.488	.269	.109	.054	.336	-.274	.336	.019	-.108	1.011	0.099	2.5	1.1	3.5	1.2	A-	A+
793	610189	8	516	.459	.087	.221	.167	.459	.066	.431	-.213	-.054	-.170	.431	1.124	0.100	-0.3	1.0	0.8	1.0	B+	A+
794	609130	8	527	.509	.042	.287	.509	.156	.008	.126	-.086	.107	.126	-.159	1.114	0.096	7.8	1.3	8.3	1.4	A-	
795	612282	8	529	.501	.121	.093	.274	.501	.011	.400	-.156	-.159	-.125	.400	1.127	0.095	0.0	1.0	0.3	1.0	A+	
796	609063	8	529	.216	.340	.216	.217	.185	.042	.231	.068	.231	-.062	-.023	2.612	0.113	1.2	1.1	3.3	1.4	A+	
797	610223	8	516	.481	.064	.481	.171	.233	.052	.294	-.109	.294	-.197	.072	1.168	0.099	4.6	1.2	3.9	1.2	A+	
798	612290	8	521	.843	.006	.106	.040	.843	.006	.438	-.096	-.245	-.242	.438	-0.931	0.131	-0.9	0.9	-1.6	0.8	A+	
799	612287	8	521	.461	.261	.069	.461	.188	.021	.389	-.153	-.115	.389	-.073	1.225	0.096	-0.1	1.0	0.2	1.0	A+	
800	612292	8	521	.407	.407	.144	.138	.261	.050	.357	.357	-.178	-.204	.076	1.430	0.098	0.6	1.0	1.7	1.1	A+	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
801	612297	8	528	.364	.254	.127	.364	.252	.004	.278	-.099	-.191	.278	-.023	1.914	0.099	2.6	1.1	3.7	1.3	A+	
802	612322	8	528	.436	.436	.258	.129	.136	.042	.398	.398	.000	-.182	-.214	1.486	0.098	1.1	1.0	1.0	1.1	A+	
803	612303	8	534	.790	.105	.032	.041	.790	.032	.446	-.135	-.264	-.205	.446	-0.611	0.120	-1.0	0.9	-0.3	1.0	A-	A-
804	612324	8	520	.598	.083	.598	.092	.219	.008	.336	-.241	.336	-.267	.014	0.604	0.098	0.6	1.0	0.9	1.1	A-	
805	612280	8	520	.679	.100	.679	.054	.162	.006	.451	-.115	.451	-.256	-.259	0.186	0.102	-1.7	0.9	-2.2	0.9	A+	
806	608017	8	4712	.755	.047	.080	.103	.755	.015	.477	-.152	-.209	-.226	.477	-0.263	0.037	-4.7	0.9	-6.2	0.8	A+	A-
807	609264	8	521	.856	.031	.856	.065	.033	.015	.393	-.098	.393	-.123	-.169	-1.126	0.139	0.4	1.0	-0.5	0.9	A+	
808	609136	8	521	.756	.052	.086	.098	.756	.008	.292	-.119	-.074	-.157	.292	-0.241	0.111	1.0	1.1	1.1	1.1	A+	A+
809	607955	8	4712	.362	.137	.362	.271	.216	.014	.285	-.114	.285	-.025	-.120	1.784	0.033	5.4	1.1	9.3	1.2	A-	A+
810	607973	8	4712	.754	.754	.028	.200	.009	.009	.319	.319	-.236	-.128	-.117	-0.233	0.037	3.4	1.1	4.7	1.2	A+	A+
811	607966	8	521	.797	.071	.797	.038	.052	.042	.572	-.237	.572	-.220	-.186	-0.736	0.127	-2.2	0.8	-3.2	0.7	A-	B-
812	610349	8	521	.791	.791	.042	.058	.052	.058	.493	.493	-.166	-.207	-.092	-0.789	0.130	-0.9	0.9	-1.2	0.8	A+	A-
813	610179	8	520	.300	.300	.358	.108	.227	.008	.292	.292	-.088	-.224	.000	2.073	0.103	0.4	1.0	0.6	1.1	A-	
814	607965	8	520	.864	.864	.054	.042	.033	.008	.467	.467	-.201	-.245	-.207	-1.115	0.138	-1.3	0.9	-2.4	0.7	A-	
815	610311	8	520	.698	.046	.127	.698	.060	.069	.607	-.256	-.233	.607	-.189	-0.165	0.113	-3.2	0.8	-3.7	0.7	A+	
816	607959	8	516	.733	.126	.039	.733	.072	.031	.404	-.213	-.193	.404	-.081	-0.269	0.113	0.4	1.0	0.5	1.1	A-	A-
817	607964	8	516	.754	.754	.103	.080	.033	.031	.488	.488	-.200	-.245	-.153	-0.408	0.116	-0.8	1.0	-1.0	0.9	A+	A-
818	607969	8	516	.785	.041	.087	.785	.056	.031	.526	-.178	-.297	.526	-.177	-0.638	0.123	-1.5	0.9	-2.0	0.8	A+	A-
819	609095	8	516	.678	.678	.060	.126	.095	.041	.502	.502	-.301	-.113	-.212	0.031	0.108	-1.8	0.9	-1.2	0.9	A-	B-
820	610187	8	516	.533	.533	.244	.097	.066	.060	.397	.397	-.011	-.143	-.333	0.761	0.100	0.6	1.0	0.1	1.0	A+	A+
821	609115	8	527	.909	.042	.011	.032	.909	.006	.391	-.239	-.150	-.119	.391	-1.585	0.164	-0.6	0.9	-2.0	0.6	A-	
822	607960	8	527	.970	.013	.004	.970	.006	.008	.398	-.141	-.092	.398	-.142	-3.127	0.307	-0.1	0.9	-1.7	0.4	A+	
823	607961	8	527	.662	.112	.030	.188	.662	.008	.331	-.210	-.213	-.046	.331	0.335	0.101	0.8	1.0	0.1	1.0	A+	
824	607967	8	527	.573	.362	.029	.029	.573	.008	.463	-.265	-.185	-.213	.463	0.795	0.097	-2.1	0.9	-2.4	0.9	A-	
825	612325	8	529	.847	.847	.036	.087	.017	.013	.501	.501	-.218	-.257	-.141	-0.960	0.134	-1.7	0.9	-2.5	0.7	A+	
826	607956	8	529	.737	.059	.100	.737	.083	.021	.397	-.072	-.180	.397	-.153	-0.157	0.110	0.6	1.0	-0.4	1.0	B-	
827	607978	8	529	.909	.019	.909	.032	.025	.015	.520	-.206	.520	-.214	-.159	-1.689	0.171	-1.2	0.9	-2.9	0.5	B+	
828	609061	8	529	.790	.790	.061	.066	.047	.036	.584	.584	-.170	-.273	-.205	-0.616	0.123	-2.6	0.8	-3.1	0.7	B+	
829	610536	8	516	.775	.775	.124	.070	.025	.006	.389	.389	-.250	-.124	-.141	-0.319	0.115	-0.2	1.0	-0.3	1.0	A+	
830	607972	8	516	.459	.190	.459	.118	.223	.010	.323	-.125	.323	-.110	-.115	1.369	0.097	2.2	1.1	1.7	1.1	A+	
831	607975	8	516	.771	.103	.072	.049	.771	.006	.424	-.218	-.150	-.219	.424	-0.292	0.114	-0.9	0.9	-0.6	0.9	A-	
832	610212	8	516	.830	.016	.016	.830	.114	.025	.461	-.111	-.189	.461	-.244	-0.861	0.133	-0.8	0.9	-1.2	0.8	A-	
833	610227	8	516	.673	.093	.047	.673	.143	.045	.435	-.101	-.264	.435	-.125	0.168	0.107	0.5	1.0	-0.3	1.0	A-	
834	612326	8	521	.799	.180	.008	.799	.008	.006	.393	-.247	-.233	.393	-.146	-0.587	0.119	-0.2	1.0	-0.2	1.0	A-	
835	607971	8	521	.259	.115	.313	.259	.298	.015	.244	-.135	-.044	.244	.029	2.278	0.106	0.9	1.1	2.8	1.3	A-	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
836	607977	8	521	.822	.822	.054	.079	.033	.013	.543	.543	-.213	-.272	-.156	-0.796	0.126	-2.1	0.9	-2.6	0.7	A-	
837	610542	8	521	.850	.035	.056	.035	.850	.025	.569	-.225	-.247	-.188	.569	-1.150	0.140	-2.0	0.8	-3.3	0.6	A-	
838	612291	8	521	.234	.100	.499	.125	.234	.042	.228	-.032	.154	-.267	.228	2.396	0.110	1.3	1.1	2.4	1.3	A-	
839	615613	8	528	.860	.047	.860	.068	.023	.002	.312	-.192	.312	-.160	-.115	-0.947	0.135	0.5	1.0	0.0	1.0	A+	
840	612330	8	528	.864	.864	.089	.023	.021	.004	.461	.461	-.254	-.291	-.178	-1.002	0.137	-1.3	0.9	-1.5	0.8	A+	
841	607970	8	528	.648	.267	.648	.059	.021	.006	.473	-.288	.473	-.262	-.098	0.483	0.101	-1.0	1.0	-1.4	0.9	A+	
842	607974	8	528	.737	.053	.047	.737	.157	.006	.524	-.272	-.243	.524	-.263	-0.033	0.109	-2.1	0.9	-2.9	0.8	A+	
843	612321	8	528	.867	.867	.047	.038	.023	.025	.482	.482	-.210	-.241	-.177	-1.231	0.149	-1.1	0.9	-1.9	0.7	A+	
844	612329	8	534	.493	.219	.243	.493	.043	.002	.174	.060	-.162	.174	-.151	1.121	0.093	5.1	1.2	5.2	1.2	A-	A-
845	612241	8	534	.852	.852	.086	.043	.017	.002	.387	.387	-.263	-.180	-.121	-0.938	0.129	-0.8	0.9	-1.9	0.8	A-	A-
846	607968	8	534	.869	.034	.869	.062	.030	.006	.309	-.223	.309	-.139	-.077	-1.109	0.137	0.2	1.0	-0.1	1.0	A-	A-
847	607976	8	534	.684	.684	.077	.154	.081	.006	.311	.311	-.132	-.157	-.119	0.187	0.100	1.1	1.1	0.6	1.0	A+	A-
848	612323	8	534	.611	.611	.155	.152	.051	.032	.448	.448	-.120	-.201	-.229	0.480	0.098	-1.4	1.0	-1.4	0.9	A+	A-
849	607957	8	521	.699	.067	.699	.071	.127	.037	.440	-.162	.440	-.182	-.101	-0.011	0.108	-0.3	1.0	-1.2	0.9	A+	A-
850	607963	8	521	.658	.144	.083	.658	.077	.038	.413	-.027	-.188	.413	-.194	0.219	0.104	-0.3	1.0	-0.6	1.0	A-	A+
851	607958	8	520	.608	.106	.208	.071	.608	.008	.360	-.128	-.164	-.170	.360	0.556	0.098	1.1	1.0	0.2	1.0	B-	
852	607962	8	520	.781	.025	.781	.112	.075	.008	.324	-.218	.324	-.186	-.037	-0.433	0.115	0.4	1.0	1.4	1.2	A+	
853	609244	8	529	.556	.193	.556	.185	.061	.006	.372	-.133	.372	-.219	-.085	0.881	0.096	0.2	1.0	-0.2	1.0	B-	
854	608136	Lit	261	.782	.031	.782	.138	.042	.008	.308	-.184	.308	-.117	-.111	-0.387	0.168	1.8	1.2	0.9	1.2	A+	
855	608137	Lit	261	.728	.081	.134	.728	.042	.015	.478	-.165	-.224	.478	-.242	-0.063	0.159	-0.8	0.9	0.1	1.0	A-	
856	614030	Lit	271	.897	.055	.897	.030	.019	.000	.395	-.313	.395	-.176	-.141	-1.301	0.208	-0.9	0.9	-1.9	0.6	A+	
857	614031	Lit	271	.565	.144	.218	.565	.074	.000	.131	-.138	.038	.131	-.123	0.893	0.135	4.5	1.3	4.8	1.4	A-	
858	610092	Lit	263	.677	.053	.171	.099	.677	.000	.529	-.182	-.295	-.320	.529	0.264	0.147	-2.1	0.9	-2.3	0.8	A-	
859	610091	Lit	263	.635	.255	.027	.635	.080	.004	.146	.081	-.142	.146	-.262	0.507	0.143	4.6	1.3	4.7	1.5	A+	
860	612498	Lit	262	.359	.294	.359	.218	.122	.008	.310	.080	.310	-.187	-.225	1.935	0.140	1.1	1.1	1.8	1.2	A+	
861	612548	Lit	262	.622	.076	.168	.622	.126	.008	.356	-.170	-.130	.356	-.136	0.634	0.141	1.1	1.1	0.9	1.1	A+	
862	612496	Lit	262	.687	.687	.092	.115	.099	.008	.390	.390	-.212	-.174	-.101	0.303	0.147	0.2	1.0	0.0	1.0	A+	
863	616077	Lit	3947	.768	.768	.089	.067	.053	.022	.555	.555	-.277	-.228	-.183	-0.375	0.043	-6.9	0.9	-8.6	0.7	A+	A+
864	610282	Lit	3947	.688	.061	.688	.136	.090	.025	.561	-.243	.561	-.243	-.201	0.132	0.039	-8.3	0.9	-9.3	0.8	A+	A+
865	612495	Lit	258	.655	.655	.081	.136	.101	.027	.527	.527	-.131	-.246	-.276	0.275	0.150	-1.2	0.9	-0.6	0.9	A-	
866	612560	Lit	258	.465	.190	.465	.194	.120	.031	.352	-.115	.352	-.078	-.157	1.285	0.143	2.6	1.2	2.3	1.2	A+	
867	612561	Lit	258	.516	.202	.078	.516	.178	.027	.281	-.087	-.106	.281	-.077	1.037	0.143	4.4	1.3	3.9	1.4	A-	
868	612559	Lit	258	.678	.093	.062	.678	.124	.043	.520	-.191	-.268	.520	-.210	0.061	0.155	-1.4	0.9	-1.5	0.8	A+	
869	610229	Lit	258	.488	.229	.112	.488	.120	.050	.351	.091	-.288	.351	-.191	1.114	0.145	2.4	1.1	2.6	1.2	A+	
870	610307	Lit	258	.283	.283	.244	.221	.198	.054	.394	.394	-.151	-.090	-.028	2.288	0.158	0.7	1.1	0.7	1.1	A-	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
871	610253	Lit	525	.446	.213	.215	.101	.446	.025	.361	-.045	-.090	-.242	.361	1.487	0.099	2.1	1.1	3.4	1.2	B-	
872	612530	Lit	263	.608	.103	.164	.091	.608	.034	.680	-.298	-.326	-.159	.680	0.619	0.145	-4.4	0.8	-4.1	0.7	A-	
873	612573	Lit	262	.595	.130	.595	.118	.149	.008	.434	-.069	.434	-.297	-.229	0.759	0.141	-1.4	0.9	-1.3	0.9	B-	
874	612574	Lit	262	.695	.095	.076	.695	.126	.008	.553	-.258	-.385	.553	-.183	0.196	0.151	-1.6	0.9	-1.8	0.8	A-	
875	612576	Lit	262	.790	.076	.061	.069	.790	.004	.599	-.337	-.304	-.273	.599	-0.421	0.169	-2.3	0.8	-2.7	0.6	B-	
876	612558	Lit	262	.489	.336	.027	.134	.489	.015	.368	-.170	-.215	-.079	.368	1.276	0.138	1.6	1.1	2.2	1.2	B-	
877	616076	Lit	262	.481	.126	.481	.122	.206	.065	.419	-.096	.419	-.252	.002	1.224	0.141	0.5	1.0	0.4	1.0	A+	
878	610233	Lit	523	.390	.044	.317	.390	.191	.057	.302	-.202	.041	.302	-.069	1.735	0.102	4.5	1.2	6.2	1.5	A-	
879	610234	Lit	523	.480	.134	.191	.136	.480	.059	.466	-.198	-.092	-.091	.466	1.246	0.101	0.3	1.0	1.1	1.1	A+	
880	608134	Lit	264	.447	.466	.027	.057	.447	.004	.210	-.002	-.208	-.219	.210	1.357	0.137	4.0	1.2	3.8	1.3	B+	
881	609098	Lit	264	.424	.201	.140	.224	.424	.011	.430	.017	-.279	-.219	.430	1.459	0.138	-0.4	1.0	0.4	1.0	A-	
882	616073	Lit	264	.602	.250	.602	.061	.068	.019	.363	-.030	.363	-.301	-.243	0.544	0.141	1.3	1.1	0.8	1.1	A-	
883	616075	Lit	264	.530	.083	.197	.530	.159	.030	.505	-.296	-.249	.505	-.051	0.884	0.139	-1.5	0.9	-1.4	0.9	A+	
884	610218	Lit	264	.511	.163	.511	.144	.140	.042	.548	-.127	.548	-.254	-.218	0.956	0.139	-2.6	0.9	-2.2	0.9	A-	
885	610215	Lit	264	.583	.125	.133	.117	.583	.042	.611	-.265	-.266	-.192	.611	0.581	0.142	-3.8	0.8	-3.6	0.7	A+	
886	610247	Lit	264	.428	.428	.265	.110	.148	.049	.419	.419	-.062	-.294	-.090	1.353	0.140	0.2	1.0	0.2	1.0	A+	
887	616066	Lit	261	.705	.077	.142	.065	.705	.012	.531	-.286	-.228	-.175	.531	0.105	0.155	-2.2	0.8	-1.1	0.9	A-	
888	610296	Lit	261	.625	.058	.107	.625	.199	.012	.367	-.165	-.222	.367	-.067	0.581	0.147	2.1	1.1	1.5	1.2	A+	
889	610295	Lit	261	.755	.146	.050	.038	.755	.012	.537	-.216	-.290	-.251	.537	-0.222	0.163	-1.9	0.9	-1.4	0.8	A-	
890	608131	Lit	261	.444	.444	.061	.268	.207	.019	.444	.444	-.307	-.050	-.161	1.534	0.143	1.0	1.1	1.3	1.1	A-	
891	616068	Lit	261	.529	.268	.529	.088	.073	.042	.428	-.077	.428	-.203	-.110	1.038	0.145	2.0	1.1	2.0	1.2	A-	
892	610120	Lit	261	.659	.103	.659	.073	.111	.054	.575	-.145	.575	-.227	-.245	0.220	0.156	-1.7	0.9	-1.6	0.8	A-	
893	609253	Lit	263	.639	.224	.639	.088	.042	.008	.284	-.177	.284	-.054	-.097	0.511	0.140	0.9	1.1	0.9	1.1	A-	
894	609109	Lit	263	.179	.281	.240	.179	.293	.008	.056	-.040	.025	.056	.054	2.923	0.168	1.6	1.2	3.5	1.7	A-	
895	609107	Lit	263	.559	.068	.281	.080	.559	.011	.359	-.145	-.062	-.256	.359	0.893	0.135	0.5	1.0	0.1	1.0	A+	
896	609105	Lit	263	.578	.023	.300	.088	.578	.011	.341	-.222	-.118	-.129	.341	0.801	0.136	0.8	1.0	0.6	1.0	A+	
897	612487	Lit	263	.654	.654	.156	.129	.049	.011	.412	.412	-.187	-.208	-.063	0.418	0.141	-0.5	1.0	-0.5	1.0	B-	
898	612488	Lit	263	.681	.122	.681	.095	.084	.019	.447	-.150	.447	-.127	-.267	0.242	0.145	-1.2	0.9	-1.0	0.9	A-	
899	612503	Lit	263	.327	.145	.327	.395	.118	.015	.248	-.115	.248	.060	-.168	2.010	0.141	1.7	1.1	1.6	1.1	A-	
900	612502	Lit	263	.761	.129	.042	.761	.057	.011	.467	-.222	-.184	.467	-.187	-0.201	0.157	-1.3	0.9	-1.4	0.8	A+	
901	609113	Lit	263	.369	.300	.221	.084	.369	.027	.299	.119	-.239	-.150	.299	1.774	0.138	1.0	1.1	1.3	1.1	B+	
902	609156	Lit	263	.384	.183	.384	.175	.232	.027	.345	-.094	.345	-.146	-.036	1.693	0.137	0.6	1.0	0.5	1.0	B-	
903	609158	Lit	263	.586	.095	.167	.126	.586	.027	.589	-.223	-.265	-.197	.589	0.711	0.138	-4.2	0.8	-3.7	0.8	A+	
904	616072	Lit	263	.551	.179	.095	.551	.145	.030	.399	-.103	-.213	.399	-.092	0.873	0.137	0.2	1.0	0.2	1.0	A-	
905	609160	Lit	263	.422	.422	.209	.141	.194	.034	.368	.368	-.205	-.064	-.025	1.495	0.136	0.2	1.0	0.8	1.1	A+	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
906	612568	Lit	263	.506	.506	.099	.179	.183	.034	.453	.453	-.140	-.187	-.121	1.088	0.136	-1.3	0.9	-1.2	0.9	C-	
907	612546	Lit	262	.863	.038	.027	.069	.863	.004	.535	-.217	-.287	-.295	.535	-1.001	0.198	-1.2	0.9	-2.0	0.6	A-	
908	612492	Lit	262	.882	.019	.882	.084	.012	.004	.408	-.181	.408	-.247	-.158	-1.166	0.209	-0.6	0.9	-0.6	0.9	A+	
909	612493	Lit	262	.649	.073	.137	.134	.649	.008	.477	-.362	-.105	-.187	.477	0.513	0.143	-1.2	0.9	-1.4	0.9	A-	
910	612545	Lit	262	.935	.004	.042	.935	.012	.008	.514	-.100	-.311	.514	-.227	-2.034	0.285	-0.8	0.8	-2.1	0.4	A-	
911	612549	Lit	262	.584	.157	.145	.103	.584	.012	.466	-.167	-.269	-.115	.466	0.824	0.139	-1.1	0.9	-1.1	0.9	A-	
912	612527	Lit	262	.282	.099	.282	.221	.370	.027	.230	-.106	.230	-.060	.006	2.342	0.149	1.3	1.1	1.9	1.2	A+	
913	612565	Lit	262	.435	.088	.435	.321	.122	.034	.383	-.265	.383	-.073	-.084	1.486	0.138	0.2	1.0	0.7	1.1	A-	
914	609141	Lit	271	.343	.092	.421	.133	.343	.011	.257	-.198	.060	-.190	.257	1.980	0.140	2.3	1.1	2.3	1.2	B+	
915	612489	Lit	271	.605	.173	.605	.100	.096	.026	.545	-.288	.545	-.244	-.116	0.621	0.139	-2.1	0.9	-2.2	0.8	A+	
916	616070	Lit	271	.561	.214	.074	.122	.561	.030	.503	-.094	-.192	-.337	.503	0.839	0.137	-1.3	0.9	-1.1	0.9	A-	
917	612501	Lit	271	.491	.103	.188	.188	.491	.030	.600	-.213	-.230	-.233	.600	1.196	0.136	-3.7	0.8	-3.4	0.8	C+	
918	612556	Lit	271	.572	.114	.572	.137	.144	.033	.553	-.162	.553	-.246	-.229	0.778	0.138	-2.3	0.9	-2.0	0.9	A-	
919	616074	Lit	263	.787	.057	.057	.095	.787	.004	.594	-.338	-.263	-.314	.594	-0.451	0.167	-2.7	0.8	-2.9	0.6	A+	
920	616069	Lit	263	.753	.091	.753	.084	.049	.023	.535	-.163	.535	-.327	-.248	-0.309	0.164	-1.1	0.9	-1.8	0.8	A-	
921	612529	Lit	263	.551	.152	.088	.551	.183	.027	.371	-.180	-.195	.371	-.048	0.872	0.141	2.0	1.1	2.1	1.2	B+	
922	612528	Lit	263	.654	.122	.654	.145	.053	.027	.585	-.316	.585	-.210	-.243	0.309	0.148	-2.3	0.9	-2.0	0.8	A+	
923	612486	Lit	263	.529	.049	.243	.152	.529	.027	.524	-.176	-.229	-.218	.524	0.991	0.140	-1.3	0.9	-1.2	0.9	A-	
924	610608	Lit	263	.821	.068	.821	.042	.042	.027	.550	-.242	.550	-.266	-.247	-0.808	0.185	-1.8	0.8	-2.0	0.6	C+	
925	610201	Lit	263	.475	.084	.156	.247	.475	.038	.429	-.193	-.290	-.020	.429	1.231	0.140	0.7	1.0	1.0	1.1	A-	
926	610351	Lit	263	.426	.183	.426	.126	.228	.038	.390	-.242	.390	-.212	.044	1.509	0.141	1.0	1.1	1.5	1.1	A-	
927	610200	Lit	263	.574	.186	.103	.574	.099	.038	.447	-.069	-.219	.447	-.268	0.709	0.143	0.7	1.0	0.1	1.0	A-	
928	614018	Lit	262	.607	.179	.607	.107	.107	.000	.438	-.252	.438	-.299	-.081	0.640	0.140	-0.5	1.0	-0.6	1.0	A-	
929	614021	Lit	262	.290	.141	.225	.290	.340	.004	.126	-.137	-.135	.126	.103	2.245	0.148	3.4	1.2	4.2	1.6	A-	
930	614020	Lit	262	.622	.233	.118	.622	.027	.000	.289	-.178	-.160	.289	-.081	0.562	0.141	2.2	1.1	2.2	1.2	B-	
931	616067	Lit	262	.657	.241	.657	.042	.061	.000	.430	-.128	.430	-.312	-.363	0.380	0.143	-0.1	1.0	-0.6	0.9	A+	
932	609181	Lit	262	.626	.115	.176	.626	.080	.004	.426	-.160	-.329	.426	-.080	0.538	0.141	0.0	1.0	-0.5	1.0	A+	
933	610251	Lit	262	.492	.095	.286	.111	.492	.015	.412	-.225	-.054	-.327	.412	1.168	0.138	0.5	1.0	1.0	1.1	A+	
934	610250	Lit	262	.641	.061	.641	.225	.053	.019	.364	-.197	.364	-.125	-.270	0.386	0.144	1.1	1.1	1.0	1.1	A+	
935	609078	Lit	523	.686	.048	.149	.092	.686	.025	.595	-.222	-.251	-.351	.595	0.162	0.106	-4.6	0.8	-4.2	0.7	B+	
936	610290	Lit	262	.439	.439	.386	.084	.065	.027	.460	.460	-.153	-.304	-.223	1.400	0.139	-0.4	1.0	-0.9	0.9	A+	
937	610289	Lit	262	.622	.622	.076	.172	.103	.027	.631	.631	-.320	-.318	-.285	0.457	0.144	-4.0	0.8	-3.9	0.7	B+	
938	610099	Lit	261	.575	.172	.575	.088	.157	.008	.289	-.103	.289	-.175	-.096	0.857	0.137	2.1	1.1	1.4	1.1	A-	
939	610101	Lit	261	.502	.502	.330	.069	.092	.008	.240	.240	-.038	-.082	-.213	1.211	0.136	2.9	1.2	2.7	1.2	A+	
940	610191	Lit	261	.368	.261	.172	.188	.368	.012	.510	-.134	-.132	-.242	.510	1.871	0.140	-2.5	0.9	-2.5	0.8	A-	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
941	610205	Lit	261	.422	.100	.399	.061	.422	.019	.363	-.272	.006	-.194	.363	1.589	0.138	1.0	1.1	0.8	1.1	A+	
942	610264	Lit	261	.594	.126	.138	.100	.594	.042	.565	-.268	-.175	-.197	.565	0.672	0.142	-3.0	0.8	-2.8	0.8	B+	
943	609241	Lit	261	.720	.088	.096	.720	.084	.012	.386	-.229	-.142	.386	-.116	-0.089	0.154	-0.4	1.0	-0.9	0.9	A+	
944	609054	Lit	261	.318	.364	.180	.123	.318	.015	.347	-.020	-.084	-.181	.347	2.005	0.146	0.5	1.0	1.0	1.1	A+	
945	609052	Lit	261	.399	.399	.092	.238	.249	.023	.368	.368	-.146	-.037	-.089	1.557	0.140	0.1	1.0	0.2	1.0	A-	
946	616633	Lit	261	.659	.188	.659	.058	.073	.023	.451	-.152	.451	-.151	-.137	0.222	0.146	-0.3	1.0	-0.5	1.0	A-	
947	609051	Lit	261	.625	.138	.138	.077	.625	.023	.528	-.090	-.201	-.271	.528	0.411	0.143	-1.9	0.9	-2.0	0.8	A+	
948	610237	Lit	261	.571	.571	.264	.061	.077	.027	.468	.468	-.165	-.127	-.133	0.681	0.140	-0.9	1.0	-1.2	0.9	A-	
949	610245	Lit	261	.548	.548	.169	.119	.138	.027	.487	.487	-.108	-.237	-.094	0.798	0.139	-2.1	0.9	-1.5	0.9	A-	
950	610246	Lit	261	.648	.648	.188	.073	.061	.031	.546	.546	-.155	-.233	-.176	0.265	0.146	-2.4	0.9	-2.4	0.8	A+	
951	609077	Lit	261	.188	.180	.188	.211	.356	.065	.188	.074	.188	-.018	.047	2.743	0.171	1.1	1.1	3.8	1.8	A-	
952	609206	Lit	261	.391	.391	.211	.230	.100	.069	.362	.362	-.018	-.104	-.028	1.495	0.143	1.5	1.1	1.0	1.1	A-	
953	609248	Lit	269	.621	.621	.294	.030	.052	.004	.260	.260	-.104	-.127	-.171	0.536	0.139	3.0	1.2	2.2	1.2	A+	
954	609247	Lit	269	.792	.052	.093	.792	.060	.004	.376	-.159	-.172	.376	-.203	-0.483	0.164	0.0	1.0	-0.7	0.9	A+	
955	609246	Lit	269	.409	.409	.041	.134	.409	.007	.295	-.184	-.036	-.075	.295	1.585	0.137	2.5	1.1	2.7	1.2	B-	
956	610279	Lit	269	.643	.052	.093	.205	.643	.007	.513	-.244	-.163	-.278	.513	0.410	0.141	-2.2	0.9	-1.3	0.9	A-	
957	610277	Lit	269	.357	.357	.227	.164	.245	.007	.173	.173	-.051	-.119	.035	1.853	0.139	3.6	1.2	4.0	1.4	A+	
958	610276	Lit	269	.520	.223	.089	.520	.156	.011	.487	-.150	-.263	.487	-.184	1.040	0.135	-2.0	0.9	-1.8	0.9	A-	
959	610278	Lit	269	.632	.141	.078	.632	.134	.015	.560	-.212	-.305	.560	-.220	0.440	0.141	-2.9	0.8	-2.9	0.8	A+	
960	614123	Lit	269	.528	.253	.528	.138	.052	.030	.362	.025	.362	-.236	-.241	0.938	0.137	1.7	1.1	2.0	1.1	A+	
961	612510	Lit	269	.487	.312	.145	.026	.487	.030	.410	-.125	-.168	-.197	.410	1.144	0.137	0.6	1.0	0.8	1.1	A+	
962	612490	Lit	269	.465	.119	.152	.465	.231	.034	.444	-.122	-.188	.444	-.139	1.246	0.137	-0.2	1.0	-0.3	1.0	A-	
963	609133	Lit	262	.710	.710	.088	.126	.073	.004	.503	.503	-.251	-.253	-.210	-0.021	0.151	-2.7	0.8	-2.4	0.8	B+	
964	609138	Lit	262	.225	.168	.225	.176	.428	.004	.141	-.202	.141	-.162	.196	2.587	0.160	0.9	1.1	2.7	1.5	A+	
965	609137	Lit	262	.679	.061	.176	.076	.679	.008	.501	-.217	-.220	-.259	.501	0.135	0.147	-1.3	0.9	-1.8	0.8	A+	
966	609132	Lit	262	.645	.168	.645	.118	.053	.015	.389	-.105	.389	-.174	-.172	0.319	0.144	0.5	1.0	0.5	1.0	A+	
967	610284	Lit	262	.389	.309	.179	.389	.099	.023	.186	.168	-.125	.186	-.169	1.612	0.140	4.6	1.3	4.3	1.4	A-	
968	610283	Lit	262	.637	.637	.053	.202	.080	.027	.476	.476	-.268	-.155	-.113	0.310	0.145	-0.8	1.0	-0.9	0.9	B+	
969	612484	Lit	262	.576	.206	.092	.576	.095	.031	.399	.043	-.211	.399	-.210	0.638	0.141	1.1	1.1	1.7	1.1	B-	
970	612540	Lit	262	.622	.050	.622	.092	.202	.034	.422	-.151	.422	-.163	-.090	0.376	0.145	0.8	1.1	0.4	1.0	A-	
971	614024	Lit	527	.899	.032	.899	.017	.017	.034	.576	-.236	.576	-.197	-.119	-1.933	0.186	-1.1	0.8	-2.2	0.5	A+	
972	609192	Lit	262	.481	.481	.218	.111	.137	.053	.408	.408	-.152	-.096	-.040	1.079	0.140	0.1	1.0	1.1	1.1	A-	
973	612551	Lit	265	.457	.049	.128	.457	.355	.011	.279	-.250	-.107	.279	.006	1.402	0.137	3.5	1.2	2.8	1.2	A+	
974	612552	Lit	265	.551	.551	.117	.166	.155	.011	.382	.382	-.239	.015	-.183	0.931	0.138	0.6	1.0	0.8	1.1	B-	
975	616071	Lit	265	.694	.694	.079	.053	.151	.023	.429	.429	-.193	-.249	-.024	0.127	0.151	0.3	1.0	-0.1	1.0	A+	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
976	609104	Lit	265	.528	.249	.106	.528	.098	.019	.336	.000	-.196	.336	-.111	1.035	0.138	2.5	1.1	2.0	1.2	A+	
977	612507	Lit	265	.438	.276	.438	.109	.121	.057	.364	.031	.364	-.206	-.084	1.409	0.140	1.9	1.1	1.4	1.1	A-	
978	612508	Lit	265	.472	.159	.472	.106	.208	.057	.378	-.048	.378	-.238	.012	1.232	0.140	1.6	1.1	1.6	1.1	A+	
979	610603	Lit	265	.574	.072	.109	.574	.185	.060	.469	-.181	-.148	.469	-.086	0.682	0.144	-0.1	1.0	-0.4	1.0	A+	
980	608138	Lit	261	.720	.054	.077	.720	.142	.008	.429	-.213	-.235	.429	-.141	0.033	0.156	0.2	1.0	0.4	1.1	A+	
981	614032	Lit	271	.661	.033	.661	.218	.089	.000	.355	-.237	.355	-.121	-.267	0.406	0.140	1.3	1.1	1.1	1.1	A-	
982	614033	Lit	271	.849	.044	.081	.849	.026	.000	.401	-.232	-.216	.401	-.233	-0.819	0.179	-1.3	0.9	-1.2	0.8	B+	
983	614034	Lit	271	.292	.292	.299	.218	.192	.000	.332	.332	-.187	-.085	-.077	2.277	0.145	0.6	1.0	1.9	1.2	A+	
984	610352	Lit	263	.152	.152	.160	.278	.411	.000	.027	.027	-.124	-.079	.145	3.313	0.186	1.8	1.2	3.6	2.0	A-	
985	610094	Lit	263	.608	.608	.186	.084	.118	.004	.490	.490	-.103	-.276	-.343	0.629	0.141	-1.0	0.9	-1.0	0.9	A+	
986	610095	Lit	263	.703	.205	.703	.053	.030	.008	.486	-.261	.486	-.318	-.185	0.106	0.151	-1.2	0.9	-1.5	0.8	A+	
987	610093	Lit	263	.285	.118	.285	.434	.160	.004	.206	-.230	.206	.107	-.164	2.336	0.150	2.2	1.2	2.8	1.4	A-	
988	610239	Lit	258	.861	.039	.861	.089	.012	.000	.128	-.109	.128	-.052	-.077	-1.144	0.197	1.1	1.1	1.4	1.4	A-	
989	610240	Lit	258	.694	.694	.089	.120	.097	.000	.539	.539	-.262	-.357	-.195	0.129	0.150	-2.5	0.8	-2.5	0.7	A-	
990	610242	Lit	258	.477	.205	.477	.295	.023	.000	.430	-.132	.430	-.299	-.167	1.285	0.141	0.7	1.0	1.0	1.1	B-	
991	610258	Lit	3947	.354	.036	.241	.352	.354	.017	.334	-.162	-.151	-.028	.334	1.898	0.037	4.5	1.1	7.8	1.2	A+	A-
992	610259	Lit	3947	.663	.131	.663	.114	.073	.020	.416	-.087	.416	-.225	-.156	0.301	0.038	1.9	1.0	0.7	1.0	A+	A+
993	610262	Lit	3947	.723	.085	.723	.084	.087	.021	.534	-.185	.534	-.237	-.230	-0.067	0.040	-7.0	0.9	-6.0	0.8	A+	A+
994	612563	Lit	258	.760	.109	.760	.081	.023	.027	.548	-.346	.548	-.177	-.203	-0.394	0.167	-1.9	0.8	-2.3	0.7	A+	
995	612562	Lit	258	.667	.078	.105	.112	.667	.039	.553	-.209	-.237	-.252	.553	0.155	0.153	-2.5	0.8	-1.9	0.8	A+	
996	610230	Lit	258	.574	.574	.151	.078	.147	.050	.388	.388	-.221	-.227	.025	0.648	0.147	1.6	1.1	1.5	1.2	A-	
997	610231	Lit	258	.395	.109	.163	.283	.395	.050	.453	-.177	-.138	-.122	.453	1.623	0.147	0.3	1.0	0.4	1.0	B-	
998	610226	Lit	258	.295	.205	.229	.295	.221	.050	.285	-.106	-.140	.285	.078	2.217	0.156	2.6	1.2	4.0	1.6	A+	
999	610300	Lit	263	.354	.236	.354	.137	.270	.004	.225	.041	.225	-.266	-.035	2.015	0.143	3.1	1.2	2.8	1.3	A+	
1000	610299	Lit	263	.806	.806	.072	.076	.038	.008	.547	.547	-.266	-.274	-.233	-0.565	0.173	-2.5	0.8	-3.0	0.5	A+	
1001	610256	Lit	525	.770	.770	.095	.053	.051	.031	.556	.556	-.252	-.253	-.181	-0.405	0.121	-2.1	0.9	-2.0	0.8	C+	
1002	610208	Lit	527	.687	.093	.173	.687	.040	.008	.360	-.153	-.161	.360	-.192	0.176	0.105	1.3	1.1	0.7	1.1	A-	
1003	612571	Lit	262	.305	.305	.282	.157	.256	.000	.130	.130	-.141	.016	-.006	2.233	0.146	3.7	1.3	5.0	1.8	A-	
1004	612572	Lit	262	.653	.653	.061	.042	.237	.008	.415	.415	-.235	-.197	-.203	0.454	0.145	0.1	1.0	-0.4	1.0	A+	
1005	610192	Lit	262	.351	.351	.149	.286	.149	.065	.447	.447	-.236	-.002	-.092	1.894	0.144	-1.0	0.9	0.4	1.0	A-	
1006	610235	Lit	523	.447	.218	.447	.187	.086	.061	.412	-.076	.412	-.061	-.186	1.415	0.101	2.4	1.1	2.1	1.1	B+	
1007	608135	Lit	264	.689	.080	.689	.091	.136	.004	.477	-.147	.477	-.398	-.137	0.124	0.146	-1.3	0.9	-0.7	0.9	A-	
1008	609064	Lit	264	.663	.144	.663	.095	.091	.008	.485	-.211	.485	-.262	-.174	0.258	0.144	-1.1	0.9	-1.5	0.9	A-	
1009	610306	Lit	264	.667	.667	.091	.114	.095	.034	.485	.485	-.170	-.171	-.243	0.139	0.148	-1.2	0.9	-0.4	1.0	A-	
1010	610221	Lit	264	.307	.186	.265	.208	.307	.034	.403	-.203	-.102	-.019	.403	2.038	0.147	-0.2	1.0	0.1	1.0	A-	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1011	610342	Lit	264	.421	.318	.068	.421	.152	.042	.449	-.215	-.165	.449	-.050	1.420	0.139	-0.6	1.0	0.2	1.0	A+	
1012	610263	Lit	264	.477	.133	.477	.216	.133	.042	.410	-.262	.410	-.054	-.094	1.130	0.139	0.8	1.0	0.6	1.0	A-	
1013	610297	Lit	261	.368	.368	.211	.299	.111	.012	.247	.247	-.065	-.040	-.096	1.962	0.146	3.6	1.2	4.4	1.6	A-	
1014	608132	Lit	261	.571	.130	.571	.103	.176	.019	.424	-.066	.424	-.267	-.123	0.856	0.144	1.0	1.1	1.6	1.2	A-	
1015	609065	Lit	261	.709	.077	.084	.088	.709	.042	.638	-.280	-.234	-.199	.638	-0.043	0.161	-3.2	0.8	-2.3	0.7	A-	
1016	609066	Lit	261	.590	.590	.234	.031	.103	.042	.469	.469	-.033	-.106	-.345	0.694	0.148	0.9	1.1	0.6	1.1	A-	
1017	609067	Lit	261	.310	.088	.092	.467	.310	.042	.366	-.227	-.270	.134	.366	2.262	0.152	1.6	1.1	2.1	1.3	A-	
1018	609108	Lit	263	.350	.171	.350	.434	.038	.008	.208	-.043	.208	-.010	-.207	1.903	0.139	2.9	1.2	2.5	1.2	A-	
1019	609111	Lit	263	.327	.327	.281	.232	.133	.027	.130	.130	.043	.062	-.125	1.995	0.141	3.8	1.2	3.9	1.4	A-	
1020	609110	Lit	263	.521	.236	.129	.521	.095	.019	.361	-.073	-.153	.361	-.153	1.052	0.135	0.8	1.0	0.6	1.0	A-	
1021	609159	Lit	263	.297	.145	.221	.312	.297	.027	.208	-.142	.043	-.004	.208	2.149	0.145	1.9	1.1	2.7	1.3	A+	
1022	612569	Lit	263	.491	.114	.491	.186	.175	.034	.303	-.116	.303	-.187	.064	1.162	0.136	2.1	1.1	2.2	1.1	B+	
1023	612570	Lit	263	.548	.133	.145	.548	.137	.038	.381	-.123	-.141	.381	-.095	0.871	0.137	0.5	1.0	0.2	1.0	A+	
1024	612550	Lit	262	.779	.779	.099	.038	.069	.015	.583	.583	-.308	-.289	-.204	-0.327	0.167	-2.1	0.8	-2.5	0.7	A+	
1025	609255	Lit	262	.424	.424	.256	.145	.157	.019	.305	.305	-.009	-.232	-.050	1.594	0.137	2.0	1.1	1.9	1.2	A+	
1026	609256	Lit	262	.687	.141	.687	.092	.065	.015	.340	-.155	.340	-.090	-.135	0.255	0.149	1.4	1.1	2.0	1.2	A+	
1027	609257	Lit	262	.275	.275	.038	.435	.237	.015	.227	.227	-.261	.063	-.089	2.361	0.148	1.5	1.1	1.9	1.2	A+	
1028	612566	Lit	262	.275	.130	.332	.275	.225	.038	.274	-.080	-.103	.274	.016	2.350	0.150	0.6	1.0	1.0	1.1	B+	
1029	612567	Lit	262	.305	.164	.305	.187	.305	.038	.206	-.099	.135	-.170	.206	2.197	0.146	2.5	1.2	1.8	1.2	B+	
1030	609144	Lit	271	.365	.365	.081	.170	.380	.004	.232	.232	-.252	-.188	.079	1.870	0.138	3.2	1.2	3.0	1.3	A+	
1031	609259	Lit	271	.568	.568	.214	.092	.103	.022	.366	.366	-.046	-.202	-.192	0.820	0.137	1.8	1.1	1.3	1.1	A-	
1032	609276	Lit	271	.620	.074	.122	.620	.159	.026	.431	-.227	-.215	.431	-.080	0.543	0.140	0.5	1.0	-0.3	1.0	A-	
1033	609258	Lit	271	.579	.214	.579	.103	.078	.026	.438	-.131	.438	-.276	-.107	0.755	0.138	0.2	1.0	-0.3	1.0	A+	
1034	612521	Lit	271	.535	.185	.535	.140	.107	.033	.490	-.092	.490	-.195	-.271	0.967	0.137	-0.9	1.0	-0.6	1.0	B-	
1035	612557	Lit	271	.410	.410	.210	.148	.203	.030	.359	.359	-.041	-.243	-.050	1.606	0.137	1.7	1.1	1.5	1.1	A+	
1036	612499	Lit	263	.373	.373	.357	.183	.084	.004	.348	.348	-.125	-.147	-.146	1.830	0.141	1.4	1.1	2.9	1.3	A-	
1037	610609	Lit	263	.821	.019	.061	.072	.821	.027	.511	-.192	-.304	-.194	.511	-0.843	0.186	-0.9	0.9	-1.6	0.7	A+	
1038	610610	Lit	263	.521	.198	.122	.521	.129	.030	.472	-.082	-.224	.472	-.242	1.022	0.140	-0.1	1.0	0.1	1.0	A+	
1039	614022	Lit	262	.599	.599	.149	.164	.084	.004	.366	.366	-.195	-.234	-.063	0.674	0.140	0.8	1.1	0.5	1.0	A-	
1040	614023	Lit	262	.649	.057	.168	.122	.649	.004	.343	-.191	-.156	-.180	.343	0.407	0.143	1.0	1.1	1.2	1.1	A-	
1041	615185	Lit	262	.210	.282	.340	.164	.210	.004	.064	.226	-.066	-.264	.064	2.745	0.162	2.6	1.2	3.3	1.6	A-	
1042	609102	Lit	262	.573	.573	.294	.053	.080	.000	.233	.233	.012	-.295	-.199	0.814	0.138	3.5	1.2	3.4	1.3	A-	
1043	609079	Lit	523	.551	.142	.551	.109	.178	.021	.441	-.097	.441	-.141	-.275	0.903	0.098	0.0	1.0	-0.5	1.0	C-	
1044	609080	Lit	523	.555	.126	.207	.555	.086	.027	.432	-.097	-.227	.432	-.184	0.866	0.098	0.0	1.0	-0.1	1.0	A+	
1045	610291	Lit	262	.473	.115	.199	.187	.473	.027	.568	-.121	-.342	-.243	.568	1.226	0.139	-3.0	0.8	-2.5	0.8	B+	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1046	610097	Lit	261	.425	.425	.073	.299	.199	.004	.171	.171	-.191	.002	-.038	1.592	0.137	4.6	1.3	4.6	1.4	A+	
1047	610096	Lit	261	.644	.103	.088	.644	.161	.004	.368	-.049	-.157	.368	-.263	0.523	0.141	0.0	1.0	-0.2	1.0	A+	
1048	610098	Lit	261	.755	.058	.161	.755	.019	.008	.413	-.243	-.200	.413	-.206	-0.126	0.156	-0.6	1.0	-0.8	0.9	A+	
1049	610185	Lit	261	.651	.192	.058	.651	.092	.008	.297	-.060	-.277	.297	-.075	0.470	0.142	1.7	1.1	1.5	1.2	A+	
1050	610190	Lit	261	.383	.138	.383	.142	.330	.008	.197	-.215	.197	-.240	.200	1.796	0.139	3.7	1.2	3.3	1.3	B-	
1051	610206	Lit	261	.414	.138	.126	.414	.303	.019	.410	-.259	-.206	.410	.023	1.627	0.138	-0.1	1.0	0.1	1.0	B-	
1052	610266	Lit	261	.494	.096	.494	.153	.215	.042	.485	-.098	.485	-.100	-.265	1.181	0.139	-1.3	0.9	-1.4	0.9	A-	
1053	610267	Lit	261	.245	.245	.295	.249	.169	.042	.199	.199	.194	-.131	-.129	2.529	0.156	2.3	1.2	2.5	1.4	A-	
1054	609055	Lit	261	.341	.096	.341	.088	.452	.023	.208	-.138	.208	-.242	.190	1.858	0.143	3.4	1.2	3.5	1.4	B-	
1055	612519	Lit	261	.701	.701	.134	.081	.038	.046	.580	.580	-.223	-.171	-.185	-0.132	0.156	-2.4	0.8	-2.5	0.7	B+	
1056	609068	Lit	261	.510	.249	.103	.510	.084	.054	.359	.040	-.166	.359	-.138	0.907	0.141	2.2	1.1	1.3	1.1	A+	
1057	609182	Lit	261	.395	.238	.395	.226	.081	.061	.312	-.115	.312	.082	-.088	1.489	0.142	2.4	1.1	2.8	1.2	A-	
1058	609207	Lit	261	.617	.103	.103	.107	.617	.069	.602	-.232	-.193	-.148	.602	0.283	0.149	-3.4	0.8	-3.3	0.7	B+	
1059	609183	Lit	261	.594	.054	.192	.594	.092	.069	.495	-.041	-.140	.495	-.213	0.415	0.147	-0.8	1.0	-1.2	0.9	A+	
1060	609211	Lit	261	.506	.100	.142	.506	.176	.077	.436	-.024	-.220	.436	-.038	0.873	0.143	0.5	1.0	-0.3	1.0	A-	
1061	609249	Lit	269	.558	.558	.115	.271	.048	.007	.338	.338	-.217	-.051	-.236	0.853	0.136	1.4	1.1	0.9	1.1	A-	
1062	609250	Lit	269	.219	.015	.100	.219	.662	.004	.078	-.164	-.141	.078	.105	2.680	0.159	2.3	1.2	4.1	1.7	B-	
1063	609251	Lit	269	.565	.238	.565	.074	.119	.004	.436	-.118	.436	-.265	-.238	0.820	0.136	-0.4	1.0	-0.5	1.0	A+	
1064	610274	Lit	269	.744	.744	.063	.093	.089	.011	.409	.409	-.271	-.239	-.026	-0.185	0.155	-0.2	1.0	-0.1	1.0	B+	
1065	610275	Lit	269	.472	.268	.472	.060	.193	.007	.397	-.156	.397	-.279	-.079	1.291	0.135	0.5	1.0	0.5	1.0	A+	
1066	612542	Lit	269	.387	.138	.260	.197	.387	.019	.279	-.342	-.015	.085	.279	1.670	0.138	2.9	1.2	2.2	1.2	A+	
1067	612544	Lit	269	.446	.301	.446	.067	.167	.019	.330	-.055	.330	-.306	-.046	1.369	0.136	2.0	1.1	2.1	1.2	C-	
1068	612543	Lit	269	.595	.048	.245	.093	.595	.019	.498	-.303	-.230	-.122	.498	0.621	0.139	-1.2	0.9	-1.1	0.9	A-	
1069	614028	Lit	269	.480	.480	.164	.264	.067	.026	.461	.461	-.142	-.114	-.310	1.185	0.136	-0.5	1.0	-0.7	1.0	A+	
1070	614027	Lit	269	.617	.078	.115	.617	.160	.030	.484	-.280	-.201	.484	-.108	0.472	0.142	-0.7	1.0	-0.9	0.9	B-	
1071	612515	Lit	269	.558	.171	.558	.145	.097	.030	.398	-.117	.398	-.095	-.216	0.785	0.138	1.2	1.1	0.6	1.1	A+	
1072	612511	Lit	269	.684	.108	.684	.115	.060	.034	.589	-.231	.589	-.261	-.265	0.075	0.149	-2.6	0.8	-3.1	0.7	B-	
1073	609139	Lit	262	.450	.378	.103	.450	.065	.004	.252	.077	-.271	.252	-.250	1.329	0.137	2.7	1.1	3.2	1.3	A+	
1074	610285	Lit	262	.263	.263	.378	.179	.157	.023	.258	.258	.028	-.064	-.098	2.301	0.152	0.6	1.0	2.2	1.3	A-	
1075	612541	Lit	262	.603	.603	.134	.164	.073	.027	.545	.545	-.208	-.148	-.223	0.521	0.142	-2.5	0.9	-2.8	0.8	A-	
1076	614026	Lit	527	.526	.288	.080	.070	.526	.036	.366	.054	-.224	-.200	.366	0.947	0.099	2.7	1.1	2.3	1.1	B+	
1077	614025	Lit	527	.801	.030	.070	.801	.063	.036	.559	-.092	-.167	.559	-.285	-0.759	0.128	-1.7	0.9	-1.8	0.8	A+	
1078	609191	Lit	262	.699	.088	.065	.095	.699	.053	.541	-.168	-.169	-.210	.541	-0.138	0.158	-1.4	0.9	-2.0	0.8	A-	
1079	612564	Lit	265	.377	.109	.174	.332	.377	.008	.345	-.122	-.122	-.102	.345	1.803	0.140	0.8	1.0	2.1	1.2	A+	
1080	612553	Lit	265	.626	.125	.626	.193	.045	.011	.411	-.100	.411	-.225	-.122	0.538	0.142	0.1	1.0	0.0	1.0	A-	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1081	612554	Lit	265	.732	.732	.125	.079	.053	.011	.518	.518	-.235	-.290	-.096	-0.075	0.155	-1.4	0.9	-2.0	0.8	A+	
1082	612555	Lit	265	.664	.083	.117	.125	.664	.011	.567	-.232	-.139	-.323	.567	0.331	0.146	-3.3	0.8	-3.1	0.7	A-	
1083	609101	Lit	265	.362	.045	.362	.298	.276	.019	.265	-.182	.265	-.147	.088	1.868	0.141	2.2	1.1	3.7	1.4	A-	
1084	612512	Lit	265	.506	.170	.147	.121	.506	.057	.479	-.184	-.081	-.119	.479	1.054	0.141	-0.9	1.0	-0.7	0.9	A-	
1085	612509	Lit	265	.445	.091	.287	.121	.445	.057	.324	-.173	.115	-.186	.324	1.370	0.140	2.7	1.2	3.2	1.3	C-	
1086	610606	Lit	265	.543	.079	.272	.049	.543	.057	.563	-.242	-.190	-.129	.563	0.853	0.142	-3.0	0.8	-2.6	0.8	A+	
1087	610604	Lit	265	.611	.611	.128	.117	.083	.060	.467	.467	-.073	-.251	-.061	0.469	0.147	0.2	1.0	-0.2	1.0	A-	
1088	610281	Lit	3947	.474	.214	.069	.220	.474	.024	.441	-.122	-.237	-.122	.441	1.275	0.036	-1.2	1.0	0.5	1.0	A+	A-
1089	610210	Lit	527	.435	.435	.123	.366	.065	.011	.324	.324	-.140	-.037	-.239	1.486	0.098	2.6	1.1	2.5	1.2	A+	
1090	612531	Lit	263	.502	.502	.160	.186	.122	.030	.525	.525	-.106	-.209	-.226	1.190	0.140	-2.0	0.9	-1.5	0.9	A+	
1091	612534	Lit	262	.500	.027	.500	.279	.179	.015	.187	-.112	.187	-.139	.041	1.209	0.138	5.0	1.3	4.1	1.4	A+	
1092	612535	Lit	262	.817	.817	.050	.099	.027	.008	.550	.550	-.290	-.287	-.238	-0.651	0.179	-2.0	0.8	-2.0	0.7	A-	
1093	610196	Lit	262	.454	.199	.149	.454	.149	.050	.439	-.175	-.119	.439	-.038	1.389	0.140	0.3	1.0	0.5	1.0	B-	
1094	610193	Lit	262	.679	.679	.080	.111	.080	.050	.539	.539	-.131	-.342	-.057	0.146	0.155	-0.7	1.0	-1.2	0.9	A-	
1095	610194	Lit	262	.664	.088	.664	.153	.046	.050	.550	-.263	.550	-.159	-.169	0.242	0.153	-1.2	0.9	-1.0	0.9	A+	
1096	610195	Lit	262	.637	.111	.115	.637	.073	.065	.613	-.177	-.255	.613	-.240	0.334	0.152	-2.6	0.8	-2.5	0.8	A-	
1097	610304	Lit	264	.640	.189	.640	.087	.057	.027	.442	-.107	.442	-.279	-.164	0.326	0.144	-0.2	1.0	0.0	1.0	A-	
1098	610249	Lit	264	.519	.106	.133	.197	.519	.046	.426	-.185	-.191	-.078	.426	0.902	0.140	0.3	1.0	0.7	1.1	A-	
1099	610248	Lit	264	.265	.265	.261	.220	.205	.049	.201	.201	.009	-.037	-.052	2.253	0.153	2.3	1.2	3.8	1.5	A+	
1100	610122	Lit	261	.659	.188	.659	.065	.042	.046	.561	-.201	.561	-.215	-.207	0.260	0.155	-1.1	0.9	-1.5	0.8	A+	
1101	612504	Lit	263	.776	.776	.065	.042	.107	.011	.490	.490	-.220	-.195	-.215	-0.296	0.160	-1.3	0.9	-2.1	0.7	A-	
1102	612505	Lit	263	.776	.107	.068	.776	.034	.015	.492	-.265	-.183	.492	-.146	-0.318	0.161	-1.2	0.9	-2.0	0.8	A+	
1103	612523	Lit	262	.611	.092	.145	.126	.611	.027	.561	-.215	-.174	-.303	.561	0.654	0.142	-3.1	0.8	-3.2	0.8	A-	
1104	612526	Lit	262	.405	.080	.141	.347	.405	.027	.374	-.196	-.365	.098	.374	1.670	0.138	0.8	1.0	-0.3	1.0	A+	
1105	609148	Lit	271	.801	.801	.044	.048	.103	.004	.502	.502	-.240	-.213	-.313	-0.464	0.164	-1.9	0.8	-2.4	0.7	A+	
1106	609147	Lit	271	.454	.162	.240	.140	.454	.004	.559	-.111	-.309	-.273	.559	1.425	0.134	-3.2	0.9	-2.7	0.8	A-	
1107	609146	Lit	271	.332	.539	.332	.070	.048	.011	.187	-.013	.187	-.196	-.053	2.038	0.141	3.4	1.2	4.3	1.5	A-	
1108	610350	Lit	263	.532	.107	.532	.221	.107	.034	.382	-.210	.382	-.126	-.085	0.965	0.141	1.8	1.1	1.4	1.1	A+	
1109	610203	Lit	263	.479	.110	.266	.479	.110	.034	.395	-.149	-.012	.395	-.313	1.262	0.140	0.9	1.1	0.9	1.1	A+	
1110	610294	Lit	262	.527	.160	.527	.256	.027	.031	.520	-.264	.520	-.275	-.162	0.945	0.140	-1.7	0.9	-1.5	0.9	A-	
1111	610178	Lit	261	.904	.023	.904	.035	.031	.008	.448	-.149	.448	-.259	-.173	-1.431	0.227	-0.7	0.9	-1.3	0.7	A+	
1112	610207	Lit	261	.728	.728	.107	.092	.054	.019	.514	.514	-.161	-.247	-.237	-0.003	0.154	-1.8	0.9	-1.5	0.8	A+	
1113	610340	Lit	261	.257	.387	.149	.257	.165	.042	.313	-.038	-.186	.313	.046	2.457	0.154	0.6	1.0	1.5	1.2	A-	
1114	610243	Lit	261	.594	.081	.594	.119	.180	.027	.451	-.185	.451	-.217	-.021	0.561	0.142	-0.7	1.0	0.1	1.0	A+	
1115	610238	Lit	261	.494	.376	.065	.494	.038	.027	.278	.083	-.203	.278	-.189	1.068	0.138	3.6	1.2	3.1	1.2	A-	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1116	612520	Lit	261	.732	.732	.069	.096	.061	.042	.630	.630	-.246	-.214	-.195	-0.313	0.162	-3.0	0.8	-3.4	0.6	A+	
1117	609216	Lit	261	.249	.184	.249	.238	.253	.077	.168	-.034	.168	-.093	.230	2.300	0.157	3.0	1.2	3.6	1.5	A-	
1118	612491	Lit	269	.610	.086	.104	.171	.610	.030	.403	-.142	-.212	-.095	.403	0.512	0.141	0.9	1.1	0.7	1.1	A+	
1119	610288	Lit	262	.725	.099	.725	.095	.065	.015	.468	-.186	.468	-.159	-.195	-0.156	0.155	-0.5	1.0	-0.6	0.9	A-	
1120	609195	Lit	262	.279	.134	.168	.366	.279	.053	.173	-.004	-.131	.146	.173	2.143	0.150	3.0	1.2	3.7	1.5	A-	
1121	609103	Lit	265	.762	.151	.762	.034	.038	.015	.388	-.109	.388	-.144	-.180	-0.280	0.161	1.0	1.1	0.5	1.1	A+	
1122	612513	Lit	265	.547	.547	.151	.109	.151	.042	.430	.430	-.190	-.113	-.035	0.882	0.141	0.7	1.0	0.4	1.0	A-	
1123	612514	Lit	265	.577	.577	.094	.170	.109	.049	.577	.577	-.194	-.213	-.149	0.698	0.143	-3.1	0.8	-3.0	0.8	A+	
1124	610280	Lit	3947	.473	.171	.128	.473	.205	.024	.329	-.080	-.116	.329	-.085	1.278	0.036	9.0	1.1	9.2	1.2	A+	A+
1125	610301	Lit	263	.532	.532	.319	.114	.030	.004	.275	.275	-.142	-.142	-.045	1.093	0.139	2.9	1.2	3.8	1.3	A+	
1126	610209	Lit	527	.455	.177	.288	.455	.070	.010	.269	-.177	.074	.269	-.242	1.386	0.097	4.9	1.2	4.1	1.2	A-	
1127	618407	Lit	527	.839	.059	.055	.839	.038	.010	.502	-.227	-.249	.502	-.190	-0.882	0.130	-2.1	0.8	-2.2	0.7	A+	
1128	612532	Lit	263	.730	.068	.068	.103	.730	.030	.589	-.290	-.233	-.201	.589	-0.115	0.160	-2.3	0.8	-2.7	0.7	A+	
1129	612516	Lit	262	.744	.141	.076	.031	.744	.008	.360	-.137	-.171	-.223	.360	-0.112	0.159	0.6	1.1	1.0	1.1	A-	
1130	612517	Lit	262	.710	.069	.710	.126	.088	.008	.412	-.180	.412	-.231	-.139	0.107	0.153	0.2	1.0	0.2	1.0	A+	
1131	610121	Lit	261	.529	.092	.077	.529	.257	.046	.401	-.133	-.172	.401	-.053	1.021	0.146	2.3	1.2	2.9	1.3	A-	
1132	610123	Lit	261	.728	.728	.096	.073	.050	.054	.557	.557	-.297	-.190	-.086	-0.251	0.168	-1.1	0.9	-1.7	0.7	A+	
1133	610125	Lit	261	.674	.061	.674	.138	.073	.054	.584	-.228	.584	-.151	-.287	0.121	0.158	-1.8	0.9	-1.7	0.8	B+	
1134	610124	Lit	261	.690	.690	.081	.146	.031	.054	.560	.560	-.235	-.208	-.169	0.019	0.161	-1.6	0.9	-0.7	0.9	A+	
1135	609157	Lit	263	.631	.631	.118	.133	.091	.027	.515	.515	-.163	-.188	-.247	0.478	0.141	-2.1	0.9	-1.9	0.9	A+	
1136	612485	Lit	262	.588	.588	.351	.042	.015	.004	.305	.305	-.154	-.150	-.203	0.829	0.138	1.8	1.1	1.4	1.1	A-	
1137	612494	Lit	262	.756	.756	.099	.057	.084	.004	.334	.334	-.181	-.189	-.087	-0.113	0.158	0.9	1.1	0.3	1.0	A-	
1138	612525	Lit	262	.542	.168	.202	.542	.061	.027	.326	-.128	.017	.326	-.299	0.988	0.138	2.0	1.1	2.5	1.2	A+	
1139	612539	Lit	271	.458	.055	.343	.458	.114	.030	.461	-.206	-.136	.461	-.203	1.363	0.136	-0.6	1.0	0.3	1.0	A-	
1140	612538	Lit	271	.620	.092	.166	.620	.092	.030	.556	-.262	-.251	.556	-.162	0.533	0.141	-2.2	0.9	-2.4	0.8	A-	
1141	612500	Lit	263	.878	.878	.049	.038	.030	.004	.524	.524	-.306	-.274	-.237	-1.270	0.208	-1.3	0.8	-2.3	0.5	A+	
1142	610202	Lit	263	.544	.544	.126	.068	.228	.034	.462	.462	-.206	-.237	-.129	0.905	0.141	0.0	1.0	0.0	1.0	A+	
1143	610252	Lit	262	.576	.576	.225	.115	.057	.027	.521	.521	-.270	-.239	-.204	0.710	0.141	-1.7	0.9	-1.1	0.9	A+	
1144	610292	Lit	262	.603	.061	.199	.603	.107	.031	.520	-.276	-.278	.520	-.202	0.547	0.143	-1.7	0.9	-1.4	0.9	B+	
1145	610293	Lit	262	.359	.157	.359	.218	.241	.027	.235	-.146	.235	-.186	.073	1.815	0.142	3.3	1.2	2.9	1.3	A+	
1146	610211	Lit	261	.674	.084	.674	.088	.142	.012	.340	-.164	.340	-.114	-.111	0.338	0.145	0.6	1.0	2.2	1.2	A-	
1147	610241	Lit	261	.395	.395	.272	.157	.134	.042	.406	.406	-.120	-.168	-.044	1.685	0.140	0.1	1.0	0.7	1.1	A-	
1148	610244	Lit	261	.506	.318	.069	.077	.506	.031	.255	.118	-.159	-.181	.255	1.004	0.139	4.3	1.2	3.3	1.3	A+	
1149	609215	Lit	261	.356	.153	.176	.356	.238	.077	.250	-.021	-.083	.250	.092	1.668	0.145	3.3	1.2	3.9	1.4	A-	
1150	610287	Lit	262	.382	.038	.050	.512	.382	.019	.185	-.181	-.211	.116	.185	1.635	0.140	4.5	1.3	4.7	1.5	A+	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1151	610286	Lit	262	.550	.103	.118	.550	.206	.023	.474	-.210	-.171	.474	-.097	0.789	0.139	-0.8	1.0	-0.9	0.9	A-	
1152	609193	Lit	262	.714	.065	.714	.092	.076	.053	.550	-.140	.550	-.214	-.207	-0.266	0.162	-1.4	0.9	-1.5	0.8	A-	
1153	609194	Lit	262	.626	.626	.095	.157	.069	.053	.531	.531	-.202	-.136	-.201	0.281	0.148	-1.6	0.9	-1.4	0.9	B-	
1154	614029	Lit	271	.801	.801	.177	.022	.000	.000	.345	.345	-.324	-.097	.000	-0.442	0.162	-0.3	1.0	-0.8	0.9	A-	
1155	608118	Lit	269	.866	.866	.056	.026	.041	.011	.517	.517	-.312	-.225	-.148	-1.177	0.198	-1.0	0.9	-2.1	0.6	A+	
1156	612547	Lit	262	.668	.141	.668	.130	.053	.008	.491	-.109	.491	-.335	-.206	0.389	0.145	-1.4	0.9	-1.4	0.9	A-	
1157	608112	Lit	3947	.819	.075	.045	.819	.047	.014	.456	-.202	-.172	.456	-.193	-0.715	0.046	-1.9	1.0	-4.2	0.8	A-	A-
1158	608115	Lit	3947	.932	.932	.023	.018	.014	.013	.494	.494	-.200	-.197	-.193	-2.115	0.073	-2.8	0.8	-7.9	0.4	A+	A-
1159	608121	Lit	3947	.798	.071	.052	.066	.798	.013	.417	-.157	-.195	-.158	.417	-0.550	0.044	-1.1	1.0	-0.2	1.0	A+	A-
1160	610225	Lit	258	.705	.078	.093	.074	.705	.050	.585	-.243	-.269	-.240	.585	-0.146	0.161	-2.6	0.8	-2.6	0.7	A-	
1161	610254	Lit	525	.867	.059	.034	.867	.015	.025	.529	-.251	-.261	.529	-.175	-1.292	0.152	-1.5	0.9	-2.6	0.6	A+	
1162	608113	Lit	263	.399	.399	.475	.080	.030	.015	.233	.233	.012	-.144	-.150	1.747	0.141	4.0	1.2	3.4	1.3	A-	
1163	608122	Lit	263	.586	.137	.586	.247	.015	.015	.321	-.051	.321	-.148	-.177	0.788	0.142	2.4	1.2	1.6	1.1	A-	
1164	612575	Lit	262	.691	.092	.084	.134	.691	.000	.303	-.167	-.227	-.085	.303	0.253	0.149	1.5	1.1	2.2	1.3	A+	
1165	612533	Lit	262	.908	.023	.038	.908	.023	.008	.520	-.216	-.287	.520	-.248	-1.666	0.242	-1.0	0.8	-2.1	0.4	A+	
1166	608105	Lit	262	.752	.752	.046	.153	.034	.015	.408	.408	-.183	-.265	-.072	-0.209	0.162	0.6	1.1	0.0	1.0	A+	
1167	608133	Lit	264	.682	.682	.083	.144	.083	.008	.400	.400	-.294	-.103	-.180	0.151	0.146	0.0	1.0	0.7	1.1	A+	
1168	609242	Lit	264	.318	.242	.239	.193	.318	.008	.323	-.029	.011	-.314	.323	2.014	0.144	0.7	1.0	2.0	1.2	A-	
1169	608100	Lit	264	.606	.023	.299	.606	.061	.011	.356	-.185	-.156	.356	-.183	0.548	0.140	1.4	1.1	1.3	1.1	A-	
1170	608114	Lit	264	.546	.068	.546	.231	.136	.019	.308	-.174	.308	-.088	-.113	0.832	0.138	2.7	1.2	2.2	1.2	A+	
1171	610222	Lit	264	.436	.436	.091	.227	.212	.034	.321	.321	-.212	-.053	-.054	1.353	0.139	2.3	1.1	2.3	1.2	A-	
1172	608130	Lit	261	.847	.847	.042	.081	.019	.012	.398	.398	-.234	-.110	-.164	-0.963	0.192	-0.3	1.0	0.4	1.1	A-	
1173	608110	Lit	261	.801	.046	.801	.058	.073	.023	.532	-.276	.532	-.189	-.163	-0.630	0.178	-1.0	0.9	-0.3	0.9	A-	
1174	608111	Lit	261	.824	.054	.042	.824	.054	.027	.511	-.200	-.165	.511	-.175	-0.852	0.189	-0.8	0.9	-0.9	0.8	A+	
1175	609106	Lit	263	.517	.517	.042	.331	.107	.004	.272	.272	-.225	-.178	.047	1.098	0.134	2.5	1.1	2.3	1.1	B-	
1176	608120	Lit	525	.756	.069	.149	.756	.023	.004	.389	-.152	-.234	.389	-.175	-0.177	0.110	-0.5	1.0	-0.3	1.0	C-	
1177	608116	Lit	262	.470	.237	.157	.470	.126	.012	.305	-.161	-.050	.305	-.068	1.369	0.136	2.3	1.1	1.7	1.1	A-	
1178	612522	Lit	262	.573	.573	.084	.267	.046	.031	.427	.427	-.225	-.153	-.140	0.825	0.140	0.1	1.0	-0.1	1.0	A-	
1179	612524	Lit	262	.618	.095	.618	.134	.122	.031	.465	-.341	.465	-.074	-.158	0.578	0.143	-0.6	1.0	-1.1	0.9	A+	
1180	609142	Lit	271	.550	.126	.052	.269	.550	.004	.230	-.010	-.078	-.188	.230	0.956	0.134	3.7	1.2	3.3	1.3	A+	
1181	608117	Lit	271	.472	.092	.472	.033	.391	.011	.277	-.032	.277	-.247	-.113	1.324	0.135	3.4	1.2	3.3	1.2	B-	
1182	612536	Lit	271	.734	.734	.118	.055	.063	.030	.542	.542	-.220	-.247	-.282	-0.144	0.155	-2.1	0.9	-2.3	0.7	A+	
1183	612497	Lit	263	.521	.030	.205	.521	.232	.011	.235	-.197	-.155	.235	-.002	1.068	0.139	4.0	1.2	4.0	1.3	C-	
1184	608101	Lit	263	.734	.030	.734	.103	.129	.004	.466	-.227	.466	-.266	-.222	-0.064	0.155	-0.6	1.0	-1.4	0.8	A-	
1185	608106	Lit	263	.692	.114	.141	.049	.692	.004	.452	-.258	-.206	-.199	.452	0.166	0.149	0.0	1.0	-1.0	0.9	A+	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1186	614019	Lit	262	.699	.130	.699	.103	.069	.000	.325	-.167	.325	-.252	-.066	0.148	0.148	1.3	1.1	0.6	1.1	A-	
1187	608102	Lit	262	.382	.206	.176	.237	.382	.000	.512	-.134	-.262	-.223	.512	1.759	0.139	-1.8	0.9	-1.4	0.9	A-	
1188	608103	Lit	262	.897	.897	.027	.034	.042	.000	.419	.419	-.210	-.214	-.273	-1.380	0.213	-0.7	0.9	-2.1	0.5	A+	
1189	610100	Lit	261	.330	.027	.088	.552	.330	.004	.370	-.030	.002	-.299	.370	2.081	0.143	-0.8	1.0	0.4	1.0	A-	
1190	610204	Lit	261	.812	.812	.100	.042	.038	.008	.488	.488	-.321	-.173	-.143	-0.524	0.171	-1.3	0.9	-2.0	0.7	A-	
1191	608104	Lit	261	.625	.084	.100	.625	.176	.015	.399	-.126	-.332	.399	-.030	0.595	0.141	0.3	1.0	-0.1	1.0	A+	
1192	610339	Lit	261	.540	.195	.042	.184	.540	.038	.419	-.207	-.120	-.095	.419	0.957	0.139	0.4	1.0	-0.2	1.0	B-	
1193	608123	Lit	261	.854	.854	.031	.023	.069	.023	.457	.457	-.072	-.116	-.178	-1.189	0.200	-0.1	1.0	-0.4	0.9	A-	
1194	612518	Lit	261	.724	.031	.111	.092	.724	.042	.542	-.139	-.196	-.172	.542	-0.261	0.160	-1.4	0.9	-1.5	0.8	A-	
1195	612506	Lit	269	.788	.788	.071	.056	.056	.030	.595	.595	-.323	-.214	-.239	-0.612	0.171	-2.3	0.8	-2.9	0.6	B-	
1196	609134	Lit	262	.313	.439	.210	.034	.313	.004	.302	-.155	-.054	-.123	.302	2.015	0.145	0.2	1.0	0.5	1.1	A+	
1197	608119	Lit	262	.821	.004	.034	.821	.118	.023	.446	-.085	-.276	.446	-.117	-0.909	0.185	0.2	1.0	0.3	1.1	A-	
1198	609190	Lit	262	.756	.061	.756	.080	.057	.046	.494	-.228	.494	-.176	-.066	-0.526	0.170	-0.3	1.0	-0.7	0.9	A-	
1199	608107	Lit	265	.506	.200	.170	.506	.094	.030	.304	.034	-.222	.304	-.020	1.118	0.138	3.4	1.2	3.1	1.3	A+	
1200	608108	Lit	265	.521	.253	.098	.106	.521	.023	.404	-.146	-.080	-.118	.404	1.069	0.138	1.0	1.1	0.6	1.1	A-	
1201	608109	Lit	265	.830	.045	.830	.026	.076	.023	.594	-.182	.594	-.202	-.282	-0.863	0.187	-1.7	0.8	-2.6	0.5	A-	
1202	661545	6	251	.845	.064	.845	.048	.044	.000	.503	-.402	.503	-.181	-.222	-1.482	0.191	-1.4	0.8	-1.9	0.7	A-	
1203	661546	6	606	.828	.053	.828	.053	.066	.000	.426	-.348	.426	-.253	-.106	-1.388	0.119	-0.6	1.0	-0.8	0.9	A+	
1204	661549	6	261	.801	.801	.058	.100	.042	.000	.435	.435	-.380	-.184	-.151	-1.207	0.174	-0.2	1.0	-0.8	0.9	A-	
1205	661550	6	577	.820	.094	.820	.045	.042	.000	.458	-.282	.458	-.255	-.205	-1.403	0.120	-0.7	1.0	-2.4	0.7	A+	
1206	661553	6	294	.721	.099	.143	.037	.721	.000	.459	-.207	-.262	-.277	.459	-0.557	0.145	-0.8	0.9	-1.3	0.9	A+	
1207	661555	6	595	.892	.061	.892	.022	.025	.000	.282	-.078	.282	-.241	-.214	-2.013	0.143	0.1	1.0	2.1	1.4	B+	A+
1208	661557	6	252	.734	.111	.734	.123	.032	.000	.453	-.274	.453	-.237	-.206	-0.704	0.160	-0.3	1.0	-0.7	0.9	A+	
1209	661558	6	618	.835	.078	.835	.044	.044	.000	.497	-.333	.497	-.246	-.220	-1.508	0.119	-1.8	0.9	-3.0	0.7	A-	
1210	661560	6	243	.901	.901	.041	.033	.025	.000	.362	.362	-.263	-.123	-.217	-1.938	0.228	-0.3	0.9	-1.1	0.7	A+	
1211	661562	6	637	.799	.038	.082	.082	.799	.000	.586	-.268	-.361	-.309	.586	-1.216	0.110	-3.8	0.8	-4.6	0.6	A+	
1212	661564	6	237	.317	.190	.317	.236	.257	.000	.196	-.119	.196	-.046	-.056	1.509	0.151	1.4	1.1	4.1	1.6	A-	
1213	661566	6	597	.496	.164	.214	.496	.126	.000	.190	-.212	.034	.190	-.092	0.538	0.091	5.9	1.2	5.9	1.3	A-	
1214	663048	6	265	.577	.143	.177	.102	.577	.000	.460	-.202	-.193	-.274	.460	0.095	0.141	-0.4	1.0	-0.4	1.0	A-	
1215	663049	6	263	.673	.084	.152	.673	.091	.000	.413	-.299	-.108	.413	-.251	-0.389	0.148	0.4	1.0	-0.3	1.0	A-	
1216	663050	6	281	.534	.263	.534	.100	.103	.000	.376	-.205	.376	-.120	-.201	0.346	0.135	0.9	1.1	1.1	1.1	A+	
1217	663051	6	269	.420	.420	.164	.316	.100	.000	.207	.207	-.221	.030	-.114	0.907	0.138	3.9	1.2	4.2	1.4	A-	
1218	663052	6	834	.622	.175	.090	.622	.113	.000	.468	-.191	-.361	.468	-.161	-0.083	0.080	-1.9	0.9	-1.9	0.9	A+	A-
1219	663053	6	796	.300	.181	.300	.114	.405	.000	-.003	-.177	-.003	-.132	.228	1.547	0.084	8.1	1.3	9.9	2.0	A+	A+
1220	663054	6	784	.429	.329	.107	.429	.135	.000	.186	.030	-.192	.186	-.137	0.880	0.080	5.8	1.2	8.5	1.5	A+	A-

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1221	663055	6	776	.769	.077	.084	.769	.070	.000	.508	-.213	-.281	.508	-.311	-0.986	0.095	-2.4	0.9	-2.9	0.8	A+	B-
1222	663061	6	294	.452	.452	.184	.214	.150	.000	.293	.293	-.095	-.061	-.236	0.713	0.132	2.7	1.2	3.2	1.3	A-	
1223	663062	6	302	.636	.636	.129	.103	.133	.000	.442	.442	-.274	-.191	-.186	-0.232	0.136	0.1	1.0	-0.2	1.0	A-	
1224	663063	6	302	.354	.437	.354	.073	.136	.000	.146	.057	.146	-.242	-.103	1.224	0.133	3.5	1.2	7.2	1.9	B-	
1225	663064	6	294	.364	.160	.364	.303	.174	.000	.155	-.076	.155	-.070	-.039	1.177	0.135	4.7	1.3	4.4	1.5	B+	
1226	663065	6	198	.697	.697	.116	.091	.096	.000	.571	.571	-.268	-.346	-.262	-0.523	0.176	-1.9	0.8	-1.9	0.8	A+	
1227	663066	6	192	.651	.094	.172	.083	.651	.000	.344	-.087	-.261	-.146	.344	-0.232	0.172	1.2	1.1	1.8	1.2	A+	
1228	663067	6	201	.617	.134	.139	.110	.617	.000	.478	-.149	-.177	-.384	.478	-0.059	0.165	-1.0	0.9	0.1	1.0	A-	
1229	663068	6	804	.746	.746	.180	.037	.036	.000	.316	.316	-.151	-.240	-.182	-0.812	0.090	1.6	1.1	3.3	1.3	A+	
1230	663069	6	815	.703	.102	.080	.115	.703	.000	.509	-.281	-.250	-.251	.509	-0.538	0.086	-2.7	0.9	-3.4	0.8	A+	
1231	663070	6	849	.481	.200	.124	.196	.481	.000	.361	-.109	-.276	-.116	.361	0.644	0.076	0.7	1.0	1.8	1.1	A+	
1232	663071	6	803	.496	.169	.196	.496	.140	.000	.171	-.136	-.010	.171	-.087	0.562	0.079	7.6	1.2	8.1	1.4	B+	
1233	663105	6	369	.542	.206	.542	.152	.100	.000	.483	-.221	.483	-.274	-.176	0.354	0.118	-2.0	0.9	-0.8	1.0	A+	
1234	663106	6	415	.718	.718	.084	.130	.068	.000	.465	.465	-.270	-.240	-.213	-0.582	0.123	-0.5	1.0	-1.7	0.8	A-	
1235	663107	6	389	.283	.283	.278	.368	.072	.000	.185	.185	-.034	.005	-.273	1.713	0.122	2.3	1.1	4.2	1.6	A+	
1236	663108	6	387	.762	.762	.109	.090	.039	.000	.516	.516	-.354	-.246	-.202	-0.911	0.134	-1.7	0.9	-1.7	0.8	A-	
1237	663109	6	372	.430	.430	.137	.277	.156	.000	.307	.307	-.284	.042	-.201	0.922	0.116	2.1	1.1	2.0	1.2	A-	
1238	663110	6	383	.381	.261	.243	.381	.115	.000	.227	.071	-.166	.227	-.219	1.182	0.116	2.8	1.1	4.7	1.5	A-	
1239	663119	6	1105	.386	.179	.337	.386	.098	.000	.148	-.057	.067	.148	-.277	1.169	0.068	7.1	1.2	9.9	1.5	A-	A+
1240	663120	6	1085	.499	.499	.181	.273	.048	.000	.391	.391	-.282	-.099	-.200	0.607	0.067	-0.6	1.0	1.8	1.1	A-	A-
1241	663121	6	1233	.628	.163	.108	.101	.628	.000	.503	-.289	-.275	-.170	.503	-0.026	0.065	-4.4	0.9	-4.4	0.8	A+	A-
1242	663122	6	1152	.214	.409	.175	.203	.214	.000	-.038	.159	-.077	-.083	-.038	2.159	0.077	5.6	1.2	9.9	2.5	A+	A-
1243	663123	6	1128	.520	.145	.520	.200	.136	.000	.287	-.193	.287	-.144	-.052	0.514	0.066	3.9	1.1	4.6	1.2	A-	B-
1244	663124	6	1114	.469	.183	.172	.177	.469	.000	.342	-.156	-.129	-.162	.342	0.758	0.066	0.7	1.0	4.2	1.2	A+	A+
1245	663149	6	797	.511	.348	.511	.072	.070	.000	.311	-.071	.311	-.281	-.193	0.491	0.079	3.1	1.1	3.9	1.2	A+	
1246	663150	6	804	.619	.619	.167	.086	.128	.000	.437	.437	-.102	-.305	-.266	-0.059	0.082	-0.7	1.0	-0.7	1.0	A+	
1247	663151	6	835	.356	.267	.163	.214	.356	.000	.423	-.217	-.276	-.011	.423	1.292	0.079	-2.4	0.9	-1.3	0.9	A+	A-
1248	663152	6	790	.603	.187	.141	.070	.603	.000	.350	-.068	-.168	-.340	.350	0.027	0.082	2.1	1.1	2.1	1.1	B+	
1249	663190	6	356	.565	.267	.155	.565	.014	.000	.385	-.258	-.169	.385	-.135	0.239	0.120	0.8	1.0	1.1	1.1	A+	
1250	663191	6	346	.503	.055	.165	.278	.503	.000	.262	-.142	-.196	-.058	.262	0.580	0.119	2.6	1.1	4.3	1.3	A-	
1251	663192	6	343	.781	.082	.781	.096	.041	.000	.497	-.363	.497	-.206	-.229	-1.057	0.147	-0.9	0.9	-1.8	0.8	A-	
1252	663193	6	344	.433	.151	.204	.212	.433	.000	.198	-.122	.077	-.209	.198	0.884	0.121	4.3	1.2	5.3	1.5	A+	
1253	663194	6	335	.367	.131	.367	.173	.328	.000	.168	-.162	.168	-.271	.163	1.233	0.124	4.3	1.2	4.5	1.5	B-	
1254	663249	6	245	.535	.257	.535	.082	.127	.000	.208	-.090	.208	-.234	-.001	0.378	0.143	3.6	1.2	4.5	1.4	A+	
1255	663250	6	256	.836	.074	.836	.055	.035	.000	.521	-.264	.521	-.291	-.312	-1.453	0.187	-1.3	0.9	-2.1	0.6	A+	

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1256	663251	6	246	.504	.171	.504	.232	.094	.000	.316	-.052	.316	-.078	-.362	0.538	0.141	1.8	1.1	1.6	1.1	A+	
1257	663252	6	242	.806	.806	.008	.062	.124	.000	.549	.549	-.151	-.340	-.368	-1.251	0.181	-2.0	0.8	-1.6	0.7	A-	
1258	661568	7	821	.735	.124	.735	.102	.039	.000	.541	-.321	.541	-.340	-.155	-0.630	0.088	-3.4	0.9	-4.1	0.7	A+	A-
1259	661570	7	665	.668	.150	.084	.668	.098	.000	.393	-.214	-.295	.393	-.091	-0.122	0.094	1.5	1.1	1.1	1.1	B-	A-
1260	661600	7	705	.678	.095	.180	.047	.678	.000	.480	-.327	-.211	-.224	.480	-0.139	0.092	-1.0	1.0	-1.1	0.9	A-	A-
1261	661601	7	829	.865	.041	.059	.035	.865	.000	.503	-.295	-.314	-.214	.503	-1.704	0.111	-2.6	0.8	-3.0	0.7	A+	A-
1262	661602	7	672	.362	.423	.362	.080	.135	.000	.177	-.069	.177	-.172	-.013	1.475	0.088	4.8	1.2	7.6	1.6	A-	
1263	661603	7	909	.567	.099	.567	.114	.220	.000	.334	-.360	.334	-.142	-.031	0.309	0.075	2.6	1.1	2.7	1.1	A-	B-
1264	661604	7	715	.768	.768	.120	.085	.027	.000	.374	.374	-.230	-.211	-.150	-0.752	0.099	0.7	1.0	0.1	1.0	A+	A-
1265	661605	7	848	.789	.076	.120	.789	.015	.000	.443	-.293	-.276	.443	-.110	-1.012	0.093	-1.2	0.9	-1.4	0.9	B+	A-
1266	661606	7	694	.735	.735	.065	.180	.020	.000	.387	.387	-.354	-.147	-.192	-0.455	0.097	1.0	1.1	-0.2	1.0	A+	
1267	661607	7	858	.731	.731	.107	.085	.077	.000	.359	.359	-.124	-.291	-.149	-0.595	0.086	1.3	1.1	1.3	1.1	A+	A-
1268	661608	7	674	.576	.576	.061	.043	.321	.000	.233	.233	-.325	-.204	.008	0.392	0.087	5.3	1.2	4.9	1.3	B-	A+
1269	661621	7	797	.745	.745	.107	.088	.060	.000	.527	.527	-.396	-.258	-.145	-0.766	0.092	-2.3	0.9	-3.4	0.8	A+	A-
1270	663139	7	901	.424	.424	.177	.219	.181	.000	.391	.391	-.310	-.174	-.008	1.176	0.075	-0.7	1.0	1.3	1.1	A-	
1271	663140	7	866	.599	.167	.140	.599	.094	.000	.421	-.171	-.133	.421	-.332	0.281	0.078	-0.2	1.0	0.3	1.0	A+	
1272	663141	7	856	.457	.280	.152	.457	.111	.000	.226	-.038	-.151	.226	-.132	1.001	0.077	5.6	1.2	8.2	1.4	A+	
1273	663142	7	844	.520	.237	.111	.132	.520	.000	.337	-.051	-.242	-.209	.337	0.683	0.077	2.4	1.1	3.8	1.2	B-	
1274	663145	7	796	.563	.153	.563	.122	.162	.000	.387	-.269	.387	-.219	-.065	0.368	0.080	0.4	1.0	0.4	1.0	A-	A-
1275	663146	7	740	.469	.469	.181	.160	.191	.000	.332	.332	-.166	-.171	-.100	0.813	0.082	1.7	1.1	2.6	1.1	A+	
1276	663147	7	731	.425	.213	.200	.425	.161	.000	.205	.075	-.153	.205	-.193	1.024	0.083	5.1	1.2	6.5	1.4	A+	
1277	663148	7	725	.290	.457	.290	.117	.137	.000	.037	.287	.037	-.228	-.250	1.741	0.089	6.7	1.3	8.4	1.8	A-	
1278	663165	7	847	.508	.156	.174	.163	.508	.000	.411	-.050	-.187	-.317	.411	0.615	0.077	-0.2	1.0	0.5	1.0	B+	A+
1279	663166	7	791	.602	.152	.132	.602	.115	.000	.446	-.125	-.286	.446	-.240	0.119	0.082	-0.7	1.0	-0.2	1.0	B+	A-
1280	663167	7	806	.458	.458	.143	.101	.299	.000	.243	.243	-.235	-.245	.076	0.861	0.079	6.1	1.2	5.4	1.3	A+	A+
1281	663168	7	800	.693	.693	.103	.105	.100	.000	.466	.466	-.227	-.275	-.207	-0.397	0.087	-1.0	1.0	-1.8	0.9	C+	A-
1282	663169	7	915	.368	.368	.145	.209	.278	.000	.211	.211	-.222	-.109	.047	1.447	0.075	4.5	1.1	8.5	1.5	A-	A-
1283	663170	7	899	.437	.162	.263	.437	.138	.000	.123	-.053	.006	.123	-.127	1.099	0.075	9.8	1.3	9.9	1.6	A+	A-
1284	663171	7	876	.691	.111	.081	.118	.691	.000	.488	-.256	-.247	-.243	.488	-0.240	0.083	-1.5	0.9	-2.0	0.9	A+	A-
1285	663172	7	961	.486	.214	.486	.200	.100	.000	.398	-.010	.398	-.285	-.269	0.855	0.072	0.2	1.0	0.8	1.0	A+	A-
1286	663180	7	774	.470	.470	.101	.190	.239	.000	.405	.405	-.234	-.250	-.078	0.779	0.080	-0.7	1.0	1.0	1.1	A-	A-
1287	663181	7	823	.525	.186	.186	.103	.525	.000	.525	-.255	-.275	-.184	.525	0.525	0.078	-5.1	0.9	-4.3	0.8	A-	A-
1288	663182	7	795	.584	.225	.068	.123	.584	.000	.319	-.038	-.189	-.285	.319	0.225	0.080	2.8	1.1	2.9	1.1	A-	A+
1289	663183	7	784	.383	.383	.255	.218	.144	.000	.253	.253	-.053	-.052	-.224	1.220	0.081	3.4	1.1	5.0	1.3	A+	B+
1290	663199	7	900	.321	.314	.321	.218	.147	.000	.014	.193	.014	-.167	-.077	1.719	0.078	9.2	1.3	9.9	1.9	A+	A+

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1291	663200	7	887	.384	.127	.200	.289	.384	.000	.162	-.178	-.039	-.009	.162	1.388	0.076	6.7	1.2	8.0	1.5	A+	A-
1292	663201	7	963	.440	.333	.440	.112	.114	.000	.301	-.052	.301	-.247	-.147	1.126	0.072	2.6	1.1	5.1	1.2	A-	A+
1293	663202	7	923	.403	.143	.281	.173	.403	.000	.139	-.153	.100	-.157	.139	1.310	0.074	6.8	1.2	9.9	1.7	A+	A+
1294	663242	7	712	.383	.188	.236	.383	.192	.000	.300	-.122	-.089	.300	-.154	1.271	0.086	1.8	1.1	5.6	1.4	A-	A-
1295	663243	7	710	.717	.137	.717	.103	.044	.000	.484	-.257	.484	-.253	-.260	-0.512	0.094	-1.2	0.9	-2.2	0.8	A+	A-
1296	663244	7	773	.679	.155	.128	.679	.038	.000	.555	-.361	-.306	.555	-.137	-0.252	0.087	-3.5	0.9	-4.2	0.8	A-	A-
1297	663245	7	723	.658	.078	.126	.138	.658	.000	.473	-.187	-.246	-.269	.473	-0.156	0.089	-1.2	1.0	-1.2	0.9	A-	A-
1298	663290	7	1294	.295	.295	.314	.277	.114	.000	.254	.254	.036	-.118	-.250	1.867	0.066	2.2	1.1	5.9	1.4	A-	A-
1299	663291	7	1330	.825	.825	.058	.068	.050	.000	.508	.508	-.302	-.251	-.274	-1.142	0.080	-3.0	0.9	-4.1	0.7	A+	B-
1300	663292	7	1379	.604	.212	.604	.116	.068	.000	.362	-.137	.362	-.206	-.220	0.291	0.062	2.4	1.1	2.7	1.1	A-	A-
1301	663293	7	1312	.541	.148	.165	.541	.146	.000	.302	-.157	-.125	.302	-.137	0.601	0.062	4.6	1.1	5.7	1.2	A+	A-
1302	663294	7	1279	.513	.513	.176	.169	.142	.000	.412	.412	-.267	-.195	-.090	0.735	0.063	-0.3	1.0	1.1	1.0	A+	A-
1303	663295	7	1256	.373	.373	.303	.198	.126	.000	.190	.190	-.100	-.093	-.026	1.435	0.064	7.6	1.2	8.4	1.5	A-	A-
1304	663309	7	1114	.672	.672	.163	.099	.066	.000	.521	.521	-.255	-.271	-.280	-0.258	0.072	-3.6	0.9	-4.1	0.8	A-	A-
1305	663310	7	1107	.651	.103	.155	.090	.651	.000	.566	-.318	-.226	-.318	.566	-0.127	0.071	-5.7	0.8	-5.7	0.8	A-	A-
1306	663311	7	1196	.477	.477	.166	.130	.226	.000	.209	.209	-.232	-.071	.014	0.776	0.064	8.1	1.2	7.5	1.3	A+	A+
1307	663312	7	1135	.471	.127	.283	.119	.471	.000	.436	-.221	-.099	-.308	.436	0.794	0.066	-2.5	0.9	0.7	1.0	A-	A+
1308	663313	7	1098	.416	.175	.416	.248	.161	.000	.117	-.069	.117	-.096	.028	1.066	0.068	9.9	1.3	9.9	1.6	A+	A-
1309	663314	7	1081	.333	.184	.333	.347	.136	.000	.030	-.093	.030	.051	-.008	1.495	0.070	9.9	1.3	9.9	1.8	A-	A+
1310	663315	7	1099	.746	.104	.089	.746	.061	.000	.518	-.233	-.329	.518	-.255	-0.805	0.077	-3.2	0.9	-4.2	0.8	B+	B-
1311	663316	7	1183	.543	.543	.269	.145	.044	.000	.371	.371	-.207	-.177	-.150	0.360	0.065	1.2	1.0	2.4	1.1	A+	A-
1312	663317	7	1045	.226	.231	.226	.344	.200	.000	-.154	-.027	-.154	.060	.117	2.024	0.080	9.2	1.4	9.9	2.9	A+	A+
1313	663318	7	1071	.379	.379	.194	.252	.175	.000	.320	.320	-.204	-.126	-.052	1.146	0.069	2.4	1.1	2.4	1.1	A+	A-
1314	663319	7	1106	.754	.102	.109	.754	.035	.000	.368	-.205	-.152	.368	-.267	-0.849	0.078	1.0	1.0	0.0	1.0	A+	A-
1315	663320	7	1085	.634	.176	.083	.634	.107	.000	.507	-.384	-.222	.507	-.119	-0.152	0.071	-3.4	0.9	-3.7	0.8	A+	A-
1316	661609	8	5077	.711	.711	.122	.090	.076	.000	.491	.491	-.319	-.263	-.160	-0.041	0.035	-3.7	0.9	-6.1	0.8	A-	A-
1317	661610	8	3461	.410	.246	.112	.410	.233	.000	.316	-.206	-.238	.316	.019	1.583	0.038	2.5	1.0	9.8	1.3	A-	A-
1318	661611	8	4980	.756	.756	.083	.090	.071	.000	.478	.478	-.349	-.238	-.159	-0.313	0.037	-2.8	0.9	-5.5	0.8	A-	A-
1319	661612	8	3536	.381	.195	.381	.265	.159	.000	.129	-.084	.129	.017	-.100	1.734	0.038	9.9	1.2	9.9	1.6	A+	A-
1320	661613	8	4975	.604	.604	.144	.225	.027	.000	.223	.223	-.184	-.058	-.123	0.549	0.033	9.9	1.2	9.9	1.4	A+	A-
1321	661614	8	3457	.528	.166	.268	.528	.038	.000	.320	-.185	-.144	.320	-.143	1.001	0.038	6.7	1.1	8.1	1.2	A-	C-
1322	661615	8	4949	.809	.809	.067	.046	.078	.000	.506	.506	-.355	-.252	-.214	-0.717	0.040	-4.8	0.9	-8.3	0.7	A+	B-
1323	661616	8	3400	.905	.044	.905	.036	.014	.000	.503	-.317	.503	-.318	-.191	-1.635	0.064	-4.3	0.8	-7.7	0.5	A+	A+
1324	661617	8	4939	.873	.873	.051	.052	.024	.000	.376	.376	-.248	-.230	-.128	-1.329	0.047	-0.2	1.0	-0.7	1.0	B+	A-
1325	661618	8	3478	.928	.025	.030	.928	.017	.000	.379	-.217	-.222	.379	-.203	-1.979	0.070	-1.6	0.9	-3.0	0.7	A+	B-

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1326	661619	8	4964	.505	.093	.340	.063	.505	.000	.337	-.316	-.035	-.250	.337	1.074	0.032	5.8	1.1	8.5	1.2	A+	A-
1327	661620	8	3368	.555	.140	.067	.238	.555	.000	.247	-.186	-.163	-.041	.247	0.891	0.039	9.9	1.2	9.9	1.3	A-	A+
1328	663187	8	3610	.621	.085	.621	.211	.083	.000	.445	-.232	.445	-.195	-.260	0.495	0.039	-1.7	1.0	-2.1	1.0	A+	A-
1329	663188	8	3566	.434	.434	.353	.164	.050	.000	.144	.144	.091	-.151	-.271	1.449	0.037	9.9	1.3	9.9	1.5	A+	A-
1330	663189	8	3729	.838	.838	.073	.058	.031	.000	.522	.522	-.348	-.313	-.164	-0.938	0.049	-5.6	0.8	-8.1	0.6	B+	A-
1331	663195	8	4829	.637	.117	.139	.108	.637	.000	.525	-.264	-.289	-.219	.525	0.389	0.034	-7.9	0.9	-8.0	0.8	A+	A-
1332	663196	8	4914	.492	.159	.492	.147	.202	.000	.211	-.047	.211	-.221	-.025	1.141	0.032	9.9	1.2	9.9	1.4	A-	A+
1333	663197	8	4782	.631	.631	.138	.122	.109	.000	.506	.506	-.215	-.325	-.205	0.423	0.034	-6.7	0.9	-5.9	0.9	A+	A-
1334	663198	8	5251	.561	.259	.134	.561	.046	.000	.309	-.013	-.275	.309	-.260	0.805	0.031	8.7	1.1	9.9	1.2	A+	A-
1335	663208	8	4561	.621	.104	.200	.621	.075	.000	.333	-.154	-.090	.333	-.298	0.567	0.034	5.6	1.1	7.0	1.2	A+	A-
1336	663209	8	4489	.528	.101	.528	.265	.106	.000	.325	-.252	.325	-.072	-.177	1.039	0.033	5.6	1.1	9.0	1.2	A+	A-
1337	663210	8	4433	.569	.108	.168	.569	.156	.000	.410	-.233	-.178	.410	-.177	0.829	0.034	-0.7	1.0	1.6	1.0	A+	A-
1338	663211	8	4845	.506	.138	.154	.203	.506	.000	.444	-.169	-.266	-.169	.444	1.162	0.032	-6.8	0.9	-0.8	1.0	A+	A+
1339	663212	8	7150	.475	.475	.329	.138	.058	.000	.214	.214	.091	-.259	-.259	1.217	0.026	9.9	1.2	9.9	1.4	A-	A-
1340	663213	8	7677	.624	.146	.624	.103	.127	.000	.401	-.244	.401	-.226	-.118	0.459	0.026	2.1	1.0	1.1	1.0	A+	A-
1341	663214	8	7249	.821	.055	.056	.821	.068	.000	.477	-.257	-.312	.477	-.209	-0.832	0.034	-4.7	0.9	-5.3	0.8	A-	A-
1342	663215	8	6977	.476	.476	.253	.188	.083	.000	.361	.361	-.090	-.239	-.173	1.193	0.027	2.7	1.0	9.5	1.2	A-	A-
1343	663216	8	7109	.454	.143	.193	.210	.454	.000	.406	-.195	-.167	-.167	.406	1.320	0.026	-3.1	1.0	3.9	1.1	A+	A-
1344	663217	8	6902	.295	.144	.178	.295	.384	.000	.008	-.106	-.045	.008	.104	2.135	0.029	9.9	1.3	9.9	2.0	A+	A+
1345	663218	8	4439	.441	.441	.227	.131	.201	.000	.302	.302	-.048	-.226	-.134	1.435	0.033	6.0	1.1	9.9	1.2	A+	A+
1346	663219	8	4494	.610	.140	.610	.126	.124	.000	.513	-.231	.513	-.269	-.245	0.586	0.034	-8.4	0.9	-7.3	0.9	A+	A-
1347	663220	8	4662	.409	.133	.210	.248	.409	.000	.398	-.122	-.225	-.145	.398	1.617	0.033	-4.8	0.9	3.3	1.1	A+	A-
1348	663221	8	4819	.477	.138	.183	.477	.202	.000	.302	-.141	-.179	.302	-.083	1.278	0.032	6.3	1.1	9.9	1.3	B-	A-
1349	663235	8	4952	.597	.118	.597	.134	.152	.000	.308	-.242	.308	-.078	-.129	0.618	0.033	9.3	1.1	9.3	1.2	A-	B-
1350	663236	8	4881	.483	.213	.109	.483	.196	.000	.251	-.017	-.266	.251	-.090	1.197	0.032	9.9	1.2	9.9	1.3	A+	A-
1351	663237	8	4794	.523	.523	.187	.187	.104	.000	.400	.400	-.182	-.193	-.175	0.986	0.032	0.3	1.0	4.0	1.1	A+	A+
1352	663238	8	5227	.438	.127	.244	.438	.192	.000	.160	-.174	-.087	.160	.041	1.426	0.031	9.9	1.2	9.9	1.5	A+	A+
1353	663270	8	6662	.328	.328	.279	.257	.136	.000	.241	.241	-.068	-.090	-.128	1.951	0.029	7.8	1.1	9.9	1.5	A-	A+
1354	663271	8	7065	.517	.167	.517	.103	.213	.000	.447	-.149	.447	-.297	-.190	0.998	0.027	-4.6	1.0	-0.6	1.0	A-	A-
1355	663272	8	6999	.514	.139	.193	.155	.514	.000	.453	-.290	-.147	-.188	.453	1.018	0.027	-5.3	1.0	-2.9	1.0	A-	A-
1356	663273	8	6911	.488	.108	.488	.126	.278	.000	.350	-.198	.350	-.277	-.049	1.141	0.027	4.7	1.1	9.3	1.2	A-	A-
1357	663274	8	7456	.763	.111	.092	.763	.034	.000	.513	-.241	-.364	.513	-.204	-0.394	0.031	-7.7	0.9	-5.6	0.9	A+	A-
1358	663275	8	6770	.379	.379	.302	.197	.122	.000	.185	.185	.037	-.207	-.075	1.692	0.028	9.9	1.2	9.9	1.4	A+	A-
1359	663284	8	6777	.737	.055	.121	.737	.088	.000	.435	-.245	-.241	.435	-.202	-0.134	0.031	-1.3	1.0	-2.5	0.9	A-	B-
1360	663285	8	7068	.795	.056	.112	.795	.037	.000	.501	-.296	-.300	.501	-.209	-0.529	0.033	-5.8	0.9	-9.1	0.7	A-	B-

Table B–3 (continued). Reading/Literature Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1361	663286	8	6761	.560	.081	.251	.108	.560	.000	.246	-.281	-.085	-.028	.246	0.849	0.027	9.9	1.2	9.9	1.3	A-	A-
1362	663287	8	6672	.662	.126	.662	.148	.065	.000	.413	-.137	.413	-.295	-.184	0.310	0.029	1.1	1.0	-2.1	1.0	A+	A+
1363	663288	8	6548	.405	.221	.127	.405	.248	.000	.170	-.131	-.278	.170	.147	1.615	0.028	9.9	1.2	9.9	1.6	A-	A+
1364	663289	8	6445	.731	.149	.731	.067	.053	.000	.423	-.113	.423	-.315	-.305	-0.116	0.032	-1.0	1.0	0.4	1.0	A+	A-
1365	663296	8	4976	.314	.142	.500	.314	.045	.000	.205	-.162	.038	.205	-.279	2.069	0.033	8.6	1.1	9.9	1.6	A-	A-
1366	663297	8	4911	.490	.186	.490	.226	.099	.000	.306	-.133	.306	-.134	-.152	1.161	0.032	8.3	1.1	9.9	1.3	A+	A-
1367	663298	8	4848	.814	.814	.058	.079	.049	.000	.590	.590	-.279	-.343	-.333	-0.767	0.041	-9.7	0.8	-9.9	0.6	A+	A-
1368	663299	8	5236	.465	.166	.197	.172	.465	.000	.469	-.236	-.277	-.095	.469	1.291	0.031	-8.2	0.9	-3.4	0.9	A+	A-
1369	663301	8	4633	.449	.285	.076	.190	.449	.000	.310	-.140	-.198	-.099	.310	1.410	0.033	5.6	1.1	9.9	1.2	A-	A-
1370	663302	8	4566	.644	.179	.131	.644	.046	.000	.438	-.141	-.314	.438	-.238	0.412	0.035	-1.1	1.0	-2.2	1.0	A+	A+
1371	663303	8	4869	.706	.078	.706	.138	.079	.000	.445	-.242	.445	-.184	-.277	0.076	0.035	-1.8	1.0	-3.2	0.9	A+	A-
1372	663304	8	4504	.601	.601	.098	.137	.165	.000	.289	.289	-.241	-.214	.009	0.638	0.034	9.3	1.1	9.9	1.2	A+	A+

Items with reference line numbers 1-1201 were field tested during the stand-alone field test administered in fall 2010. Items with reference line numbers 1202-1372 were field tested during the embedded field test administered in spring 2013.

SCIENCE MULTIPLE-CHOICE ITEMS

Table B–4. Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1	615336	3	5599	.828	.828	.039	.055	.076	.002	.359	.359	-.203	-.261	-.100	-2.713	0.039	0.9	1.0	-0.1	1.0	A-	A-
2	615326	3	816	.814	.038	.814	.092	.056	.000	.320	-.136	.320	-.207	-.169	-2.533	0.099	1.3	1.1	1.0	1.1	A+	
3	615352	3	5599	.531	.127	.531	.254	.085	.003	.306	-.151	.306	-.080	-.202	-0.933	0.030	9.9	1.1	9.9	1.2	A-	A-
4	615346	3	797	.816	.132	.816	.021	.025	.006	.456	-.260	.456	-.234	-.197	-2.724	0.103	-1.0	0.9	-1.6	0.8	A-	C-
5	615328	3	797	.812	.812	.038	.083	.062	.006	.391	.391	-.185	-.201	-.152	-2.703	0.103	0.5	1.0	-0.8	0.9	A+	A-
6	615337	3	794	.752	.121	.752	.039	.086	.003	.399	-.250	.399	-.132	-.183	-2.151	0.090	0.5	1.0	-0.7	1.0	A-	C-
7	615343	3	794	.833	.038	.115	.011	.833	.004	.427	-.183	-.287	-.142	.427	-2.730	0.103	-0.7	1.0	-1.7	0.8	A+	A+
8	615344	3	794	.767	.767	.033	.136	.062	.003	.444	.444	-.231	-.247	-.200	-2.235	0.092	-1.2	0.9	-1.5	0.9	A+	A-
9	615338	3	802	.880	.880	.072	.018	.025	.005	.427	.427	-.231	-.205	-.218	-3.177	0.118	-0.8	0.9	-1.7	0.8	A-	
10	615353	3	802	.480	.125	.299	.092	.480	.004	.348	-.136	-.121	-.197	.348	-0.634	0.078	3.2	1.1	3.1	1.1	A-	
11	615329	3	802	.801	.029	.046	.801	.121	.004	.239	-.115	-.138	.239	-.095	-2.442	0.097	3.2	1.2	3.9	1.4	A+	
12	615340	3	800	.571	.265	.046	.116	.571	.001	.442	-.238	-.161	-.226	.442	-1.125	0.079	-0.5	1.0	-0.9	1.0	A+	A-
13	615330	3	800	.739	.124	.739	.080	.054	.004	.443	-.303	.443	-.244	-.070	-2.065	0.089	-0.9	1.0	-1.1	0.9	A-	B-
14	615348	3	800	.695	.695	.090	.043	.166	.006	.542	.542	-.254	-.258	-.299	-1.795	0.085	-4.3	0.8	-4.1	0.8	A+	B+
15	615341	3	796	.250	.112	.250	.421	.217	.000	.173	-.151	.173	-.013	-.051	0.480	0.088	2.9	1.1	5.1	1.5	A+	
16	615349	3	796	.480	.108	.335	.077	.480	.000	.411	-.281	-.178	-.129	.411	-0.756	0.077	0.0	1.0	0.5	1.0	A-	
17	615350	3	796	.472	.226	.116	.185	.472	.001	.426	-.230	-.227	-.109	.426	-0.716	0.077	-0.8	1.0	0.2	1.0	A+	
18	615332	3	796	.633	.067	.104	.195	.633	.001	.417	-.350	-.185	-.140	.417	-1.513	0.080	-0.4	1.0	-0.4	1.0	A+	
19	615342	3	794	.893	.052	.032	.021	.893	.003	.338	-.197	-.146	-.180	.338	-3.365	0.126	-0.2	1.0	-0.6	0.9	A+	A-
20	615335	3	794	.664	.059	.074	.664	.199	.004	.426	-.192	-.248	.426	-.199	-1.699	0.082	-0.9	1.0	-0.9	1.0	B-	A-
21	615351	3	794	.533	.123	.533	.131	.209	.004	.455	-.247	.455	-.235	-.135	-1.021	0.077	-3.3	0.9	-3.1	0.9	A+	A-
22	615333	3	794	.358	.238	.244	.151	.358	.009	.315	-.063	-.141	-.123	.315	-0.164	0.080	0.5	1.0	1.7	1.1	A+	B+
23	615331	3	794	.754	.754	.087	.092	.057	.010	.453	.453	-.213	-.201	-.238	-2.183	0.091	-1.4	0.9	-1.0	0.9	A+	A-
24	615347	3	802	.739	.739	.084	.126	.047	.004	.459	.459	-.233	-.267	-.151	-2.019	0.089	-0.8	1.0	-1.7	0.9	A+	
25	615339	3	800	.594	.594	.131	.195	.075	.005	.378	.378	-.159	-.205	-.154	-1.257	0.080	1.4	1.0	1.6	1.1	A+	A+
26	615325	3	794	.621	.621	.141	.049	.185	.004	.263	.263	-.096	-.134	-.150	-1.436	0.079	3.2	1.1	3.2	1.2	A+	A+
27	615327	3	794	.863	.863	.029	.064	.040	.004	.273	.273	-.130	-.101	-.157	-3.029	0.112	1.5	1.1	1.8	1.3	B+	A-
28	615334	3	802	.626	.160	.133	.626	.075	.006	.458	-.185	-.227	.458	-.221	-1.376	0.081	-0.8	1.0	-1.1	0.9	A+	
29	615405	3	816	.950	.950	.023	.011	.015	.001	.212	.212	-.177	-.074	-.108	-4.701	0.204	-0.1	1.0	-1.4	0.6	A+	
30	615377	3	5599	.851	.049	.851	.054	.044	.002	.441	-.266	.441	-.227	-.185	-2.918	0.041	-3.2	0.9	-5.3	0.8	A+	A-

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
31	615391	3	5599	.895	.018	.895	.061	.022	.004	.382	-.221	.382	-.191	-.192	-3.441	0.048	-1.4	1.0	-2.1	0.9	A-	A-
32	615389	3	816	.344	.363	.199	.092	.344	.003	.380	-.170	-.132	-.147	.380	0.224	0.086	0.4	1.0	0.4	1.0	A+	
33	615403	3	797	.484	.139	.272	.484	.102	.003	.346	-.302	-.013	.346	-.162	-0.662	0.081	2.3	1.1	2.6	1.1	A-	A+
34	615393	3	794	.679	.679	.045	.242	.032	.003	.457	.457	-.243	-.271	-.189	-1.712	0.083	-1.1	1.0	-1.7	0.9	A-	A+
35	615386	3	794	.356	.218	.175	.246	.356	.005	.304	-.121	-.135	-.070	.304	-0.083	0.081	2.3	1.1	3.7	1.2	A+	A-
36	615398	3	794	.623	.241	.066	.623	.064	.006	.443	-.231	-.309	.443	-.078	-1.422	0.081	-0.5	1.0	-1.0	1.0	A+	A+
37	615394	3	802	.450	.335	.128	.084	.450	.003	.424	-.204	-.105	-.236	.424	-0.491	0.078	-0.2	1.0	0.0	1.0	A-	
38	615387	3	802	.544	.137	.106	.544	.211	.003	.259	-.176	-.122	.259	-.042	-0.939	0.078	6.2	1.2	5.9	1.3	A-	
39	615375	3	802	.758	.120	.091	.025	.758	.006	.385	-.248	-.147	-.147	.385	-2.152	0.091	0.9	1.0	1.1	1.1	A-	
40	615399	3	802	.854	.047	.854	.036	.055	.008	.487	-.239	.487	-.232	-.263	-2.931	0.110	-2.2	0.9	-2.4	0.7	A-	
41	615396	3	800	.315	.291	.244	.149	.315	.001	.283	-.094	-.121	-.083	.283	0.187	0.083	2.8	1.1	3.5	1.2	A-	A+
42	615388	3	800	.450	.223	.216	.450	.110	.001	.355	-.143	-.127	.355	-.183	-0.527	0.078	2.3	1.1	2.1	1.1	A+	A+
43	615402	3	800	.971	.014	.971	.001	.009	.005	.292	-.130	.292	-.038	-.183	-5.319	0.281	-0.1	1.0	-1.6	0.5	A+	B-
44	617120	3	796	.851	.036	.025	.851	.087	.001	.363	-.145	-.249	.363	-.215	-2.929	0.107	-0.2	1.0	-0.9	0.9	A-	
45	615390	3	796	.602	.602	.114	.155	.129	.000	.433	.433	-.153	-.211	-.258	-1.330	0.079	-1.2	1.0	-0.9	1.0	A-	
46	615378	3	796	.241	.281	.168	.241	.308	.001	.287	.013	-.114	.287	-.183	0.534	0.089	0.3	1.0	2.7	1.2	A-	
47	615401	3	796	.499	.204	.133	.499	.161	.004	.410	-.254	-.203	.410	-.082	-0.848	0.077	-0.2	1.0	0.4	1.0	A-	
48	615397	3	794	.855	.086	.033	.025	.855	.001	.470	-.300	-.231	-.209	.470	-2.989	0.111	-1.7	0.9	-2.3	0.8	A-	A-
49	615392	3	794	.490	.490	.331	.061	.117	.001	.328	.328	-.084	-.254	-.175	-0.837	0.077	2.0	1.1	2.1	1.1	B-	A-
50	615379	3	796	.255	.060	.338	.255	.347	.000	.284	-.242	-.145	.284	.005	0.425	0.087	1.3	1.1	2.6	1.2	A-	
51	615395	3	802	.519	.061	.246	.172	.519	.003	.333	-.129	-.078	-.233	.333	-0.816	0.078	3.4	1.1	3.4	1.2	A-	
52	615385	3	794	.408	.076	.438	.408	.071	.008	.327	-.179	-.093	.327	-.192	-0.441	0.078	1.2	1.0	2.6	1.1	A-	A+
53	615400	3	794	.227	.227	.105	.419	.241	.009	.244	.244	-.225	.121	-.168	0.554	0.091	1.3	1.1	3.4	1.3	A+	A+
54	615376	3	800	.616	.158	.148	.616	.074	.005	.418	-.115	-.288	.418	-.169	-1.350	0.080	0.4	1.0	0.2	1.0	A+	A+
55	615316	3	5599	.654	.094	.169	.081	.654	.003	.510	-.256	-.261	-.219	.510	-1.576	0.031	-8.5	0.9	-7.8	0.8	A+	A-
56	615310	3	5599	.882	.882	.038	.039	.038	.003	.480	.480	-.262	-.257	-.220	-3.270	0.046	-4.6	0.9	-8.0	0.6	A+	A-
57	615321	3	5599	.918	.037	.013	.027	.918	.005	.477	-.295	-.206	-.229	.477	-3.799	0.055	-4.2	0.8	-9.1	0.5	A+	B-
58	615320	3	1594	.636	.636	.170	.100	.092	.002	.300	.300	-.164	-.206	-.036	-1.456	0.057	5.4	1.1	5.1	1.2	A+	A+
59	617273	3	1590	.736	.736	.116	.062	.084	.003	.448	.448	-.278	-.183	-.202	-2.056	0.062	-1.7	1.0	-2.6	0.9	A+	A+
60	615317	3	802	.914	.008	.069	.006	.914	.004	.368	-.133	-.249	-.170	.368	-3.605	0.136	-0.2	1.0	-1.2	0.8	A-	
61	615318	3	800	.546	.093	.086	.273	.546	.003	.439	-.264	-.236	-.147	.439	-0.985	0.078	-1.2	1.0	-0.4	1.0	A-	A-
62	615309	3	800	.761	.761	.046	.104	.085	.004	.505	.505	-.283	-.269	-.221	-2.186	0.091	-2.9	0.9	-2.8	0.8	A-	A-
63	615323	3	800	.656	.281	.656	.009	.051	.003	.267	-.180	.267	-.125	-.107	-1.557	0.082	4.5	1.2	4.1	1.3	A-	A+
64	615311	3	796	.694	.098	.118	.694	.089	.001	.449	-.302	-.309	.449	-.061	-1.825	0.084	-1.4	1.0	-1.6	0.9	A+	
65	615313	3	794	.719	.074	.150	.055	.719	.001	.304	-.201	-.098	-.180	.304	-1.989	0.086	1.9	1.1	2.0	1.1	A-	A+

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
66	615312	3	794	.733	.073	.151	.037	.733	.006	.486	-.276	-.239	-.217	.486	-2.104	0.088	-2.8	0.9	-2.8	0.8	A+	A-
67	615315	3	796	.310	.111	.446	.310	.131	.003	.205	-.080	-.036	.205	-.144	0.097	0.083	4.8	1.2	4.6	1.3	A-	
68	615314	3	802	.641	.143	.168	.641	.044	.004	.405	-.230	-.184	.405	-.142	-1.446	0.081	0.8	1.0	0.9	1.1	A-	
69	615324	3	794	.455	.455	.214	.204	.122	.005	.280	.280	-.162	-.079	-.080	-0.572	0.078	4.5	1.1	5.7	1.3	A-	A+
70	615319	3	816	.590	.590	.165	.098	.143	.004	.506	.506	-.218	-.211	-.293	-1.137	0.082	-3.0	0.9	-2.2	0.9	A-	
71	617274	3	802	.526	.340	.074	.056	.526	.004	.336	-.119	-.181	-.207	.336	-0.855	0.078	3.6	1.1	3.3	1.2	A+	
72	615322	3	1593	.374	.186	.232	.374	.206	.002	.363	-.148	-.098	.363	-.163	-0.156	0.058	1.0	1.0	1.6	1.1	A-	A-
73	615358	3	5599	.953	.029	.006	.011	.953	.002	.381	-.252	-.150	-.174	.381	-4.489	0.072	-2.0	0.9	-6.6	0.5	A+	B-
74	615360	3	5599	.332	.087	.264	.314	.332	.003	.360	-.102	-.232	-.060	.360	0.090	0.031	1.2	1.0	3.8	1.1	A+	A-
75	615374	3	816	.925	.025	.016	.925	.034	.000	.245	-.213	-.131	.245	-.084	-3.846	0.147	-0.4	1.0	-0.8	0.8	A+	
76	615373	3	5599	.683	.075	.683	.089	.147	.006	.395	-.145	.395	-.185	-.220	-1.740	0.032	1.4	1.0	0.2	1.0	A+	A+
77	615355	3	797	.753	.084	.053	.103	.753	.008	.450	-.184	-.191	-.245	.450	-2.259	0.093	-0.6	1.0	-0.4	1.0	A+	A-
78	615357	3	794	.455	.306	.042	.455	.194	.004	.428	-.236	-.167	.428	-.149	-0.590	0.078	-1.2	1.0	0.2	1.0	A-	A-
79	615366	3	794	.902	.902	.026	.049	.020	.003	.391	.391	-.253	-.170	-.177	-3.468	0.129	-0.6	0.9	-1.6	0.8	A+	A+
80	615372	3	794	.840	.048	.054	.840	.053	.005	.464	-.198	-.256	.464	-.222	-2.828	0.106	-1.7	0.9	-1.4	0.8	A-	C-
81	615356	3	794	.271	.271	.233	.183	.309	.005	.194	.194	-.199	-.134	.145	0.394	0.087	4.3	1.2	3.8	1.3	A-	A-
82	615359	3	802	.560	.560	.201	.039	.197	.004	.403	.403	-.269	-.192	-.097	-1.021	0.079	1.0	1.0	1.0	1.0	A+	
83	615381	3	802	.907	.032	.032	.026	.907	.003	.442	-.212	-.250	-.206	.442	-3.482	0.130	-1.5	0.9	-1.8	0.7	A-	
84	615367	3	800	.809	.809	.025	.029	.136	.001	.445	.445	-.253	-.269	-.243	-2.535	0.098	-1.5	0.9	-1.9	0.8	A+	A-
85	615354	3	800	.735	.163	.026	.073	.735	.004	.412	-.212	-.215	-.217	.412	-2.010	0.088	-0.2	1.0	-0.1	1.0	A-	A-
86	615364	3	796	.511	.511	.173	.212	.103	.000	.271	.271	-.178	-.036	-.177	-0.895	0.077	4.8	1.1	4.9	1.2	A+	
87	615369	3	796	.682	.106	.188	.682	.023	.001	.360	-.266	-.201	.360	-.048	-1.769	0.083	1.2	1.1	1.0	1.1	A+	
88	615365	3	794	.802	.105	.802	.049	.042	.003	.353	-.311	.353	-.051	-.134	-2.536	0.097	0.2	1.0	-0.2	1.0	A-	A-
89	615371	3	794	.791	.791	.030	.160	.018	.001	.240	.240	-.126	-.106	-.226	-2.426	0.094	2.3	1.1	1.6	1.1	A-	A-
90	615363	3	1594	.256	.359	.136	.256	.245	.004	.215	-.086	-.155	.215	.030	0.484	0.062	2.6	1.1	5.6	1.3	A+	A+
91	615368	3	794	.199	.325	.161	.199	.310	.005	.062	.121	-.154	.062	-.020	0.813	0.096	3.0	1.2	4.6	1.5	A+	A+
92	617095	4	1114	.686	.199	.065	.686	.046	.005	.359	-.245	-.158	.359	-.103	-1.357	0.070	0.1	1.0	-0.3	1.0	A-	A+
93	617099	4	541	.638	.153	.638	.109	.096	.004	.413	-.276	.413	-.174	-.079	-1.123	0.097	-0.9	1.0	-1.1	0.9	C+	
94	617084	4	541	.442	.442	.098	.375	.080	.006	.286	.286	-.209	-.056	-.131	-0.299	0.093	2.2	1.1	1.8	1.1	A+	
95	617096	4	1103	.638	.099	.075	.638	.181	.006	.433	-.276	-.156	.433	-.197	-1.136	0.067	-3.3	0.9	-2.2	0.9	A-	B-
96	617101	4	544	.371	.156	.257	.211	.371	.004	.350	-.122	-.073	-.179	.350	0.085	0.095	-0.2	1.0	0.4	1.0	A-	B+
97	617091	4	541	.671	.091	.671	.085	.148	.006	.462	-.304	.462	-.180	-.180	-1.340	0.102	-1.6	0.9	-1.7	0.9	C+	
98	617105	4	541	.778	.778	.072	.054	.092	.004	.448	.448	-.213	-.209	-.232	-1.980	0.114	-1.0	0.9	-1.8	0.8	A+	
99	617085	4	5980	.922	.022	.020	.922	.034	.003	.351	-.189	-.173	.351	-.159	-3.399	0.052	-1.4	0.9	-4.8	0.7	A-	A-
100	617093	4	5980	.768	.768	.021	.090	.117	.004	.463	.463	-.174	-.250	-.255	-1.911	0.033	-6.0	0.9	-7.2	0.8	A-	B-

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
101	617106	4	541	.824	.089	.009	.824	.074	.004	.389	-.268	-.153	.389	-.157	-2.379	0.125	-0.7	1.0	-0.9	0.9	A+	
102	617094	4	1080	.465	.044	.431	.465	.055	.006	.442	-.212	-.227	.442	-.204	-0.320	0.067	-2.6	0.9	-2.3	0.9	A-	B-
103	617107	4	539	.520	.520	.152	.067	.262	.000	.323	.323	-.167	-.259	-.083	-0.587	0.095	2.3	1.1	1.9	1.1	A+	
104	617108	4	552	.654	.140	.654	.098	.105	.004	.367	-.144	.367	-.201	-.159	-1.262	0.099	0.1	1.0	0.2	1.0	A+	
105	617083	4	562	.790	.790	.027	.037	.146	.000	.329	.329	-.203	-.216	-.171	-1.889	0.110	0.0	1.0	0.1	1.0	A-	A-
106	617109	4	562	.973	.007	.973	.013	.007	.000	.235	-.087	.235	-.181	-.126	-4.453	0.282	-0.1	1.0	-1.4	0.5	A+	A-
107	617097	4	541	.630	.630	.024	.292	.052	.002	.395	.395	-.076	-.272	-.195	-1.161	0.095	-1.6	0.9	-0.7	1.0	C+	
108	617110	4	541	.634	.081	.189	.634	.089	.007	.395	-.172	-.274	.395	-.064	-1.217	0.095	-1.1	1.0	-1.3	0.9	A-	
109	617086	4	541	.882	.882	.041	.026	.046	.006	.453	.453	-.203	-.241	-.197	-2.807	0.142	-1.3	0.9	-2.0	0.7	A+	
110	617111	4	541	.828	.031	.828	.085	.048	.007	.412	-.222	.412	-.157	-.184	-2.311	0.122	-0.9	0.9	-0.7	0.9	A+	
111	617100	4	539	.915	.032	.039	.915	.011	.004	.333	-.213	-.118	.333	-.170	-3.294	0.163	-0.3	1.0	-0.9	0.8	A-	
112	617104	4	539	.338	.338	.213	.260	.187	.002	.152	.152	-.184	.021	.016	0.251	0.098	4.5	1.2	5.1	1.4	A+	
113	617087	4	539	.922	.011	.052	.922	.011	.004	.305	-.117	-.138	.305	-.210	-3.469	0.173	-0.3	1.0	-0.6	0.9	A+	
114	617119	4	539	.714	.714	.186	.028	.065	.007	.467	.467	-.241	-.222	-.258	-1.653	0.104	-1.7	0.9	-1.6	0.9	A+	
115	617088	4	544	.478	.478	.066	.085	.368	.004	.311	.311	-.207	-.097	-.118	-0.433	0.092	2.0	1.1	1.9	1.1	A-	A-
116	617113	4	544	.460	.221	.460	.215	.101	.004	.463	-.316	.463	-.110	-.116	-0.347	0.092	-3.0	0.9	-2.4	0.9	A-	A-
117	617118	4	544	.210	.131	.327	.320	.210	.013	.108	-.164	-.020	.076	.108	0.966	0.111	2.3	1.1	3.6	1.4	A+	A-
118	617117	4	541	.634	.139	.634	.087	.139	.002	.429	-.157	.429	-.270	-.218	-1.150	0.096	-1.2	1.0	-1.5	0.9	A+	
119	617114	4	541	.771	.100	.056	.074	.771	.000	.446	-.253	-.255	-.204	.446	-1.903	0.109	-1.8	0.9	-2.6	0.8	A+	
120	617103	4	539	.679	.056	.679	.200	.059	.006	.402	-.201	.402	-.195	-.142	-1.420	0.101	0.2	1.0	-0.2	1.0	A+	
121	617090	4	539	.518	.045	.161	.518	.269	.007	.397	-.216	-.151	.397	-.131	-0.611	0.094	-0.2	1.0	-0.1	1.0	A-	
122	617115	4	539	.570	.323	.052	.048	.570	.007	.338	-.113	-.153	-.189	.338	-0.863	0.095	2.0	1.1	2.7	1.1	A-	
123	617116	4	539	.629	.629	.095	.080	.187	.009	.518	.518	-.223	-.244	-.193	-1.165	0.098	-3.2	0.9	-3.3	0.8	A+	
124	617092	4	541	.719	.070	.061	.719	.144	.006	.352	-.173	-.178	.352	-.159	-1.614	0.106	0.8	1.0	-0.3	1.0	B+	
125	617102	4	541	.142	.083	.340	.433	.142	.002	.176	-.235	.078	-.067	.176	1.663	0.134	1.0	1.1	1.6	1.2	B-	
126	617112	4	539	.442	.130	.317	.108	.442	.004	.412	-.209	-.111	-.213	.412	-0.268	0.094	-1.0	1.0	0.2	1.0	A-	
127	617089	4	541	.595	.028	.336	.039	.595	.002	.238	-.111	-.118	-.219	.238	-0.949	0.095	4.0	1.1	3.5	1.2	A+	
128	617244	4	562	.383	.383	.151	.306	.157	.004	.311	.311	-.190	-.078	-.121	0.186	0.093	1.7	1.1	2.1	1.1	A-	A+
129	617249	4	544	.465	.090	.210	.465	.230	.006	.382	-.148	-.256	.382	-.057	-0.378	0.092	-0.3	1.0	0.1	1.0	A-	A+
130	617245	4	541	.364	.344	.063	.224	.364	.006	.310	-.217	-.032	-.054	.310	0.073	0.095	0.6	1.0	1.4	1.1	A-	
131	617255	4	541	.573	.255	.573	.056	.111	.006	.289	-.138	.289	-.163	-.076	-0.810	0.094	2.8	1.1	2.1	1.1	A-	
132	617253	4	562	.399	.183	.399	.167	.249	.002	.174	-.100	.174	-.140	.016	0.119	0.093	4.7	1.2	5.9	1.3	A+	A+
133	617258	4	541	.704	.061	.192	.704	.041	.002	.430	-.213	-.234	.430	-.211	-1.503	0.104	-0.9	1.0	-1.4	0.9	A-	
134	617248	4	5980	.437	.229	.030	.300	.437	.004	.416	-.191	-.198	-.172	.416	-0.180	0.028	-3.6	1.0	-3.1	1.0	A+	A-
135	617250	4	5980	.899	.899	.019	.039	.040	.004	.296	.296	-.146	-.127	-.144	-3.065	0.046	0.4	1.0	-1.0	0.9	A-	A-

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
136	617269	4	541	.418	.366	.083	.129	.418	.004	.364	-.062	-.234	-.204	.364	-0.011	0.097	0.3	1.0	0.4	1.0	A-	
137	617262	4	541	.246	.373	.237	.246	.137	.007	.204	-.087	-.055	.204	-.004	0.969	0.111	2.5	1.2	2.2	1.3	A+	
138	617264	4	541	.826	.019	.826	.076	.070	.009	.375	-.148	.375	-.216	-.156	-2.436	0.127	-0.2	1.0	0.4	1.1	A-	
139	617270	4	541	.531	.177	.203	.531	.080	.009	.398	-.221	-.171	.398	-.074	-0.614	0.097	0.5	1.0	0.8	1.0	A-	
140	617265	4	539	.366	.087	.260	.366	.280	.007	.201	-.164	.027	.201	-.136	0.151	0.098	4.1	1.2	5.2	1.4	A+	
141	617261	4	552	.286	.496	.286	.067	.147	.004	.296	-.043	.296	-.148	-.183	0.721	0.106	1.4	1.1	1.8	1.2	A+	
142	617266	4	552	.788	.788	.071	.118	.020	.004	.390	.390	-.175	-.242	-.146	-2.093	0.114	-0.8	1.0	-1.5	0.8	A-	
143	617272	4	552	.404	.147	.228	.404	.216	.005	.435	-.188	-.189	.435	-.122	0.045	0.098	-1.0	1.0	-0.5	1.0	B-	
144	617275	4	562	.548	.548	.146	.061	.244	.002	.395	.395	-.248	-.177	-.150	-0.593	0.091	-0.9	1.0	-0.7	1.0	A+	A+
145	617254	4	541	.887	.046	.037	.887	.024	.006	.362	-.176	-.214	.362	-.135	-2.928	0.145	-0.7	0.9	-1.5	0.8	A+	
146	617276	4	541	.381	.324	.141	.381	.146	.009	.234	.022	-.198	.234	-.104	-0.025	0.095	3.1	1.1	3.5	1.2	A-	
147	617277	4	541	.632	.098	.632	.076	.185	.009	.309	-.083	.309	-.079	-.178	-1.110	0.097	2.1	1.1	2.2	1.1	A+	
148	617256	4	539	.674	.059	.674	.232	.033	.002	.326	-.182	.326	-.131	-.238	-1.420	0.100	1.4	1.1	1.2	1.1	A-	
149	617247	4	539	.887	.035	.887	.041	.033	.004	.307	-.221	.307	-.133	-.075	-2.966	0.145	0.4	1.0	-0.3	0.9	A+	
150	617267	4	541	.930	.030	.930	.026	.015	.000	.272	-.152	.272	-.172	-.137	-3.383	0.173	-0.2	1.0	-1.6	0.7	A+	
151	617251	4	541	.762	.113	.762	.094	.031	.000	.326	-.169	.326	-.205	-.146	-1.855	0.108	0.4	1.0	-0.1	1.0	B+	
152	617268	4	539	.687	.015	.687	.130	.161	.007	.411	-.155	.411	-.146	-.225	-1.451	0.101	-0.1	1.0	-1.0	0.9	A-	
153	617252	4	539	.729	.063	.126	.074	.729	.007	.390	-.213	-.087	-.201	.390	-1.722	0.106	0.3	1.0	0.7	1.1	B+	
154	617246	4	541	.433	.102	.213	.433	.246	.007	.439	-.087	-.323	.439	-.060	-0.143	0.094	-2.0	0.9	-1.6	0.9	A-	
155	617259	4	541	.410	.144	.211	.410	.229	.006	.285	-.179	-.171	.285	.012	0.012	0.098	3.1	1.1	4.0	1.3	A+	
156	617257	4	544	.579	.254	.053	.107	.579	.007	.421	-.146	-.176	-.274	.421	-0.911	0.094	-1.5	1.0	-1.0	1.0	A+	A+
157	617271	4	539	.518	.308	.518	.108	.067	.000	.393	-.137	.393	-.233	-.246	-0.577	0.095	-0.4	1.0	-0.5	1.0	B-	
158	617260	4	539	.245	.097	.213	.442	.245	.004	.133	-.172	-.154	.122	.133	0.845	0.108	2.2	1.1	2.1	1.2	A-	
159	617061	4	1101	.606	.606	.232	.116	.041	.006	.334	.334	-.117	-.161	-.192	-0.968	0.067	2.1	1.1	2.0	1.1	B+	A-
160	615621	4	1080	.184	.184	.038	.326	.446	.006	.155	.155	-.189	-.101	.106	1.197	0.084	1.8	1.1	4.2	1.4	A+	A+
161	615625	4	544	.708	.029	.066	.708	.191	.006	.373	-.207	-.222	.373	-.149	-1.575	0.102	0.1	1.0	-0.2	1.0	A-	A-
162	615632	4	539	.610	.121	.147	.121	.610	.002	.463	-.212	-.230	-.195	.463	-1.075	0.096	-1.9	0.9	-2.1	0.9	A+	
163	615627	4	539	.289	.468	.030	.206	.289	.007	.203	.003	-.063	-.106	.203	0.537	0.102	2.8	1.1	3.5	1.3	A+	
164	617071	4	539	.356	.215	.098	.323	.356	.007	.208	-.215	.009	.007	.208	0.134	0.097	4.0	1.2	4.0	1.3	B+	
165	615630	4	5980	.437	.399	.027	.437	.134	.004	.264	-.080	-.161	.264	-.153	-0.181	0.028	9.9	1.1	9.8	1.2	A+	A-
166	615624	4	5980	.884	.009	.064	.040	.884	.005	.290	-.102	-.198	-.089	.290	-2.909	0.044	0.4	1.0	0.0	1.0	A-	A-
167	615636	4	5980	.363	.363	.138	.335	.157	.008	.305	.305	-.212	-.091	-.034	0.178	0.029	4.9	1.1	5.3	1.1	A+	A+
168	615628	4	562	.875	.023	.091	.011	.875	.000	.338	-.204	-.230	-.145	.338	-2.586	0.134	-0.5	1.0	-1.1	0.8	B+	A-
169	615620	4	562	.781	.781	.135	.032	.052	.000	.291	.291	-.120	-.203	-.196	-1.829	0.108	0.7	1.0	0.3	1.0	A+	A-
170	617067	4	562	.648	.046	.648	.265	.041	.000	.338	-.232	.338	-.165	-.202	-1.071	0.094	0.5	1.0	0.5	1.0	A-	A-

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
171	615629	4	541	.747	.013	.747	.229	.009	.002	.229	-.136	.229	-.151	-.093	-1.789	0.104	1.6	1.1	1.2	1.1	A+	
172	617063	4	541	.551	.081	.551	.244	.118	.006	.381	-.181	.381	-.167	-.157	-0.813	0.092	-0.7	1.0	-0.8	1.0	A+	
173	617076	4	541	.407	.181	.124	.281	.407	.007	.356	-.174	-.218	-.041	.356	-0.148	0.094	0.3	1.0	-0.3	1.0	A+	
174	615631	4	541	.348	.081	.129	.348	.438	.004	.224	-.153	-.219	.224	.062	0.281	0.097	3.6	1.1	3.8	1.3	A-	
175	615622	4	541	.677	.137	.044	.677	.133	.009	.345	-.149	-.264	.345	-.093	-1.345	0.100	0.5	1.0	1.3	1.1	A-	
176	617064	4	541	.848	.046	.848	.037	.061	.007	.456	-.175	.456	-.214	-.220	-2.485	0.128	-1.2	0.9	-2.3	0.7	A-	
177	617077	4	541	.423	.320	.423	.068	.181	.007	.335	-.046	.335	-.233	-.133	-0.099	0.094	1.1	1.0	1.9	1.1	A-	
178	615623	4	539	.920	.030	.920	.020	.028	.002	.444	-.196	.444	-.193	-.291	-3.382	0.168	-1.2	0.9	-2.7	0.5	A+	
179	615635	4	539	.677	.206	.050	.063	.677	.004	.365	-.132	-.231	-.206	.365	-1.428	0.100	0.6	1.0	0.7	1.0	A+	
180	615633	4	544	.728	.048	.728	.136	.086	.002	.367	-.162	.367	-.081	-.319	-1.674	0.103	-0.3	1.0	0.0	1.0	A+	A-
181	615637	4	544	.621	.074	.621	.204	.097	.004	.368	-.152	.368	-.110	-.251	-1.124	0.095	0.2	1.0	0.4	1.0	A+	A-
182	617065	4	544	.737	.175	.737	.033	.052	.004	.431	-.276	.431	-.220	-.117	-1.739	0.105	-1.1	0.9	-1.4	0.9	A-	A-
183	617081	4	544	.410	.153	.410	.204	.228	.006	.260	-.161	.260	-.268	.140	-0.125	0.093	2.7	1.1	3.3	1.2	A+	B-
184	615634	4	541	.734	.734	.142	.081	.043	.000	.325	.325	-.169	-.210	-.134	-1.664	0.104	0.3	1.0	-0.3	1.0	A-	
185	615626	4	541	.793	.011	.141	.056	.793	.000	.299	-.097	-.180	-.211	.299	-2.038	0.112	0.2	1.0	0.4	1.0	A-	
186	615638	4	541	.484	.139	.484	.257	.118	.002	.349	-.198	.349	-.164	-.103	-0.436	0.093	1.3	1.0	1.2	1.1	A-	
187	617073	4	541	.732	.732	.107	.068	.092	.000	.423	.423	-.230	-.181	-.244	-1.664	0.104	-1.6	0.9	-1.6	0.9	A-	
188	617082	4	541	.329	.248	.329	.113	.309	.002	.299	-.117	.299	-.142	-.095	0.353	0.099	1.8	1.1	2.3	1.2	A-	
189	617098	4	541	.612	.612	.129	.026	.233	.000	.405	.405	-.236	-.230	-.193	-1.034	0.095	-0.7	1.0	-0.3	1.0	C-	
190	617066	4	539	.763	.117	.058	.763	.054	.009	.434	-.211	-.179	.434	-.149	-1.931	0.111	-0.6	1.0	-0.7	0.9	A-	
191	617060	4	539	.534	.134	.534	.195	.132	.006	.368	-.201	.368	-.052	-.218	-0.686	0.094	0.8	1.0	1.2	1.1	A+	
192	617074	4	539	.625	.223	.035	.110	.625	.007	.455	-.207	-.179	-.196	.455	-1.143	0.097	-1.3	1.0	-1.2	0.9	A+	
193	617068	4	541	.614	.035	.614	.301	.044	.006	.321	-.218	.321	-.166	-.115	-1.111	0.094	0.8	1.0	0.8	1.0	A+	
194	617075	4	562	.514	.514	.134	.253	.094	.005	.348	.348	-.243	-.125	-.105	-0.441	0.091	0.9	1.0	1.5	1.1	A-	A-
195	617072	4	544	.472	.158	.193	.472	.171	.006	.406	-.242	-.218	.406	-.021	-0.412	0.092	-1.1	1.0	-0.8	1.0	A-	A+
196	617080	4	539	.234	.058	.520	.234	.186	.004	.015	-.207	.118	.015	-.001	0.829	0.108	3.9	1.2	7.0	1.8	A-	
197	617070	4	541	.702	.129	.085	.702	.076	.007	.444	-.257	-.145	.444	-.161	-1.478	0.102	-1.3	0.9	-1.5	0.9	A-	
198	617229	4	541	.760	.022	.142	.760	.070	.006	.453	-.165	-.269	.453	-.216	-1.818	0.108	-1.7	0.9	-2.4	0.8	A+	
199	617239	4	1083	.457	.147	.236	.457	.156	.004	.502	-.233	-.187	.502	-.192	-0.334	0.066	-5.9	0.9	-4.4	0.9	B-	A+
200	617233	4	541	.710	.037	.080	.174	.710	.000	.443	-.207	-.174	-.303	.443	-1.557	0.102	-1.9	0.9	-2.1	0.8	A+	
201	617238	4	5980	.325	.357	.221	.325	.093	.004	.437	-.194	-.173	.437	-.083	0.390	0.030	-6.3	0.9	-3.2	0.9	B-	A-
202	617243	4	5980	.943	.019	.019	.943	.016	.004	.369	-.153	-.187	.369	-.181	-3.849	0.062	-1.9	0.9	-6.4	0.5	A+	A-
203	617232	4	5980	.723	.134	.723	.108	.030	.006	.408	-.288	.408	-.108	-.191	-1.643	0.031	-2.4	1.0	-2.2	1.0	A+	A+
204	617227	4	1101	.800	.023	.096	.078	.800	.003	.406	-.171	-.264	-.186	.406	-2.085	0.081	-1.5	0.9	-1.4	0.9	A+	B-
205	617235	4	1103	.776	.174	.038	.776	.012	.000	.374	-.304	-.174	.374	-.068	-1.866	0.077	-1.0	1.0	-1.4	0.9	A-	C-

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
206	617228	4	1082	.534	.016	.214	.534	.230	.006	.256	-.199	-.162	.256	-.028	-0.677	0.066	5.5	1.1	4.5	1.2	A-	A+
207	617236	4	541	.501	.501	.170	.155	.170	.004	.261	.261	-.175	-.103	-.037	-0.569	0.092	2.7	1.1	2.4	1.1	A+	
208	617230	4	1080	.442	.166	.442	.291	.098	.004	.329	-.156	.329	-.100	-.152	-0.286	0.066	1.4	1.0	1.1	1.0	A-	A+
209	617241	4	1080	.806	.806	.074	.107	.011	.003	.252	.252	-.222	-.052	-.092	-2.184	0.083	1.7	1.1	2.7	1.2	A-	A+
210	617242	4	539	.777	.777	.117	.084	.015	.007	.445	.445	-.236	-.223	-.065	-2.025	0.113	-0.9	0.9	-1.3	0.9	A-	
211	617231	4	1106	.756	.097	.082	.756	.062	.003	.370	-.168	-.226	.370	-.149	-1.764	0.075	-0.6	1.0	-0.2	1.0	A+	A-
212	617237	4	541	.529	.529	.111	.307	.048	.006	.416	.416	-.118	-.265	-.101	-0.598	0.093	-1.0	1.0	-0.7	1.0	A+	
213	617240	4	544	.410	.092	.360	.410	.134	.004	.281	-.188	-.083	.281	-.071	-0.112	0.093	2.5	1.1	2.4	1.1	A-	A+
214	617234	4	539	.531	.097	.286	.078	.531	.009	.404	-.054	-.189	-.212	.404	-0.675	0.094	-0.4	1.0	-0.4	1.0	A+	
215	617311	5	614	.660	.660	.067	.081	.181	.011	.407	.407	-.190	-.163	-.181	-1.224	0.092	-0.7	1.0	-0.9	1.0	A-	A+
216	615950	5	619	.659	.105	.659	.126	.105	.005	.439	-.246	.439	-.216	-.177	-1.224	0.090	-2.1	0.9	-2.0	0.9	C+	
217	617504	5	633	.254	.562	.254	.070	.109	.005	.247	.019	.247	-.185	-.195	0.793	0.095	0.5	1.0	0.9	1.1	A+	
218	615943	5	633	.570	.046	.218	.570	.156	.010	.418	-.201	-.255	.418	-.110	-0.713	0.085	-2.3	0.9	-2.8	0.9	A-	
219	617502	5	619	.446	.084	.357	.446	.108	.005	.396	-.152	-.211	.396	-.151	-0.215	0.086	-0.9	1.0	-0.7	1.0	A-	
220	615948	5	5562	.254	.313	.080	.350	.254	.004	.170	.047	-.181	-.083	.170	0.839	0.033	6.8	1.1	8.2	1.2	A-	A-
221	617322	5	609	.348	.348	.174	.191	.286	.002	.289	.289	-.155	-.181	-.010	0.350	0.092	0.7	1.0	0.5	1.0	A-	
222	617314	5	5562	.305	.305	.389	.154	.147	.006	.360	.360	-.178	-.119	-.066	0.543	0.031	-2.0	1.0	-0.5	1.0	A-	A+
223	616318	5	608	.806	.806	.082	.059	.049	.003	.463	.463	-.348	-.216	-.123	-2.147	0.112	-1.0	0.9	-1.7	0.8	A-	B-
224	617503	5	615	.740	.036	.132	.091	.740	.002	.447	-.194	-.285	-.221	.447	-1.662	0.098	-1.3	0.9	-1.9	0.9	B+	A-
225	615951	5	615	.688	.688	.138	.098	.067	.010	.374	.374	-.216	-.158	-.133	-1.385	0.094	-0.7	1.0	0.5	1.0	A+	A-
226	617313	5	614	.476	.145	.181	.476	.189	.010	.442	-.104	-.202	.442	-.202	-0.323	0.087	-2.3	0.9	-2.0	0.9	B+	A+
227	615954	5	614	.684	.054	.068	.187	.684	.007	.545	-.223	-.300	-.258	.545	-1.337	0.093	-4.2	0.8	-4.5	0.8	A+	B-
228	617505	5	614	.604	.604	.160	.121	.104	.011	.431	.431	-.261	-.142	-.109	-0.938	0.089	-1.3	1.0	-1.4	0.9	A+	A-
229	617730	5	619	.250	.247	.330	.171	.250	.002	.247	-.088	-.093	-.066	.247	0.796	0.098	1.1	1.1	2.0	1.2	B-	
230	617315	5	619	.606	.606	.110	.081	.200	.003	.415	.415	-.169	-.271	-.172	-0.954	0.088	-1.3	1.0	-1.9	0.9	A+	
231	615955	5	619	.448	.448	.131	.187	.229	.005	.343	.343	-.135	-.172	-.119	-0.221	0.086	0.8	1.0	0.8	1.0	A-	
232	615944	5	619	.475	.475	.102	.372	.049	.003	.457	.457	-.233	-.251	-.138	-0.345	0.086	-2.9	0.9	-2.8	0.9	A+	
233	617316	5	633	.313	.313	.182	.297	.205	.003	.343	.343	-.105	-.171	-.100	0.484	0.089	-1.3	1.0	-0.9	1.0	A+	
234	617727	5	633	.743	.030	.163	.062	.743	.003	.428	-.176	-.224	-.277	.428	-1.560	0.095	-2.1	0.9	-2.3	0.9	A-	
235	615945	5	633	.706	.706	.134	.049	.106	.005	.357	.357	-.157	-.277	-.131	-1.366	0.091	-0.9	1.0	-0.6	1.0	A+	
236	617320	5	611	.339	.339	.519	.041	.102	.000	.424	.424	-.326	-.099	-.060	0.354	0.090	-2.2	0.9	-1.8	0.9	A+	B-
237	615952	5	611	.705	.705	.113	.105	.074	.003	.429	.429	-.171	-.272	-.197	-1.387	0.093	-2.3	0.9	-1.7	0.9	B+	A-
238	617317	5	638	.408	.268	.408	.216	.107	.002	.302	-.080	.302	-.211	-.079	0.075	0.085	1.4	1.0	2.0	1.1	A-	B+
239	615953	5	638	.484	.135	.176	.484	.204	.002	.393	-.226	-.087	.393	-.211	-0.279	0.084	-1.2	1.0	-1.3	1.0	B-	A-
240	617321	5	638	.690	.114	.690	.082	.113	.002	.459	-.232	.459	-.267	-.198	-1.254	0.090	-2.9	0.9	-2.9	0.8	A+	A-

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
241	615949	5	633	.218	.384	.193	.218	.199	.006	.125	.099	-.155	.125	-.056	1.012	0.099	1.7	1.1	3.3	1.3	A-	
242	615946	5	619	.338	.136	.338	.207	.317	.003	.320	-.196	.320	-.187	-.003	0.313	0.090	0.8	1.0	0.8	1.0	A-	
243	617318	5	633	.352	.346	.352	.120	.175	.006	.217	-.165	.217	-.099	.025	0.282	0.087	1.8	1.1	2.6	1.1	A-	
244	617729	5	1225	.331	.189	.311	.165	.331	.005	.331	-.260	-.036	-.053	.331	0.389	0.064	0.3	1.0	1.0	1.0	A+	B-
245	617312	5	638	.397	.193	.232	.172	.397	.006	.274	-.094	-.181	-.043	.274	0.119	0.086	2.2	1.1	2.1	1.1	A-	A+
246	615962	5	609	.726	.138	.726	.062	.071	.003	.421	-.213	.421	-.267	-.174	-1.545	0.098	-1.4	0.9	-0.7	0.9	A+	
247	617330	5	638	.495	.113	.248	.141	.495	.003	.532	-.180	-.371	-.138	.532	-0.334	0.084	-6.1	0.8	-5.3	0.8	A+	A-
248	617338	5	619	.624	.134	.079	.624	.160	.003	.449	-.142	-.244	.449	-.267	-1.037	0.088	-2.6	0.9	-2.6	0.9	A-	
249	615965	5	614	.412	.108	.083	.412	.393	.005	.441	-.039	-.217	.441	-.246	-0.006	0.088	-2.5	0.9	-2.2	0.9	A-	A-
250	615964	5	609	.332	.123	.243	.332	.294	.008	.287	-.168	-.131	.287	-.037	0.437	0.093	0.9	1.0	2.0	1.1	A-	
251	616322	5	5562	.505	.505	.127	.278	.087	.003	.373	.373	-.216	-.141	-.148	-0.424	0.029	-1.6	1.0	-2.0	1.0	A-	A-
252	615961	5	5562	.463	.463	.277	.126	.130	.005	.402	.402	-.113	-.198	-.213	-0.231	0.029	-3.4	1.0	-1.5	1.0	C-	A-
253	617341	5	609	.215	.126	.264	.384	.215	.010	.167	-.176	-.138	.135	.167	1.119	0.105	2.1	1.1	2.7	1.3	A+	
254	617343	5	608	.173	.173	.229	.240	.352	.007	.202	.202	-.047	-.160	.053	1.461	0.115	0.7	1.0	0.8	1.1	A-	A-
255	617336	5	614	.611	.121	.611	.101	.161	.007	.392	-.190	.392	-.067	-.232	-0.961	0.089	-0.5	1.0	-0.8	1.0	A-	A-
256	617337	5	619	.485	.141	.147	.485	.225	.003	.322	-.172	-.109	.322	-.133	-0.390	0.086	1.7	1.1	1.3	1.1	A+	
257	617731	5	633	.570	.182	.570	.155	.085	.008	.392	-.187	.392	-.228	-.081	-0.711	0.084	-1.6	1.0	-2.1	0.9	A-	
258	617331	5	611	.540	.540	.228	.090	.138	.005	.491	.491	-.220	-.292	-.170	-0.588	0.086	-4.5	0.9	-4.2	0.9	A+	A-
259	617333	5	611	.709	.098	.709	.046	.141	.007	.359	-.137	.359	-.230	-.191	-1.418	0.094	-0.7	1.0	-0.7	1.0	A-	A+
260	617335	5	638	.477	.135	.149	.477	.238	.002	.349	-.168	-.080	.349	-.205	-0.243	0.084	0.5	1.0	-0.1	1.0	A+	A+
261	617340	5	638	.335	.249	.323	.335	.091	.002	.161	-.087	-.007	.161	-.116	0.426	0.089	4.3	1.2	3.6	1.2	A+	A+
262	617332	5	638	.698	.096	.698	.143	.060	.005	.386	-.166	.386	-.243	-.160	-1.308	0.091	-1.3	1.0	-0.5	1.0	A+	A-
263	615963	5	619	.312	.194	.205	.312	.286	.003	.299	.038	-.153	.299	-.187	0.448	0.092	1.0	1.0	1.6	1.1	A-	
264	617339	5	614	.226	.244	.204	.311	.226	.015	.282	-.093	-.123	.017	.282	0.973	0.102	0.4	1.0	1.9	1.2	A-	A+
265	617342	5	619	.280	.280	.263	.359	.094	.005	.285	.285	-.131	-.066	-.107	0.622	0.095	1.2	1.1	1.5	1.1	A+	
266	616317	5	611	.548	.034	.097	.548	.319	.002	.250	-.072	-.211	.250	-.098	-0.618	0.086	2.7	1.1	2.5	1.1	A+	A+
267	617304	5	608	.380	.262	.176	.380	.176	.007	.357	-.111	-.240	.357	-.056	0.164	0.091	0.7	1.0	1.7	1.1	A-	A-
268	615936	5	633	.713	.035	.191	.713	.062	.000	.447	-.245	-.267	.447	-.219	-1.381	0.092	-2.7	0.9	-2.8	0.9	B+	
269	617307	5	638	.430	.155	.249	.161	.430	.005	.392	-.148	-.113	-.233	.392	-0.033	0.085	-0.9	1.0	-1.1	1.0	A-	A-
270	615939	5	615	.563	.117	.563	.236	.078	.007	.532	-.226	.532	-.250	-.256	-0.740	0.088	-5.0	0.9	-4.5	0.8	A+	A+
271	617499	5	615	.524	.263	.524	.101	.111	.002	.339	-.080	.339	-.285	-.124	-0.452	0.087	0.0	1.0	0.8	1.0	A-	A+
272	615942	5	614	.896	.018	.059	.023	.896	.005	.364	-.181	-.172	-.146	.364	-2.899	0.141	-0.5	0.9	-1.3	0.8	A+	A+
273	615940	5	1220	.471	.109	.049	.471	.367	.004	.374	-.230	-.199	.374	-.137	-0.263	0.061	-1.0	1.0	-0.1	1.0	A+	A+
274	615937	5	5562	.561	.170	.106	.160	.561	.004	.464	-.213	-.204	-.214	.464	-0.686	0.029	-9.9	0.9	-8.4	0.9	A+	A-
275	615941	5	5562	.475	.241	.475	.122	.155	.007	.263	-.204	.263	-.105	.014	-0.293	0.029	8.5	1.1	8.6	1.1	A-	A-

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
276	615947	5	615	.870	.024	.080	.024	.870	.002	.363	-.155	-.232	-.169	.363	-2.506	0.125	-0.7	0.9	-2.0	0.7	A-	A+
277	617500	5	615	.615	.083	.140	.615	.161	.002	.376	-.195	-.212	.376	-.127	-0.886	0.089	-0.1	1.0	-0.4	1.0	A+	A+
278	617724	5	614	.446	.209	.217	.446	.121	.008	.406	-.076	-.192	.406	-.205	-0.177	0.087	-1.2	1.0	-1.1	1.0	A+	A-
279	617726	5	619	.701	.183	.032	.082	.701	.002	.501	-.336	-.160	-.257	.501	-1.431	0.093	-3.5	0.9	-3.0	0.8	A+	
280	617319	5	633	.403	.453	.403	.038	.103	.003	.268	-.063	.268	-.191	-.197	0.051	0.085	1.1	1.0	1.6	1.1	A+	
281	617308	5	611	.881	.087	.026	.881	.007	.000	.291	-.194	-.209	.291	-.080	-2.582	0.128	-0.5	1.0	-1.2	0.8	A-	A-
282	617306	5	638	.633	.221	.063	.082	.633	.002	.412	-.241	-.167	-.198	.412	-0.967	0.087	-2.0	0.9	-1.1	1.0	A+	A-
283	617309	5	638	.580	.241	.071	.580	.103	.005	.414	-.209	-.211	.414	-.184	-0.724	0.085	-1.8	1.0	-1.9	0.9	A-	A-
284	615938	5	611	.493	.077	.493	.144	.283	.003	.264	-.173	.264	-.210	-.012	-0.371	0.086	2.5	1.1	2.7	1.1	A+	A-
285	617725	5	614	.138	.207	.192	.138	.448	.015	-.027	-.111	-.109	-.027	.269	1.683	0.123	2.2	1.2	5.3	1.9	A+	A+
286	617501	5	614	.340	.340	.204	.178	.270	.008	.281	.281	-.160	-.129	.023	0.335	0.091	2.1	1.1	2.1	1.1	A-	A-
287	617310	5	633	.531	.289	.531	.057	.115	.008	.281	-.083	.281	-.236	-.096	-0.533	0.084	1.6	1.0	1.1	1.0	A+	
288	617305	5	619	.246	.283	.250	.246	.218	.003	.311	-.116	-.122	.311	-.052	0.823	0.099	0.1	1.0	1.4	1.1	A-	
289	617328	5	611	.668	.668	.136	.088	.108	.000	.497	.497	-.215	-.265	-.273	-1.181	0.090	-4.1	0.9	-3.8	0.8	A-	A+
290	615958	5	633	.608	.608	.081	.122	.183	.006	.310	.310	-.127	-.304	-.021	-0.882	0.086	0.3	1.0	0.4	1.0	A+	
291	616969	5	638	.666	.078	.666	.136	.118	.002	.300	-.204	.300	-.145	-.110	-1.134	0.089	0.9	1.0	0.8	1.0	A-	A+
292	617507	5	611	.408	.349	.088	.151	.408	.005	.194	.028	-.221	-.106	.194	0.018	0.087	4.3	1.1	3.6	1.2	A+	A+
293	616320	5	5562	.831	.831	.081	.071	.016	.001	.381	.381	-.255	-.172	-.190	-2.216	0.038	-3.2	0.9	-4.9	0.8	A-	A-
294	616971	5	5562	.527	.081	.271	.527	.117	.005	.338	-.246	-.164	.338	-.057	-0.529	0.029	1.8	1.0	1.3	1.0	A-	A-
295	615956	5	5562	.399	.067	.491	.039	.399	.005	.298	-.193	-.104	-.169	.298	0.069	0.029	4.8	1.1	4.2	1.1	A+	A+
296	615959	5	5562	.630	.169	.122	.630	.072	.007	.421	-.184	-.191	.421	-.220	-1.028	0.030	-5.0	0.9	-5.0	0.9	A+	A-
297	615957	5	608	.145	.169	.329	.145	.352	.005	.264	-.211	.062	.264	-.066	1.676	0.123	0.1	1.0	-0.1	1.0	A-	A-
298	616973	5	608	.549	.258	.091	.095	.549	.007	.410	-.195	-.211	-.147	.410	-0.672	0.089	-0.3	1.0	-0.9	1.0	C+	A-
299	616974	5	615	.395	.208	.218	.395	.177	.002	.222	-.083	-.163	.222	.005	0.157	0.089	2.6	1.1	1.6	1.1	A+	A+
300	615960	5	615	.607	.607	.278	.070	.042	.003	.340	.340	-.123	-.233	-.206	-0.853	0.089	0.4	1.0	0.5	1.0	A+	A+
301	616975	5	615	.468	.468	.156	.148	.223	.005	.302	.302	-.158	-.115	-.114	-0.298	0.087	2.0	1.1	1.4	1.1	A-	A-
302	616321	5	614	.710	.098	.147	.710	.041	.005	.516	-.187	-.337	.516	-.174	-1.473	0.095	-3.3	0.9	-3.9	0.8	A+	A-
303	617324	5	614	.446	.287	.098	.156	.446	.013	.466	-.194	-.156	-.172	.466	-0.192	0.087	-2.8	0.9	-2.9	0.9	A+	A-
304	617325	5	619	.399	.399	.176	.131	.291	.003	.409	.409	-.257	-.098	-.151	0.011	0.088	-1.5	1.0	-1.8	0.9	A-	
305	617506	5	619	.407	.176	.407	.247	.166	.003	.133	-.224	.133	-.099	.176	-0.029	0.087	6.2	1.2	5.8	1.3	A+	
306	617329	5	633	.223	.477	.103	.223	.193	.005	.028	.152	-.195	.028	-.048	0.983	0.099	2.8	1.2	5.1	1.4	A-	
307	616976	5	633	.273	.273	.261	.256	.201	.010	.114	.114	-.109	-.061	.104	0.683	0.093	2.8	1.1	3.1	1.2	A-	
308	616977	5	611	.224	.360	.131	.224	.282	.003	.203	-.170	-.031	.203	.033	0.998	0.102	1.0	1.1	2.3	1.2	A-	A+
309	616972	5	611	.146	.624	.144	.146	.079	.008	.042	.155	-.083	.042	-.190	1.572	0.119	1.6	1.1	3.9	1.5	A+	B+
310	617334	5	614	.266	.238	.223	.264	.266	.010	.185	-.115	-.107	.098	.185	0.741	0.097	2.9	1.1	3.7	1.3	A+	A+

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
311	616968	5	611	.306	.409	.069	.213	.306	.003	.289	-.190	-.165	.022	.289	0.518	0.092	1.0	1.0	0.6	1.0	A-	A-
312	616319	5	638	.488	.213	.193	.105	.488	.002	.307	-.190	-.039	-.188	.307	-0.293	0.084	1.5	1.0	2.0	1.1	A+	A-
313	616970	5	638	.641	.102	.641	.194	.061	.002	.219	-.143	.219	-.024	-.211	-1.009	0.087	3.1	1.1	2.5	1.1	A+	A+
314	617326	5	638	.301	.334	.320	.301	.042	.003	.349	-.134	-.123	.349	-.174	0.604	0.091	-0.3	1.0	0.4	1.0	A+	B+
315	617323	5	1226	.362	.075	.362	.479	.080	.004	.330	-.117	.330	-.194	-.078	0.226	0.063	0.2	1.0	1.5	1.1	A-	A-
316	617327	5	633	.209	.164	.218	.403	.209	.006	.056	-.120	-.081	.137	.056	1.072	0.101	2.4	1.1	3.5	1.3	A+	
317	617741	6	627	.729	.104	.729	.091	.059	.018	.563	-.281	.563	-.278	-.242	-1.338	0.097	-3.9	0.8	-4.4	0.7	A+	
318	615554	6	626	.534	.243	.083	.141	.534	.000	.375	-.138	-.150	-.249	.375	-0.250	0.085	-1.2	1.0	-1.0	1.0	A-	
319	615532	6	626	.864	.037	.864	.061	.034	.005	.450	-.231	.450	-.187	-.262	-2.265	0.125	-1.4	0.9	-2.7	0.7	A+	
320	615540	6	625	.635	.195	.123	.635	.045	.002	.471	-.217	-.295	.471	-.212	-0.729	0.088	-3.4	0.9	-3.5	0.9	A+	
321	617508	6	626	.582	.582	.235	.107	.075	.002	.344	.344	-.127	-.192	-.176	-0.292	0.086	-0.2	1.0	-0.3	1.0	A-	
322	615539	6	5636	.817	.817	.061	.086	.032	.004	.335	.335	-.146	-.231	-.060	-1.778	0.036	-1.4	1.0	-0.7	1.0	A-	A+
323	619628	6	627	.533	.034	.533	.260	.168	.006	.306	-.027	.306	-.123	-.159	-0.244	0.086	1.8	1.1	1.5	1.1	B-	
324	619307	6	1252	.427	.336	.102	.121	.427	.014	.339	-.025	-.176	-.230	.339	0.221	0.061	0.0	1.0	0.3	1.0	A+	A-
325	619124	6	5636	.546	.546	.098	.247	.103	.007	.437	.437	-.239	-.175	-.149	-0.290	0.029	-8.9	0.9	-8.6	0.9	A-	A-
326	619308	6	627	.526	.199	.182	.526	.093	.000	.448	-.221	-.192	.448	-.212	-0.219	0.085	-3.3	0.9	-3.1	0.9	A-	
327	617510	6	627	.266	.279	.247	.206	.266	.002	.267	-.022	-.118	-.148	.267	1.045	0.095	0.1	1.0	0.9	1.1	A-	
328	619305	6	627	.397	.294	.204	.397	.077	.029	.297	-.121	-.136	.297	-.108	0.314	0.088	0.6	1.0	0.8	1.0	A-	
329	619306	6	623	.178	.225	.178	.416	.173	.008	.254	-.082	.254	.034	-.108	1.655	0.109	-0.2	1.0	-0.3	1.0	A-	
330	619309	6	623	.273	.101	.273	.527	.092	.008	.115	-.144	.115	.105	-.076	1.051	0.095	2.2	1.1	3.3	1.2	A-	
331	617511	6	623	.368	.262	.177	.170	.368	.024	.413	.026	-.179	-.211	.413	0.539	0.088	-2.5	0.9	-2.2	0.9	A+	
332	619310	6	629	.547	.323	.547	.099	.027	.005	.361	-.155	.361	-.200	-.159	-0.239	0.086	-0.1	1.0	-0.4	1.0	A-	
333	619128	6	626	.709	.709	.042	.131	.113	.005	.354	.354	-.226	-.087	-.242	-1.119	0.093	-0.6	1.0	-0.9	1.0	A-	
334	615527	6	626	.447	.328	.097	.123	.447	.005	.380	-.103	-.179	-.222	.380	0.136	0.085	-1.3	1.0	-0.9	1.0	A-	
335	615541	6	626	.505	.105	.241	.505	.136	.013	.241	-.277	-.003	.241	-.010	-0.142	0.085	3.5	1.1	3.6	1.1	A+	
336	619129	6	627	.349	.239	.164	.244	.349	.003	.196	.018	-.069	-.170	.196	0.560	0.089	2.9	1.1	3.5	1.2	A+	
337	615528	6	627	.585	.155	.072	.585	.187	.002	.219	-.093	-.037	.219	-.154	-0.537	0.087	3.6	1.1	3.5	1.2	A+	
338	615542	6	627	.612	.120	.139	.612	.102	.027	.493	-.184	-.296	.493	-.143	-0.738	0.089	-2.9	0.9	-2.9	0.9	A+	
339	619125	6	626	.296	.296	.113	.185	.403	.003	.203	.203	-.114	-.081	-.008	1.067	0.092	1.2	1.1	2.5	1.2	A-	
340	615529	6	626	.374	.374	.113	.141	.345	.027	.251	.251	-.265	-.115	.108	0.621	0.088	2.2	1.1	2.3	1.1	A-	
341	619130	6	626	.214	.264	.307	.214	.185	.030	.059	-.027	-.077	.059	.191	1.538	0.103	2.3	1.1	4.2	1.4	B-	
342	619126	6	626	.615	.086	.131	.157	.615	.011	.443	-.207	-.148	-.209	.443	-0.688	0.088	-2.2	0.9	-2.3	0.9	B+	
343	615553	6	626	.695	.062	.695	.125	.109	.010	.424	-.179	.424	-.171	-.205	-1.096	0.093	-1.7	0.9	-1.7	0.9	C+	
344	617753	6	626	.613	.115	.113	.136	.613	.022	.476	-.169	-.237	-.183	.476	-0.717	0.089	-3.3	0.9	-2.7	0.9	A+	
345	619304	6	626	.324	.145	.351	.153	.324	.026	.366	-.166	.022	-.234	.366	0.671	0.091	-1.1	1.0	-0.7	1.0	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
346	619127	6	625	.674	.136	.674	.149	.042	.000	.372	-.284	.372	-.151	-.115	-0.914	0.090	-1.2	1.0	-0.5	1.0	A+	
347	617509	6	625	.586	.586	.088	.078	.246	.002	.363	.363	-.135	-.130	-.247	-0.494	0.086	-0.7	1.0	-0.4	1.0	A+	
348	615536	6	625	.347	.054	.080	.347	.510	.008	.194	-.224	-.118	.194	.001	0.599	0.089	2.8	1.1	3.4	1.2	A-	
349	615530	6	1253	.715	.050	.715	.152	.069	.015	.354	-.188	.354	-.160	-.095	-1.189	0.067	-0.4	1.0	0.0	1.0	A+	A+
350	615531	6	1253	.333	.144	.133	.373	.333	.018	.203	-.104	-.125	.038	.203	0.739	0.064	4.1	1.1	4.4	1.2	A-	A+
351	617533	6	1253	.194	.360	.049	.394	.194	.003	.171	-.012	-.202	-.014	.171	1.472	0.074	1.5	1.1	3.9	1.3	A+	B+
352	615594	6	626	.490	.169	.149	.189	.490	.003	.260	-.161	-.135	-.025	.260	-0.060	0.085	2.3	1.1	1.9	1.1	A+	
353	615603	6	627	.384	.043	.330	.225	.384	.018	.333	-.206	-.066	-.148	.333	0.367	0.088	0.6	1.0	0.7	1.0	A-	
354	615601	6	626	.727	.727	.168	.038	.059	.008	.336	.336	-.168	-.258	-.058	-1.059	0.096	0.0	1.0	0.1	1.0	A-	
355	619365	6	626	.842	.842	.066	.042	.042	.010	.454	.454	-.265	-.272	-.084	-2.086	0.118	-1.6	0.9	-1.9	0.8	A+	
356	615599	6	5636	.605	.222	.092	.605	.077	.005	.305	-.121	-.165	.305	-.121	-0.557	0.029	2.3	1.0	1.9	1.0	A-	A+
357	615590	6	627	.324	.239	.163	.324	.268	.006	.096	.031	-.049	.096	-.013	0.755	0.091	4.9	1.2	4.5	1.3	A-	
358	615600	6	1252	.682	.682	.068	.129	.115	.006	.342	.342	-.173	-.153	-.128	-0.973	0.065	-0.2	1.0	0.4	1.0	A-	A-
359	615602	6	627	.372	.420	.094	.372	.101	.014	.388	-.117	-.154	.388	-.126	0.497	0.089	-1.9	0.9	-1.2	0.9	A-	
360	615589	6	5636	.184	.189	.349	.265	.184	.014	.177	.015	-.068	-.021	.177	1.590	0.036	3.2	1.1	5.9	1.2	A+	A+
361	615591	6	627	.512	.112	.270	.107	.512	.000	.367	-.241	-.209	-.048	.367	-0.154	0.085	-0.1	1.0	0.0	1.0	A+	
362	619139	6	627	.330	.112	.386	.330	.147	.026	.204	-.205	.035	.204	-.116	0.656	0.091	3.0	1.1	4.1	1.2	A+	
363	619364	6	623	.154	.154	.361	.096	.380	.008	.008	.008	.025	-.005	.050	1.844	0.115	1.9	1.2	3.3	1.4	A-	
364	615592	6	623	.509	.509	.170	.117	.193	.011	.324	.324	-.108	-.199	-.027	-0.104	0.086	-0.4	1.0	-0.5	1.0	A-	
365	619142	6	623	.271	.271	.197	.241	.276	.014	.189	.189	-.080	-.124	.122	1.056	0.095	1.5	1.1	2.8	1.2	A-	
366	619363	6	629	.479	.479	.229	.162	.124	.006	.293	.293	-.084	-.165	-.089	0.074	0.086	2.4	1.1	2.5	1.1	A+	
367	615593	6	629	.448	.272	.448	.172	.100	.008	.257	.052	.257	-.175	-.200	0.216	0.086	3.3	1.1	3.1	1.1	A+	
368	619143	6	629	.580	.146	.124	.142	.580	.008	.456	-.244	-.209	-.129	.456	-0.406	0.087	-3.2	0.9	-3.1	0.9	A+	
369	619617	6	626	.264	.029	.264	.086	.620	.002	.142	-.190	.142	.036	-.063	1.054	0.095	2.2	1.1	3.3	1.2	A+	
370	619623	6	626	.374	.155	.090	.374	.372	.010	.151	-.027	-.212	.151	.053	0.472	0.087	4.4	1.2	5.1	1.2	A-	
371	619618	6	627	.426	.426	.201	.263	.109	.002	.220	.220	-.096	-.040	-.171	0.200	0.086	4.2	1.1	3.6	1.2	A-	
372	619625	6	627	.767	.030	.062	.139	.767	.002	.423	-.220	-.258	-.213	.423	-1.501	0.100	-1.7	0.9	-1.4	0.9	A+	
373	615595	6	627	.260	.169	.380	.177	.260	.014	.281	-.031	-.045	-.168	.281	1.022	0.096	0.7	1.0	0.9	1.1	A-	
374	615596	6	626	.808	.006	.011	.808	.169	.005	.335	-.128	-.110	.335	-.211	-1.555	0.108	-0.1	1.0	-0.7	0.9	A-	
375	619619	6	626	.318	.131	.395	.318	.142	.014	.123	-.070	.016	.123	.004	0.920	0.091	4.0	1.2	4.7	1.3	A+	
376	619626	6	626	.711	.711	.091	.136	.046	.016	.394	.394	-.177	-.178	-.106	-0.976	0.095	-0.9	1.0	-1.1	0.9	B-	
377	620237	6	626	.492	.232	.126	.492	.137	.013	.325	.016	-.215	.325	-.193	-0.097	0.086	0.7	1.0	0.7	1.0	A-	
378	619136	6	626	.308	.321	.308	.105	.259	.006	.246	-.013	.246	-.212	-.021	0.793	0.092	1.6	1.1	2.7	1.2	A+	
379	619622	6	626	.577	.198	.577	.097	.113	.014	.378	-.178	.378	-.203	-.054	-0.510	0.087	-0.4	1.0	-0.3	1.0	A-	
380	615588	6	626	.305	.134	.222	.305	.321	.018	.051	-.026	.081	.051	-.018	0.807	0.092	5.3	1.2	6.0	1.4	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
381	619137	6	625	.285	.190	.090	.434	.285	.002	.270	-.150	-.173	-.028	.270	0.927	0.093	0.7	1.0	0.7	1.0	A+	
382	619150	6	625	.507	.155	.242	.091	.507	.005	.407	-.217	-.132	-.214	.407	-0.141	0.085	-1.8	1.0	-2.0	0.9	A-	
383	620236	6	625	.261	.443	.141	.261	.147	.008	.265	.051	-.283	.265	-.093	1.055	0.095	0.4	1.0	1.5	1.1	A-	
384	619141	6	626	.500	.500	.120	.300	.072	.008	.244	.244	-.018	-.080	-.203	0.073	0.085	3.2	1.1	3.1	1.1	A+	
385	619624	6	627	.812	.064	.064	.061	.812	.000	.384	-.210	-.212	-.197	.384	-1.742	0.107	-1.5	0.9	-2.1	0.8	A-	
386	615518	6	627	.788	.788	.032	.161	.016	.003	.375	.375	-.182	-.232	-.215	-1.642	0.103	-0.8	1.0	-1.6	0.9	C-	
387	615520	6	626	.845	.053	.054	.845	.045	.003	.333	-.164	-.148	.333	-.143	-1.861	0.118	0.0	1.0	-0.6	0.9	A+	
388	615514	6	626	.808	.030	.040	.118	.808	.003	.353	-.153	-.209	-.185	.353	-1.722	0.107	-0.6	1.0	-0.9	0.9	B-	
389	618591	6	625	.869	.042	.869	.038	.051	.000	.211	-.089	.211	-.155	-.107	-2.191	0.122	0.3	1.0	0.7	1.1	A+	
390	619296	6	626	.829	.043	.053	.829	.074	.002	.454	-.216	-.247	.454	-.235	-1.867	0.111	-1.9	0.9	-2.9	0.7	A+	
391	615526	6	626	.708	.083	.708	.069	.134	.006	.424	-.177	.424	-.173	-.208	-1.153	0.094	-1.5	0.9	-1.9	0.9	A+	
392	618594	6	627	.783	.094	.783	.048	.065	.010	.373	-.191	.373	-.120	-.136	-1.579	0.104	-0.9	1.0	-1.3	0.9	A-	
393	618593	6	1253	.646	.120	.646	.131	.093	.011	.487	-.237	.487	-.242	-.128	-0.820	0.064	-5.2	0.9	-4.8	0.8	A+	
394	615509	6	5636	.869	.869	.066	.036	.024	.005	.466	.466	-.269	-.223	-.184	-2.223	0.042	-5.1	0.9	-9.3	0.7	A+	A-
395	619303	6	627	.447	.368	.447	.091	.085	.010	.387	-.174	.387	-.101	-.132	0.150	0.086	-2.1	0.9	-2.0	0.9	A-	
396	618790	6	5636	.414	.287	.047	.414	.243	.009	.348	-.085	-.194	.348	-.146	0.319	0.029	-1.2	1.0	1.3	1.0	A+	B-
397	620217	6	627	.499	.161	.089	.233	.499	.018	.479	-.224	-.228	-.108	.479	-0.114	0.086	-4.1	0.9	-4.0	0.9	A-	
398	619121	6	5636	.460	.085	.242	.191	.460	.022	.369	-.191	-.040	-.201	.369	0.072	0.029	-1.9	1.0	-1.6	1.0	A+	A-
399	618792	6	1253	.707	.116	.062	.707	.109	.006	.364	-.144	-.204	.364	-.162	-1.027	0.066	-1.1	1.0	-1.4	0.9	A+	A+
400	620358	6	627	.447	.177	.021	.356	.447	.000	.342	-.076	-.187	-.239	.342	0.146	0.086	-0.1	1.0	-0.3	1.0	B-	
401	619293	6	627	.416	.132	.121	.329	.416	.002	.373	-.196	-.212	-.098	.373	0.283	0.086	-1.0	1.0	-1.0	1.0	A-	
402	619120	6	623	.779	.043	.103	.779	.067	.008	.295	-.149	-.087	.295	-.108	-1.493	0.103	0.8	1.1	0.7	1.1	A+	
403	619616	6	623	.469	.469	.039	.112	.372	.008	.341	.341	-.156	-.144	-.111	0.089	0.086	-0.5	1.0	-0.3	1.0	A-	
404	619295	6	623	.344	.509	.344	.079	.056	.013	.187	.108	.187	-.210	-.147	0.678	0.089	2.9	1.1	2.2	1.1	A+	
405	615523	6	623	.502	.059	.257	.151	.502	.031	.442	-.157	-.095	-.218	.442	-0.114	0.086	-3.9	0.9	-3.7	0.9	A+	
406	619122	6	629	.614	.614	.183	.051	.148	.005	.283	.283	-.157	-.126	-.078	-0.557	0.088	2.1	1.1	1.3	1.1	A+	
407	619298	6	629	.822	.043	.024	.822	.102	.010	.325	-.192	-.181	.325	-.101	-1.822	0.112	-0.3	1.0	-0.6	0.9	A+	
408	615524	6	629	.661	.076	.200	.048	.661	.014	.430	-.261	-.142	-.225	.430	-0.830	0.091	-2.0	0.9	-1.8	0.9	A+	
409	615525	6	626	.669	.090	.171	.059	.669	.011	.474	-.117	-.261	-.276	.474	-0.927	0.091	-3.1	0.9	-3.0	0.9	A+	
410	619301	6	626	.752	.070	.102	.066	.752	.010	.545	-.254	-.254	-.263	.545	-1.383	0.099	-3.7	0.8	-4.4	0.7	B+	
411	619123	6	626	.296	.181	.296	.318	.197	.010	.070	.082	.070	-.067	-.010	0.868	0.092	4.4	1.2	5.8	1.4	A+	
412	619299	6	626	.824	.824	.038	.094	.034	.010	.524	.524	-.204	-.304	-.242	-1.878	0.112	-2.5	0.8	-4.0	0.6	A-	
413	615513	6	627	.622	.622	.190	.093	.093	.003	.401	.401	-.122	-.275	-.200	-0.714	0.088	-0.9	1.0	-0.4	1.0	A+	
414	617740	6	627	.608	.209	.070	.112	.608	.002	.530	-.213	-.282	-.303	.530	-0.643	0.087	-5.1	0.8	-5.1	0.8	A+	
415	619300	6	627	.727	.048	.166	.046	.727	.013	.424	-.207	-.192	-.231	.424	-1.303	0.096	-1.2	0.9	-0.9	0.9	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
416	615534	6	1253	.880	.880	.032	.042	.036	.010	.484	.484	-.200	-.259	-.219	-2.347	0.094	-2.2	0.9	-4.5	0.6	A+	A-
417	619134	6	627	.558	.558	.169	.180	.078	.014	.508	.508	-.201	-.253	-.200	-0.442	0.087	-4.1	0.9	-3.8	0.9	A-	
418	616333	6	626	.768	.029	.768	.109	.086	.008	.480	-.137	.480	-.253	-.235	-1.298	0.101	-2.4	0.9	-3.5	0.8	A+	
419	615522	6	626	.102	.021	.839	.029	.102	.010	-.106	-.116	.321	-.184	-.106	2.546	0.139	1.3	1.1	4.5	1.8	A+	
420	619302	6	626	.494	.189	.133	.173	.494	.013	.336	.034	-.248	-.149	.336	0.093	0.085	0.2	1.0	-0.1	1.0	A+	
421	618592	6	1251	.595	.106	.595	.126	.166	.007	.380	-.176	.380	-.189	-.129	-0.461	0.061	-1.2	1.0	-1.1	1.0	A+	A-
422	615516	6	626	.246	.030	.024	.246	.693	.006	.089	-.120	-.165	.089	.088	1.160	0.098	3.0	1.2	4.6	1.4	A-	
423	618789	6	626	.748	.748	.077	.037	.133	.006	.283	.283	-.159	-.203	-.028	-1.384	0.098	1.3	1.1	1.1	1.1	A-	
424	615511	6	1251	.440	.401	.440	.122	.032	.005	.297	-.199	.297	-.021	-.130	0.156	0.061	2.1	1.0	1.8	1.1	A-	A+
425	615612	6	626	.385	.486	.385	.085	.032	.013	.176	.049	.176	-.136	-.192	0.397	0.088	4.6	1.2	4.7	1.2	A+	
426	615519	6	625	.550	.333	.061	.056	.550	.000	.286	-.106	-.192	-.203	.286	-0.328	0.085	1.7	1.1	1.4	1.1	A-	
427	619313	6	625	.434	.434	.264	.211	.082	.010	.316	.316	-.109	-.183	-.084	0.186	0.086	0.9	1.0	0.6	1.0	A-	
428	615535	6	1253	.652	.077	.652	.093	.176	.002	.428	-.230	.428	-.261	-.135	-0.832	0.063	-3.2	0.9	-3.2	0.9	A+	
429	615510	6	1256	.678	.206	.047	.067	.678	.002	.295	-.111	-.182	-.178	.295	-0.935	0.064	1.2	1.0	1.3	1.1	A+	
430	618590	6	1251	.333	.270	.333	.213	.177	.006	.265	-.131	.265	-.086	-.047	0.672	0.063	1.6	1.0	2.1	1.1	A+	A-
431	615512	6	1253	.625	.073	.625	.098	.192	.012	.340	-.181	.340	-.143	-.104	-0.616	0.063	0.2	1.0	0.4	1.0	A-	A-
432	618791	6	1255	.583	.070	.583	.148	.186	.014	.394	-.220	.394	-.182	-.105	-0.483	0.062	-1.3	1.0	-1.4	1.0	A+	
433	616332	6	1248	.678	.678	.091	.118	.097	.016	.403	.403	-.170	-.161	-.173	-0.961	0.065	-1.7	1.0	-2.1	0.9	A+	A-
434	615517	6	1251	.689	.054	.162	.090	.689	.005	.571	-.243	-.363	-.224	.571	-1.008	0.065	-7.5	0.8	-7.6	0.7	A-	A-
435	615560	6	627	.353	.064	.353	.507	.070	.006	.240	-.167	.240	-.016	-.235	0.540	0.089	2.3	1.1	2.6	1.1	A+	
436	619132	6	626	.746	.046	.070	.746	.131	.006	.408	-.181	-.230	.408	-.142	-1.150	0.098	-1.4	0.9	-1.8	0.9	B-	
437	615557	6	626	.754	.072	.754	.104	.061	.010	.515	-.247	.515	-.255	-.217	-1.393	0.099	-3.0	0.9	-3.8	0.7	A-	
438	615574	6	626	.792	.077	.792	.054	.070	.006	.451	-.135	.451	-.244	-.230	-1.675	0.105	-1.8	0.9	-1.8	0.9	A-	
439	617512	6	625	.203	.243	.400	.154	.203	.000	.248	-.134	-.028	-.080	.248	1.418	0.103	0.1	1.0	1.0	1.1	A-	
440	615566	6	627	.376	.416	.376	.112	.088	.008	.301	-.099	.301	-.104	-.094	0.489	0.088	0.6	1.0	1.0	1.0	A+	
441	615578	6	5636	.241	.203	.405	.241	.146	.005	.087	-.052	.073	.087	-.093	1.226	0.033	9.0	1.2	9.9	1.4	A-	A+
442	615583	6	627	.585	.585	.109	.136	.158	.013	.273	.273	-.123	-.001	-.139	-0.506	0.087	2.7	1.1	2.0	1.1	A-	
443	618600	6	5636	.584	.584	.175	.121	.111	.009	.397	.397	-.142	-.193	-.158	-0.473	0.029	-4.1	1.0	-3.9	1.0	A+	A+
444	615571	6	627	.294	.510	.147	.294	.035	.014	.266	-.006	-.141	.266	-.133	0.903	0.093	0.7	1.0	2.7	1.2	A-	
445	615549	6	5636	.426	.130	.112	.314	.426	.018	.391	-.171	-.194	-.088	.391	0.240	0.029	-4.1	1.0	-3.1	1.0	A+	A+
446	615584	6	627	.397	.195	.265	.397	.139	.005	.119	-.160	-.043	.119	.074	0.367	0.087	5.2	1.2	4.6	1.2	A+	
447	615568	6	627	.388	.392	.093	.124	.388	.003	.352	-.101	-.220	-.167	.352	0.417	0.087	0.0	1.0	0.0	1.0	A+	
448	619361	6	627	.410	.410	.231	.262	.088	.010	.299	.299	-.113	-.087	-.192	0.297	0.087	0.9	1.0	1.6	1.1	A-	
449	619360	6	627	.424	.424	.222	.295	.046	.013	.445	.445	-.161	-.238	-.182	0.221	0.086	-2.7	0.9	-2.5	0.9	A-	
450	615581	6	627	.322	.152	.383	.322	.124	.019	.164	-.062	-.048	.164	-.070	0.711	0.091	3.4	1.1	3.6	1.2	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
451	615582	6	623	.268	.151	.323	.268	.250	.008	.145	.001	.058	.145	-.123	1.078	0.095	2.4	1.1	2.5	1.2	A-	
452	615585	6	623	.435	.432	.435	.043	.077	.013	.229	.023	.229	-.222	-.121	0.231	0.086	3.3	1.1	3.1	1.1	A-	
453	615569	6	623	.677	.202	.050	.677	.059	.011	.436	-.241	-.194	.436	-.065	-0.912	0.092	-1.8	0.9	-1.8	0.9	B+	
454	615544	6	623	.191	.397	.303	.090	.191	.019	.243	.082	-.023	-.223	.243	1.556	0.106	-0.3	1.0	0.6	1.1	A+	
455	615586	6	629	.351	.046	.351	.526	.068	.008	.323	-.142	.323	-.116	-.160	0.687	0.089	-0.3	1.0	0.3	1.0	A-	
456	619362	6	629	.262	.288	.390	.053	.262	.008	.224	-.180	.103	-.195	.224	1.168	0.096	1.8	1.1	2.5	1.2	A-	
457	615545	6	629	.277	.262	.313	.143	.277	.005	.367	-.147	-.114	-.076	.367	1.091	0.095	-1.2	1.0	0.3	1.0	A-	
458	615543	6	629	.490	.127	.154	.490	.219	.010	.330	-.157	-.158	.330	-.075	0.013	0.086	0.8	1.0	0.6	1.0	A-	
459	615570	6	629	.673	.156	.073	.673	.089	.010	.459	-.185	-.273	.459	-.175	-0.871	0.091	-2.7	0.9	-2.9	0.8	A-	
460	615546	6	626	.300	.377	.213	.300	.107	.003	.266	-.047	-.218	.266	.018	0.853	0.092	0.6	1.0	1.6	1.1	A+	
461	615552	6	626	.227	.166	.227	.490	.115	.002	.101	-.040	.101	.028	-.099	1.273	0.100	2.1	1.1	4.6	1.4	A-	
462	618795	6	626	.283	.283	.391	.090	.232	.005	.206	.206	-.012	-.155	-.060	0.944	0.093	1.9	1.1	2.3	1.2	A-	
463	615550	6	626	.425	.235	.304	.425	.027	.010	.252	-.038	-.137	.252	-.107	0.231	0.086	2.6	1.1	2.8	1.1	B+	
464	617742	6	626	.340	.230	.401	.340	.018	.011	.274	-.191	-.005	.274	-.130	0.635	0.089	1.2	1.0	1.6	1.1	A-	
465	618805	6	626	.414	.230	.190	.150	.414	.016	.340	-.018	-.093	-.250	.340	0.274	0.086	0.2	1.0	0.2	1.0	A+	
466	615565	6	627	.236	.112	.633	.236	.018	.002	.187	-.244	.045	.187	-.172	1.184	0.098	0.8	1.0	3.3	1.3	A+	
467	617743	6	627	.499	.354	.030	.115	.499	.002	.380	-.216	-.221	-.139	.380	-0.138	0.085	-0.6	1.0	-1.0	1.0	A-	
468	615597	6	627	.510	.199	.510	.156	.129	.005	.224	-.103	.224	-.122	-.058	-0.199	0.085	4.0	1.1	4.2	1.2	A+	
469	615558	6	627	.494	.262	.494	.120	.112	.013	.346	-.073	.346	-.138	-.225	-0.138	0.086	0.8	1.0	0.7	1.0	A-	
470	618595	6	627	.627	.099	.152	.105	.627	.018	.475	-.259	-.143	-.239	.475	-0.784	0.089	-2.4	0.9	-2.8	0.9	A+	
471	615547	6	627	.418	.132	.418	.201	.220	.029	.328	-.140	.328	-.189	-.008	0.189	0.087	1.1	1.0	1.6	1.1	A-	
472	615573	6	626	.514	.401	.027	.514	.054	.003	.405	-.224	-.145	.405	-.215	0.009	0.085	-2.2	0.9	-2.4	0.9	A+	
473	619135	6	626	.275	.302	.176	.243	.275	.005	.110	.003	-.020	-.027	.110	1.181	0.094	2.7	1.1	4.5	1.3	A+	
474	615559	6	626	.733	.091	.035	.733	.133	.008	.516	-.300	-.216	.516	-.195	-1.083	0.097	-3.4	0.8	-4.3	0.7	A-	
475	618596	6	626	.626	.190	.104	.626	.061	.019	.496	-.159	-.270	.496	-.204	-0.547	0.089	-4.0	0.9	-4.1	0.8	A-	
476	615548	6	626	.324	.273	.259	.324	.117	.027	.330	-.150	-.023	.330	-.090	0.893	0.091	-0.9	1.0	-0.3	1.0	A+	
477	615575	6	626	.645	.058	.645	.070	.222	.005	.439	-.173	.439	-.212	-.209	-0.818	0.089	-2.2	0.9	-2.2	0.9	A-	
478	619358	6	626	.439	.171	.439	.153	.227	.010	.334	-.126	.334	-.206	-.024	0.144	0.086	0.5	1.0	0.6	1.0	A-	
479	615563	6	626	.553	.553	.077	.305	.056	.010	.379	.379	-.178	-.141	-.177	-0.381	0.086	-0.7	1.0	-0.6	1.0	A-	
480	618597	6	626	.503	.503	.353	.080	.045	.019	.459	.459	-.221	-.247	-.080	-0.177	0.086	-3.4	0.9	-3.1	0.9	C-	
481	615579	6	626	.203	.355	.241	.203	.179	.022	.072	.105	-.049	.072	-.048	1.410	0.105	2.2	1.1	5.2	1.5	A+	
482	618599	6	625	.506	.157	.139	.197	.506	.002	.425	-.095	-.138	-.320	.425	-0.127	0.085	-2.6	0.9	-2.6	0.9	A-	
483	618598	6	625	.490	.219	.490	.061	.230	.000	.408	-.246	.408	-.226	-.115	-0.053	0.085	-2.2	0.9	-1.7	0.9	A-	
484	615564	6	625	.378	.168	.200	.378	.250	.005	.313	-.080	-.199	.313	-.082	0.455	0.087	0.3	1.0	0.8	1.0	A+	
485	617513	6	625	.259	.408	.224	.101	.259	.008	.265	.095	-.205	-.222	.265	1.064	0.096	0.5	1.0	1.2	1.1	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
486	619359	6	625	.344	.382	.182	.344	.078	.013	.196	.093	-.267	.196	-.085	0.607	0.089	3.0	1.1	2.8	1.1	A+	
487	615562	6	626	.527	.141	.527	.069	.254	.010	.393	-.279	.393	-.245	-.021	-0.238	0.085	-1.3	1.0	-1.2	1.0	A-	
488	618609	6	625	.701	.085	.115	.701	.099	.000	.367	-.252	-.212	.367	-.101	-1.055	0.092	-0.5	1.0	-1.3	0.9	A-	
489	615576	6	627	.443	.271	.102	.174	.443	.010	.396	-.294	.025	-.136	.396	0.106	0.086	-1.2	1.0	-1.2	1.0	B-	
490	615551	6	629	.523	.523	.126	.245	.095	.011	.397	.397	-.160	-.099	-.248	-0.142	0.086	-1.2	1.0	-1.3	1.0	A-	
491	615577	6	626	.190	.190	.377	.147	.278	.008	.124	.124	.131	-.148	-.056	1.501	0.106	1.6	1.1	2.9	1.3	A-	
492	619149	6	627	.317	.262	.317	.225	.182	.014	.160	-.044	.160	-.044	.024	0.775	0.092	3.1	1.1	4.2	1.3	A+	
493	618794	6	625	.674	.674	.067	.141	.117	.002	.287	.287	-.235	-.061	-.160	-0.918	0.090	0.5	1.0	1.7	1.1	A-	
494	615567	6	626	.649	.078	.113	.649	.152	.008	.389	-.222	-.194	.389	-.080	-0.627	0.089	-1.2	1.0	-1.4	0.9	A+	
495	615235	7	430	.707	.161	.067	.707	.065	.000	.399	-.212	-.225	.399	-.193	-1.035	0.112	-1.1	0.9	-1.4	0.9	A-	A-
496	615275	7	876	.539	.185	.175	.096	.539	.006	.415	-.012	-.280	-.258	.415	-0.223	0.072	-3.5	0.9	-3.1	0.9	A+	A-
497	615238	7	428	.895	.054	.895	.023	.028	.000	.339	-.261	.339	-.189	-.100	-2.432	0.163	-0.4	0.9	-1.5	0.8	A+	
498	615252	7	445	.636	.036	.148	.180	.636	.000	.533	-.126	-.314	-.317	.533	-0.684	0.104	-4.2	0.8	-4.4	0.8	C-	
499	615234	7	428	.386	.269	.140	.203	.386	.002	.448	-.204	-.238	-.116	.448	0.498	0.105	-2.6	0.9	-2.3	0.9	A+	
500	615253	7	428	.610	.063	.124	.610	.203	.000	.474	-.182	-.233	.474	-.273	-0.530	0.105	-3.2	0.9	-3.2	0.9	A+	
501	615230	7	6496	.598	.206	.085	.598	.108	.004	.357	-.194	-.178	.357	-.096	-0.504	0.027	-2.2	1.0	-2.3	1.0	A-	A+
502	615258	7	428	.477	.477	.133	.182	.201	.007	.500	.500	-.238	-.286	-.100	0.076	0.103	-3.9	0.9	-3.2	0.9	A-	
503	615232	7	428	.577	.129	.152	.136	.577	.007	.474	-.209	-.203	-.210	.474	-0.386	0.104	-3.4	0.9	-3.3	0.9	A+	
504	615268	7	428	.533	.241	.094	.124	.533	.009	.461	-.196	-.200	-.206	.461	-0.189	0.103	-2.8	0.9	-2.8	0.9	A-	
505	618857	7	6496	.286	.285	.201	.286	.219	.009	.254	-.100	-.141	.254	.028	0.966	0.029	2.1	1.0	5.5	1.1	A-	A+
506	618799	7	428	.299	.467	.154	.299	.068	.012	.186	.069	-.222	.186	-.073	0.922	0.112	1.5	1.1	1.9	1.1	A-	
507	616023	7	1286	.450	.143	.229	.167	.450	.011	.345	-.206	-.015	-.211	.345	0.134	0.060	-0.2	1.0	-0.5	1.0	A+	A+
508	615254	7	431	.292	.091	.415	.292	.195	.007	.286	-.100	-.068	.286	-.065	0.972	0.111	-0.4	1.0	0.2	1.0	A+	A-
509	615605	7	431	.478	.478	.153	.123	.239	.007	.291	.291	-.240	.001	-.039	0.079	0.102	0.2	1.0	0.9	1.0	A-	A-
510	616350	7	431	.381	.116	.381	.327	.169	.007	.280	-.279	.280	.079	-.111	0.529	0.105	-0.2	1.0	-0.1	1.0	A-	A+
511	615997	7	431	.446	.149	.446	.320	.077	.009	.196	-.132	.196	.047	-.101	0.221	0.103	2.5	1.1	2.8	1.1	A+	A+
512	615244	7	431	.397	.160	.116	.316	.397	.012	.274	-.082	-.109	-.041	.274	0.444	0.104	1.2	1.0	1.3	1.1	A-	A-
513	615269	7	431	.522	.211	.522	.070	.183	.014	.425	-.223	.425	-.192	-.056	-0.135	0.103	-2.8	0.9	-2.6	0.9	A-	A+
514	615273	7	859	.552	.232	.552	.134	.069	.014	.367	-.093	.367	-.218	-.110	-0.302	0.073	-1.2	1.0	-1.4	1.0	A-	A-
515	616009	7	450	.711	.193	.042	.053	.711	.000	.379	-.338	-.064	-.114	.379	-1.063	0.110	-1.7	0.9	-1.4	0.9	A+	
516	616351	7	450	.247	.098	.247	.387	.260	.009	.149	-.116	.149	.051	-.062	1.168	0.114	0.5	1.0	2.2	1.2	A+	
517	615606	7	450	.307	.344	.164	.176	.307	.009	.259	.036	-.183	-.098	.259	0.829	0.107	0.1	1.0	0.3	1.0	A+	
518	615237	7	450	.298	.220	.311	.298	.164	.007	.196	-.077	-.182	.196	.153	0.889	0.108	0.4	1.0	0.3	1.0	A+	
519	618793	7	450	.553	.264	.124	.051	.553	.007	.412	-.119	-.257	-.170	.412	-0.316	0.100	-2.2	0.9	-2.3	0.9	B-	
520	615245	7	450	.804	.804	.062	.053	.071	.009	.410	.410	-.250	-.131	-.166	-1.672	0.127	-0.6	1.0	-1.3	0.9	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
521	615274	7	878	.751	.051	.088	.751	.101	.009	.423	-.223	-.189	.423	-.174	-1.343	0.083	-1.8	0.9	-2.5	0.9	A+	A-
522	615609	7	434	.412	.412	.242	.251	.095	.000	.353	.353	-.151	-.186	-.097	0.435	0.104	-0.6	1.0	-0.3	1.0	A-	
523	615607	7	434	.498	.076	.281	.145	.498	.000	.387	-.213	-.200	-.133	.387	0.050	0.103	-1.5	1.0	-1.5	0.9	A-	
524	615239	7	434	.770	.060	.023	.148	.770	.000	.452	-.254	-.081	-.333	.452	-1.346	0.120	-1.7	0.9	-2.0	0.8	A-	
525	615264	7	434	.606	.606	.159	.108	.124	.002	.414	.414	-.242	-.247	-.097	-0.469	0.105	-1.8	0.9	-1.9	0.9	A-	
526	616017	7	434	.705	.088	.705	.088	.115	.005	.418	-.213	.418	-.263	-.151	-0.981	0.112	-1.3	0.9	-1.7	0.9	A+	
527	616004	7	434	.889	.058	.039	.009	.889	.005	.366	-.158	-.293	-.157	.366	-2.390	0.164	-1.0	0.9	-1.8	0.7	B+	
528	617514	7	879	.537	.224	.135	.537	.101	.002	.304	-.025	-.275	.304	-.145	-0.190	0.072	1.0	1.0	1.2	1.0	A+	A-
529	616349	7	430	.649	.649	.107	.121	.119	.005	.465	.465	-.293	-.191	-.139	-0.779	0.107	-3.3	0.9	-3.2	0.8	B+	A+
530	618797	7	430	.454	.274	.067	.454	.200	.005	.254	-.075	-.204	.254	-.037	0.122	0.102	1.2	1.0	1.1	1.0	A-	A-
531	617517	7	430	.591	.074	.193	.591	.130	.012	.470	-.149	-.246	.470	-.144	-0.513	0.104	-3.6	0.9	-3.2	0.9	B-	B-
532	617515	7	861	.283	.378	.196	.135	.283	.008	.322	-.030	-.161	-.086	.322	0.963	0.079	-0.9	1.0	-1.0	1.0	A-	B-
533	616018	7	430	.212	.158	.212	.579	.042	.009	.166	-.011	.166	.018	-.144	1.373	0.123	0.7	1.0	3.0	1.3	B-	A+
534	615267	7	430	.319	.319	.479	.084	.107	.012	.243	.243	.088	-.210	-.186	0.749	0.109	1.0	1.0	1.5	1.1	A-	A+
535	616006	7	430	.393	.063	.144	.386	.393	.014	.369	-.214	-.116	-.096	.369	0.379	0.104	-1.3	1.0	-1.4	0.9	A+	A+
536	616345	7	430	.440	.072	.221	.440	.265	.002	.375	-.100	-.123	.375	-.216	0.247	0.103	-0.8	1.0	-0.5	1.0	A-	
537	616010	7	430	.605	.151	.226	.605	.016	.002	.137	-.145	.024	.137	-.087	-0.509	0.105	4.1	1.2	4.9	1.3	A+	
538	615282	7	430	.540	.198	.172	.086	.540	.005	.477	-.159	-.279	-.192	.477	-0.213	0.103	-3.7	0.9	-3.4	0.9	A-	
539	620004	7	858	.442	.240	.442	.099	.215	.005	.347	-.154	.347	-.253	-.055	0.162	0.073	-0.5	1.0	-0.3	1.0	A-	A+
540	617749	7	430	.558	.558	.070	.237	.123	.012	.444	.444	-.151	-.167	-.263	-0.318	0.104	-2.5	0.9	-2.5	0.9	A-	
541	616019	7	430	.526	.342	.077	.526	.049	.007	.432	-.279	-.122	.432	-.140	-0.158	0.103	-2.4	0.9	-2.1	0.9	A-	
542	615246	7	430	.277	.091	.128	.495	.277	.009	.198	-.038	-.225	.042	.198	1.048	0.114	1.9	1.1	2.1	1.2	A+	
543	615256	7	434	.636	.636	.159	.134	.067	.005	.513	.513	-.264	-.266	-.156	-0.740	0.106	-3.8	0.9	-3.7	0.8	A-	
544	615608	7	434	.311	.237	.092	.311	.357	.002	.312	-.071	-.138	.312	-.127	0.808	0.110	0.1	1.0	0.7	1.1	A-	
545	616026	7	862	.580	.067	.580	.210	.139	.004	.374	-.139	.374	-.138	-.231	-0.462	0.073	-1.2	1.0	-1.8	1.0	A-	A-
546	617516	7	434	.539	.099	.168	.539	.191	.002	.468	-.202	-.208	.468	-.207	-0.278	0.103	-3.3	0.9	-2.9	0.9	B-	
547	615270	7	434	.311	.249	.196	.233	.311	.012	.148	-.036	-.108	.068	.148	0.804	0.110	3.3	1.2	3.4	1.2	A+	
548	616005	7	434	.493	.191	.120	.187	.493	.009	.458	-.166	-.194	-.169	.458	-0.072	0.103	-2.9	0.9	-2.6	0.9	A+	
549	615247	7	434	.740	.118	.069	.062	.740	.012	.583	-.256	-.276	-.283	.583	-1.314	0.117	-4.0	0.8	-4.7	0.7	A+	
550	615240	7	427	.712	.712	.138	.080	.070	.000	.366	.366	-.278	-.103	-.166	-1.020	0.112	-1.1	0.9	-1.3	0.9	A+	A-
551	615265	7	427	.300	.049	.300	.515	.134	.002	-.009	-.155	-.009	.191	-.171	0.936	0.111	4.4	1.2	5.4	1.4	A-	B-
552	616021	7	855	.371	.112	.233	.371	.278	.006	.150	-.004	-.096	.150	-.044	0.499	0.075	4.4	1.1	4.5	1.2	A+	B+
553	615276	7	427	.398	.127	.398	.152	.321	.002	.391	-.079	.391	-.194	-.190	0.449	0.105	-1.3	1.0	-0.9	1.0	A-	B-
554	617750	7	427	.440	.440	.267	.141	.150	.002	.303	.303	-.226	-.075	-.050	0.254	0.103	0.7	1.0	0.5	1.0	A-	A+
555	615259	7	427	.410	.410	.098	.429	.052	.012	.591	.591	-.290	-.306	-.147	0.382	0.105	-6.0	0.8	-5.7	0.8	A-	A-

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
556	618800	7	427	.719	.719	.122	.075	.070	.014	.518	.518	-.351	-.196	-.181	-1.114	0.115	-3.0	0.9	-3.1	0.8	B+	A-
557	615241	7	442	.396	.396	.088	.222	.292	.002	.425	.425	-.230	-.272	-.037	0.470	0.104	-1.7	0.9	-1.3	0.9	A-	
558	615266	7	442	.450	.095	.305	.145	.450	.005	.452	-.163	-.171	-.233	.452	0.210	0.103	-2.3	0.9	-2.2	0.9	A+	
559	616020	7	873	.560	.181	.136	.111	.560	.012	.462	-.150	-.211	-.217	.462	-0.320	0.073	-4.3	0.9	-4.4	0.9	A+	A-
560	615277	7	442	.572	.572	.274	.091	.059	.005	.398	.398	-.077	-.289	-.265	-0.365	0.104	-0.6	1.0	-1.0	1.0	A+	
561	615281	7	442	.321	.321	.324	.249	.102	.005	.220	.220	-.036	-.096	-.091	0.839	0.109	2.2	1.1	2.9	1.2	A+	
562	615260	7	442	.649	.054	.199	.091	.649	.007	.546	-.261	-.274	-.251	.546	-0.749	0.107	-4.1	0.8	-4.0	0.8	A+	
563	616347	7	442	.661	.079	.152	.102	.661	.007	.573	-.245	-.215	-.357	.573	-0.807	0.108	-4.7	0.8	-4.5	0.7	A+	
564	615248	7	430	.467	.088	.221	.223	.467	.000	.289	.004	-.337	-.013	.289	0.104	0.102	1.1	1.0	1.2	1.1	B-	A-
565	617518	7	430	.437	.037	.470	.056	.437	.000	.224	-.122	-.088	-.192	.224	0.241	0.103	2.5	1.1	2.3	1.1	A-	A-
566	615272	7	875	.709	.709	.094	.149	.047	.002	.508	.508	-.244	-.294	-.256	-1.057	0.079	-4.1	0.9	-4.7	0.8	A-	A-
567	616355	7	430	.437	.112	.165	.279	.437	.007	.314	-.083	-.183	-.123	.314	0.230	0.103	0.4	1.0	0.5	1.0	A+	B-
568	615278	7	430	.616	.133	.098	.151	.616	.002	.416	-.175	-.160	-.268	.416	-0.585	0.105	-1.6	0.9	-1.7	0.9	A-	B-
569	616352	7	430	.137	.137	.316	.126	.419	.002	.170	.170	-.050	-.177	.046	1.969	0.144	0.3	1.0	1.1	1.2	A-	A-
570	615257	7	430	.265	.458	.265	.216	.061	.000	.085	.189	.085	-.181	-.242	1.092	0.114	2.5	1.1	3.4	1.3	A-	A+
571	615242	7	430	.519	.170	.519	.088	.221	.002	.416	-.186	.416	-.280	-.139	-0.133	0.102	-1.8	0.9	-2.0	0.9	A+	A+
572	615250	7	428	.346	.103	.458	.091	.346	.002	.438	-.212	-.177	-.190	.438	0.644	0.108	-2.6	0.9	-2.1	0.9	A+	
573	620005	7	428	.201	.217	.463	.201	.115	.005	-.002	-.198	.285	-.002	-.131	1.471	0.126	2.9	1.2	3.5	1.4	A-	
574	615271	7	856	.471	.471	.320	.050	.153	.006	.359	.359	-.076	-.209	-.230	0.038	0.073	-1.1	1.0	-0.7	1.0	B-	B-
575	617751	7	428	.675	.675	.129	.131	.061	.005	.373	.373	-.216	-.083	-.227	-0.899	0.109	-1.3	0.9	0.0	1.0	A-	
576	616025	7	428	.451	.355	.068	.451	.122	.005	.281	-.119	-.095	.281	-.118	0.149	0.103	1.5	1.1	1.5	1.1	A+	
577	616353	7	428	.470	.189	.206	.129	.470	.007	.413	-.176	-.097	-.218	.413	0.061	0.103	-1.9	0.9	-2.1	0.9	A-	
578	616001	7	428	.549	.115	.208	.549	.115	.014	.423	-.153	-.214	.423	-.133	-0.317	0.104	-2.0	0.9	-2.2	0.9	A+	
579	615262	7	428	.530	.079	.171	.530	.208	.012	.347	-.211	-.276	.347	.046	-0.225	0.103	-0.1	1.0	-0.1	1.0	A-	
580	616008	7	428	.542	.072	.061	.542	.325	.000	.257	-.272	-.137	.257	-.053	-0.270	0.102	0.7	1.0	0.9	1.0	A-	
581	615236	7	428	.591	.297	.591	.082	.028	.002	.255	-.125	.255	-.163	-.081	-0.515	0.104	1.5	1.1	1.2	1.1	B+	
582	620002	7	428	.280	.269	.259	.280	.189	.002	.237	.056	-.156	.237	-.135	0.955	0.113	0.6	1.0	0.9	1.1	B-	
583	617748	7	428	.131	.098	.416	.131	.348	.007	-.057	-.150	.185	-.057	-.025	1.984	0.148	1.4	1.2	3.6	1.6	A-	
584	616002	7	428	.115	.115	.374	.273	.229	.009	.024	.024	.059	-.034	-.008	2.196	0.160	0.5	1.1	2.6	1.5	B+	
585	615251	7	445	.099	.710	.067	.099	.121	.002	-.151	.345	-.158	-.151	-.217	2.360	0.164	1.2	1.2	4.0	1.8	B+	
586	620003	7	445	.362	.265	.362	.198	.175	.000	.231	-.169	.231	-.028	-.066	0.573	0.104	1.4	1.1	2.0	1.1	A+	
587	616011	7	445	.400	.148	.142	.400	.308	.002	.217	-.077	-.281	.217	.048	0.390	0.102	2.1	1.1	2.2	1.1	A+	
588	615255	7	445	.614	.112	.121	.614	.142	.011	.612	-.342	-.288	.612	-.277	-0.615	0.104	-6.4	0.8	-6.3	0.7	A+	
589	617747	7	431	.452	.452	.158	.218	.165	.007	.413	.413	-.175	-.174	-.103	0.169	0.102	-3.1	0.9	-2.7	0.9	B-	A+
590	616354	7	431	.622	.186	.622	.139	.046	.007	.422	-.197	.422	-.181	-.153	-0.598	0.105	-2.4	0.9	-2.3	0.9	B+	A+

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
591	616013	7	431	.381	.070	.309	.225	.381	.016	.265	-.236	-.033	-.021	.265	0.484	0.104	0.8	1.0	0.8	1.0	A+	A+
592	618798	7	431	.336	.172	.239	.234	.336	.019	.342	-.048	-.080	-.149	.342	0.693	0.107	-1.0	1.0	-0.7	1.0	A-	A+
593	615996	7	428	.255	.570	.147	.255	.028	.000	.293	-.325	.105	.293	-.023	1.033	0.116	0.0	1.0	0.2	1.0	A-	
594	617752	7	428	.215	.453	.215	.122	.210	.000	.228	.025	.228	-.275	-.040	1.274	0.122	0.4	1.0	1.0	1.1	B-	
595	615261	7	428	.486	.089	.486	.327	.096	.002	.404	-.242	.404	-.111	-.236	-0.095	0.102	-1.9	0.9	-1.9	0.9	A-	
596	615263	7	428	.353	.117	.166	.355	.353	.009	.412	-.140	-.196	-.120	.412	0.505	0.107	-2.0	0.9	-1.5	0.9	A+	
597	616346	7	428	.430	.164	.178	.430	.220	.009	.454	-.190	-.298	.454	-.046	0.143	0.103	-3.0	0.9	-3.2	0.9	A-	
598	615249	7	430	.377	.167	.340	.377	.105	.012	.260	-.166	-.037	.260	-.071	0.525	0.106	1.8	1.1	1.8	1.1	A-	
599	615999	7	430	.644	.644	.147	.107	.086	.016	.414	.414	-.191	-.169	-.140	-0.793	0.107	-2.1	0.9	-1.8	0.9	B+	A+
600	616348	7	442	.618	.231	.618	.036	.106	.009	.230	-.014	.230	-.150	-.186	-0.596	0.106	3.1	1.1	3.1	1.2	A+	
601	616014	7	427	.548	.187	.127	.548	.119	.019	.372	-.097	-.229	.372	-.143	-0.269	0.104	-0.5	1.0	-0.6	1.0	A+	B+
602	616007	7	434	.198	.198	.230	.426	.134	.012	-.008	-.008	-.040	.145	-.049	1.477	0.127	2.7	1.2	5.4	1.7	B-	
603	616616	7	430	.484	.340	.063	.109	.484	.005	.265	.055	-.281	-.270	.265	0.023	0.102	1.8	1.1	1.5	1.1	B+	A-
604	618806	7	428	.729	.117	.079	.729	.072	.002	.448	-.218	-.235	.448	-.194	-1.177	0.114	-2.3	0.9	-2.4	0.8	A+	
605	617531	7	428	.266	.016	.266	.086	.629	.002	.067	-.177	.067	-.224	.137	1.020	0.114	2.7	1.2	3.5	1.3	A-	
606	616626	7	445	.474	.474	.389	.047	.088	.002	.454	.454	-.214	-.210	-.273	0.052	0.100	-3.2	0.9	-3.1	0.9	B-	
607	618607	7	428	.554	.150	.047	.554	.250	.000	.229	-.166	-.191	.229	-.033	-0.268	0.103	1.9	1.1	1.8	1.1	A-	
608	616984	7	6496	.662	.065	.022	.248	.662	.003	.368	-.204	-.082	-.222	.368	-0.811	0.028	-3.0	1.0	-3.2	1.0	A-	B-
609	616991	7	856	.329	.195	.134	.335	.329	.006	.254	-.062	-.196	-.027	.254	0.740	0.077	1.1	1.0	1.3	1.1	A-	A+
610	620012	7	428	.551	.133	.182	.551	.126	.007	.384	-.253	-.116	.384	-.124	-0.266	0.104	-1.3	1.0	-1.4	0.9	A-	
611	618604	7	6496	.583	.583	.299	.051	.060	.007	.212	.212	-.019	-.162	-.160	-0.442	0.027	9.9	1.1	9.7	1.1	A-	A+
612	616978	7	428	.414	.115	.414	.112	.351	.009	.049	-.178	.049	-.147	.206	0.359	0.104	5.9	1.2	5.2	1.3	A-	
613	618608	7	431	.896	.028	.042	.896	.028	.007	.535	-.237	-.288	.535	-.151	-2.434	0.167	-1.3	0.8	-3.1	0.5	A-	B-
614	616992	7	876	.384	.086	.384	.239	.289	.003	.150	-.045	.150	-.013	-.072	0.492	0.073	4.4	1.1	5.0	1.2	A+	B-
615	616981	7	431	.627	.088	.116	.160	.627	.009	.553	-.235	-.226	-.227	.553	-0.615	0.106	-5.1	0.8	-4.6	0.8	B+	A-
616	616979	7	431	.473	.473	.278	.107	.125	.016	.314	.314	-.135	-.165	.011	0.078	0.103	-0.2	1.0	0.7	1.0	A-	A+
617	617001	7	450	.820	.060	.820	.027	.084	.009	.313	-.001	.313	-.142	-.220	-1.803	0.132	0.2	1.0	-0.1	1.0	A-	
618	618804	7	881	.329	.329	.182	.207	.271	.011	.191	.191	.036	-.113	-.048	0.725	0.075	2.5	1.1	3.1	1.1	A-	B-
619	616982	7	450	.596	.280	.044	.071	.596	.009	.308	-.172	-.136	-.062	.308	-0.497	0.102	-0.4	1.0	-0.3	1.0	A-	
620	616980	7	450	.138	.478	.216	.156	.138	.013	-.012	.295	-.124	-.153	-.012	1.964	0.143	1.2	1.1	2.4	1.4	A+	
621	617002	7	434	.440	.440	.122	.353	.085	.000	.326	.326	-.130	-.166	-.143	0.305	0.103	0.3	1.0	0.7	1.0	A+	
622	616993	7	862	.565	.565	.142	.122	.169	.002	.079	.079	-.036	-.110	.043	-0.365	0.073	7.5	1.2	7.0	1.2	A-	A+
623	616983	7	434	.818	.108	.046	.023	.818	.005	.515	-.336	-.246	-.245	.515	-1.705	0.132	-2.0	0.9	-2.9	0.7	A-	
624	618892	7	434	.173	.288	.173	.311	.224	.005	.092	-.193	.092	.013	.126	1.812	0.134	1.3	1.1	2.5	1.3	A-	
625	617003	7	430	.512	.512	.230	.049	.205	.005	.414	.414	-.149	-.234	-.164	-0.140	0.102	-2.5	0.9	-2.3	0.9	B-	A-

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
626	616985	7	430	.542	.093	.174	.181	.542	.009	.370	-.142	-.169	-.091	.370	-0.284	0.103	-1.0	1.0	-1.3	1.0	A+	B-
627	616623	7	430	.381	.130	.233	.381	.242	.014	.212	-.149	-.039	.212	.010	0.434	0.105	2.3	1.1	2.3	1.1	A+	B-
628	616631	7	430	.256	.481	.102	.158	.256	.002	.426	-.117	-.113	-.217	.426	1.179	0.117	-1.8	0.9	-1.9	0.9	C-	
629	617532	7	430	.607	.198	.044	.149	.607	.002	.360	-.296	-.209	-.003	.360	-0.520	0.105	-0.7	1.0	-0.3	1.0	A-	
630	616624	7	430	.507	.142	.507	.177	.158	.016	.424	-.260	.424	-.126	-.127	-0.093	0.103	-2.0	0.9	-1.8	0.9	A-	
631	616995	7	434	.369	.217	.369	.205	.207	.002	.214	-.181	.214	-.026	-.011	0.516	0.106	2.6	1.1	3.2	1.2	A-	
632	616617	7	434	.378	.357	.378	.228	.025	.012	.349	-.137	.349	-.090	-.195	0.462	0.106	-0.1	1.0	0.1	1.0	A-	
633	616996	7	427	.637	.192	.082	.637	.089	.000	.434	-.227	-.199	.434	-.228	-0.640	0.106	-1.9	0.9	-2.5	0.9	C-	A+
634	616618	7	427	.347	.187	.347	.281	.169	.016	.188	-.077	.188	-.122	.043	0.675	0.108	2.4	1.1	3.3	1.2	A+	A-
635	618610	7	442	.817	.817	.086	.048	.041	.009	.320	.320	-.176	-.165	-.125	-1.778	0.132	0.0	1.0	-0.6	0.9	A-	
636	618861	7	442	.274	.274	.192	.267	.258	.009	.120	.120	-.156	.085	-.020	1.094	0.114	3.3	1.2	4.2	1.4	B-	
637	616997	7	430	.286	.288	.212	.286	.214	.000	.306	-.020	-.167	.306	-.148	0.977	0.112	-0.3	1.0	0.2	1.0	B-	A-
638	616987	7	430	.593	.049	.174	.593	.172	.012	.408	-.161	-.236	.408	-.203	-0.505	0.105	-1.6	0.9	-1.5	0.9	A+	A+
639	616998	7	428	.294	.294	.334	.227	.140	.005	.282	.282	-.047	-.136	-.138	0.905	0.112	0.4	1.0	1.0	1.1	B-	
640	616988	7	428	.271	.072	.505	.271	.133	.019	.118	-.129	.148	.118	-.165	1.022	0.115	2.8	1.2	3.2	1.3	A-	
641	616627	7	428	.605	.154	.147	.091	.605	.002	.315	-.067	-.253	-.104	.315	-0.580	0.104	0.2	1.0	-0.2	1.0	A-	
642	616989	7	428	.252	.150	.402	.187	.252	.009	.217	-.070	-.025	-.100	.217	1.091	0.116	0.9	1.1	1.1	1.1	A-	
643	616625	7	445	.578	.079	.148	.578	.196	.000	.287	-.245	-.239	.287	.023	-0.409	0.101	1.1	1.0	1.0	1.0	A+	
644	616990	7	445	.339	.333	.339	.178	.142	.009	.132	.070	.132	-.194	-.063	0.662	0.105	2.9	1.1	3.6	1.2	A+	
645	616994	7	431	.325	.207	.325	.327	.137	.005	.087	-.077	.087	.067	-.031	0.770	0.108	3.3	1.2	3.9	1.2	B+	A+
646	618862	7	431	.404	.232	.060	.299	.404	.005	.048	-.125	-.152	.210	.048	0.394	0.103	5.7	1.2	5.1	1.2	A+	A+
647	616615	7	431	.582	.111	.582	.220	.081	.005	.365	-.022	.365	-.260	-.128	-0.409	0.103	-1.8	0.9	-1.2	1.0	A-	A+
648	616999	7	431	.297	.297	.320	.269	.097	.016	.166	.166	-.014	-.015	-.061	0.898	0.110	1.6	1.1	2.7	1.2	A+	A-
649	618606	7	428	.332	.530	.332	.089	.049	.000	.335	-.196	.335	-.104	-.141	0.622	0.108	-0.8	1.0	-0.3	1.0	B-	
650	618860	7	428	.610	.115	.096	.610	.178	.002	.317	-.162	-.244	.317	-.051	-0.654	0.104	-0.2	1.0	0.0	1.0	A+	
651	616620	7	428	.231	.171	.442	.231	.152	.005	.036	-.113	.111	.036	-.042	1.168	0.119	2.3	1.2	3.6	1.3	A+	
652	616619	7	430	.265	.265	.219	.223	.284	.009	.190	.190	.023	-.055	-.058	1.047	0.115	1.4	1.1	2.0	1.2	B-	A-
653	616622	7	430	.386	.242	.188	.177	.386	.007	.367	-.154	-.097	-.143	.367	0.488	0.105	-0.3	1.0	-1.0	1.0	A-	
654	618803	7	434	.459	.099	.459	.240	.198	.005	.156	-.082	.156	-.111	.028	0.090	0.103	5.0	1.2	4.3	1.2	A-	
655	616621	7	427	.089	.183	.319	.408	.089	.002	.046	-.193	.005	.134	.046	2.532	0.174	0.6	1.1	2.6	1.6	A-	A+
656	617000	7	442	.468	.224	.468	.208	.097	.002	.309	-.038	.309	-.237	-.099	0.128	0.102	1.6	1.1	2.1	1.1	A-	
657	617184	7	428	.194	.493	.194	.061	.243	.009	.269	-.053	.269	-.213	-.026	1.513	0.128	-0.2	1.0	1.5	1.2	A+	
658	615974	7	445	.596	.252	.079	.072	.596	.002	.298	-.121	-.191	-.153	.298	-0.497	0.102	0.7	1.0	0.7	1.0	A+	
659	615973	7	428	.794	.044	.794	.096	.063	.002	.424	-.166	.424	-.211	-.266	-1.609	0.126	-1.4	0.9	-1.5	0.9	A-	
660	616339	7	434	.866	.025	.866	.046	.060	.002	.207	-.171	.207	-.199	.013	-2.091	0.148	0.3	1.0	0.7	1.1	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
661	615970	7	431	.550	.051	.088	.306	.550	.005	.356	-.227	-.096	-.151	.356	-0.262	0.102	-1.2	1.0	-1.1	1.0	B+	A+
662	617195	7	450	.831	.058	.069	.831	.036	.007	.485	-.219	-.243	.485	-.232	-1.881	0.134	-1.4	0.9	-2.5	0.7	A-	
663	619627	7	428	.657	.657	.243	.058	.042	.000	.358	.358	-.175	-.213	-.222	-0.873	0.107	-1.2	1.0	-1.3	0.9	A+	
664	617189	7	6496	.647	.087	.161	.647	.101	.005	.420	-.175	-.245	.420	-.159	-0.743	0.028	-7.6	0.9	-7.9	0.9	A+	A-
665	616022	7	428	.572	.572	.030	.285	.112	.000	.381	.381	-.123	-.159	-.303	-0.354	0.104	-1.2	1.0	-1.3	0.9	A-	
666	617183	7	6496	.718	.718	.080	.066	.131	.005	.399	.399	-.260	-.242	-.087	-1.114	0.029	-5.2	0.9	-4.1	0.9	B+	A-
667	615980	7	6496	.825	.025	.077	.063	.825	.010	.411	-.159	-.195	-.224	.411	-1.829	0.035	-4.0	0.9	-6.4	0.8	A+	A-
668	615994	7	431	.568	.167	.097	.165	.568	.002	.501	-.245	-.186	-.236	.501	-0.333	0.103	-4.8	0.9	-4.3	0.8	A+	A+
669	615979	7	430	.633	.633	.067	.119	.177	.005	.331	.331	-.247	-.191	-.023	-0.697	0.106	-0.4	1.0	2.5	1.1	A-	A-
670	617200	7	430	.602	.063	.158	.602	.167	.009	.192	-.189	-.119	.192	.104	-0.563	0.104	3.0	1.1	3.2	1.2	A+	A+
671	617187	7	430	.402	.235	.233	.119	.402	.012	.458	-.128	-.123	-.222	.458	0.348	0.104	-3.6	0.9	-3.2	0.9	A+	A+
672	615610	7	430	.393	.226	.174	.198	.393	.009	.272	.038	-.165	-.106	.272	0.394	0.104	1.1	1.0	0.8	1.0	A+	A-
673	615982	7	430	.537	.114	.537	.084	.256	.009	.270	-.055	.270	-.176	-.057	-0.263	0.103	1.8	1.1	1.3	1.1	A+	A+
674	619311	7	430	.244	.244	.405	.174	.165	.012	.146	.146	-.026	.015	-.033	1.163	0.118	1.6	1.1	2.4	1.2	A+	A+
675	619148	7	430	.502	.074	.216	.198	.502	.009	.348	-.130	-.090	-.149	.348	-0.105	0.102	-0.6	1.0	-0.7	1.0	A+	A+
676	617204	7	430	.437	.158	.181	.437	.209	.014	.272	-.113	-.179	.272	.040	0.174	0.103	1.4	1.0	0.9	1.0	A+	A-
677	618008	7	430	.533	.172	.533	.163	.128	.005	.418	-.180	.418	-.184	-.171	-0.181	0.103	-2.4	0.9	-2.2	0.9	A+	
678	617212	7	430	.574	.240	.574	.112	.072	.002	.459	-.285	.459	-.156	-.162	-0.368	0.104	-2.9	0.9	-3.0	0.9	A+	
679	617218	7	430	.379	.367	.065	.379	.181	.007	.352	-.116	-.166	.352	-.145	0.522	0.106	-0.4	1.0	0.0	1.0	A-	
680	616340	7	430	.426	.084	.426	.121	.363	.007	.317	-.111	.317	-.158	-.116	0.300	0.104	0.4	1.0	1.1	1.1	A+	
681	616337	7	430	.493	.147	.181	.172	.493	.007	.388	-.217	-.104	-.149	.388	-0.009	0.103	-1.0	1.0	-1.5	0.9	B+	
682	619147	7	430	.488	.191	.488	.112	.200	.009	.363	-.132	.363	-.178	-.130	0.006	0.103	-0.4	1.0	-0.3	1.0	A-	
683	617188	7	430	.814	.065	.814	.054	.056	.012	.456	-.222	.456	-.223	-.209	-1.732	0.132	-1.6	0.9	-2.7	0.7	A+	
684	615975	7	430	.261	.230	.261	.344	.156	.009	.280	-.075	.280	.039	-.238	1.142	0.116	0.4	1.0	1.0	1.1	A-	
685	618009	7	434	.652	.652	.214	.042	.085	.007	.472	.472	-.320	-.187	-.173	-0.833	0.108	-3.4	0.9	-2.9	0.8	A-	
686	617213	7	434	.548	.076	.189	.184	.548	.002	.383	-.158	-.138	-.209	.383	-0.321	0.103	-0.9	1.0	-0.4	1.0	A+	
687	617190	7	434	.691	.120	.088	.099	.691	.002	.468	-.242	-.200	-.226	.468	-1.018	0.110	-2.6	0.9	-2.4	0.8	B+	
688	616341	7	434	.482	.037	.071	.482	.403	.007	.299	-.141	-.233	.299	-.074	-0.019	0.103	1.3	1.0	1.9	1.1	A-	
689	616338	7	434	.790	.042	.120	.790	.039	.009	.461	-.212	-.265	.461	-.126	-1.623	0.125	-1.8	0.9	-2.2	0.8	B+	
690	617222	7	434	.777	.044	.777	.122	.048	.009	.468	-.129	.468	-.238	-.258	-1.531	0.122	-2.0	0.9	-2.1	0.8	B-	
691	617219	7	434	.399	.150	.113	.330	.399	.009	.545	-.223	-.238	-.164	.545	0.368	0.105	-5.4	0.8	-4.5	0.8	B-	
692	616334	7	434	.523	.088	.205	.523	.173	.012	.460	-.197	-.201	.460	-.153	-0.218	0.103	-2.9	0.9	-2.7	0.9	A-	
693	618010	7	427	.665	.665	.171	.089	.075	.000	.342	.342	-.162	-.207	-.158	-0.778	0.108	-0.3	1.0	-0.1	1.0	A-	A+
694	617215	7	427	.508	.508	.297	.075	.117	.002	.369	.369	-.270	-.166	-.033	-0.053	0.103	-0.7	1.0	-1.0	1.0	B+	A-
695	615987	7	427	.511	.176	.169	.143	.511	.002	.439	-.116	-.193	-.276	.439	-0.064	0.103	-2.7	0.9	-2.7	0.9	A+	A-

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
696	617191	7	427	.838	.030	.838	.082	.045	.005	.431	-.165	.431	-.285	-.223	-1.861	0.138	-1.4	0.9	-2.7	0.7	A-	A-
697	615991	7	427	.424	.333	.119	.424	.122	.002	.200	-.023	-.027	.200	-.222	0.329	0.104	3.0	1.1	2.7	1.1	B-	A-
698	615984	7	427	.824	.033	.061	.077	.824	.005	.522	-.271	-.313	-.240	.522	-1.745	0.133	-2.2	0.8	-3.7	0.6	A+	A-
699	617223	7	427	.302	.112	.234	.302	.342	.009	.062	-.198	-.172	.062	.265	0.917	0.111	3.6	1.2	4.6	1.3	A-	A+
700	616335	7	427	.550	.070	.171	.192	.550	.016	.557	-.228	-.270	-.246	.557	-0.277	0.104	-5.5	0.8	-4.6	0.8	A+	A+
701	618856	7	442	.581	.222	.075	.120	.581	.002	.439	-.162	-.167	-.284	.439	-0.401	0.104	-1.7	0.9	-1.7	0.9	A-	
702	615988	7	442	.244	.134	.403	.215	.244	.005	.140	-.079	.141	-.207	.140	1.272	0.117	2.7	1.2	2.8	1.3	A+	
703	615972	7	442	.550	.333	.077	.550	.034	.007	.337	-.096	-.249	.337	-.192	-0.260	0.103	1.0	1.0	0.8	1.0	A-	
704	617211	7	442	.423	.235	.204	.134	.423	.005	.448	-.111	-.225	-.196	.448	0.335	0.103	-2.3	0.9	-1.9	0.9	A+	
705	617205	7	442	.796	.072	.796	.050	.075	.007	.380	-.191	.380	-.165	-.176	-1.610	0.126	-0.5	1.0	-1.0	0.9	A-	
706	615992	7	442	.622	.077	.622	.167	.129	.005	.451	-.302	.451	-.250	-.082	-0.606	0.106	-2.0	0.9	-1.8	0.9	A+	
707	615995	7	442	.697	.697	.102	.118	.079	.005	.468	.468	-.186	-.186	-.302	-0.992	0.111	-2.3	0.9	-1.8	0.9	A+	
708	615976	7	442	.342	.222	.100	.342	.328	.009	.132	-.136	-.187	.132	.150	0.728	0.107	4.2	1.2	5.4	1.4	B+	
709	615989	7	430	.488	.133	.488	.167	.209	.002	.399	-.199	.399	-.176	-.168	0.003	0.102	-1.7	1.0	-1.3	1.0	A-	A-
710	617186	7	858	.671	.100	.671	.110	.114	.005	.457	-.162	.457	-.254	-.239	-0.912	0.077	-3.3	0.9	-3.8	0.9	B+	A-
711	616344	7	430	.142	.712	.142	.037	.109	.000	.079	.094	.079	-.174	-.120	1.932	0.142	0.7	1.1	3.2	1.5	B-	A+
712	617207	7	430	.779	.119	.779	.049	.054	.000	.463	-.210	.463	-.258	-.304	-1.457	0.122	-1.9	0.9	-2.2	0.8	A-	A+
713	617201	7	430	.716	.716	.147	.077	.061	.000	.502	.502	-.285	-.271	-.224	-1.085	0.113	-2.9	0.9	-2.8	0.8	A+	A-
714	618796	7	430	.584	.081	.216	.119	.584	.000	.454	-.091	-.223	-.332	.454	-0.424	0.104	-2.6	0.9	-2.6	0.9	A-	A+
715	615977	7	430	.507	.086	.147	.507	.258	.002	.377	-.238	-.222	.377	-.097	-0.080	0.102	-0.9	1.0	-0.9	1.0	A+	A-
716	616342	7	428	.708	.708	.124	.089	.075	.005	.385	.385	-.125	-.230	-.201	-1.071	0.112	-1.3	0.9	-1.6	0.9	A-	
717	617203	7	428	.456	.159	.187	.189	.456	.009	.288	-.153	-.118	-.044	.288	0.120	0.103	1.2	1.0	1.0	1.0	A-	
718	615968	7	428	.645	.194	.105	.047	.645	.009	.476	-.202	-.283	-.182	.476	-0.762	0.107	-3.0	0.9	-3.0	0.8	B+	
719	617208	7	428	.624	.058	.624	.168	.143	.007	.384	-.208	.384	-.166	-.143	-0.650	0.106	-1.1	1.0	-1.2	0.9	A-	
720	617202	7	428	.797	.035	.065	.797	.094	.009	.412	-.234	-.261	.412	-.109	-1.630	0.127	-1.4	0.9	-1.3	0.9	A+	
721	615604	7	428	.526	.117	.217	.126	.526	.014	.415	-.196	-.171	-.125	.415	-0.210	0.103	-2.0	0.9	-1.4	0.9	A+	
722	615978	7	428	.472	.175	.287	.051	.472	.014	.259	-.061	-.095	-.142	.259	0.036	0.103	2.1	1.1	2.4	1.1	B-	
723	616343	7	428	.575	.575	.098	.065	.262	.000	.332	.332	-.282	-.091	-.131	-0.429	0.103	-0.6	1.0	-0.7	1.0	A-	
724	615993	7	428	.808	.068	.054	.808	.068	.002	.419	-.160	-.306	.419	-.181	-1.707	0.129	-1.2	0.9	-1.7	0.8	A+	
725	617744	7	428	.678	.678	.173	.070	.077	.002	.371	.371	-.181	-.250	-.116	-0.932	0.109	-1.1	1.0	-0.7	1.0	B+	
726	617192	7	428	.439	.439	.124	.348	.084	.005	.441	.441	-.211	-.168	-.206	0.185	0.103	-3.5	0.9	-3.3	0.9	A+	
727	617209	7	428	.456	.336	.456	.124	.077	.007	.471	-.283	.471	-.129	-.168	0.097	0.103	-4.2	0.9	-3.3	0.9	A+	
728	619145	7	428	.108	.108	.329	.495	.061	.007	.070	.070	-.090	.175	-.216	2.223	0.161	0.5	1.1	2.1	1.4	B-	
729	617197	7	428	.451	.182	.294	.451	.063	.009	.358	-.111	-.174	.358	-.157	0.105	0.103	-0.8	1.0	-0.5	1.0	B-	
730	615990	7	445	.205	.416	.103	.205	.272	.005	.052	-.001	.075	.052	-.088	1.432	0.122	1.9	1.1	3.0	1.3	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
731	617745	7	445	.737	.130	.737	.079	.052	.002	.463	-.229	.463	-.277	-.215	-1.216	0.113	-2.0	0.9	-2.7	0.8	B+	
732	617193	7	445	.874	.034	.072	.874	.020	.000	.448	-.245	-.294	.448	-.201	-2.203	0.148	-1.3	0.9	-2.6	0.7	A-	
733	617220	7	445	.533	.128	.533	.205	.133	.002	.462	-.166	.462	-.208	-.259	-0.210	0.101	-3.2	0.9	-3.2	0.9	A+	
734	617210	7	445	.539	.294	.539	.099	.067	.000	.328	-.120	.328	-.231	-.159	-0.226	0.100	-0.2	1.0	-0.2	1.0	A+	
735	619146	7	445	.690	.205	.049	.690	.056	.000	.277	.001	-.251	.277	-.320	-0.954	0.108	0.5	1.0	1.1	1.1	A+	
736	616336	7	445	.721	.047	.721	.155	.072	.005	.401	-.140	.401	-.204	-.288	-1.142	0.112	-1.2	0.9	-1.3	0.9	B+	
737	617216	7	431	.348	.186	.348	.246	.216	.005	.220	-.052	.220	-.100	-.027	0.656	0.106	1.2	1.1	1.4	1.1	A-	A+
738	619366	7	431	.900	.900	.046	.030	.012	.012	.325	.325	-.178	-.140	-.023	-2.531	0.173	-0.3	1.0	-0.6	0.9	A+	A-
739	617221	7	431	.527	.072	.527	.149	.246	.007	.375	-.125	.375	-.161	-.144	-0.161	0.102	-1.7	1.0	-1.7	0.9	A+	A-
740	615985	7	431	.668	.668	.125	.072	.128	.007	.417	.417	-.232	-.258	-.061	-0.826	0.108	-2.1	0.9	-1.8	0.9	A+	B-
741	617746	7	431	.406	.074	.355	.153	.406	.012	.401	-.105	-.185	-.117	.401	0.372	0.103	-2.3	0.9	-2.2	0.9	A+	A+
742	617224	7	431	.552	.039	.299	.552	.100	.009	.255	-.116	-.109	.255	-.056	-0.282	0.102	1.6	1.1	1.6	1.1	A-	A+
743	618854	7	431	.578	.072	.165	.169	.578	.016	.428	-.195	-.205	-.107	.428	-0.416	0.104	-2.5	0.9	-2.5	0.9	A-	A-
744	617217	7	428	.360	.234	.248	.157	.360	.002	.147	-.046	-.127	.043	.147	0.484	0.106	3.1	1.1	2.8	1.2	A+	
745	617194	7	428	.509	.108	.278	.509	.103	.002	.298	-.236	-.023	.298	-.177	-0.199	0.102	0.4	1.0	0.5	1.0	A+	
746	617199	7	428	.773	.054	.145	.773	.023	.005	.497	-.243	-.346	.497	-.113	-1.525	0.121	-2.5	0.9	-3.1	0.8	A+	
747	617225	7	428	.598	.154	.145	.598	.094	.009	.426	-.150	-.188	.426	-.228	-0.620	0.104	-2.3	0.9	-2.1	0.9	B+	
748	615986	7	428	.262	.140	.145	.442	.262	.012	.156	-.137	-.238	.175	.156	0.979	0.115	1.6	1.1	2.5	1.2	A-	
749	617226	7	428	.682	.110	.108	.682	.091	.009	.487	-.130	-.349	.487	-.196	-1.030	0.110	-3.1	0.9	-2.9	0.8	A-	
750	617198	7	434	.479	.191	.131	.479	.191	.007	.383	-.250	-.200	.383	-.008	-0.010	0.103	-0.6	1.0	-0.6	1.0	A+	
751	615969	7	430	.356	.091	.358	.188	.356	.007	.370	-.183	-.057	-.152	.370	0.576	0.106	-1.2	1.0	-1.4	0.9	C-	A-
752	615971	7	430	.505	.270	.133	.091	.505	.002	.296	-.114	-.194	-.060	.296	-0.050	0.103	1.1	1.0	0.9	1.0	C+	
753	618855	7	430	.670	.147	.670	.100	.084	.000	.349	-.215	.349	-.178	-.126	-0.840	0.108	-0.2	1.0	-0.5	1.0	B-	A-
754	618853	7	427	.419	.300	.197	.080	.419	.005	.296	-.117	-.104	-.178	.296	0.343	0.104	0.8	1.0	0.4	1.0	A+	A-
755	617196	7	442	.491	.050	.201	.491	.256	.002	.419	-.219	-.212	.419	-.146	0.023	0.102	-1.7	0.9	-1.2	1.0	A+	
756	618603	7	442	.613	.192	.613	.104	.084	.007	.564	-.298	.564	-.310	-.155	-0.567	0.105	-5.0	0.8	-4.5	0.8	A-	
757	618802	7	430	.833	.833	.063	.049	.056	.000	.514	.514	-.370	-.219	-.240	-1.833	0.134	-2.1	0.8	-3.3	0.7	B+	A-
758	617526	7	428	.432	.432	.416	.084	.054	.014	.402	.402	-.123	-.219	-.201	0.219	0.104	-1.6	1.0	-1.4	0.9	A+	
759	616039	7	428	.764	.764	.049	.143	.042	.002	.344	.344	-.223	-.147	-.180	-1.413	0.120	-0.6	1.0	-0.8	0.9	A-	
760	616028	7	428	.238	.108	.586	.238	.065	.002	.129	-.106	-.010	.129	-.047	1.280	0.119	1.6	1.1	2.1	1.2	A-	
761	615289	7	6496	.377	.122	.377	.329	.166	.006	.133	-.019	.133	-.020	-.086	0.508	0.027	9.9	1.1	9.9	1.2	A-	A+
762	617521	7	428	.575	.194	.575	.072	.154	.005	.405	-.120	.405	-.214	-.230	-0.372	0.104	-1.1	1.0	-1.6	0.9	A-	
763	617519	7	6496	.524	.156	.261	.524	.053	.006	.289	-.157	-.076	.289	-.141	-0.169	0.026	4.8	1.0	4.4	1.1	A-	A+
764	615290	7	428	.409	.255	.241	.409	.084	.012	.196	-.034	-.116	.196	-.038	0.377	0.105	2.9	1.1	2.7	1.1	A+	
765	616316	7	6496	.384	.222	.327	.384	.055	.013	.213	.039	-.118	.213	-.169	0.460	0.027	9.3	1.1	9.2	1.1	A+	A-

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
766	615284	7	431	.186	.246	.186	.420	.139	.009	.145	-.098	.145	.018	.068	1.625	0.129	0.6	1.1	2.0	1.2	A-	A-
767	620006	7	431	.383	.137	.383	.049	.425	.007	.170	-.123	.170	-.141	.065	0.518	0.105	2.3	1.1	1.9	1.1	A-	A+
768	616033	7	431	.299	.343	.186	.299	.158	.014	.235	-.104	-.076	.235	.058	0.924	0.111	0.6	1.0	0.8	1.1	C+	A+
769	615285	7	450	.162	.511	.256	.162	.067	.004	-.054	.072	.025	-.054	-.050	1.767	0.133	1.7	1.2	3.4	1.5	A-	
770	617522	7	450	.393	.393	.313	.242	.042	.009	.334	.334	-.119	-.105	-.166	0.404	0.102	-0.5	1.0	0.1	1.0	A-	
771	615291	7	450	.256	.182	.173	.376	.256	.013	.324	-.118	-.195	.031	.324	1.112	0.113	-1.3	0.9	-0.8	0.9	A+	
772	617520	7	434	.664	.228	.067	.664	.042	.000	.363	-.184	-.321	.363	-.071	-0.750	0.108	-0.9	1.0	-0.9	0.9	A+	
773	615286	7	434	.339	.339	.279	.120	.260	.002	.192	.192	-.050	-.199	-.008	0.802	0.108	1.9	1.1	3.1	1.2	A-	
774	615292	7	434	.392	.392	.099	.145	.359	.005	.365	.365	-.246	-.172	-.079	0.513	0.105	-0.9	1.0	0.2	1.0	A-	
775	615287	7	430	.623	.077	.623	.156	.133	.012	.322	-.104	.322	-.158	-.087	-0.667	0.106	0.5	1.0	-0.4	1.0	A+	A+
776	615302	7	430	.437	.172	.437	.102	.279	.009	.292	-.121	.292	-.143	-.027	0.190	0.103	0.8	1.0	0.7	1.0	A-	A-
777	615294	7	430	.633	.633	.140	.119	.100	.009	.412	.412	-.130	-.193	-.158	-0.707	0.106	-1.8	0.9	-2.0	0.9	A-	A-
778	616030	7	430	.342	.172	.202	.342	.281	.002	.182	-.196	-.116	.182	.108	0.714	0.108	2.6	1.1	2.5	1.2	B+	
779	615303	7	430	.426	.400	.426	.088	.077	.009	.261	-.042	.261	-.196	-.122	0.297	0.104	1.7	1.1	2.2	1.1	A+	
780	617527	7	430	.402	.074	.200	.402	.316	.007	.318	-.173	-.102	.318	-.106	0.410	0.105	0.5	1.0	1.0	1.1	A-	
781	616031	7	434	.507	.221	.507	.074	.194	.005	.219	-.076	.219	-.141	-.069	-0.137	0.103	3.3	1.1	3.5	1.2	A+	
782	615304	7	434	.463	.194	.166	.463	.168	.009	.322	-.087	-.119	.322	-.168	0.056	0.103	0.6	1.0	0.3	1.0	A-	
783	615307	7	434	.369	.182	.283	.369	.157	.009	.293	-.111	-.039	.293	-.127	0.513	0.106	1.2	1.1	1.3	1.1	A+	
784	615295	7	434	.373	.373	.118	.120	.380	.009	.354	.354	-.238	-.201	.012	0.490	0.106	0.0	1.0	-0.3	1.0	A-	
785	615288	7	427	.693	.119	.693	.094	.091	.002	.393	-.203	.393	-.163	-.213	-0.931	0.111	-1.2	1.0	-1.8	0.9	A-	A-
786	615305	7	427	.478	.356	.478	.063	.096	.007	.342	-.169	.342	-.226	-.084	0.076	0.103	-0.1	1.0	-0.1	1.0	A-	A+
787	620011	7	427	.157	.169	.361	.307	.157	.007	.194	-.070	-.029	-.036	.194	1.843	0.138	0.3	1.0	1.4	1.2	A-	A-
788	615296	7	427	.391	.391	.384	.110	.105	.009	.359	.359	-.117	-.198	-.123	0.474	0.105	-0.6	1.0	0.0	1.0	A-	A-
789	615293	7	442	.477	.477	.260	.149	.109	.005	.448	.448	-.133	-.236	-.222	0.080	0.103	-2.6	0.9	-2.2	0.9	A-	
790	615306	7	442	.432	.432	.109	.315	.140	.005	.373	.373	-.189	-.030	-.273	0.292	0.103	-0.1	1.0	-0.3	1.0	A-	
791	616614	7	442	.509	.170	.509	.163	.154	.005	.404	-.152	.404	-.203	-.147	-0.068	0.102	-1.0	1.0	-0.7	1.0	A+	
792	616036	7	442	.403	.127	.113	.403	.351	.007	.284	-.164	-.302	.284	.065	0.429	0.104	1.9	1.1	2.1	1.1	A-	
793	617523	7	430	.554	.554	.095	.058	.288	.005	.228	.228	-.183	-.193	-.029	-0.297	0.103	2.6	1.1	2.4	1.1	B+	A+
794	618859	7	430	.242	.242	.300	.249	.205	.005	.069	.069	-.076	-.031	.049	1.218	0.118	2.4	1.1	3.6	1.4	A+	A+
795	616037	7	430	.407	.230	.147	.216	.407	.000	.197	.129	-.118	-.265	.197	0.380	0.104	2.8	1.1	2.5	1.1	A+	A-
796	617524	7	428	.734	.147	.734	.047	.065	.007	.348	-.215	.348	-.183	-.084	-1.221	0.116	-0.8	1.0	-0.1	1.0	A+	
797	618601	7	428	.294	.372	.192	.294	.133	.009	.275	-.001	-.235	.275	-.030	0.902	0.112	0.4	1.0	1.1	1.1	A-	
798	618858	7	428	.547	.119	.145	.547	.182	.007	.306	-.106	-.208	.306	-.050	-0.290	0.103	0.8	1.0	0.7	1.0	A-	
799	618602	7	428	.423	.180	.154	.241	.423	.002	.310	-.051	-.210	-.112	.310	0.266	0.103	-0.1	1.0	-0.3	1.0	A+	
800	620010	7	428	.528	.112	.178	.528	.180	.002	.328	-.154	-.105	.328	-.168	-0.228	0.102	-0.1	1.0	-0.2	1.0	B+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
801	617530	7	428	.285	.329	.077	.285	.301	.007	.280	-.117	-.260	.280	.030	0.911	0.112	0.2	1.0	0.4	1.0	A+	
802	620007	7	428	.451	.224	.451	.136	.182	.007	.195	.011	.195	-.114	-.122	0.129	0.103	2.7	1.1	2.7	1.1	A+	
803	615297	7	445	.173	.301	.173	.173	.353	.000	.101	.036	.101	-.173	.023	1.673	0.130	0.6	1.1	3.4	1.4	A-	
804	617528	7	445	.467	.119	.467	.236	.175	.002	.251	-.080	.251	-.075	-.175	0.092	0.100	1.5	1.1	1.4	1.1	A+	
805	615283	7	445	.400	.285	.175	.400	.139	.000	.367	-.151	-.219	.367	-.082	0.394	0.102	-1.1	1.0	-0.9	1.0	A-	
806	616314	7	445	.562	.128	.562	.223	.085	.002	.340	-.070	.340	-.247	-.155	-0.334	0.101	-0.5	1.0	-0.6	1.0	B-	
807	620008	7	445	.344	.344	.178	.198	.279	.002	.254	.254	-.106	-.047	-.131	0.658	0.105	0.9	1.0	1.4	1.1	A-	
808	615299	7	431	.139	.336	.274	.241	.139	.009	.140	.011	-.012	-.041	.140	1.940	0.143	0.4	1.0	1.1	1.1	A-	A-
809	615279	7	431	.446	.195	.446	.142	.214	.005	.348	-.109	.348	-.162	-.105	0.204	0.102	-1.0	1.0	-0.7	1.0	A+	A+
810	620009	7	431	.450	.339	.118	.450	.088	.005	.216	-.012	-.167	.216	-.061	0.183	0.102	2.6	1.1	2.3	1.1	A-	A+
811	617529	7	431	.548	.548	.227	.151	.067	.007	.426	.426	-.196	-.145	-.181	-0.258	0.102	-3.1	0.9	-3.0	0.9	A-	B-
812	615298	7	431	.241	.028	.160	.559	.241	.012	.058	-.107	-.169	.191	.058	1.214	0.117	2.3	1.1	3.6	1.3	A-	A+
813	615233	7	428	.332	.276	.332	.297	.094	.002	.161	.011	.161	-.158	.012	0.621	0.108	2.3	1.1	2.6	1.2	A-	
814	615301	7	428	.407	.126	.407	.327	.138	.002	.203	-.234	.203	.061	-.113	0.264	0.104	2.2	1.1	2.2	1.1	B-	
815	615280	7	428	.402	.150	.341	.103	.402	.005	.384	-.101	-.168	-.192	.384	0.279	0.104	-1.6	1.0	-1.3	1.0	A-	
816	617525	7	428	.327	.143	.231	.294	.327	.005	.344	.012	-.157	-.186	.344	0.638	0.108	-0.6	1.0	-0.5	1.0	A+	
817	615300	7	428	.577	.577	.203	.150	.061	.009	.457	.457	-.261	-.180	-.146	-0.522	0.103	-3.1	0.9	-3.2	0.9	A+	
818	616038	7	430	.363	.154	.195	.274	.363	.014	.311	-.053	-.055	-.152	.311	0.523	0.106	-0.1	1.0	0.3	1.0	A+	A+
819	618801	7	430	.116	.051	.347	.479	.116	.007	.062	-.253	.058	.057	.062	2.227	0.156	1.0	1.1	3.1	1.6	A+	
820	615308	7	427	.450	.148	.450	.262	.129	.012	.350	-.044	.350	-.215	-.129	0.197	0.104	-0.2	1.0	0.4	1.0	A-	A+
821	616313	7	434	.311	.249	.152	.311	.279	.009	.357	-.105	-.126	.357	-.089	0.805	0.110	-0.8	1.0	0.6	1.0	A-	
822	615784	8	264	.784	.008	.186	.023	.784	.000	.362	-.049	-.322	-.129	.362	-1.327	0.158	-0.7	0.9	-1.5	0.8	B-	
823	615776	8	263	.897	.023	.897	.034	.027	.019	.314	-.042	.314	-.059	-.092	-2.589	0.241	0.5	1.1	0.6	1.2	A+	
824	617289	8	260	.100	.100	.081	.650	.162	.008	.066	.066	.036	-.158	.145	2.722	0.220	0.2	1.0	1.6	1.4	A-	
825	617279	8	260	.858	.039	.058	.858	.039	.008	.452	-.191	-.196	.452	-.204	-2.003	0.191	-0.6	0.9	-1.6	0.7	A-	
826	620400	8	263	.764	.061	.076	.080	.764	.019	.585	-.165	-.313	-.230	.585	-1.277	0.164	-2.4	0.8	-3.0	0.6	A+	
827	615850	8	260	.415	.223	.135	.415	.215	.012	.280	.022	-.180	.280	-.089	0.540	0.139	1.9	1.1	1.9	1.2	A+	
828	620416	8	260	.308	.250	.308	.165	.265	.012	.123	-.016	.123	-.163	.156	1.109	0.147	4.1	1.3	3.9	1.5	A+	
829	620411	8	260	.235	.162	.208	.385	.235	.012	.442	-.108	-.166	-.046	.442	1.554	0.160	-2.1	0.8	-2.0	0.7	B-	
830	617280	8	5825	.823	.090	.823	.029	.052	.006	.422	-.259	.422	-.198	-.121	-1.660	0.037	-4.1	0.9	-4.6	0.8	A+	A-
831	620636	8	260	.369	.312	.108	.196	.369	.015	.241	.094	-.169	-.107	.241	0.773	0.141	2.8	1.2	2.1	1.2	A-	
832	617282	8	5825	.412	.412	.359	.133	.089	.008	.318	.318	.043	-.253	-.215	0.591	0.029	5.9	1.1	4.5	1.1	A+	A-
833	615845	8	260	.619	.073	.212	.619	.077	.019	.427	-.310	-.133	.427	-.026	-0.499	0.142	-1.0	0.9	-0.3	1.0	A-	
834	620412	8	259	.772	.772	.073	.073	.077	.004	.409	.409	-.291	-.138	-.138	-1.362	0.164	-0.6	1.0	-1.2	0.8	A+	
835	620638	8	259	.618	.127	.618	.073	.174	.008	.354	-.006	.354	-.310	-.172	-0.474	0.143	1.0	1.1	0.7	1.1	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
836	620428	8	259	.548	.193	.162	.548	.085	.012	.325	-.039	-.059	.325	-.283	-0.109	0.139	2.1	1.1	1.5	1.1	A-	
837	620417	8	259	.622	.077	.239	.622	.046	.015	.375	-.302	-.055	.375	-.112	-0.472	0.143	0.6	1.0	-0.1	1.0	A+	
838	617300	8	259	.193	.286	.324	.182	.193	.015	.269	.003	-.069	-.053	.269	1.860	0.170	0.4	1.0	0.2	1.0	B+	
839	620429	8	259	.653	.031	.212	.100	.653	.004	.374	-.093	-.242	-.184	.374	-0.633	0.143	0.0	1.0	0.3	1.0	A-	
840	620639	8	259	.448	.112	.170	.448	.259	.012	.410	-.117	-.270	.410	-.133	0.380	0.138	-0.4	1.0	-0.7	1.0	B-	
841	617301	8	259	.378	.293	.378	.139	.189	.000	.188	.040	.188	-.217	-.087	0.731	0.140	3.7	1.2	3.8	1.3	B+	
842	620031	8	259	.660	.143	.660	.116	.077	.004	.288	-.037	.288	-.229	-.168	-0.663	0.144	1.2	1.1	1.9	1.2	A+	
843	620398	8	265	.423	.196	.423	.272	.109	.000	.274	-.174	.274	-.120	-.040	0.553	0.135	1.9	1.1	1.5	1.1	A+	
844	617302	8	265	.626	.034	.117	.626	.223	.000	.364	-.163	-.198	.364	-.199	-0.431	0.139	-0.3	1.0	-0.2	1.0	A-	
845	615903	8	265	.457	.181	.457	.279	.083	.000	.230	-.266	.230	.070	-.157	0.408	0.134	2.0	1.1	2.9	1.2	A-	
846	620033	8	265	.676	.676	.083	.125	.117	.000	.437	.437	-.122	-.292	-.233	-0.668	0.143	-1.2	0.9	-1.5	0.9	A+	
847	620399	8	262	.489	.489	.179	.225	.092	.015	.346	.346	-.233	-.095	.026	0.199	0.138	1.4	1.1	1.1	1.1	B+	
848	617303	8	262	.580	.118	.122	.580	.164	.015	.283	-.317	-.147	.283	.195	-0.254	0.140	2.2	1.1	3.1	1.3	A+	
849	615904	8	262	.672	.057	.092	.168	.672	.012	.485	-.177	-.164	-.230	.485	-0.741	0.146	-1.6	0.9	-1.6	0.8	A+	
850	620402	8	262	.611	.324	.611	.019	.038	.008	.236	-.049	.236	-.212	-.086	-0.235	0.139	2.2	1.1	1.2	1.1	B-	
851	620418	8	288	.271	.198	.424	.271	.104	.004	.378	-.154	-.050	.378	-.191	1.458	0.140	-1.1	0.9	-0.7	0.9	B-	
852	620384	8	263	.635	.635	.213	.076	.072	.004	.541	.541	-.389	-.216	-.082	-0.442	0.139	-3.5	0.8	-3.4	0.8	A-	
853	620423	8	263	.323	.270	.080	.323	.323	.004	.314	-.051	-.256	.314	-.069	1.083	0.142	0.8	1.1	1.6	1.2	B-	
854	620419	8	263	.578	.126	.099	.190	.578	.008	.554	-.186	-.257	-.283	.554	-0.173	0.136	-4.2	0.8	-3.5	0.8	A-	
855	615779	8	263	.434	.190	.171	.434	.186	.019	.296	-.110	-.051	.296	-.142	0.498	0.136	1.9	1.1	1.9	1.1	A+	
856	620420	8	263	.677	.099	.677	.183	.034	.008	.328	-.084	.328	-.154	-.161	-0.648	0.146	1.6	1.1	0.6	1.1	A-	
857	617283	8	263	.662	.662	.065	.088	.179	.008	.503	.503	-.223	-.294	-.157	-0.584	0.145	-1.6	0.9	-1.6	0.9	A+	
858	615896	8	263	.548	.107	.221	.548	.114	.011	.392	-.265	-.007	.392	-.192	0.013	0.139	0.4	1.0	0.4	1.0	A-	
859	620424	8	263	.574	.080	.574	.228	.099	.019	.438	-.084	.438	-.185	-.176	-0.157	0.140	0.1	1.0	-0.1	1.0	A-	
860	620421	8	264	.375	.375	.129	.231	.258	.008	.309	.309	-.160	-.195	.039	0.727	0.137	0.8	1.0	1.0	1.1	A-	
861	615897	8	264	.477	.239	.110	.163	.477	.011	.412	-.104	-.174	-.196	.412	0.226	0.134	-1.0	1.0	-0.5	1.0	A-	
862	620403	8	264	.424	.246	.216	.424	.106	.008	.331	.003	-.198	.331	-.169	0.486	0.135	1.2	1.1	0.8	1.1	A+	
863	620394	8	264	.466	.102	.311	.466	.110	.011	.448	-.054	-.265	.448	-.159	0.280	0.134	-1.4	0.9	-1.2	0.9	B-	
864	615782	8	264	.742	.042	.742	.083	.121	.011	.282	.012	.282	-.222	-.090	-1.129	0.152	1.0	1.1	1.0	1.1	A-	
865	620425	8	264	.436	.197	.436	.246	.110	.011	.437	-.222	.437	-.108	-.151	0.424	0.135	-1.2	0.9	-0.5	1.0	A-	
866	617286	8	264	.591	.068	.136	.193	.591	.011	.503	-.176	-.233	-.224	.503	-0.317	0.136	-2.7	0.9	-2.2	0.9	B+	
867	617285	8	269	.829	.829	.063	.019	.082	.007	.447	.447	-.216	-.200	-.172	-1.634	0.175	-1.2	0.9	-1.3	0.8	A+	
868	620395	8	269	.729	.130	.729	.063	.071	.007	.488	-.200	.488	-.300	-.138	-0.946	0.148	-1.9	0.9	-2.1	0.8	A+	
869	620404	8	269	.714	.714	.108	.134	.034	.011	.482	.482	-.205	-.236	-.168	-0.854	0.146	-2.1	0.9	-2.1	0.8	A-	
870	620397	8	259	.568	.189	.147	.089	.568	.008	.330	-.073	-.146	-.154	.330	-0.099	0.139	1.3	1.1	1.8	1.1	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
871	620405	8	259	.317	.127	.394	.154	.317	.008	.388	-.091	-.058	-.228	.388	1.164	0.146	-0.7	1.0	-0.8	0.9	A-	
872	617287	8	259	.537	.170	.537	.104	.178	.012	.436	-.179	.436	-.129	-.171	0.047	0.138	-0.2	1.0	-0.4	1.0	A+	
873	617278	8	259	.614	.143	.147	.073	.614	.023	.458	-.104	-.281	-.125	.458	-0.386	0.143	-0.7	1.0	-1.2	0.9	A-	
874	615793	8	260	.158	.227	.446	.162	.158	.008	.220	-.049	.025	-.149	.220	2.174	0.181	0.1	1.0	0.8	1.2	A-	
875	620640	8	260	.842	.081	.015	.842	.058	.004	.313	-.171	-.115	.313	-.179	-1.797	0.184	0.2	1.0	-0.3	0.9	A+	
876	617281	8	260	.619	.139	.619	.142	.092	.008	.444	-.265	.444	-.232	-.090	-0.396	0.140	-1.1	0.9	-1.4	0.9	A+	
877	620406	8	260	.496	.496	.162	.142	.189	.012	.498	.498	-.247	-.295	-.093	0.200	0.136	-2.5	0.9	-2.4	0.9	A+	
878	620641	8	273	.377	.282	.377	.227	.114	.000	.431	-.168	.431	-.211	-.143	0.711	0.134	-1.7	0.9	-2.0	0.9	A-	
879	620407	8	273	.513	.205	.128	.150	.513	.004	.481	-.129	-.210	-.268	.481	0.074	0.130	-2.7	0.9	-2.2	0.9	A-	
880	615794	8	273	.381	.213	.128	.381	.271	.007	.274	-.136	-.205	.274	.039	0.691	0.133	0.9	1.0	1.6	1.1	A-	
881	615795	8	262	.615	.615	.050	.107	.221	.008	.551	.551	-.240	-.329	-.216	-0.543	0.139	-3.3	0.8	-3.1	0.8	B-	
882	620642	8	262	.527	.176	.130	.157	.527	.012	.519	-.205	-.174	-.247	.519	-0.125	0.136	-2.5	0.9	-2.4	0.9	A+	
883	615796	8	262	.657	.061	.195	.657	.073	.015	.533	-.190	-.225	.533	-.312	-0.813	0.144	-1.9	0.9	-2.4	0.8	A-	
884	615772	8	262	.313	.313	.160	.302	.206	.019	.371	.371	-.113	-.180	-.022	0.926	0.145	-0.3	1.0	1.3	1.1	B-	
885	615797	8	260	.539	.242	.042	.173	.539	.004	.436	-.268	-.118	-.149	.436	-0.110	0.135	-1.2	0.9	-1.7	0.9	A-	
886	615775	8	260	.727	.727	.050	.085	.135	.004	.326	.326	-.100	-.145	-.178	-1.080	0.150	0.3	1.0	-0.2	1.0	A+	
887	620643	8	260	.515	.208	.123	.515	.150	.004	.384	-.168	-.363	.384	.050	0.000	0.135	-0.2	1.0	-0.2	1.0	A-	
888	615898	8	260	.500	.096	.165	.235	.500	.004	.408	-.198	-.186	-.127	.408	0.073	0.135	-0.1	1.0	-0.4	1.0	B+	
889	620644	8	259	.676	.178	.039	.676	.100	.008	.540	-.332	-.227	.540	-.187	-0.705	0.144	-3.5	0.8	-3.4	0.7	A-	
890	615799	8	259	.425	.297	.425	.135	.139	.004	.337	-.175	.337	-.089	-.101	0.535	0.137	0.5	1.0	0.7	1.0	A-	
891	615846	8	289	.401	.197	.173	.225	.401	.004	.396	-.149	-.129	-.206	.396	0.596	0.130	-0.3	1.0	-0.3	1.0	A-	
892	615783	8	289	.716	.222	.042	.716	.017	.004	.346	-.232	-.192	.346	-.097	-0.958	0.140	0.2	1.0	0.2	1.0	A-	
893	615800	8	289	.796	.125	.796	.055	.024	.000	.395	-.185	.395	-.344	-.128	-1.448	0.155	-0.7	0.9	-0.7	0.9	A+	
894	615786	8	260	.369	.131	.127	.369	.365	.008	.183	-.008	-.064	.183	-.059	0.752	0.139	2.9	1.2	3.0	1.3	A+	
895	620408	8	260	.608	.096	.204	.608	.081	.012	.405	-.153	-.139	.405	-.187	-0.417	0.139	-0.4	1.0	-0.2	1.0	A-	
896	615847	8	260	.596	.096	.115	.596	.181	.012	.508	-.224	-.232	.508	-.164	-0.359	0.138	-2.2	0.9	-2.2	0.8	A-	
897	615801	8	260	.350	.350	.127	.481	.031	.012	.345	.345	-.277	-.025	-.082	0.845	0.141	0.2	1.0	0.9	1.1	A-	
898	620413	8	260	.385	.092	.385	.285	.223	.015	.334	-.098	.334	-.033	-.180	0.661	0.139	0.7	1.0	0.5	1.0	A+	
899	620414	8	260	.508	.039	.408	.042	.508	.004	.233	-.161	-.075	-.195	.233	0.129	0.134	2.6	1.1	2.8	1.2	B+	
900	615902	8	260	.865	.069	.031	.035	.865	.000	.339	-.260	-.184	-.099	.339	-1.973	0.194	-0.3	1.0	-0.9	0.8	A-	
901	617288	8	260	.654	.050	.654	.196	.100	.000	.429	-.193	.429	-.187	-.292	-0.562	0.141	-1.5	0.9	-1.8	0.9	A+	
902	615848	8	260	.196	.146	.365	.196	.289	.004	.118	-.294	-.031	.118	.162	1.806	0.165	0.9	1.1	2.9	1.5	A-	
903	620383	8	260	.577	.212	.100	.577	.112	.000	.395	-.158	-.214	.395	-.212	-0.199	0.136	-0.2	1.0	-0.1	1.0	B+	
904	620409	8	260	.339	.173	.204	.339	.285	.000	.299	-.158	-.213	.299	.010	0.945	0.140	0.5	1.0	1.0	1.1	A+	
905	615787	8	260	.508	.146	.150	.185	.508	.012	.438	-.132	-.282	-.161	.438	0.102	0.135	-0.9	1.0	-1.1	0.9	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
906	617290	8	261	.556	.556	.088	.184	.169	.004	.305	.305	-.111	-.116	-.145	-0.191	0.136	1.6	1.1	1.9	1.1	A+	
907	615849	8	261	.571	.571	.111	.138	.176	.004	.438	.438	-.157	-.173	-.228	-0.265	0.137	-0.5	1.0	-0.6	1.0	A-	
908	620410	8	261	.617	.142	.061	.617	.176	.004	.465	-.344	-.267	.465	-.055	-0.493	0.139	-1.4	0.9	-1.9	0.9	B+	
909	620415	8	261	.487	.084	.295	.487	.130	.004	.417	-.183	-.175	.417	-.169	0.140	0.135	-0.7	1.0	-0.5	1.0	B-	
910	620635	8	261	.245	.146	.245	.360	.241	.008	.162	-.182	.162	-.051	.095	1.396	0.154	2.0	1.2	2.7	1.4	A-	
911	620382	8	261	.621	.157	.153	.621	.061	.008	.339	-.119	-.187	.339	-.121	-0.525	0.140	0.6	1.0	1.1	1.1	A-	
912	620381	8	261	.264	.264	.295	.261	.172	.008	.235	.235	-.092	.075	-.183	1.278	0.151	1.4	1.1	1.2	1.1	A+	
913	615777	8	264	.288	.250	.296	.155	.288	.011	.065	-.124	.034	.121	.065	1.181	0.146	4.0	1.3	4.1	1.5	A-	
914	615790	8	260	.439	.439	.219	.239	.104	.000	.351	.351	-.107	-.235	-.099	0.500	0.136	1.0	1.1	0.6	1.0	B-	
915	615789	8	259	.583	.147	.135	.583	.127	.008	.386	-.186	-.310	.386	.064	-0.177	0.139	0.4	1.0	1.1	1.1	A-	
916	617059	8	269	.093	.216	.123	.093	.561	.007	.117	-.074	-.097	.117	.141	2.810	0.222	0.2	1.0	1.5	1.4	A-	
917	615791	8	536	.334	.274	.216	.168	.334	.008	.331	-.049	-.049	-.219	.331	1.011	0.100	0.6	1.0	0.6	1.0	A+	
918	617284	8	260	.619	.181	.065	.619	.131	.004	.457	-.243	-.293	.457	-.099	-0.503	0.138	-1.6	0.9	-1.4	0.9	A+	
919	620396	8	259	.425	.127	.151	.425	.293	.004	.185	-.121	-.275	.185	.115	0.492	0.138	3.7	1.2	3.4	1.3	A-	
920	617292	8	260	.335	.242	.335	.258	.158	.008	.330	-.091	.330	-.152	-.115	0.972	0.141	0.2	1.0	0.6	1.1	A+	
921	620637	8	265	.438	.094	.113	.351	.438	.004	.380	-.127	-.244	-.149	.380	0.494	0.135	0.1	1.0	0.3	1.0	A+	
922	620401	8	262	.710	.088	.710	.095	.095	.012	.392	-.148	.392	-.112	-.168	-0.963	0.151	0.0	1.0	0.0	1.0	A-	
923	620426	8	259	.421	.270	.421	.220	.077	.012	.288	-.060	.288	-.016	-.228	0.528	0.139	2.0	1.1	1.6	1.1	A+	
924	620427	8	288	.403	.257	.247	.403	.090	.004	.298	-.028	-.165	.298	-.137	0.785	0.128	0.8	1.0	0.6	1.0	A+	
925	620362	8	273	.502	.502	.051	.081	.359	.007	.429	.429	-.041	-.177	-.280	0.113	0.130	-1.6	0.9	-1.7	0.9	A+	
926	617484	8	260	.900	.015	.035	.046	.900	.004	.318	-.131	-.126	-.212	.318	-2.408	0.223	0.0	1.0	-0.3	0.9	A+	
927	618896	8	273	.714	.714	.051	.048	.183	.004	.323	.323	-.164	-.198	-.118	-0.918	0.143	-0.1	1.0	0.6	1.1	A+	
928	617294	8	263	.380	.179	.205	.232	.380	.004	.312	-.180	-.117	-.030	.312	0.789	0.138	1.1	1.1	0.6	1.0	A+	
929	617293	8	288	.701	.024	.108	.160	.701	.007	.341	-.074	-.174	-.171	.341	-0.640	0.137	-0.2	1.0	0.0	1.0	A+	
930	617485	8	5825	.783	.066	.114	.783	.032	.006	.513	-.220	-.309	.513	-.189	-1.354	0.034	-9.0	0.8	-9.9	0.7	A-	A-
931	617577	8	5825	.527	.527	.197	.163	.105	.008	.452	.452	-.215	-.198	-.120	0.034	0.029	-6.8	0.9	-6.3	0.9	A+	A-
932	617585	8	5825	.443	.092	.242	.443	.212	.011	.301	-.138	-.211	.301	.035	0.436	0.029	7.5	1.1	7.0	1.1	A+	A+
933	615834	8	259	.583	.220	.583	.116	.081	.000	.380	-.210	.380	-.139	-.205	-0.273	0.138	0.1	1.0	0.3	1.0	A-	
934	615835	8	265	.347	.555	.072	.347	.026	.000	.012	.089	-.152	.012	-.066	0.946	0.139	4.8	1.3	5.0	1.5	A+	
935	615836	8	262	.550	.061	.122	.550	.252	.015	.392	-.107	-.242	.392	-.085	-0.107	0.139	0.6	1.0	0.2	1.0	A+	
936	620041	8	262	.305	.305	.046	.534	.107	.008	.096	.096	-.082	-.014	.086	1.306	0.147	4.3	1.3	4.6	1.6	A-	
937	615838	8	262	.523	.523	.115	.279	.076	.008	.405	.405	-.203	-.094	-.186	0.200	0.136	-0.6	1.0	-0.9	0.9	A-	
938	617579	8	268	.369	.369	.306	.168	.157	.000	.353	.353	-.222	-.069	-.117	0.906	0.138	0.7	1.0	0.8	1.1	A+	
939	617595	8	268	.668	.078	.668	.179	.075	.000	.346	-.096	.346	-.340	-.026	-0.563	0.141	0.4	1.0	0.7	1.1	A-	
940	617488	8	268	.795	.795	.060	.075	.067	.004	.493	.493	-.176	-.320	-.276	-1.342	0.162	-1.6	0.9	-1.9	0.7	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
941	615839	8	268	.761	.086	.082	.067	.761	.004	.584	-.223	-.354	-.335	.584	-1.121	0.154	-3.1	0.8	-2.7	0.7	A+	
942	618893	8	268	.698	.698	.127	.116	.052	.008	.392	.392	-.205	-.137	-.252	-0.752	0.145	-0.3	1.0	0.4	1.0	A+	
943	618549	8	268	.414	.414	.164	.280	.138	.004	.325	.325	-.075	-.203	-.104	0.672	0.135	1.2	1.1	0.7	1.1	A-	
944	618550	8	288	.688	.021	.038	.250	.688	.004	.478	-.187	-.166	-.322	.478	-0.557	0.135	-2.5	0.9	-2.5	0.8	A+	
945	617581	8	288	.375	.254	.129	.375	.240	.004	.147	-.137	-.009	.147	.035	0.918	0.129	2.8	1.1	3.3	1.2	B-	
946	618897	8	288	.389	.115	.212	.389	.281	.004	.204	-.188	-.120	.204	.073	0.851	0.129	1.6	1.1	1.8	1.1	A+	
947	615851	8	288	.458	.125	.344	.069	.458	.004	.503	-.230	-.254	-.118	.503	0.527	0.126	-4.0	0.8	-3.4	0.8	C-	
948	617597	8	288	.847	.847	.014	.090	.045	.004	.110	.110	-.056	.044	-.105	-1.584	0.171	0.9	1.1	2.9	1.5	A+	
949	617582	8	263	.319	.376	.186	.319	.110	.008	.226	-.095	-.204	.226	.127	1.089	0.143	2.1	1.1	2.1	1.2	A-	
950	615831	8	263	.369	.369	.308	.198	.107	.019	.386	.386	-.090	-.191	-.153	0.808	0.139	-0.7	1.0	-0.8	0.9	A+	
951	615852	8	263	.434	.213	.088	.243	.434	.023	.337	-.025	-.206	-.166	.337	0.484	0.136	1.0	1.1	0.4	1.0	A-	
952	618964	8	263	.319	.373	.319	.202	.084	.023	.171	.042	.171	-.115	-.092	1.072	0.144	3.1	1.2	2.4	1.2	A-	
953	615853	8	263	.453	.323	.148	.453	.068	.008	.340	-.193	-.107	.340	-.005	0.495	0.138	1.8	1.1	1.7	1.1	A-	
954	617295	8	263	.095	.095	.285	.266	.342	.011	.054	.054	.085	-.165	.143	2.907	0.222	0.7	1.1	2.5	1.9	C-	
955	615855	8	264	.216	.273	.205	.296	.216	.011	.329	-.051	-.152	-.036	.329	1.622	0.159	-0.5	1.0	0.5	1.1	A-	
956	615856	8	269	.219	.294	.216	.219	.264	.007	.195	-.099	-.063	.195	.072	1.678	0.156	0.8	1.1	1.7	1.2	A-	
957	618966	8	269	.617	.617	.089	.171	.108	.015	.453	.453	-.198	-.202	-.115	-0.365	0.136	-2.1	0.9	-1.7	0.9	A+	
958	618969	8	259	.282	.282	.135	.154	.417	.012	.228	.228	-.122	-.241	.139	1.358	0.150	2.2	1.2	2.8	1.4	A-	
959	615858	8	259	.432	.127	.139	.432	.282	.019	.154	-.076	-.074	.154	.064	0.542	0.139	5.2	1.3	5.0	1.4	A+	
960	615859	8	260	.292	.292	.162	.377	.169	.000	.309	.309	-.109	-.060	-.191	1.247	0.147	0.7	1.1	0.5	1.1	A+	
961	617592	8	260	.181	.242	.154	.419	.181	.004	-.018	-.021	-.134	.155	-.018	1.958	0.171	2.5	1.3	4.4	2.0	A+	
962	618970	8	260	.696	.058	.096	.696	.142	.008	.436	-.178	-.276	.436	-.174	-0.809	0.148	-0.5	1.0	-0.7	0.9	A+	
963	617594	8	273	.147	.377	.147	.202	.267	.007	-.062	.064	-.062	.008	.021	2.120	0.178	1.9	1.2	3.7	1.8	A-	
964	615860	8	273	.319	.491	.073	.319	.110	.007	.245	.069	-.328	.245	-.128	0.997	0.139	1.2	1.1	1.7	1.2	B-	
965	619020	8	273	.209	.454	.271	.209	.055	.011	.081	.062	-.028	.081	-.134	1.636	0.157	1.8	1.2	2.6	1.4	A-	
966	620037	8	262	.756	.107	.107	.027	.756	.004	.374	-.123	-.240	-.180	.374	-1.348	0.156	-0.4	1.0	0.6	1.1	A-	
967	620361	8	262	.454	.324	.454	.065	.153	.004	.151	.151	.151	-.251	-.179	0.228	0.136	4.4	1.2	3.9	1.3	A+	
968	619021	8	262	.798	.050	.798	.095	.053	.004	.487	-.230	.487	-.300	-.170	-1.632	0.166	-1.6	0.9	-2.2	0.7	A+	
969	620036	8	262	.359	.149	.244	.233	.359	.015	.361	-.260	-.045	-.059	.361	0.684	0.141	0.2	1.0	0.4	1.0	A-	
970	620038	8	260	.673	.031	.150	.142	.673	.004	.382	-.164	-.194	-.171	.382	-0.781	0.143	-0.1	1.0	0.0	1.0	A+	
971	617583	8	260	.569	.062	.281	.569	.077	.012	.378	-.156	-.121	.378	-.252	-0.275	0.137	-0.4	1.0	-0.3	1.0	B-	
972	617584	8	259	.297	.154	.479	.066	.297	.004	.403	-.117	-.171	-.142	.403	1.212	0.147	-0.7	1.0	-0.7	0.9	A-	
973	620039	8	259	.479	.479	.178	.182	.154	.008	.433	.433	-.344	-.011	-.140	0.270	0.136	-1.0	1.0	-0.7	1.0	A-	
974	615864	8	289	.325	.197	.325	.266	.208	.004	.173	.061	.173	-.184	-.059	0.982	0.135	3.0	1.2	3.3	1.3	A-	
975	617586	8	289	.488	.177	.488	.142	.194	.000	.209	-.070	.209	-.251	.026	0.189	0.128	3.9	1.2	3.3	1.2	B-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
976	620040	8	289	.294	.540	.100	.066	.294	.000	.369	-.153	-.199	-.129	.369	1.156	0.139	-0.5	1.0	1.1	1.1	A-	
977	615865	8	260	.439	.092	.373	.439	.092	.004	.388	-.163	-.122	.388	-.226	0.411	0.136	-0.6	1.0	-0.3	1.0	A-	
978	617587	8	260	.204	.104	.327	.204	.346	.019	.111	-.043	-.082	.111	.102	1.689	0.164	1.2	1.1	4.6	1.8	B-	
979	617574	8	260	.269	.339	.077	.269	.300	.015	.204	.121	-.236	.204	-.087	1.281	0.150	1.7	1.1	2.3	1.3	B-	
980	617575	8	260	.242	.292	.242	.169	.296	.000	.111	-.046	.111	.122	-.158	1.480	0.153	1.8	1.1	3.2	1.4	B-	
981	615866	8	260	.319	.142	.308	.319	.223	.008	.049	-.124	.034	.049	.035	1.040	0.142	4.0	1.3	4.2	1.4	A-	
982	620365	8	260	.377	.300	.192	.131	.377	.000	.362	-.064	-.281	-.105	.362	0.752	0.137	0.1	1.0	0.0	1.0	A+	
983	617486	8	261	.433	.433	.058	.276	.226	.008	.164	.164	-.230	.154	-.175	0.392	0.136	4.4	1.2	5.2	1.4	B-	
984	617578	8	261	.513	.119	.084	.280	.513	.004	.306	-.147	-.139	-.101	.306	0.012	0.135	1.3	1.1	0.9	1.1	A-	
985	620364	8	260	.350	.131	.300	.350	.204	.015	.145	-.080	-.011	.145	.015	0.836	0.141	3.7	1.2	3.4	1.3	A+	
986	618548	8	261	.548	.138	.195	.115	.548	.004	.323	-.090	-.106	-.208	.323	-0.154	0.136	1.9	1.1	1.6	1.1	A+	
987	615833	8	269	.245	.294	.294	.245	.156	.011	.252	.008	-.142	.252	-.019	1.485	0.150	0.6	1.0	0.9	1.1	A-	
988	615857	8	268	.310	.403	.183	.310	.101	.004	.144	.118	-.179	.144	-.164	1.211	0.143	2.8	1.2	4.6	1.5	A-	
989	615771	8	263	.734	.734	.190	.042	.030	.004	.460	.460	-.306	-.169	-.157	-0.979	0.150	-1.3	0.9	-1.6	0.8	A+	
990	618535	8	268	.840	.011	.840	.078	.067	.004	.449	-.071	.449	-.292	-.293	-1.692	0.177	-1.0	0.9	-1.8	0.7	A-	
991	617735	8	288	.743	.174	.042	.038	.743	.004	.258	-.170	-.078	-.046	.258	-0.864	0.142	0.6	1.0	0.4	1.0	A-	
992	620027	8	289	.630	.177	.121	.630	.073	.000	.501	-.275	-.240	.501	-.226	-0.493	0.132	-2.4	0.9	-2.3	0.8	A-	
993	617962	8	260	.662	.135	.065	.135	.662	.004	.404	-.267	-.149	-.120	.404	-0.720	0.142	-0.1	1.0	-0.5	1.0	A-	
994	620020	8	259	.228	.259	.328	.228	.182	.004	.173	-.038	-.058	.173	-.019	1.609	0.159	1.3	1.1	3.1	1.5	C-	
995	615702	8	5825	.394	.119	.245	.236	.394	.005	.370	-.184	-.133	-.098	.370	0.689	0.029	-0.3	1.0	0.5	1.0	A+	A+
996	617961	8	5825	.794	.027	.794	.081	.092	.007	.422	-.186	.422	-.228	-.175	-1.442	0.035	-3.2	0.9	-4.6	0.9	A+	A-
997	615886	8	260	.769	.069	.073	.769	.065	.023	.525	-.240	-.228	.525	-.118	-1.410	0.166	-1.4	0.9	-1.8	0.7	A+	
998	615871	8	260	.642	.104	.642	.131	.096	.027	.566	-.228	.566	-.245	-.159	-0.638	0.145	-3.5	0.8	-3.0	0.7	A+	
999	615704	8	5825	.565	.165	.565	.133	.126	.012	.468	-.161	.468	-.189	-.225	-0.156	0.029	-8.0	0.9	-7.7	0.9	A+	A+
1000	615750	8	260	.258	.585	.258	.065	.062	.031	.228	.015	.228	-.076	-.037	1.402	0.156	1.4	1.1	3.1	1.5	B-	
1001	615872	8	259	.073	.162	.097	.664	.073	.004	.198	-.234	-.210	.254	.198	3.309	0.269	-0.2	0.9	-1.2	0.6	B-	
1002	615888	8	259	.776	.066	.776	.131	.015	.012	.434	-.242	.434	-.185	-.118	-1.431	0.168	-0.1	1.0	-0.5	0.9	A+	
1003	615751	8	259	.672	.151	.672	.089	.070	.019	.568	-.295	.568	-.184	-.204	-0.785	0.149	-3.1	0.8	-2.9	0.7	A+	
1004	615889	8	259	.765	.205	.012	.765	.019	.000	.356	-.283	-.102	.356	-.189	-1.280	0.159	-0.2	1.0	-0.7	0.9	A-	
1005	615873	8	259	.668	.085	.154	.093	.668	.000	.569	-.332	-.281	-.257	.569	-0.690	0.144	-3.3	0.8	-3.2	0.7	A+	
1006	615752	8	259	.166	.154	.166	.166	.514	.000	.157	-.074	-.205	.157	.089	2.111	0.182	0.5	1.1	1.6	1.3	A+	
1007	615890	8	265	.917	.049	.011	.023	.917	.000	.317	-.175	-.122	-.247	.317	-2.654	0.241	-0.2	1.0	-1.2	0.7	A+	
1008	615874	8	265	.570	.109	.238	.570	.083	.000	.474	-.215	-.308	.474	-.134	-0.132	0.135	-2.1	0.9	-1.3	0.9	A-	
1009	615722	8	265	.366	.366	.094	.113	.426	.000	.070	.070	-.222	-.320	.267	0.831	0.137	3.9	1.2	4.9	1.5	A+	
1010	615891	8	262	.538	.134	.157	.538	.160	.012	.335	-.035	-.066	.335	-.212	-0.037	0.139	2.3	1.1	1.6	1.1	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1011	615725	8	262	.485	.485	.168	.202	.134	.012	.456	.456	-.082	-.269	-.105	0.232	0.138	-0.8	1.0	-0.8	0.9	A+	
1012	615731	8	262	.267	.431	.107	.183	.267	.012	.344	.098	-.192	-.227	.344	1.404	0.154	0.5	1.0	0.6	1.1	A-	
1013	615726	8	262	.435	.099	.263	.435	.195	.008	.358	-.288	-.060	.358	-.047	0.628	0.137	0.8	1.0	0.3	1.0	A-	
1014	615892	8	262	.534	.015	.095	.534	.344	.012	.461	-.065	-.266	.461	-.192	0.140	0.137	-2.3	0.9	-2.3	0.9	A+	
1015	615732	8	262	.756	.057	.756	.130	.042	.015	.416	-.216	.416	-.145	-.130	-1.079	0.158	-0.6	1.0	-1.4	0.8	A+	
1016	620026	8	268	.522	.075	.522	.179	.216	.008	.378	-.170	.378	-.232	-.122	0.145	0.134	0.4	1.0	1.4	1.1	A+	
1017	615893	8	268	.526	.063	.526	.138	.272	.000	.308	-.015	.308	-.173	-.203	0.143	0.134	1.5	1.1	1.4	1.1	A-	
1018	615729	8	268	.418	.418	.276	.123	.175	.008	.518	.518	-.217	-.324	-.112	0.648	0.135	-2.3	0.9	-2.2	0.9	A-	
1019	615733	8	268	.388	.261	.153	.194	.388	.004	.314	-.159	-.171	-.041	.314	0.801	0.137	1.7	1.1	1.5	1.1	B+	
1020	615894	8	288	.882	.063	.882	.038	.014	.004	.274	-.084	.274	-.136	-.156	-1.909	0.191	-0.1	1.0	0.0	1.0	B+	
1021	615734	8	561	.392	.210	.392	.201	.189	.007	.344	-.018	.344	-.212	-.128	0.734	0.092	-0.3	1.0	0.9	1.0	B-	
1022	617706	8	288	.295	.545	.295	.104	.049	.007	.010	.277	.010	-.255	-.180	1.320	0.137	4.0	1.3	4.1	1.4	A-	
1023	617707	8	263	.753	.095	.095	.753	.053	.004	.352	-.131	-.180	.352	-.169	-1.094	0.153	-0.4	1.0	0.4	1.1	A+	
1024	615753	8	263	.487	.376	.068	.487	.057	.011	.269	-.126	-.211	.269	.008	0.256	0.135	2.5	1.1	2.3	1.2	B+	
1025	615895	8	263	.643	.643	.179	.114	.061	.004	.459	.459	-.180	-.243	-.215	-0.481	0.139	-1.7	0.9	-1.8	0.9	A-	
1026	615735	8	263	.247	.247	.247	.240	.247	.019	.080	-.049	.080	-.026	.066	1.498	0.154	3.1	1.3	4.4	1.6	A+	
1027	615876	8	263	.673	.673	.049	.209	.061	.008	.502	.502	-.172	-.265	-.212	-0.670	0.147	-1.7	0.9	-2.1	0.8	B-	
1028	615705	8	263	.662	.034	.076	.213	.662	.015	.532	-.142	-.278	-.254	.532	-0.631	0.147	-1.9	0.9	-2.1	0.8	A+	
1029	615764	8	263	.555	.167	.167	.099	.555	.011	.597	-.188	-.257	-.272	.597	-0.045	0.139	-4.4	0.8	-3.3	0.8	B+	
1030	615710	8	263	.449	.449	.080	.262	.190	.019	.437	.437	-.184	-.196	-.045	0.501	0.139	-0.6	1.0	-0.1	1.0	B-	
1031	615756	8	263	.323	.099	.126	.434	.323	.019	.159	-.007	-.115	.058	.159	1.142	0.145	3.9	1.3	4.4	1.5	B+	
1032	617296	8	264	.318	.155	.254	.318	.269	.004	.083	-.155	-.161	.083	.238	1.040	0.143	3.6	1.2	3.7	1.4	A-	
1033	615765	8	264	.148	.148	.402	.292	.152	.008	.148	.148	.025	-.134	.077	2.145	0.182	0.8	1.1	2.9	1.6	A+	
1034	615877	8	264	.686	.030	.686	.076	.197	.011	.322	-.079	.322	-.252	-.102	-0.806	0.143	0.6	1.0	0.4	1.0	A-	
1035	615757	8	264	.152	.136	.242	.462	.152	.008	.096	-.160	-.185	.263	.096	2.112	0.180	1.5	1.2	1.8	1.3	A+	
1036	615706	8	264	.837	.837	.046	.076	.034	.008	.510	.510	-.189	-.286	-.231	-1.776	0.178	-1.8	0.8	-2.7	0.6	A-	
1037	615711	8	264	.489	.201	.212	.489	.091	.008	.389	-.131	-.182	.389	-.127	0.180	0.133	-0.3	1.0	0.2	1.0	A+	
1038	618681	8	264	.606	.133	.121	.133	.606	.008	.391	-.105	-.237	-.138	.391	-0.380	0.136	-0.7	1.0	-0.5	1.0	B+	
1039	618682	8	269	.290	.097	.290	.193	.413	.007	.157	-.141	.157	-.083	.091	1.233	0.143	2.3	1.2	2.9	1.3	A+	
1040	615713	8	529	.677	.677	.132	.144	.044	.004	.400	.400	-.152	-.227	-.161	-0.659	0.100	-1.2	1.0	-1.3	0.9	A-	A+
1041	617297	8	269	.691	.123	.078	.100	.692	.007	.441	-.228	-.151	-.156	.441	-0.736	0.142	-1.4	0.9	-1.5	0.9	B+	
1042	615758	8	269	.439	.030	.439	.428	.097	.007	-.003	-.031	-.003	.093	.006	0.490	0.132	7.1	1.3	6.2	1.5	A-	
1043	615878	8	269	.435	.286	.074	.197	.435	.007	.445	-.116	-.201	-.187	.445	0.507	0.132	-2.1	0.9	-1.4	0.9	A+	
1044	615767	8	269	.201	.201	.145	.082	.565	.007	.115	.115	-.138	-.136	.164	1.779	0.160	1.4	1.1	2.2	1.3	A-	
1045	615700	8	269	.231	.231	.205	.454	.100	.011	.197	.197	-.031	-.034	-.036	1.579	0.153	0.8	1.1	2.6	1.3	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1046	615743	8	269	.294	.182	.294	.294	.223	.007	.249	-.073	-.141	.249	.049	1.213	0.142	0.9	1.1	1.8	1.2	A-	
1047	620422	8	269	.591	.078	.145	.591	.175	.011	.391	-.163	-.231	.391	-.057	-0.229	0.134	-0.9	1.0	-0.7	1.0	A+	
1048	615707	8	269	.257	.045	.257	.539	.145	.015	.188	-.019	.188	.062	-.163	1.418	0.148	1.6	1.1	2.9	1.4	A-	
1049	617733	8	269	.219	.160	.041	.565	.219	.015	.275	-.025	-.152	-.046	.275	1.649	0.156	0.0	1.0	1.0	1.1	A+	
1050	615768	8	259	.738	.108	.027	.738	.120	.008	.346	-.189	-.081	.346	-.127	-1.026	0.155	1.0	1.1	0.7	1.1	A+	
1051	615701	8	259	.301	.054	.301	.498	.139	.008	.117	-.183	.117	.172	-.171	1.251	0.148	3.4	1.2	3.5	1.4	A+	
1052	615708	8	259	.807	.043	.077	.062	.807	.012	.476	-.189	-.222	-.199	.476	-1.526	0.173	-1.1	0.9	-1.8	0.7	A-	
1053	618683	8	259	.591	.591	.112	.251	.035	.012	.390	.390	-.273	-.085	-.128	-0.224	0.140	0.3	1.0	0.2	1.0	A+	
1054	617298	8	259	.653	.104	.653	.205	.027	.012	.322	-.213	.322	-.094	-.074	-0.553	0.144	1.6	1.1	0.7	1.1	A+	
1055	618536	8	259	.799	.031	.799	.100	.050	.019	.547	-.117	.547	-.300	-.248	-1.514	0.173	-1.8	0.8	-2.3	0.6	A+	
1056	615908	8	259	.456	.085	.332	.456	.108	.019	.397	-.174	-.076	.397	-.190	0.427	0.138	0.4	1.0	1.0	1.1	A-	
1057	615714	8	259	.452	.201	.151	.178	.452	.019	.414	-.168	-.123	-.121	.414	0.438	0.138	-0.3	1.0	-0.6	1.0	C-	
1058	615744	8	259	.695	.046	.147	.695	.093	.019	.389	-.145	-.109	.389	-.213	-0.825	0.150	0.4	1.0	0.7	1.1	B+	
1059	615716	8	259	.490	.108	.174	.205	.490	.023	.519	-.074	-.135	-.325	.519	0.241	0.138	-2.7	0.9	-2.5	0.8	A+	
1060	615879	8	259	.548	.143	.120	.548	.162	.027	.376	-.201	-.165	.376	-.014	-0.053	0.140	1.0	1.1	0.7	1.1	B-	
1061	618538	8	260	.889	.035	.065	.889	.012	.000	.418	-.297	-.241	.418	-.166	-2.180	0.207	-1.1	0.8	-2.0	0.6	A-	
1062	615745	8	260	.781	.131	.062	.781	.019	.008	.328	-.143	-.138	.328	-.273	-1.335	0.164	0.5	1.0	0.6	1.1	A+	
1063	615703	8	260	.512	.073	.135	.273	.512	.008	.513	-.127	-.390	-.164	.513	0.137	0.136	-2.2	0.9	-2.0	0.9	A+	
1064	615717	8	260	.419	.419	.115	.196	.258	.012	.421	.421	-.117	-.153	-.222	0.589	0.137	-1.4	0.9	-0.4	1.0	A-	
1065	615909	8	260	.627	.031	.031	.627	.308	.004	.291	-.200	-.123	.291	-.158	-0.425	0.140	2.2	1.1	2.0	1.2	A+	
1066	617964	8	260	.600	.119	.600	.127	.150	.004	.517	-.284	.517	-.168	-.261	-0.289	0.138	-1.9	0.9	-2.0	0.9	A-	
1067	615715	8	260	.385	.189	.181	.385	.242	.004	.333	-.189	-.214	.333	.015	0.755	0.138	1.1	1.1	0.8	1.1	B+	
1068	615709	8	260	.385	.131	.342	.385	.135	.008	.197	-.209	-.115	.197	.136	0.770	0.139	3.0	1.2	3.0	1.3	A-	
1069	615769	8	260	.804	.069	.058	.062	.804	.008	.380	-.223	-.157	-.171	.380	-1.508	0.171	-0.3	1.0	-0.5	0.9	A+	
1070	615880	8	260	.392	.392	.435	.104	.062	.008	.231	.231	.083	-.325	-.158	0.712	0.138	3.2	1.2	2.6	1.2	A-	
1071	615719	8	273	.216	.114	.582	.216	.088	.000	-.041	-.181	.234	-.041	-.145	1.603	0.155	3.0	1.3	4.7	1.7	A+	
1072	617958	8	273	.575	.176	.095	.150	.575	.004	.369	-.216	-.193	-.061	.369	-0.216	0.131	-0.4	1.0	-0.4	1.0	B+	
1073	615966	8	273	.667	.180	.667	.110	.040	.004	.389	-.115	.389	-.294	-.127	-0.664	0.137	-0.8	1.0	-1.1	0.9	A+	
1074	615746	8	273	.696	.242	.022	.696	.037	.004	.413	-.266	-.120	.413	-.194	-0.818	0.140	-1.0	0.9	-1.4	0.9	A+	
1075	617055	8	273	.711	.084	.092	.711	.106	.007	.459	-.198	-.234	.459	-.179	-0.905	0.143	-1.3	0.9	-1.5	0.9	A+	
1076	618541	8	273	.648	.077	.103	.648	.169	.004	.512	-.198	-.260	.512	-.242	-0.571	0.136	-3.0	0.9	-3.0	0.8	C+	
1077	615910	8	273	.202	.392	.154	.249	.202	.004	.148	.261	-.247	-.175	.148	1.701	0.159	1.4	1.1	1.9	1.3	A-	
1078	615736	8	273	.169	.169	.260	.447	.117	.007	.204	.204	-.030	-.068	-.019	1.934	0.169	0.3	1.0	2.3	1.4	B-	
1079	615912	8	262	.298	.099	.095	.500	.298	.008	.399	-.090	-.183	-.155	.399	1.029	0.146	-0.1	1.0	-0.1	1.0	A+	
1080	615861	8	262	.221	.248	.221	.229	.294	.008	-.074	.172	-.074	-.080	.036	1.487	0.159	4.1	1.4	5.5	2.0	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1081	615747	8	262	.359	.359	.172	.294	.164	.012	.298	.298	-.224	-.061	.002	0.691	0.141	1.7	1.1	0.8	1.1	A-	
1082	615721	8	262	.748	.050	.088	.748	.107	.008	.510	-.191	-.225	.510	-.292	-1.320	0.155	-1.8	0.9	-1.9	0.8	A-	
1083	617738	8	262	.531	.126	.126	.531	.202	.015	.452	-.194	-.273	.452	-.082	-0.168	0.137	-0.6	1.0	-0.5	1.0	B-	
1084	620022	8	262	.622	.157	.115	.092	.622	.015	.565	-.237	-.280	-.212	.565	-0.630	0.141	-3.1	0.8	-2.3	0.8	A+	
1085	617959	8	262	.496	.107	.218	.164	.496	.015	.418	-.106	-.261	-.084	.418	0.000	0.136	0.0	1.0	-0.2	1.0	A+	
1086	615738	8	262	.267	.225	.248	.244	.267	.015	.228	.092	-.243	.008	.228	1.216	0.151	1.5	1.1	1.5	1.2	A-	
1087	617056	8	262	.431	.229	.103	.221	.431	.015	.366	-.024	-.119	-.237	.366	0.317	0.137	0.9	1.0	0.9	1.1	B+	
1088	615739	8	260	.312	.292	.246	.312	.131	.019	.167	.013	-.098	.167	-.015	0.998	0.146	2.9	1.2	3.9	1.4	A-	
1089	615841	8	260	.535	.265	.089	.104	.535	.008	.368	-.126	-.217	-.133	.368	-0.101	0.136	0.5	1.0	1.0	1.1	A+	
1090	620014	8	260	.542	.077	.542	.162	.212	.008	.313	-.129	.313	-.212	-.044	-0.138	0.136	1.4	1.1	1.0	1.1	B+	
1091	618788	8	260	.704	.027	.169	.089	.704	.012	.357	-.158	-.136	-.198	.357	-0.975	0.148	0.1	1.0	-0.3	1.0	C+	
1092	617496	8	260	.462	.327	.462	.089	.115	.008	.237	.001	.237	-.158	-.146	0.252	0.136	3.1	1.2	3.4	1.3	A-	
1093	620024	8	260	.285	.189	.408	.285	.115	.004	-.008	.000	.012	-.008	.062	1.164	0.149	4.4	1.3	6.0	1.8	A+	
1094	615862	8	260	.554	.381	.554	.039	.023	.004	.337	-.196	.337	-.165	-.125	-0.184	0.136	0.7	1.0	1.1	1.1	A-	
1095	617963	8	260	.696	.108	.696	.069	.123	.004	.446	-.247	.446	-.182	-.182	-0.906	0.145	-1.4	0.9	-1.6	0.8	A+	
1096	615913	8	260	.508	.508	.162	.219	.108	.004	.463	.463	-.222	-.242	-.088	0.036	0.135	-1.1	1.0	-0.7	1.0	A-	
1097	617057	8	260	.558	.215	.558	.112	.104	.012	.426	-.156	.426	-.273	-.110	-0.219	0.137	-0.8	1.0	-0.9	0.9	A-	
1098	618849	8	259	.641	.066	.205	.641	.085	.004	.361	-.178	-.192	.361	-.109	-0.512	0.141	0.3	1.0	-0.4	1.0	A-	
1099	615759	8	259	.197	.548	.127	.124	.197	.004	.314	-.055	-.175	-.054	.314	1.821	0.167	-0.5	1.0	-0.1	1.0	A-	
1100	617497	8	259	.537	.066	.112	.537	.282	.004	.371	-.229	-.279	.371	-.043	0.000	0.136	0.4	1.0	0.6	1.0	A+	
1101	618532	8	259	.587	.112	.104	.587	.193	.004	.508	-.274	-.216	.508	-.193	-0.242	0.137	-2.9	0.9	-2.7	0.8	A+	
1102	615863	8	259	.745	.170	.050	.745	.027	.008	.293	-.061	-.221	.293	-.162	-1.130	0.155	0.2	1.0	0.8	1.1	B+	
1103	617058	8	259	.514	.189	.514	.135	.154	.008	.194	-.019	.194	-.117	-.055	0.104	0.136	4.3	1.2	4.3	1.3	A+	
1104	615740	8	259	.263	.216	.313	.263	.201	.008	.289	-.116	-.052	.289	-.063	1.388	0.152	0.6	1.0	2.4	1.3	A-	
1105	615842	8	259	.614	.139	.614	.143	.097	.008	.396	-.133	.396	-.140	-.229	-0.384	0.139	0.3	1.0	-0.2	1.0	A+	
1106	620017	8	259	.599	.599	.189	.097	.108	.008	.458	.458	-.154	-.307	-.141	-0.307	0.138	-1.8	0.9	-1.2	0.9	B+	
1107	618850	8	289	.716	.152	.028	.100	.716	.004	.422	-.231	-.141	-.249	.422	-0.958	0.140	-1.1	0.9	-1.0	0.9	C+	
1108	615741	8	289	.609	.609	.080	.190	.121	.000	.218	.218	-.234	.014	-.149	-0.390	0.130	2.4	1.1	3.4	1.3	A+	
1109	615843	8	289	.751	.751	.021	.190	.038	.000	.416	.416	-.153	-.285	-.241	-1.156	0.145	-1.4	0.9	-1.1	0.9	A+	
1110	620018	8	289	.568	.228	.132	.073	.568	.000	.408	-.272	-.087	-.226	.408	-0.188	0.129	-1.0	1.0	-0.9	0.9	B+	
1111	615760	8	289	.401	.173	.215	.208	.401	.004	.311	-.112	-.051	-.226	.311	0.593	0.130	1.1	1.1	1.0	1.1	A+	
1112	618533	8	289	.609	.166	.111	.609	.114	.000	.429	-.103	-.212	.429	-.329	-0.390	0.130	-0.8	1.0	-1.5	0.9	A+	
1113	615761	8	260	.323	.450	.323	.096	.123	.008	.099	.093	.099	-.210	.017	0.991	0.143	4.2	1.3	4.0	1.4	A-	
1114	615881	8	260	.762	.039	.115	.077	.762	.008	.530	-.154	-.322	-.213	.530	-1.264	0.157	-2.6	0.8	-2.5	0.7	A-	
1115	615844	8	260	.646	.054	.162	.646	.127	.012	.507	-.184	-.303	.507	-.131	-0.615	0.142	-2.2	0.9	-2.1	0.8	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1116	618534	8	260	.523	.200	.154	.112	.523	.012	.467	-.135	-.095	-.315	.467	-0.002	0.136	-1.7	0.9	-1.1	0.9	B+	
1117	618851	8	260	.458	.085	.285	.458	.162	.012	.453	-.205	-.130	.453	-.174	0.312	0.136	-1.8	0.9	-1.4	0.9	A-	
1118	620019	8	260	.581	.581	.092	.112	.204	.012	.436	.436	-.283	-.111	-.130	-0.283	0.138	-0.7	1.0	-0.8	0.9	A+	
1119	615762	8	260	.158	.158	.200	.319	.319	.004	.098	.098	.009	-.024	-.065	2.100	0.179	0.7	1.1	1.9	1.4	A+	
1120	615882	8	260	.277	.289	.277	.319	.108	.008	-.052	.064	-.052	.074	-.105	1.287	0.148	3.9	1.3	5.5	1.7	A-	
1121	615748	8	261	.330	.172	.241	.330	.249	.008	.368	-.202	-.118	.368	-.052	0.915	0.143	-0.3	1.0	1.4	1.1	A-	
1122	615763	8	261	.429	.061	.207	.299	.429	.004	.379	-.205	-.219	-.062	.379	0.416	0.136	-0.4	1.0	0.5	1.0	A-	
1123	615885	8	261	.740	.046	.138	.740	.073	.004	.468	-.223	-.220	.468	-.236	-1.164	0.153	-1.1	0.9	-1.4	0.8	A-	
1124	618852	8	261	.617	.081	.153	.138	.617	.012	.559	-.193	-.341	-.187	.559	-0.510	0.140	-3.6	0.8	-3.1	0.8	A+	
1125	615868	8	261	.402	.184	.402	.249	.157	.008	.365	-.182	.365	-.157	-.043	0.540	0.138	0.1	1.0	1.3	1.1	A-	
1126	617739	8	289	.661	.170	.104	.661	.062	.004	.540	-.428	-.206	.540	-.110	-0.658	0.134	-2.8	0.9	-2.8	0.8	A-	
1127	618786	8	262	.401	.088	.191	.401	.305	.015	.230	-.119	-.179	.230	.063	0.471	0.138	3.2	1.2	2.8	1.2	A+	
1128	620015	8	259	.517	.143	.517	.127	.209	.004	.092	-.018	.092	.032	-.067	0.106	0.138	4.8	1.3	4.3	1.4	B+	
1129	617737	8	260	.489	.300	.108	.489	.077	.027	.230	-.023	-.177	.230	.086	0.149	0.138	3.3	1.2	3.0	1.2	A+	
1130	618540	8	262	.332	.332	.168	.370	.118	.012	.339	.339	-.172	.015	-.153	1.156	0.144	-0.1	1.0	0.2	1.0	A-	
1131	620029	8	528	.434	.112	.434	.203	.242	.010	.168	-.063	.168	-.113	.043	0.513	0.096	5.9	1.2	7.2	1.4	A-	
1132	620025	8	263	.525	.110	.243	.114	.525	.008	.359	-.174	-.058	-.188	.359	0.113	0.138	1.3	1.1	1.1	1.1	A-	
1133	620021	8	263	.840	.065	.053	.840	.038	.004	.399	-.246	-.271	.399	-.012	-1.718	0.179	-0.8	0.9	-1.1	0.8	A+	
1134	615749	8	260	.781	.035	.150	.781	.035	.000	.360	-.123	-.302	.360	-.103	-1.271	0.161	-0.6	1.0	-0.6	0.9	A+	
1135	615723	8	273	.414	.117	.154	.304	.414	.011	.281	-.271	-.109	.032	.281	0.519	0.132	1.1	1.1	1.1	1.1	A+	
1136	615884	8	259	.610	.151	.131	.610	.085	.023	.373	-.054	-.206	.373	-.139	-0.365	0.142	0.7	1.0	0.9	1.1	A+	
1137	620030	8	263	.818	.049	.072	.818	.053	.008	.481	-.262	-.200	.481	-.167	-1.636	0.177	-1.0	0.9	-2.0	0.7	A+	
1138	615927	8	269	.442	.186	.126	.238	.442	.007	.258	-.043	-.123	-.069	.258	0.472	0.132	1.9	1.1	1.8	1.1	A+	
1139	620023	8	264	.136	.136	.254	.349	.254	.008	.137	.137	-.037	.020	-.020	2.248	0.188	0.8	1.1	1.6	1.3	A+	
1140	617489	8	259	.772	.772	.120	.035	.066	.008	.420	.420	-.195	-.198	-.151	-1.252	0.162	-0.4	1.0	-1.0	0.9	B-	
1141	618543	8	269	.766	.045	.082	.766	.093	.015	.417	-.233	-.174	.417	-.100	-1.202	0.157	-0.7	0.9	-0.9	0.9	A+	
1142	618544	8	261	.322	.035	.464	.322	.176	.004	.284	-.229	-.185	.284	.060	0.959	0.143	1.5	1.1	1.5	1.2	A+	
1143	615810	8	268	.821	.041	.821	.060	.075	.004	.271	-.172	.271	-.186	-.077	-1.541	0.170	0.5	1.0	0.6	1.1	A-	
1144	618542	8	5825	.479	.086	.245	.185	.479	.006	.494	-.193	-.288	-.112	.494	0.274	0.029	-9.9	0.9	-9.9	0.9	C-	C-
1145	615914	8	260	.815	.815	.069	.046	.058	.012	.528	.528	-.233	-.243	-.157	-1.696	0.177	-2.0	0.8	-1.5	0.7	B+	
1146	620360	8	5825	.475	.288	.475	.129	.098	.010	.423	-.186	.423	-.186	-.107	0.288	0.029	-4.5	1.0	-3.0	1.0	A-	A-
1147	615916	8	259	.869	.869	.031	.066	.031	.004	.415	.415	-.220	-.160	-.226	-2.191	0.205	-0.5	0.9	-1.2	0.7	A+	
1148	615917	8	259	.618	.618	.108	.251	.023	.000	.410	.410	-.234	-.265	-.078	-0.448	0.140	0.1	1.0	-0.4	1.0	A-	
1149	615918	8	265	.374	.260	.117	.374	.249	.000	.313	-.087	-.215	.313	-.102	0.812	0.137	0.4	1.0	0.5	1.0	A+	
1150	620034	8	262	.679	.065	.679	.092	.153	.012	.353	-.230	.353	-.120	-.055	-0.784	0.147	0.9	1.1	1.4	1.2	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1151	615921	8	262	.668	.084	.668	.179	.053	.015	.447	-.195	.447	-.188	-.122	-0.731	0.147	-0.9	0.9	0.2	1.0	A+	
1152	620035	8	262	.370	.095	.370	.370	.157	.008	.349	-.255	.349	-.039	-.078	0.956	0.140	0.6	1.0	0.5	1.0	A-	
1153	615922	8	262	.782	.782	.015	.153	.042	.008	.184	.184	-.037	-.041	-.050	-1.225	0.162	2.0	1.2	3.0	1.5	A+	
1154	615905	8	262	.718	.042	.149	.080	.718	.012	.517	-.180	-.225	-.235	.517	-0.823	0.150	-2.1	0.9	-2.4	0.7	A+	
1155	615923	8	268	.567	.287	.056	.090	.567	.000	.444	-.245	-.167	-.248	.444	-0.054	0.134	-1.0	1.0	-0.8	0.9	A-	
1156	617493	8	268	.452	.220	.142	.452	.187	.000	.391	-.108	-.250	.391	-.161	0.501	0.134	-0.1	1.0	0.8	1.1	A-	
1157	615906	8	268	.780	.780	.090	.049	.078	.004	.254	.254	-.178	-.075	-.150	-1.243	0.159	0.9	1.1	0.5	1.1	A+	
1158	615829	8	268	.403	.187	.403	.164	.243	.004	.323	-.098	.323	-.269	-.035	0.727	0.136	1.2	1.1	0.9	1.1	B-	
1159	618545	8	268	.545	.235	.545	.105	.112	.004	.329	-.162	.329	-.286	-.006	0.041	0.134	1.1	1.1	0.9	1.1	A-	
1160	615805	8	268	.481	.090	.336	.090	.481	.004	.463	-.234	-.183	-.254	.463	0.346	0.134	-1.7	0.9	-1.0	0.9	A-	
1161	615806	8	288	.583	.038	.583	.056	.316	.007	.222	-.173	.222	-.159	-.027	-0.052	0.128	2.3	1.1	2.0	1.1	A+	
1162	615816	8	288	.424	.424	.038	.451	.080	.007	.328	.328	-.225	-.109	-.130	0.684	0.127	-0.1	1.0	-0.1	1.0	A-	
1163	617494	8	288	.420	.281	.420	.087	.208	.004	.277	-.079	.277	-.289	.010	0.704	0.127	1.2	1.1	0.6	1.0	B+	
1164	615924	8	288	.313	.125	.177	.382	.313	.004	.261	-.139	-.170	.027	.261	1.231	0.135	0.7	1.0	1.6	1.1	A+	
1165	615907	8	288	.715	.069	.715	.174	.038	.004	.426	-.208	.426	-.209	-.190	-0.706	0.138	-1.6	0.9	-1.9	0.8	A-	
1166	618546	8	288	.684	.038	.684	.146	.129	.004	.367	-.156	.367	-.116	-.227	-0.539	0.134	-0.8	1.0	-0.4	1.0	A-	
1167	615830	8	288	.611	.611	.212	.115	.059	.004	.291	.291	-.154	-.118	-.076	-0.177	0.129	0.8	1.0	1.0	1.1	A-	
1168	615818	8	263	.852	.852	.019	.057	.068	.004	.293	.293	-.063	-.160	-.143	-1.817	0.184	0.2	1.0	0.3	1.1	A+	
1169	615925	8	263	.589	.084	.126	.198	.589	.004	.472	-.184	-.245	-.194	.472	-0.216	0.136	-2.2	0.9	-2.3	0.8	A-	
1170	617495	8	263	.247	.247	.095	.468	.186	.004	.140	.140	-.213	.255	-.263	1.517	0.153	2.7	1.2	2.6	1.4	A-	
1171	618552	8	263	.422	.418	.422	.038	.114	.008	.340	-.212	.340	-.070	-.086	0.576	0.136	0.7	1.0	1.9	1.1	B-	
1172	618553	8	263	.601	.601	.076	.221	.095	.008	.415	.415	-.187	-.077	-.278	-0.256	0.141	-0.1	1.0	0.0	1.0	B+	
1173	615820	8	263	.582	.167	.099	.582	.145	.008	.455	-.236	-.106	.455	-.184	-0.158	0.140	-1.0	0.9	-1.3	0.9	B-	
1174	615808	8	263	.152	.388	.156	.152	.297	.008	.000	-.014	-.096	.000	.179	2.304	0.183	2.0	1.2	4.1	2.1	A-	
1175	617709	8	263	.312	.107	.179	.392	.312	.011	.156	-.100	.085	-.051	.156	1.235	0.147	3.7	1.3	3.2	1.4	A+	
1176	617732	8	525	.250	.250	.259	.320	.164	.008	.281	.281	-.216	-.013	.020	1.390	0.108	0.9	1.1	1.6	1.1	A-	
1177	620359	8	273	.476	.278	.476	.169	.073	.004	.405	-.211	.405	-.186	-.062	0.244	0.130	-1.0	1.0	-0.8	1.0	A-	
1178	615821	8	262	.317	.382	.317	.195	.099	.008	.240	.146	.240	-.209	-.252	0.923	0.144	2.2	1.1	1.8	1.2	A+	
1179	615823	8	260	.469	.231	.100	.469	.189	.012	.288	-.086	-.193	.288	-.056	0.205	0.136	1.8	1.1	1.4	1.1	A-	
1180	615899	8	259	.541	.131	.116	.541	.209	.004	.213	-.240	-.037	.213	.020	-0.018	0.136	3.3	1.2	3.2	1.2	A-	
1181	615824	8	259	.386	.209	.151	.386	.247	.008	.371	-.187	-.118	.371	-.075	0.720	0.139	0.1	1.0	-0.3	1.0	A+	
1182	615900	8	289	.301	.145	.301	.246	.301	.007	.317	-.009	.317	-.118	-.195	1.110	0.138	0.2	1.0	1.3	1.1	A+	
1183	617498	8	289	.433	.235	.433	.183	.145	.004	.076	-.011	.076	.018	-.087	0.450	0.129	5.4	1.3	5.6	1.4	A+	
1184	615825	8	289	.190	.052	.329	.190	.429	.000	.060	-.183	.034	.060	.002	1.808	0.159	1.7	1.2	4.9	1.9	B-	
1185	615812	8	289	.381	.125	.381	.080	.415	.000	.368	-.006	.368	-.230	-.232	0.704	0.131	0.1	1.0	0.0	1.0	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1186	615901	8	260	.312	.185	.312	.423	.077	.004	.001	-.097	.001	.121	-.006	1.053	0.144	4.9	1.3	5.4	1.6	A-	
1187	615813	8	260	.115	.096	.292	.115	.485	.012	.289	-.129	-.100	.289	.074	2.455	0.203	-0.4	0.9	-0.1	1.0	A-	
1188	615815	8	260	.300	.062	.289	.300	.346	.004	.440	-.121	-.273	.440	-.110	1.138	0.144	-1.5	0.9	-1.4	0.9	A-	
1189	618547	8	260	.323	.139	.208	.331	.323	.000	.467	-.184	-.327	-.048	.467	1.025	0.142	-1.6	0.9	-1.1	0.9	A-	
1190	617490	8	260	.685	.062	.158	.685	.089	.008	.410	-.251	-.227	.410	-.140	-0.775	0.146	-0.5	1.0	-0.5	1.0	A-	
1191	617491	8	261	.387	.387	.372	.153	.081	.008	.462	.462	-.211	-.198	-.097	0.617	0.138	-1.7	0.9	-1.6	0.9	A-	
1192	615817	8	524	.347	.168	.384	.099	.347	.002	.260	-.220	.044	-.172	.260	0.953	0.099	1.8	1.1	2.6	1.2	A+	
1193	615822	8	547	.309	.146	.227	.309	.313	.006	.285	-.157	-.230	.285	.077	1.188	0.100	0.4	1.0	1.2	1.1	A-	
1194	615819	8	264	.371	.371	.167	.133	.318	.011	.246	.246	-.074	-.290	.089	0.740	0.138	2.2	1.1	1.7	1.1	A-	
1195	615809	8	521	.123	.184	.438	.242	.123	.013	.103	-.084	.067	-.015	.103	2.401	0.142	1.1	1.1	2.8	1.5	A+	A+
1196	615919	8	262	.584	.584	.103	.034	.271	.008	.317	.317	-.227	-.123	-.042	-0.100	0.138	0.2	1.0	0.5	1.0	A-	
1197	615826	8	263	.468	.061	.179	.468	.289	.004	.334	-.143	-.219	.334	-.057	0.365	0.134	0.5	1.0	1.2	1.1	A+	
1198	615804	8	262	.473	.271	.199	.473	.050	.008	.452	-.157	-.228	.452	-.111	0.308	0.138	-1.3	0.9	-1.1	0.9	A-	
1199	617694	11	260	.177	.108	.150	.177	.546	.019	.115	-.078	-.179	.115	.232	1.924	0.174	1.1	1.1	3.9	1.8	A-	
1200	617693	11	260	.646	.115	.123	.100	.646	.015	.433	-.067	-.140	-.250	.433	-0.589	0.142	-1.0	0.9	-1.0	0.9	B-	
1201	617701	11	259	.259	.236	.290	.259	.205	.012	.041	.256	-.118	.041	-.072	1.383	0.153	3.1	1.2	4.5	1.6	A+	
1202	617702	11	259	.355	.390	.174	.355	.077	.004	.357	.005	-.368	.357	-.122	0.832	0.141	-0.2	1.0	0.2	1.0	A-	
1203	617704	11	265	.223	.155	.449	.223	.174	.000	.087	-.163	.072	.087	-.034	1.594	0.155	1.6	1.1	2.5	1.3	A-	
1204	617705	11	262	.275	.164	.374	.168	.275	.019	.209	-.113	.136	-.160	.209	1.300	0.150	2.1	1.2	1.8	1.2	A-	
1205	620380	11	262	.260	.218	.195	.321	.260	.008	.193	-.052	.046	-.075	.193	1.523	0.151	1.4	1.1	1.1	1.1	A+	
1206	617674	11	263	.137	.243	.369	.243	.137	.008	-.141	-.244	.330	.031	-.141	2.287	0.188	2.1	1.3	4.8	2.2	A+	
1207	617676	11	263	.437	.164	.160	.437	.232	.008	.118	.076	-.027	.118	-.089	0.513	0.136	5.5	1.3	4.9	1.4	A-	
1208	617677	11	264	.519	.250	.519	.117	.106	.008	.138	.016	.138	-.115	-.025	0.045	0.132	4.2	1.2	4.2	1.2	A-	
1209	617678	11	269	.290	.346	.201	.290	.156	.007	.332	-.141	-.129	.332	.027	1.228	0.143	-0.6	1.0	0.2	1.0	A-	
1210	617679	11	259	.533	.533	.043	.058	.359	.008	.110	.110	-.018	-.094	.022	0.063	0.136	5.7	1.3	5.1	1.4	A+	
1211	617680	11	260	.462	.169	.135	.462	.227	.008	.294	-.206	-.280	.294	.103	0.359	0.135	1.7	1.1	2.1	1.1	B-	
1212	617681	11	273	.330	.051	.330	.081	.535	.004	.293	-.263	.293	-.187	-.014	0.942	0.136	0.6	1.0	0.3	1.0	B-	
1213	617682	11	262	.183	.275	.199	.336	.183	.008	.242	-.248	.000	.089	.242	1.758	0.169	0.6	1.1	0.9	1.2	A-	
1214	617683	11	260	.515	.069	.135	.515	.277	.004	.259	-.043	-.024	.259	-.196	-0.016	0.133	2.0	1.1	1.5	1.1	A-	
1215	617695	11	260	.192	.192	.496	.219	.081	.012	.073	.073	.247	-.200	-.149	1.678	0.166	1.8	1.2	2.7	1.4	A+	
1216	617696	11	259	.313	.282	.282	.313	.120	.004	.353	-.072	-.137	.353	-.149	1.103	0.145	0.0	1.0	0.6	1.1	A-	
1217	617684	11	259	.533	.093	.533	.158	.209	.008	.416	-.211	.416	-.140	-.161	0.018	0.135	-0.7	1.0	-0.8	1.0	A+	
1218	617685	11	289	.727	.048	.727	.138	.083	.004	.556	-.245	.556	-.383	-.210	-1.003	0.141	-3.1	0.8	-3.0	0.7	A-	
1219	617697	11	289	.225	.332	.225	.208	.235	.000	.068	.084	.068	-.252	.081	1.541	0.149	2.3	1.2	3.0	1.4	A+	
1220	617689	11	289	.599	.170	.128	.599	.104	.000	.169	-.023	-.177	.169	-.048	-0.333	0.129	3.3	1.2	3.2	1.2	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1221	617686	11	260	.423	.423	.365	.073	.131	.008	.326	.326	-.034	-.113	-.275	0.496	0.136	0.0	1.0	0.6	1.0	A+	
1222	617698	11	260	.189	.189	.519	.173	.108	.012	.073	.073	.064	-.022	-.034	1.791	0.167	1.7	1.2	2.8	1.5	A-	
1223	617690	11	260	.408	.408	.258	.173	.150	.012	.306	.306	-.203	-.092	.053	0.552	0.136	1.3	1.1	0.7	1.1	A-	
1224	617699	11	260	.127	.227	.127	.481	.165	.000	.001	-.139	.001	.177	-.082	2.339	0.194	0.8	1.1	2.1	1.4	A-	
1225	617687	11	260	.173	.054	.173	.685	.089	.000	-.108	-.265	-.108	.265	-.079	1.941	0.171	1.9	1.2	3.6	1.6	A+	
1226	617691	11	260	.346	.127	.419	.346	.108	.000	.274	-.101	-.222	.274	.041	0.890	0.138	0.6	1.0	1.3	1.1	A+	
1227	617688	11	261	.452	.138	.452	.291	.111	.008	.146	-.023	.146	.003	-.144	0.291	0.134	4.3	1.2	3.8	1.2	A+	
1228	617692	11	261	.280	.126	.280	.479	.111	.004	.241	-.214	.241	.048	-.126	1.162	0.146	0.9	1.1	1.7	1.2	A-	
1229	617700	11	261	.559	.119	.153	.157	.559	.012	.537	-.249	-.202	-.224	.537	-0.215	0.135	-3.3	0.9	-3.5	0.8	A-	
1230	617613	11	260	.431	.239	.065	.254	.431	.012	.292	-.226	-.049	.050	.292	0.453	0.137	1.8	1.1	2.4	1.2	A+	
1231	617634	11	260	.242	.204	.242	.335	.192	.027	.145	.000	.145	.095	-.087	1.444	0.156	2.2	1.2	2.7	1.4	A+	
1232	617636	11	259	.313	.158	.313	.232	.293	.004	.195	-.114	.195	-.102	.038	1.075	0.145	2.5	1.2	3.2	1.3	A-	
1233	617614	11	259	.359	.359	.158	.185	.282	.015	.305	.305	-.081	-.129	-.027	0.826	0.141	0.1	1.0	0.5	1.0	A-	
1234	620645	11	259	.521	.201	.081	.521	.182	.015	.352	-.040	-.232	.352	-.109	0.012	0.137	1.2	1.1	1.1	1.1	A-	
1235	617615	11	259	.772	.043	.050	.772	.127	.008	.317	-.262	-.185	.317	-.080	-1.296	0.160	-0.1	1.0	-0.4	0.9	A-	
1236	617598	11	259	.270	.278	.209	.243	.270	.000	.215	-.109	.032	-.140	.215	1.304	0.151	1.3	1.1	1.4	1.2	A+	
1237	617637	11	259	.224	.166	.340	.266	.224	.004	.252	.092	-.198	-.091	.252	1.589	0.160	1.0	1.1	1.3	1.2	B+	
1238	617601	11	265	.491	.102	.491	.287	.121	.000	.200	-.109	.200	.005	-.212	0.240	0.132	2.3	1.1	2.0	1.1	A-	
1239	617617	11	265	.268	.268	.200	.287	.245	.000	.242	.242	-.129	-.075	-.051	1.322	0.146	0.3	1.0	1.3	1.1	A+	
1240	617638	11	265	.408	.140	.260	.408	.193	.000	.224	-.246	-.059	.224	.002	0.609	0.134	2.2	1.1	2.5	1.2	A+	
1241	617640	11	262	.206	.359	.206	.302	.122	.012	.061	.094	.061	-.056	.029	1.749	0.163	2.5	1.2	4.0	1.8	B-	
1242	617602	11	262	.389	.172	.122	.305	.389	.012	.485	-.145	-.227	-.117	.485	0.690	0.139	-2.5	0.9	-2.1	0.8	C-	
1243	617618	11	262	.454	.191	.225	.454	.118	.012	.254	.009	-.205	.254	.028	0.367	0.137	2.8	1.2	2.0	1.2	A+	
1244	617627	11	262	.695	.038	.221	.695	.034	.012	.252	-.081	-.076	.252	-.106	-0.674	0.146	1.4	1.1	2.6	1.3	A+	
1245	617603	11	262	.412	.149	.229	.195	.412	.015	.226	-.003	.004	-.140	.226	0.711	0.136	2.3	1.1	1.9	1.1	A-	
1246	617626	11	262	.248	.248	.103	.588	.050	.012	.133	.133	-.116	.095	-.075	1.590	0.153	2.1	1.2	2.8	1.4	A+	
1247	617604	11	268	.466	.105	.190	.239	.466	.000	.295	-.036	-.144	-.187	.295	0.417	0.133	1.5	1.1	1.6	1.1	A+	
1248	617628	11	268	.560	.157	.560	.164	.116	.004	.462	-.109	.462	-.311	-.217	-0.035	0.134	-1.4	0.9	-1.7	0.9	A-	
1249	617642	11	268	.231	.231	.332	.336	.097	.004	.115	.115	.013	.014	-.188	1.642	0.154	2.2	1.2	2.8	1.4	A+	
1250	617629	11	288	.306	.306	.281	.264	.142	.007	.044	.044	.055	-.006	-.032	1.255	0.135	3.1	1.2	4.0	1.3	A+	
1251	617605	11	288	.431	.250	.167	.431	.149	.004	.194	.003	.004	.194	-.210	0.652	0.126	2.4	1.1	2.4	1.1	A+	
1252	617643	11	288	.292	.417	.191	.097	.292	.004	.277	-.010	-.110	-.183	.277	1.330	0.136	0.2	1.0	0.3	1.0	A+	
1253	617646	11	263	.354	.297	.354	.110	.232	.008	.257	-.091	.257	-.130	-.051	0.894	0.138	1.4	1.1	2.0	1.2	A-	
1254	617606	11	263	.703	.019	.224	.703	.049	.004	.175	-.081	.009	.175	-.230	-0.784	0.144	2.4	1.2	1.7	1.2	B-	
1255	617633	11	263	.270	.236	.270	.350	.126	.019	.198	.081	.198	-.095	-.157	1.325	0.149	1.4	1.1	2.1	1.2	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1256	617607	11	263	.525	.160	.217	.525	.088	.011	.276	-.211	-.022	.276	-.040	0.117	0.136	2.3	1.1	2.7	1.2	A-	
1257	617647	11	263	.331	.126	.331	.376	.156	.011	.313	-.123	.313	.050	-.225	1.087	0.142	0.6	1.0	1.1	1.1	A-	
1258	617635	11	263	.278	.202	.278	.186	.316	.019	.127	-.023	.127	-.153	.163	1.377	0.149	2.3	1.2	3.5	1.4	A+	
1259	617608	11	264	.224	.163	.224	.538	.068	.008	.175	-.074	.175	-.051	.044	1.549	0.156	1.1	1.1	2.0	1.3	A-	
1260	617710	11	264	.375	.280	.375	.224	.114	.008	.164	.017	.164	-.071	-.082	0.718	0.136	3.0	1.2	3.1	1.2	A-	
1261	617639	11	264	.500	.110	.292	.500	.087	.011	.233	-.175	-.001	.233	-.093	0.123	0.132	2.7	1.1	2.3	1.1	A+	
1262	617641	11	269	.599	.130	.108	.599	.156	.007	.481	-.128	-.214	.481	-.234	-0.251	0.133	-2.9	0.9	-2.8	0.8	A+	
1263	620377	11	269	.126	.138	.476	.253	.126	.007	.071	-.052	.155	-.095	.071	2.377	0.191	0.9	1.1	2.6	1.6	B-	
1264	617609	11	269	.353	.149	.305	.353	.178	.015	.256	-.199	-.066	.256	.080	0.891	0.136	1.2	1.1	1.4	1.1	A+	
1265	620379	11	259	.359	.359	.205	.286	.139	.012	.355	.355	-.204	-.163	.090	0.905	0.141	0.2	1.0	0.3	1.0	A-	
1266	617644	11	259	.452	.452	.112	.270	.147	.019	.287	.287	-.110	.008	-.161	0.428	0.137	2.2	1.1	2.2	1.2	A+	
1267	617616	11	259	.375	.239	.236	.131	.375	.019	.407	-.131	-.133	-.089	.407	0.810	0.140	-0.7	1.0	-0.2	1.0	A-	
1268	617645	11	260	.442	.096	.442	.235	.223	.004	.274	-.155	.274	-.167	-.019	0.456	0.135	2.2	1.1	1.9	1.1	A+	
1269	617619	11	260	.669	.119	.669	.081	.127	.004	.257	.001	.257	-.093	-.253	-0.643	0.143	1.7	1.1	1.6	1.2	C-	
1270	617648	11	273	.143	.077	.143	.473	.300	.007	.109	-.065	.109	-.105	.125	2.132	0.179	0.6	1.1	2.0	1.4	A-	
1271	617620	11	273	.352	.352	.385	.106	.150	.007	.342	.342	-.094	-.104	-.174	0.822	0.135	-0.3	1.0	-0.5	1.0	A+	
1272	617621	11	262	.397	.168	.206	.214	.397	.015	.469	-.191	-.047	-.247	.469	0.487	0.139	-1.4	0.9	-1.2	0.9	A+	
1273	620376	11	262	.542	.153	.130	.157	.542	.019	.554	-.211	-.126	-.320	.554	-0.215	0.137	-3.4	0.8	-2.8	0.8	B+	
1274	617622	11	260	.339	.169	.265	.223	.339	.004	.320	-.164	-.045	-.115	.320	0.824	0.140	0.1	1.0	0.9	1.1	A+	
1275	620378	11	260	.350	.350	.219	.165	.254	.012	.344	.344	-.281	-.037	-.012	0.756	0.139	0.2	1.0	-0.4	1.0	A-	
1276	617623	11	259	.888	.888	.043	.035	.031	.004	.376	.376	-.199	-.148	-.172	-2.216	0.210	-0.4	0.9	-1.1	0.7	A+	
1277	617599	11	259	.409	.409	.189	.263	.131	.008	.324	.324	-.117	-.081	-.141	0.607	0.137	1.3	1.1	0.7	1.0	A+	
1278	617600	11	289	.315	.249	.315	.197	.235	.004	.217	-.046	.217	-.204	.001	1.016	0.135	1.6	1.1	2.4	1.2	A+	
1279	617624	11	289	.699	.699	.121	.031	.145	.004	.232	.232	-.250	-.169	.027	-0.848	0.137	1.3	1.1	2.5	1.2	B-	
1280	617610	11	260	.542	.250	.077	.542	.115	.015	.329	-.037	-.212	.329	-.152	-0.101	0.136	1.1	1.1	0.9	1.1	A+	
1281	617625	11	260	.192	.381	.235	.192	.173	.019	.095	.005	.031	.095	-.029	1.745	0.166	1.3	1.1	3.8	1.7	A-	
1282	617630	11	260	.523	.131	.215	.523	.131	.000	.377	-.181	-.246	.377	-.078	0.066	0.133	-0.5	1.0	-0.4	1.0	A-	
1283	617611	11	260	.239	.146	.292	.312	.239	.012	.046	-.165	.058	.048	.046	1.460	0.153	2.2	1.2	3.0	1.4	A-	
1284	617612	11	261	.364	.364	.226	.176	.230	.004	.318	.318	-.104	-.144	-.080	0.721	0.138	0.5	1.0	0.6	1.0	A+	
1285	617631	11	261	.322	.272	.322	.253	.146	.008	.199	.055	.199	-.071	-.175	0.929	0.142	2.0	1.1	2.4	1.2	A+	
1286	617675	11	268	.313	.164	.082	.440	.313	.000	.120	-.078	-.212	.063	.120	1.174	0.141	3.4	1.2	3.4	1.3	A+	
1287	619999	11	268	.224	.343	.224	.187	.243	.004	.299	-.155	.299	-.162	.041	1.691	0.156	0.3	1.0	0.7	1.1	A+	
1288	617649	11	288	.149	.743	.063	.149	.042	.004	.125	.077	-.062	.125	-.198	2.260	0.171	0.5	1.1	2.1	1.4	A-	
1289	620001	11	288	.740	.066	.108	.740	.083	.004	.402	-.135	-.222	.402	-.182	-0.827	0.141	-1.1	0.9	-1.6	0.9	A+	
1290	617650	11	263	.354	.354	.145	.297	.198	.008	.405	.405	-.089	-.137	-.202	0.894	0.138	-1.1	0.9	-1.2	0.9	B-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1291	617651	11	263	.449	.080	.126	.338	.449	.008	.185	-.104	-.247	.122	.185	0.476	0.136	4.1	1.2	3.1	1.2	B+	
1292	617652	11	264	.311	.367	.239	.072	.311	.011	.313	-.083	-.046	-.195	.313	1.041	0.142	0.3	1.0	0.2	1.0	A-	
1293	617653	11	269	.245	.175	.245	.257	.316	.007	.068	-.086	.068	.167	-.060	1.506	0.151	2.3	1.2	3.3	1.4	A-	
1294	617654	11	259	.135	.104	.170	.568	.135	.023	.082	-.047	-.167	.209	.082	2.340	0.191	1.1	1.1	2.9	1.7	A-	
1295	617655	11	260	.204	.523	.204	.069	.204	.000	.212	-.025	-.075	-.169	.212	1.765	0.163	0.1	1.0	2.8	1.5	B-	
1296	617670	11	260	.165	.189	.627	.165	.012	.008	.185	-.059	-.014	.185	-.207	2.039	0.176	0.5	1.1	2.3	1.4	B-	
1297	617671	11	273	.443	.125	.245	.183	.443	.004	.249	-.153	.028	-.163	.249	0.398	0.130	1.7	1.1	1.5	1.1	A+	
1298	617656	11	273	.260	.231	.260	.256	.245	.007	.112	-.047	.112	-.062	.048	1.309	0.146	2.0	1.1	2.8	1.3	A-	
1299	617663	11	262	.248	.248	.195	.126	.420	.012	.161	.161	-.242	-.282	.306	1.308	0.154	2.4	1.2	2.5	1.3	A-	
1300	617672	11	262	.699	.061	.699	.157	.073	.012	.412	-.104	.412	-.183	-.251	-1.015	0.148	-0.3	1.0	-0.7	0.9	A-	
1301	617673	11	260	.162	.162	.500	.131	.204	.004	-.093	-.093	.175	-.129	.030	1.918	0.177	2.1	1.2	5.0	2.1	A-	
1302	617664	11	260	.165	.108	.165	.223	.500	.004	-.119	-.117	-.119	-.078	.270	1.887	0.175	2.4	1.3	4.8	2.0	A-	
1303	617665	11	259	.390	.220	.108	.278	.390	.004	.212	-.093	-.174	.024	.212	0.724	0.138	2.7	1.2	2.8	1.2	A-	
1304	620000	11	259	.390	.058	.127	.417	.390	.008	.333	-.176	-.185	-.060	.333	0.721	0.138	0.5	1.0	0.7	1.1	C+	
1305	617657	11	259	.730	.054	.116	.093	.730	.008	.473	-.200	-.242	-.198	.473	-0.973	0.151	-1.8	0.9	-1.8	0.8	A-	
1306	617658	11	289	.412	.170	.412	.173	.246	.000	.422	-.086	.422	-.272	-.169	0.541	0.128	-1.4	0.9	-0.8	1.0	B-	
1307	617666	11	289	.495	.170	.159	.495	.177	.000	.255	-.233	-.157	.255	.046	0.153	0.127	2.1	1.1	2.4	1.1	A-	
1308	617659	11	260	.546	.131	.546	.204	.104	.015	.417	-.088	.417	-.321	-.020	-0.119	0.136	-0.8	1.0	-0.8	1.0	A-	
1309	617667	11	260	.696	.181	.696	.073	.035	.015	.453	-.269	.453	-.196	-.033	-0.878	0.147	-1.2	0.9	-0.9	0.9	A+	
1310	617668	11	260	.212	.008	.212	.273	.508	.000	.068	-.200	.068	-.071	.043	1.668	0.159	1.3	1.1	2.7	1.4	A-	
1311	617660	11	260	.396	.169	.215	.212	.396	.008	.426	-.168	-.125	-.211	.426	0.637	0.135	-1.4	0.9	-1.6	0.9	A+	
1312	617661	11	261	.211	.153	.192	.211	.441	.004	-.039	-.101	-.125	-.039	.247	1.581	0.160	2.7	1.3	4.4	1.7	B+	
1313	617669	11	261	.410	.341	.410	.126	.115	.008	.226	.067	.226	-.166	-.198	0.491	0.135	2.5	1.1	2.4	1.2	B-	
1314	616111	Bio	307	.730	.730	.088	.098	.072	.013	.422	.422	-.179	-.254	-.152	-0.558	0.137	-1.2	0.9	-2.0	0.8	A-	
1315	617013	Bio	311	.318	.203	.318	.405	.074	.000	.333	-.175	.333	-.072	-.189	1.482	0.128	-0.3	1.0	-0.4	1.0	A-	
1316	616112	Bio	307	.547	.547	.261	.101	.085	.007	.461	.461	-.245	-.140	-.203	0.269	0.122	-3.0	0.9	-3.0	0.9	C-	
1317	617004	Bio	4897	.391	.266	.083	.256	.391	.004	.350	-.077	-.123	-.196	.350	1.056	0.031	-3.0	1.0	-3.4	1.0	A+	A+
1318	616118	Bio	4897	.165	.467	.228	.135	.165	.005	.181	.198	-.165	-.218	.181	2.361	0.040	1.8	1.1	4.2	1.2	A+	A-
1319	617775	Bio	307	.202	.202	.427	.186	.179	.007	.079	.079	.121	-.147	-.019	2.040	0.150	1.5	1.1	1.9	1.3	A-	
1320	617776	Bio	300	.347	.490	.347	.080	.077	.007	.337	-.138	.337	-.124	-.083	1.351	0.129	0.1	1.0	0.0	1.0	A-	
1321	616126	Bio	312	.356	.154	.208	.279	.356	.003	.351	-.187	-.151	-.083	.351	1.179	0.124	-0.8	1.0	-1.0	1.0	A-	
1322	617016	Bio	312	.381	.160	.381	.231	.224	.003	.343	-.080	.343	-.134	-.190	1.058	0.122	-0.8	1.0	-0.7	1.0	A-	
1323	617014	Bio	312	.401	.266	.401	.247	.087	.000	.297	-.097	.297	-.122	-.178	0.974	0.121	0.0	1.0	0.0	1.0	A+	
1324	617570	Bio	312	.462	.045	.112	.462	.381	.000	.288	-.179	-.110	.288	-.148	0.703	0.119	0.1	1.0	0.2	1.0	A-	
1325	617777	Bio	312	.279	.279	.330	.337	.055	.000	.311	.311	-.134	-.041	-.250	1.571	0.131	-0.3	1.0	-0.3	1.0	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1326	617792	Bio	312	.324	.186	.324	.385	.103	.003	.150	-.055	.150	.012	-.172	1.335	0.126	1.6	1.1	2.2	1.2	A-	
1327	616113	Bio	306	.464	.154	.464	.226	.150	.007	.470	-.136	.470	-.183	-.201	0.730	0.121	-4.2	0.9	-4.0	0.8	A+	
1328	617778	Bio	306	.382	.304	.105	.199	.382	.010	.339	-.110	-.106	-.087	.339	1.100	0.124	-0.7	1.0	-0.8	1.0	A+	
1329	617015	Bio	306	.268	.144	.268	.324	.255	.010	.068	-.097	.068	-.075	.198	1.679	0.135	2.3	1.2	3.1	1.3	B-	
1330	617783	Bio	306	.340	.327	.144	.180	.340	.010	.455	-.097	-.084	-.244	.455	1.304	0.127	-2.7	0.9	-2.8	0.8	A+	
1331	617793	Bio	306	.363	.340	.167	.363	.118	.013	.191	.098	-.109	.191	-.147	1.190	0.125	1.7	1.1	2.7	1.2	A+	
1332	617571	Bio	306	.768	.768	.023	.085	.108	.016	.408	.408	-.096	-.209	-.146	-0.791	0.144	-0.9	0.9	-1.2	0.9	A+	
1333	617779	Bio	301	.352	.253	.352	.136	.256	.003	.215	-.186	.215	-.160	.108	1.247	0.128	1.8	1.1	1.9	1.1	B+	
1334	616114	Bio	301	.535	.153	.086	.535	.223	.003	.412	-.145	-.164	.412	-.225	0.404	0.122	-1.7	0.9	-2.0	0.9	A+	
1335	617800	Bio	301	.738	.073	.073	.738	.113	.003	.285	-.068	-.216	.285	-.118	-0.593	0.138	0.2	1.0	0.1	1.0	C+	
1336	617794	Bio	301	.282	.239	.332	.282	.143	.003	.178	-.131	.034	.178	-.076	1.609	0.135	1.5	1.1	2.7	1.2	A-	
1337	617572	Bio	301	.402	.402	.183	.206	.196	.013	.379	.379	-.196	-.144	-.074	0.990	0.125	-1.0	1.0	-0.4	1.0	A-	
1338	616128	Bio	301	.269	.080	.455	.186	.269	.010	.090	-.093	.078	-.078	.090	1.676	0.137	2.6	1.2	3.2	1.3	A-	
1339	617780	Bio	297	.512	.108	.155	.219	.512	.007	.379	-.174	-.272	-.044	.379	0.435	0.122	-1.4	1.0	-1.3	0.9	A+	
1340	617795	Bio	297	.391	.071	.330	.202	.391	.007	.340	-.145	-.072	-.198	.340	0.980	0.125	-0.5	1.0	-0.5	1.0	A-	
1341	617017	Bio	297	.300	.300	.229	.189	.280	.003	.168	.168	-.094	-.111	.057	1.438	0.133	1.6	1.1	2.1	1.2	A+	
1342	617765	Bio	297	.330	.222	.104	.333	.330	.010	.412	-.094	-.195	-.145	.412	1.271	0.130	-1.6	0.9	-1.5	0.9	A-	
1343	616115	Bio	297	.562	.098	.179	.152	.562	.010	.433	-.128	-.258	-.145	.433	0.202	0.123	-2.5	0.9	-2.6	0.9	A+	
1344	616129	Bio	297	.411	.323	.189	.411	.067	.010	.358	-.143	-.170	.358	-.065	0.884	0.124	-0.9	1.0	-0.8	1.0	A+	
1345	617781	Bio	308	.244	.149	.383	.244	.218	.007	.447	-.159	-.174	.447	-.066	1.696	0.138	-1.9	0.9	-2.3	0.8	A-	
1346	616130	Bio	308	.490	.490	.276	.094	.133	.007	.209	.209	-.034	-.075	-.146	0.494	0.119	1.8	1.1	1.7	1.1	A+	
1347	616116	Bio	308	.474	.205	.130	.474	.188	.003	.369	-.185	-.184	.369	-.069	0.590	0.119	-1.8	0.9	-1.6	0.9	A-	
1348	617018	Bio	308	.299	.224	.162	.299	.312	.003	.216	-.014	-.155	.216	-.034	1.395	0.130	0.7	1.0	0.9	1.1	A+	
1349	617766	Bio	308	.429	.318	.429	.097	.153	.003	.326	-.158	.326	-.137	-.074	0.777	0.120	-0.7	1.0	-0.5	1.0	A+	
1350	617797	Bio	308	.273	.114	.406	.201	.273	.007	.333	-.046	-.108	-.142	.333	1.530	0.133	-0.7	1.0	-0.8	0.9	A+	
1351	617006	Bio	311	.508	.360	.026	.106	.508	.000	.187	-.068	-.161	-.114	.187	0.568	0.119	2.9	1.1	2.0	1.1	B+	
1352	620046	Bio	311	.424	.196	.424	.145	.235	.000	.327	-.121	.327	-.219	-.086	0.941	0.121	-0.3	1.0	-0.2	1.0	A+	
1353	617344	Bio	311	.605	.084	.167	.145	.605	.000	.362	-.165	-.195	-.167	.362	0.136	0.121	-1.2	1.0	-0.7	1.0	A+	
1354	616117	Bio	311	.463	.228	.225	.084	.463	.000	.363	-.149	-.231	-.080	.363	0.768	0.120	-0.9	1.0	-1.0	1.0	A+	
1355	617798	Bio	311	.161	.389	.318	.129	.161	.003	.285	.018	-.195	-.070	.285	2.421	0.161	-0.4	1.0	0.8	1.1	A-	
1356	617782	Bio	311	.232	.093	.405	.264	.232	.006	.221	-.175	.094	-.187	.221	1.922	0.141	0.8	1.1	0.5	1.1	A+	
1357	617812	Bio	311	.399	.399	.132	.097	.367	.006	.276	.276	-.160	-.283	.019	1.047	0.122	0.9	1.0	0.7	1.0	A-	
1358	617799	Bio	307	.160	.111	.160	.505	.222	.003	.326	-.077	.326	-.081	-.131	2.462	0.163	-0.3	1.0	-0.1	1.0	A-	
1359	620042	Bio	307	.332	.332	.287	.248	.130	.003	.340	.340	-.238	-.172	.076	1.384	0.129	0.2	1.0	0.2	1.0	A-	
1360	617345	Bio	307	.580	.114	.160	.580	.147	.000	.391	-.163	-.212	.391	-.179	0.230	0.123	-1.1	1.0	-1.4	0.9	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1361	617768	Bio	307	.450	.192	.450	.166	.192	.000	.486	-.137	.486	-.261	-.229	0.824	0.122	-3.0	0.9	-3.0	0.9	A-	
1362	617005	Bio	307	.518	.189	.518	.176	.108	.010	.373	-.220	.373	-.093	-.173	0.491	0.122	-0.6	1.0	-0.6	1.0	A+	
1363	620043	Bio	298	.534	.141	.171	.151	.534	.003	.385	-.139	-.147	-.190	.385	0.414	0.122	-1.9	0.9	-1.5	0.9	B+	
1364	617007	Bio	298	.473	.168	.473	.148	.208	.003	.299	-.155	.299	-.099	-.088	0.681	0.122	0.3	1.0	-0.1	1.0	A-	
1365	616119	Bio	298	.352	.352	.094	.208	.342	.003	.338	.338	-.185	-.173	-.036	1.234	0.127	-0.8	1.0	-0.5	1.0	A-	
1366	617769	Bio	298	.443	.443	.248	.104	.201	.003	.361	.361	-.137	-.188	-.106	0.815	0.122	-1.2	1.0	-1.1	1.0	A+	
1367	617346	Bio	298	.349	.379	.185	.349	.081	.007	.269	.029	-.239	.269	-.110	1.241	0.128	0.5	1.0	0.4	1.0	A-	
1368	617784	Bio	298	.487	.198	.138	.171	.487	.007	.465	-.212	-.102	-.247	.465	0.611	0.122	-3.8	0.9	-3.6	0.9	A+	
1369	617770	Bio	313	.805	.070	.029	.805	.090	.006	.426	-.228	-.179	.426	-.165	-0.989	0.149	-1.1	0.9	-1.9	0.8	A-	
1370	617347	Bio	313	.697	.150	.697	.080	.064	.010	.290	-.090	.290	-.194	-.065	-0.356	0.130	0.0	1.0	1.1	1.1	A+	
1371	617801	Bio	313	.348	.185	.329	.131	.348	.006	.291	-.140	-.053	-.076	.291	1.280	0.125	0.2	1.0	0.3	1.0	B+	
1372	617008	Bio	313	.240	.182	.284	.240	.281	.013	.282	.003	-.085	.282	-.100	1.851	0.138	-0.2	1.0	0.3	1.0	A+	
1373	617785	Bio	313	.220	.371	.166	.230	.220	.013	.224	.099	-.184	-.080	.224	1.969	0.142	0.4	1.0	0.8	1.1	A+	
1374	620044	Bio	313	.316	.307	.316	.265	.102	.010	.165	-.134	.165	.055	-.002	1.437	0.128	2.1	1.1	2.0	1.1	A-	
1375	616120	Bio	313	.157	.173	.508	.150	.157	.013	.091	-.065	.156	-.135	.091	2.425	0.161	0.9	1.1	2.0	1.3	A-	
1376	617802	Bio	317	.653	.085	.164	.653	.098	.000	.432	-.136	-.296	.432	-.197	-0.203	0.126	-1.5	0.9	-1.7	0.9	A-	
1377	617786	Bio	317	.060	.524	.060	.221	.186	.010	.120	.146	.120	-.162	-.026	3.731	0.261	-0.1	1.0	0.5	1.1	A-	
1378	617348	Bio	317	.448	.249	.180	.114	.448	.010	.362	-.016	-.233	-.176	.362	0.772	0.121	-0.7	1.0	2.3	1.1	A-	
1379	620045	Bio	317	.786	.786	.028	.142	.035	.010	.315	.315	-.079	-.198	-.096	-0.971	0.147	0.2	1.0	0.3	1.0	B+	
1380	616121	Bio	317	.820	.820	.025	.110	.038	.006	.471	.471	-.164	-.305	-.181	-1.238	0.158	-1.3	0.9	-1.7	0.8	A-	
1381	617009	Bio	317	.177	.151	.177	.416	.246	.010	.088	-.180	.088	.092	.021	2.269	0.155	1.2	1.1	2.5	1.4	A-	
1382	617771	Bio	317	.754	.044	.754	.073	.120	.010	.511	-.132	.511	-.273	-.303	-0.771	0.140	-2.2	0.9	-2.8	0.7	A+	
1383	616122	Bio	311	.312	.161	.161	.312	.360	.006	.162	-.054	.079	.162	-.098	1.424	0.128	1.6	1.1	2.4	1.2	A+	
1384	617787	Bio	311	.106	.453	.106	.119	.315	.006	.086	.222	.086	-.096	-.148	2.873	0.190	0.5	1.1	1.9	1.4	A+	
1385	617803	Bio	311	.457	.209	.190	.457	.138	.006	.473	-.179	-.234	.473	-.098	0.742	0.120	-4.1	0.9	-3.8	0.8	A-	
1386	617010	Bio	311	.306	.248	.306	.167	.273	.006	.157	.068	.157	-.243	.060	1.457	0.129	2.0	1.1	1.5	1.1	A-	
1387	617772	Bio	311	.640	.640	.100	.084	.170	.006	.382	.382	-.071	-.182	-.197	-0.090	0.124	-1.4	0.9	-1.1	0.9	A-	
1388	617011	Bio	300	.183	.297	.400	.113	.183	.007	.075	-.030	.059	-.026	.075	2.270	0.156	1.4	1.1	2.5	1.4	A-	
1389	617788	Bio	300	.137	.280	.273	.137	.300	.010	.028	-.205	.054	.028	.206	2.646	0.174	1.2	1.1	2.9	1.6	A-	
1390	617773	Bio	300	.280	.067	.417	.230	.280	.007	.254	-.066	-.150	.031	.254	1.662	0.136	0.8	1.1	0.7	1.1	A-	
1391	616123	Bio	300	.473	.473	.377	.063	.077	.010	.384	.384	-.120	-.216	-.128	0.714	0.123	-1.4	1.0	-0.5	1.0	C-	
1392	617804	Bio	300	.140	.140	.387	.310	.153	.010	-.048	-.048	.097	.065	-.038	2.618	0.173	1.8	1.2	3.2	1.6	B-	
1393	616124	Bio	298	.342	.369	.232	.342	.054	.003	.321	-.117	-.118	.321	-.167	1.292	0.129	-0.4	1.0	-0.1	1.0	B+	
1394	617790	Bio	298	.312	.312	.309	.245	.131	.003	.344	.344	-.255	-.071	-.008	1.444	0.132	-0.5	1.0	0.3	1.0	A-	
1395	617012	Bio	298	.309	.185	.064	.309	.436	.007	.302	-.157	-.110	.302	-.071	1.456	0.132	0.0	1.0	1.0	1.1	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1396	617568	Bio	298	.802	.030	.094	.802	.067	.007	.398	-.180	-.192	.398	-.218	-0.991	0.152	-1.0	0.9	-1.4	0.8	A+	
1397	617774	Bio	298	.309	.309	.547	.060	.077	.007	.194	.194	-.033	-.076	-.143	1.456	0.132	1.6	1.1	1.6	1.1	A+	
1398	617791	Bio	311	.219	.219	.177	.306	.299	.000	.146	.146	-.091	.017	-.073	2.045	0.143	1.2	1.1	1.7	1.2	B+	
1399	616125	Bio	311	.289	.206	.154	.351	.289	.000	.092	-.059	-.036	-.011	.092	1.633	0.131	2.3	1.1	3.0	1.3	A+	
1400	617569	Bio	311	.679	.064	.051	.679	.203	.003	.390	-.252	-.066	.390	-.251	-0.200	0.127	-1.2	0.9	-1.0	0.9	A-	
1401	617789	Bio	311	.605	.605	.209	.145	.035	.006	.421	.421	-.304	-.166	-.099	0.148	0.122	-2.0	0.9	-1.8	0.9	A-	
1402	617377	Bio	307	.775	.775	.062	.114	.042	.007	.357	.357	-.222	-.156	-.115	-0.918	0.145	-0.2	1.0	-0.5	0.9	A+	
1403	617839	Bio	301	.734	.040	.130	.734	.093	.003	.405	-.212	-.193	.405	-.202	-0.574	0.137	-1.3	0.9	-1.6	0.9	A-	
1404	617349	Bio	311	.688	.119	.035	.688	.151	.006	.389	-.223	-.113	.389	-.139	-0.329	0.129	-1.3	0.9	-1.2	0.9	A+	
1405	617836	Bio	307	.492	.085	.267	.150	.492	.007	.444	-.196	-.203	-.147	.444	0.524	0.122	-3.9	0.9	-3.3	0.8	A+	
1406	617464	Bio	307	.300	.300	.368	.186	.140	.007	.228	.228	.004	-.141	-.099	1.444	0.132	1.3	1.1	1.0	1.1	A+	
1407	617361	Bio	4897	.204	.095	.396	.204	.298	.008	.179	-.154	-.006	.179	.000	2.067	0.037	2.8	1.1	5.8	1.2	A-	A+
1408	617465	Bio	300	.277	.277	.053	.203	.460	.007	.135	.135	-.068	-.006	-.013	1.723	0.137	2.1	1.1	2.7	1.3	A-	
1409	617368	Bio	312	.253	.135	.295	.317	.253	.000	.146	-.225	.027	.002	.146	1.714	0.135	1.4	1.1	1.0	1.1	B+	
1410	617353	Bio	312	.561	.561	.180	.144	.112	.003	.304	.304	-.199	-.161	-.048	0.261	0.119	-0.3	1.0	-0.5	1.0	A+	
1411	617807	Bio	312	.494	.180	.189	.494	.138	.000	.327	-.159	-.180	.327	-.092	0.562	0.118	-0.6	1.0	-0.9	1.0	A+	
1412	617837	Bio	312	.760	.016	.760	.064	.160	.000	.242	-.096	.242	-.197	-.118	-0.707	0.136	-0.2	1.0	0.8	1.1	A+	
1413	620062	Bio	312	.359	.391	.160	.359	.090	.000	.276	-.093	-.110	.276	-.164	1.168	0.123	0.3	1.0	0.2	1.0	A-	
1414	617822	Bio	312	.481	.109	.481	.250	.160	.000	.337	-.092	.337	-.265	-.068	0.618	0.118	-0.8	1.0	-1.1	1.0	A-	
1415	617369	Bio	306	.333	.150	.147	.363	.333	.007	.229	-.005	-.088	-.080	.229	1.338	0.127	1.1	1.1	0.8	1.1	A-	
1416	620063	Bio	306	.343	.088	.343	.386	.177	.007	.387	-.157	.387	-.125	-.110	1.290	0.126	-1.6	0.9	-1.4	0.9	B-	
1417	617838	Bio	306	.637	.170	.062	.118	.637	.013	.413	-.107	-.168	-.213	.413	-0.069	0.126	-1.7	0.9	-1.8	0.9	A+	
1418	617808	Bio	306	.438	.438	.190	.137	.226	.010	.365	.365	-.197	-.134	-.026	0.844	0.121	-1.3	1.0	-1.0	1.0	A-	
1419	617823	Bio	306	.425	.206	.425	.203	.157	.010	.446	-.114	.446	-.250	-.075	0.904	0.122	-3.0	0.9	-3.0	0.9	A+	
1420	617354	Bio	306	.350	.134	.252	.255	.350	.010	.304	-.037	-.052	-.144	.304	1.256	0.126	-0.1	1.0	-0.1	1.0	A-	
1421	617355	Bio	301	.332	.143	.332	.269	.256	.000	.146	.072	.146	-.087	-.127	1.349	0.129	2.4	1.1	3.2	1.2	A-	
1422	620367	Bio	301	.568	.568	.156	.166	.110	.000	.418	.418	-.281	-.203	-.095	0.258	0.123	-2.5	0.9	-2.0	0.9	A-	
1423	617370	Bio	301	.495	.136	.156	.209	.495	.003	.494	-.170	-.161	-.287	.494	0.584	0.122	-3.6	0.9	-3.3	0.8	A+	
1424	617809	Bio	301	.372	.372	.203	.106	.312	.007	.188	.188	-.079	-.188	.040	1.146	0.126	2.7	1.1	2.1	1.1	A+	
1425	617825	Bio	301	.395	.106	.395	.269	.219	.010	.431	-.145	.431	-.184	-.148	1.029	0.125	-1.9	0.9	-1.7	0.9	A-	
1426	617810	Bio	297	.461	.259	.461	.165	.111	.003	.327	-.141	.327	-.097	-.145	0.668	0.123	-0.3	1.0	-0.6	1.0	A+	
1427	617840	Bio	297	.317	.175	.283	.317	.222	.003	.102	.037	-.138	.102	.049	1.350	0.131	2.7	1.2	2.6	1.2	C-	
1428	617815	Bio	297	.519	.519	.077	.155	.246	.003	.408	.408	-.241	-.155	-.147	0.414	0.122	-2.2	0.9	-2.3	0.9	A+	
1429	617371	Bio	297	.280	.253	.185	.280	.280	.003	.106	.075	-.236	.106	.071	1.546	0.136	2.2	1.1	2.5	1.2	A-	
1430	617826	Bio	297	.340	.242	.340	.306	.104	.007	.261	-.085	.261	-.123	-.035	1.223	0.129	0.5	1.0	1.1	1.1	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1431	620369	Bio	297	.471	.148	.313	.471	.061	.007	.386	-.172	-.194	.386	-.090	0.613	0.123	-1.5	1.0	-1.7	0.9	A-	
1432	620370	Bio	308	.494	.120	.341	.494	.042	.003	.228	-.031	-.143	.228	-.078	0.504	0.119	1.2	1.0	1.4	1.1	A-	
1433	617811	Bio	308	.536	.169	.114	.179	.536	.003	.376	-.215	-.104	-.139	.376	0.304	0.120	-1.7	0.9	-1.7	0.9	A-	
1434	617357	Bio	308	.354	.354	.146	.146	.347	.007	.393	.393	-.138	-.190	-.106	1.116	0.124	-1.7	0.9	-1.7	0.9	A-	
1435	617841	Bio	308	.838	.049	.055	.838	.055	.003	.332	-.203	-.097	.332	-.158	-1.331	0.161	-0.4	1.0	-0.8	0.9	A+	
1436	617827	Bio	308	.195	.367	.195	.208	.227	.003	.044	.004	.044	-.076	.078	2.005	0.149	1.5	1.1	1.8	1.2	A-	
1437	617832	Bio	308	.253	.042	.253	.584	.117	.003	.167	-.136	.167	-.059	.014	1.642	0.136	0.9	1.1	1.3	1.1	B-	
1438	617358	Bio	311	.209	.125	.151	.515	.209	.000	.105	-.073	.069	-.087	.105	2.075	0.146	1.5	1.1	2.1	1.2	A+	
1439	618573	Bio	311	.248	.145	.042	.566	.248	.000	.121	-.071	-.182	.019	.121	1.834	0.138	1.7	1.1	2.1	1.2	A+	
1440	617372	Bio	311	.177	.219	.177	.129	.476	.000	.152	-.020	.152	-.082	-.045	2.301	0.155	0.5	1.0	2.5	1.4	A-	
1441	620371	Bio	311	.756	.756	.061	.061	.122	.000	.396	.396	-.171	-.202	-.247	-0.631	0.137	-1.4	0.9	-1.2	0.9	B-	
1442	617828	Bio	311	.334	.222	.138	.334	.299	.006	.265	-.058	-.157	.265	-.088	1.356	0.127	0.6	1.0	1.1	1.1	A+	
1443	617373	Bio	311	.354	.122	.347	.354	.170	.006	.338	-.132	-.129	.338	-.135	1.261	0.125	-0.3	1.0	-0.4	1.0	A+	
1444	617813	Bio	307	.391	.163	.117	.329	.391	.000	.415	-.242	-.067	-.195	.415	1.098	0.125	-1.1	1.0	-1.2	0.9	A+	
1445	617359	Bio	307	.121	.186	.257	.437	.121	.000	.174	.120	-.082	-.137	.174	2.822	0.182	0.4	1.0	1.7	1.3	A-	
1446	617374	Bio	307	.287	.287	.316	.195	.195	.007	.284	.284	-.041	-.170	-.072	1.623	0.134	0.8	1.1	0.6	1.1	A-	
1447	617829	Bio	307	.518	.173	.209	.518	.095	.007	.443	-.246	-.220	.443	-.088	0.502	0.122	-2.1	0.9	-1.7	0.9	B-	
1448	617830	Bio	298	.611	.611	.218	.104	.057	.010	.301	.301	-.094	-.177	-.115	0.052	0.125	0.1	1.0	-0.1	1.0	A+	
1449	617375	Bio	298	.178	.178	.027	.178	.611	.007	.268	.268	-.137	-.194	.028	2.237	0.158	-0.2	1.0	0.4	1.1	B-	
1450	617360	Bio	298	.440	.188	.175	.440	.191	.007	.107	-.145	-.054	.107	.111	0.820	0.123	3.8	1.1	4.1	1.2	A+	
1451	617814	Bio	298	.329	.178	.218	.329	.265	.010	.171	-.018	-.119	.171	-.018	1.332	0.129	1.7	1.1	1.7	1.1	A-	
1452	617362	Bio	313	.326	.329	.326	.029	.310	.006	.187	-.101	.187	-.042	-.033	1.383	0.127	1.4	1.1	2.5	1.2	A-	
1453	617376	Bio	313	.451	.451	.192	.300	.054	.003	.204	.204	-.228	.089	-.147	0.807	0.120	2.2	1.1	2.3	1.1	A+	
1454	617831	Bio	313	.575	.115	.575	.144	.160	.006	.375	-.239	.375	-.229	.012	0.245	0.121	-1.3	1.0	-1.1	0.9	A+	
1455	620060	Bio	317	.423	.082	.300	.423	.186	.010	.278	-.159	-.144	.278	-.015	0.869	0.122	1.5	1.1	1.6	1.1	A-	
1456	617816	Bio	317	.659	.155	.659	.095	.082	.010	.424	-.164	.424	-.291	-.122	-0.238	0.127	-1.3	0.9	-1.5	0.9	A-	
1457	617463	Bio	317	.543	.044	.290	.543	.117	.006	.394	-.183	-.138	.394	-.222	0.354	0.121	-1.3	1.0	-1.1	0.9	A-	
1458	617363	Bio	317	.476	.177	.476	.202	.136	.010	.412	-.142	.412	-.166	-.178	0.637	0.121	-1.6	0.9	-1.0	1.0	C+	
1459	617817	Bio	311	.457	.457	.199	.183	.154	.006	.381	.381	-.139	-.089	-.172	0.742	0.120	-1.8	0.9	-1.8	0.9	A-	
1460	617833	Bio	311	.232	.232	.566	.093	.103	.006	.223	.223	.131	-.184	-.225	1.871	0.140	0.4	1.0	0.7	1.1	A+	
1461	617364	Bio	311	.228	.338	.315	.228	.113	.006	.260	-.083	-.089	.260	.028	1.891	0.141	0.1	1.0	0.1	1.0	A+	
1462	617466	Bio	311	.235	.135	.232	.392	.235	.006	.213	-.084	-.037	-.018	.213	1.851	0.139	0.5	1.0	1.2	1.1	A-	
1463	617834	Bio	300	.200	.213	.287	.200	.293	.007	.261	.070	-.210	.261	-.004	2.152	0.151	-0.1	1.0	0.5	1.1	A-	
1464	617467	Bio	300	.370	.080	.057	.370	.483	.010	.218	.020	-.108	.218	-.078	1.196	0.127	1.8	1.1	2.1	1.1	A-	
1465	617350	Bio	300	.290	.380	.057	.260	.290	.013	.395	-.140	-.212	-.043	.395	1.597	0.135	-1.3	0.9	-1.1	0.9	B-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1466	617365	Bio	300	.413	.170	.310	.413	.097	.010	.238	-.149	.053	.238	-.132	0.990	0.125	1.7	1.1	2.6	1.2	A-	
1467	617819	Bio	300	.630	.043	.200	.630	.117	.010	.361	-.057	-.193	.361	-.120	-0.012	0.127	-0.3	1.0	-0.8	1.0	A+	
1468	620059	Bio	300	.370	.233	.370	.200	.180	.017	.361	-.177	.361	-.098	-.035	1.180	0.127	-0.8	1.0	-0.3	1.0	A+	
1469	617366	Bio	298	.252	.302	.235	.252	.211	.000	.194	-.260	-.055	.194	.142	1.796	0.141	0.8	1.1	1.3	1.1	A-	
1470	617835	Bio	298	.426	.151	.339	.426	.081	.003	.387	-.169	-.189	.387	-.121	0.904	0.124	-1.5	0.9	-1.6	0.9	A-	
1471	617805	Bio	298	.305	.305	.235	.225	.232	.003	.363	.363	-.134	-.150	-.093	1.479	0.132	-0.5	1.0	-0.9	0.9	A-	
1472	617820	Bio	298	.557	.228	.557	.151	.057	.007	.340	-.093	.340	-.200	-.179	0.301	0.123	-0.3	1.0	-0.6	1.0	A-	
1473	617351	Bio	298	.386	.175	.232	.201	.386	.007	.492	-.209	-.148	-.201	.492	1.075	0.126	-3.0	0.9	-3.1	0.8	B-	
1474	617367	Bio	311	.293	.293	.370	.203	.135	.000	.110	.110	.099	-.180	-.076	1.616	0.131	2.4	1.1	2.3	1.2	A-	
1475	617806	Bio	311	.659	.659	.055	.209	.077	.000	.440	.440	-.213	-.296	-.150	-0.095	0.125	-2.2	0.9	-2.4	0.9	A-	
1476	617352	Bio	311	.637	.035	.228	.100	.637	.000	.354	-.231	-.118	-.260	.354	0.013	0.124	-0.8	1.0	-0.8	1.0	A-	
1477	620061	Bio	311	.486	.486	.154	.248	.109	.003	.323	.323	-.080	-.254	-.057	0.695	0.120	0.0	1.0	0.1	1.0	B+	
1478	617821	Bio	311	.264	.264	.306	.164	.261	.006	.202	.202	-.029	-.047	-.125	1.767	0.135	0.9	1.1	1.7	1.2	A+	
1479	617401	Bio	4897	.507	.141	.266	.507	.082	.004	.414	-.129	-.259	.414	-.104	0.526	0.030	-8.6	0.9	-8.1	0.9	A+	A+
1480	617395	Bio	313	.329	.329	.278	.284	.099	.010	.204	.204	.004	-.170	.060	1.372	0.126	1.3	1.1	1.7	1.1	B-	
1481	617394	Bio	298	.554	.104	.178	.158	.554	.007	.335	-.102	-.161	-.149	.335	0.313	0.122	-0.8	1.0	-1.0	1.0	B+	
1482	617414	Bio	301	.452	.060	.452	.233	.253	.003	.121	-.192	.121	-.128	.123	0.779	0.123	4.4	1.2	3.7	1.2	A+	
1483	617880	Bio	307	.538	.538	.179	.143	.134	.007	.352	.352	-.130	-.247	-.077	0.412	0.122	-0.1	1.0	-0.3	1.0	A-	
1484	617418	Bio	307	.218	.218	.293	.127	.352	.010	.208	.208	-.065	-.079	-.018	1.920	0.146	0.5	1.0	0.6	1.1	A-	
1485	617890	Bio	307	.238	.176	.306	.277	.238	.003	.327	-.043	-.177	-.049	.327	1.808	0.141	-0.8	0.9	-0.5	1.0	A-	
1486	617885	Bio	4897	.282	.222	.311	.179	.282	.007	.268	-.058	-.029	-.156	.268	1.596	0.033	1.6	1.0	2.0	1.0	A+	A-
1487	617873	Bio	307	.570	.081	.222	.570	.121	.007	.399	-.064	-.284	.399	-.121	0.164	0.123	-1.6	0.9	-1.2	0.9	B+	
1488	617386	Bio	4897	.246	.370	.127	.249	.246	.009	.333	-.108	-.093	-.082	.333	1.802	0.035	-2.2	1.0	-1.0	1.0	A+	A-
1489	617403	Bio	300	.520	.080	.520	.273	.120	.007	.388	-.196	.388	-.142	-.126	0.535	0.123	-1.2	1.0	-0.9	1.0	A+	
1490	617397	Bio	300	.377	.217	.263	.137	.377	.007	.402	-.120	-.131	-.150	.402	1.202	0.127	-1.7	0.9	-1.8	0.9	B+	
1491	617419	Bio	300	.183	.150	.183	.300	.357	.010	-.048	-.132	-.048	.080	.134	2.316	0.157	2.8	1.3	2.8	1.4	A-	
1492	617384	Bio	300	.300	.197	.300	.283	.213	.007	.286	-.054	.286	-.123	-.044	1.594	0.134	0.4	1.0	1.8	1.2	A-	
1493	617402	Bio	300	.393	.060	.183	.393	.353	.010	.202	-.138	-.041	.202	-.019	1.121	0.126	2.2	1.1	1.8	1.1	A-	
1494	617874	Bio	300	.203	.283	.193	.313	.203	.007	.306	.046	-.152	-.103	.306	2.178	0.151	-0.1	1.0	-0.2	1.0	A+	
1495	617856	Bio	300	.293	.210	.293	.380	.110	.007	.225	.000	.225	-.005	-.203	1.630	0.135	0.9	1.1	1.2	1.1	A-	
1496	617420	Bio	312	.571	.074	.571	.192	.157	.006	.357	-.123	.357	-.327	-.051	0.206	0.120	-1.5	1.0	-1.5	0.9	A+	
1497	617387	Bio	312	.542	.112	.170	.542	.176	.000	.388	-.239	-.178	.388	-.134	0.352	0.118	-2.0	0.9	-2.2	0.9	A-	
1498	617892	Bio	312	.305	.147	.317	.231	.305	.000	.411	-.141	-.131	-.186	.411	1.436	0.128	-1.4	0.9	-1.8	0.9	A-	
1499	617859	Bio	312	.462	.462	.039	.263	.234	.003	.139	.139	-.066	-.130	-.004	0.694	0.119	2.9	1.1	3.0	1.1	B+	
1500	617413	Bio	312	.301	.218	.301	.324	.154	.003	.135	-.009	.135	-.090	-.030	1.451	0.129	1.8	1.1	1.8	1.1	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1501	617404	Bio	312	.590	.061	.115	.590	.234	.000	.223	-.139	-.229	.223	-.008	0.140	0.120	1.0	1.0	1.2	1.1	A-	
1502	617875	Bio	312	.183	.231	.183	.442	.144	.000	.119	-.051	.119	.003	-.074	2.164	0.152	0.8	1.1	1.7	1.2	A-	
1503	617388	Bio	306	.340	.193	.183	.340	.278	.007	.100	-.104	-.134	.100	.184	1.306	0.127	2.8	1.1	2.8	1.2	A-	
1504	617860	Bio	306	.614	.239	.092	.614	.049	.007	.347	-.140	-.208	.347	-.059	0.054	0.123	-0.6	1.0	-0.7	1.0	B+	
1505	617842	Bio	306	.431	.154	.320	.431	.082	.013	.094	.047	.010	.094	-.071	0.869	0.122	4.5	1.2	4.1	1.2	A-	
1506	617405	Bio	306	.216	.141	.242	.389	.216	.013	.281	-.021	-.054	-.074	.281	1.988	0.145	-0.3	1.0	0.0	1.0	A-	
1507	617845	Bio	306	.235	.180	.294	.281	.235	.010	.088	-.071	.024	.058	.088	1.869	0.140	1.9	1.2	1.9	1.2	A-	
1508	617421	Bio	306	.088	.196	.477	.226	.088	.013	.032	-.111	.217	-.051	.032	3.102	0.206	0.6	1.1	1.6	1.4	A-	
1509	617876	Bio	306	.350	.343	.118	.350	.177	.013	.132	.141	-.204	.132	-.032	1.253	0.126	2.8	1.1	2.6	1.2	A+	
1510	617861	Bio	301	.362	.150	.160	.329	.362	.000	.402	-.160	-.182	-.149	.402	1.201	0.127	-1.5	0.9	-1.3	0.9	A+	
1511	617422	Bio	301	.419	.419	.216	.239	.120	.007	.322	.322	-.181	-.099	-.070	0.926	0.124	0.5	1.0	0.1	1.0	A+	
1512	617843	Bio	301	.332	.455	.080	.130	.332	.003	.324	-.204	.054	-.154	.324	1.347	0.129	-0.2	1.0	0.4	1.0	A-	
1513	617389	Bio	301	.365	.249	.123	.253	.365	.010	.389	-.137	-.130	-.142	.389	1.173	0.127	-0.9	1.0	-0.9	1.0	A-	
1514	617406	Bio	301	.356	.163	.166	.306	.356	.010	.393	-.156	-.131	-.128	.393	1.221	0.128	-0.9	1.0	-1.2	0.9	A+	
1515	617390	Bio	297	.306	.091	.205	.394	.306	.003	.270	-.170	-.106	-.027	.270	1.403	0.132	0.3	1.0	0.9	1.1	A-	
1516	617844	Bio	297	.343	.185	.414	.343	.054	.003	.284	-.023	-.181	.284	-.074	1.216	0.128	0.4	1.0	0.5	1.0	B-	
1517	617878	Bio	297	.468	.094	.162	.468	.269	.007	.383	-.224	-.211	.383	-.051	0.635	0.123	-1.6	1.0	-1.4	0.9	A-	
1518	617851	Bio	297	.253	.239	.263	.239	.253	.007	.344	-.197	.035	-.143	.344	1.690	0.140	-0.6	1.0	-0.7	0.9	A+	
1519	617407	Bio	297	.482	.182	.236	.482	.091	.010	.262	.014	-.154	.262	-.154	0.564	0.123	1.2	1.0	1.3	1.1	B+	
1520	617423	Bio	297	.407	.229	.407	.148	.205	.010	.244	.026	.244	-.146	-.130	0.900	0.125	1.3	1.1	1.4	1.1	A-	
1521	617863	Bio	308	.221	.062	.630	.084	.221	.003	.104	-.136	.098	-.133	.104	1.856	0.143	1.2	1.1	1.4	1.2	A-	
1522	617408	Bio	308	.143	.127	.458	.266	.143	.007	.145	.040	.110	-.225	.145	2.426	0.169	0.2	1.0	1.0	1.2	A-	
1523	617391	Bio	308	.552	.110	.552	.273	.062	.003	.169	-.099	.169	-.041	-.058	0.232	0.120	2.4	1.1	2.7	1.1	A-	
1524	617864	Bio	308	.234	.289	.331	.234	.143	.003	.259	-.113	-.076	.259	-.005	1.776	0.140	-0.2	1.0	0.3	1.0	A-	
1525	617879	Bio	308	.175	.296	.149	.377	.175	.003	.233	-.013	-.108	-.048	.233	2.143	0.154	0.0	1.0	0.1	1.0	A-	
1526	617424	Bio	308	.370	.065	.205	.357	.370	.003	.312	-.090	-.104	-.137	.312	1.044	0.123	-0.3	1.0	-0.5	1.0	A-	
1527	617426	Bio	311	.489	.148	.042	.489	.322	.000	.247	-.123	-.184	.247	-.092	0.653	0.119	1.5	1.1	0.8	1.0	A-	
1528	617392	Bio	311	.457	.103	.457	.251	.187	.003	.349	-.148	.349	-.338	.052	0.789	0.120	-0.7	1.0	-0.8	1.0	A-	
1529	617846	Bio	311	.177	.518	.177	.154	.145	.006	.185	-.004	.185	-.190	.018	2.293	0.155	0.8	1.1	1.0	1.1	A-	
1530	617409	Bio	311	.322	.135	.373	.164	.322	.006	.289	-.286	.056	-.157	.289	1.421	0.128	0.5	1.0	0.2	1.0	A+	
1531	617862	Bio	311	.463	.135	.113	.283	.463	.006	.350	-.180	-.258	-.057	.350	0.754	0.120	-0.7	1.0	-0.4	1.0	A+	
1532	617865	Bio	307	.599	.599	.143	.143	.114	.000	.236	.236	-.149	-.095	-.094	0.139	0.123	1.4	1.1	2.4	1.2	A-	
1533	617393	Bio	307	.404	.147	.404	.235	.215	.000	.371	-.081	.371	-.208	-.159	1.036	0.124	-0.6	1.0	-0.6	1.0	A-	
1534	617881	Bio	307	.502	.502	.147	.287	.062	.003	.408	.408	-.118	-.266	-.159	0.582	0.122	-1.4	1.0	-1.3	0.9	A+	
1535	617379	Bio	307	.303	.225	.202	.270	.303	.000	.233	-.308	.029	.022	.233	1.540	0.132	1.6	1.1	1.0	1.1	B+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1536	617425	Bio	307	.642	.104	.137	.642	.114	.003	.421	-.202	-.274	.421	-.131	-0.073	0.126	-1.5	0.9	-1.9	0.9	A+	
1537	617847	Bio	307	.375	.169	.309	.143	.375	.003	.470	-.249	-.160	-.159	.470	1.170	0.126	-2.1	0.9	-2.2	0.9	A+	
1538	617410	Bio	307	.349	.251	.186	.349	.205	.010	.051	.084	-.128	.051	.001	1.289	0.128	4.5	1.3	4.3	1.3	A-	
1539	617852	Bio	307	.472	.104	.218	.472	.199	.007	.246	-.140	-.135	.246	-.028	0.710	0.122	2.3	1.1	2.2	1.1	A+	
1540	617848	Bio	298	.279	.299	.222	.279	.198	.003	.216	.091	-.124	.216	-.166	1.611	0.135	0.9	1.1	1.0	1.1	A-	
1541	620372	Bio	298	.138	.171	.560	.138	.128	.003	.134	.200	-.184	.134	-.029	2.574	0.174	0.4	1.0	2.2	1.4	A-	
1542	617866	Bio	298	.386	.121	.222	.269	.386	.003	.268	-.072	-.073	-.127	.268	1.075	0.125	0.7	1.0	0.7	1.0	A-	
1543	617380	Bio	298	.322	.124	.322	.326	.225	.003	.178	.056	.178	-.152	-.024	1.383	0.130	1.7	1.1	1.7	1.1	A-	
1544	617882	Bio	298	.349	.383	.131	.131	.349	.007	.319	-.043	-.124	-.197	.319	1.246	0.128	-0.3	1.0	-0.5	1.0	A+	
1545	617411	Bio	298	.329	.269	.245	.329	.154	.003	.202	.069	-.172	.202	-.086	1.349	0.129	1.4	1.1	1.3	1.1	B+	
1546	617427	Bio	298	.540	.104	.225	.540	.128	.003	.387	-.203	-.108	.387	-.196	0.384	0.122	-1.9	0.9	-1.9	0.9	A+	
1547	617883	Bio	298	.366	.168	.215	.248	.366	.003	.403	-.087	-.246	-.094	.403	1.169	0.126	-1.9	0.9	-1.7	0.9	A-	
1548	617849	Bio	313	.393	.393	.137	.304	.157	.010	.347	.347	-.134	-.153	-.080	1.056	0.122	-0.7	1.0	-0.9	1.0	A+	
1549	617877	Bio	313	.540	.214	.090	.150	.540	.006	.422	-.193	-.212	-.147	.422	0.396	0.120	-2.4	0.9	-2.6	0.9	A+	
1550	620373	Bio	313	.157	.157	.077	.476	.281	.010	.114	.114	-.159	.311	-.271	2.427	0.161	0.8	1.1	2.0	1.3	A-	
1551	617867	Bio	313	.543	.035	.265	.543	.150	.006	.331	-.122	-.275	.331	.035	0.390	0.120	-0.3	1.0	-0.4	1.0	A+	
1552	617381	Bio	313	.377	.208	.377	.243	.163	.010	.275	-.068	.275	-.096	-.087	1.132	0.123	0.5	1.0	0.8	1.0	A-	
1553	617412	Bio	313	.313	.313	.294	.217	.166	.010	.166	.166	.016	-.128	.003	1.447	0.128	1.9	1.1	2.0	1.2	A+	
1554	617891	Bio	313	.348	.195	.348	.348	.102	.006	.216	-.045	.216	-.032	-.119	1.280	0.125	1.5	1.1	1.3	1.1	B-	
1555	617468	Bio	313	.342	.105	.304	.342	.236	.013	.255	-.162	.056	.255	-.139	1.299	0.125	1.0	1.1	0.4	1.0	A-	
1556	620374	Bio	317	.278	.164	.278	.114	.439	.006	-.025	-.011	-.025	-.220	.191	1.621	0.133	3.7	1.3	4.0	1.4	A+	
1557	617884	Bio	317	.549	.549	.237	.082	.123	.010	.396	.396	-.180	-.238	-.097	0.300	0.121	-1.1	1.0	-1.1	0.9	A+	
1558	617382	Bio	317	.347	.155	.347	.297	.189	.013	.257	-.161	.257	-.012	-.071	1.238	0.126	1.3	1.1	1.4	1.1	A-	
1559	617850	Bio	317	.420	.262	.420	.145	.164	.010	.102	.024	.102	-.118	.013	0.914	0.122	4.5	1.2	4.1	1.3	A-	
1560	617396	Bio	317	.256	.129	.202	.256	.401	.013	.188	-.035	-.149	.188	.027	1.740	0.137	1.3	1.1	1.7	1.2	A-	
1561	617886	Bio	311	.203	.203	.334	.232	.225	.006	.110	.110	.071	-.134	.039	2.056	0.147	1.2	1.1	2.1	1.3	A+	
1562	620375	Bio	311	.267	.261	.351	.267	.116	.006	.062	.056	-.029	.062	-.003	1.664	0.134	2.4	1.2	3.0	1.3	A+	
1563	617383	Bio	311	.351	.170	.254	.219	.351	.006	.254	-.078	-.061	-.067	.254	1.232	0.125	0.8	1.0	0.5	1.0	A+	
1564	617869	Bio	311	.251	.228	.244	.270	.251	.006	.373	-.136	.000	-.151	.373	1.756	0.137	-1.0	0.9	-1.7	0.9	A+	
1565	617398	Bio	300	.477	.477	.073	.070	.370	.010	.437	.437	-.207	-.226	-.125	0.699	0.123	-2.3	0.9	-2.5	0.9	A+	
1566	617870	Bio	300	.423	.120	.207	.423	.240	.010	.192	-.074	.078	.192	-.131	0.944	0.124	2.9	1.1	3.0	1.2	A+	
1567	617887	Bio	300	.157	.157	.103	.227	.497	.017	.273	.273	-.179	-.161	.139	2.462	0.166	-0.2	1.0	-0.1	1.0	A+	
1568	617415	Bio	300	.383	.207	.150	.243	.383	.017	.326	-.014	-.165	-.111	.326	1.115	0.126	0.0	1.0	0.2	1.0	B+	
1569	617888	Bio	298	.289	.134	.466	.104	.289	.007	.239	.008	-.095	-.205	.239	1.577	0.135	0.5	1.0	1.0	1.1	C-	
1570	620385	Bio	298	.349	.242	.104	.349	.299	.007	.399	-.136	-.198	.399	-.120	1.253	0.128	-1.1	1.0	-1.5	0.9	B+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1571	617385	Bio	298	.295	.295	.386	.161	.151	.007	.245	.245	-.019	-.109	-.128	1.527	0.134	0.7	1.0	1.2	1.1	A-	
1572	617853	Bio	298	.406	.178	.238	.406	.171	.007	.269	-.098	-.063	.269	-.135	0.981	0.124	1.0	1.0	1.1	1.1	A-	
1573	617416	Bio	298	.295	.295	.289	.118	.292	.007	.146	.146	.140	-.099	-.178	1.527	0.134	1.9	1.1	2.5	1.2	A+	
1574	617399	Bio	298	.285	.285	.349	.175	.185	.007	.206	.206	-.152	-.243	.229	1.581	0.135	1.3	1.1	1.2	1.1	A+	
1575	617871	Bio	298	.322	.211	.309	.322	.151	.007	.241	-.112	-.191	.241	.106	1.387	0.131	0.9	1.1	1.4	1.1	B-	
1576	617872	Bio	311	.560	.238	.132	.560	.071	.000	.273	-.262	-.062	.273	-.012	0.370	0.120	0.9	1.0	0.9	1.0	A-	
1577	617854	Bio	311	.248	.341	.174	.248	.238	.000	.188	-.002	-.171	.188	-.037	1.867	0.137	0.9	1.1	1.7	1.2	A-	
1578	617889	Bio	311	.254	.064	.122	.560	.254	.000	.250	-.233	-.065	-.061	.250	1.830	0.136	0.5	1.0	0.4	1.0	A+	
1579	617417	Bio	311	.550	.550	.212	.125	.113	.000	.362	.362	-.162	-.170	-.182	0.413	0.120	-0.9	1.0	-1.0	1.0	A+	
1580	617400	Bio	311	.325	.138	.148	.386	.325	.003	.288	-.031	-.166	-.125	.288	1.446	0.127	0.3	1.0	0.5	1.0	A+	
1581	617565	Bio	311	.698	.698	.215	.048	.039	.000	.519	.519	-.369	-.245	-.178	-0.290	0.129	-3.1	0.8	-3.4	0.8	C-	
1582	617430	Bio	311	.637	.039	.190	.129	.637	.006	.397	-.099	-.133	-.247	.397	-0.074	0.124	-1.6	0.9	-1.6	0.9	A-	
1583	617444	Bio	313	.773	.112	.773	.045	.064	.006	.461	-.277	.461	-.182	-.141	-0.778	0.141	-1.6	0.9	-2.2	0.8	B+	
1584	617458	Bio	297	.451	.162	.229	.152	.451	.007	.410	-.158	-.230	-.067	.410	0.710	0.123	-2.1	0.9	-2.0	0.9	A-	
1585	617449	Bio	311	.572	.174	.572	.097	.158	.000	.368	-.093	.368	-.170	-.265	0.312	0.121	-1.0	1.0	-0.7	1.0	A+	
1586	617462	Bio	298	.812	.024	.812	.034	.128	.003	.359	-.123	.359	-.203	-.194	-1.033	0.153	-0.7	0.9	-1.4	0.8	A+	
1587	617457	Bio	4897	.485	.485	.387	.063	.060	.006	.409	.409	-.219	-.145	-.165	0.625	0.030	-8.2	0.9	-7.6	0.9	A-	A+
1588	617454	Bio	311	.537	.537	.116	.180	.164	.003	.365	.365	-.197	-.217	-.083	0.465	0.120	-0.8	1.0	-1.0	1.0	A+	
1589	617451	Bio	300	.577	.577	.110	.273	.033	.007	.402	.402	-.140	-.179	-.218	0.274	0.125	-1.2	1.0	-0.9	1.0	A+	
1590	620393	Bio	307	.264	.368	.264	.319	.033	.016	.167	-.051	.167	-.026	-.067	1.635	0.137	1.0	1.1	1.4	1.1	A+	
1591	617925	Bio	307	.397	.134	.397	.231	.231	.007	.231	-.053	.231	-.141	-.043	0.954	0.124	1.8	1.1	1.2	1.1	A-	
1592	617550	Bio	307	.391	.222	.274	.111	.391	.003	.408	-.210	-.058	-.212	.408	0.996	0.124	-2.5	0.9	-1.6	0.9	A-	
1593	617453	Bio	307	.355	.355	.163	.166	.313	.003	.233	.233	-.089	.004	-.131	1.170	0.127	1.9	1.1	1.8	1.1	A-	
1594	617549	Bio	4897	.353	.066	.234	.344	.353	.004	.380	-.187	-.199	-.062	.380	1.239	0.032	-4.9	0.9	-4.3	0.9	A+	A-
1595	617450	Bio	307	.270	.095	.134	.270	.495	.007	.233	-.020	-.210	.233	-.003	1.613	0.136	1.2	1.1	1.3	1.1	A-	
1596	617893	Bio	4897	.288	.122	.288	.317	.268	.005	.308	-.190	.308	-.090	-.029	1.570	0.033	-0.6	1.0	0.4	1.0	A+	A-
1597	617434	Bio	307	.678	.678	.095	.189	.036	.003	.276	.276	-.282	.009	-.164	-0.349	0.129	0.7	1.0	2.2	1.2	A+	
1598	617566	Bio	307	.466	.130	.466	.244	.153	.007	.317	-.087	.317	-.165	-.097	0.642	0.122	0.6	1.0	0.6	1.0	A+	
1599	617898	Bio	4897	.489	.051	.050	.489	.402	.008	.292	-.166	-.173	.292	-.095	0.599	0.030	2.9	1.0	2.7	1.0	A-	A-
1600	620048	Bio	300	.160	.340	.160	.380	.103	.017	.089	-.087	.089	.174	-.084	2.500	0.165	1.3	1.1	1.5	1.2	B-	
1601	617435	Bio	300	.313	.467	.150	.313	.063	.007	.280	-.221	.038	.280	.012	1.522	0.132	0.4	1.0	0.6	1.1	A-	
1602	617567	Bio	300	.703	.023	.113	.153	.703	.007	.408	-.170	-.170	-.197	.408	-0.355	0.134	-1.4	0.9	-1.0	0.9	A-	
1603	617910	Bio	300	.590	.590	.083	.237	.083	.007	.242	.242	-.063	-.112	-.065	0.211	0.125	1.8	1.1	1.5	1.1	A+	
1604	617551	Bio	300	.610	.610	.147	.080	.157	.007	.462	.462	-.254	-.193	-.130	0.116	0.126	-2.4	0.9	-2.6	0.8	A+	
1605	617452	Bio	312	.212	.202	.067	.212	.519	.000	.285	-.038	-.245	.285	-.079	1.967	0.144	-0.2	1.0	-0.1	1.0	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1606	617927	Bio	312	.135	.042	.692	.128	.135	.003	.133	-.143	.100	-.180	.133	2.549	0.171	0.5	1.1	1.1	1.2	A-	
1607	617573	Bio	312	.289	.250	.208	.253	.289	.000	.159	-.184	-.040	.055	.159	1.520	0.130	1.5	1.1	1.3	1.1	A+	
1608	617436	Bio	312	.734	.064	.103	.099	.734	.000	.463	-.158	-.233	-.318	.463	-0.562	0.132	-2.2	0.9	-2.7	0.8	A+	
1609	617552	Bio	312	.821	.821	.071	.051	.058	.000	.333	.333	-.177	-.201	-.164	-1.097	0.151	-0.6	0.9	-1.6	0.8	A+	
1610	620049	Bio	312	.308	.446	.308	.189	.058	.000	.168	-.015	.168	-.152	-.046	1.420	0.128	1.2	1.1	2.0	1.1	A-	
1611	617437	Bio	306	.516	.212	.124	.141	.516	.007	.369	-.072	-.236	-.115	.369	0.498	0.120	-1.3	1.0	-1.4	0.9	A+	
1612	618554	Bio	306	.565	.062	.311	.565	.056	.007	.338	-.243	-.100	.338	-.113	0.279	0.121	-0.6	1.0	-0.5	1.0	A+	
1613	617455	Bio	306	.480	.180	.209	.121	.480	.010	.253	.003	-.029	-.211	.253	0.654	0.121	1.3	1.1	1.1	1.1	A+	
1614	620050	Bio	306	.350	.350	.141	.177	.324	.010	.272	.272	.002	-.143	-.061	1.256	0.126	0.2	1.0	0.8	1.1	A+	
1615	617912	Bio	306	.428	.128	.428	.304	.124	.016	.422	-.172	.422	-.143	-.094	0.880	0.122	-2.6	0.9	-2.1	0.9	A-	
1616	617553	Bio	306	.526	.180	.526	.114	.163	.016	.411	-.147	.411	-.195	-.087	0.439	0.121	-2.2	0.9	-2.2	0.9	A+	
1617	617554	Bio	301	.492	.053	.163	.289	.492	.003	.339	-.151	-.203	-.126	.339	0.597	0.122	-0.3	1.0	0.2	1.0	A+	
1618	620051	Bio	301	.249	.249	.169	.452	.123	.007	.326	.326	-.067	-.162	-.049	1.796	0.140	-0.2	1.0	0.0	1.0	A-	
1619	617438	Bio	301	.419	.213	.419	.256	.103	.010	.252	-.108	.252	-.057	-.106	0.920	0.124	1.8	1.1	1.7	1.1	A+	
1620	617895	Bio	301	.296	.226	.103	.365	.296	.010	.177	.047	-.116	-.088	.177	1.529	0.134	1.9	1.1	2.4	1.2	A-	
1621	618555	Bio	301	.711	.070	.096	.110	.711	.013	.418	-.158	-.291	-.132	.418	-0.486	0.135	-1.5	0.9	-1.4	0.9	A+	
1622	617913	Bio	301	.708	.708	.120	.100	.063	.010	.412	.412	-.137	-.251	-.184	-0.453	0.134	-1.5	0.9	-0.9	0.9	A+	
1623	617456	Bio	301	.199	.080	.216	.495	.199	.010	.269	-.056	.030	-.163	.269	2.111	0.152	0.1	1.0	0.8	1.1	B-	
1624	618556	Bio	297	.428	.108	.428	.323	.138	.003	.204	-.046	.204	-.110	-.045	0.820	0.123	2.0	1.1	2.1	1.1	A+	
1625	620053	Bio	297	.306	.451	.111	.128	.306	.003	.251	-.073	-.092	-.091	.251	1.403	0.132	0.9	1.1	0.4	1.0	A-	
1626	617914	Bio	297	.596	.596	.162	.091	.148	.003	.284	.284	-.119	-.237	-.021	0.065	0.124	0.3	1.0	0.6	1.0	A+	
1627	617896	Bio	297	.300	.306	.300	.145	.246	.003	.235	-.110	.235	-.111	.004	1.438	0.133	0.7	1.0	1.1	1.1	A-	
1628	617555	Bio	297	.822	.094	.034	.822	.047	.003	.371	-.239	-.143	.371	-.124	-1.177	0.157	-0.7	0.9	-1.6	0.8	A+	
1629	617439	Bio	297	.286	.286	.212	.330	.162	.010	.306	.306	-.146	-.100	-.014	1.499	0.135	-0.3	1.0	0.4	1.0	A-	
1630	617915	Bio	308	.425	.062	.425	.481	.029	.003	.387	-.079	.387	-.272	-.092	0.792	0.121	-2.0	0.9	-1.8	0.9	B-	
1631	617899	Bio	308	.620	.114	.033	.227	.620	.007	.213	-.102	-.180	-.038	.213	-0.084	0.123	1.3	1.1	1.4	1.1	A+	
1632	617459	Bio	308	.296	.198	.244	.257	.296	.007	.197	-.007	-.115	-.036	.197	1.408	0.130	1.0	1.1	0.8	1.1	A+	
1633	618557	Bio	308	.062	.494	.308	.133	.062	.003	-.016	.084	.012	-.069	-.016	3.431	0.246	0.4	1.1	1.3	1.4	A+	
1634	617556	Bio	308	.224	.224	.273	.338	.159	.007	.150	.150	-.057	.035	-.087	1.812	0.142	1.0	1.1	1.0	1.1	A-	
1635	620054	Bio	308	.477	.153	.214	.477	.153	.003	.358	-.070	-.231	.358	-.106	0.561	0.119	-1.3	1.0	-1.4	1.0	A-	
1636	617440	Bio	308	.412	.412	.149	.169	.263	.007	.342	.342	-.154	-.159	-.072	0.844	0.121	-1.0	1.0	-0.7	1.0	A+	
1637	618558	Bio	311	.704	.174	.045	.704	.077	.000	.318	-.135	-.276	.318	-.138	-0.348	0.129	-0.8	1.0	-0.2	1.0	C-	
1638	617460	Bio	311	.752	.113	.084	.752	.051	.000	.351	-.209	-.194	.351	-.144	-0.612	0.136	-1.0	0.9	-1.1	0.9	A-	
1639	617443	Bio	311	.601	.167	.601	.154	.077	.000	.407	-.179	.407	-.219	-.199	0.150	0.121	-2.1	0.9	-1.9	0.9	A-	
1640	617916	Bio	311	.463	.064	.212	.261	.463	.000	.444	-.167	-.074	-.342	.444	0.768	0.120	-2.6	0.9	-2.6	0.9	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1641	617441	Bio	311	.408	.106	.408	.338	.148	.000	.367	-.175	.367	-.190	-.104	1.014	0.121	-1.1	1.0	-0.8	1.0	B-	
1642	620055	Bio	311	.289	.145	.261	.302	.289	.003	.198	.049	-.150	-.085	.198	1.593	0.131	1.5	1.1	1.0	1.1	A-	
1643	620646	Bio	311	.283	.196	.283	.219	.293	.010	.197	.016	.197	-.137	-.063	1.622	0.132	1.2	1.1	1.8	1.1	A+	
1644	617901	Bio	307	.655	.166	.052	.655	.124	.003	.156	-.051	-.116	.156	-.087	-0.137	0.127	2.2	1.1	2.9	1.2	A+	
1645	617442	Bio	307	.485	.485	.104	.121	.290	.000	.423	.423	-.167	-.237	-.183	0.660	0.121	-1.7	0.9	-1.3	0.9	A+	
1646	618559	Bio	307	.306	.169	.306	.482	.042	.000	.321	-.091	.321	-.201	-.066	1.523	0.132	0.2	1.0	0.6	1.1	A-	
1647	620056	Bio	307	.235	.235	.345	.290	.124	.007	.152	.152	-.059	.030	-.145	1.922	0.143	1.5	1.1	2.7	1.3	B-	
1648	617558	Bio	307	.407	.104	.326	.407	.156	.007	.218	-.204	.066	.218	-.172	1.012	0.124	2.7	1.1	2.1	1.1	A+	
1649	617917	Bio	307	.508	.104	.508	.199	.182	.007	.506	-.206	.506	-.341	-.106	0.546	0.122	-3.6	0.9	-3.3	0.8	A-	
1650	618560	Bio	298	.258	.013	.027	.258	.698	.003	-.067	-.034	-.083	-.067	.146	1.724	0.138	3.5	1.3	4.1	1.4	A-	
1651	617564	Bio	298	.322	.352	.258	.322	.064	.003	.241	-.054	-.082	.241	-.125	1.383	0.130	0.8	1.0	1.0	1.1	A+	
1652	617902	Bio	298	.571	.205	.571	.104	.118	.003	.398	-.214	.398	-.190	-.101	0.249	0.123	-2.3	0.9	-1.6	0.9	A+	
1653	617918	Bio	298	.473	.074	.289	.161	.473	.003	.318	-.046	-.149	-.160	.318	0.681	0.122	-0.5	1.0	-0.2	1.0	A+	
1654	617559	Bio	298	.591	.144	.591	.161	.101	.003	.399	-.207	.399	-.143	-.168	0.159	0.123	-2.1	0.9	-2.0	0.9	A-	
1655	617919	Bio	313	.470	.067	.147	.470	.310	.006	.383	-.068	-.219	.383	-.166	0.715	0.120	-1.6	0.9	-1.4	0.9	B-	
1656	617561	Bio	313	.412	.067	.169	.345	.412	.006	.432	-.151	-.100	-.219	.432	0.979	0.121	-2.6	0.9	-2.4	0.9	A-	
1657	617548	Bio	313	.661	.661	.090	.141	.099	.010	.372	.372	-.075	-.202	-.151	-0.171	0.126	-0.9	1.0	-1.1	0.9	A+	
1658	618561	Bio	313	.703	.048	.176	.064	.703	.010	.387	-.163	-.185	-.134	.387	-0.384	0.130	-0.9	1.0	-1.4	0.9	A-	
1659	617903	Bio	313	.566	.115	.224	.566	.086	.010	.459	-.179	-.190	.459	-.184	0.283	0.120	-3.1	0.9	-3.0	0.9	A-	
1660	617900	Bio	317	.483	.057	.483	.284	.177	.000	.441	-.228	.441	-.093	-.329	0.618	0.120	-2.7	0.9	-2.6	0.9	B+	
1661	617560	Bio	317	.492	.492	.237	.114	.158	.000	.430	.430	-.205	-.261	-.123	0.575	0.120	-2.1	0.9	-1.9	0.9	A-	
1662	617894	Bio	317	.073	.678	.060	.186	.073	.003	-.024	.178	-.224	-.033	-.024	3.434	0.231	0.6	1.1	2.1	1.6	A-	
1663	617445	Bio	317	.622	.076	.085	.622	.205	.013	.387	-.058	-.321	.387	-.142	-0.055	0.125	-0.8	1.0	-0.5	1.0	A+	
1664	617920	Bio	317	.685	.057	.129	.123	.685	.006	.442	-.052	-.132	-.379	.442	-0.373	0.130	-1.7	0.9	-1.0	0.9	A+	
1665	618563	Bio	317	.634	.054	.233	.073	.634	.006	.398	-.152	-.228	-.140	.398	-0.113	0.125	-0.7	1.0	-0.6	1.0	A-	
1666	617429	Bio	317	.483	.189	.211	.107	.483	.010	.441	-.182	-.181	-.172	.441	0.591	0.121	-2.1	0.9	-2.1	0.9	A+	
1667	617904	Bio	317	.416	.142	.183	.416	.249	.010	.422	-.157	-.226	.422	-.097	0.914	0.122	-2.2	0.9	-1.1	0.9	A-	
1668	617544	Bio	317	.618	.114	.110	.148	.618	.010	.506	-.206	-.216	-.251	.506	-0.048	0.124	-3.3	0.9	-2.7	0.8	A+	
1669	617905	Bio	311	.534	.151	.219	.534	.090	.006	.344	-.095	-.148	.344	-.135	0.398	0.120	-0.8	1.0	-0.9	1.0	B+	
1670	617911	Bio	311	.550	.055	.113	.550	.277	.006	.345	-.134	-.132	.345	-.139	0.326	0.120	-0.8	1.0	-0.7	1.0	B-	
1671	618564	Bio	311	.740	.093	.103	.058	.740	.006	.324	-.074	-.087	-.243	.324	-0.608	0.136	-0.4	1.0	0.0	1.0	A-	
1672	617909	Bio	311	.219	.363	.238	.174	.219	.006	.227	.012	-.143	-.004	.227	1.951	0.143	0.3	1.0	0.8	1.1	A-	
1673	617545	Bio	311	.762	.097	.077	.058	.762	.006	.351	-.119	-.164	-.142	.351	-0.741	0.140	-0.4	1.0	-1.0	0.9	A-	
1674	617446	Bio	311	.611	.611	.151	.125	.106	.006	.446	.446	-.194	-.226	-.116	0.048	0.122	-3.0	0.9	-2.2	0.9	A+	
1675	617557	Bio	311	.560	.058	.232	.560	.145	.006	.253	-.161	-.106	.253	-.018	0.283	0.120	1.1	1.0	2.0	1.1	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1676	617921	Bio	311	.457	.097	.129	.457	.312	.006	.064	-.055	-.071	.064	.098	0.742	0.120	5.1	1.2	5.9	1.3	A-	
1677	617562	Bio	311	.656	.119	.109	.656	.109	.006	.418	-.129	-.207	.418	-.176	-0.168	0.125	-1.9	0.9	-2.0	0.9	A+	
1678	620389	Bio	311	.183	.183	.286	.302	.222	.006	.158	.158	-.134	-.010	.100	2.190	0.152	0.5	1.0	2.0	1.3	A-	
1679	620392	Bio	300	.737	.060	.090	.737	.107	.007	.245	-.059	-.138	.245	-.059	-0.564	0.138	0.5	1.0	1.9	1.2	A-	
1680	618565	Bio	300	.647	.647	.083	.190	.073	.007	.459	.459	-.186	-.228	-.162	-0.087	0.128	-2.5	0.9	-2.8	0.8	A-	
1681	617563	Bio	300	.643	.110	.157	.643	.083	.007	.400	-.190	-.058	.400	-.271	-0.071	0.128	-1.2	0.9	-1.4	0.9	A-	
1682	620386	Bio	300	.670	.147	.100	.670	.073	.010	.466	-.260	-.175	.466	-.108	-0.212	0.130	-2.2	0.9	-2.2	0.8	A+	
1683	617546	Bio	300	.600	.113	.600	.083	.193	.010	.365	-.113	.365	-.061	-.201	0.132	0.125	-0.5	1.0	-0.5	1.0	A+	
1684	617906	Bio	300	.567	.567	.147	.150	.127	.010	.444	.444	-.141	-.254	-.098	0.287	0.124	-2.4	0.9	-2.0	0.9	A+	
1685	617447	Bio	300	.783	.783	.053	.057	.093	.013	.477	.477	-.205	-.264	-.152	-0.883	0.149	-1.8	0.9	-1.6	0.8	A+	
1686	617922	Bio	300	.667	.123	.077	.667	.117	.017	.484	-.181	-.197	.484	-.217	-0.221	0.131	-2.6	0.9	-2.6	0.8	B-	
1687	617431	Bio	300	.170	.360	.217	.237	.170	.017	.050	.118	-.095	.024	.050	2.355	0.160	1.5	1.2	2.9	1.5	B-	
1688	617428	Bio	300	.397	.153	.263	.170	.397	.017	.424	-.051	-.169	-.179	.424	1.052	0.126	-2.1	0.9	-1.7	0.9	A+	
1689	617448	Bio	298	.128	.292	.466	.128	.111	.003	.081	-.214	.112	.081	.074	2.686	0.180	0.9	1.1	2.0	1.4	A-	
1690	617547	Bio	298	.366	.228	.091	.309	.366	.007	.455	-.109	-.168	-.234	.455	1.171	0.127	-2.3	0.9	-2.0	0.9	B-	
1691	618566	Bio	298	.430	.185	.201	.178	.430	.007	.425	-.131	-.165	-.199	.425	0.873	0.123	-2.0	0.9	-1.9	0.9	A-	
1692	617432	Bio	298	.352	.346	.121	.352	.175	.007	.307	-.115	-.207	.307	-.020	1.236	0.128	0.3	1.0	0.0	1.0	A-	
1693	617923	Bio	298	.362	.185	.218	.228	.362	.007	.237	-.150	.000	-.092	.237	1.187	0.127	1.3	1.1	1.5	1.1	A-	
1694	617926	Bio	298	.493	.151	.097	.493	.252	.007	.391	-.107	-.182	.391	-.198	0.586	0.122	-1.5	1.0	-1.2	1.0	A+	
1695	617907	Bio	298	.493	.299	.101	.493	.101	.007	.085	-.033	.002	.085	-.036	0.586	0.122	4.8	1.2	5.0	1.3	A+	
1696	620391	Bio	298	.205	.205	.305	.242	.242	.007	.323	.323	.084	-.220	-.135	2.066	0.150	-0.3	1.0	-0.2	1.0	A-	
1697	617924	Bio	311	.556	.238	.080	.556	.122	.003	.390	-.335	-.033	.390	-.108	0.381	0.120	-1.4	1.0	-1.2	0.9	A-	
1698	618568	Bio	311	.617	.228	.071	.080	.617	.003	.214	.004	-.178	-.197	.214	0.100	0.123	1.7	1.1	1.8	1.1	A+	
1699	620047	Bio	311	.479	.379	.100	.479	.042	.000	.383	-.180	-.238	.383	-.162	0.729	0.120	-1.2	1.0	-1.2	1.0	A-	
1700	620388	Bio	311	.740	.039	.740	.100	.122	.000	.420	-.236	.420	-.191	-.249	-0.516	0.135	-1.6	0.9	-1.7	0.9	A-	
1701	617908	Bio	311	.682	.682	.029	.055	.235	.000	.437	.437	-.165	-.290	-.260	-0.207	0.127	-2.0	0.9	-2.2	0.9	A-	
1702	620390	Bio	311	.338	.232	.322	.106	.338	.003	.348	-.251	.006	-.184	.348	1.382	0.126	-0.5	1.0	-0.5	1.0	A-	
1703	617433	Bio	311	.183	.463	.183	.254	.097	.003	.198	.068	.198	-.223	-.029	2.282	0.152	0.4	1.0	1.2	1.2	A-	
1704	616406	Chem	307	.482	.166	.182	.482	.163	.007	.389	-.078	-.181	.389	-.173	0.658	0.119	-2.5	0.9	-2.6	0.9	A-	
1705	616376	Chem	307	.505	.072	.098	.505	.316	.010	.324	-.065	-.086	.324	-.190	0.549	0.119	-1.1	1.0	-0.9	1.0	A+	
1706	616533	Chem	307	.485	.485	.388	.091	.033	.003	.345	.345	-.179	-.185	-.126	0.706	0.120	-1.4	1.0	-1.4	0.9	A-	
1707	616409	Chem	4315	.434	.137	.215	.434	.205	.009	.367	-.136	-.128	.367	-.161	0.870	0.032	-6.6	0.9	-6.3	0.9	A+	A-
1708	616503	Chem	309	.240	.291	.240	.278	.181	.010	.118	-.123	.118	-.002	.086	1.800	0.139	1.3	1.1	1.6	1.2	A-	
1709	616372	Chem	4315	.324	.273	.130	.262	.325	.010	.374	-.117	-.160	-.106	.374	1.378	0.034	-5.0	0.9	-4.3	0.9	A-	A-
1710	616532	Chem	309	.256	.107	.249	.382	.256	.007	.309	-.146	-.089	-.056	.309	1.710	0.136	-0.8	1.0	-0.8	0.9	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1711	618721	Chem	309	.288	.152	.447	.288	.107	.007	.089	.073	-.055	.089	-.050	1.532	0.131	2.0	1.1	1.9	1.2	A-	
1712	618751	Chem	309	.207	.207	.269	.295	.217	.013	.180	.180	.022	-.129	.002	1.996	0.146	0.6	1.1	0.8	1.1	A+	
1713	616514	Chem	307	.485	.235	.485	.176	.101	.003	.315	-.114	.315	-.114	-.187	0.706	0.120	-1.0	1.0	-0.8	1.0	B-	
1714	616566	Chem	307	.446	.179	.192	.446	.179	.003	.363	-.191	-.089	.363	-.163	0.879	0.120	-1.5	1.0	-1.6	0.9	A+	
1715	618752	Chem	307	.199	.199	.235	.371	.179	.016	.128	.128	-.139	.068	-.052	2.139	0.149	1.0	1.1	0.8	1.1	A+	
1716	618717	Chem	616	.333	.333	.395	.221	.047	.005	.313	.313	-.096	-.181	-.097	1.378	0.089	-1.1	1.0	-0.9	1.0	A-	
1717	620454	Chem	308	.308	.198	.325	.162	.308	.007	.257	-.072	-.120	-.037	.257	1.478	0.128	0.1	1.0	0.3	1.0	A-	
1718	616534	Chem	308	.283	.166	.370	.283	.166	.016	.296	-.010	-.108	.296	-.127	1.600	0.131	-0.5	1.0	0.3	1.0	A-	
1719	616567	Chem	308	.292	.156	.224	.312	.292	.016	.304	-.106	-.071	-.083	.304	1.552	0.130	-0.5	1.0	-0.1	1.0	A+	
1720	620455	Chem	309	.259	.359	.288	.259	.087	.007	.281	-.056	-.148	.281	-.075	1.709	0.135	-0.3	1.0	-0.1	1.0	A-	
1721	618684	Chem	309	.340	.178	.333	.142	.340	.007	.235	.037	-.145	-.139	.235	1.293	0.125	0.7	1.0	1.7	1.1	A-	
1722	616568	Chem	309	.372	.372	.136	.301	.168	.023	.404	.404	-.211	-.131	-.131	1.101	0.124	-1.8	0.9	-1.6	0.9	A-	
1723	616535	Chem	309	.437	.142	.437	.230	.168	.023	.232	-.055	.232	-.268	.059	0.797	0.120	0.8	1.0	1.3	1.1	A-	
1724	616371	Chem	309	.427	.185	.178	.191	.427	.019	.373	-.098	-.204	-.138	.373	0.853	0.121	-1.4	1.0	-1.3	0.9	A+	
1725	616430	Chem	309	.450	.133	.320	.450	.078	.019	.370	-.142	-.176	.370	-.148	0.752	0.120	-1.5	1.0	-1.3	1.0	A-	
1726	616565	Chem	309	.188	.188	.223	.375	.191	.023	.105	.105	.013	.000	-.084	2.129	0.151	0.9	1.1	1.6	1.2	A-	
1727	616536	Chem	308	.208	.240	.250	.299	.208	.003	.242	-.071	-.148	-.010	.242	1.969	0.145	-0.4	1.0	-0.6	0.9	A+	
1728	616373	Chem	616	.183	.183	.188	.481	.136	.011	.108	.108	-.149	.131	-.042	2.139	0.108	1.1	1.1	1.9	1.2	A+	
1729	620456	Chem	308	.250	.234	.250	.328	.175	.013	.002	.040	.002	.110	-.073	1.690	0.136	2.0	1.1	2.7	1.2	B+	
1730	616374	Chem	318	.280	.255	.280	.333	.132	.000	.252	.026	.252	-.247	-.022	1.670	0.130	0.3	1.0	0.3	1.0	B-	
1731	619959	Chem	318	.491	.085	.236	.186	.491	.003	.387	-.125	-.169	-.220	.387	0.679	0.117	-2.3	0.9	-1.9	0.9	A-	
1732	620457	Chem	318	.248	.286	.293	.248	.167	.006	.127	.032	-.057	.127	-.111	1.827	0.135	1.4	1.1	1.4	1.1	B+	
1733	616537	Chem	318	.346	.173	.151	.327	.346	.003	.350	-.090	-.154	-.157	.350	1.328	0.123	-1.0	1.0	-1.1	0.9	A-	
1734	619929	Chem	306	.471	.163	.471	.144	.222	.000	.398	-.127	.398	-.220	-.179	0.718	0.119	-2.4	0.9	-2.3	0.9	A-	
1735	619960	Chem	306	.281	.190	.121	.281	.405	.003	.164	-.130	-.132	.164	.040	1.597	0.132	0.4	1.0	1.2	1.1	A-	
1736	616375	Chem	306	.144	.144	.196	.405	.245	.010	.176	.176	-.038	.023	-.087	2.488	0.167	0.3	1.0	0.2	1.0	A+	
1737	616403	Chem	613	.406	.113	.194	.406	.277	.010	.153	-.051	-.119	.153	.004	0.973	0.086	3.2	1.1	3.2	1.1	A-	B+
1738	620458	Chem	306	.369	.177	.369	.294	.150	.010	.382	-.129	.382	-.141	-.133	1.151	0.123	-1.9	0.9	-1.7	0.9	A+	
1739	618757	Chem	307	.332	.332	.222	.371	.065	.010	.237	.237	-.003	-.199	.024	1.331	0.126	0.2	1.0	1.0	1.1	A-	
1740	618714	Chem	307	.283	.244	.251	.205	.283	.016	.126	.014	-.059	-.015	.126	1.570	0.132	1.5	1.1	1.6	1.1	A+	
1741	619930	Chem	307	.518	.192	.104	.518	.179	.007	.304	-.148	-.163	.304	-.032	0.502	0.119	-0.8	1.0	-0.3	1.0	B+	
1742	619961	Chem	307	.378	.160	.378	.313	.124	.026	.367	-.091	.367	-.193	-.026	1.087	0.123	-1.5	0.9	-1.3	0.9	A-	
1743	619931	Chem	305	.328	.144	.328	.357	.148	.023	.161	-.060	.161	.095	-.220	1.265	0.127	1.2	1.1	0.9	1.1	A+	
1744	618715	Chem	305	.249	.321	.184	.230	.249	.016	.275	-.065	-.085	-.056	.275	1.698	0.137	-0.3	1.0	0.2	1.0	A-	
1745	616377	Chem	305	.213	.285	.256	.213	.233	.013	.099	-.078	.054	.099	-.009	1.921	0.144	1.4	1.1	1.3	1.1	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1746	619962	Chem	305	.377	.259	.138	.377	.223	.003	.286	-.101	.012	.286	-.221	1.075	0.122	-0.7	1.0	-0.4	1.0	A-	
1747	616497	Chem	305	.292	.184	.292	.341	.157	.026	.073	.054	.073	.020	-.093	1.437	0.131	2.1	1.1	2.3	1.2	A-	
1748	618685	Chem	305	.216	.216	.207	.367	.180	.030	.128	.128	.059	.022	-.148	1.863	0.144	0.9	1.1	1.5	1.2	A-	
1749	616407	Chem	305	.239	.285	.239	.325	.112	.039	.223	-.058	.223	-.016	-.122	1.700	0.139	0.2	1.0	0.7	1.1	B-	
1750	618746	Chem	308	.396	.396	.107	.234	.260	.003	.267	.267	-.148	-.158	-.041	1.093	0.121	-0.1	1.0	-0.2	1.0	A+	
1751	616380	Chem	308	.234	.218	.247	.234	.292	.010	.193	-.034	-.022	.193	-.085	1.924	0.140	0.6	1.1	0.8	1.1	A+	
1752	618716	Chem	308	.458	.104	.458	.283	.146	.010	.424	-.144	.424	-.205	-.172	0.809	0.119	-3.0	0.9	-2.9	0.9	A+	
1753	619932	Chem	308	.591	.292	.091	.591	.020	.007	.256	-.190	-.034	.256	-.104	0.237	0.121	0.0	1.0	1.4	1.1	B-	
1754	618686	Chem	308	.318	.367	.188	.318	.114	.013	.102	.061	-.212	.102	.097	1.457	0.128	2.5	1.1	2.7	1.2	A-	
1755	616498	Chem	308	.169	.143	.205	.468	.169	.016	.364	-.068	-.224	.006	.364	2.356	0.158	-0.8	0.9	-0.6	0.9	B-	
1756	619963	Chem	308	.240	.234	.276	.224	.240	.026	.247	-.078	-.086	-.013	.247	1.853	0.139	0.3	1.0	0.3	1.0	A-	
1757	616408	Chem	308	.279	.279	.218	.211	.273	.020	.231	.231	-.057	-.032	-.108	1.640	0.132	0.4	1.0	0.5	1.0	A+	
1758	618747	Chem	308	.682	.013	.075	.682	.231	.000	.410	-.095	-.179	.410	-.316	-0.199	0.127	-1.7	0.9	-1.9	0.9	A-	
1759	619964	Chem	308	.266	.266	.273	.289	.162	.010	.244	.244	-.147	-.088	.037	1.725	0.134	0.4	1.0	0.5	1.0	A-	
1760	616499	Chem	308	.396	.305	.179	.396	.117	.003	.224	.033	-.202	.224	-.130	1.083	0.122	1.3	1.1	1.2	1.1	A-	
1761	619933	Chem	308	.331	.331	.156	.386	.123	.003	.295	.295	-.102	-.081	-.172	1.391	0.126	-0.2	1.0	0.4	1.0	A+	
1762	618687	Chem	308	.357	.146	.247	.357	.244	.007	.196	-.116	-.104	.196	.013	1.263	0.124	1.5	1.1	1.5	1.1	A-	
1763	616410	Chem	308	.296	.104	.344	.296	.250	.007	.069	-.112	-.034	.069	.076	1.570	0.130	2.5	1.2	2.6	1.2	A-	
1764	618748	Chem	308	.198	.198	.442	.283	.058	.020	.238	.238	-.011	-.115	-.009	2.049	0.149	0.5	1.0	0.1	1.0	B+	
1765	616411	Chem	308	.117	.136	.117	.130	.597	.020	.149	-.080	.149	-.078	.091	2.721	0.183	0.5	1.1	0.9	1.2	B-	
1766	618718	Chem	308	.334	.244	.257	.146	.334	.020	.419	-.073	-.204	-.102	.419	1.270	0.127	-2.0	0.9	-1.8	0.9	A+	
1767	619965	Chem	308	.205	.205	.338	.302	.127	.029	.226	.226	-.009	-.075	-.058	1.970	0.147	0.3	1.0	0.4	1.0	A-	
1768	620451	Chem	308	.273	.273	.247	.279	.179	.023	.276	.276	.009	-.107	-.113	1.574	0.134	0.3	1.0	0.1	1.0	A+	
1769	619926	Chem	308	.299	.299	.318	.247	.117	.020	.163	.163	.044	-.136	-.030	1.437	0.130	1.5	1.1	1.5	1.1	A-	
1770	616500	Chem	308	.364	.172	.211	.224	.364	.029	.345	-.040	-.036	-.247	.345	1.096	0.125	-0.8	1.0	-0.9	1.0	A-	
1771	620452	Chem	307	.313	.300	.166	.313	.215	.007	.082	-.054	-.155	.082	.164	1.532	0.127	1.8	1.1	1.9	1.1	A-	
1772	618719	Chem	307	.345	.088	.267	.293	.345	.007	.174	-.058	-.031	-.050	.174	1.379	0.123	0.8	1.0	0.8	1.0	A+	
1773	619966	Chem	307	.280	.235	.280	.264	.218	.003	.140	.004	.140	-.097	.003	1.704	0.130	0.8	1.1	0.6	1.0	A-	
1774	618749	Chem	307	.407	.104	.407	.355	.130	.003	.170	-.033	.170	-.020	-.120	1.101	0.120	1.3	1.0	1.4	1.1	B+	
1775	616530	Chem	307	.189	.209	.238	.358	.189	.007	.151	-.057	-.125	.088	.151	2.238	0.149	0.2	1.0	0.2	1.0	A-	
1776	619927	Chem	307	.339	.218	.251	.182	.339	.010	.353	-.192	-.071	-.091	.353	1.396	0.124	-1.6	0.9	-1.8	0.9	A-	
1777	616501	Chem	307	.238	.179	.238	.397	.173	.013	.176	.029	.176	-.016	-.144	1.917	0.137	0.4	1.0	0.2	1.0	A-	
1778	618750	Chem	307	.674	.163	.055	.674	.104	.003	.355	-.175	-.112	.355	-.247	-0.227	0.126	-1.6	0.9	-1.3	0.9	A+	
1779	618720	Chem	307	.424	.424	.195	.156	.218	.007	.360	.360	-.183	-.150	-.115	0.890	0.120	-1.5	1.0	-1.6	0.9	A+	
1780	620066	Chem	307	.254	.153	.267	.316	.254	.010	.295	-.137	-.113	-.043	.295	1.724	0.136	-0.2	1.0	-0.1	1.0	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1781	616531	Chem	307	.202	.202	.228	.309	.241	.020	.093	.093	-.023	-.131	.101	2.029	0.148	1.3	1.1	1.8	1.2	A+	
1782	620453	Chem	307	.205	.127	.336	.323	.205	.010	.206	-.060	-.082	-.033	.206	2.022	0.147	0.3	1.0	1.1	1.1	A-	
1783	616502	Chem	307	.117	.117	.209	.108	.557	.010	.274	.274	-.062	.024	-.132	2.728	0.183	-0.1	1.0	-0.6	0.9	B+	
1784	618699	Chem	307	.414	.127	.195	.248	.414	.016	.348	-.104	-.079	-.142	.348	0.942	0.121	-1.4	1.0	-0.9	1.0	A+	
1785	618734	Chem	308	.503	.175	.503	.208	.110	.003	.382	-.151	.382	-.164	-.199	0.610	0.119	-2.0	0.9	-1.9	0.9	A-	
1786	616518	Chem	306	.572	.059	.572	.190	.173	.007	.310	-.116	.310	-.175	-.093	0.263	0.120	-0.8	1.0	-0.2	1.0	A+	
1787	616516	Chem	308	.471	.338	.123	.471	.062	.007	.373	-.105	-.213	.373	-.125	0.646	0.118	-2.5	0.9	-2.5	0.9	A+	
1788	618733	Chem	308	.471	.234	.208	.471	.084	.003	.407	-.174	-.180	.407	-.160	0.768	0.119	-2.6	0.9	-2.5	0.9	A+	
1789	620468	Chem	318	.418	.214	.245	.418	.113	.009	.393	-.203	-.125	.393	-.150	0.985	0.119	-2.0	0.9	-2.1	0.9	A+	
1790	618698	Chem	306	.781	.036	.065	.105	.781	.013	.280	-.033	-.140	-.157	.280	-0.839	0.146	-0.2	1.0	0.3	1.0	A+	
1791	619946	Chem	309	.430	.152	.204	.207	.430	.007	.383	-.161	-.094	-.166	.383	0.853	0.121	-1.7	0.9	-1.4	0.9	A+	
1792	618695	Chem	4315	.436	.436	.255	.186	.117	.006	.270	.270	-.089	-.092	-.142	0.866	0.032	0.6	1.0	0.7	1.0	A-	A+
1793	620435	Chem	309	.204	.214	.243	.324	.204	.016	.308	-.010	-.178	-.023	.308	2.017	0.146	-0.8	0.9	-0.9	0.9	A-	
1794	616519	Chem	4315	.235	.248	.447	.235	.057	.013	.185	-.067	-.017	.185	-.082	1.858	0.037	2.0	1.0	3.1	1.1	A-	A+
1795	616553	Chem	4315	.288	.549	.288	.084	.071	.009	.058	.121	.058	-.126	-.124	1.567	0.035	8.4	1.1	8.9	1.2	A+	B+
1796	616424	Chem	4315	.391	.189	.239	.391	.165	.016	.318	-.085	-.144	.318	-.097	1.048	0.033	-3.0	1.0	-2.8	1.0	A-	A+
1797	618701	Chem	4315	.304	.235	.341	.304	.100	.020	.219	-.036	-.101	.219	-.048	1.461	0.035	1.9	1.0	2.2	1.0	A-	A+
1798	620469	Chem	309	.353	.168	.353	.265	.197	.016	.284	.025	.284	-.115	-.170	1.191	0.125	-0.8	1.0	0.1	1.0	A+	
1799	620436	Chem	307	.365	.251	.365	.192	.189	.003	.291	-.118	.291	-.187	-.029	1.246	0.124	-0.3	1.0	-0.6	1.0	A+	
1800	620470	Chem	307	.388	.222	.388	.202	.182	.007	.372	-.161	.372	-.147	-.130	1.132	0.123	-1.9	0.9	-2.1	0.9	A-	
1801	619947	Chem	307	.319	.319	.228	.267	.179	.007	.213	.213	-.153	-.049	.000	1.465	0.128	1.3	1.1	0.9	1.1	A+	
1802	620471	Chem	308	.097	.049	.097	.776	.075	.003	.186	-.080	.186	.040	-.161	3.002	0.197	0.2	1.0	0.1	1.0	A-	
1803	618755	Chem	308	.474	.296	.474	.149	.071	.010	.249	-.029	.249	-.185	-.097	0.709	0.119	0.5	1.0	0.2	1.0	A+	
1804	619948	Chem	308	.315	.231	.386	.315	.055	.013	.140	-.034	-.086	.140	.025	1.427	0.127	1.5	1.1	1.6	1.1	A+	
1805	616513	Chem	308	.351	.153	.296	.351	.188	.013	.281	-.079	-.127	.281	-.081	1.255	0.124	-0.1	1.0	-0.2	1.0	A+	
1806	616423	Chem	308	.649	.071	.649	.195	.078	.007	.349	-.165	.349	-.164	-.146	-0.060	0.124	-1.2	1.0	-1.6	0.9	A-	
1807	620437	Chem	308	.305	.201	.273	.205	.305	.016	.337	-.146	-.042	-.147	.337	1.472	0.128	-0.9	1.0	-0.9	0.9	A+	
1808	620438	Chem	309	.346	.146	.430	.346	.074	.003	.363	-.057	-.252	.363	-.095	1.264	0.125	-1.3	0.9	-1.3	0.9	A+	
1809	620472	Chem	309	.440	.252	.139	.168	.440	.000	.517	-.248	-.192	-.221	.517	0.840	0.119	-4.7	0.9	-4.3	0.8	A+	
1810	616515	Chem	309	.388	.152	.337	.388	.117	.007	.255	-.100	-.166	.255	-.027	1.057	0.122	0.6	1.0	0.5	1.0	A-	
1811	616425	Chem	308	.227	.360	.276	.227	.123	.013	.239	-.001	-.052	.239	-.113	1.821	0.140	0.0	1.0	-0.1	1.0	A+	
1812	618696	Chem	308	.344	.140	.344	.299	.201	.016	.161	-.099	.161	-.108	.115	1.194	0.124	1.3	1.1	1.5	1.1	A-	
1813	616548	Chem	308	.386	.240	.386	.244	.114	.016	.237	-.116	.237	-.078	.031	1.000	0.122	0.4	1.0	0.4	1.0	A+	
1814	620439	Chem	308	.679	.049	.156	.679	.104	.013	.244	-.102	-.219	.244	.089	-0.308	0.127	0.1	1.0	0.6	1.0	A+	
1815	620473	Chem	308	.214	.156	.338	.283	.214	.010	.068	-.018	.050	-.012	.068	1.908	0.143	1.2	1.1	1.6	1.2	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1816	620440	Chem	318	.522	.094	.522	.308	.072	.003	.256	-.086	.256	-.162	-.104	0.541	0.117	0.3	1.0	-0.1	1.0	A-	
1817	616549	Chem	318	.280	.192	.315	.211	.280	.003	.359	-.062	-.169	-.135	.359	1.664	0.130	-0.9	1.0	-1.1	0.9	C+	
1818	616426	Chem	318	.217	.217	.346	.245	.179	.013	.175	.175	-.014	-.204	.069	2.011	0.141	0.8	1.1	0.8	1.1	A+	
1819	620474	Chem	318	.264	.264	.333	.267	.123	.013	.340	.340	-.188	-.023	-.135	1.731	0.132	-0.6	1.0	-0.7	0.9	A-	
1820	616517	Chem	318	.255	.217	.236	.283	.255	.009	.139	-.132	-.007	.004	.139	1.788	0.134	1.2	1.1	2.0	1.2	A-	
1821	618697	Chem	318	.252	.252	.274	.308	.151	.016	.189	.189	-.138	-.081	.038	1.789	0.134	0.6	1.0	1.2	1.1	A+	
1822	616550	Chem	306	.284	.150	.317	.239	.284	.010	.188	-.199	-.044	.072	.188	1.570	0.131	0.9	1.1	0.8	1.1	A+	
1823	616551	Chem	307	.743	.114	.088	.743	.046	.010	.391	-.215	-.165	.391	-.115	-0.583	0.136	-1.2	0.9	-1.2	0.9	A+	
1824	616386	Chem	307	.511	.140	.511	.212	.130	.007	.347	-.168	.347	-.094	-.134	0.531	0.119	-1.8	1.0	-1.7	0.9	A-	
1825	618731	Chem	307	.241	.176	.241	.407	.156	.020	.208	-.099	.208	.056	-.091	1.808	0.139	0.5	1.0	0.7	1.1	A-	
1826	619912	Chem	307	.225	.202	.277	.274	.225	.023	.194	-.084	-.022	.020	.194	1.900	0.142	0.6	1.1	0.7	1.1	A+	
1827	616552	Chem	305	.315	.203	.197	.275	.315	.010	.323	-.039	-.043	-.241	.323	1.357	0.128	-1.2	0.9	-0.9	0.9	A+	
1828	616539	Chem	305	.433	.433	.226	.256	.069	.016	.328	.328	-.194	-.141	.015	0.794	0.120	-1.5	1.0	-1.5	0.9	A+	
1829	618732	Chem	305	.403	.249	.403	.177	.151	.020	.311	.006	.311	-.197	-.122	0.926	0.122	-0.5	1.0	-0.7	1.0	A-	
1830	619911	Chem	305	.246	.246	.269	.331	.138	.016	.351	.351	-.101	-.104	-.082	1.715	0.138	-0.8	0.9	-0.7	0.9	A-	
1831	618700	Chem	305	.364	.134	.364	.371	.112	.020	.195	-.058	.195	-.103	-.025	1.097	0.124	1.1	1.1	1.1	1.1	A-	
1832	616387	Chem	305	.371	.154	.371	.295	.144	.036	.229	-.116	.229	-.040	-.046	1.034	0.124	0.8	1.0	0.4	1.0	A-	
1833	619913	Chem	308	.526	.127	.107	.234	.526	.007	.298	-.159	-.097	-.137	.298	0.529	0.119	-0.8	1.0	-1.1	1.0	A-	
1834	616554	Chem	308	.367	.283	.244	.367	.094	.013	.392	-.046	-.283	.392	-.089	1.216	0.124	-1.7	0.9	-1.6	0.9	A-	
1835	616388	Chem	308	.250	.149	.351	.250	.231	.020	.238	-.003	.065	.238	-.274	1.800	0.137	0.3	1.0	0.5	1.0	A-	
1836	619914	Chem	308	.614	.091	.192	.614	.104	.000	.439	-.168	-.312	.439	-.141	0.125	0.122	-2.7	0.9	-2.7	0.9	A+	
1837	618688	Chem	308	.231	.127	.234	.406	.231	.003	.370	-.216	-.068	-.101	.370	1.937	0.141	-0.9	0.9	-0.7	0.9	A+	
1838	616389	Chem	308	.412	.088	.412	.354	.140	.007	.381	-.196	.381	-.201	-.063	1.007	0.121	-1.4	1.0	-1.4	0.9	C-	
1839	619942	Chem	308	.159	.286	.315	.234	.159	.007	.089	.121	-.091	-.073	.089	2.431	0.161	0.9	1.1	1.5	1.2	A-	
1840	618735	Chem	308	.240	.201	.240	.338	.205	.016	.164	-.153	.164	-.011	.068	1.784	0.139	1.1	1.1	1.9	1.2	A-	
1841	619943	Chem	308	.321	.321	.471	.140	.042	.026	.323	.323	-.066	-.199	-.045	1.316	0.128	-0.6	1.0	-0.3	1.0	B-	
1842	616390	Chem	308	.546	.127	.546	.224	.084	.020	.386	-.118	.386	-.218	-.071	0.298	0.121	-1.9	0.9	-1.7	0.9	A+	
1843	616420	Chem	308	.308	.185	.312	.308	.162	.033	.175	-.125	.047	.175	-.043	1.362	0.130	1.5	1.1	1.6	1.1	A-	
1844	619915	Chem	308	.406	.162	.169	.237	.406	.026	.444	-.175	-.105	-.180	.444	0.905	0.122	-3.1	0.9	-2.1	0.9	A+	
1845	619944	Chem	307	.511	.182	.511	.160	.134	.013	.301	-.146	.301	-.102	-.090	0.628	0.118	-1.2	1.0	-1.3	1.0	A+	
1846	618736	Chem	307	.261	.261	.508	.173	.046	.013	.254	.254	-.046	-.110	-.116	1.787	0.133	-0.4	1.0	-0.1	1.0	A+	
1847	619916	Chem	307	.313	.212	.313	.209	.251	.016	.146	-.044	.146	-.062	.012	1.514	0.127	0.9	1.0	1.0	1.1	B-	
1848	616391	Chem	307	.254	.153	.176	.410	.254	.007	.272	-.043	-.164	-.021	.272	1.842	0.134	-0.5	1.0	-0.7	0.9	A-	
1849	616421	Chem	307	.134	.130	.313	.414	.134	.010	.135	-.052	.060	-.060	.135	2.665	0.171	0.0	1.0	0.8	1.1	A+	
1850	620434	Chem	307	.186	.127	.388	.283	.186	.016	.275	-.047	.036	-.222	.275	2.147	0.152	-0.1	1.0	-0.1	1.0	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1851	619917	Chem	307	.257	.218	.241	.270	.257	.013	.251	-.057	-.073	-.130	.251	1.692	0.136	0.3	1.0	0.3	1.0	B+	
1852	619945	Chem	307	.502	.101	.195	.195	.502	.007	.433	-.158	-.204	-.201	.433	0.549	0.119	-3.3	0.9	-3.1	0.9	A+	
1853	616422	Chem	307	.489	.124	.218	.489	.163	.007	.354	-.112	-.218	.354	-.138	0.603	0.119	-1.7	1.0	-1.7	0.9	A-	
1854	616392	Chem	307	.163	.202	.326	.287	.163	.023	.260	-.093	-.068	-.054	.260	2.297	0.160	-0.1	1.0	0.0	1.0	A-	
1855	616511	Chem	305	.712	.712	.089	.102	.079	.020	.379	.379	-.237	-.176	-.101	-0.505	0.133	-1.4	0.9	-1.7	0.9	A+	
1856	619910	Chem	308	.331	.419	.331	.166	.078	.007	.320	-.070	.320	-.176	-.122	1.402	0.126	-0.4	1.0	-0.5	1.0	A+	
1857	618726	Chem	309	.343	.188	.311	.159	.343	.000	.233	-.126	-.073	-.075	.233	1.286	0.125	0.7	1.0	0.8	1.1	A+	
1858	616505	Chem	4315	.610	.075	.201	.610	.108	.007	.332	-.136	-.173	.332	-.139	0.101	0.032	-4.3	1.0	-4.3	0.9	A+	A-
1859	616543	Chem	4315	.506	.506	.171	.168	.149	.007	.417	.417	-.166	-.200	-.148	0.562	0.032	-9.9	0.9	-9.9	0.9	A+	A+
1860	620467	Chem	309	.210	.110	.275	.210	.398	.007	.115	-.206	-.087	.115	.164	1.985	0.145	1.1	1.1	1.2	1.1	A+	
1861	618728	Chem	4315	.217	.147	.290	.325	.217	.021	.307	-.112	-.094	-.042	.307	1.955	0.038	-1.9	1.0	-1.9	1.0	A+	A-
1862	616379	Chem	309	.282	.201	.282	.256	.246	.016	.187	-.098	.187	.032	-.059	1.552	0.132	0.2	1.0	0.4	1.0	A+	
1863	616381	Chem	307	.391	.153	.391	.231	.209	.016	.238	-.010	.238	-.147	-.086	1.097	0.123	1.1	1.0	0.7	1.0	A+	
1864	616404	Chem	308	.364	.364	.221	.101	.305	.010	.289	.289	-.147	-.144	-.022	1.207	0.123	-0.2	1.0	-0.1	1.0	A-	
1865	618725	Chem	308	.370	.104	.136	.383	.370	.007	.405	-.084	-.185	-.177	.405	1.180	0.123	-2.0	0.9	-2.1	0.9	A+	
1866	616378	Chem	308	.481	.120	.244	.481	.143	.013	.228	-.090	-.171	.228	.002	0.667	0.119	0.7	1.0	0.8	1.0	A+	
1867	618693	Chem	308	.338	.286	.127	.240	.338	.010	.312	-.128	-.054	-.107	.312	1.331	0.125	-0.4	1.0	0.2	1.0	A-	
1868	619934	Chem	308	.328	.156	.328	.406	.094	.016	.108	-.059	.108	.031	-.093	1.357	0.126	1.9	1.1	2.1	1.1	A-	
1869	616546	Chem	308	.539	.208	.117	.539	.123	.013	.379	-.179	-.150	.379	-.143	0.418	0.119	-2.4	0.9	-2.3	0.9	A-	
1870	616382	Chem	309	.269	.126	.269	.453	.146	.007	.198	-.013	.198	-.087	-.101	1.656	0.133	0.7	1.1	0.9	1.1	A+	
1871	619935	Chem	309	.385	.240	.256	.385	.107	.013	.373	-.104	-.227	.373	-.097	1.059	0.122	-1.3	1.0	-1.4	0.9	A-	
1872	616547	Chem	309	.311	.311	.388	.110	.181	.010	.341	.341	-.176	-.048	-.129	1.429	0.128	-0.7	1.0	-0.7	1.0	A+	
1873	618758	Chem	309	.243	.227	.084	.447	.243	.000	.227	-.018	-.201	-.068	.227	1.814	0.138	0.4	1.0	0.3	1.0	B+	
1874	618694	Chem	309	.450	.450	.087	.307	.152	.003	.236	.236	-.171	-.006	-.167	0.792	0.119	1.1	1.0	1.0	1.0	B+	
1875	616405	Chem	309	.418	.418	.207	.298	.062	.016	.208	.208	.017	-.153	-.108	0.906	0.121	1.7	1.1	1.6	1.1	A+	
1876	619967	Chem	309	.291	.188	.291	.333	.159	.029	.180	-.071	.180	-.085	-.014	1.487	0.131	1.0	1.1	1.4	1.1	A-	
1877	619905	Chem	308	.562	.562	.146	.227	.058	.007	.329	.329	-.089	-.083	-.256	0.253	0.119	-1.2	1.0	-1.1	1.0	A+	
1878	619936	Chem	308	.432	.143	.240	.179	.432	.007	.222	-.107	.022	-.117	.222	0.816	0.119	0.9	1.0	0.6	1.0	A-	
1879	618727	Chem	308	.247	.257	.247	.328	.156	.013	.294	.062	.294	-.109	-.163	1.709	0.136	-0.6	1.0	-0.4	1.0	A+	
1880	616412	Chem	308	.438	.257	.195	.438	.104	.007	.333	-.149	-.151	.333	-.011	0.787	0.119	-1.6	1.0	-1.3	1.0	A-	
1881	616383	Chem	308	.318	.318	.149	.344	.175	.013	.210	.210	-.037	-.055	-.042	1.331	0.127	0.5	1.0	0.7	1.0	A-	
1882	619968	Chem	308	.520	.104	.149	.520	.214	.013	.243	-.079	-.034	.243	-.128	0.418	0.119	0.5	1.0	0.2	1.0	A-	
1883	616384	Chem	318	.519	.085	.519	.302	.091	.003	.403	-.144	.403	-.249	-.160	0.555	0.117	-2.6	0.9	-2.5	0.9	A-	
1884	618729	Chem	318	.274	.274	.270	.248	.198	.009	.236	.236	-.177	-.085	.035	1.682	0.131	0.4	1.0	0.9	1.1	A+	
1885	619906	Chem	318	.179	.201	.267	.346	.179	.006	.182	-.077	.050	-.123	.182	2.275	0.151	0.6	1.1	0.6	1.1	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1886	619969	Chem	318	.223	.223	.352	.264	.151	.009	.194	.194	-.026	-.079	-.100	1.968	0.140	0.4	1.0	1.0	1.1	A+	
1887	616413	Chem	318	.154	.154	.085	.503	.248	.009	.327	.327	-.168	-.187	.046	2.460	0.160	-0.5	1.0	-0.7	0.9	B-	
1888	619937	Chem	318	.377	.233	.280	.377	.101	.009	.384	-.141	-.153	.384	-.201	1.158	0.121	-1.7	0.9	-1.8	0.9	A+	
1889	616385	Chem	306	.232	.023	.105	.641	.232	.000	.258	-.010	-.121	-.147	.258	1.879	0.140	-0.6	1.0	-0.1	1.0	A+	
1890	618730	Chem	306	.428	.075	.389	.105	.428	.003	.265	-.093	-.207	-.007	.265	0.900	0.120	0.2	1.0	0.5	1.0	A+	
1891	620647	Chem	306	.278	.147	.474	.278	.095	.007	.286	-.110	-.135	.286	-.053	1.606	0.132	-0.3	1.0	-0.4	1.0	A-	
1892	616431	Chem	306	.392	.167	.327	.111	.392	.003	.218	-.193	-.041	-.027	.218	1.055	0.122	1.0	1.0	1.0	1.1	A-	
1893	619907	Chem	306	.265	.271	.317	.134	.265	.013	.172	-.005	-.076	-.068	.172	1.666	0.134	1.0	1.1	0.7	1.1	A-	
1894	619970	Chem	306	.343	.170	.248	.226	.343	.013	.328	-.062	-.165	-.092	.328	1.268	0.125	-0.9	1.0	-0.9	1.0	A-	
1895	616414	Chem	306	.242	.173	.438	.242	.137	.010	.177	-.112	.077	.177	-.142	1.805	0.138	0.6	1.0	1.3	1.1	A-	
1896	620459	Chem	306	.258	.167	.409	.258	.150	.016	.162	-.220	.077	.162	-.010	1.700	0.135	1.0	1.1	0.9	1.1	A-	
1897	619938	Chem	306	.409	.206	.409	.255	.118	.013	.308	-.206	.308	-.061	-.055	0.964	0.121	-0.4	1.0	-0.7	1.0	A+	
1898	619971	Chem	307	.713	.085	.078	.713	.121	.003	.320	-.218	-.172	.320	-.055	-0.402	0.131	-0.4	1.0	-0.6	1.0	A+	
1899	616538	Chem	307	.303	.147	.394	.303	.137	.020	.127	-.049	.016	.127	-.050	1.462	0.130	1.9	1.1	1.9	1.1	A-	
1900	618753	Chem	307	.251	.140	.469	.251	.130	.010	.137	-.177	.125	.137	-.089	1.762	0.137	1.4	1.1	1.3	1.1	A+	
1901	616415	Chem	307	.215	.117	.215	.241	.420	.007	.250	-.193	.250	-.078	.049	1.985	0.144	0.0	1.0	0.3	1.0	A-	
1902	616504	Chem	307	.222	.296	.251	.212	.222	.020	.204	-.035	.033	-.095	.204	1.925	0.143	0.5	1.0	0.5	1.1	A+	
1903	620460	Chem	307	.254	.417	.205	.254	.111	.013	.336	-.079	-.060	.336	-.130	1.740	0.136	-0.8	0.9	-0.8	0.9	A-	
1904	619908	Chem	307	.267	.267	.296	.267	.153	.016	.289	.289	-.030	-.104	-.064	1.663	0.134	-0.4	1.0	0.1	1.0	C-	
1905	619939	Chem	307	.189	.205	.254	.332	.189	.020	.269	-.163	-.024	.035	.269	2.142	0.151	-0.1	1.0	-0.4	1.0	A-	
1906	616512	Chem	305	.213	.400	.223	.213	.157	.007	.125	-.013	-.146	.125	.067	1.931	0.144	1.0	1.1	1.1	1.1	A-	
1907	620071	Chem	305	.161	.161	.236	.236	.354	.013	.198	.198	.046	-.223	.056	2.295	0.161	0.3	1.0	0.3	1.0	A+	
1908	619940	Chem	305	.161	.226	.305	.302	.161	.007	.156	.019	.002	-.107	.156	2.303	0.160	0.4	1.0	1.3	1.2	A+	
1909	620461	Chem	305	.528	.062	.528	.236	.161	.013	.365	-.082	.365	-.236	-.136	0.387	0.119	-2.6	0.9	-2.4	0.9	A+	
1910	616416	Chem	305	.338	.272	.338	.148	.223	.020	.349	-.140	.349	-.139	-.088	1.219	0.126	-1.1	1.0	-0.7	1.0	A-	
1911	620462	Chem	308	.367	.149	.218	.367	.257	.010	.182	-.065	-.120	.182	.008	1.224	0.123	1.4	1.1	2.0	1.1	A+	
1912	616506	Chem	308	.224	.133	.224	.484	.149	.010	.146	-.198	.146	.098	-.069	1.984	0.142	1.0	1.1	1.8	1.2	A-	
1913	618706	Chem	308	.549	.088	.263	.549	.094	.007	.414	-.130	-.228	.414	-.174	0.423	0.119	-3.3	0.9	-2.7	0.9	B-	
1914	619941	Chem	308	.240	.533	.097	.114	.240	.016	.096	.046	-.086	-.043	.096	1.876	0.139	1.6	1.1	2.2	1.2	A+	
1915	616540	Chem	308	.565	.565	.198	.110	.114	.013	.331	.331	-.168	-.105	-.134	0.333	0.120	-1.0	1.0	-1.2	0.9	A+	
1916	620430	Chem	308	.321	.153	.260	.321	.247	.020	.321	-.188	-.058	.321	-.093	1.419	0.127	-0.5	1.0	-0.6	1.0	B-	
1917	616418	Chem	308	.312	.169	.312	.321	.175	.023	.155	-.017	.155	-.139	.066	1.467	0.128	1.6	1.1	1.8	1.1	A-	
1918	616541	Chem	308	.234	.231	.234	.321	.214	.000	-.032	.023	-.032	-.141	.169	1.922	0.140	2.5	1.2	3.0	1.3	A-	
1919	616419	Chem	308	.458	.458	.114	.367	.058	.003	.273	.273	-.111	-.131	-.136	0.806	0.120	0.5	1.0	0.7	1.0	A+	
1920	620463	Chem	308	.565	.149	.081	.201	.565	.003	.393	-.228	-.209	-.127	.393	0.335	0.120	-2.2	0.9	-1.4	0.9	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1921	618707	Chem	308	.286	.312	.286	.201	.195	.007	.292	-.119	.292	-.181	.025	1.622	0.131	-0.1	1.0	0.1	1.0	A+	
1922	616507	Chem	308	.575	.169	.575	.185	.062	.010	.301	-.075	.301	-.163	-.161	0.282	0.121	0.0	1.0	-0.3	1.0	A+	
1923	620431	Chem	308	.198	.166	.260	.360	.198	.016	.177	.063	-.029	-.159	.177	2.123	0.148	0.6	1.1	0.8	1.1	A-	
1924	620464	Chem	308	.334	.104	.461	.334	.065	.036	.103	.055	-.095	.103	-.013	1.223	0.127	2.2	1.1	2.2	1.1	A-	
1925	618722	Chem	308	.318	.133	.318	.162	.367	.020	.273	.036	.273	-.122	-.136	1.345	0.128	0.4	1.0	0.4	1.0	A+	
1926	616508	Chem	308	.312	.312	.101	.123	.451	.013	.317	.317	-.157	-.185	-.019	1.396	0.129	-0.4	1.0	-0.4	1.0	A-	
1927	618689	Chem	308	.289	.289	.195	.357	.140	.020	.067	.067	.221	-.050	-.168	1.501	0.132	2.7	1.2	2.5	1.2	A+	
1928	616542	Chem	308	.412	.412	.169	.279	.114	.026	.468	.468	-.094	-.233	-.157	0.878	0.122	-3.6	0.9	-3.4	0.9	A+	
1929	620432	Chem	308	.084	.227	.370	.286	.084	.033	.182	-.003	.039	-.067	.182	3.064	0.210	0.0	1.0	0.4	1.1	A-	
1930	620465	Chem	307	.147	.306	.290	.241	.147	.016	.269	.079	-.109	-.131	.269	2.541	0.164	-0.4	1.0	-0.6	0.9	A-	
1931	618723	Chem	307	.290	.280	.290	.261	.163	.007	.125	.078	.125	-.087	-.064	1.651	0.129	1.2	1.1	1.2	1.1	A-	
1932	620433	Chem	307	.231	.231	.251	.231	.277	.010	.124	-.111	-.046	.124	.091	1.964	0.139	0.6	1.0	1.2	1.1	A+	
1933	616509	Chem	307	.241	.287	.241	.283	.173	.016	.128	.114	.128	-.112	-.075	1.896	0.137	0.7	1.1	1.0	1.1	B-	
1934	616544	Chem	307	.303	.277	.303	.264	.150	.007	.232	-.006	.232	-.122	-.071	1.581	0.128	0.0	1.0	-0.1	1.0	A+	
1935	618691	Chem	307	.371	.225	.371	.261	.134	.010	.270	-.027	.270	-.115	-.138	1.245	0.122	-0.7	1.0	-0.8	1.0	A+	
1936	618754	Chem	307	.492	.179	.492	.160	.153	.016	.236	-.129	.236	-.137	-.046	0.565	0.120	1.0	1.0	0.5	1.0	A-	
1937	616545	Chem	307	.212	.212	.156	.290	.329	.013	.260	.260	-.199	-.082	.024	1.974	0.145	0.0	1.0	0.2	1.0	B-	
1938	618692	Chem	307	.345	.332	.345	.222	.091	.010	.234	-.073	.234	-.123	-.070	1.246	0.125	0.7	1.0	1.3	1.1	A-	
1939	618724	Chem	307	.375	.140	.332	.147	.375	.007	.324	-.223	-.013	-.183	.324	1.116	0.123	-0.5	1.0	-0.5	1.0	B-	
1940	620466	Chem	307	.772	.062	.104	.062	.772	.000	.364	-.275	-.139	-.182	.364	-0.738	0.140	-1.3	0.9	-1.6	0.9	A-	
1941	616510	Chem	307	.241	.205	.355	.192	.241	.007	.175	-.088	-.012	-.068	.175	1.804	0.139	1.0	1.1	0.9	1.1	A+	
1942	616362	Chem	305	.702	.141	.092	.702	.059	.007	.356	-.241	-.138	.356	-.153	-0.395	0.130	-1.2	0.9	-1.4	0.9	A-	
1943	616367	Chem	615	.670	.096	.114	.120	.670	.000	.332	-.118	-.225	-.154	.332	-0.167	0.089	-1.7	1.0	-0.7	1.0	A+	
1944	616559	Chem	308	.610	.610	.133	.114	.133	.010	.407	.407	-.164	-.145	-.217	0.141	0.122	-2.3	0.9	-2.1	0.9	C+	
1945	616494	Chem	307	.831	.055	.055	.831	.052	.007	.328	-.142	-.157	.328	-.195	-1.101	0.158	-0.6	0.9	-1.5	0.8	B+	
1946	616427	Chem	307	.694	.209	.039	.694	.055	.003	.207	-.086	-.079	.207	-.095	-0.169	0.127	0.3	1.0	1.0	1.1	A+	
1947	616365	Chem	308	.581	.143	.581	.117	.136	.023	.361	-.202	.361	-.138	-.084	0.122	0.122	-1.1	1.0	-1.3	0.9	B+	
1948	616561	Chem	308	.695	.046	.123	.133	.695	.003	.399	-.149	-.192	-.208	.399	-0.355	0.129	-1.5	0.9	-1.7	0.9	A+	
1949	616397	Chem	309	.295	.295	.168	.227	.307	.003	.359	.359	-.126	-.141	-.077	1.512	0.130	-1.3	0.9	-1.5	0.9	A+	
1950	616492	Chem	617	.449	.191	.449	.214	.130	.016	.300	-.179	.300	-.073	-.064	0.777	0.085	-0.7	1.0	-1.0	1.0	A+	A+
1951	618705	Chem	309	.262	.181	.262	.392	.155	.010	.259	.006	.259	-.130	-.075	1.671	0.135	0.0	1.0	-0.1	1.0	A+	
1952	616564	Chem	309	.246	.117	.220	.411	.246	.007	.229	.008	.099	-.238	.229	1.777	0.137	0.4	1.0	-0.3	1.0	A-	
1953	619953	Chem	309	.191	.191	.450	.168	.185	.007	.302	.302	-.085	-.090	-.049	2.115	0.150	-0.7	0.9	-0.8	0.9	A+	
1954	616368	Chem	309	.204	.165	.440	.181	.204	.010	.090	-.142	.134	-.059	.090	2.024	0.146	1.1	1.1	1.5	1.2	A+	
1955	618708	Chem	307	.267	.134	.182	.417	.267	.000	.406	-.234	-.165	-.074	.406	1.755	0.135	-1.6	0.9	-1.5	0.9	A+	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1956	619954	Chem	307	.202	.202	.241	.358	.182	.016	.101	.101	-.083	.039	-.065	2.121	0.149	1.3	1.1	1.9	1.2	A-	
1957	618737	Chem	307	.336	.251	.195	.209	.336	.010	.296	-.055	-.112	-.138	.296	1.378	0.127	0.1	1.0	-0.1	1.0	B+	
1958	616369	Chem	307	.257	.257	.257	.326	.150	.010	.350	.350	-.167	-.119	-.033	1.790	0.137	-0.7	1.0	-0.2	1.0	A-	
1959	616398	Chem	307	.228	.440	.205	.228	.124	.003	-.150	.080	-.046	-.150	.155	1.982	0.142	3.1	1.3	4.3	1.5	A-	
1960	620441	Chem	307	.443	.443	.248	.199	.101	.010	.260	.260	-.046	-.113	-.171	0.874	0.121	0.4	1.0	0.3	1.0	A+	
1961	616429	Chem	308	.276	.536	.149	.276	.036	.003	.099	-.149	.152	.099	-.096	1.655	0.132	1.7	1.1	1.9	1.2	A+	
1962	618738	Chem	308	.351	.156	.435	.351	.058	.000	.305	-.208	-.068	.305	-.155	1.281	0.124	-0.7	1.0	-1.0	1.0	A-	
1963	620442	Chem	308	.279	.279	.338	.237	.143	.003	.266	.266	-.270	.036	.015	1.639	0.132	0.3	1.0	0.2	1.0	A+	
1964	616520	Chem	308	.607	.127	.195	.607	.068	.003	.120	-.056	-.010	.120	-.095	0.147	0.121	2.2	1.1	2.4	1.1	A+	
1965	616370	Chem	308	.354	.143	.354	.153	.341	.010	.194	-.191	.194	-.025	-.014	1.260	0.124	0.8	1.0	0.5	1.0	A+	
1966	616399	Chem	308	.250	.558	.088	.094	.250	.010	.281	-.156	-.100	.030	.281	1.790	0.136	0.1	1.0	-0.5	1.0	A+	
1967	619955	Chem	308	.390	.146	.390	.257	.195	.013	.263	-.128	.263	-.151	.016	1.078	0.122	0.3	1.0	0.3	1.0	A-	
1968	618709	Chem	308	.208	.110	.331	.331	.208	.020	.140	-.152	.041	-.009	.140	2.029	0.145	0.9	1.1	1.0	1.1	A-	
1969	616400	Chem	309	.372	.379	.172	.372	.078	.000	.220	.020	-.207	.220	-.142	1.148	0.123	0.8	1.0	0.6	1.0	A-	
1970	618739	Chem	309	.262	.191	.165	.379	.262	.003	.206	.028	-.173	-.074	.206	1.695	0.134	0.8	1.1	0.7	1.1	B-	
1971	619957	Chem	309	.252	.252	.256	.414	.074	.003	.259	.259	-.101	-.068	-.127	1.749	0.136	0.2	1.0	0.0	1.0	A-	
1972	619918	Chem	309	.502	.185	.120	.502	.194	.000	.374	-.199	-.163	.374	-.143	0.571	0.119	-2.1	0.9	-2.2	0.9	A-	
1973	620443	Chem	309	.476	.476	.175	.133	.217	.000	.283	.283	-.205	-.103	-.070	0.684	0.119	0.0	1.0	0.0	1.0	A-	
1974	618710	Chem	309	.288	.288	.188	.327	.188	.010	.122	.122	-.060	.062	-.135	1.546	0.131	1.8	1.1	1.8	1.1	A+	
1975	616521	Chem	309	.505	.175	.217	.505	.087	.016	.433	-.171	-.242	.433	-.140	0.518	0.120	-3.1	0.9	-3.0	0.9	A-	
1976	616522	Chem	308	.292	.250	.292	.257	.188	.013	.220	.017	.220	-.166	.013	1.458	0.130	0.3	1.0	0.6	1.0	A+	
1977	618711	Chem	308	.627	.188	.068	.107	.627	.010	.388	-.210	-.070	-.154	.388	-0.046	0.122	-2.1	0.9	-1.5	0.9	A+	
1978	618740	Chem	308	.231	.231	.205	.354	.201	.010	.179	.179	-.049	.011	-.060	1.805	0.139	0.3	1.0	0.7	1.1	A+	
1979	616401	Chem	308	.481	.231	.117	.481	.166	.007	.355	-.131	-.195	.355	-.061	0.604	0.118	-1.9	1.0	-1.8	0.9	B-	
1980	616490	Chem	308	.487	.071	.159	.270	.487	.013	.272	-.139	-.186	.010	.272	0.560	0.118	-0.6	1.0	0.6	1.0	A+	
1981	619958	Chem	308	.321	.321	.253	.244	.172	.010	.174	.174	-.042	-.062	.010	1.318	0.126	1.1	1.1	0.8	1.1	A+	
1982	620444	Chem	308	.260	.260	.201	.302	.231	.007	.256	.256	-.118	-.080	.021	1.644	0.134	-0.1	1.0	0.2	1.0	A+	
1983	619919	Chem	308	.162	.153	.305	.370	.162	.010	.078	.076	.104	-.132	.078	2.268	0.158	0.7	1.1	1.6	1.2	A-	
1984	618745	Chem	308	.377	.253	.377	.179	.179	.013	.254	-.059	.254	-.070	-.071	1.052	0.122	0.0	1.0	0.4	1.0	A+	
1985	618569	Chem	308	.315	.315	.451	.114	.110	.010	.205	.205	.009	-.024	-.167	1.351	0.127	0.6	1.0	0.6	1.0	A-	
1986	616523	Chem	318	.708	.142	.708	.085	.066	.000	.132	-.126	.132	-.127	.077	-0.305	0.127	0.9	1.1	2.5	1.2	A+	
1987	620445	Chem	318	.330	.192	.283	.330	.192	.003	.320	-.093	-.170	.320	-.090	1.408	0.124	-0.5	1.0	-0.6	1.0	A+	
1988	618712	Chem	318	.296	.296	.299	.274	.126	.006	.193	.193	-.115	.001	-.105	1.572	0.128	1.0	1.1	1.0	1.1	A+	
1989	618570	Chem	318	.660	.072	.660	.110	.157	.000	.364	-.144	.364	-.175	-.221	-0.072	0.122	-1.6	0.9	-1.9	0.9	A+	
1990	616491	Chem	318	.399	.113	.399	.204	.280	.003	.289	-.081	.289	-.149	-.120	1.082	0.119	-0.1	1.0	-0.1	1.0	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1991	618756	Chem	318	.293	.211	.264	.293	.226	.006	.084	-.153	-.171	.084	.250	1.593	0.128	2.3	1.1	2.1	1.2	A-	
1992	618741	Chem	318	.481	.151	.267	.481	.091	.009	.277	-.056	-.184	.277	-.112	0.700	0.117	0.1	1.0	0.3	1.0	B+	
1993	619920	Chem	318	.318	.318	.340	.204	.129	.009	.337	.337	-.147	-.027	-.214	1.452	0.126	-0.6	1.0	-0.9	0.9	A+	
1994	620446	Chem	306	.248	.180	.248	.203	.360	.010	.084	.014	.084	-.007	-.077	1.770	0.137	1.4	1.1	1.5	1.1	A-	
1995	618713	Chem	306	.418	.121	.418	.314	.137	.010	.189	-.112	.189	-.027	-.062	0.930	0.121	1.6	1.1	1.8	1.1	A-	
1996	616556	Chem	306	.549	.088	.232	.549	.124	.007	.418	-.134	-.221	.418	-.165	0.364	0.120	-2.9	0.9	-2.7	0.9	A-	
1997	616524	Chem	306	.373	.131	.373	.209	.281	.007	.268	.036	.268	-.244	-.045	1.143	0.123	0.3	1.0	-0.1	1.0	A+	
1998	618572	Chem	306	.111	.141	.111	.346	.395	.007	.090	-.072	.090	.156	-.113	2.804	0.186	0.5	1.1	1.1	1.2	A-	
1999	618742	Chem	306	.467	.131	.467	.258	.134	.010	.218	-.225	.218	-.028	.006	0.712	0.119	1.6	1.1	1.1	1.1	A+	
2000	619921	Chem	306	.513	.131	.216	.513	.124	.016	.237	-.182	-.047	.237	-.033	0.498	0.120	1.1	1.0	1.0	1.0	A+	
2001	616495	Chem	306	.435	.180	.219	.435	.157	.010	.349	-.068	-.109	.349	-.216	0.855	0.120	-1.4	1.0	-0.8	1.0	A+	
2002	620447	Chem	307	.430	.108	.209	.244	.430	.010	.359	-.226	-.094	-.086	.359	0.881	0.120	-1.9	0.9	-1.8	0.9	B+	
2003	616496	Chem	307	.150	.150	.235	.209	.391	.016	.090	.090	-.002	-.029	.033	2.446	0.165	0.9	1.1	0.9	1.1	A+	
2004	618743	Chem	307	.300	.309	.287	.300	.088	.016	.245	-.044	-.072	.245	-.056	1.489	0.130	0.3	1.0	0.3	1.0	A+	
2005	619922	Chem	307	.309	.251	.309	.212	.215	.013	.158	-.084	.158	-.043	.058	1.447	0.129	1.2	1.1	1.6	1.1	B-	
2006	616557	Chem	307	.358	.235	.358	.270	.121	.016	.196	-.007	.196	-.072	-.042	1.199	0.124	1.3	1.1	1.5	1.1	A-	
2007	616525	Chem	307	.231	.192	.225	.231	.339	.013	.186	-.049	-.032	.186	-.007	1.874	0.140	0.6	1.0	1.0	1.1	A+	
2008	616558	Chem	305	.564	.046	.564	.164	.226	.000	.196	-.124	.196	-.201	.007	0.265	0.119	-0.1	1.0	0.2	1.0	A+	
2009	619923	Chem	305	.341	.138	.298	.210	.341	.013	.334	-.117	-.046	-.164	.334	1.226	0.125	-0.8	1.0	-0.9	1.0	A-	
2010	620448	Chem	305	.226	.226	.197	.282	.275	.020	.247	.247	-.102	-.006	-.066	1.822	0.142	0.2	1.0	0.1	1.0	A+	
2011	618744	Chem	305	.328	.259	.259	.328	.134	.020	.101	.102	.000	.101	-.222	1.267	0.127	2.4	1.1	2.0	1.1	A-	
2012	616526	Chem	305	.492	.092	.233	.167	.492	.016	.376	-.163	-.201	-.133	.376	0.528	0.119	-2.4	0.9	-2.1	0.9	A-	
2013	616527	Chem	308	.296	.133	.419	.149	.296	.003	.346	-.023	-.207	-.102	.346	1.586	0.130	-0.7	1.0	-0.5	1.0	A-	
2014	616363	Chem	308	.257	.211	.445	.257	.081	.007	.188	-.109	-.041	.188	.004	1.795	0.136	1.0	1.1	1.2	1.1	B-	
2015	619924	Chem	308	.406	.172	.406	.257	.146	.020	.278	-.087	.278	-.112	-.080	1.025	0.122	0.2	1.0	0.1	1.0	A+	
2016	620449	Chem	308	.260	.292	.266	.260	.156	.026	.065	.177	-.087	.065	-.141	1.734	0.136	2.1	1.1	2.3	1.2	B-	
2017	620450	Chem	308	.419	.419	.133	.351	.097	.000	.212	.212	-.179	-.145	.086	0.986	0.121	1.6	1.1	1.5	1.1	B+	
2018	616364	Chem	308	.373	.325	.373	.218	.081	.003	.299	-.160	.299	-.113	-.101	1.185	0.123	-0.4	1.0	-0.1	1.0	A+	
2019	616393	Chem	308	.315	.321	.237	.315	.127	.000	.247	-.117	.026	.247	-.213	1.477	0.128	0.4	1.0	0.3	1.0	A+	
2020	616560	Chem	308	.455	.149	.455	.270	.123	.003	.376	-.135	.376	-.210	-.121	0.821	0.120	-1.7	0.9	-1.5	0.9	B-	
2021	619925	Chem	308	.377	.172	.159	.292	.377	.000	.170	-.076	-.114	-.026	.170	1.179	0.123	1.9	1.1	1.6	1.1	A-	
2022	616528	Chem	308	.140	.179	.136	.140	.539	.007	.217	.037	-.066	.217	-.106	2.595	0.169	0.1	1.0	0.4	1.1	C-	
2023	618702	Chem	308	.250	.250	.315	.244	.179	.013	.322	.322	-.114	-.055	-.093	1.732	0.137	-0.9	0.9	-0.9	0.9	A+	
2024	619950	Chem	308	.438	.110	.438	.149	.289	.013	.212	-.101	.212	-.138	.014	0.794	0.121	1.4	1.1	1.5	1.1	A-	
2025	616529	Chem	308	.279	.347	.146	.211	.279	.016	.330	-.111	-.121	-.053	.330	1.553	0.133	-0.7	1.0	-0.2	1.0	A-	

Table B–4 (continued). Science Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
2026	616394	Chem	308	.539	.104	.175	.539	.169	.013	.397	-.116	-.221	.397	-.119	0.349	0.120	-1.9	0.9	-1.8	0.9	A-	
2027	618703	Chem	307	.603	.091	.140	.156	.603	.010	.433	-.223	-.092	-.239	.433	0.243	0.121	-3.1	0.9	-3.0	0.9	A-	
2028	616402	Chem	307	.401	.130	.401	.277	.186	.007	.261	-.043	.261	-.113	-.084	1.127	0.120	-0.3	1.0	-0.5	1.0	A+	
2029	616562	Chem	307	.254	.388	.212	.254	.143	.003	-.027	.200	-.098	-.027	-.064	1.844	0.134	1.9	1.1	2.9	1.2	A-	
2030	619951	Chem	307	.381	.381	.088	.274	.251	.007	.360	.360	-.174	-.087	-.147	1.211	0.121	-2.0	0.9	-1.9	0.9	C-	
2031	616395	Chem	307	.218	.218	.192	.404	.179	.007	.193	.193	-.041	-.072	-.010	2.048	0.141	0.0	1.0	0.3	1.0	A-	
2032	616366	Chem	307	.264	.274	.134	.316	.264	.013	.227	-.024	-.091	-.078	.227	1.769	0.133	-0.3	1.0	0.2	1.0	A-	
2033	616428	Chem	307	.531	.147	.531	.205	.114	.003	.311	-.116	.311	-.141	-.185	0.427	0.119	-1.2	1.0	-0.9	1.0	B+	
2034	616396	Chem	307	.590	.062	.235	.590	.114	.000	.284	-.307	-.119	.284	-.048	0.178	0.120	-0.5	1.0	-0.1	1.0	A-	
2035	619928	Chem	307	.511	.075	.143	.270	.511	.000	.292	-.129	-.177	-.113	.292	0.521	0.119	-0.2	1.0	-0.4	1.0	B+	
2036	616563	Chem	307	.394	.153	.319	.394	.104	.029	.067	-.023	-.077	.067	.053	0.970	0.123	3.4	1.1	3.9	1.2	A-	
2037	618704	Chem	307	.365	.365	.218	.303	.108	.007	.356	.356	-.241	-.220	.117	1.160	0.124	-1.4	0.9	-0.5	1.0	A-	
2038	619952	Chem	307	.329	.329	.254	.261	.140	.016	.184	.184	-.150	-.014	-.018	1.313	0.127	1.4	1.1	1.6	1.1	B-	

WRITING/ENGLISH COMPOSITION MULTIPLE-CHOICE ITEMS

Table B–5. Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1	622443	3	2753	.769	.059	.056	.769	.113	.005	.448	-.243	-.226	.448	-.194	-2.331	0.050	-2.6	0.9	-2.1	0.9	A+	A-
2	621004	3	2753	.893	.038	.038	.893	.027	.005	.410	-.221	-.161	.410	-.224	-3.454	0.068	-1.9	0.9	-3.4	0.7	A+	A-
3	623134	3	2753	.317	.208	.173	.296	.317	.006	.332	-.124	-.158	-.054	.332	0.101	0.045	2.9	1.1	5.1	1.2	A+	A-
4	639851	3	2753	.375	.429	.085	.375	.105	.006	.308	-.029	-.204	.308	-.183	-0.206	0.044	5.4	1.1	5.9	1.2	A+	A-
5	622448	3	2753	.678	.118	.100	.097	.678	.007	.495	-.231	-.217	-.242	.495	-1.780	0.045	-4.9	0.9	-4.9	0.8	A+	A-
6	631022	3	2753	.680	.157	.680	.066	.091	.006	.449	-.220	.449	-.241	-.171	-1.787	0.045	-2.0	1.0	-1.4	1.0	A+	A-
7	622457	3	2753	.537	.179	.537	.085	.191	.008	.424	-.237	.424	-.195	-.111	-1.034	0.042	-0.2	1.0	0.1	1.0	A-	A+
8	626549	3	2753	.433	.433	.137	.201	.220	.009	.392	.392	-.201	-.168	-.083	-0.527	0.043	1.9	1.0	4.0	1.1	A+	A+
9	635457	3	2753	.310	.519	.310	.125	.036	.009	.384	-.152	.384	-.133	-.179	0.142	0.045	-0.4	1.0	3.3	1.1	A-	A+
10	620993	3	2753	.782	.782	.079	.088	.041	.010	.445	.445	-.249	-.215	-.153	-2.441	0.051	-2.3	0.9	-3.1	0.9	A-	A-
11	622447	3	274	.829	.110	.829	.033	.029	.000	.409	-.246	.409	-.199	-.248	-2.813	0.176	-0.6	0.9	-0.6	0.9	A-	
12	622445	3	274	.412	.256	.110	.219	.412	.004	.354	-.281	-.096	-.020	.354	-0.408	0.138	2.3	1.1	2.5	1.2	A+	
13	640135	3	274	.438	.438	.336	.150	.077	.000	.239	.239	-.109	-.086	-.137	-0.536	0.137	3.1	1.2	3.6	1.3	A+	
14	621011	3	274	.544	.544	.142	.164	.135	.015	.475	.475	-.190	-.159	-.268	-1.107	0.137	-0.8	1.0	-1.1	0.9	A+	
15	621018	3	274	.540	.274	.080	.540	.102	.004	.518	-.248	-.167	.518	-.296	-1.063	0.136	-1.7	0.9	-1.6	0.9	A-	
16	626766	3	275	.596	.596	.055	.062	.284	.004	.325	.325	-.233	-.150	-.121	-1.413	0.142	1.7	1.1	1.9	1.2	A+	A-
17	623059	3	275	.931	.931	.029	.018	.011	.011	.474	.474	-.256	-.167	-.127	-4.536	0.305	-0.1	1.0	-1.0	0.5	A+	A+
18	634165	3	275	.844	.051	.844	.062	.033	.011	.458	-.272	.458	-.203	-.092	-3.085	0.188	-0.9	0.9	-1.2	0.7	A-	B-
19	621013	3	275	.811	.124	.033	.811	.022	.011	.523	-.307	-.234	.523	-.139	-2.851	0.177	-1.3	0.9	-1.8	0.6	A+	A-
20	621019	3	275	.476	.178	.182	.476	.149	.015	.418	-.119	-.156	.418	-.175	-0.812	0.140	0.2	1.0	0.8	1.1	A-	A+
21	623098	3	274	.551	.186	.551	.197	.066	.000	.471	-.365	.471	-.097	-.217	-1.073	0.132	-1.6	0.9	-1.2	0.9	A+	A+
22	623014	3	274	.281	.131	.281	.266	.321	.000	.261	-.167	.261	-.133	-.004	0.281	0.144	1.5	1.1	2.7	1.3	A-	A-
23	626921	3	274	.686	.139	.066	.686	.110	.000	.519	-.341	-.250	.519	-.196	-1.754	0.140	-2.4	0.9	-2.5	0.8	A+	A-
24	635445	3	274	.485	.139	.485	.139	.237	.000	.410	-.242	.410	-.112	-.194	-0.760	0.131	-0.3	1.0	0.3	1.0	A+	A-
25	623127	3	274	.361	.157	.383	.099	.361	.000	.221	-.216	-.005	-.086	.221	-0.153	0.136	3.0	1.2	2.7	1.2	A-	A-
26	630803	3	274	.467	.256	.168	.467	.106	.004	.262	-.042	-.171	.262	-.153	-0.681	0.132	3.0	1.2	2.7	1.2	A+	A-
27	627410	3	274	.679	.679	.095	.102	.120	.004	.451	.451	-.307	-.201	-.180	-1.728	0.140	-0.9	0.9	-1.8	0.8	A-	A+
28	622459	3	274	.416	.128	.416	.256	.201	.000	.440	-.178	.440	-.149	-.232	-0.426	0.133	-0.8	1.0	-1.0	0.9	A+	A-
29	624759	3	274	.672	.672	.055	.062	.212	.000	.225	.225	-.290	-.149	-.009	-1.676	0.139	2.2	1.1	3.2	1.3	B-	A-
30	623024	3	274	.277	.310	.172	.237	.277	.004	.332	-.181	-.155	-.005	.332	0.300	0.145	0.5	1.0	1.2	1.1	B+	A+

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
31	621399	3	274	.814	.814	.058	.066	.062	.000	.400	.400	-.216	-.206	-.225	-2.549	0.164	-0.6	0.9	-1.3	0.8	A+	A+
32	623137	3	274	.547	.102	.142	.204	.547	.004	.437	-.233	-.234	-.150	.437	-1.061	0.132	-0.7	1.0	-0.9	0.9	A+	B+
33	622456	3	276	.598	.598	.091	.101	.203	.007	.367	.367	-.189	-.180	-.127	-1.331	0.132	0.1	1.0	-0.3	1.0	A-	
34	635897	3	276	.565	.127	.178	.123	.565	.007	.405	-.178	-.183	-.121	.405	-1.170	0.131	-0.7	1.0	-0.3	1.0	A+	
35	635446	3	276	.837	.087	.837	.040	.029	.007	.472	-.240	.472	-.224	-.182	-2.750	0.173	-1.4	0.9	-1.6	0.7	A-	
36	635895	3	276	.714	.141	.094	.714	.044	.007	.442	-.199	-.276	.442	-.088	-1.925	0.142	-1.5	0.9	-1.4	0.9	A+	
37	630804	3	276	.540	.167	.540	.145	.138	.011	.302	-.133	.302	-.140	-.041	-1.064	0.130	1.3	1.1	1.8	1.1	A-	
38	621017	3	276	.388	.239	.388	.192	.167	.015	.257	-.018	.257	-.128	-.072	-0.358	0.133	1.9	1.1	3.1	1.2	A+	
39	623120	3	276	.380	.214	.199	.188	.380	.018	.342	-.031	-.093	-.187	.342	-0.335	0.133	0.4	1.0	1.0	1.1	A-	
40	625484	3	276	.826	.116	.022	.826	.015	.022	.414	-.225	-.211	.414	-.098	-2.774	0.175	-0.8	0.9	-0.8	0.9	A-	
41	634152	3	276	.333	.333	.185	.254	.207	.022	.136	.136	-.030	-.090	.058	-0.111	0.137	3.5	1.2	3.5	1.3	A-	
42	627784	3	276	.630	.120	.630	.210	.015	.025	.399	-.306	.399	-.070	-.085	-1.549	0.136	-0.3	1.0	-0.3	1.0	A+	
43	624772	3	276	.196	.312	.268	.196	.203	.022	.259	-.058	-.078	.259	.014	0.724	0.160	0.4	1.0	1.3	1.2	A-	
44	633542	3	276	.725	.112	.058	.076	.725	.029	.507	-.244	-.078	-.295	.507	-2.088	0.148	-1.8	0.9	-2.2	0.8	A+	
45	620994	3	277	.733	.733	.083	.079	.101	.004	.399	.399	-.116	-.270	-.176	-2.136	0.148	-0.1	1.0	0.8	1.1	A-	
46	635444	3	277	.347	.209	.209	.231	.347	.004	.390	-.196	-.141	-.071	.390	-0.171	0.137	-0.6	1.0	-0.5	1.0	A-	
47	626568	3	277	.585	.188	.101	.123	.585	.004	.443	-.249	-.151	-.174	.443	-1.334	0.134	-0.8	1.0	-0.7	0.9	A-	
48	623092	3	277	.874	.047	.874	.040	.033	.007	.333	-.115	.333	-.130	-.173	-3.247	0.195	-0.2	1.0	1.0	1.2	A-	
49	634153	3	277	.296	.220	.350	.112	.296	.022	.182	-.006	-.043	-.035	.182	0.112	0.143	2.7	1.2	4.5	1.6	A-	
50	634149	3	277	.801	.040	.123	.801	.025	.011	.418	-.306	-.115	.418	-.199	-2.632	0.165	-0.1	1.0	-0.7	0.9	A+	
51	639885	3	277	.617	.163	.617	.090	.116	.014	.522	-.267	.522	-.146	-.235	-1.527	0.137	-2.2	0.9	-1.7	0.9	A+	
52	628033	3	277	.913	.025	.036	.913	.014	.011	.427	-.128	-.295	.427	-.061	-3.849	0.240	-0.6	0.9	-1.5	0.6	A+	
53	622991	3	277	.769	.769	.108	.061	.047	.014	.418	.418	-.209	-.147	-.185	-2.421	0.157	-0.1	1.0	-0.8	0.9	A-	
54	622999	3	277	.354	.242	.137	.354	.246	.022	.456	-.154	-.163	.456	-.121	-0.219	0.138	-1.2	0.9	-1.3	0.9	A-	
55	621009	3	277	.780	.018	.040	.780	.144	.018	.393	-.202	-.327	.393	-.086	-2.514	0.161	-0.2	1.0	0.7	1.1	A-	
56	633543	3	277	.697	.108	.137	.043	.697	.014	.557	-.240	-.302	-.200	.557	-1.968	0.144	-2.5	0.8	-2.6	0.7	A+	
57	620995	3	275	.542	.222	.146	.087	.542	.004	.399	-.108	-.220	-.207	.399	-0.959	0.136	1.4	1.1	0.9	1.1	B+	
58	628317	3	275	.844	.022	.022	.106	.844	.007	.413	-.191	-.180	-.238	.413	-2.777	0.185	-0.6	0.9	-0.4	0.9	A+	
59	635878	3	275	.633	.124	.633	.066	.171	.007	.422	-.141	.422	-.216	-.228	-1.414	0.141	0.1	1.0	0.1	1.0	A-	
60	633544	3	275	.822	.051	.822	.036	.084	.007	.498	-.275	.498	-.226	-.235	-2.644	0.179	-1.5	0.8	-1.1	0.8	A+	
61	639886	3	275	.466	.222	.135	.175	.466	.004	.398	-.276	-.140	-.049	.398	-0.551	0.136	1.2	1.1	0.9	1.1	A-	
62	634150	3	275	.847	.087	.015	.847	.047	.004	.463	-.295	-.148	.463	-.224	-2.894	0.191	-1.0	0.9	-1.4	0.7	A+	
63	622461	3	275	.836	.836	.095	.047	.018	.004	.322	.322	-.297	.027	-.150	-2.753	0.183	-0.1	1.0	1.3	1.3	A-	
64	623007	3	275	.556	.233	.116	.091	.556	.004	.379	-.170	-.197	-.125	.379	-1.015	0.136	1.6	1.1	0.6	1.1	A+	
65	639446	3	275	.073	.651	.073	.076	.196	.004	-.057	-.063	-.057	-.061	.198	2.958	0.316	0.5	1.1	1.2	1.6	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
66	639870	3	275	.411	.226	.258	.102	.411	.004	.396	-.206	-.140	-.098	.396	-0.211	0.138	0.1	1.0	0.5	1.0	C-	
67	622995	3	275	.520	.520	.138	.138	.200	.004	.423	.423	-.107	-.261	-.167	-0.828	0.136	0.5	1.0	0.5	1.0	A+	
68	634154	3	275	.578	.164	.578	.135	.120	.004	.390	-.222	.390	-.226	-.049	-1.071	0.137	0.8	1.0	0.6	1.1	A+	
69	623100	3	275	.738	.069	.087	.738	.098	.007	.426	-.179	-.236	.426	-.136	-2.015	0.152	-0.7	0.9	-0.7	0.9	A+	A-
70	639429	3	275	.887	.887	.022	.022	.058	.011	.526	.526	-.163	-.258	-.240	-3.403	0.218	-0.8	0.9	-1.6	0.6	A-	A-
71	620987	3	275	.298	.393	.298	.218	.080	.011	.195	.122	.195	-.119	-.190	0.263	0.143	3.0	1.2	2.8	1.4	A+	A+
72	634159	3	275	.487	.487	.302	.127	.069	.015	.395	.395	-.203	.010	-.225	-0.725	0.134	0.6	1.0	0.3	1.0	B-	A+
73	621007	3	275	.407	.200	.164	.407	.218	.011	.411	-.167	-.119	.411	-.103	-0.318	0.135	-0.4	1.0	-0.4	1.0	A-	A-
74	623084	3	275	.386	.196	.309	.095	.386	.015	.303	-.217	.083	-.157	.303	-0.227	0.136	2.4	1.1	1.9	1.2	A-	A+
75	623025	3	275	.807	.058	.807	.058	.066	.011	.489	-.189	.489	-.199	-.217	-2.531	0.170	-1.0	0.9	-1.7	0.7	A+	A-
76	626548	3	275	.407	.189	.124	.266	.407	.015	.323	-.155	-.196	.031	.323	-0.346	0.135	2.0	1.1	2.2	1.2	A+	A+
77	623094	3	275	.880	.066	.880	.026	.018	.011	.557	-.349	.557	-.173	-.140	-3.356	0.215	-0.9	0.9	-2.1	0.5	A+	A-
78	639871	3	275	.331	.196	.138	.324	.331	.011	.308	-.207	-.103	.046	.308	0.061	0.140	1.2	1.1	2.5	1.3	B-	A+
79	639887	3	275	.284	.207	.258	.284	.236	.015	.233	.042	-.090	.233	-.076	0.343	0.145	1.5	1.1	3.4	1.5	A-	A-
80	630795	3	275	.869	.047	.040	.869	.029	.015	.547	-.259	-.270	.547	-.155	-3.261	0.209	-0.9	0.9	-1.7	0.6	A+	A-
81	633545	3	275	.822	.073	.822	.040	.055	.011	.603	-.262	.603	-.268	-.271	-2.745	0.179	-2.0	0.8	-2.6	0.6	A+	A-
82	635896	3	277	.531	.357	.033	.531	.079	.000	.309	-.197	-.221	.309	-.077	-0.991	0.133	2.6	1.1	1.9	1.2	A-	
83	620998	3	277	.686	.242	.043	.022	.686	.007	.473	-.345	-.221	-.146	.473	-1.843	0.144	-1.2	0.9	-0.5	0.9	A+	
84	624841	3	277	.650	.108	.650	.076	.166	.000	.462	-.214	.462	-.168	-.294	-1.581	0.139	-1.3	0.9	-0.6	0.9	A-	
85	635898	3	277	.747	.747	.036	.079	.134	.004	.426	.426	-.226	-.139	-.297	-2.177	0.152	-0.6	1.0	-0.3	1.0	A+	
86	621010	3	277	.379	.379	.314	.246	.061	.000	.331	.331	-.071	-.223	-.132	-0.249	0.137	2.1	1.1	1.6	1.2	A-	
87	632331	3	277	.451	.144	.307	.098	.451	.000	.428	-.119	-.259	-.174	.428	-0.597	0.134	-0.4	1.0	0.4	1.0	A-	
88	624751	3	277	.404	.404	.177	.123	.296	.000	.341	.341	-.113	-.239	-.101	-0.379	0.135	1.7	1.1	2.3	1.2	B-	
89	630796	3	277	.830	.051	.076	.033	.830	.011	.394	-.290	-.158	-.227	.394	-2.868	0.179	-0.4	1.0	-0.9	0.8	A-	
90	620997	3	277	.177	.303	.177	.079	.440	.000	.108	-.068	.108	-.151	.063	1.068	0.173	2.0	1.2	3.2	1.7	A-	
91	627700	3	277	.502	.159	.148	.502	.181	.011	.492	-.280	-.164	.492	-.176	-0.876	0.134	-1.0	1.0	-1.2	0.9	A-	
92	623021	3	277	.386	.289	.123	.386	.199	.004	.439	-.093	-.242	.439	-.213	-0.288	0.136	-0.2	1.0	0.1	1.0	C+	
93	639850	3	277	.408	.123	.383	.408	.079	.007	.381	-.148	-.151	.381	-.223	-0.372	0.136	0.3	1.0	0.9	1.1	A+	
94	639881	3	277	.783	.069	.783	.076	.058	.014	.545	-.243	.545	-.298	-.301	-2.502	0.164	-2.2	0.8	-2.1	0.7	A+	
95	622444	3	276	.674	.116	.044	.167	.674	.000	.410	-.261	-.215	-.174	.410	-1.809	0.140	-0.1	1.0	-0.1	1.0	A-	A-
96	622449	3	276	.562	.188	.562	.163	.087	.000	.441	-.184	.441	-.175	-.292	-1.228	0.133	-0.2	1.0	-0.6	1.0	A+	A+
97	623010	3	276	.717	.717	.065	.130	.080	.007	.404	.404	-.093	-.264	-.228	-2.077	0.147	-0.1	1.0	-0.1	1.0	A+	A-
98	623031	3	276	.370	.344	.112	.170	.370	.004	.321	-.141	-.138	-.111	.321	-0.279	0.137	2.0	1.1	1.8	1.2	A-	A-
99	634028	3	276	.591	.116	.591	.141	.152	.000	.370	-.284	.370	-.054	-.201	-1.355	0.134	0.9	1.1	0.2	1.0	A+	A-
100	634163	3	276	.446	.083	.152	.315	.446	.004	.377	-.329	-.095	-.136	.377	-0.651	0.134	0.6	1.0	1.1	1.1	A+	A-

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
101	639883	3	276	.772	.069	.105	.772	.054	.000	.507	-.264	-.316	.507	-.215	-2.396	0.155	-1.8	0.9	-2.2	0.7	A+	A-
102	634151	3	276	.804	.029	.145	.804	.022	.000	.369	-.197	-.257	.369	-.157	-2.626	0.163	-0.3	1.0	0.5	1.1	A-	A-
103	620991	3	276	.725	.725	.058	.123	.094	.000	.408	.408	-.189	-.152	-.302	-2.099	0.147	-0.2	1.0	-0.5	0.9	A+	A+
104	628101	3	276	.380	.152	.254	.380	.214	.000	.493	-.170	-.216	.493	-.206	-0.331	0.136	-1.9	0.9	0.5	1.0	A+	A-
105	621002	3	276	.420	.073	.275	.232	.420	.000	.525	-.276	-.345	-.080	.525	-0.533	0.134	-2.1	0.9	-2.2	0.8	B+	A-
106	622462	3	276	.254	.308	.254	.370	.069	.000	-.045	-.176	-.045	.149	.116	0.404	0.151	4.9	1.4	5.7	2.0	A+	A-
107	621005	3	276	.848	.036	.848	.098	.015	.004	.354	-.317	.354	-.149	-.168	-3.005	0.181	-0.4	1.0	0.5	1.1	A+	B+
108	620990	3	274	.912	.040	.912	.037	.011	.000	.404	-.394	.404	-.124	-.132	-3.538	0.226	-1.0	0.8	-1.3	0.6	A+	A+
109	622450	3	274	.799	.033	.037	.799	.128	.004	.424	-.205	-.109	.424	-.308	-2.487	0.166	-0.5	1.0	0.1	1.0	A-	A-
110	634032	3	274	.745	.080	.069	.099	.745	.007	.503	-.249	-.269	-.224	.503	-2.112	0.154	-1.2	0.9	-1.8	0.8	A-	A-
111	635443	3	274	.693	.135	.077	.693	.095	.000	.442	-.300	-.174	.442	-.188	-1.768	0.144	-0.6	1.0	-1.2	0.9	A-	A+
112	622463	3	274	.602	.602	.146	.117	.131	.004	.414	.414	-.186	-.184	-.200	-1.297	0.137	0.2	1.0	0.7	1.1	A+	A+
113	623091	3	274	.679	.033	.259	.679	.026	.004	.381	-.220	-.212	.381	-.225	-1.709	0.143	0.4	1.0	1.4	1.2	A+	A+
114	625477	3	274	.934	.026	.934	.026	.015	.000	.408	-.253	.408	-.261	-.166	-3.955	0.262	-0.7	0.9	-1.9	0.4	A+	A-
115	622458	3	274	.485	.117	.146	.248	.485	.004	.417	-.217	-.192	-.141	.417	-0.713	0.134	0.5	1.0	0.2	1.0	A-	A-
116	639884	3	274	.715	.124	.073	.715	.084	.004	.447	-.168	-.284	.447	-.249	-1.930	0.148	-0.7	1.0	-0.7	0.9	A-	A+
117	621015	3	274	.307	.307	.358	.157	.175	.004	.181	.181	.019	-.139	-.084	0.236	0.144	3.4	1.2	4.3	1.6	A-	A-
118	626555	3	274	.383	.161	.193	.259	.383	.004	.396	-.173	-.238	-.073	.396	-0.205	0.137	0.5	1.0	0.8	1.1	A+	A-
119	620988	3	274	.639	.150	.084	.120	.639	.007	.516	-.194	-.241	-.299	.516	-1.500	0.140	-1.7	0.9	-2.1	0.8	A+	A+
120	634164	3	274	.628	.080	.150	.628	.131	.011	.377	-.227	-.220	.377	-.052	-1.443	0.139	0.9	1.1	2.0	1.2	A-	B-
121	626547	3	274	.420	.197	.226	.153	.420	.004	.169	-.062	-.052	-.092	.169	-0.448	0.133	4.3	1.2	4.6	1.4	B+	A-
122	621012	3	276	.482	.123	.188	.482	.203	.004	.315	-.226	-.055	.315	-.104	-0.777	0.129	0.1	1.0	0.7	1.0	A+	
123	634030	3	277	.386	.206	.386	.163	.231	.014	.386	-.123	.386	-.145	-.119	-0.369	0.135	0.2	1.0	-0.1	1.0	A-	
124	634160	3	275	.520	.207	.076	.520	.193	.004	.451	-.167	-.205	.451	-.217	-0.810	0.136	-0.5	1.0	-0.2	1.0	A+	
125	623056	3	275	.884	.884	.033	.026	.044	.015	.559	.559	-.266	-.106	-.320	-3.447	0.222	-1.0	0.8	-2.0	0.5	A-	A-
126	621006	3	277	.668	.065	.668	.166	.098	.004	.533	-.265	.533	-.278	-.268	-1.730	0.141	-2.2	0.9	-1.9	0.8	A+	
127	624801	3	276	.873	.044	.044	.873	.040	.000	.439	-.275	-.297	.439	-.151	-3.221	0.192	-0.9	0.9	-1.8	0.6	A-	A+
128	623023	3	274	.438	.120	.175	.263	.438	.004	.239	-.275	-.025	-.039	.239	-0.466	0.135	4.3	1.2	2.8	1.3	A-	B+
129	622985	3	274	.449	.153	.120	.277	.449	.000	.495	-.186	-.409	-.102	.495	-0.585	0.132	-2.2	0.9	-1.4	0.9	A-	B-
130	624847	3	277	.480	.480	.152	.090	.264	.014	.256	.256	-.082	-.111	-.067	-0.847	0.133	3.6	1.2	3.8	1.3	A+	
131	624849	3	276	.355	.254	.217	.170	.355	.004	.291	-.186	-.071	-.024	.291	-0.168	0.135	0.7	1.0	1.6	1.1	A-	
132	622465	3	277	.422	.209	.422	.148	.213	.007	.373	-.120	.373	-.189	-.122	-0.546	0.134	0.6	1.0	1.3	1.1	A-	
133	634029	3	275	.695	.095	.156	.695	.051	.004	.459	-.302	-.195	.459	-.158	-1.730	0.146	-0.7	1.0	-1.4	0.8	A+	
134	634162	3	275	.546	.116	.146	.182	.546	.011	.522	-.219	-.234	-.152	.522	-1.027	0.135	-2.2	0.9	-1.8	0.9	A+	B-
135	626574	3	277	.823	.058	.079	.040	.823	.000	.466	-.215	-.321	-.210	.466	-2.732	0.171	-1.3	0.9	-1.2	0.8	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
136	636550	3	276	.645	.159	.091	.105	.645	.000	.519	-.315	-.224	-.223	.519	-1.653	0.138	-2.1	0.9	-2.3	0.8	A+	A-
137	622979	3	274	.752	.110	.752	.044	.091	.004	.392	-.204	.392	-.122	-.245	-2.152	0.154	0.5	1.0	-0.2	1.0	A+	A+
138	621008	3	274	.453	.117	.285	.453	.146	.000	.274	-.153	-.022	.274	-.219	-0.603	0.132	2.5	1.1	2.6	1.2	A-	A-
139	623107	3	276	.323	.323	.326	.188	.141	.022	.299	.299	-.069	-.094	-.068	-0.044	0.138	0.8	1.1	1.5	1.1	A+	
140	625516	3	275	.498	.498	.196	.189	.109	.007	.387	.387	-.134	-.109	-.257	-0.709	0.136	1.2	1.1	1.1	1.1	A+	
141	623113	4	233	.931	.034	.931	.009	.026	.000	.393	-.300	.393	-.082	-.235	-3.289	0.274	-0.6	0.9	-1.1	0.6	B+	
142	637175	4	232	.315	.315	.315	.306	.060	.004	.434	-.145	.434	-.230	-.048	0.431	0.153	-0.8	1.0	-0.4	1.0	A+	A-
143	633445	4	235	.843	.030	.102	.843	.026	.000	.404	-.288	-.226	.404	-.189	-2.327	0.194	-0.6	0.9	-0.7	0.8	A-	
144	635414	4	233	.794	.090	.043	.073	.794	.000	.589	-.352	-.291	-.302	.589	-1.892	0.176	-2.2	0.8	-2.4	0.7	A+	
145	639852	4	234	.543	.252	.111	.081	.543	.013	.498	-.208	-.128	-.255	.498	-0.601	0.143	-2.3	0.9	-1.9	0.9	A+	
146	623033	4	232	.341	.280	.211	.164	.341	.004	.308	-.131	-.190	-.005	.308	0.344	0.148	1.0	1.1	0.3	1.0	A+	A+
147	623013	4	233	.730	.730	.099	.073	.094	.004	.515	.515	-.355	-.235	-.139	-1.638	0.159	-2.5	0.8	-1.2	0.8	A-	
148	633852	4	233	.489	.120	.489	.155	.232	.004	.380	-.225	.380	-.194	-.060	-0.342	0.144	0.7	1.0	0.6	1.0	A+	
149	624765	4	233	.790	.052	.125	.790	.030	.004	.515	-.301	-.295	.515	-.272	-1.863	0.173	-1.8	0.8	-2.1	0.7	A+	
150	625527	4	232	.552	.194	.190	.052	.552	.013	.386	-.145	-.269	-.007	.386	-0.760	0.144	0.5	1.0	0.2	1.0	A-	A-
151	627004	4	232	.935	.935	.017	.013	.030	.004	.273	.273	-.121	-.205	-.168	-3.608	0.290	-0.1	1.0	-1.1	0.6	A+	A-
152	637177	4	235	.562	.149	.128	.562	.162	.000	.461	-.208	-.284	.461	-.162	-0.588	0.146	-0.4	1.0	-0.7	0.9	A-	
153	633432	4	233	.717	.107	.047	.129	.717	.000	.496	-.261	-.338	-.212	.496	-1.390	0.158	-1.3	0.9	-1.2	0.9	A+	
154	633464	4	234	.654	.086	.654	.115	.137	.009	.501	-.196	.501	-.218	-.214	-1.153	0.150	-2.0	0.9	-2.1	0.8	A+	
155	639854	4	232	.453	.319	.125	.453	.099	.004	.427	-.132	-.262	.427	-.189	-0.204	0.142	-1.2	0.9	-0.4	1.0	A+	A-
156	623136	4	233	.571	.167	.150	.107	.571	.004	.465	-.321	-.180	-.081	.465	-0.800	0.144	-1.6	0.9	-1.1	0.9	A-	
157	635900	4	233	.803	.133	.803	.026	.034	.004	.465	-.249	.465	-.247	-.219	-2.089	0.179	-1.0	0.9	-1.4	0.8	A-	
158	635412	4	233	.352	.172	.352	.378	.099	.000	.340	-.188	.340	-.082	-.173	0.404	0.147	0.1	1.0	0.9	1.1	A+	
159	630419	4	232	.375	.323	.151	.142	.375	.009	.306	-.092	-.151	-.064	.306	0.113	0.147	1.5	1.1	1.9	1.2	A-	A+
160	630295	4	235	.702	.209	.026	.055	.702	.009	.493	-.372	-.218	-.148	.493	-1.375	0.159	-1.1	0.9	-1.3	0.8	A+	
161	622466	4	2796	.729	.151	.729	.062	.055	.004	.471	-.271	.471	-.204	-.210	-1.565	0.046	-4.0	0.9	-4.5	0.8	A+	B+
162	633465	4	2796	.788	.066	.051	.092	.788	.004	.475	-.237	-.241	-.234	.475	-1.960	0.050	-4.2	0.9	-4.9	0.8	A+	A-
163	622994	4	2796	.748	.091	.088	.070	.748	.004	.473	-.249	-.246	-.195	.473	-1.686	0.048	-4.0	0.9	-4.9	0.8	A+	A-
164	622981	4	2796	.722	.722	.079	.081	.114	.005	.489	.489	-.224	-.232	-.246	-1.534	0.046	-4.2	0.9	-5.5	0.8	A+	B-
165	639855	4	2796	.330	.402	.141	.330	.123	.005	.319	-.075	-.168	.319	-.115	0.493	0.044	1.4	1.0	3.3	1.1	A+	A+
166	635475	4	2796	.315	.334	.109	.315	.238	.004	.205	-.074	-.191	.205	.039	0.567	0.044	7.1	1.1	8.4	1.3	A-	A-
167	623002	4	2796	.345	.182	.345	.341	.127	.006	.255	-.149	.255	-.054	-.058	0.393	0.043	6.7	1.1	6.8	1.2	A-	A-
168	635410	4	2796	.264	.291	.232	.264	.207	.007	.180	.003	-.092	.180	-.055	0.858	0.046	6.8	1.2	8.0	1.3	A+	A+
169	623118	4	2796	.548	.132	.155	.548	.157	.008	.448	-.202	-.189	.448	-.181	-0.620	0.042	-3.0	1.0	-2.1	1.0	A+	A-
170	633433	4	2796	.696	.696	.172	.061	.064	.007	.452	.452	-.225	-.215	-.210	-1.388	0.045	-2.7	0.9	-3.4	0.9	A+	A+

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
171	622426	4	234	.457	.218	.457	.103	.218	.004	.225	-.078	.225	-.076	-.082	-0.060	0.145	2.8	1.2	2.9	1.3	A-	
172	622986	4	234	.786	.068	.064	.786	.077	.004	.499	-.225	-.296	.499	-.196	-1.902	0.176	-0.8	0.9	-1.2	0.8	A+	
173	637007	4	234	.603	.128	.603	.145	.115	.009	.481	-.134	.481	-.198	-.277	-0.815	0.149	-1.5	0.9	-1.2	0.9	A-	
174	626821	4	234	.380	.380	.184	.274	.154	.009	.284	.284	-.157	-.003	-.120	0.321	0.148	1.6	1.1	1.2	1.1	A-	
175	639853	4	467	.595	.161	.131	.595	.107	.006	.484	-.253	-.210	.484	-.152	-0.821	0.104	-1.6	0.9	-1.9	0.9	A-	A+
176	624798	4	232	.530	.147	.125	.530	.198	.000	.472	-.189	-.285	.472	-.185	-0.559	0.149	-1.2	0.9	-1.1	0.9	A-	A-
177	635447	4	232	.629	.629	.125	.099	.147	.000	.525	.525	-.329	-.237	-.209	-1.069	0.155	-1.6	0.9	-1.6	0.8	A-	A-
178	637015	4	232	.599	.052	.599	.323	.026	.000	.553	-.268	.553	-.389	-.188	-0.926	0.153	-2.3	0.9	-2.2	0.8	A+	A-
179	631096	4	232	.194	.254	.310	.233	.194	.009	.170	-.143	-.036	.043	.170	1.447	0.184	1.1	1.1	0.9	1.2	A+	A-
180	624770	4	232	.177	.427	.177	.207	.185	.004	.100	.211	.100	-.154	-.198	1.662	0.194	0.3	1.0	1.8	1.5	A+	A-
181	626571	4	233	.760	.150	.026	.760	.064	.000	.498	-.348	-.205	.498	-.229	-1.873	0.170	-1.3	0.9	-1.6	0.8	A+	
182	635901	4	233	.768	.077	.768	.090	.060	.004	.435	-.214	.435	-.256	-.127	-1.932	0.172	-0.4	1.0	-0.4	0.9	C+	
183	637147	4	233	.910	.034	.910	.013	.039	.004	.432	-.299	.432	-.148	-.154	-3.343	0.263	-0.2	0.9	-0.8	0.7	A+	
184	634143	4	233	.326	.245	.223	.326	.197	.009	.381	-.335	-.019	.381	-.005	0.454	0.153	-1.4	0.9	0.4	1.0	A+	
185	624845	4	233	.369	.155	.206	.262	.369	.009	.250	-.098	-.048	-.101	.250	0.217	0.149	1.1	1.1	1.6	1.2	A-	
186	633463	4	232	.470	.211	.280	.470	.039	.000	.077	-.026	.015	.077	-.179	-0.183	0.142	3.0	1.2	3.4	1.3	A+	
187	635471	4	232	.414	.224	.414	.194	.164	.004	.401	-.211	.401	-.112	-.115	0.064	0.144	-0.7	1.0	-0.3	1.0	A-	
188	622464	4	232	.823	.091	.823	.035	.047	.004	.421	-.264	.421	-.121	-.188	-2.149	0.185	-0.5	0.9	-1.0	0.8	A+	
189	623022	4	232	.599	.599	.091	.060	.241	.009	.123	.123	-.165	-.241	.176	-0.826	0.145	3.5	1.2	3.3	1.3	A-	
190	625493	4	232	.582	.276	.116	.582	.017	.009	.397	-.209	-.199	.397	-.106	-0.751	0.145	-0.6	1.0	0.4	1.0	A+	
191	623011	4	233	.781	.026	.120	.073	.781	.000	.314	-.240	-.119	-.205	.314	-1.778	0.169	0.5	1.1	-0.2	1.0	A+	
192	633855	4	233	.451	.270	.064	.215	.451	.000	.370	-.094	-.270	-.186	.370	-0.072	0.141	0.0	1.0	0.2	1.0	A-	
193	635442	4	233	.644	.056	.116	.644	.185	.000	.333	-.273	-.056	.333	-.203	-0.991	0.147	0.6	1.0	0.7	1.1	A-	
194	637142	4	233	.867	.034	.013	.086	.867	.000	.365	-.256	-.193	-.198	.365	-2.464	0.204	-0.3	1.0	-0.7	0.8	A-	
195	637146	4	233	.897	.056	.897	.013	.034	.000	.385	-.290	.385	-.199	-.155	-2.740	0.224	-0.6	0.9	-1.4	0.7	A+	
196	622997	4	233	.519	.077	.335	.519	.069	.000	.423	-.223	-.160	.423	-.303	-0.392	0.141	-0.9	1.0	-0.5	1.0	A-	
197	636253	4	233	.717	.146	.717	.116	.017	.004	.267	-.202	.267	-.040	-.280	-1.377	0.156	1.1	1.1	0.3	1.0	A-	
198	629829	4	233	.747	.747	.142	.034	.073	.004	.427	.427	-.201	-.270	-.252	-1.579	0.162	-0.7	0.9	-1.2	0.9	A-	
199	624818	4	233	.253	.253	.116	.189	.442	.000	.013	.013	.025	-.109	.059	0.967	0.160	3.0	1.3	3.2	1.5	A+	
200	627011	4	233	.421	.318	.421	.150	.112	.000	.371	-.265	.371	-.139	-.033	0.070	0.142	-0.3	1.0	1.1	1.1	A+	
201	623012	4	232	.190	.233	.384	.194	.190	.000	.211	-.013	-.055	-.129	.211	1.214	0.178	0.8	1.1	2.5	1.5	A-	A+
202	635473	4	232	.241	.216	.121	.241	.418	.004	.074	-.108	.014	.074	.052	0.888	0.166	2.6	1.2	3.5	1.5	A-	A-
203	637143	4	232	.759	.069	.039	.129	.759	.004	.493	-.230	-.132	-.328	.493	-1.850	0.165	-1.6	0.9	-1.8	0.8	A-	A-
204	623028	4	232	.448	.103	.448	.060	.384	.004	.432	-.139	.432	-.189	-.227	-0.226	0.144	-0.9	1.0	-1.2	0.9	A+	A+
205	622998	4	232	.737	.043	.078	.737	.138	.004	.447	-.134	-.273	.447	-.230	-1.717	0.161	-1.1	0.9	-0.9	0.9	A-	A+

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
206	636254	4	232	.487	.207	.142	.487	.155	.009	.383	-.208	-.107	.383	-.114	-0.436	0.143	0.4	1.0	0.9	1.1	A+	B-
207	630294	4	232	.392	.108	.392	.237	.254	.009	.293	-.183	.293	-.104	-.032	0.026	0.146	1.8	1.1	2.4	1.2	A+	A+
208	632572	4	232	.651	.651	.116	.198	.022	.013	.336	.336	-.136	-.201	-.053	-1.258	0.150	1.1	1.1	0.9	1.1	A+	B+
209	627495	4	232	.565	.181	.151	.565	.095	.009	.527	-.276	-.173	.527	-.220	-0.810	0.144	-2.5	0.9	-2.1	0.9	A+	A+
210	624275	4	235	.702	.230	.038	.702	.030	.000	.501	-.337	-.255	.501	-.226	-1.341	0.157	-1.3	0.9	-1.7	0.8	A+	
211	635474	4	235	.315	.298	.315	.179	.209	.000	.288	-.148	.288	-.269	.092	0.686	0.155	2.2	1.2	2.4	1.3	B-	
212	626557	4	235	.860	.072	.051	.860	.013	.004	.453	-.262	-.323	.453	-.124	-2.521	0.205	-0.9	0.9	-1.3	0.7	A+	
213	637056	4	235	.817	.817	.077	.038	.068	.000	.456	.456	-.197	-.173	-.359	-2.113	0.183	-1.0	0.9	-1.0	0.8	B+	
214	636255	4	235	.723	.047	.162	.064	.723	.004	.431	-.172	-.294	-.189	.431	-1.486	0.161	-0.4	1.0	-0.4	0.9	A-	
215	636256	4	235	.677	.051	.677	.128	.136	.009	.365	-.178	.365	-.232	-.157	-1.229	0.155	1.0	1.1	0.7	1.1	A-	
216	622451	4	235	.660	.660	.085	.238	.017	.000	.474	.474	-.189	-.366	-.123	-1.100	0.152	-0.8	1.0	-1.0	0.9	A+	
217	623119	4	235	.740	.136	.740	.047	.077	.000	.401	-.253	.401	-.231	-.151	-1.574	0.163	-0.1	1.0	0.0	1.0	B+	
218	625521	4	235	.362	.345	.362	.238	.051	.004	.323	-.130	.323	-.120	-.171	0.423	0.151	1.9	1.1	2.9	1.3	A-	
219	635885	4	233	.640	.150	.103	.640	.107	.000	.408	-.155	-.287	.408	-.172	-0.968	0.148	-0.3	1.0	0.0	1.0	A-	
220	636257	4	233	.579	.155	.579	.155	.112	.000	.354	-.078	.354	-.218	-.215	-0.669	0.144	0.8	1.0	0.7	1.1	A-	
221	639432	4	233	.858	.060	.858	.022	.060	.000	.443	-.281	.443	-.208	-.243	-2.434	0.205	-0.6	0.9	-0.9	0.8	B+	
222	624771	4	233	.258	.258	.189	.197	.356	.000	.006	.006	-.161	-.161	.259	0.922	0.158	3.1	1.3	4.9	1.7	A+	
223	623116	4	233	.803	.129	.047	.022	.803	.000	.465	-.244	-.308	-.262	.465	-1.956	0.179	-0.6	0.9	-1.2	0.8	A-	
224	622452	4	233	.262	.103	.047	.262	.588	.000	.190	-.141	-.170	.190	-.009	0.922	0.158	0.6	1.0	3.2	1.5	A-	
225	623029	4	233	.652	.082	.064	.652	.197	.004	.371	-.253	-.195	.371	-.137	-1.022	0.150	0.2	1.0	-0.1	1.0	A+	
226	622992	4	233	.876	.077	.876	.026	.022	.000	.450	-.224	.450	-.311	-.272	-2.614	0.217	-0.6	0.9	-1.0	0.8	A+	
227	627417	4	233	.588	.588	.103	.137	.167	.004	.410	.410	-.192	-.248	-.143	-0.721	0.145	-0.2	1.0	-0.1	1.0	A-	
228	639370	4	234	.282	.449	.081	.180	.282	.009	.345	-.028	-.311	-.076	.345	0.704	0.156	0.1	1.0	0.1	1.0	B+	
229	633431	4	234	.752	.752	.064	.068	.107	.009	.449	.449	-.229	-.137	-.204	-1.691	0.164	-0.8	0.9	-0.6	0.9	A+	
230	635435	4	234	.415	.051	.415	.188	.333	.013	.436	-.169	.436	-.166	-.138	0.033	0.144	-1.3	0.9	-1.2	0.9	A-	
231	637144	4	234	.551	.197	.551	.120	.124	.009	.406	-.166	.406	-.210	-.083	-0.639	0.143	-0.2	1.0	-0.6	1.0	A-	
232	627048	4	234	.372	.372	.342	.167	.107	.013	.312	.312	-.088	-.123	-.051	0.225	0.146	1.2	1.1	0.9	1.1	A-	
233	622455	4	234	.808	.808	.081	.060	.039	.013	.516	.516	-.189	-.217	-.273	-2.130	0.183	-1.3	0.9	-1.5	0.8	A+	
234	623095	4	234	.222	.406	.133	.222	.227	.013	.089	-.020	-.133	.089	.157	1.070	0.167	2.3	1.2	3.7	1.7	A+	
235	635881	4	234	.607	.231	.607	.111	.039	.013	.415	-.210	.415	-.170	-.070	-0.921	0.146	-0.2	1.0	-0.3	1.0	A-	
236	626556	4	234	.201	.312	.201	.274	.201	.013	.178	.032	.178	-.086	-.001	1.246	0.174	0.7	1.1	2.7	1.5	A-	
237	622990	4	234	.483	.081	.214	.483	.209	.013	.463	-.224	-.176	.463	-.123	-0.318	0.143	-1.6	0.9	-1.4	0.9	A-	
238	635941	4	232	.599	.134	.129	.599	.138	.000	.317	-.294	-.090	.317	-.073	-0.884	0.144	0.9	1.1	1.0	1.1	A+	A-
239	623122	4	232	.466	.289	.172	.466	.073	.000	.480	-.331	-.130	.480	-.154	-0.253	0.142	-2.1	0.9	-1.9	0.9	A-	A-
240	635472	4	232	.341	.185	.237	.237	.341	.000	.349	-.256	-.039	-.116	.349	0.354	0.148	0.0	1.0	1.1	1.1	A+	B+

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
241	635411	4	232	.746	.078	.746	.086	.086	.004	.462	-.282	.462	-.222	-.207	-1.678	0.162	-0.9	0.9	-1.5	0.8	A-	A-
242	631025	4	232	.672	.073	.151	.672	.095	.009	.364	-.202	-.179	.364	-.152	-1.286	0.151	0.4	1.0	0.0	1.0	B+	A-
243	623132	4	232	.427	.358	.134	.078	.427	.004	.464	-.208	-.335	-.032	.464	-0.082	0.143	-1.5	0.9	-1.3	0.9	A+	A-
244	625490	4	232	.358	.233	.147	.254	.358	.009	.215	-.062	-.138	-.044	.215	0.244	0.147	2.3	1.1	2.5	1.2	A+	A+
245	623018	4	232	.422	.125	.267	.177	.422	.009	.235	-.163	-.065	-.065	.235	-0.074	0.143	2.8	1.2	2.0	1.2	A+	A-
246	628102	4	232	.466	.466	.147	.168	.207	.013	.338	.338	-.243	-.042	-.118	-0.281	0.142	1.0	1.1	1.0	1.1	A+	A+
247	625496	4	232	.535	.211	.535	.086	.155	.013	.428	-.207	.428	-.221	-.132	-0.608	0.143	-0.7	1.0	-0.5	1.0	A+	A-
248	635899	4	232	.578	.578	.129	.091	.185	.017	.446	.446	-.260	-.092	-.190	-0.817	0.144	-0.8	1.0	-1.1	0.9	B-	A+
249	622431	4	233	.657	.176	.125	.657	.034	.009	.480	-.340	-.182	.480	-.079	-1.246	0.150	-1.6	0.9	-1.3	0.9	A-	
250	633434	4	233	.794	.077	.039	.086	.794	.004	.406	-.260	-.166	-.150	.406	-2.054	0.174	-0.8	0.9	0.1	1.0	A+	
251	624284	4	233	.777	.064	.077	.077	.777	.004	.449	-.270	-.171	-.204	.449	-1.935	0.169	-1.3	0.9	-1.0	0.8	A-	
252	623026	4	233	.609	.155	.129	.609	.103	.004	.327	-.115	-.224	.327	-.073	-0.990	0.146	1.3	1.1	0.9	1.1	B-	
253	622993	4	233	.494	.416	.069	.494	.017	.004	.260	-.088	-.185	.260	-.148	-0.429	0.143	2.8	1.2	2.1	1.2	A-	
254	628103	4	233	.665	.150	.665	.120	.060	.004	.404	-.293	.404	-.050	-.206	-1.277	0.151	-0.2	1.0	-0.6	0.9	A-	
255	635356	4	233	.322	.159	.373	.322	.142	.004	.418	-.336	.010	.418	-.162	0.424	0.152	-0.8	0.9	-0.4	1.0	A+	
256	624846	4	233	.232	.189	.232	.331	.240	.009	.328	-.064	.328	-.090	-.101	0.979	0.168	-0.2	1.0	0.6	1.1	A+	
257	634144	4	233	.712	.215	.004	.060	.712	.009	.464	-.346	-.087	-.147	.464	-1.550	0.157	-1.1	0.9	-1.3	0.8	A-	
258	627071	4	233	.434	.163	.434	.236	.150	.017	.340	-.098	.340	-.162	-.109	-0.172	0.144	1.1	1.1	1.2	1.1	A+	
259	636551	4	233	.494	.155	.163	.494	.172	.017	.352	-.194	-.134	.352	-.070	-0.457	0.143	1.2	1.1	0.6	1.0	A-	
260	624796	4	233	.129	.296	.438	.133	.129	.004	.135	-.041	.042	-.075	.135	1.895	0.211	0.8	1.1	2.0	1.6	A+	
261	624810	4	233	.640	.060	.094	.640	.202	.004	.377	-.071	-.220	.377	-.195	-1.090	0.150	0.6	1.0	0.4	1.0	A-	
262	635574	4	233	.313	.262	.228	.313	.193	.004	.151	-.126	.022	.151	-.004	0.547	0.153	3.3	1.2	4.6	1.6	A-	
263	637140	4	233	.901	.026	.901	.056	.013	.004	.317	-.093	.317	-.205	-.101	-3.051	0.239	0.2	1.0	0.1	1.0	B-	
264	637145	4	233	.880	.073	.880	.022	.022	.004	.477	-.269	.477	-.221	-.218	-2.741	0.215	-0.9	0.9	-2.2	0.5	A-	
265	634033	4	233	.322	.090	.502	.322	.082	.004	.273	-.036	-.114	.273	-.142	0.500	0.152	1.8	1.1	2.0	1.2	B-	
266	636252	4	233	.897	.897	.034	.013	.052	.004	.440	.440	-.232	-.107	-.262	-2.940	0.230	-0.8	0.9	-1.7	0.6	A+	
267	639431	4	233	.571	.137	.185	.103	.571	.004	.495	-.210	-.296	-.118	.495	-0.740	0.145	-1.9	0.9	-1.6	0.9	A-	
268	624766	4	233	.575	.077	.228	.575	.116	.004	.450	-.218	-.132	.450	-.273	-0.740	0.145	-1.1	0.9	-1.1	0.9	A+	
269	635582	4	233	.442	.442	.403	.107	.043	.004	.386	.386	-.210	-.131	-.130	-0.113	0.144	0.1	1.0	1.3	1.1	A+	
270	623017	4	235	.740	.119	.038	.740	.102	.000	.462	-.176	-.200	.462	-.354	-1.547	0.163	-1.2	0.9	-1.6	0.8	A-	
271	625455	4	233	.640	.142	.052	.167	.640	.000	.365	-.143	-.304	-.157	.365	-0.968	0.148	0.6	1.0	0.6	1.1	A-	
272	622453	4	234	.756	.073	.064	.756	.098	.009	.474	-.240	-.221	.474	-.156	-1.718	0.165	-1.1	0.9	-1.4	0.8	A-	
273	623135	4	232	.263	.112	.263	.353	.263	.009	.111	-.146	-.088	.093	.111	0.757	0.158	2.6	1.2	2.7	1.4	A+	A-
274	632573	4	233	.451	.451	.210	.167	.159	.013	.174	.174	-.149	-.094	.109	-0.236	0.144	4.6	1.3	4.1	1.3	A-	
275	623020	4	233	.790	.082	.094	.026	.790	.009	.474	-.303	-.179	-.212	.474	-2.017	0.177	-1.1	0.9	-1.4	0.8	A+	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
276	633435	4	233	.687	.219	.047	.047	.687	.000	.361	-.162	-.263	-.210	.361	-1.215	0.152	0.3	1.0	-0.2	1.0	A-	
277	623108	4	232	.591	.134	.147	.121	.591	.009	.535	-.272	-.196	-.224	.535	-0.915	0.145	-3.2	0.8	-2.7	0.8	A-	A+
278	633468	4	235	.745	.745	.051	.081	.119	.004	.490	.490	-.239	-.214	-.303	-1.620	0.165	-1.2	0.9	-0.9	0.9	A-	
279	627696	4	233	.236	.219	.236	.451	.090	.004	.035	-.137	.035	.109	-.026	1.074	0.163	2.4	1.2	3.1	1.5	A-	
280	623115	4	233	.730	.116	.730	.099	.056	.000	.426	-.314	.426	-.170	-.166	-1.441	0.160	-0.4	1.0	-1.3	0.9	A-	
281	622983	4	234	.727	.727	.073	.171	.021	.009	.375	.375	-.190	-.153	-.135	-1.560	0.160	0.3	1.0	0.0	1.0	A-	
282	622454	4	232	.379	.052	.379	.405	.164	.000	.279	-.185	.279	-.213	.028	0.159	0.145	1.2	1.1	2.0	1.2	A-	A-
283	621395	4	233	.249	.159	.142	.249	.446	.004	.220	-.079	-.117	.220	-.010	0.871	0.164	1.0	1.1	2.5	1.4	A+	
284	632587	4	233	.442	.155	.202	.197	.442	.004	.547	-.202	-.258	-.185	.547	-0.113	0.144	-3.3	0.8	-3.1	0.8	A+	
285	623019	4	233	.803	.803	.099	.073	.026	.000	.319	.319	-.192	-.158	-.181	-1.897	0.174	0.0	1.0	-0.1	1.0	A-	
286	634025	4	232	.724	.177	.724	.035	.056	.009	.434	-.254	.434	-.150	-.179	-1.648	0.159	-0.5	1.0	-1.1	0.9	A-	A-
287	626922	4	235	.494	.204	.494	.204	.098	.000	.446	-.255	.446	-.189	-.148	-0.247	0.145	-0.1	1.0	0.3	1.0	A+	
288	633469	4	233	.627	.219	.627	.060	.090	.004	.525	-.251	.525	-.295	-.262	-0.914	0.148	-2.0	0.9	-2.3	0.8	B+	
289	628471	4	234	.124	.419	.321	.124	.124	.013	.049	.114	.109	-.228	.049	1.899	0.210	1.0	1.1	2.5	1.7	A+	
290	637149	5	218	.913	.000	.913	.009	.078	.000	.298	.000	.298	-.068	-.289	-2.668	0.247	-0.1	1.0	-1.1	0.7	A+	
291	633440	5	221	.629	.177	.100	.629	.081	.014	.410	-.168	-.162	.410	-.129	-0.769	0.149	-0.7	1.0	-1.3	0.9	A+	
292	635884	5	221	.846	.846	.041	.045	.063	.005	.499	.499	-.327	-.200	-.202	-2.250	0.202	-1.0	0.9	-1.6	0.7	B-	
293	637062	5	218	.390	.115	.330	.390	.161	.005	.197	-.132	.072	.197	-.176	0.252	0.150	3.0	1.2	2.5	1.2	A+	
294	623027	5	220	.750	.055	.050	.141	.750	.005	.553	-.298	-.261	-.299	.553	-1.459	0.167	-2.5	0.8	-2.6	0.7	A+	
295	622469	5	221	.439	.213	.122	.439	.213	.014	.393	-.024	-.176	.393	-.239	0.188	0.148	0.0	1.0	0.5	1.0	A-	
296	639843	5	222	.788	.788	.045	.032	.131	.005	.372	.372	-.268	-.252	-.135	-1.669	0.177	0.0	1.0	-0.2	1.0	A+	
297	635417	5	221	.448	.448	.199	.154	.186	.014	.347	.347	-.087	-.098	-.134	0.019	0.147	0.9	1.1	0.4	1.0	A+	
298	620819	5	220	.486	.118	.177	.209	.486	.009	.449	-.258	-.088	-.219	.449	-0.205	0.147	-0.9	1.0	-0.2	1.0	A-	A-
299	635605	5	221	.285	.240	.104	.285	.362	.009	.187	-.020	-.190	.187	.063	0.895	0.157	1.1	1.1	2.7	1.3	A+	
300	637148	5	221	.833	.014	.018	.127	.833	.009	.431	-.149	-.177	-.217	.431	-1.982	0.191	-0.7	0.9	-1.1	0.8	A-	
301	633439	5	221	.448	.281	.154	.109	.448	.009	.321	-.142	-.064	-.131	.321	0.002	0.146	1.1	1.1	0.9	1.1	A-	
302	620820	5	218	.537	.197	.151	.106	.537	.009	.429	-.272	-.123	-.086	.429	-0.453	0.148	-0.8	1.0	-0.9	0.9	A+	
303	626566	5	220	.764	.764	.041	.123	.068	.005	.490	.490	-.212	-.279	-.253	-1.545	0.170	-1.7	0.9	-1.6	0.8	A+	
304	623129	5	221	.819	.072	.068	.819	.032	.009	.513	-.261	-.292	.513	-.176	-1.865	0.187	-1.6	0.8	-2.2	0.6	C+	
305	629858	5	222	.383	.140	.153	.315	.383	.009	.307	-.260	-.178	.027	.307	0.441	0.148	0.5	1.0	0.5	1.0	A-	
306	639864	5	221	.765	.167	.765	.050	.009	.009	.464	-.273	.464	-.209	-.061	-1.617	0.171	-1.2	0.9	-1.1	0.8	A-	
307	627291	5	220	.555	.127	.241	.073	.555	.005	.429	-.198	-.218	-.175	.429	-0.534	0.148	-0.5	1.0	-0.4	1.0	C+	A+
308	639349	5	218	.541	.541	.257	.087	.106	.009	.513	.513	-.290	-.213	-.202	-0.257	0.148	-2.0	0.9	-2.2	0.9	A-	
309	626818	5	221	.371	.190	.371	.050	.380	.009	.362	-.238	.362	-.189	-.017	0.371	0.149	-0.3	1.0	0.3	1.0	A-	
310	627692	5	2867	.523	.135	.523	.197	.141	.004	.394	-.167	.394	-.184	-.142	-0.273	0.040	-1.1	1.0	-1.1	1.0	A+	A+

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
311	633441	5	2867	.346	.112	.346	.181	.357	.005	.329	-.076	.329	-.144	-.120	0.581	0.042	1.4	1.0	2.0	1.1	A-	A+
312	626569	5	2867	.354	.200	.354	.296	.145	.006	.239	-.174	.239	-.024	-.035	0.542	0.042	6.7	1.1	7.5	1.2	B-	A+
313	635887	5	2867	.474	.241	.110	.474	.169	.005	.356	-.089	-.198	.356	-.149	-0.041	0.040	1.1	1.0	1.5	1.0	A-	A+
314	626554	5	2867	.608	.129	.102	.155	.608	.006	.408	-.157	-.218	-.159	.408	-0.685	0.041	-1.8	1.0	-2.0	1.0	A+	A-
315	628059	5	2867	.595	.116	.595	.155	.127	.007	.351	-.155	.351	-.103	-.186	-0.621	0.041	1.7	1.0	2.6	1.1	A+	A-
316	635609	5	2867	.218	.431	.140	.218	.202	.008	.172	.079	-.127	.172	-.095	1.328	0.048	3.9	1.1	6.4	1.3	A-	A+
317	627072	5	2867	.637	.145	.092	.116	.637	.011	.425	-.227	-.210	-.108	.425	-0.841	0.042	-2.8	1.0	-2.3	0.9	A+	A-
318	623109	5	2867	.524	.137	.524	.203	.124	.011	.364	-.174	.364	-.109	-.151	-0.290	0.041	1.6	1.0	1.3	1.0	A+	A-
319	630296	5	2867	.479	.090	.218	.200	.479	.014	.370	-.165	-.109	-.157	.370	-0.082	0.041	1.1	1.0	0.9	1.0	A+	A-
320	625492	5	221	.525	.177	.149	.525	.149	.000	.361	-.110	-.233	.361	-.155	-0.226	0.146	-0.1	1.0	-0.2	1.0	B+	
321	626926	5	221	.620	.199	.620	.081	.091	.009	.198	-.018	.198	-.204	-.054	-0.703	0.150	2.7	1.2	2.7	1.2	A+	
322	635607	5	221	.425	.213	.190	.425	.167	.005	.354	.056	-.256	.354	-.195	0.245	0.147	0.5	1.0	0.3	1.0	A+	
323	623121	5	221	.520	.045	.326	.095	.520	.014	.471	-.273	-.254	-.076	.471	-0.219	0.146	-2.2	0.9	-2.0	0.9	A+	
324	623140	5	221	.615	.167	.615	.167	.032	.018	.311	-.132	.311	-.125	-.107	-0.694	0.151	0.7	1.0	-0.1	1.0	A-	
325	624283	5	221	.833	.833	.081	.068	.018	.000	.459	.459	-.281	-.274	-.193	-2.089	0.193	-0.6	0.9	-1.6	0.7	A+	A-
326	635608	5	221	.362	.362	.226	.217	.195	.000	.346	.346	-.133	-.152	-.122	0.505	0.152	-0.6	1.0	-0.5	0.9	A-	A+
327	637154	5	221	.629	.086	.167	.629	.118	.000	.481	-.142	-.281	.481	-.272	-0.810	0.153	-2.0	0.9	-2.1	0.8	A+	A-
328	627772	5	221	.747	.050	.131	.747	.068	.005	.499	-.213	-.245	.499	-.320	-1.494	0.169	-1.2	0.9	-1.2	0.8	A-	B-
329	625513	5	221	.308	.136	.434	.308	.104	.018	.337	-.245	.002	.337	-.163	0.775	0.158	0.4	1.0	1.4	1.2	A-	A-
330	626573	5	221	.692	.167	.081	.692	.054	.005	.399	-.238	-.183	.399	-.097	-1.080	0.158	0.0	1.0	-0.3	1.0	A-	
331	638016	5	221	.597	.077	.100	.597	.222	.005	.511	-.236	-.222	.511	-.237	-0.586	0.149	-3.2	0.8	-3.0	0.8	A+	
332	632602	5	221	.353	.353	.177	.249	.213	.009	.262	.262	-.076	-.030	-.136	0.585	0.151	0.6	1.0	1.0	1.1	A+	
333	628021	5	221	.579	.122	.208	.579	.077	.014	.520	-.178	-.333	.520	-.108	-0.519	0.149	-2.4	0.9	-1.9	0.9	A-	
334	626563	5	221	.249	.249	.158	.167	.407	.018	.283	.283	-.070	-.098	-.039	1.178	0.167	0.3	1.0	0.5	1.1	A+	
335	626577	5	222	.523	.135	.270	.523	.068	.005	.365	-.143	-.197	.365	-.097	-0.257	0.145	-0.4	1.0	-0.7	1.0	A-	
336	637151	5	222	.342	.342	.203	.257	.189	.009	.276	.276	-.007	-.064	-.147	0.616	0.153	0.7	1.0	0.5	1.0	A-	
337	626564	5	222	.581	.581	.099	.126	.180	.014	.418	.418	-.042	-.181	-.236	-0.551	0.147	-0.1	1.0	0.2	1.0	A+	
338	624753	5	222	.464	.104	.248	.171	.464	.014	.392	-.180	-.119	-.101	.392	0.012	0.146	-0.9	1.0	-0.3	1.0	A-	
339	627009	5	222	.189	.302	.279	.189	.221	.009	.182	.040	.009	.182	-.154	1.551	0.184	0.7	1.1	1.6	1.3	A+	
340	623103	5	218	.775	.064	.096	.775	.064	.000	.334	-.306	-.129	.334	-.108	-1.455	0.172	-0.2	1.0	0.0	1.0	A+	
341	635439	5	218	.762	.762	.078	.028	.133	.000	.291	.291	-.225	-.170	-.105	-1.368	0.169	0.4	1.0	0.8	1.1	A+	
342	635604	5	218	.500	.243	.096	.500	.161	.000	.413	-.189	-.229	.413	-.158	-0.039	0.147	-0.3	1.0	-0.5	1.0	A+	
343	632605	5	218	.220	.188	.482	.110	.220	.000	.338	-.090	-.128	-.131	.338	1.442	0.174	0.2	1.0	-0.3	1.0	A-	
344	635606	5	218	.509	.106	.229	.156	.509	.000	.390	-.133	-.309	-.068	.390	-0.083	0.147	0.2	1.0	0.3	1.0	A+	
345	626565	5	218	.518	.161	.156	.518	.165	.000	.447	-.223	-.164	.447	-.221	-0.126	0.147	-0.8	1.0	-0.7	1.0	A+	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
346	627493	5	218	.610	.610	.147	.115	.128	.000	.482	.482	-.275	-.224	-.198	-0.568	0.150	-1.5	0.9	-1.8	0.9	B+	
347	622435	5	218	.518	.165	.174	.518	.142	.000	.501	-.133	-.201	.501	-.357	-0.104	0.147	-2.4	0.9	-2.3	0.9	A+	
348	627681	5	218	.445	.147	.445	.179	.225	.005	.423	-.219	.423	-.223	-.103	0.214	0.148	-0.4	1.0	-0.1	1.0	A-	
349	621388	5	218	.688	.119	.688	.078	.101	.014	.461	-.137	.461	-.251	-.294	-1.018	0.160	-1.2	0.9	-0.9	0.9	B+	
350	632518	5	218	.372	.124	.289	.372	.202	.014	.280	-.176	-.069	.280	-.082	0.563	0.152	1.8	1.1	2.1	1.2	B-	
351	635440	5	221	.584	.584	.054	.213	.140	.009	.295	.295	-.152	-.093	-.072	-0.539	0.146	1.1	1.1	1.2	1.1	B-	
352	628104	5	221	.742	.081	.081	.742	.086	.009	.461	-.220	-.158	.461	-.180	-1.361	0.164	-1.2	0.9	-1.7	0.8	A-	
353	623112	5	221	.810	.810	.068	.086	.027	.009	.496	.496	-.274	-.284	.012	-1.807	0.182	-1.4	0.9	-1.6	0.8	A-	
354	635610	5	221	.661	.077	.661	.154	.100	.009	.452	-.125	.452	-.264	-.125	-0.915	0.152	-1.5	0.9	-1.7	0.9	A-	
355	626817	5	221	.267	.407	.072	.244	.267	.009	.261	-.050	-.014	-.091	.261	0.996	0.160	0.5	1.0	0.6	1.1	A+	
356	623087	5	221	.706	.027	.059	.199	.706	.009	.520	-.243	-.166	-.276	.520	-1.154	0.157	-2.3	0.8	-2.5	0.8	A+	
357	632519	5	221	.796	.050	.796	.045	.100	.009	.428	-.140	.428	-.158	-.203	-1.710	0.177	-0.6	0.9	-1.5	0.8	A-	
358	622988	5	221	.226	.457	.199	.226	.109	.009	.238	.042	-.163	.238	-.024	1.240	0.169	0.4	1.0	1.0	1.1	A+	
359	623085	5	221	.208	.208	.195	.475	.113	.009	.094	.094	-.187	.229	-.096	1.358	0.173	1.6	1.2	2.3	1.4	A+	
360	632607	5	221	.520	.100	.158	.520	.213	.009	.340	-.134	-.068	.340	-.139	-0.244	0.144	0.3	1.0	0.2	1.0	A+	
361	635448	5	221	.195	.054	.195	.534	.213	.005	.095	-.226	.095	-.067	.176	1.408	0.179	1.2	1.1	2.7	1.5	A+	
362	639865	5	221	.348	.285	.190	.348	.167	.009	.093	.152	-.162	.093	-.079	0.497	0.151	3.3	1.2	3.3	1.3	A-	
363	624815	5	221	.796	.796	.050	.072	.072	.009	.468	.468	-.211	-.296	-.155	-1.874	0.183	-0.8	0.9	-1.2	0.8	A+	
364	632604	5	221	.887	.059	.018	.887	.027	.009	.468	-.226	-.173	.468	-.321	-2.727	0.237	-0.9	0.9	-1.2	0.7	B+	
365	623124	5	221	.760	.032	.760	.145	.059	.005	.437	-.207	.437	-.258	-.148	-1.598	0.171	-0.7	0.9	-0.5	0.9	B+	
366	620999	5	221	.548	.109	.104	.235	.548	.005	.346	-.061	-.200	-.159	.346	-0.461	0.146	0.8	1.0	0.8	1.1	A-	
367	628315	5	221	.634	.253	.036	.634	.072	.005	.545	-.396	-.328	.545	-.017	-0.882	0.151	-2.6	0.9	-2.7	0.8	B+	
368	627683	5	221	.679	.140	.679	.104	.072	.005	.521	-.258	.521	-.278	-.169	-1.119	0.156	-1.9	0.9	-2.0	0.8	A+	
369	630396	5	221	.317	.095	.317	.100	.480	.009	.070	-.162	.070	-.272	.257	0.647	0.154	3.6	1.2	3.9	1.4	A+	
370	627007	5	221	.670	.109	.131	.670	.081	.009	.592	-.301	-.256	.592	-.241	-1.082	0.156	-3.0	0.8	-3.1	0.7	A+	
371	623104	5	218	.491	.087	.184	.234	.491	.005	.390	-.083	-.200	-.167	.390	-0.209	0.147	-0.8	1.0	-0.5	1.0	A-	
372	625535	5	218	.381	.239	.381	.161	.211	.009	.335	-.103	.335	-.080	-.133	0.294	0.150	0.4	1.0	1.6	1.2	A+	
373	626815	5	218	.922	.922	.032	.023	.018	.005	.423	.423	-.221	-.198	-.158	-3.210	0.278	-0.2	0.9	-1.1	0.6	A+	
374	639866	5	218	.174	.147	.115	.174	.555	.009	.036	-.204	-.063	.036	.202	1.497	0.187	1.5	1.2	3.3	1.8	B+	
375	630408	5	218	.826	.826	.151	.000	.018	.005	.475	.475	-.373	.000	-.171	-2.117	0.193	-0.7	0.9	-0.9	0.8	B+	
376	628023	5	218	.849	.055	.849	.046	.041	.009	.517	-.215	.517	-.329	-.161	-2.344	0.208	-1.0	0.9	-1.8	0.7	A-	
377	637139	5	218	.362	.156	.280	.188	.362	.014	.377	-.117	-.197	-.024	.377	0.380	0.152	-0.4	1.0	0.0	1.0	A+	
378	628063	5	218	.844	.844	.028	.055	.055	.018	.499	.499	-.017	-.345	-.214	-2.360	0.210	-0.7	0.9	-0.9	0.8	A+	
379	624819	5	218	.688	.142	.106	.688	.051	.014	.505	-.200	-.259	.505	-.200	-1.239	0.160	-1.4	0.9	-1.6	0.8	B-	
380	621000	5	218	.560	.073	.560	.248	.101	.018	.512	-.115	.512	-.248	-.245	-0.584	0.150	-2.2	0.9	-2.1	0.9	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
381	620818	5	220	.832	.036	.832	.050	.082	.000	.449	-.210	.449	-.291	-.238	-2.001	0.189	-1.3	0.9	-1.9	0.7	A-	
382	628105	5	220	.932	.014	.018	.932	.036	.000	.188	-.173	-.077	.188	-.090	-3.100	0.273	0.1	1.0	0.4	1.1	A+	
383	626985	5	220	.632	.086	.136	.632	.146	.000	.405	-.115	-.238	.405	-.230	-0.796	0.150	-0.8	1.0	-0.7	0.9	A-	
384	626558	5	220	.505	.068	.314	.505	.105	.009	.344	-.116	-.177	.344	-.162	-0.207	0.146	1.0	1.1	0.9	1.1	A+	
385	637172	5	220	.718	.132	.055	.091	.718	.005	.458	-.174	-.239	-.284	.458	-1.270	0.161	-1.2	0.9	-1.6	0.8	A+	
386	628308	5	220	.468	.136	.314	.077	.468	.005	.394	-.237	-.118	-.186	.394	-0.023	0.146	0.0	1.0	-0.1	1.0	A+	
387	626812	5	220	.759	.759	.068	.064	.105	.005	.391	.391	-.282	-.155	-.153	-1.516	0.169	-0.3	1.0	-0.8	0.9	A+	
388	635944	5	220	.482	.482	.159	.227	.127	.005	.409	.409	-.176	-.090	-.274	-0.088	0.146	-0.3	1.0	-0.5	1.0	A+	
389	626544	5	220	.705	.705	.114	.073	.105	.005	.452	.452	-.269	-.223	-.170	-1.193	0.159	-1.4	0.9	-0.4	0.9	A-	
390	639867	5	220	.273	.250	.186	.273	.277	.014	.117	-.053	-.043	.117	-.026	0.948	0.163	2.9	1.2	3.1	1.4	A-	
391	622432	5	221	.765	.765	.109	.095	.032	.000	.359	.359	-.139	-.308	-.106	-1.459	0.168	-0.1	1.0	-0.6	0.9	B+	
392	633848	5	221	.552	.244	.552	.158	.045	.000	.271	-.215	.271	-.082	-.061	-0.337	0.146	2.5	1.1	1.6	1.1	A-	
393	639366	5	221	.873	.027	.068	.032	.873	.000	.312	-.230	-.137	-.183	.312	-2.297	0.211	-0.2	1.0	-0.7	0.8	A+	
394	626999	5	221	.683	.118	.683	.095	.104	.000	.330	-.253	.330	-.109	-.131	-0.990	0.155	0.3	1.0	0.7	1.1	A+	
395	628120	5	221	.281	.172	.281	.262	.276	.009	.315	-.116	.315	-.068	-.113	1.013	0.162	0.5	1.0	1.9	1.2	A-	
396	630721	5	221	.493	.113	.303	.493	.081	.009	.436	-.215	-.236	.436	-.056	-0.066	0.146	-0.8	1.0	-0.5	1.0	A-	
397	623128	5	221	.692	.045	.100	.154	.692	.009	.530	-.135	-.334	-.252	.530	-1.055	0.157	-2.4	0.8	-2.5	0.7	A-	
398	623131	5	221	.552	.158	.027	.253	.552	.009	.538	-.318	-.142	-.235	.538	-0.346	0.147	-3.3	0.8	-1.9	0.9	B+	
399	627494	5	221	.529	.113	.529	.145	.208	.005	.457	-.111	.457	-.264	-.204	-0.232	0.146	-1.3	0.9	-1.3	0.9	A+	
400	624817	5	221	.294	.113	.154	.294	.430	.009	.309	-.133	-.141	.309	-.045	0.941	0.160	1.2	1.1	0.7	1.1	B-	
401	625498	5	221	.534	.262	.140	.534	.050	.014	.451	-.197	-.244	.451	-.127	-0.273	0.147	-1.2	0.9	-1.1	0.9	A-	
402	623102	5	222	.905	.036	.045	.014	.905	.000	.407	-.336	-.237	-.066	.407	-2.733	0.246	-0.5	0.9	-1.0	0.7	A+	
403	635436	5	222	.635	.081	.635	.090	.194	.000	.340	-.222	.340	-.177	-.133	-0.763	0.150	0.4	1.0	0.4	1.0	A+	
404	635441	5	222	.721	.721	.036	.149	.095	.000	.384	.384	-.163	-.212	-.226	-1.220	0.160	-0.1	1.0	-0.4	1.0	A-	
405	627046	5	222	.698	.144	.104	.698	.054	.000	.424	-.142	-.328	.424	-.198	-1.094	0.157	-0.6	1.0	-0.9	0.9	B+	
406	628967	5	222	.703	.167	.703	.045	.086	.000	.469	-.286	.469	-.200	-.237	-1.118	0.158	-1.3	0.9	-1.6	0.8	A+	
407	637150	5	222	.158	.045	.401	.392	.158	.005	.063	-.091	-.018	.009	.063	1.807	0.194	0.8	1.1	1.8	1.4	A+	
408	624764	5	222	.342	.086	.342	.293	.270	.009	.144	-.167	.144	.016	-.014	0.628	0.151	2.9	1.2	2.6	1.2	A+	
409	624768	5	222	.617	.230	.617	.050	.095	.009	.383	-.167	.383	-.070	-.267	-0.687	0.149	-0.1	1.0	0.1	1.0	A-	
410	628470	5	222	.653	.113	.144	.068	.653	.023	.555	-.231	-.239	-.311	.555	-0.894	0.153	-3.3	0.8	-3.0	0.8	A-	
411	624839	5	222	.491	.072	.491	.176	.243	.018	.538	-.232	.538	-.280	-.194	-0.119	0.145	-3.4	0.8	-3.0	0.8	A+	
412	627073	5	222	.667	.108	.131	.667	.081	.014	.443	-.203	-.274	.443	-.182	-0.983	0.155	-0.9	0.9	-1.2	0.9	A+	
413	623110	5	221	.692	.104	.068	.692	.127	.009	.496	-.232	-.172	.496	-.213	-1.186	0.158	-1.8	0.9	-1.6	0.8	A-	
414	635437	5	221	.846	.036	.846	.059	.050	.009	.375	-.131	.375	-.188	-.104	-2.227	0.199	-0.2	1.0	-0.2	1.0	B+	
415	637173	5	221	.747	.086	.122	.036	.747	.009	.374	-.170	-.161	-.098	.374	-1.503	0.167	0.2	1.0	-0.5	0.9	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
416	627358	5	221	.507	.262	.507	.163	.059	.009	.348	-.109	.348	-.102	-.189	-0.257	0.146	0.9	1.1	0.5	1.0	A-	
417	622438	5	221	.774	.036	.068	.113	.774	.009	.399	-.236	-.243	-.057	.399	-1.677	0.173	-0.5	1.0	0.6	1.1	A+	
418	623117	5	221	.593	.023	.136	.593	.240	.009	.428	-.197	-.253	.428	-.118	-0.671	0.149	-0.8	1.0	-0.5	1.0	B-	
419	637152	5	221	.656	.656	.045	.222	.068	.009	.440	.440	-.246	-.171	-.171	-0.991	0.153	-0.8	1.0	-0.8	0.9	A+	
420	625489	5	221	.253	.434	.100	.204	.253	.009	.211	.094	-.176	-.104	.211	1.037	0.165	1.3	1.1	1.9	1.3	C+	
421	639863	5	221	.652	.652	.154	.072	.109	.014	.544	.544	-.255	-.299	-.129	-0.979	0.154	-2.7	0.8	-2.5	0.8	A-	
422	628057	5	221	.724	.118	.724	.077	.068	.014	.484	-.196	.484	-.118	-.288	-1.382	0.163	-1.3	0.9	-1.6	0.8	A-	
423	633436	5	221	.548	.018	.548	.181	.240	.014	.392	-.006	.392	-.184	-.174	-0.459	0.147	0.3	1.0	-0.3	1.0	A+	
424	635940	5	220	.455	.455	.318	.136	.091	.000	.363	.363	-.258	-.168	-.011	-0.044	0.148	1.1	1.1	0.6	1.0	A-	C-
425	627364	5	220	.623	.255	.050	.623	.073	.000	.373	-.316	-.161	.373	-.031	-0.857	0.151	0.3	1.0	0.0	1.0	A+	B+
426	637174	5	220	.586	.123	.091	.200	.586	.000	.496	-.298	-.210	-.216	.496	-0.677	0.149	-2.0	0.9	-2.2	0.8	A+	A-
427	628251	5	220	.486	.177	.214	.486	.123	.000	.340	-.203	-.175	.340	-.064	-0.196	0.147	1.4	1.1	1.3	1.1	A-	A+
428	624805	5	220	.955	.014	.955	.014	.018	.000	.239	-.205	.239	-.174	-.044	-3.780	0.346	0.1	1.0	-0.4	0.8	A+	A-
429	622439	5	220	.736	.086	.068	.109	.736	.000	.494	-.192	-.274	-.304	.494	-1.475	0.164	-1.8	0.9	-2.1	0.7	A-	B-
430	637153	5	220	.718	.064	.718	.091	.123	.005	.418	-.206	.418	-.152	-.261	-1.387	0.162	-0.6	1.0	-0.6	0.9	A-	A+
431	625547	5	220	.391	.146	.064	.396	.391	.005	.335	-.258	-.226	-.019	.335	0.284	0.151	0.8	1.1	0.9	1.1	A+	A-
432	621001	5	220	.491	.196	.491	.100	.209	.005	.489	-.238	.489	-.130	-.252	-0.205	0.147	-2.0	0.9	-1.9	0.9	A+	A-
433	639842	5	220	.596	.168	.596	.150	.077	.009	.343	-.118	.343	-.233	-.104	-0.743	0.150	1.1	1.1	1.3	1.1	A+	A+
434	633437	5	220	.705	.068	.114	.705	.105	.009	.434	-.231	-.255	.434	-.149	-1.323	0.161	-0.6	1.0	-0.9	0.9	A+	A+
435	623105	5	221	.290	.190	.100	.416	.290	.005	.289	-.193	-.246	.087	.289	0.820	0.158	0.1	1.0	0.0	1.0	A+	
436	626927	5	218	.569	.165	.133	.569	.128	.005	.453	-.168	-.164	.453	-.247	-0.602	0.149	-1.2	0.9	-0.8	0.9	A+	
437	632608	5	220	.750	.091	.750	.077	.082	.000	.490	-.288	.490	-.241	-.237	-1.439	0.166	-2.0	0.8	-1.9	0.8	A-	
438	625460	5	221	.742	.742	.104	.068	.081	.005	.440	.440	-.187	-.250	-.202	-1.326	0.164	-1.1	0.9	-1.1	0.9	A+	
439	626923	5	222	.554	.225	.185	.554	.036	.000	.337	-.133	-.178	.337	-.229	-0.371	0.145	0.7	1.0	1.0	1.1	A-	
440	628065	5	221	.335	.262	.335	.158	.235	.009	.435	-.182	.435	-.146	-.066	0.583	0.153	-1.5	0.9	-0.4	1.0	A+	
441	633443	5	220	.755	.755	.123	.091	.027	.005	.367	.367	-.181	-.238	-.134	-1.579	0.168	-0.1	1.0	-0.7	0.9	A-	A-
442	621390	5	218	.106	.395	.106	.307	.184	.009	-.082	.227	-.082	.024	-.231	2.462	0.233	1.3	1.2	2.8	1.9	A-	
443	626820	5	221	.697	.045	.140	.109	.697	.009	.550	-.202	-.281	-.210	.550	-1.105	0.156	-2.9	0.8	-3.0	0.7	B+	
444	624842	5	218	.537	.197	.133	.537	.119	.014	.450	-.134	-.115	.450	-.281	-0.463	0.148	-1.0	1.0	-1.1	0.9	A-	
445	624800	5	218	.307	.083	.307	.495	.110	.005	.237	-.039	.237	-.056	-.150	0.674	0.157	1.6	1.1	1.1	1.1	A-	
446	627413	5	220	.286	.491	.155	.286	.068	.000	.433	-.209	-.113	.433	-.199	0.904	0.160	-0.9	0.9	-0.7	0.9	A+	
447	630403	5	221	.516	.516	.186	.177	.118	.005	.358	.358	-.223	-.037	-.228	-0.173	0.146	0.7	1.0	0.8	1.1	A-	
448	624804	5	222	.676	.126	.162	.036	.676	.000	.509	-.371	-.147	-.327	.509	-0.972	0.154	-2.0	0.9	-1.6	0.9	A-	
449	626570	5	221	.312	.235	.339	.104	.312	.009	.381	-.116	-.050	-.195	.381	0.703	0.156	-0.6	1.0	0.1	1.0	A+	
450	624773	5	220	.500	.500	.114	.196	.186	.005	.403	.403	-.164	-.173	-.186	-0.271	0.147	0.2	1.0	0.0	1.0	A-	A+

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
451	633442	5	218	.748	.748	.083	.138	.032	.000	.326	.326	-.243	-.131	-.168	-1.311	0.167	0.3	1.0	0.4	1.1	A-	
452	629854	5	221	.326	.199	.326	.204	.262	.009	.185	.009	.185	-.161	.051	0.679	0.152	2.0	1.1	2.0	1.2	B+	
453	623060	5	221	.778	.118	.063	.778	.032	.009	.511	-.225	-.276	.511	-.231	-1.738	0.177	-1.2	0.9	-1.7	0.8	B+	
454	627488	5	220	.396	.241	.396	.086	.273	.005	.375	-.146	.375	-.181	-.133	0.326	0.149	-0.3	1.0	1.8	1.2	A+	
455	624292	6	304	.599	.161	.599	.099	.135	.007	.232	-.066	.232	-.106	-.113	-0.485	0.126	2.7	1.1	2.6	1.2	A-	A-
456	626934	6	303	.630	.129	.076	.630	.162	.003	.384	-.233	-.277	.384	-.043	-0.580	0.129	0.3	1.0	0.1	1.0	A-	B+
457	627013	6	304	.915	.053	.020	.013	.915	.000	.459	-.287	-.305	-.191	.459	-2.724	0.220	-0.9	0.9	-1.9	0.5	A+	A-
458	632646	6	305	.446	.157	.292	.446	.102	.003	.342	-.237	-.096	.342	-.118	0.370	0.125	1.1	1.1	0.8	1.1	A+	A+
459	624829	6	304	.454	.109	.227	.211	.454	.000	.086	-.016	.008	-.100	.086	0.303	0.123	5.0	1.2	5.6	1.3	A-	
460	630378	6	304	.734	.095	.092	.066	.734	.013	.486	-.149	-.243	-.316	.486	-1.231	0.140	-2.3	0.9	-1.9	0.8	A-	A-
461	624297	6	303	.693	.693	.102	.106	.092	.007	.321	.321	-.200	-.031	-.166	-0.916	0.135	1.1	1.1	0.9	1.1	A+	A-
462	635654	6	304	.658	.109	.658	.125	.099	.010	.474	-.315	.474	-.165	-.200	-0.728	0.133	-1.5	0.9	-1.4	0.9	A+	C-
463	639363	6	305	.341	.315	.226	.112	.341	.007	.330	-.193	.063	-.279	.330	0.876	0.130	0.4	1.0	1.7	1.2	A-	A-
464	633448	6	304	.599	.095	.599	.201	.076	.030	.386	-.212	.386	-.126	-.110	-0.438	0.127	-0.2	1.0	-0.6	1.0	B+	
465	623114	6	303	.673	.112	.673	.145	.063	.007	.401	-.179	.401	-.195	-.158	-0.809	0.133	-0.1	1.0	-0.5	1.0	A+	B-
466	626932	6	304	.852	.852	.046	.030	.072	.000	.486	.486	-.329	-.216	-.259	-1.975	0.172	-1.3	0.9	-2.7	0.6	A-	B-
467	635660	6	305	.390	.180	.390	.148	.282	.000	.284	-.074	.284	-.062	-.196	0.643	0.127	1.6	1.1	2.7	1.2	A-	A-
468	626822	6	304	.816	.072	.059	.053	.816	.000	.478	-.282	-.290	-.195	.478	-1.583	0.155	-1.9	0.8	-2.4	0.7	A-	
469	625478	6	304	.546	.109	.546	.217	.115	.013	.315	-.145	.315	-.167	-.067	-0.253	0.125	1.3	1.1	2.3	1.1	B+	B+
470	626776	6	303	.406	.112	.112	.406	.363	.007	.390	-.075	-.245	.390	-.126	0.499	0.126	-0.3	1.0	-0.2	1.0	A+	A-
471	624296	6	304	.895	.895	.033	.033	.033	.007	.474	.474	-.258	-.249	-.259	-2.537	0.206	-1.0	0.9	-1.9	0.6	A+	A+
472	628055	6	305	.433	.036	.479	.433	.049	.003	.327	-.328	-.109	.327	-.221	0.422	0.125	1.2	1.1	1.3	1.1	A+	B-
473	627289	6	304	.559	.095	.234	.089	.559	.023	.492	-.083	-.216	-.296	.492	-0.229	0.125	-2.8	0.9	-2.7	0.9	A+	
474	633444	6	304	.671	.122	.671	.118	.066	.023	.546	-.293	.546	-.245	-.220	-0.923	0.134	-3.3	0.8	-3.1	0.7	A-	A-
475	639351	6	2733	.449	.374	.105	.070	.449	.003	.269	-.042	-.158	-.220	.269	0.315	0.042	6.5	1.1	5.9	1.1	A+	A+
476	633449	6	2733	.587	.071	.199	.587	.140	.003	.367	-.165	-.181	.367	-.165	-0.343	0.042	0.5	1.0	0.2	1.0	A+	A-
477	639377	6	2733	.667	.109	.667	.085	.136	.002	.482	-.201	.482	-.290	-.217	-0.743	0.044	-6.0	0.9	-6.2	0.8	A-	A-
478	628472	6	2733	.408	.202	.203	.183	.408	.003	.381	-.170	-.145	-.127	.381	0.511	0.042	-0.8	1.0	-0.5	1.0	A+	A-
479	639389	6	2733	.435	.435	.248	.103	.208	.006	.425	.425	-.129	-.269	-.140	0.379	0.042	-3.8	1.0	-3.0	0.9	A-	A-
480	624831	6	2733	.422	.206	.219	.422	.146	.007	.179	.009	-.102	.179	-.088	0.434	0.042	9.9	1.2	9.9	1.3	A-	A+
481	624761	6	2733	.733	.733	.062	.062	.136	.008	.459	.459	-.243	-.280	-.167	-1.122	0.047	-4.2	0.9	-3.9	0.9	A+	A+
482	626546	6	2733	.437	.437	.154	.116	.283	.011	.324	.324	-.181	-.166	-.044	0.357	0.042	3.8	1.1	3.4	1.1	A+	A-
483	639362	6	2733	.506	.283	.126	.506	.070	.015	.374	-.085	-.275	.374	-.134	0.018	0.042	0.2	1.0	0.8	1.0	A-	A+
484	625483	6	2733	.247	.054	.143	.540	.247	.015	.184	-.169	-.110	.045	.184	1.356	0.047	4.6	1.1	7.8	1.3	A+	A+
485	639406	6	303	.835	.026	.835	.020	.116	.003	.363	-.128	.363	-.108	-.256	-1.840	0.164	-0.4	1.0	-1.2	0.8	A-	A-

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
486	624288	6	303	.726	.726	.178	.073	.017	.007	.386	.386	-.187	-.239	-.069	-1.122	0.139	-0.4	1.0	0.2	1.0	A-	A-
487	639397	6	303	.716	.106	.716	.139	.033	.007	.374	-.138	.374	-.238	-.080	-1.065	0.137	-0.5	1.0	-0.5	1.0	A+	A-
488	624808	6	303	.568	.568	.112	.109	.205	.007	.447	.447	-.223	-.166	-.172	-0.297	0.126	-1.7	0.9	-1.7	0.9	A+	A+
489	623057	6	303	.588	.132	.139	.588	.135	.007	.483	-.101	-.327	.483	-.178	-0.393	0.127	-2.1	0.9	-2.0	0.9	A+	A+
490	639400	6	303	.488	.488	.238	.172	.096	.007	.376	.376	-.017	-.318	-.105	0.081	0.125	-0.1	1.0	0.2	1.0	B-	A-
491	635611	6	303	.340	.046	.485	.340	.122	.007	.431	-.182	-.144	.431	-.196	0.812	0.131	-1.1	0.9	-1.0	0.9	B-	B-
492	639347	6	303	.581	.139	.116	.158	.581	.007	.482	-.219	-.216	-.173	.482	-0.361	0.126	-1.6	0.9	-1.4	0.9	A+	A-
493	622437	6	303	.531	.201	.149	.531	.112	.007	.382	-.172	-.178	.382	-.090	-0.123	0.125	0.3	1.0	0.0	1.0	A+	A-
494	627682	6	303	.442	.152	.248	.149	.442	.010	.373	-.155	-.159	-.073	.373	0.299	0.126	-0.1	1.0	0.1	1.0	A+	C-
495	632949	6	303	.310	.320	.310	.244	.116	.010	.276	.096	.276	-.215	-.140	0.969	0.134	1.2	1.1	1.7	1.2	A-	A+
496	639436	6	303	.396	.360	.396	.096	.139	.010	.153	-.001	.153	-.217	.072	0.524	0.128	4.3	1.2	3.2	1.2	A+	A-
497	639880	6	303	.660	.096	.188	.040	.660	.017	.531	-.308	-.191	-.236	.531	-0.785	0.132	-2.8	0.9	-2.2	0.8	A+	A+
498	621385	6	303	.333	.102	.333	.452	.092	.020	.387	-.228	.387	-.030	-.221	0.824	0.132	-0.9	1.0	-0.8	0.9	A+	A+
499	639877	6	608	.382	.160	.382	.133	.313	.013	.389	-.219	.389	-.211	-.030	0.626	0.091	-0.9	1.0	1.1	1.1	A+	A-
500	620814	6	304	.602	.076	.072	.250	.602	.000	.414	-.072	-.206	-.301	.414	-0.423	0.127	-1.3	0.9	-0.7	1.0	A-	
501	629914	6	304	.704	.197	.704	.059	.036	.003	.290	-.097	.290	-.256	-.142	-0.929	0.135	0.6	1.0	0.5	1.1	A-	
502	632647	6	304	.753	.010	.158	.753	.079	.000	.290	-.108	-.136	.290	-.241	-1.204	0.142	-0.2	1.0	-0.1	1.0	A-	
503	639369	6	304	.750	.089	.059	.102	.750	.000	.433	-.158	-.229	-.293	.433	-1.225	0.143	-1.3	0.9	0.0	1.0	A+	
504	624802	6	304	.701	.095	.161	.043	.701	.000	.387	-.184	-.192	-.259	.387	-0.917	0.135	-0.5	1.0	-0.5	1.0	A+	
505	639401	6	304	.030	.411	.030	.533	.026	.000	.027	-.142	.027	.169	-.120	4.390	0.417	0.3	1.1	0.1	1.0	A-	
506	639352	6	304	.556	.138	.099	.556	.207	.000	.516	-.247	-.276	.516	-.220	-0.200	0.125	-3.5	0.9	-3.0	0.8	A-	
507	624837	6	304	.543	.543	.240	.151	.063	.003	.350	.350	-.158	-.217	-.093	-0.114	0.125	-0.3	1.0	-0.6	1.0	A+	
508	624813	6	304	.516	.178	.099	.204	.516	.003	.451	-.220	-.260	-.141	.451	-0.020	0.124	-1.3	1.0	-1.2	0.9	A+	
509	623089	6	304	.540	.385	.540	.013	.059	.003	.287	-.167	.287	-.138	-.167	-0.098	0.125	1.8	1.1	0.7	1.0	B-	
510	627059	6	304	.263	.444	.132	.155	.263	.007	.080	.132	-.176	-.076	.080	1.282	0.140	3.0	1.2	3.8	1.5	A-	
511	639437	6	304	.576	.576	.174	.072	.174	.003	.275	.275	-.106	-.183	-.110	-0.303	0.126	1.6	1.1	2.0	1.1	A-	
512	624844	6	304	.530	.086	.191	.188	.530	.007	.517	-.165	-.306	-.212	.517	-0.090	0.125	-3.3	0.9	-3.2	0.8	B+	
513	621387	6	304	.339	.191	.339	.211	.253	.007	.246	-.011	.246	-.238	-.012	0.839	0.131	2.1	1.1	2.1	1.2	A-	
514	639878	6	608	.273	.273	.239	.275	.194	.020	.391	.391	-.112	-.099	-.137	1.184	0.097	-1.6	0.9	-0.5	1.0	A+	A+
515	623096	6	303	.815	.815	.050	.099	.036	.000	.282	.282	-.095	-.178	-.191	-1.516	0.156	0.3	1.0	0.0	1.0	B+	A+
516	635398	6	303	.822	.036	.033	.822	.109	.000	.415	-.191	-.194	.415	-.283	-1.566	0.158	-1.1	0.9	-1.7	0.8	A+	A+
517	639354	6	303	.488	.142	.488	.132	.238	.000	.346	-.104	.346	-.240	-.130	0.252	0.124	0.7	1.0	1.1	1.1	A-	B-
518	639379	6	303	.551	.254	.551	.109	.076	.010	.498	-.230	.498	-.252	-.232	-0.064	0.126	-2.8	0.9	-2.3	0.9	A-	A-
519	625536	6	303	.703	.030	.195	.703	.069	.003	.501	-.193	-.254	.501	-.378	-0.822	0.135	-2.6	0.9	-2.5	0.8	A-	A-
520	639405	6	303	.201	.165	.558	.201	.076	.000	.292	.023	-.202	.292	-.096	1.813	0.153	0.4	1.0	1.1	1.2	A+	B-

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
521	635455	6	303	.525	.086	.122	.267	.525	.000	.329	-.174	-.221	-.098	.329	0.080	0.125	1.0	1.0	0.8	1.1	A+	A-
522	625485	6	303	.343	.472	.119	.343	.066	.000	.110	.038	-.158	.110	-.081	0.963	0.131	3.9	1.2	4.1	1.4	A-	A-
523	625464	6	303	.429	.102	.330	.139	.429	.000	.423	-.255	-.127	-.210	.423	0.534	0.126	-1.2	0.9	-0.9	0.9	A-	B-
524	622984	6	303	.845	.053	.845	.063	.036	.003	.428	-.279	.428	-.194	-.227	-1.776	0.168	-1.1	0.9	-1.3	0.8	A-	A+
525	627780	6	303	.469	.172	.469	.198	.152	.010	.396	-.182	.396	-.126	-.213	0.317	0.125	-0.2	1.0	-0.1	1.0	A-	A+
526	639444	6	303	.356	.356	.076	.248	.310	.010	.272	.272	-.184	-.223	.049	0.872	0.130	1.8	1.1	2.0	1.2	A-	A-
527	627010	6	303	.720	.083	.720	.152	.033	.013	.489	-.296	.489	-.288	-.143	-0.961	0.139	-1.6	0.9	-2.1	0.8	A+	A-
528	635652	6	303	.654	.654	.231	.050	.053	.013	.497	.497	-.321	-.208	-.209	-0.595	0.131	-2.2	0.9	-2.1	0.8	A-	A+
529	639879	6	303	.452	.267	.211	.056	.452	.013	.433	-.134	-.230	-.230	.433	0.392	0.126	-1.1	1.0	-1.0	0.9	A+	A-
530	625531	6	303	.729	.086	.066	.729	.119	.000	.497	-.274	-.204	.497	-.288	-1.089	0.137	-1.7	0.9	-2.2	0.8	A+	
531	639346	6	303	.116	.116	.317	.515	.050	.003	.037	.037	-.028	.093	-.218	2.402	0.191	0.9	1.1	1.1	1.2	A+	
532	627356	6	303	.333	.347	.175	.145	.333	.000	.380	-.190	-.156	-.083	.380	0.838	0.130	-1.2	0.9	-1.2	0.9	B-	
533	639386	6	303	.710	.086	.073	.710	.129	.003	.412	-.294	-.231	.412	-.125	-0.991	0.135	-0.7	1.0	-1.1	0.9	A+	
534	626924	6	303	.363	.152	.363	.320	.162	.003	.272	-.109	.272	-.045	-.159	0.704	0.128	0.6	1.0	1.4	1.1	A-	
535	639417	6	303	.330	.026	.439	.201	.330	.003	.309	-.132	-.027	-.246	.309	0.854	0.130	0.2	1.0	0.6	1.1	A+	
536	625467	6	303	.875	.030	.875	.036	.053	.007	.438	-.162	.438	-.243	-.219	-2.193	0.187	-0.4	0.9	-1.4	0.7	A-	
537	623086	6	303	.512	.066	.145	.271	.512	.007	.372	-.097	-.240	-.122	.372	-0.013	0.123	-0.1	1.0	0.0	1.0	A+	
538	626553	6	303	.307	.241	.228	.307	.218	.007	.237	-.024	-.160	.237	-.021	0.975	0.133	1.3	1.1	2.1	1.2	A-	
539	625497	6	303	.297	.188	.119	.389	.297	.007	.299	-.201	-.151	.028	.299	1.028	0.134	0.3	1.0	0.4	1.0	A+	
540	634135	6	303	.446	.079	.238	.231	.446	.007	.394	-.244	-.059	-.194	.394	0.292	0.124	-0.8	1.0	-0.8	1.0	A+	
541	623130	6	303	.644	.109	.109	.132	.644	.007	.528	-.192	-.211	-.308	.528	-0.640	0.128	-3.3	0.9	-3.3	0.8	A+	
542	629823	6	303	.406	.254	.406	.152	.178	.010	.329	-.124	.329	-.249	.018	0.471	0.125	0.4	1.0	0.2	1.0	C+	
543	635658	6	303	.211	.317	.224	.211	.241	.007	.138	.092	-.136	.138	-.045	1.566	0.149	1.3	1.1	1.9	1.2	A+	
544	623123	6	303	.323	.132	.271	.323	.264	.010	.202	-.122	.094	.202	-.156	0.900	0.131	1.6	1.1	1.7	1.1	A+	
545	635397	6	304	.625	.128	.135	.625	.112	.000	.398	-.194	-.244	.398	-.141	-0.603	0.128	-0.5	1.0	-0.8	0.9	A-	A-
546	639367	6	304	.766	.069	.766	.053	.109	.003	.316	-.122	.316	-.244	-.098	-1.383	0.144	0.2	1.0	0.2	1.0	A-	A-
547	639348	6	304	.115	.401	.115	.309	.171	.003	.049	.086	.049	-.093	.008	2.320	0.187	0.8	1.1	3.1	1.8	A-	A+
548	633853	6	304	.526	.230	.053	.526	.188	.003	.417	-.226	-.210	.417	-.124	-0.129	0.124	-0.2	1.0	-0.8	1.0	A-	A-
549	639345	6	304	.303	.299	.076	.319	.303	.003	.191	.012	-.203	-.047	.191	0.969	0.134	2.7	1.2	2.9	1.3	A+	A-
550	639390	6	304	.309	.214	.309	.339	.132	.007	.139	-.045	.139	-.102	.064	0.927	0.133	3.1	1.2	4.1	1.4	A-	A-
551	635617	6	304	.628	.099	.628	.184	.082	.007	.368	-.149	.368	-.163	-.171	-0.633	0.128	0.0	1.0	0.8	1.1	B+	A+
552	639416	6	304	.372	.257	.316	.372	.049	.007	.492	-.200	-.208	.492	-.144	0.601	0.128	-2.5	0.9	-2.2	0.9	A-	A-
553	624755	6	304	.691	.135	.691	.079	.089	.007	.456	-.218	.456	-.165	-.243	-0.958	0.133	-1.7	0.9	-1.6	0.9	A-	B-
554	627047	6	304	.418	.306	.171	.095	.418	.010	.363	-.041	-.244	-.148	.363	0.364	0.126	0.3	1.0	0.4	1.0	A+	A+
555	621155	6	304	.507	.171	.250	.507	.063	.010	.369	-.206	-.122	.369	-.122	-0.059	0.124	0.5	1.0	-0.1	1.0	A-	A+

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
556	624757	6	304	.691	.691	.132	.095	.066	.016	.305	.305	-.169	-.083	-.106	-0.991	0.135	0.9	1.1	1.2	1.1	A+	A+
557	639425	6	304	.237	.293	.339	.237	.122	.010	.259	-.097	-.068	.259	-.028	1.337	0.144	1.0	1.1	1.1	1.1	A-	A-
558	626929	6	304	.592	.115	.151	.592	.132	.010	.484	-.139	-.318	.484	-.162	-0.468	0.126	-2.1	0.9	-2.2	0.9	A-	A-
559	635653	6	304	.516	.516	.181	.148	.138	.016	.443	.443	-.094	-.239	-.216	-0.126	0.125	-1.3	0.9	-0.9	1.0	A+	A-
560	639872	6	304	.569	.569	.237	.092	.079	.023	.404	.404	-.135	-.210	-.205	-0.400	0.127	-0.4	1.0	-0.4	1.0	A+	A-
561	633450	6	304	.684	.063	.158	.072	.684	.023	.541	-.207	-.296	-.258	.541	-0.996	0.135	-3.2	0.8	-3.1	0.7	A+	A-
562	639428	6	303	.759	.125	.086	.026	.759	.003	.555	-.334	-.292	-.165	.555	-1.304	0.145	-2.7	0.8	-2.8	0.7	A-	A-
563	639350	6	303	.805	.106	.805	.066	.020	.003	.434	-.207	.434	-.269	-.168	-1.622	0.156	-0.7	0.9	-1.2	0.8	A+	A+
564	635416	6	303	.508	.152	.201	.508	.135	.003	.447	-.210	-.204	.447	-.140	0.013	0.125	-1.8	0.9	-1.4	0.9	A-	A-
565	635902	6	303	.749	.109	.053	.086	.749	.003	.518	-.211	-.257	-.296	.518	-1.221	0.143	-2.6	0.8	-2.1	0.8	A+	A+
566	628039	6	303	.502	.122	.135	.238	.502	.003	.301	-.012	-.237	-.112	.301	0.044	0.125	2.0	1.1	1.9	1.1	A-	A-
567	639391	6	303	.696	.696	.116	.142	.043	.003	.514	.514	-.232	-.261	-.260	-0.931	0.135	-2.2	0.9	-2.4	0.8	A-	A+
568	635618	6	303	.878	.030	.056	.878	.026	.010	.474	-.273	-.214	.474	-.179	-2.313	0.192	-1.0	0.9	-1.5	0.7	A+	A-
569	635616	6	303	.568	.119	.568	.139	.168	.007	.507	-.112	.507	-.334	-.186	-0.273	0.126	-2.7	0.9	-2.7	0.8	A+	A+
570	624832	6	303	.568	.568	.215	.099	.112	.007	.404	.404	-.101	-.175	-.243	-0.273	0.126	-0.2	1.0	-0.2	1.0	A+	B-
571	639404	6	303	.446	.251	.116	.446	.182	.007	.241	-.029	-.222	.241	-.017	0.308	0.125	3.2	1.2	3.1	1.2	A+	A-
572	623097	6	303	.871	.076	.871	.023	.023	.007	.418	-.210	.418	-.188	-.174	-2.210	0.186	-0.3	1.0	-1.3	0.8	A-	C-
573	623090	6	303	.178	.281	.228	.307	.178	.007	.052	-.007	-.085	.106	.052	1.841	0.159	1.7	1.2	3.4	1.6	A-	A-
574	639427	6	303	.271	.363	.175	.185	.271	.007	.238	.039	-.095	-.150	.238	1.208	0.138	1.4	1.1	2.2	1.2	A+	A+
575	639361	6	303	.832	.076	.832	.056	.026	.010	.478	-.345	.478	-.130	-.161	-1.836	0.166	-1.2	0.9	-2.2	0.7	A-	A+
576	627697	6	303	.634	.162	.634	.096	.099	.010	.459	-.195	.459	-.281	-.117	-0.611	0.130	-1.2	0.9	-1.6	0.9	A+	A-
577	639873	6	303	.442	.139	.178	.442	.228	.013	.470	-.211	-.223	.470	-.100	0.311	0.126	-2.1	0.9	-1.8	0.9	A+	A-
578	633451	6	303	.515	.221	.102	.515	.142	.020	.360	-.077	-.235	.360	-.100	-0.044	0.126	0.9	1.0	0.9	1.1	A-	B+
579	639376	6	304	.734	.220	.734	.023	.023	.000	.324	-.213	.324	-.215	-.152	-1.138	0.141	0.8	1.1	0.7	1.1	A+	A-
580	639353	6	304	.720	.720	.109	.092	.079	.000	.537	.537	-.352	-.262	-.207	-1.059	0.139	-2.4	0.8	-2.5	0.8	A-	A-
581	635449	6	304	.526	.247	.526	.092	.135	.000	.394	-.100	.394	-.265	-.225	-0.058	0.125	0.1	1.0	0.0	1.0	B-	A-
582	635415	6	304	.766	.089	.033	.766	.112	.000	.385	-.323	-.160	.385	-.134	-1.324	0.146	-0.4	1.0	-0.5	0.9	A+	B-
583	639399	6	304	.615	.135	.135	.615	.115	.000	.500	-.293	-.220	.500	-.213	-0.491	0.128	-2.2	0.9	-2.3	0.8	A+	A-
584	639398	6	304	.717	.118	.109	.717	.056	.000	.513	-.263	-.287	.513	-.247	-1.040	0.138	-2.1	0.9	-2.0	0.8	A+	A+
585	635620	6	304	.513	.204	.148	.135	.513	.000	.455	-.138	-.225	-.268	.455	0.004	0.125	-1.5	0.9	-0.9	0.9	A-	A-
586	639387	6	304	.901	.030	.901	.026	.040	.003	.415	-.216	.415	-.272	-.225	-2.539	0.206	-0.9	0.9	-1.6	0.7	A+	A+
587	624834	6	304	.141	.138	.171	.549	.141	.000	-.012	-.012	-.142	.124	-.012	2.149	0.173	1.5	1.2	3.3	1.8	A-	A+
588	624752	6	304	.461	.207	.214	.461	.112	.007	.289	-.036	-.108	.289	-.242	0.236	0.125	2.7	1.1	1.9	1.1	A+	A+
589	630726	6	304	.898	.056	.026	.898	.013	.007	.462	-.271	-.309	.462	-.169	-2.580	0.209	-0.7	0.9	-2.0	0.6	A+	A-
590	639433	6	304	.457	.457	.079	.378	.076	.010	.206	.206	-.150	.063	-.289	0.266	0.125	3.6	1.2	4.2	1.3	C-	A+

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
591	639430	6	304	.875	.030	.040	.049	.875	.007	.501	-.194	-.356	-.251	.501	-2.299	0.191	-1.1	0.9	-2.3	0.6	A-	A+
592	635355	6	304	.747	.053	.747	.046	.145	.010	.421	-.304	.421	-.259	-.127	-1.262	0.145	-0.4	1.0	-0.2	1.0	A-	A-
593	635659	6	304	.408	.155	.191	.237	.408	.010	.292	-.108	-.112	-.105	.292	0.488	0.126	2.1	1.1	1.8	1.1	A+	A-
594	639874	6	304	.665	.122	.665	.092	.112	.010	.563	-.291	.563	-.332	-.186	-0.778	0.133	-2.7	0.9	-2.8	0.8	B+	A-
595	633452	6	304	.707	.026	.188	.707	.066	.013	.463	-.211	-.302	.463	-.181	-1.036	0.139	-1.0	0.9	-1.1	0.9	A-	A+
596	622440	6	305	.721	.220	.721	.039	.020	.000	.480	-.414	.480	-.177	-.067	-1.007	0.138	-1.5	0.9	-1.5	0.9	B-	A-
597	635945	6	305	.702	.053	.702	.098	.141	.007	.442	-.208	.442	-.206	-.243	-0.912	0.136	-0.8	1.0	-0.9	0.9	A-	A+
598	635450	6	305	.571	.053	.571	.167	.210	.000	.300	-.222	.300	-.144	-.112	-0.220	0.126	1.9	1.1	1.8	1.1	A-	A+
599	635615	6	305	.741	.134	.085	.036	.741	.003	.417	-.182	-.277	-.199	.417	-1.133	0.141	-0.7	1.0	-0.4	1.0	A-	A-
600	639403	6	305	.790	.075	.790	.059	.075	.000	.526	-.300	.526	-.332	-.215	-1.443	0.151	-2.1	0.8	-2.5	0.7	B+	A+
601	635453	6	305	.679	.144	.105	.679	.069	.003	.454	-.195	-.301	.454	-.186	-0.778	0.133	-1.4	0.9	-0.2	1.0	A-	A+
602	624806	6	305	.653	.098	.108	.653	.138	.003	.512	-.359	-.232	.512	-.176	-0.638	0.131	-2.2	0.9	-2.1	0.8	A+	C-
603	639388	6	305	.859	.016	.043	.079	.859	.003	.544	-.183	-.340	-.346	.544	-2.014	0.175	-1.9	0.8	-2.9	0.5	A-	A-
604	625480	6	305	.600	.151	.600	.102	.148	.000	.364	-.235	.364	-.167	-.124	-0.364	0.127	0.8	1.0	0.2	1.0	A-	B-
605	624827	6	305	.571	.571	.138	.164	.128	.000	.392	.392	-.288	-.152	-.115	-0.220	0.126	0.0	1.0	0.2	1.0	A+	B-
606	632917	6	305	.771	.053	.026	.771	.151	.000	.456	-.381	-.303	.456	-.163	-1.310	0.146	-1.3	0.9	-0.1	1.0	A+	A+
607	639434	6	305	.321	.351	.321	.105	.213	.010	.271	-.060	.271	-.007	-.207	0.977	0.132	1.9	1.1	0.9	1.1	A-	A+
608	639426	6	305	.607	.167	.030	.190	.607	.007	.367	-.181	-.303	-.141	.367	-0.416	0.128	0.6	1.0	0.3	1.0	A+	A+
609	624767	6	305	.226	.177	.125	.226	.466	.007	.220	-.191	-.209	.220	.111	1.531	0.145	0.8	1.1	2.4	1.3	A+	A+
610	639875	6	305	.820	.056	.059	.820	.059	.007	.556	-.349	-.293	.556	-.252	-1.698	0.161	-2.4	0.8	-2.8	0.6	A+	A+
611	624824	6	305	.741	.039	.161	.049	.741	.010	.523	-.265	-.296	-.274	.523	-1.164	0.143	-2.0	0.9	-2.4	0.8	A-	A-
612	635454	6	304	.727	.095	.727	.102	.076	.000	.285	-.082	.285	-.136	-.235	-1.019	0.136	0.8	1.1	0.5	1.1	A+	
613	639378	6	304	.572	.138	.572	.171	.118	.000	.323	-.136	.323	-.239	-.071	-0.241	0.123	1.0	1.0	0.6	1.0	A-	
614	639371	6	304	.678	.036	.079	.207	.678	.000	.329	-.300	-.183	-.119	.329	-0.753	0.130	-0.4	1.0	0.6	1.1	A+	
615	635882	6	304	.674	.092	.674	.079	.155	.000	.383	-.221	.383	-.125	-.227	-0.736	0.130	-1.1	0.9	-0.3	1.0	A-	
616	639368	6	304	.717	.092	.079	.717	.112	.000	.355	-.174	-.310	.355	-.082	-0.964	0.134	-0.5	1.0	-0.6	0.9	A+	
617	635612	6	304	.645	.092	.158	.645	.105	.000	.374	-.148	-.199	.374	-.208	-0.587	0.127	-1.1	1.0	-0.6	1.0	A-	
618	624295	6	304	.533	.155	.533	.155	.158	.000	.399	-.299	.399	-.126	-.125	-0.059	0.123	-0.8	1.0	-1.0	1.0	A-	
619	639402	6	304	.372	.214	.306	.372	.109	.000	.200	-.120	-.026	.200	-.115	0.691	0.126	2.6	1.1	2.5	1.2	A+	
620	627774	6	304	.740	.072	.740	.148	.040	.000	.367	-.091	.367	-.282	-.192	-1.094	0.138	-0.6	1.0	-0.8	0.9	A-	
621	623088	6	304	.615	.158	.086	.615	.135	.007	.338	-.083	-.192	.338	-.165	-0.454	0.126	0.3	1.0	-0.4	1.0	A+	
622	623083	6	304	.566	.059	.345	.566	.020	.010	.261	-.200	-.087	.261	-.082	-0.228	0.124	1.9	1.1	1.5	1.1	A+	
623	623036	6	304	.724	.724	.102	.125	.030	.020	.447	.447	-.269	-.210	-.066	-1.070	0.138	-1.5	0.9	-1.6	0.8	B+	
624	639435	6	304	.263	.135	.263	.319	.263	.020	.119	-.224	.119	.101	.038	1.239	0.138	2.7	1.2	2.8	1.3	B-	
625	627061	6	304	.661	.118	.661	.122	.076	.023	.463	-.191	.463	-.185	-.199	-0.735	0.131	-1.7	0.9	-1.9	0.9	A+	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
626	624843	6	304	.477	.286	.118	.095	.477	.023	.515	-.252	-.144	-.179	.515	0.157	0.124	-3.6	0.9	-3.5	0.8	A+	
627	639876	6	304	.605	.605	.217	.040	.109	.030	.363	.363	-.203	-.153	-.053	-0.471	0.127	-0.2	1.0	0.9	1.1	A+	
628	633446	6	304	.477	.477	.135	.253	.135	.000	.273	.273	-.289	.035	-.156	0.175	0.124	2.8	1.1	2.9	1.2	A+	A-
629	635619	6	305	.246	.246	.134	.266	.354	.000	.250	.250	-.201	-.195	.099	1.422	0.142	0.7	1.1	2.7	1.4	A-	A-
630	635662	6	304	.322	.260	.128	.322	.286	.003	.261	-.151	.001	.261	-.114	0.934	0.130	1.2	1.1	1.2	1.1	A+	
631	623111	6	304	.668	.086	.066	.178	.668	.003	.380	-.112	-.198	-.212	.380	-0.821	0.131	-0.1	1.0	-0.8	0.9	A+	A+
632	624754	6	303	.363	.588	.363	.023	.020	.007	.242	-.063	.242	-.163	-.223	0.711	0.129	2.6	1.1	2.4	1.2	A-	A+
633	628060	6	304	.513	.168	.174	.513	.138	.007	.412	-.100	-.176	.412	-.265	0.007	0.125	-0.5	1.0	-0.4	1.0	A-	A-
634	627415	6	305	.266	.348	.157	.230	.266	.000	.287	-.132	-.173	-.003	.287	1.304	0.138	0.6	1.0	1.7	1.2	A+	A+
635	624287	6	304	.793	.049	.069	.793	.066	.023	.559	-.278	-.297	.559	-.203	-1.534	0.154	-2.6	0.8	-3.2	0.6	A+	
636	624763	6	304	.556	.174	.165	.556	.092	.013	.412	-.101	-.232	.412	-.193	-0.304	0.125	-0.6	1.0	-1.0	0.9	A+	B+
637	627960	6	303	.320	.320	.122	.073	.469	.017	.216	.216	-.216	-.255	.152	0.923	0.133	2.6	1.2	2.6	1.2	A-	A+
638	633447	6	305	.712	.712	.098	.085	.105	.000	.296	.296	-.078	-.216	-.165	-0.951	0.136	1.1	1.1	1.3	1.1	A-	A-
639	639392	6	304	.293	.240	.211	.257	.293	.000	.297	-.129	-.062	-.126	.297	1.096	0.134	0.2	1.0	1.3	1.1	A-	
640	635661	6	304	.474	.474	.105	.191	.227	.003	.224	.224	-.136	-.095	-.036	0.119	0.124	3.1	1.1	2.7	1.2	A-	A+
641	624289	6	303	.762	.050	.079	.762	.102	.007	.450	-.213	-.213	.450	-.191	-1.331	0.146	-0.8	0.9	-1.4	0.8	A+	A-
642	624756	6	304	.464	.211	.161	.464	.165	.000	.140	-.076	-.053	.140	-.054	0.253	0.125	4.9	1.2	4.7	1.3	A+	A+
643	628061	6	305	.777	.777	.128	.053	.036	.007	.447	.447	-.224	-.280	-.228	-1.382	0.149	-0.9	0.9	-1.5	0.8	A-	A-
644	628112	6	304	.434	.214	.434	.217	.122	.013	.378	-.141	.378	-.192	-.052	0.378	0.124	-0.4	1.0	-0.7	1.0	A+	
645	626567	6	304	.461	.174	.138	.217	.461	.010	.460	-.143	-.191	-.204	.460	0.159	0.125	-1.7	0.9	-1.5	0.9	A+	A+
646	624840	6	303	.551	.165	.076	.551	.198	.010	.456	-.130	-.220	.456	-.222	-0.186	0.126	-1.8	0.9	-1.7	0.9	A+	A-
647	627030	6	304	.549	.145	.549	.089	.207	.010	.418	-.189	.418	-.327	-.080	-0.192	0.126	-0.3	1.0	0.0	1.0	A-	A+
648	627052	7	280	.839	.839	.057	.014	.086	.004	.389	.389	-.169	-.077	-.264	-1.676	0.173	-0.6	0.9	-0.8	0.9	B+	
649	639447	7	280	.775	.136	.775	.029	.061	.000	.447	-.334	.447	-.183	-.175	-1.145	0.152	-1.3	0.9	-1.6	0.8	A-	
650	627058	7	280	.446	.214	.196	.139	.446	.004	-.008	.008	.069	-.081	-.008	0.593	0.130	7.3	1.4	6.7	1.5	A-	A-
651	639380	7	279	.545	.545	.204	.161	.086	.004	.304	.304	-.166	-.053	-.157	0.000	0.129	1.7	1.1	1.2	1.1	A-	
652	624286	7	280	.711	.136	.711	.093	.054	.007	.499	-.251	.499	-.182	-.222	-0.801	0.141	-2.0	0.9	-2.2	0.8	A-	
653	624822	7	280	.246	.343	.132	.271	.246	.007	.173	.067	-.098	-.093	.173	1.549	0.147	1.7	1.1	2.9	1.4	B+	
654	636003	7	280	.457	.457	.071	.257	.214	.000	.222	.222	-.303	-.128	.057	0.495	0.130	3.4	1.2	3.4	1.2	A-	
655	633454	7	280	.811	.071	.811	.054	.061	.004	.545	-.240	.545	-.288	-.310	-1.376	0.166	-1.9	0.8	-2.4	0.7	B+	A-
656	635909	7	279	.491	.118	.491	.179	.204	.007	.454	-.179	.454	-.223	-.155	0.239	0.129	-1.8	0.9	-1.9	0.9	A+	
657	634300	7	280	.561	.143	.179	.561	.107	.011	.460	-.203	-.210	.460	-.126	-0.051	0.130	-1.9	0.9	-2.0	0.9	C+	
658	626992	7	280	.875	.025	.875	.029	.071	.000	.353	-.220	.353	-.159	-.217	-1.933	0.188	-0.5	0.9	-0.8	0.8	A+	
659	639438	7	280	.882	.054	.029	.882	.036	.000	.435	-.348	-.181	.435	-.172	-1.958	0.198	-0.9	0.9	-1.4	0.7	A+	B-
660	628116	7	279	.548	.548	.093	.118	.237	.004	.483	.483	-.252	-.239	-.162	-0.017	0.129	-2.7	0.9	-2.0	0.9	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
661	626764	7	280	.771	.771	.057	.057	.107	.007	.448	.448	-.223	-.235	-.143	-1.166	0.152	-1.2	0.9	-0.9	0.9	A-	
662	639394	7	280	.500	.171	.500	.143	.179	.007	.339	-.200	.339	-.150	-.026	0.248	0.130	1.1	1.1	1.1	1.1	A+	
663	628476	7	280	.254	.264	.254	.389	.093	.000	.110	-.041	.110	.014	-.127	1.553	0.147	2.7	1.2	3.5	1.5	B+	
664	636008	7	280	.750	.075	.068	.107	.750	.000	.470	-.160	-.259	-.311	.470	-0.926	0.149	-1.3	0.9	-1.8	0.8	A+	A-
665	633455	7	279	.896	.025	.050	.896	.025	.004	.427	-.203	-.253	.427	-.145	-2.242	0.205	-0.7	0.9	-2.0	0.6	A+	
666	639420	7	280	.304	.304	.300	.207	.182	.007	.232	.232	-.041	-.103	-.022	1.195	0.138	1.3	1.1	1.7	1.2	A-	
667	634299	7	280	.646	.132	.646	.093	.114	.014	.523	-.187	.523	-.244	-.239	-0.491	0.137	-2.3	0.9	-2.3	0.8	A-	
668	630377	7	2516	.845	.049	.845	.053	.052	.002	.355	-.200	.355	-.177	-.162	-1.665	0.058	-1.0	1.0	-2.1	0.9	A+	A+
669	627055	7	2516	.725	.066	.725	.159	.047	.003	.422	-.200	.422	-.242	-.181	-0.837	0.048	-2.5	0.9	-2.5	0.9	A-	A-
670	625552	7	2516	.328	.176	.246	.328	.247	.004	.355	-.128	-.117	.355	-.122	1.134	0.046	0.2	1.0	0.7	1.0	A-	A-
671	623032	7	2516	.762	.091	.069	.762	.075	.003	.396	-.185	-.227	.396	-.165	-1.067	0.050	-1.4	1.0	-2.5	0.9	A+	A+
672	629824	7	2516	.407	.139	.407	.235	.215	.005	.250	-.100	.250	-.109	-.065	0.736	0.044	6.4	1.1	7.6	1.2	A-	A+
673	621386	7	2516	.734	.734	.097	.121	.044	.005	.435	.435	-.181	-.236	-.223	-0.902	0.049	-3.0	0.9	-3.2	0.9	A+	A-
674	628106	7	2516	.467	.301	.467	.085	.143	.004	.303	-.032	.303	-.239	-.154	0.449	0.043	4.2	1.1	3.8	1.1	A-	A-
675	639419	7	2516	.417	.197	.068	.417	.314	.005	.462	-.283	-.222	.462	-.097	0.691	0.044	-6.5	0.9	-3.9	0.9	A+	A-
676	627967	7	2516	.425	.111	.271	.186	.425	.006	.414	-.155	-.134	-.202	.414	0.647	0.044	-2.8	1.0	-1.3	1.0	A-	A-
677	633456	7	2516	.657	.050	.116	.170	.657	.006	.465	-.231	-.253	-.190	.465	-0.483	0.046	-4.6	0.9	-4.1	0.9	B+	A+
678	622603	7	558	.502	.034	.238	.224	.502	.002	.307	-.049	-.179	-.137	.307	0.286	0.092	2.5	1.1	2.1	1.1	A+	
679	622817	7	558	.785	.038	.125	.785	.050	.002	.453	-.221	-.291	.453	-.168	-1.213	0.110	-1.9	0.9	-2.6	0.8	A-	
680	639383	7	558	.713	.063	.106	.115	.713	.004	.487	-.200	-.245	-.267	.487	-0.779	0.101	-3.1	0.9	-3.2	0.8	A-	
681	630380	7	558	.744	.045	.052	.158	.744	.002	.392	-.193	-.166	-.228	.392	-0.950	0.104	-0.7	1.0	-1.1	0.9	A+	
682	626769	7	558	.781	.781	.134	.034	.048	.002	.432	.432	-.305	-.189	-.135	-1.189	0.109	-1.5	0.9	-1.9	0.8	A-	
683	630286	7	558	.296	.296	.350	.154	.195	.005	.307	.307	-.051	-.156	-.114	1.302	0.099	0.7	1.0	1.3	1.1	A-	
684	625543	7	558	.263	.253	.263	.208	.272	.004	.115	.059	.115	-.109	-.047	1.485	0.102	3.6	1.2	4.8	1.4	A-	
685	625514	7	558	.575	.301	.082	.039	.575	.002	.404	-.212	-.227	-.147	.404	-0.053	0.092	-0.6	1.0	-0.9	1.0	A-	
686	621207	7	279	.699	.068	.115	.699	.115	.004	.526	-.145	-.286	.526	-.346	-0.623	0.141	-2.7	0.8	-2.9	0.7	A-	
687	633851	7	279	.488	.054	.136	.488	.319	.004	.208	-.152	-.221	.208	.024	0.437	0.130	3.7	1.2	3.8	1.3	B+	
688	639415	7	279	.878	.878	.075	.011	.036	.000	.465	.465	-.417	-.148	-.144	-1.918	0.195	-1.1	0.9	-1.4	0.7	A+	
689	634073	7	279	.728	.082	.728	.115	.075	.000	.433	-.199	.433	-.339	-.115	-0.754	0.144	-1.5	0.9	-1.6	0.8	A-	
690	625510	7	558	.262	.093	.262	.624	.018	.004	.039	-.064	.039	.048	-.079	1.516	0.103	4.0	1.2	6.0	1.6	A-	
691	628024	7	558	.618	.090	.215	.618	.074	.004	.449	-.201	-.237	.449	-.200	-0.278	0.094	-2.2	0.9	-2.6	0.9	A+	
692	639445	7	279	.301	.348	.301	.136	.215	.000	.093	.140	.093	-.135	-.154	1.388	0.140	2.7	1.2	3.2	1.3	A-	
693	633847	7	559	.528	.106	.195	.168	.528	.004	.305	-.125	-.114	-.130	.305	0.148	0.092	2.6	1.1	2.7	1.1	A-	
694	636005	7	559	.424	.177	.424	.258	.136	.005	.435	-.052	.435	-.180	-.258	0.641	0.093	-2.1	0.9	-1.7	0.9	A-	
695	639412	7	559	.850	.007	.061	.850	.077	.005	.411	-.137	-.239	.411	-.190	-1.755	0.126	-1.1	0.9	-1.0	0.9	A+	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
696	633844	7	559	.483	.091	.152	.267	.483	.007	.401	-.150	-.205	-.109	.401	0.358	0.092	-0.1	1.0	0.0	1.0	A-	
697	635990	7	559	.556	.147	.556	.127	.161	.009	.406	-.191	.406	-.262	-.029	0.005	0.093	-0.8	1.0	-0.1	1.0	A+	
698	633408	7	559	.472	.472	.132	.109	.279	.007	.261	.261	-.139	-.238	.058	0.409	0.092	3.7	1.1	4.2	1.2	A-	
699	627049	7	559	.479	.297	.106	.479	.109	.009	.385	-.231	-.219	.385	.057	0.373	0.092	0.2	1.0	0.9	1.0	B-	
700	627006	7	279	.728	.086	.728	.093	.086	.007	.498	-.184	.498	-.310	-.165	-0.878	0.147	-1.6	0.9	-1.6	0.8	A+	
701	626995	7	559	.632	.632	.143	.149	.070	.007	.373	.373	-.274	-.062	-.104	-0.363	0.095	0.5	1.0	-0.2	1.0	A-	
702	626989	7	559	.846	.034	.079	.032	.846	.009	.462	-.127	-.287	-.157	.462	-1.739	0.126	-1.3	0.9	-1.8	0.8	A+	
703	628309	7	279	.488	.172	.176	.488	.158	.007	.390	-.068	-.151	.390	-.214	0.376	0.132	0.3	1.0	-0.1	1.0	A+	
704	639423	7	279	.516	.516	.090	.093	.290	.011	.389	.389	-.279	-.173	-.074	0.221	0.132	0.4	1.0	-0.1	1.0	A-	
705	639355	7	279	.398	.229	.233	.129	.398	.011	.293	-.022	-.061	-.207	.293	0.815	0.134	1.9	1.1	1.4	1.1	A-	
706	629850	7	279	.599	.061	.237	.599	.093	.011	.490	-.159	-.307	.490	-.134	-0.186	0.135	-2.2	0.9	-2.0	0.9	A+	
707	626559	7	279	.169	.488	.169	.222	.111	.011	.012	.112	.012	-.032	-.043	2.194	0.170	2.2	1.2	4.0	1.9	A-	
708	639372	7	279	.344	.222	.290	.344	.143	.000	.253	-.237	.044	.253	-.119	1.066	0.135	2.0	1.1	2.0	1.2	A-	
709	635943	7	279	.652	.047	.258	.043	.652	.000	.375	-.101	-.211	-.320	.375	-0.430	0.136	-0.3	1.0	-0.2	1.0	A+	
710	639605	7	279	.918	.039	.918	.025	.018	.000	.368	-.240	.368	-.247	-.120	-2.430	0.226	-0.7	0.9	-1.1	0.7	A-	
711	627412	7	279	.434	.133	.394	.434	.039	.000	.248	-.298	.002	.248	-.117	0.643	0.131	2.1	1.1	2.9	1.2	A+	
712	626990	7	279	.731	.108	.072	.090	.731	.000	.347	-.223	-.059	-.243	.347	-0.866	0.146	0.2	1.0	-0.2	1.0	A+	
713	638833	7	279	.470	.158	.172	.470	.197	.004	.332	-.269	-.110	.332	-.032	0.455	0.130	0.8	1.0	0.7	1.1	A+	
714	627050	7	279	.853	.050	.054	.853	.043	.000	.464	-.344	-.273	.464	-.137	-1.743	0.180	-1.2	0.9	-1.5	0.7	A-	
715	628241	7	279	.233	.412	.233	.169	.186	.000	.081	.209	.081	-.296	-.068	1.692	0.150	2.3	1.2	2.9	1.4	A-	
716	625476	7	279	.520	.208	.082	.520	.190	.000	.411	-.214	-.278	.411	-.107	0.219	0.130	-1.2	1.0	0.4	1.0	A+	
717	627414	7	279	.918	.918	.022	.032	.029	.000	.387	.387	-.253	-.168	-.239	-2.430	0.226	-0.7	0.9	-1.7	0.6	A-	
718	627062	7	279	.878	.050	.025	.047	.878	.000	.483	-.322	-.145	-.309	.483	-1.989	0.195	-1.4	0.8	-2.3	0.6	A+	
719	634301	7	279	.563	.186	.093	.158	.563	.000	.423	-.199	-.151	-.242	.423	0.015	0.131	-0.8	1.0	-0.5	1.0	A+	
720	633390	7	279	.308	.122	.333	.237	.308	.000	.365	-.134	.001	-.295	.365	1.255	0.139	-0.7	1.0	-0.5	1.0	A-	
721	639385	7	279	.111	.125	.466	.111	.294	.004	.032	-.258	.241	.032	-.087	2.717	0.201	0.8	1.1	2.3	1.6	A+	
722	639408	7	279	.699	.699	.104	.122	.075	.000	.378	.378	-.226	-.131	-.235	-0.680	0.141	-0.5	1.0	-0.9	0.9	A-	
723	627473	7	280	.407	.404	.407	.071	.118	.000	.292	-.137	.292	-.156	-.112	0.747	0.131	1.4	1.1	1.0	1.1	A+	
724	633405	7	280	.332	.343	.332	.107	.214	.004	.304	-.067	.304	-.074	-.195	1.121	0.136	0.6	1.0	0.4	1.0	A-	
725	628131	7	280	.632	.136	.200	.632	.032	.000	.259	-.104	-.199	.259	-.056	-0.324	0.133	2.0	1.1	1.8	1.1	A+	
726	627363	7	280	.932	.932	.011	.032	.025	.000	.278	.278	-.109	-.197	-.153	-2.625	0.243	0.0	1.0	-0.7	0.8	A+	
727	635669	7	280	.550	.550	.164	.221	.064	.000	.248	.248	-.238	-.017	-.114	0.073	0.130	2.2	1.1	2.2	1.1	A-	
728	639422	7	280	.350	.121	.282	.246	.350	.000	.236	-.201	-.071	-.035	.236	1.030	0.134	1.5	1.1	1.2	1.1	A-	
729	625524	7	280	.446	.446	.239	.096	.218	.000	.358	.358	-.090	-.304	-.121	0.559	0.130	0.3	1.0	0.4	1.0	A+	
730	639424	7	280	.793	.139	.054	.793	.014	.000	.465	-.400	-.178	.465	-.082	-1.239	0.156	-1.9	0.9	-1.9	0.8	A+	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
731	626988	7	280	.254	.307	.154	.254	.282	.004	.266	-.154	-.176	.266	.061	1.558	0.146	0.3	1.0	2.3	1.3	A+	
732	627043	7	280	.800	.039	.089	.068	.800	.004	.547	-.243	-.381	-.236	.547	-1.305	0.159	-1.9	0.8	-2.7	0.7	A+	
733	639374	7	280	.696	.086	.086	.696	.132	.000	.442	-.304	-.334	.442	-.073	-0.658	0.139	-1.4	0.9	-1.2	0.9	A+	
734	639579	7	280	.625	.189	.089	.093	.625	.004	.303	-.105	-.149	-.213	.303	-0.300	0.133	0.8	1.0	0.9	1.1	A+	
735	634302	7	280	.454	.189	.454	.125	.232	.000	.286	-.234	.286	-.185	.025	0.525	0.129	1.6	1.1	1.8	1.1	B+	
736	627782	7	280	.564	.179	.564	.114	.143	.000	.370	-.263	.370	-.104	-.141	0.005	0.130	0.3	1.0	0.1	1.0	A+	
737	628310	7	280	.361	.129	.161	.350	.361	.000	.229	-.223	-.102	.004	.229	0.975	0.134	2.2	1.1	2.2	1.2	A-	
738	630298	7	280	.329	.293	.271	.329	.104	.004	.257	-.008	-.130	.257	-.127	1.089	0.136	1.4	1.1	2.5	1.2	A-	
739	639356	7	280	.471	.471	.129	.250	.143	.007	.084	.084	-.072	.054	-.073	0.373	0.130	5.8	1.3	5.2	1.3	A+	
740	639360	7	280	.439	.050	.104	.439	.404	.004	.161	-.225	-.064	.161	.019	0.540	0.130	4.3	1.2	4.3	1.3	A-	
741	625459	7	280	.889	.071	.889	.025	.011	.004	.388	-.259	.388	-.098	-.189	-2.158	0.201	-0.4	0.9	-0.4	0.9	B+	
742	629848	7	280	.329	.329	.289	.186	.189	.007	.234	.234	-.064	-.098	-.028	1.087	0.136	1.7	1.1	2.9	1.3	A+	
743	623058	7	280	.179	.514	.143	.157	.179	.007	.067	.301	-.205	-.200	.067	2.006	0.163	1.8	1.2	3.3	1.6	A-	
744	625509	7	280	.382	.446	.032	.132	.382	.007	.473	-.281	-.220	-.058	.473	0.815	0.133	-2.0	0.9	-2.1	0.9	A-	
745	635908	7	280	.371	.293	.371	.189	.136	.011	.330	-.151	.330	-.069	-.092	0.862	0.133	0.6	1.0	1.3	1.1	A+	
746	626986	7	280	.686	.079	.143	.086	.686	.007	.632	-.335	-.351	-.173	.632	-0.678	0.140	-4.4	0.8	-4.2	0.7	B+	
747	633850	7	280	.679	.086	.679	.186	.043	.007	.435	-.154	.435	-.219	-.212	-0.639	0.139	-0.9	1.0	-0.4	1.0	A-	
748	627053	7	280	.418	.275	.193	.104	.418	.011	.390	-.114	-.122	-.186	.390	0.634	0.131	-0.1	1.0	0.0	1.0	A+	
749	633133	7	280	.568	.568	.161	.207	.054	.011	.295	.295	-.100	-.100	-.142	-0.086	0.132	2.2	1.1	2.1	1.1	A-	
750	627785	7	280	.432	.207	.114	.432	.236	.011	.377	-.116	-.181	.377	-.107	0.565	0.131	0.4	1.0	-0.2	1.0	A+	
751	635663	7	280	.614	.614	.221	.043	.111	.011	.524	.524	-.264	-.217	-.206	-0.316	0.134	-2.6	0.9	-2.4	0.8	B+	
752	633849	7	280	.539	.236	.129	.539	.086	.011	.413	-.189	-.217	.413	-.058	0.052	0.131	-0.4	1.0	-0.1	1.0	B-	
753	635369	7	280	.929	.929	.014	.032	.011	.014	.363	.363	-.086	-.193	-.090	-2.866	0.263	0.0	1.0	-0.8	0.7	A+	
754	639421	7	280	.171	.154	.546	.171	.114	.014	.128	-.188	.205	.128	-.134	2.055	0.166	0.9	1.1	3.4	1.7	A-	
755	626941	7	280	.761	.761	.064	.068	.107	.000	.381	.381	-.219	-.215	-.177	-1.054	0.149	-0.5	1.0	-0.6	0.9	A+	
756	639365	7	280	.632	.218	.068	.632	.082	.000	.448	-.320	-.145	.448	-.171	-0.344	0.134	-1.3	0.9	-1.2	0.9	A-	
757	639611	7	280	.243	.575	.129	.054	.243	.000	.119	.097	-.188	-.159	.119	1.619	0.149	2.5	1.2	3.6	1.5	A+	
758	639357	7	280	.625	.193	.625	.007	.175	.000	.372	-.323	.372	-.051	-.127	-0.308	0.133	0.2	1.0	-0.1	1.0	A+	
759	635903	7	280	.764	.100	.061	.075	.764	.000	.395	-.236	-.207	-.179	.395	-1.077	0.150	-0.7	0.9	-0.7	0.9	A+	
760	635911	7	280	.450	.132	.239	.179	.450	.000	.341	-.157	-.177	-.107	.341	0.529	0.130	1.1	1.1	0.8	1.1	A-	
761	627051	7	280	.475	.057	.293	.175	.475	.000	.565	-.104	-.493	-.089	.565	0.410	0.130	-4.2	0.8	-3.4	0.8	A+	
762	628130	7	280	.436	.436	.118	.093	.354	.000	.422	.422	-.199	-.152	-.212	0.597	0.130	-0.7	1.0	-0.5	1.0	A+	
763	639409	7	280	.514	.164	.189	.132	.514	.000	.498	-.139	-.215	-.335	.498	0.225	0.129	-2.4	0.9	-2.3	0.9	A-	
764	640044	7	280	.761	.079	.082	.761	.079	.000	.393	-.103	-.233	.393	-.283	-1.054	0.149	-0.7	0.9	-0.5	0.9	A+	
765	633134	7	280	.236	.021	.536	.236	.207	.000	.255	-.150	-.151	.255	-.028	1.664	0.150	1.0	1.1	1.7	1.2	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
766	625511	7	280	.407	.407	.354	.118	.121	.000	.361	.361	-.188	-.158	-.113	0.734	0.131	0.7	1.0	0.0	1.0	A+	
767	639440	7	280	.718	.107	.718	.096	.079	.000	.529	-.234	.529	-.357	-.225	-0.799	0.142	-2.7	0.8	-2.5	0.7	A+	
768	625517	7	280	.575	.575	.157	.154	.114	.000	.392	.392	-.297	-.071	-.190	-0.063	0.131	0.0	1.0	-0.3	1.0	B+	
769	637141	7	280	.314	.221	.432	.314	.032	.000	.215	-.375	.097	.215	.044	1.207	0.138	2.0	1.1	3.3	1.3	C+	
770	635942	7	280	.682	.139	.089	.682	.089	.000	.417	-.217	-.214	.417	-.203	-0.602	0.138	-0.9	1.0	-0.5	0.9	A+	
771	628477	7	280	.343	.211	.343	.282	.164	.000	.311	-.160	.311	-.066	-.143	1.056	0.136	1.1	1.1	1.3	1.1	A+	
772	633846	7	280	.829	.036	.096	.829	.039	.000	.461	-.220	-.307	.461	-.219	-1.484	0.171	-1.0	0.9	-2.1	0.7	A-	A+
773	639373	7	280	.475	.050	.475	.311	.161	.004	.277	-.203	.277	-.079	-.146	0.513	0.130	1.3	1.1	1.6	1.1	A+	A+
774	627001	7	280	.207	.232	.189	.371	.207	.000	.152	.006	-.117	-.037	.152	1.888	0.155	1.3	1.1	2.2	1.3	A-	A-
775	639382	7	280	.593	.121	.593	.139	.146	.000	.315	-.193	.315	-.202	-.062	-0.076	0.132	1.2	1.1	1.4	1.1	A-	B-
776	630728	7	280	.343	.343	.150	.368	.139	.000	.291	.291	-.155	-.011	-.224	1.107	0.135	1.0	1.1	1.5	1.1	A-	A-
777	628322	7	280	.718	.718	.093	.096	.093	.000	.489	.489	-.314	-.186	-.256	-0.733	0.143	-1.6	0.9	-2.1	0.8	A-	A-
778	639414	7	280	.432	.314	.168	.432	.086	.000	.434	-.357	.022	.434	-.205	0.687	0.130	-1.4	0.9	-1.1	0.9	A-	A+
779	635912	7	280	.682	.086	.075	.157	.682	.000	.418	-.230	-.249	-.178	.418	-0.513	0.138	-0.9	1.0	-0.8	0.9	A+	A-
780	633135	7	280	.371	.371	.296	.111	.221	.000	.224	.224	-.185	-.105	.023	0.999	0.133	2.0	1.1	1.9	1.2	A+	A+
781	621154	7	280	.800	.143	.800	.036	.021	.000	.441	-.347	.441	-.154	-.181	-1.186	0.158	-1.3	0.9	-2.0	0.7	A+	A-
782	633453	7	280	.682	.193	.075	.682	.050	.000	.498	-.309	-.273	.498	-.174	-0.552	0.139	-1.8	0.9	-1.7	0.9	A-	A-
783	635349	7	280	.818	.818	.068	.036	.079	.000	.482	.482	-.303	-.244	-.241	-1.426	0.168	-1.1	0.9	-1.7	0.8	A-	A-
784	627067	7	280	.186	.179	.221	.407	.186	.007	.144	-.149	-.038	.067	.144	2.036	0.161	1.1	1.1	2.6	1.4	A-	A-
785	627068	7	280	.536	.132	.171	.536	.161	.000	.388	-.020	-.272	.388	-.230	0.198	0.130	-0.3	1.0	0.3	1.0	A+	A-
786	633391	7	280	.064	.186	.064	.532	.218	.000	-.070	-.069	-.070	.105	-.021	3.593	0.278	0.4	1.1	1.3	1.5	A-	A+
787	635879	7	280	.657	.132	.154	.657	.057	.000	.440	-.237	-.262	.440	-.147	-0.400	0.136	-1.2	0.9	-0.8	0.9	A-	A-
788	624830	7	280	.600	.600	.150	.175	.075	.000	.410	.410	-.148	-.283	-.153	-0.128	0.132	-0.4	1.0	-0.2	1.0	C+	A-
789	633460	7	279	.358	.358	.176	.387	.075	.004	.269	.269	-.061	-.142	-.061	0.884	0.134	1.4	1.1	2.0	1.2	A+	
790	633459	7	279	.602	.602	.136	.140	.118	.004	.426	.426	-.192	-.215	-.146	-0.273	0.131	-1.0	1.0	-1.3	0.9	A-	
791	635880	7	279	.652	.133	.122	.652	.090	.004	.452	-.123	-.340	.452	-.145	-0.523	0.135	-1.5	0.9	-1.3	0.9	A-	
792	628321	7	279	.634	.229	.093	.039	.634	.004	.458	-.199	-.267	-.198	.458	-0.432	0.133	-1.7	0.9	-1.7	0.9	A-	
793	628056	7	279	.294	.373	.294	.179	.151	.004	.353	-.131	.353	.001	-.215	1.221	0.140	-0.2	1.0	0.0	1.0	A+	
794	628148	7	279	.620	.620	.176	.100	.093	.011	.432	.432	-.276	-.123	-.134	-0.379	0.133	-1.1	0.9	-1.1	0.9	A-	
795	626993	7	279	.308	.072	.444	.165	.308	.011	.316	-.223	.028	-.199	.316	1.133	0.138	0.5	1.0	0.7	1.1	A+	
796	639359	7	280	.436	.082	.229	.250	.436	.004	.272	-.153	-.031	-.137	.272	0.544	0.129	1.8	1.1	1.6	1.1	A-	
797	639443	7	280	.446	.325	.089	.446	.132	.007	.248	.030	-.177	.248	-.146	0.491	0.129	2.3	1.1	2.6	1.2	A-	
798	626991	7	280	.682	.154	.086	.682	.071	.007	.514	-.208	-.255	.514	-.217	-0.644	0.138	-2.6	0.9	-2.2	0.8	A+	
799	630414	7	280	.332	.100	.075	.332	.486	.007	.143	-.198	-.261	.143	.196	1.046	0.135	3.1	1.2	3.2	1.3	A+	
800	634076	7	280	.629	.046	.629	.086	.232	.007	.290	-.174	.290	-.202	-.023	-0.369	0.133	1.5	1.1	1.5	1.1	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
801	625529	7	280	.779	.093	.779	.075	.046	.007	.377	-.116	.377	-.137	-.235	-1.213	0.154	-0.3	1.0	-0.3	1.0	A+	
802	630730	7	280	.336	.411	.111	.136	.336	.007	.246	.094	-.177	-.203	.246	1.027	0.135	1.7	1.1	1.2	1.1	A-	
803	627040	7	280	.468	.096	.361	.064	.468	.011	.306	-.155	-.004	-.273	.306	0.384	0.129	1.3	1.1	1.4	1.1	A+	
804	627684	7	280	.775	.036	.107	.082	.775	.000	.338	-.181	-.201	-.165	.338	-1.088	0.154	0.2	1.0	0.0	1.0	A-	B-
805	625487	7	279	.262	.280	.262	.376	.079	.004	.092	-.135	.092	.132	-.084	1.404	0.145	2.8	1.2	3.4	1.4	A-	
806	627464	7	280	.882	.036	.882	.054	.021	.007	.488	-.265	.488	-.196	-.184	-2.072	0.197	-1.0	0.9	-2.0	0.6	A+	
807	639375	7	280	.696	.696	.193	.068	.036	.007	.514	.514	-.297	-.192	-.211	-0.738	0.141	-2.2	0.9	-2.0	0.8	A+	
808	633458	7	280	.693	.693	.057	.096	.154	.000	.325	.325	-.303	-.230	-.033	-0.660	0.139	0.6	1.0	0.5	1.1	A+	
809	626996	7	280	.382	.146	.368	.382	.104	.000	.168	-.201	.025	.168	-.075	0.911	0.132	3.6	1.2	3.4	1.3	A+	A+
810	628098	7	279	.412	.111	.136	.412	.333	.007	.321	-.098	-.133	.321	-.128	0.611	0.131	0.9	1.0	1.0	1.1	A+	
811	639358	7	280	.575	.575	.161	.118	.139	.007	.450	.450	-.223	-.091	-.213	-0.109	0.130	-1.6	0.9	-1.8	0.9	A-	
812	635665	7	280	.318	.221	.189	.257	.318	.014	.315	-.004	-.152	-.110	.315	1.134	0.138	0.5	1.0	1.5	1.1	B+	
813	627361	7	280	.446	.164	.329	.446	.061	.000	.319	-.292	-.074	.319	-.066	0.546	0.130	1.6	1.1	1.1	1.1	B+	
814	627056	7	279	.652	.075	.197	.652	.068	.007	.294	-.078	-.093	.294	-.215	-0.528	0.135	1.3	1.1	1.1	1.1	A-	
815	639407	7	280	.275	.275	.382	.232	.107	.004	.063	.063	.087	.025	-.193	1.353	0.141	3.2	1.2	3.6	1.4	B+	
816	626943	7	280	.732	.061	.057	.732	.143	.007	.413	-.208	-.198	.413	-.159	-0.944	0.146	-0.4	1.0	-0.7	0.9	A-	
817	639364	7	280	.800	.054	.064	.800	.082	.000	.448	-.213	-.292	.448	-.217	-1.314	0.158	-1.2	0.9	-1.8	0.7	B-	
818	633457	7	280	.611	.139	.611	.186	.064	.000	.199	.031	.199	-.112	-.264	-0.164	0.133	3.0	1.2	3.5	1.3	A-	B+
819	626997	7	279	.738	.140	.738	.054	.061	.007	.351	-.110	.351	-.174	-.223	-1.006	0.146	-0.1	1.0	0.3	1.0	B+	
820	630429	7	280	.314	.314	.232	.154	.293	.007	.294	.294	.055	-.190	-.119	1.138	0.137	0.4	1.0	1.1	1.1	B+	
821	625506	7	280	.779	.054	.779	.071	.086	.011	.560	-.235	.560	-.322	-.214	-1.257	0.156	-2.2	0.8	-3.0	0.6	A+	
822	635668	7	280	.196	.361	.311	.132	.196	.000	.152	-.014	.074	-.258	.152	1.929	0.160	1.6	1.2	2.4	1.4	A-	
823	627362	7	280	.650	.650	.036	.054	.261	.000	.379	.379	-.289	-.256	-.158	-0.344	0.135	-0.1	1.0	-0.6	1.0	A-	A+
824	633498	8	144	.507	.076	.507	.368	.049	.000	.163	-.081	.163	-.076	-.109	0.360	0.177	2.3	1.1	1.7	1.1	A+	
825	639580	8	145	.435	.110	.435	.207	.248	.000	.188	-.321	.188	.114	-.091	0.902	0.178	2.2	1.1	2.0	1.2	A-	
826	624848	8	143	.518	.273	.518	.140	.070	.000	.358	-.156	.358	-.132	-.250	0.428	0.178	-0.2	1.0	0.0	1.0	A+	
827	639612	8	144	.639	.639	.188	.118	.056	.000	.252	.252	-.253	-.004	-.091	-0.058	0.184	1.1	1.1	0.7	1.1	A+	
828	628115	8	144	.278	.083	.278	.063	.569	.007	.337	-.205	.337	-.159	-.076	1.419	0.196	-0.4	1.0	0.6	1.1	C-	
829	627963	8	144	.486	.028	.104	.375	.486	.007	.337	-.194	-.215	-.103	.337	0.442	0.177	0.3	1.0	0.0	1.0	A+	
830	628311	8	145	.317	.228	.228	.317	.228	.000	.278	-.117	-.046	.278	-.145	1.472	0.189	0.6	1.0	0.7	1.1	A-	
831	628242	8	143	.469	.175	.469	.126	.231	.000	.193	-.103	.193	-.096	-.061	0.650	0.178	2.0	1.1	2.0	1.1	A+	
832	639857	8	144	.875	.875	.028	.083	.014	.000	.356	.356	-.214	-.292	-.017	-1.568	0.259	-0.5	0.9	-0.4	0.9	A+	
833	639441	8	144	.799	.069	.083	.799	.042	.007	.483	-.206	-.371	.483	-.104	-1.249	0.222	-0.9	0.9	-1.4	0.8	A+	
834	633497	8	145	.524	.055	.214	.207	.524	.000	.317	-.165	-.116	-.181	.317	0.491	0.177	0.6	1.0	0.5	1.0	A+	
835	639588	8	143	.706	.063	.203	.028	.706	.000	.586	-.308	-.401	-.185	.586	-0.481	0.193	-2.5	0.8	-2.7	0.7	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
836	625522	8	144	.833	.007	.833	.104	.056	.000	.403	-.097	.403	-.281	-.245	-1.207	0.232	-0.7	0.9	-1.1	0.8	A-	
837	639610	8	144	.750	.042	.049	.750	.160	.000	.395	-.270	-.286	.395	-.151	-0.896	0.204	-0.7	0.9	-0.8	0.9	A+	
838	624828	8	144	.813	.056	.090	.813	.035	.007	.340	-.082	-.217	.340	-.169	-1.272	0.224	-0.3	1.0	-0.3	0.9	B+	
839	625520	8	145	.641	.117	.641	.041	.200	.000	.318	-.294	.318	-.239	-.026	-0.060	0.184	0.2	1.0	0.6	1.1	A-	
840	625508	8	143	.594	.042	.594	.280	.084	.000	.492	-.286	.492	-.250	-.260	0.075	0.181	-1.9	0.9	-1.9	0.9	A+	
841	626775	8	144	.639	.306	.028	.028	.639	.000	.449	-.318	-.165	-.256	.449	-0.058	0.184	-1.3	0.9	-1.4	0.9	C-	
842	639856	8	144	.819	.819	.042	.083	.042	.014	.548	.548	-.247	-.384	-.161	-1.447	0.236	-1.2	0.8	-2.0	0.6	B+	
843	639439	8	144	.854	.854	.049	.042	.049	.007	.386	.386	-.221	-.215	-.116	-1.606	0.248	-0.5	0.9	-0.9	0.8	A+	
844	627686	8	1298	.508	.012	.474	.005	.508	.002	.263	-.071	-.215	-.089	.263	0.406	0.059	3.5	1.1	2.9	1.1	A+	A+
845	626768	8	1298	.504	.220	.109	.164	.504	.003	.371	-.078	-.231	-.181	.371	0.421	0.060	-0.9	1.0	-0.9	1.0	A+	A-
846	639592	8	1298	.500	.207	.500	.126	.164	.004	.399	-.127	.399	-.192	-.186	0.438	0.060	-1.6	1.0	-1.5	1.0	A-	B-
847	622606	8	1298	.633	.172	.138	.633	.052	.006	.350	-.125	-.158	.350	-.202	-0.195	0.062	0.2	1.0	0.3	1.0	A-	A-
848	624758	8	1298	.307	.307	.201	.197	.289	.007	.265	.265	-.052	-.099	-.084	1.371	0.064	1.8	1.1	3.4	1.2	A+	A+
849	621161	8	1298	.408	.297	.164	.125	.408	.007	.482	-.167	-.195	-.195	.482	0.866	0.060	-6.1	0.9	-4.8	0.9	A-	C-
850	628474	8	1298	.212	.212	.275	.277	.230	.007	.070	.070	-.115	-.015	.129	1.942	0.072	4.6	1.2	5.5	1.4	A-	A+
851	628319	8	1298	.608	.047	.260	.608	.077	.008	.398	-.192	-.181	.398	-.182	-0.076	0.061	-1.5	1.0	-1.7	1.0	A-	A-
852	639600	8	1298	.735	.103	.735	.067	.089	.007	.493	-.246	.493	-.243	-.203	-0.746	0.067	-4.0	0.9	-4.5	0.8	A-	B-
853	633499	8	1298	.498	.140	.218	.498	.135	.009	.345	-.116	-.190	.345	-.079	0.441	0.060	0.6	1.0	1.1	1.0	A+	A+
854	633845	8	145	.600	.021	.145	.228	.600	.007	.398	-.090	-.184	-.191	.398	0.047	0.182	-0.9	0.9	-1.1	0.9	A+	
855	638830	8	145	.766	.766	.041	.103	.083	.007	.191	.191	-.224	.110	-.118	-0.896	0.211	1.1	1.1	1.9	1.4	A+	
856	639595	8	145	.628	.007	.628	.193	.159	.014	.339	.015	.339	-.073	-.216	-0.147	0.187	0.4	1.0	0.0	1.0	A-	
857	622607	8	145	.490	.055	.048	.490	.393	.014	.316	-.208	-.175	.316	-.031	0.519	0.180	1.2	1.1	0.6	1.0	A-	
858	635384	8	145	.435	.200	.124	.435	.228	.014	.118	.004	.082	.118	-.071	0.814	0.181	3.9	1.3	4.0	1.4	A-	
859	639603	8	145	.379	.110	.379	.469	.028	.014	.248	-.094	.248	-.012	-.168	1.049	0.184	1.3	1.1	1.4	1.1	B+	
860	635367	8	145	.531	.241	.069	.145	.531	.014	.501	-.144	-.282	-.168	.501	0.324	0.180	-2.5	0.9	-2.4	0.8	A+	
861	628254	8	145	.669	.276	.669	.021	.021	.014	.378	-.180	.378	-.065	-.215	-0.362	0.192	-0.1	1.0	-0.4	0.9	A+	
862	640047	8	145	.152	.552	.152	.200	.083	.014	.021	.341	.021	-.180	-.175	2.512	0.248	0.9	1.2	2.4	1.7	A+	
863	640045	8	145	.469	.138	.269	.469	.110	.014	.359	-.116	-.169	.359	-.021	0.617	0.180	0.0	1.0	0.2	1.0	A+	
864	627486	8	145	.207	.648	.014	.117	.207	.014	.331	.009	-.106	-.213	.331	2.028	0.217	0.0	1.0	-0.5	0.9	A+	
865	639585	8	145	.435	.386	.069	.435	.097	.014	.433	-.072	-.207	.433	-.237	0.781	0.181	-1.4	0.9	-1.4	0.9	A+	
866	638663	8	145	.807	.090	.807	.048	.041	.014	.500	-.244	.500	-.211	-.127	-1.229	0.230	-0.9	0.9	-1.4	0.7	A-	
867	640050	8	145	.807	.807	.103	.048	.028	.014	.483	.483	-.209	-.200	-.165	-1.176	0.227	-1.2	0.8	-1.4	0.7	A+	
868	639858	8	145	.724	.152	.724	.069	.035	.021	.490	-.227	.490	-.208	-.147	-0.705	0.204	-1.3	0.9	-1.6	0.8	A-	
869	622604	8	145	.855	.041	.041	.855	.062	.000	.235	-.209	-.129	.235	-.063	-1.656	0.246	0.4	1.1	0.5	1.1	A-	
870	639607	8	145	.628	.103	.179	.090	.628	.000	.359	-.184	-.167	-.187	.359	-0.235	0.185	-0.4	1.0	-0.6	0.9	A+	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
871	628245	8	145	.821	.048	.821	.097	.035	.000	.342	-.169	.342	-.280	-.068	-1.374	0.228	-0.1	1.0	0.5	1.1	A+	
872	639598	8	145	.462	.193	.462	.310	.035	.000	.372	-.220	.372	-.126	-.219	0.554	0.180	-0.1	1.0	-0.6	1.0	A-	
873	635905	8	145	.835	.041	.069	.055	.835	.000	.509	-.136	-.355	-.316	.509	-1.482	0.234	-1.4	0.8	-1.8	0.6	A+	
874	638831	8	145	.545	.228	.145	.545	.069	.014	.392	-.016	-.379	.392	-.103	0.134	0.181	0.1	1.0	-0.2	1.0	A-	
875	628122	8	145	.703	.152	.703	.083	.048	.014	.506	-.290	.506	-.156	-.220	-0.679	0.197	-1.4	0.9	-1.5	0.8	B+	
876	635352	8	145	.503	.090	.269	.124	.503	.014	.427	-.168	-.189	-.135	.427	0.332	0.181	-0.4	1.0	-0.2	1.0	A-	
877	640051	8	145	.497	.103	.497	.269	.117	.014	.437	-.176	.437	-.190	-.136	0.365	0.181	-1.8	0.9	-1.1	0.9	C+	
878	640046	8	145	.897	.014	.897	.021	.055	.014	.444	-.183	.444	-.241	-.187	-2.218	0.299	-0.5	0.9	-1.2	0.6	A+	
879	635371	8	145	.317	.497	.117	.317	.055	.014	.138	.148	-.328	.138	.020	1.252	0.192	2.0	1.2	3.1	1.4	A-	
880	633427	8	145	.428	.317	.179	.055	.428	.021	.129	.004	.064	-.184	.129	0.689	0.183	3.8	1.3	3.8	1.4	A+	
881	628121	8	145	.655	.655	.076	.179	.076	.014	.540	.540	-.199	-.339	-.139	-0.415	0.190	-1.8	0.9	-2.2	0.8	A+	
882	635732	8	145	.448	.166	.235	.145	.448	.007	.584	-.354	-.167	-.201	.584	0.600	0.181	-3.5	0.8	-3.3	0.7	B+	
883	639859	8	145	.393	.283	.110	.393	.207	.007	.140	.028	-.031	.140	-.132	0.867	0.184	2.7	1.2	2.5	1.3	A-	
884	628243	8	143	.608	.608	.161	.042	.189	.000	.199	.199	-.081	-.025	-.160	-0.137	0.184	0.9	1.1	1.1	1.1	A-	
885	626950	8	143	.392	.091	.392	.399	.119	.000	.302	-.134	.302	-.157	-.099	0.874	0.182	0.6	1.0	0.3	1.0	A-	
886	639574	8	143	.322	.483	.322	.077	.119	.000	.226	-.187	.226	.030	-.063	1.219	0.189	1.1	1.1	1.1	1.1	A-	
887	622429	8	143	.776	.776	.042	.042	.140	.000	.358	.358	-.168	-.059	-.299	-1.062	0.214	-0.3	1.0	-0.4	0.9	A+	
888	636010	8	143	.657	.112	.175	.657	.049	.007	.334	-.017	-.285	.334	-.228	-0.408	0.190	0.3	1.0	-0.1	1.0	A-	
889	638880	8	143	.685	.105	.168	.685	.042	.000	.413	-.164	-.262	.413	-.219	-0.527	0.193	-0.6	1.0	-0.6	0.9	A+	
890	628253	8	143	.518	.231	.161	.091	.518	.000	.328	.008	-.305	-.192	.328	0.290	0.179	0.4	1.0	0.2	1.0	A+	
891	635934	8	143	.790	.091	.790	.070	.049	.000	.568	-.354	.568	-.331	-.210	-1.109	0.217	-1.7	0.8	-2.2	0.7	A+	
892	640055	8	143	.476	.140	.161	.224	.476	.000	.161	-.008	-.055	-.138	.161	0.483	0.179	2.1	1.1	3.1	1.3	A+	
893	640048	8	143	.413	.056	.252	.280	.413	.000	.406	-.093	-.183	-.221	.406	0.808	0.181	-1.6	0.9	-1.6	0.9	A-	
894	627680	8	143	.294	.294	.294	.231	.182	.000	.253	.253	-.039	-.089	-.157	1.366	0.193	0.4	1.0	0.4	1.1	A-	
895	639442	8	143	.203	.385	.203	.252	.161	.000	.119	-.176	.119	.056	.037	1.955	0.219	0.5	1.1	1.0	1.2	A+	
896	635353	8	143	.867	.035	.042	.867	.056	.000	.531	-.185	-.367	.531	-.317	-1.784	0.262	-0.9	0.8	-2.0	0.5	A-	
897	634075	8	143	.245	.245	.168	.511	.077	.000	.139	.139	-.294	.184	-.157	1.684	0.205	0.8	1.1	1.3	1.2	C+	
898	639860	8	143	.748	.084	.098	.748	.070	.000	.503	-.101	-.346	.503	-.343	-0.885	0.206	-1.4	0.9	-1.8	0.7	A+	
899	636056	8	145	.738	.097	.738	.055	.103	.007	.368	-.126	.368	-.254	-.092	-0.926	0.204	0.1	1.0	-0.1	1.0	A-	
900	640049	8	145	.869	.035	.028	.869	.062	.007	.506	-.229	-.164	.506	-.264	-1.925	0.263	-1.1	0.8	-1.7	0.5	A-	
901	636016	8	145	.890	.007	.069	.890	.028	.007	.357	-.039	-.196	.357	-.127	-2.150	0.283	-0.1	1.0	-0.5	0.8	A-	
902	625550	8	145	.814	.021	.035	.117	.814	.014	.479	-.174	-.069	-.341	.479	-1.484	0.233	-0.8	0.9	-1.4	0.7	A-	
903	621164	8	145	.538	.179	.131	.538	.138	.014	.465	-.166	-.235	.465	-.094	0.119	0.182	-1.3	0.9	-1.4	0.9	B+	
904	639609	8	145	.524	.062	.069	.331	.524	.014	.271	-.150	-.216	.025	.271	0.185	0.181	1.8	1.1	2.1	1.2	A-	
905	640053	8	145	.772	.062	.041	.772	.110	.014	.488	-.165	-.203	.488	-.217	-1.161	0.216	-1.4	0.8	-1.5	0.7	C+	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
906	635935	8	145	.828	.069	.828	.055	.035	.014	.525	-.170	.525	-.216	-.271	-1.574	0.239	-1.5	0.8	-1.9	0.6	A-	
907	628132	8	145	.628	.628	.152	.117	.083	.021	.520	.520	-.235	-.269	-.061	-0.343	0.189	-1.8	0.9	-1.9	0.8	A+	
908	635930	8	145	.538	.110	.538	.159	.172	.021	.251	-.087	.251	-.104	.010	0.105	0.183	1.5	1.1	1.5	1.2	A+	
909	635377	8	145	.255	.400	.255	.124	.200	.021	.088	-.034	.088	.092	.030	1.558	0.205	2.5	1.3	2.9	1.5	A-	
910	621202	8	145	.421	.276	.421	.186	.097	.021	.330	-.105	.330	-.178	.059	0.672	0.183	0.3	1.0	0.8	1.1	A+	
911	635354	8	145	.455	.055	.069	.400	.455	.021	.342	-.111	-.183	-.071	.342	0.504	0.182	1.1	1.1	1.2	1.1	A+	
912	634317	8	145	.524	.145	.159	.152	.524	.021	.420	-.121	-.207	-.078	.420	0.172	0.182	-0.9	0.9	-0.8	0.9	B+	
913	639861	8	145	.221	.248	.221	.255	.255	.021	.062	.025	.062	-.062	.124	1.779	0.215	2.2	1.3	2.8	1.6	A+	
914	627035	8	144	.861	.861	.035	.076	.028	.000	.181	.181	-.186	-.093	-.023	-1.616	0.247	0.1	1.0	0.5	1.1	A-	
915	636001	8	144	.667	.146	.111	.667	.076	.000	.326	-.188	-.142	.326	-.160	-0.387	0.186	-0.3	1.0	-0.6	0.9	A+	
916	639604	8	144	.806	.090	.806	.028	.076	.000	.271	-.076	.271	-.208	-.193	-1.185	0.218	-0.1	1.0	-0.3	0.9	A-	
917	636050	8	144	.708	.028	.083	.181	.708	.000	.249	-.073	-.128	-.172	.249	-0.602	0.192	0.5	1.0	1.1	1.2	A-	
918	636007	8	144	.778	.097	.076	.778	.035	.014	.362	-.168	-.229	.362	-.048	-1.061	0.213	-0.3	1.0	-0.6	0.9	A-	
919	626781	8	144	.486	.111	.132	.486	.264	.007	.386	-.174	-.113	.386	-.179	0.442	0.177	-0.5	1.0	-0.6	1.0	A-	
920	639583	8	144	.486	.090	.250	.167	.486	.007	.244	-.167	.130	-.294	.244	0.442	0.177	1.6	1.1	1.5	1.1	A-	
921	639596	8	144	.215	.215	.472	.208	.097	.007	.127	.127	-.016	-.033	-.032	1.842	0.214	1.3	1.2	1.7	1.3	A+	
922	639581	8	144	.819	.049	.819	.111	.014	.007	.356	-.011	.356	-.309	-.142	-1.323	0.227	-0.5	0.9	0.0	1.0	A+	
923	633501	8	144	.486	.486	.125	.188	.194	.007	.423	.423	-.192	-.193	-.131	0.442	0.177	-1.2	0.9	-1.0	0.9	A+	
924	630671	8	144	.313	.146	.250	.313	.285	.007	.250	-.155	-.016	.250	-.074	1.274	0.191	0.7	1.1	1.5	1.2	A+	
925	628111	8	144	.431	.125	.132	.306	.431	.007	.291	-.057	-.140	-.124	.291	0.697	0.179	1.0	1.1	0.6	1.1	A+	
926	635382	8	144	.215	.361	.181	.236	.215	.007	.224	.077	-.134	-.134	.224	1.842	0.214	0.9	1.1	0.5	1.1	A-	
927	621208	8	144	.549	.063	.201	.181	.549	.007	.488	-.219	-.264	-.164	.488	0.157	0.178	-2.3	0.9	-2.0	0.8	A+	
928	628013	8	144	.375	.299	.208	.375	.111	.007	.275	-.184	.001	.275	-.090	0.960	0.183	0.8	1.1	1.2	1.1	A-	
929	625518	8	144	.410	.167	.257	.410	.160	.007	.423	-.104	-.233	.423	-.127	0.794	0.180	-1.2	0.9	-0.7	0.9	A+	
930	639868	8	144	.347	.229	.347	.236	.181	.007	.393	-.130	.393	-.229	-.037	1.096	0.186	-0.5	1.0	-0.7	0.9	A+	
931	627470	8	145	.448	.331	.172	.448	.048	.000	.319	-.064	-.293	.319	-.085	0.838	0.178	0.5	1.0	0.6	1.1	A+	
932	639601	8	145	.745	.745	.055	.131	.069	.000	.456	.456	-.144	-.275	-.289	-0.608	0.200	-1.1	0.9	-1.5	0.8	A-	
933	634074	8	145	.421	.048	.290	.421	.241	.000	.235	-.033	.071	.235	-.330	0.966	0.179	1.6	1.1	1.4	1.1	A-	
934	639573	8	145	.800	.800	.097	.021	.083	.000	.398	.398	-.250	-.184	-.215	-0.954	0.217	-0.8	0.9	-0.6	0.9	B-	
935	639578	8	145	.793	.041	.083	.083	.793	.000	.443	-.168	-.216	-.314	.443	-0.908	0.214	-0.9	0.9	-1.4	0.8	A-	
936	626819	8	145	.524	.028	.083	.524	.366	.000	.344	-.284	-.194	.344	-.149	0.491	0.177	0.2	1.0	0.3	1.0	B+	
937	628128	8	145	.372	.228	.372	.269	.131	.000	.296	-.109	.296	-.245	.034	1.196	0.182	0.5	1.0	0.8	1.1	A-	
938	635933	8	145	.393	.283	.393	.159	.159	.007	.345	-.062	.345	-.263	-.096	1.091	0.181	0.0	1.0	0.3	1.0	A+	
939	639590	8	145	.579	.117	.207	.097	.579	.000	.585	-.211	-.372	-.238	.585	0.236	0.179	-3.4	0.8	-3.0	0.8	A-	
940	639591	8	145	.662	.152	.662	.062	.124	.000	.536	-.301	.536	-.204	-.292	-0.163	0.186	-2.2	0.8	-2.3	0.8	A+	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
941	628313	8	145	.200	.035	.469	.297	.200	.000	.340	-.239	-.116	-.075	.340	2.162	0.217	-0.3	1.0	-0.2	1.0	A-	
942	635364	8	145	.283	.435	.283	.145	.131	.007	.256	-.125	.256	-.108	-.068	1.639	0.195	0.7	1.1	0.6	1.1	A-	
943	635388	8	145	.255	.255	.193	.331	.221	.000	.087	.087	-.172	.037	.031	1.814	0.200	1.8	1.2	1.9	1.3	A-	
944	633504	8	145	.710	.710	.048	.110	.131	.000	.485	.485	-.138	-.259	-.324	-0.414	0.193	-1.5	0.9	-1.6	0.8	A+	
945	635358	8	145	.572	.076	.262	.572	.083	.007	.358	-.019	-.243	.358	-.202	0.258	0.179	0.0	1.0	0.4	1.0	A+	
946	622609	8	145	.310	.310	.235	.262	.193	.000	.157	.157	-.095	.010	-.094	1.509	0.190	1.4	1.1	2.4	1.3	A-	
947	634304	8	145	.497	.124	.207	.497	.172	.000	.228	-.049	-.278	.228	.040	0.617	0.177	1.7	1.1	1.8	1.1	A+	
948	629913	8	143	.539	.175	.539	.238	.049	.000	.393	-.046	.393	-.354	-.129	0.333	0.178	-0.6	1.0	-0.6	1.0	A+	
949	639602	8	143	.713	.028	.713	.133	.126	.000	.364	-.201	.364	-.379	-.008	-0.518	0.195	-0.7	0.9	0.4	1.0	A-	
950	629912	8	143	.636	.245	.049	.636	.070	.000	.314	-.125	-.154	.314	-.252	-0.125	0.184	0.3	1.0	0.2	1.0	B-	
951	628244	8	143	.776	.042	.063	.776	.119	.000	.351	-.308	-.233	.351	-.087	-0.886	0.210	-0.3	1.0	-0.4	0.9	A+	
952	630386	8	143	.462	.245	.140	.147	.462	.007	.417	.027	-.349	-.261	.417	0.672	0.178	-0.9	1.0	-1.0	0.9	B+	
953	634314	8	143	.364	.224	.364	.154	.259	.000	-.057	-.182	-.057	.007	.230	1.138	0.183	4.2	1.3	3.7	1.4	A-	
954	627694	8	143	.273	.252	.161	.315	.273	.000	.328	-.044	-.138	-.164	.328	1.607	0.197	-0.3	1.0	0.2	1.0	A+	
955	635936	8	143	.413	.294	.175	.413	.119	.000	.430	-.279	-.116	.430	-.126	0.906	0.180	-1.3	0.9	-0.9	0.9	A+	
956	627773	8	143	.308	.203	.308	.203	.287	.000	.381	-.099	.381	-.240	-.087	1.419	0.190	-0.7	1.0	-0.6	0.9	A+	
957	628129	8	143	.406	.259	.147	.406	.189	.000	.258	.089	-.128	.258	-.307	0.939	0.180	0.9	1.1	1.3	1.1	A-	
958	630669	8	143	.217	.217	.280	.273	.231	.000	.060	.060	-.006	-.096	.050	1.940	0.211	1.2	1.1	2.1	1.4	B+	
959	635389	8	143	.434	.196	.182	.434	.189	.000	.227	-.167	-.176	.227	.056	0.810	0.179	1.5	1.1	1.5	1.1	A+	
960	639594	8	143	.559	.147	.154	.140	.559	.000	.242	-.147	-.088	-.105	.242	0.237	0.179	1.3	1.1	1.6	1.1	A+	
961	630413	8	143	.413	.119	.070	.413	.399	.000	.190	-.181	-.310	.190	.090	0.906	0.180	1.8	1.1	2.0	1.2	A+	
962	627979	8	143	.336	.490	.091	.084	.336	.000	.084	.118	-.164	-.186	.084	1.276	0.187	2.5	1.2	2.1	1.2	A+	
963	638828	8	143	.329	.182	.182	.329	.308	.000	.329	-.102	.023	.329	-.269	1.311	0.187	0.1	1.0	-0.2	1.0	A+	
964	635730	8	143	.301	.301	.273	.182	.245	.000	.418	.418	-.140	-.123	-.191	1.455	0.191	-1.1	0.9	-0.8	0.9	A-	
965	630375	8	144	.326	.396	.222	.056	.326	.000	.249	-.146	.014	-.224	.249	1.407	0.188	1.0	1.1	0.8	1.1	A-	
966	636011	8	144	.972	.014	.972	.014	.000	.000	.239	-.137	.239	-.198	.000	-3.234	0.509	0.1	1.0	-0.9	0.5	A-	
967	635459	8	144	.854	.854	.049	.014	.083	.000	.260	.260	-.090	-.264	-.150	-1.377	0.244	-0.1	1.0	0.2	1.0	A-	
968	628117	8	144	.396	.208	.097	.299	.396	.000	.456	-.207	-.020	-.291	.456	1.067	0.181	-1.5	0.9	-1.4	0.9	A+	
969	640054	8	144	.264	.049	.146	.264	.542	.000	.122	-.055	-.069	.122	-.036	1.743	0.199	1.2	1.1	2.6	1.4	A-	
970	635937	8	144	.500	.167	.139	.500	.194	.000	.478	-.282	-.059	.478	-.287	0.588	0.177	-2.0	0.9	-1.8	0.9	B-	
971	639606	8	144	.924	.924	.014	.028	.035	.000	.396	.396	-.174	-.213	-.273	-2.143	0.319	-0.5	0.9	-1.4	0.5	A+	
972	634158	8	144	.625	.243	.083	.625	.049	.000	.270	-.151	-.046	.270	-.248	0.009	0.182	0.8	1.1	1.1	1.1	A+	
973	639575	8	144	.576	.271	.576	.076	.076	.000	.267	-.056	.267	-.157	-.246	0.238	0.179	1.2	1.1	0.6	1.1	A+	
974	640052	8	144	.792	.000	.035	.174	.792	.000	.368	.000	-.216	-.291	.368	-0.908	0.214	-0.4	1.0	-0.8	0.9	A+	
975	622417	8	144	.465	.215	.465	.146	.174	.000	.207	-.129	.207	-.070	-.067	0.745	0.177	2.1	1.1	1.7	1.1	A+	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
976	635731	8	144	.326	.222	.243	.326	.208	.000	.142	-.007	-.198	.142	.052	1.407	0.188	1.8	1.1	2.2	1.3	A-	
977	628320	8	144	.826	.028	.826	.063	.083	.000	.359	-.083	.359	-.251	-.223	-1.154	0.228	-0.3	1.0	-1.0	0.8	A-	
978	634072	8	144	.875	.063	.049	.875	.014	.000	.456	-.290	-.260	.456	-.211	-1.568	0.259	-0.9	0.9	-1.5	0.6	A+	
979	634071	8	144	.264	.639	.056	.042	.264	.000	.475	-.302	-.116	-.190	.475	1.743	0.199	-1.5	0.9	-1.2	0.8	A+	
980	635938	8	144	.375	.299	.201	.375	.125	.000	.288	.002	-.248	.288	-.125	1.166	0.182	0.7	1.0	0.6	1.1	A+	
981	635390	8	144	.451	.125	.451	.264	.160	.000	.026	-.025	.026	-.017	.008	0.809	0.178	4.2	1.3	4.3	1.4	A+	
982	639950	8	144	.792	.153	.792	.028	.028	.000	.306	-.187	.306	-.197	-.149	-1.161	0.216	0.0	1.0	-0.2	1.0	A-	
983	639593	8	144	.507	.507	.160	.146	.188	.000	.444	.444	-.057	-.390	-.163	0.320	0.177	-1.1	0.9	-1.3	0.9	A-	
984	635383	8	144	.382	.194	.382	.278	.146	.000	.109	.064	.109	-.122	-.067	0.897	0.182	2.3	1.2	2.7	1.3	A+	
985	636000	8	144	.792	.063	.049	.792	.076	.021	.495	-.371	-.190	.495	-.207	-1.286	0.226	-1.2	0.9	-1.3	0.8	A-	
986	639576	8	144	.681	.681	.069	.146	.090	.014	.489	.489	-.285	-.308	-.092	-0.560	0.193	-1.3	0.9	-1.3	0.9	A+	
987	638827	8	144	.250	.361	.250	.174	.215	.000	.043	.191	.043	-.128	-.152	1.628	0.203	1.3	1.1	2.0	1.3	A-	
988	639952	8	144	.507	.354	.069	.063	.507	.007	.409	-.091	-.236	-.342	.409	0.304	0.178	-0.7	1.0	-0.7	1.0	A+	
989	633500	8	144	.160	.188	.160	.278	.368	.007	.178	.097	.178	-.122	-.063	2.192	0.236	0.2	1.0	1.8	1.4	A+	
990	628312	8	144	.201	.368	.243	.201	.181	.007	.108	.041	.071	.108	-.196	1.885	0.217	1.0	1.1	1.6	1.3	A+	
991	628247	8	144	.167	.056	.549	.222	.167	.007	.296	-.227	-.123	.050	.296	2.137	0.232	-0.1	1.0	0.0	1.0	A+	
992	627065	8	144	.604	.097	.181	.604	.111	.007	.412	-.339	-.150	.412	-.081	-0.117	0.182	-1.2	0.9	-1.0	0.9	A-	
993	635363	8	144	.396	.090	.396	.340	.167	.007	.058	-.125	.058	.067	-.016	0.819	0.181	3.5	1.2	3.9	1.4	A+	
994	636054	8	144	.361	.319	.361	.215	.097	.007	.229	-.099	.229	.018	-.179	0.987	0.184	1.4	1.1	1.5	1.1	A-	
995	630289	8	144	.743	.076	.049	.743	.125	.007	.624	-.270	-.316	.624	-.347	-0.886	0.204	-2.4	0.8	-2.7	0.6	A+	
996	634316	8	144	.514	.250	.139	.514	.090	.007	.455	-.124	-.318	.455	-.159	0.272	0.178	-1.4	0.9	-1.2	0.9	A-	
997	634155	8	144	.340	.167	.340	.354	.132	.007	.304	-.078	.304	-.035	-.238	1.090	0.186	0.4	1.0	0.5	1.1	A+	
998	627484	8	144	.528	.528	.028	.229	.208	.007	.304	.304	-.202	-.341	.105	0.240	0.178	0.5	1.0	0.3	1.0	A-	
999	636213	8	143	.378	.154	.231	.238	.378	.000	.318	-.072	-.179	-.125	.318	1.071	0.182	0.3	1.0	0.0	1.0	A-	
1000	639599	8	144	.771	.049	.771	.139	.042	.000	.372	-.194	.372	-.290	-.072	-0.774	0.208	-0.4	1.0	-0.8	0.9	A-	
1001	633503	8	144	.688	.049	.181	.083	.688	.000	.235	-.264	-.021	-.159	.235	-0.546	0.191	1.0	1.1	1.6	1.2	A+	
1002	629857	8	144	.278	.104	.278	.438	.174	.007	.360	-.105	.360	-.235	.022	1.463	0.197	-0.2	1.0	-0.1	1.0	A-	
1003	634156	8	145	.283	.283	.062	.166	.490	.000	.301	.301	-.043	-.219	-.088	1.657	0.194	0.3	1.0	0.2	1.0	A+	
1004	639577	8	143	.594	.594	.259	.077	.070	.000	.503	.503	-.261	-.272	-.236	0.075	0.181	-2.1	0.9	-2.0	0.9	A+	
1005	635385	8	144	.236	.076	.236	.243	.444	.000	.384	-.123	.384	-.115	-.164	1.908	0.206	-0.7	0.9	-0.2	1.0	A+	
1006	635351	8	144	.097	.097	.431	.368	.097	.007	.142	-.051	-.204	.191	.142	2.883	0.297	0.0	1.0	0.3	1.1	A+	
1007	627964	8	144	.729	.729	.097	.076	.090	.007	.414	.414	-.181	-.242	-.158	-0.741	0.198	-0.9	0.9	-0.9	0.9	A-	
1008	626786	8	145	.497	.035	.207	.255	.497	.007	.570	-.294	-.302	-.234	.570	0.607	0.178	-3.2	0.8	-3.1	0.8	A-	
1009	636212	8	144	.924	.007	.042	.028	.924	.000	.232	-.206	-.135	-.106	.232	-2.143	0.319	0.0	1.0	-0.4	0.8	A+	
1010	639597	8	144	.750	.049	.132	.750	.063	.007	.417	-.292	-.269	.417	-.100	-0.928	0.206	-0.5	0.9	-0.5	0.9	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1011	633502	8	144	.528	.257	.528	.167	.042	.007	.330	-.145	.330	-.212	-.007	0.252	0.178	0.4	1.0	-0.1	1.0	A+	
1012	629860	8	145	.441	.103	.179	.276	.441	.000	.391	-.036	-.268	-.180	.391	0.870	0.178	-0.4	1.0	-0.6	1.0	A+	
1013	634157	8	143	.664	.042	.245	.049	.664	.000	.220	-.366	.031	-.203	.220	-0.263	0.187	1.0	1.1	1.4	1.2	A-	
1014	639608	8	144	.847	.035	.028	.847	.090	.000	.385	-.316	-.023	.385	-.269	-1.319	0.240	-0.6	0.9	-1.0	0.8	A-	
1015	635386	8	144	.236	.153	.194	.410	.236	.007	.149	-.224	-.240	.265	.149	1.661	0.206	1.2	1.1	1.4	1.2	A-	
1016	635350	8	144	.319	.313	.153	.208	.319	.007	.282	-.195	-.038	-.016	.282	1.238	0.190	0.7	1.1	0.7	1.1	A+	
1017	628143	8	145	.766	.103	.766	.069	.062	.000	.475	-.262	.475	-.295	-.194	-0.731	0.205	-1.2	0.9	-1.8	0.7	A-	
1018	626785	8	143	.580	.580	.126	.063	.231	.000	.428	.428	-.446	-.211	-.030	0.140	0.180	-1.0	0.9	-1.1	0.9	C-	
1019	622816	EC	173	.509	.093	.139	.254	.509	.006	.415	-.116	-.255	-.118	.415	0.496	0.163	-1.3	0.9	-0.4	1.0	A-	
1020	639932	EC	173	.231	.312	.110	.231	.335	.012	.269	.070	-.110	.269	-.145	1.804	0.189	0.1	1.0	0.3	1.0	A+	
1021	639920	EC	171	.515	.146	.123	.515	.211	.006	.503	-.168	-.283	.503	-.165	0.573	0.168	-2.0	0.9	-1.6	0.9	A-	
1022	634313	EC	173	.497	.075	.150	.254	.497	.023	.424	-.146	-.079	-.199	.424	0.474	0.168	-0.4	1.0	-0.3	1.0	A+	
1023	633540	EC	172	.576	.227	.576	.070	.116	.012	.437	-.204	.437	-.151	-.163	0.115	0.169	-0.7	1.0	-0.6	1.0	A+	
1024	622613	EC	173	.457	.121	.249	.457	.150	.023	.389	-.147	-.113	.389	-.024	0.677	0.167	0.2	1.0	-0.1	1.0	A+	
1025	623126	EC	173	.515	.243	.515	.139	.081	.023	.248	-.141	.248	.002	-.125	0.449	0.166	2.2	1.1	2.5	1.2	A-	
1026	639971	EC	174	.626	.626	.149	.092	.092	.040	.468	.468	-.150	-.177	-.059	-0.227	0.172	-1.4	0.9	-1.6	0.9	A-	
1027	629853	EC	174	.253	.149	.253	.368	.213	.017	.353	-.202	.353	.037	-.113	1.930	0.187	-0.3	1.0	0.1	1.0	A+	
1028	630391	EC	173	.734	.127	.734	.058	.046	.035	.490	-.226	.490	-.190	-.132	-0.822	0.196	-1.0	0.9	-1.3	0.8	B+	
1029	622815	EC	174	.764	.764	.121	.052	.058	.006	.342	.342	-.085	-.318	-.067	-0.713	0.192	0.1	1.0	0.4	1.1	A+	
1030	639933	EC	173	.347	.347	.173	.121	.353	.006	.215	.215	-.021	-.148	-.026	1.252	0.171	1.4	1.1	1.2	1.1	A+	
1031	639919	EC	173	.480	.231	.173	.116	.480	.000	.239	-.108	-.065	-.155	.239	0.688	0.165	1.9	1.1	1.6	1.1	A+	
1032	634349	EC	174	.443	.052	.443	.218	.276	.012	.053	-.133	.053	-.154	.264	0.709	0.167	5.7	1.4	5.7	1.5	A+	
1033	633536	EC	174	.454	.132	.454	.305	.092	.017	.394	-.172	.394	-.155	-.107	0.606	0.166	-0.1	1.0	-0.5	1.0	A+	
1034	622611	EC	174	.661	.075	.109	.121	.661	.035	.548	-.174	-.239	-.145	.548	-0.288	0.181	-1.4	0.9	-1.6	0.8	A-	
1035	621166	EC	173	.468	.202	.139	.468	.168	.023	.338	.005	-.221	.338	-.078	0.611	0.169	1.6	1.1	1.5	1.1	B-	
1036	630659	EC	173	.410	.249	.410	.162	.168	.012	.407	-.186	.407	-.084	-.111	0.943	0.166	-1.1	0.9	-0.9	0.9	B+	
1037	629822	EC	173	.335	.335	.121	.330	.197	.017	.354	.354	-.090	-.132	-.044	1.216	0.171	-0.6	1.0	-0.5	1.0	A-	
1038	630392	EC	171	.655	.140	.140	.655	.029	.035	.503	-.277	-.227	.503	-.119	-0.226	0.181	-1.8	0.9	-1.8	0.8	A+	
1039	628028	EC	2595	.086	.825	.050	.030	.086	.009	.270	-.033	-.068	-.052	.270	3.214	0.073	-1.2	0.9	-1.5	0.9	A+	A+
1040	636061	EC	2595	.706	.706	.091	.108	.084	.011	.460	.460	-.220	-.177	-.159	-0.535	0.047	-4.5	0.9	-5.0	0.8	A-	A-
1041	639964	EC	2595	.530	.217	.144	.094	.530	.015	.367	-.155	-.058	-.153	.367	0.352	0.043	1.3	1.0	1.5	1.0	A+	A+
1042	640040	EC	2595	.925	.026	.015	.020	.925	.014	.433	-.160	-.125	-.133	.433	-2.531	0.085	-0.9	0.9	-4.0	0.6	A+	A-
1043	629820	EC	2595	.621	.621	.114	.126	.121	.017	.470	.470	-.196	-.204	-.117	-0.105	0.044	-5.2	0.9	-5.2	0.9	A+	C-
1044	633537	EC	2595	.278	.293	.221	.278	.188	.020	.302	-.024	-.088	.302	-.062	1.620	0.047	0.6	1.0	4.1	1.1	A+	B+
1045	639959	EC	2595	.662	.115	.662	.115	.085	.023	.481	-.154	.481	-.223	-.149	-0.340	0.046	-5.2	0.9	-4.8	0.9	A-	A-

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1046	635484	EC	2595	.558	.155	.148	.558	.115	.024	.417	-.147	-.121	.417	-.132	0.192	0.043	-1.5	1.0	-1.8	1.0	A+	A+
1047	629833	EC	2595	.289	.174	.289	.278	.229	.030	.168	.023	.168	-.116	.088	1.534	0.047	8.0	1.2	9.6	1.3	A-	A-
1048	635741	EC	2595	.600	.118	.131	.600	.121	.031	.410	-.122	-.182	.410	-.093	-0.036	0.044	-0.7	1.0	-1.0	1.0	A+	A-
1049	639954	EC	173	.728	.087	.728	.069	.104	.012	.559	-.246	.559	-.165	-.276	-0.894	0.189	-2.3	0.8	-2.5	0.6	A-	
1050	635482	EC	173	.515	.173	.168	.515	.127	.017	.357	-.111	-.134	.357	-.059	0.280	0.169	0.4	1.0	0.3	1.0	A-	
1051	636019	EC	173	.723	.098	.121	.723	.046	.012	.513	-.222	-.191	.513	-.227	-0.859	0.188	-1.8	0.8	-2.0	0.7	A+	
1052	629825	EC	173	.416	.260	.416	.220	.081	.023	.315	-.060	.315	-.059	-.087	0.705	0.171	2.1	1.1	1.4	1.1	A+	
1053	640020	EC	173	.422	.150	.364	.422	.035	.029	.453	-.161	-.119	.453	-.066	0.671	0.171	-1.7	0.9	-1.1	0.9	A+	
1054	640105	EC	173	.272	.272	.289	.272	.139	.029	.260	.260	-.026	-.061	.059	1.491	0.187	1.4	1.1	2.0	1.3	B-	
1055	635947	EC	173	.335	.249	.254	.335	.133	.029	.228	.089	-.126	.228	.016	1.126	0.178	2.7	1.2	2.6	1.3	A-	
1056	636051	EC	173	.121	.133	.121	.150	.567	.029	.171	-.153	.171	-.230	.353	2.778	0.258	0.1	1.0	1.3	1.4	A-	
1057	640015	EC	173	.630	.093	.116	.630	.127	.035	.500	-.167	-.138	.500	-.131	-0.369	0.177	-1.4	0.9	-1.7	0.8	A+	
1058	640036	EC	173	.549	.549	.139	.156	.116	.041	.573	.573	-.205	-.197	-.113	0.010	0.172	-2.9	0.8	-2.5	0.8	A+	
1059	639990	EC	173	.711	.104	.093	.711	.058	.035	.585	-.169	-.272	.585	-.125	-0.874	0.191	-2.4	0.8	-1.9	0.7	A+	
1060	639994	EC	173	.335	.249	.168	.214	.335	.035	.220	-.053	-.027	.086	.220	1.123	0.178	2.3	1.2	2.6	1.3	A+	
1061	636018	EC	173	.578	.121	.098	.578	.168	.035	.501	-.176	-.162	.501	-.097	-0.123	0.173	-1.3	0.9	-1.4	0.9	B+	
1062	621160	EC	173	.225	.289	.225	.116	.324	.046	.166	.161	.166	-.113	.004	1.810	0.200	1.4	1.2	2.7	1.5	A+	
1063	629856	EC	173	.260	.283	.260	.301	.116	.041	.103	-.008	.103	.096	.067	1.624	0.192	2.4	1.3	2.8	1.5	A-	
1064	639956	EC	171	.275	.146	.275	.328	.234	.018	.194	-.207	.194	.209	-.062	1.675	0.186	1.7	1.2	1.3	1.2	A-	
1065	636060	EC	171	.456	.456	.094	.228	.199	.023	.466	.466	-.035	-.206	-.110	0.692	0.168	-2.3	0.9	-2.1	0.9	A-	
1066	636024	EC	171	.696	.140	.696	.029	.111	.023	.380	-.088	.380	-.195	-.065	-0.491	0.182	0.0	1.0	-0.3	1.0	A-	
1067	639997	EC	171	.637	.035	.064	.637	.240	.023	.432	-.065	-.168	.432	-.148	-0.172	0.175	-1.0	0.9	-1.1	0.9	A+	
1068	639992	EC	171	.556	.368	.053	.556	.000	.023	.240	.049	-.230	.240	.000	0.211	0.169	2.3	1.1	2.0	1.2	A+	
1069	638834	EC	171	.415	.111	.281	.415	.175	.018	.334	-.182	.045	.334	-.111	0.929	0.170	0.8	1.1	0.8	1.1	B+	
1070	630714	EC	171	.532	.059	.532	.135	.257	.018	.384	-.075	.384	-.154	-.083	0.364	0.168	0.1	1.0	0.2	1.0	A+	
1071	636052	EC	171	.444	.117	.199	.444	.222	.018	.321	-.027	-.021	.321	-.137	0.786	0.168	1.1	1.1	1.0	1.1	A-	
1072	640016	EC	171	.737	.164	.041	.041	.737	.018	.415	-.082	-.171	-.166	.415	-0.711	0.189	-0.3	1.0	-0.7	0.9	A-	
1073	640037	EC	171	.801	.053	.029	.094	.801	.023	.468	-.166	-.097	-.134	.468	-1.168	0.211	-0.2	1.0	-0.9	0.8	A+	
1074	639909	EC	171	.866	.035	.866	.018	.059	.023	.434	-.128	.434	-.087	-.080	-1.748	0.252	-0.2	1.0	-0.3	0.9	A+	
1075	639931	EC	171	.175	.175	.304	.263	.234	.023	.146	.146	.053	.005	.029	2.301	0.213	1.0	1.1	1.3	1.3	A+	
1076	635485	EC	171	.281	.234	.211	.281	.246	.029	.255	-.085	-.043	.255	.092	1.599	0.184	0.6	1.1	0.9	1.1	A-	
1077	621389	EC	171	.444	.105	.444	.363	.064	.023	.423	-.062	.423	-.187	-.031	0.782	0.168	-1.0	0.9	-0.9	0.9	B-	
1078	630427	EC	171	.339	.269	.175	.193	.339	.023	.331	-.030	-.131	.002	.331	1.313	0.176	0.0	1.0	-0.4	1.0	B-	
1079	639940	EC	173	.515	.243	.515	.035	.208	.000	.174	-.220	.174	-.067	.049	0.470	0.163	2.7	1.1	3.5	1.3	A-	
1080	635486	EC	173	.486	.121	.486	.243	.139	.012	.366	-.229	.366	-.078	-.103	0.595	0.163	-0.7	1.0	-0.7	1.0	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1081	640072	EC	173	.815	.052	.069	.815	.058	.006	.369	-.086	-.180	.369	-.190	-1.155	0.208	-0.2	1.0	-0.4	0.9	B+	
1082	640071	EC	173	.653	.029	.272	.041	.653	.006	.449	-.204	-.227	-.225	.449	-0.189	0.170	-2.0	0.9	-1.3	0.9	A+	
1083	625530	EC	173	.624	.041	.272	.624	.058	.006	.220	-.086	-.056	.220	-.132	-0.046	0.168	1.6	1.1	1.5	1.1	A-	
1084	640085	EC	173	.642	.168	.642	.104	.075	.012	.305	-.028	.305	-.244	-.088	-0.147	0.170	0.8	1.1	0.8	1.1	B+	
1085	640001	EC	173	.405	.439	.041	.098	.405	.017	.273	-.021	-.211	-.131	.273	0.959	0.166	1.0	1.1	0.5	1.0	B+	
1086	640087	EC	173	.347	.046	.405	.347	.191	.012	.191	-.212	-.003	.191	.006	1.254	0.171	2.2	1.2	1.6	1.2	A-	
1087	638881	EC	173	.312	.312	.243	.254	.173	.017	.256	.256	-.128	-.060	.036	1.459	0.176	0.6	1.0	1.3	1.1	A+	
1088	635583	EC	173	.561	.116	.202	.561	.110	.012	.281	-.104	-.103	.281	-.055	0.243	0.165	1.2	1.1	1.3	1.1	A+	
1089	630715	EC	173	.434	.104	.214	.434	.237	.012	.185	.043	-.023	.185	-.112	0.861	0.165	2.4	1.1	2.2	1.2	A+	
1090	636053	EC	173	.399	.179	.399	.231	.179	.012	.276	-.121	.276	-.101	.003	0.998	0.166	1.0	1.1	1.3	1.1	B-	
1091	639969	EC	173	.480	.197	.480	.208	.104	.012	.343	-.151	.343	-.077	-.106	0.618	0.163	0.2	1.0	0.5	1.0	A+	
1092	640018	EC	173	.809	.809	.104	.052	.023	.012	.453	.453	-.240	-.221	-.052	-1.146	0.209	-0.7	0.9	-1.5	0.7	A+	
1093	635877	EC	173	.480	.220	.098	.191	.480	.012	.516	-.182	-.140	-.236	.516	0.618	0.163	-3.4	0.8	-2.8	0.8	C+	
1094	640025	EC	173	.844	.844	.017	.052	.064	.023	.425	.425	-.133	-.193	-.106	-1.497	0.235	-0.3	0.9	-0.8	0.8	A-	
1095	629818	EC	173	.422	.098	.087	.382	.422	.012	.418	-.170	-.101	-.164	.418	0.888	0.165	-1.5	0.9	-0.4	1.0	A-	
1096	639928	EC	173	.358	.358	.214	.225	.191	.012	.274	.274	-.160	-.099	.058	1.225	0.170	0.6	1.0	0.6	1.1	A+	
1097	621165	EC	173	.260	.168	.318	.231	.260	.023	.294	-.135	.047	-.121	.294	1.709	0.185	0.2	1.0	0.9	1.1	A+	
1098	640092	EC	173	.434	.162	.185	.434	.191	.029	.294	-.032	-.168	.294	-.022	0.832	0.166	0.8	1.0	0.8	1.1	B+	
1099	628027	EC	173	.272	.260	.249	.272	.202	.017	.299	-.139	-.034	.299	-.031	1.642	0.182	0.0	1.0	0.9	1.1	C-	
1100	621157	EC	173	.451	.179	.451	.156	.197	.017	.334	-.080	.334	-.123	-.114	0.734	0.164	0.3	1.0	0.4	1.0	A-	
1101	630428	EC	173	.278	.278	.133	.387	.185	.017	.458	.458	-.167	-.165	-.059	1.642	0.182	-1.8	0.9	-1.8	0.8	A-	
1102	639953	EC	174	.460	.460	.477	.012	.046	.006	.337	.337	-.202	-.146	-.095	0.857	0.165	0.9	1.1	0.5	1.0	A-	
1103	629917	EC	174	.575	.224	.138	.575	.058	.006	.400	-.199	-.169	.400	-.107	0.311	0.166	-0.8	1.0	0.2	1.0	A+	
1104	640078	EC	174	.575	.264	.575	.121	.035	.006	.410	-.200	.410	-.119	-.244	0.311	0.166	-0.3	1.0	-0.9	0.9	A+	
1105	638882	EC	174	.431	.161	.293	.109	.431	.006	.414	-.273	-.095	-.095	.414	0.994	0.166	-0.7	1.0	-0.7	0.9	B+	
1106	636006	EC	174	.615	.052	.293	.035	.615	.006	.242	-.214	-.030	-.138	.242	0.114	0.169	2.0	1.1	2.2	1.2	A-	
1107	639970	EC	174	.828	.828	.103	.040	.017	.012	.402	.402	-.202	-.118	-.287	-1.207	0.218	-0.7	0.9	-0.4	0.9	A-	
1108	640002	EC	174	.489	.069	.098	.333	.489	.012	.518	-.199	-.238	-.233	.518	0.702	0.165	-3.1	0.8	-2.4	0.8	A-	
1109	640096	EC	174	.569	.138	.569	.247	.040	.006	.299	-.143	.299	-.138	-.041	0.338	0.166	1.5	1.1	1.0	1.1	A+	
1110	635988	EC	174	.333	.253	.184	.213	.333	.017	.245	-.044	-.128	.021	.245	1.479	0.174	1.9	1.1	1.3	1.1	B-	
1111	635586	EC	174	.845	.023	.086	.845	.040	.006	.340	-.216	-.016	.340	-.278	-1.309	0.224	-0.2	1.0	1.0	1.2	A+	
1112	629851	EC	174	.598	.075	.598	.155	.167	.006	.427	-.224	.427	-.217	-.108	0.199	0.168	-0.7	1.0	-0.9	0.9	A-	
1113	640093	EC	174	.672	.672	.178	.092	.052	.006	.523	.523	-.235	-.276	-.200	-0.181	0.175	-2.4	0.8	-1.9	0.8	A+	
1114	640091	EC	174	.816	.103	.816	.063	.012	.006	.443	-.263	.443	-.203	-.099	-1.075	0.210	-0.8	0.9	-0.6	0.9	A-	
1115	640024	EC	174	.897	.017	.052	.897	.029	.006	.510	-.130	-.274	.510	-.276	-1.839	0.266	-0.9	0.8	-2.0	0.5	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1116	625507	EC	174	.379	.132	.328	.155	.379	.006	.447	-.107	-.139	-.232	.447	1.248	0.169	-1.3	0.9	-0.9	0.9	A-	
1117	639900	EC	174	.276	.126	.333	.276	.241	.023	.316	-.093	-.081	.316	-.049	1.781	0.183	0.2	1.0	0.9	1.1	A+	
1118	640043	EC	174	.517	.517	.092	.052	.322	.017	.342	.342	-.173	-.228	-.036	0.570	0.165	0.9	1.1	0.6	1.1	A+	
1119	629819	EC	174	.328	.161	.328	.247	.247	.017	.203	-.162	.203	-.068	.109	1.504	0.175	1.9	1.1	3.0	1.4	A+	
1120	625533	EC	174	.299	.167	.230	.287	.299	.017	.419	-.105	-.071	-.154	.419	1.661	0.179	-0.9	0.9	-0.7	0.9	B-	
1121	639929	EC	174	.178	.253	.213	.178	.339	.017	.096	-.041	.034	.096	.043	2.442	0.211	1.6	1.2	2.3	1.5	A-	
1122	635948	EC	174	.276	.126	.253	.276	.328	.017	.284	-.088	-.078	.284	-.023	1.793	0.183	0.6	1.1	1.4	1.2	A-	
1123	636025	EC	174	.218	.310	.236	.213	.218	.023	.246	-.010	.036	-.153	.246	2.139	0.197	0.7	1.1	1.3	1.2	A-	
1124	635739	EC	174	.264	.287	.149	.264	.276	.023	.302	-.073	-.083	.302	-.039	1.852	0.185	0.5	1.0	0.8	1.1	A-	
1125	630652	EC	173	.780	.780	.029	.121	.069	.000	.331	.331	-.067	-.187	-.256	-0.964	0.193	0.0	1.0	0.1	1.0	A+	
1126	639946	EC	173	.254	.694	.254	.017	.035	.000	.168	-.053	.168	-.115	-.185	1.667	0.184	0.9	1.1	0.7	1.1	A-	
1127	640090	EC	173	.445	.023	.266	.445	.260	.006	.261	-.154	-.140	.261	-.024	0.708	0.162	1.2	1.1	1.1	1.1	A+	
1128	635580	EC	173	.815	.133	.029	.017	.815	.006	.449	-.256	-.202	-.147	.449	-1.202	0.206	-1.1	0.9	-1.8	0.7	A+	
1129	629852	EC	173	.254	.254	.121	.185	.428	.012	.249	.249	-.119	-.003	-.026	1.663	0.184	0.3	1.0	0.8	1.1	A-	
1130	639972	EC	173	.526	.104	.526	.127	.231	.012	.260	-.120	.260	-.066	-.038	0.332	0.162	1.3	1.1	1.6	1.1	A-	
1131	640104	EC	173	.509	.197	.202	.509	.081	.012	.416	-.133	-.161	.416	-.127	0.411	0.162	-1.4	0.9	-1.6	0.9	A-	
1132	622423	EC	173	.491	.179	.491	.225	.093	.012	.331	-.054	.331	-.197	-.025	0.490	0.162	0.2	1.0	0.2	1.0	A+	
1133	640089	EC	173	.393	.104	.353	.393	.133	.017	.223	-.180	.093	.223	-.117	0.934	0.166	1.5	1.1	1.8	1.1	B+	
1134	635587	EC	173	.630	.035	.630	.052	.272	.012	.423	-.169	.423	-.189	-.170	-0.155	0.168	-1.1	0.9	-1.2	0.9	A-	
1135	640008	EC	173	.497	.225	.173	.497	.093	.012	.279	.105	-.225	.279	-.148	0.463	0.162	1.1	1.1	1.3	1.1	A+	
1136	630395	EC	173	.688	.173	.087	.035	.688	.017	.457	-.136	-.207	-.221	.457	-0.465	0.176	-1.3	0.9	-1.5	0.8	A+	
1137	640102	EC	173	.335	.335	.145	.173	.335	.012	.325	.089	-.183	-.200	.325	1.225	0.170	-0.1	1.0	-0.1	1.0	B+	
1138	640026	EC	173	.902	.046	.902	.035	.000	.017	.422	-.160	.422	-.211	.000	-2.152	0.285	-0.2	0.9	-1.2	0.6	B+	
1139	628030	EC	173	.231	.145	.405	.208	.231	.012	.310	-.133	.067	-.151	.310	1.802	0.189	-0.3	1.0	-0.1	1.0	A-	
1140	639901	EC	173	.243	.243	.162	.370	.214	.012	.239	.239	-.011	-.081	-.009	1.732	0.186	0.2	1.0	1.1	1.2	A+	
1141	622418	EC	173	.324	.145	.312	.324	.202	.017	.129	.048	.016	.129	-.063	1.278	0.172	2.5	1.2	1.9	1.2	A+	
1142	629834	EC	173	.214	.208	.353	.214	.214	.012	.332	-.078	-.088	-.016	.332	1.913	0.194	-0.7	0.9	0.1	1.0	B-	
1143	639930	EC	173	.335	.358	.335	.156	.127	.023	.156	.027	.156	-.043	-.031	1.209	0.171	2.0	1.1	2.2	1.2	A+	
1144	630297	EC	173	.353	.116	.231	.353	.283	.017	.121	-.117	.096	.121	-.007	1.129	0.169	2.6	1.2	2.9	1.3	A-	
1145	622608	EC	173	.543	.543	.127	.179	.133	.017	.451	.451	-.134	-.111	-.233	0.238	0.163	-2.0	0.9	-1.9	0.9	B+	
1146	621391	EC	173	.295	.127	.266	.295	.295	.017	.378	.020	-.163	-.107	.378	1.428	0.176	-1.0	0.9	-0.5	0.9	A+	
1147	635888	EC	173	.278	.289	.278	.306	.098	.029	.237	-.053	.237	.026	-.119	1.505	0.180	0.7	1.1	0.8	1.1	A+	
1148	639938	EC	173	.763	.763	.052	.058	.121	.006	.391	.391	-.230	-.204	-.105	-0.771	0.192	-0.9	0.9	-1.1	0.8	A+	
1149	639947	EC	173	.428	.202	.046	.318	.428	.006	.375	-.121	-.234	-.117	.375	0.854	0.166	-0.9	1.0	-0.6	1.0	A-	
1150	640098	EC	173	.659	.220	.052	.659	.064	.006	.342	-.126	-.173	.342	-.155	-0.240	0.174	0.2	1.0	0.0	1.0	A+	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1151	636058	EC	173	.069	.069	.387	.462	.069	.012	.094	-.052	.338	-.280	.094	3.617	0.333	0.2	1.0	-0.1	0.9	A-	
1152	630381	EC	173	.838	.064	.052	.838	.041	.006	.427	-.241	-.228	.427	-.071	-1.419	0.228	-0.3	1.0	-0.9	0.8	A-	
1153	639973	EC	173	.688	.093	.688	.093	.116	.012	.465	-.169	.465	-.204	-.215	-0.446	0.181	-1.2	0.9	-1.3	0.9	A-	
1154	640009	EC	173	.451	.214	.185	.451	.145	.006	.462	-.036	-.204	.462	-.291	0.771	0.165	-2.0	0.9	-2.1	0.9	A-	
1155	622433	EC	173	.353	.318	.353	.191	.133	.006	.203	.160	.203	-.178	-.200	1.222	0.171	1.7	1.1	2.0	1.2	A-	
1156	628250	EC	173	.538	.093	.208	.538	.150	.012	.285	-.090	-.127	.285	-.074	0.323	0.166	1.5	1.1	1.3	1.1	A+	
1157	635588	EC	173	.734	.116	.734	.098	.041	.012	.380	-.136	.380	-.194	-.123	-0.730	0.190	0.3	1.0	-0.4	0.9	A+	
1158	630394	EC	173	.538	.272	.093	.538	.087	.012	.443	-.229	-.045	.443	-.226	0.342	0.166	-1.5	0.9	-1.7	0.9	B+	
1159	634315	EC	173	.249	.093	.249	.561	.087	.012	.074	-.095	.074	.105	-.049	1.816	0.188	2.0	1.2	3.4	1.5	A-	
1160	640061	EC	173	.584	.064	.173	.584	.168	.012	.284	-.263	-.099	.284	.011	0.147	0.168	1.5	1.1	0.9	1.1	A-	
1161	640027	EC	173	.775	.156	.775	.041	.017	.012	.473	-.314	.473	-.141	-.102	-1.001	0.203	-0.7	0.9	-1.1	0.8	A-	
1162	629821	EC	173	.578	.110	.225	.075	.578	.012	.442	-.261	-.159	-.104	.442	0.147	0.168	-1.1	0.9	-1.0	0.9	A-	
1163	639910	EC	173	.890	.017	.064	.890	.006	.023	.437	-.066	-.248	.437	-.216	-2.129	0.295	-0.2	1.0	-0.5	0.8	A+	
1164	628014	EC	173	.162	.104	.665	.162	.052	.017	-.090	-.217	.303	-.090	.008	2.461	0.223	1.2	1.2	3.2	1.8	A-	
1165	639925	EC	173	.376	.278	.376	.231	.087	.029	.365	-.006	.365	-.160	-.132	1.067	0.170	-0.2	1.0	-0.2	1.0	A+	
1166	639998	EC	173	.607	.254	.046	.064	.607	.029	.503	-.167	-.289	-.200	.503	-0.045	0.171	-2.4	0.9	-1.8	0.9	A+	
1167	625548	EC	173	.243	.168	.243	.301	.260	.029	.049	.041	.049	-.148	.216	1.783	0.189	2.4	1.2	3.3	1.5	B-	
1168	621158	EC	173	.607	.150	.075	.139	.607	.029	.520	-.197	-.149	-.235	.520	-0.045	0.171	-2.9	0.8	-2.7	0.8	A-	
1169	640062	EC	173	.827	.827	.064	.046	.035	.029	.469	.469	-.280	-.208	-.013	-1.519	0.236	-0.6	0.9	-0.6	0.8	A+	
1170	636475	EC	173	.116	.116	.162	.428	.260	.035	.007	.007	-.167	.144	.104	2.828	0.253	0.6	1.1	2.8	1.9	A-	
1171	639957	EC	171	.661	.193	.088	.047	.661	.012	.175	.064	-.171	-.119	.175	-0.154	0.178	2.8	1.2	2.5	1.3	A+	
1172	639948	EC	171	.819	.140	.023	.819	.012	.006	.315	-.200	-.078	.315	-.076	-1.171	0.216	0.4	1.0	0.9	1.2	A-	
1173	630660	EC	171	.111	.111	.246	.099	.532	.012	.033	.033	-.181	-.001	.210	3.049	0.255	1.0	1.2	3.0	2.2	A+	
1174	640099	EC	171	.754	.076	.754	.070	.094	.006	.470	-.206	.470	-.219	-.205	-0.712	0.194	-1.1	0.9	-1.3	0.8	A-	
1175	636059	EC	171	.614	.228	.614	.070	.070	.018	.532	-.365	.532	-.114	-.119	0.050	0.174	-2.1	0.9	-2.2	0.8	A-	
1176	635886	EC	171	.784	.047	.784	.064	.099	.006	.427	-.193	.427	-.206	-.176	-0.909	0.202	-0.6	0.9	-0.6	0.9	B+	
1177	627975	EC	171	.637	.053	.637	.222	.082	.006	.208	-.099	.208	-.076	-.052	-0.040	0.175	2.9	1.2	2.0	1.2	A+	
1178	627045	EC	171	.749	.035	.082	.749	.123	.012	.393	-.048	-.321	.393	-.121	-0.704	0.194	-0.2	1.0	0.6	1.1	C+	
1179	622420	EC	171	.474	.152	.263	.474	.099	.012	.548	-.213	-.223	.548	-.217	0.757	0.169	-2.9	0.8	-2.7	0.8	A+	
1180	635589	EC	171	.690	.690	.070	.047	.187	.006	.451	.451	-.311	-.238	-.120	-0.325	0.181	-0.8	0.9	-1.1	0.9	A+	
1181	635950	EC	171	.836	.053	.059	.047	.836	.006	.508	-.159	-.271	-.271	.508	-1.318	0.225	-1.1	0.9	-1.9	0.6	A+	
1182	639926	EC	171	.784	.053	.064	.094	.784	.006	.451	-.258	-.163	-.193	.451	-0.909	0.202	-0.7	0.9	-1.3	0.8	A+	
1183	626928	EC	171	.252	.252	.252	.310	.175	.012	.297	.297	-.131	-.066	-.011	1.931	0.190	0.3	1.0	1.0	1.2	A-	
1184	640029	EC	171	.842	.076	.029	.041	.842	.012	.464	-.306	-.145	-.143	.464	-1.421	0.232	-0.8	0.9	-1.2	0.7	B+	
1185	634319	EC	171	.158	.059	.626	.140	.158	.018	.159	-.111	.130	-.157	.159	2.635	0.225	0.6	1.1	2.1	1.6	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1186	639996	EC	171	.456	.175	.456	.228	.129	.012	.455	-.202	.455	-.178	-.118	0.833	0.169	-0.8	1.0	-0.8	0.9	A-	
1187	630390	EC	171	.240	.345	.275	.240	.123	.018	.096	.047	-.037	.096	-.018	1.983	0.193	2.2	1.2	3.7	1.7	A-	
1188	640077	EC	171	.790	.790	.088	.064	.035	.023	.524	.524	-.275	-.204	-.233	-1.068	0.211	-1.5	0.8	-1.4	0.7	A-	
1189	639999	EC	171	.760	.012	.187	.760	.018	.023	.062	-.085	.142	.062	-.190	-0.844	0.201	2.7	1.3	4.8	2.1	A+	
1190	639902	EC	171	.544	.544	.099	.146	.193	.018	.450	.450	-.178	-.242	-.112	0.385	0.170	-0.7	1.0	-0.7	0.9	A-	
1191	621394	EC	171	.714	.059	.105	.105	.714	.018	.528	-.245	-.297	-.159	.528	-0.523	0.188	-1.7	0.9	-1.6	0.8	A+	
1192	630407	EC	171	.345	.211	.152	.257	.345	.035	.215	.088	-.211	-.037	.215	1.346	0.177	2.7	1.2	2.1	1.2	A-	
1193	640010	EC	171	.450	.181	.450	.181	.152	.035	.272	-.147	.272	-.134	.048	0.830	0.171	1.9	1.1	1.7	1.2	A-	
1194	639958	EC	173	.642	.225	.642	.087	.041	.006	.400	-.212	.400	-.223	-.183	-0.117	0.172	-0.4	1.0	-0.5	1.0	A+	
1195	639941	EC	173	.665	.665	.179	.012	.139	.006	.469	.469	-.348	-.143	-.208	-0.233	0.174	-1.4	0.9	-1.7	0.8	A+	
1196	636004	EC	173	.358	.191	.098	.358	.353	.000	.251	-.191	-.154	.251	.002	1.275	0.171	0.9	1.1	1.2	1.1	A-	
1197	640100	EC	173	.890	.041	.890	.058	.012	.000	.399	-.284	.399	-.219	-.164	-1.791	0.253	-0.7	0.9	-1.2	0.7	A+	
1198	630662	EC	173	.619	.619	.214	.035	.133	.000	.453	.453	-.237	-.270	-.216	0.027	0.169	-1.4	0.9	-1.5	0.9	A-	
1199	628020	EC	173	.214	.173	.480	.214	.133	.000	.224	-.419	.113	.224	.031	2.102	0.197	0.6	1.1	1.4	1.2	A+	
1200	640057	EC	173	.711	.121	.093	.711	.058	.017	.336	-.132	-.184	.336	-.139	-0.524	0.183	0.4	1.0	-0.2	1.0	B-	
1201	628011	EC	173	.266	.266	.075	.104	.543	.012	.178	.178	-.049	-.165	-.010	1.735	0.184	1.0	1.1	2.6	1.4	B+	
1202	630661	EC	173	.289	.254	.249	.197	.289	.012	.380	-.052	-.167	-.168	.380	1.603	0.180	-0.1	1.0	0.1	1.0	A-	
1203	640082	EC	173	.474	.474	.150	.075	.295	.006	.459	.459	-.231	-.222	-.172	0.690	0.165	-1.5	0.9	-1.3	0.9	B+	
1204	628475	EC	173	.399	.150	.399	.116	.324	.012	.279	-.194	.279	-.099	-.054	1.033	0.168	1.8	1.1	1.6	1.1	A-	
1205	635949	EC	173	.665	.058	.098	.665	.162	.017	.586	-.334	-.274	.586	-.277	-0.292	0.176	-3.0	0.8	-3.0	0.7	A-	
1206	639903	EC	173	.642	.075	.642	.231	.035	.017	.523	-.104	.523	-.424	-.084	-0.156	0.173	-1.8	0.9	-1.8	0.8	A-	
1207	640033	EC	173	.595	.104	.104	.595	.179	.017	.400	-.180	-.221	.400	-.116	0.078	0.169	-0.1	1.0	-0.1	1.0	A-	
1208	640000	EC	173	.266	.549	.266	.168	.000	.017	.013	.016	.013	.042	.000	1.719	0.183	2.9	1.3	3.8	1.6	B+	
1209	630672	EC	173	.295	.249	.231	.202	.295	.023	.195	.013	-.063	-.095	.195	1.542	0.179	1.9	1.2	1.4	1.2	A+	
1210	639927	EC	173	.676	.104	.676	.121	.081	.017	.574	-.315	.574	-.208	-.278	-0.341	0.177	-2.5	0.8	-2.3	0.8	A-	
1211	640022	EC	173	.376	.370	.121	.110	.376	.023	.286	.088	-.279	-.193	.286	1.119	0.170	1.3	1.1	1.1	1.1	A-	
1212	627689	EC	173	.335	.214	.110	.335	.324	.017	.068	.071	-.268	.068	.110	1.339	0.173	3.6	1.3	3.1	1.4	A+	
1213	628064	EC	173	.740	.069	.740	.093	.081	.017	.428	-.218	.428	-.216	-.150	-0.710	0.189	-0.4	1.0	-0.9	0.9	A-	
1214	634318	EC	173	.283	.283	.457	.197	.041	.023	.137	.137	.001	.015	-.170	1.615	0.180	2.2	1.2	3.0	1.4	A+	
1215	621392	EC	173	.538	.041	.358	.538	.041	.023	.556	-.132	-.347	.556	-.255	0.347	0.167	-2.8	0.9	-2.7	0.8	A+	
1216	640074	EC	173	.480	.179	.087	.225	.480	.029	.508	-.234	-.208	-.169	.508	0.606	0.166	-2.1	0.9	-1.7	0.9	A+	
1217	639960	EC	173	.376	.202	.197	.376	.214	.012	.279	-.195	-.149	.279	.090	1.088	0.172	2.0	1.1	2.1	1.2	B+	
1218	639955	EC	173	.821	.029	.821	.127	.017	.006	.366	-.122	.366	-.218	-.140	-1.330	0.213	-0.3	1.0	-0.8	0.8	B-	
1219	640058	EC	173	.468	.468	.341	.139	.046	.006	.189	.189	.028	-.194	-.055	0.637	0.167	3.1	1.2	3.4	1.3	A+	
1220	640101	EC	173	.520	.249	.520	.179	.041	.012	.401	-.210	.401	-.109	-.124	0.382	0.167	0.6	1.0	0.2	1.0	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1221	636057	EC	173	.717	.133	.717	.087	.058	.006	.408	-.132	.408	-.226	-.199	-0.634	0.184	-0.4	1.0	-0.6	0.9	A+	
1222	635461	EC	173	.486	.133	.081	.289	.486	.012	.535	-.136	-.176	-.306	.535	0.542	0.168	-2.4	0.9	-2.1	0.8	B-	
1223	639975	EC	173	.763	.069	.104	.763	.046	.017	.443	-.157	-.273	.443	-.025	-0.951	0.196	-0.7	0.9	-0.8	0.9	B+	
1224	640034	EC	173	.272	.029	.023	.272	.665	.012	.321	-.271	-.115	.321	-.073	1.662	0.185	0.3	1.0	1.4	1.2	A+	
1225	640011	EC	173	.832	.023	.832	.017	.104	.023	.390	-.171	.390	-.124	-.129	-1.528	0.228	0.3	1.0	0.0	1.0	A-	
1226	640064	EC	173	.728	.046	.110	.728	.098	.017	.515	-.231	-.243	.515	-.159	-0.742	0.189	-1.5	0.9	-1.3	0.8	A-	
1227	640075	EC	173	.590	.590	.127	.150	.116	.017	.519	.519	-.220	-.222	-.143	0.022	0.171	-1.9	0.9	-1.9	0.8	A-	
1228	639982	EC	173	.243	.306	.243	.335	.093	.023	.002	.110	.002	.042	-.021	1.828	0.192	3.6	1.4	4.3	1.9	A+	
1229	639904	EC	173	.890	.041	.890	.046	.000	.023	.507	-.201	.507	-.255	.000	-2.169	0.280	-0.5	0.9	-1.5	0.5	A-	
1230	622818	EC	173	.590	.191	.116	.081	.590	.023	.578	-.195	-.185	-.305	.578	0.006	0.172	-2.9	0.8	-2.9	0.7	B+	
1231	630393	EC	173	.786	.121	.046	.023	.786	.023	.525	-.315	-.116	-.150	.525	-1.161	0.207	-1.4	0.8	-0.7	0.9	A-	
1232	630673	EC	173	.214	.272	.214	.208	.278	.029	.126	.019	.126	.080	-.048	2.015	0.200	1.8	1.2	3.3	1.7	A+	
1233	634303	EC	173	.746	.746	.075	.093	.058	.029	.523	.523	-.202	-.216	-.140	-0.892	0.196	-1.0	0.9	-1.8	0.7	A-	
1234	640042	EC	173	.751	.098	.081	.751	.035	.035	.541	-.245	-.167	.541	-.165	-0.960	0.199	-1.2	0.9	-1.7	0.7	A+	
1235	629828	EC	173	.260	.347	.260	.191	.173	.029	.257	-.033	.257	-.008	-.066	1.715	0.188	1.3	1.1	1.8	1.3	A-	
1236	630434	EC	173	.150	.150	.185	.405	.225	.035	.129	.129	-.054	.152	-.057	2.511	0.227	1.2	1.2	2.4	1.7	A+	
1237	634321	EC	173	.214	.214	.364	.243	.150	.029	.235	.235	-.004	-.029	-.036	2.016	0.200	0.6	1.1	2.7	1.6	A-	
1238	628100	EC	173	.653	.121	.069	.127	.653	.029	.557	-.168	-.190	-.279	.557	-0.345	0.179	-2.0	0.9	-2.2	0.8	A-	
1239	639995	EC	173	.567	.098	.168	.567	.127	.041	.388	-.174	-.145	.388	.011	0.093	0.172	0.9	1.1	1.0	1.1	A+	
1240	622672	EC	174	.328	.333	.029	.328	.305	.006	.253	-.226	-.220	.253	.115	1.291	0.176	1.8	1.1	1.4	1.2	A-	
1241	629919	EC	174	.385	.184	.190	.385	.236	.006	.358	-.050	-.145	.358	-.163	1.022	0.170	-0.4	1.0	-0.5	1.0	A-	
1242	622612	EC	174	.540	.069	.224	.540	.155	.012	.369	-.145	-.208	.369	-.101	0.217	0.167	0.3	1.0	0.7	1.1	A+	
1243	640079	EC	174	.552	.086	.253	.092	.552	.017	.247	-.132	.031	-.149	.247	0.168	0.167	2.5	1.2	3.2	1.3	A+	
1244	639968	EC	174	.822	.052	.822	.075	.040	.012	.496	-.211	.496	-.210	-.188	-1.392	0.216	-1.0	0.9	-1.8	0.6	A+	
1245	636064	EC	174	.632	.046	.259	.052	.632	.012	.487	-.144	-.242	-.215	.487	-0.216	0.172	-1.7	0.9	-1.9	0.8	A-	
1246	635740	EC	174	.213	.213	.305	.155	.310	.017	.063	.063	-.074	-.113	.223	1.980	0.200	2.5	1.3	3.3	1.7	A-	
1247	636049	EC	174	.644	.075	.644	.098	.172	.012	.360	-.124	.360	-.213	-.069	-0.276	0.173	0.4	1.0	0.2	1.0	A-	
1248	639977	EC	174	.753	.753	.052	.121	.058	.017	.490	.490	-.142	-.245	-.199	-0.925	0.193	-1.3	0.9	-1.6	0.7	A+	
1249	640083	EC	174	.494	.121	.494	.195	.178	.012	.336	-.033	.336	-.190	-.080	0.487	0.166	0.6	1.0	0.5	1.0	A+	
1250	639912	EC	174	.672	.190	.052	.672	.075	.012	.357	-.085	-.190	.357	-.155	-0.428	0.176	0.7	1.1	0.1	1.0	A-	
1251	640066	EC	174	.684	.035	.040	.684	.230	.012	.488	-.140	-.172	.488	-.277	-0.459	0.177	-2.0	0.9	-1.8	0.8	A+	
1252	639905	EC	174	.535	.144	.535	.259	.046	.017	.423	-.263	.423	-.105	-.090	0.254	0.167	-0.8	1.0	-0.6	0.9	B-	
1253	640041	EC	174	.333	.230	.184	.236	.333	.017	.262	.010	-.061	-.117	.262	1.254	0.175	1.6	1.1	1.9	1.2	A-	
1254	639914	EC	174	.523	.000	.391	.523	.075	.012	.379	.000	-.184	.379	-.185	0.322	0.166	0.3	1.0	0.2	1.0	A-	
1255	640023	EC	174	.540	.540	.144	.190	.103	.023	.441	.441	-.203	-.141	-.112	0.203	0.168	-0.7	1.0	-0.9	0.9	A+	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1256	639923	EC	174	.448	.213	.103	.213	.448	.023	.274	-.074	-.153	-.002	.274	0.651	0.168	2.2	1.1	2.3	1.2	B-	
1257	640076	EC	174	.632	.075	.632	.155	.115	.023	.418	-.052	.418	-.270	-.098	-0.260	0.173	-0.2	1.0	-0.5	0.9	A+	
1258	621206	EC	174	.385	.121	.385	.230	.241	.023	.449	-.170	.449	-.205	-.042	0.966	0.171	-1.1	0.9	-1.0	0.9	B+	
1259	638877	EC	174	.535	.046	.264	.535	.132	.023	.465	-.081	-.159	.465	-.254	0.259	0.167	-1.6	0.9	-1.7	0.9	A-	
1260	635841	EC	174	.632	.632	.155	.132	.058	.023	.466	.466	-.258	-.151	-.091	-0.260	0.173	-1.1	0.9	-1.2	0.9	A-	
1261	639888	EC	174	.552	.098	.103	.224	.552	.023	.545	-.233	-.265	-.149	.545	0.147	0.168	-3.0	0.8	-2.6	0.8	A+	
1262	630425	EC	174	.356	.356	.253	.259	.109	.023	.459	.459	-.132	-.210	-.038	1.114	0.173	-1.3	0.9	-1.1	0.9	A-	
1263	639976	EC	174	.477	.132	.477	.144	.224	.023	.466	-.165	.466	-.230	-.090	0.511	0.167	-1.4	0.9	-1.3	0.9	B-	
1264	630649	EC	172	.558	.111	.157	.169	.558	.006	.531	-.206	-.270	-.190	.531	0.216	0.168	-3.0	0.8	-2.9	0.8	A+	
1265	635462	EC	172	.750	.023	.012	.209	.750	.006	.320	-.317	.008	-.152	.320	-0.814	0.191	0.9	1.1	0.9	1.1	A-	
1266	639974	EC	172	.616	.262	.076	.616	.041	.006	.520	-.257	-.257	.520	-.212	-0.071	0.171	-2.2	0.9	-2.2	0.8	A+	
1267	640095	EC	172	.436	.076	.297	.436	.186	.006	.266	-.243	-.069	.266	-.016	0.803	0.168	1.8	1.1	1.9	1.2	A+	
1268	625505	EC	172	.622	.035	.169	.169	.622	.006	.396	-.216	-.141	-.185	.396	-0.100	0.172	-0.1	1.0	0.2	1.0	A-	
1269	636065	EC	172	.424	.134	.424	.308	.128	.006	.249	-.029	.249	-.069	-.155	0.888	0.168	1.4	1.1	1.3	1.1	A+	
1270	639979	EC	172	.215	.587	.122	.215	.070	.006	.104	.239	-.132	.104	-.342	2.019	0.199	2.0	1.2	2.0	1.4	A-	
1271	630709	EC	172	.814	.070	.814	.064	.047	.006	.501	-.125	.501	-.286	-.299	-1.259	0.212	-1.2	0.9	-1.9	0.7	C+	
1272	628135	EC	172	.384	.384	.297	.128	.186	.006	.194	.194	-.156	.042	-.019	1.061	0.171	3.1	1.2	2.9	1.3	A+	
1273	640063	EC	172	.442	.471	.029	.047	.442	.012	.465	-.243	-.175	-.191	.465	0.763	0.168	-1.3	0.9	-1.3	0.9	A-	
1274	640080	EC	172	.535	.140	.535	.192	.122	.012	.515	-.148	.515	-.332	-.106	0.314	0.168	-2.2	0.9	-2.0	0.8	B+	
1275	640067	EC	172	.331	.145	.070	.331	.436	.017	.388	-.304	-.246	.388	.070	1.315	0.176	-0.2	1.0	-0.1	1.0	A+	
1276	639906	EC	172	.663	.157	.663	.163	.006	.012	.373	-.148	.373	-.215	-.041	-0.333	0.177	0.5	1.0	-0.1	1.0	A-	
1277	640021	EC	172	.791	.064	.099	.791	.035	.012	.368	-.109	-.214	.368	-.104	-1.120	0.205	0.3	1.0	-0.2	1.0	A+	
1278	639917	EC	172	.727	.070	.093	.727	.099	.012	.475	-.236	-.126	.475	-.251	-0.698	0.187	-1.2	0.9	-1.0	0.9	A-	
1279	640028	EC	172	.593	.593	.302	.035	.052	.017	.461	.461	-.276	-.081	-.168	0.013	0.171	-0.9	0.9	-0.9	0.9	B-	
1280	639934	EC	172	.273	.221	.215	.273	.273	.017	.245	-.106	-.071	.025	.245	1.640	0.185	1.2	1.1	2.3	1.3	A-	
1281	640030	EC	172	.890	.029	.890	.052	.012	.017	.537	-.301	.537	-.239	-.162	-2.113	0.279	-0.7	0.8	-1.8	0.5	A+	
1282	625549	EC	172	.645	.151	.645	.081	.099	.023	.337	-.170	.337	-.091	-.078	-0.276	0.177	1.6	1.1	0.3	1.0	C-	
1283	635487	EC	172	.616	.616	.099	.145	.116	.023	.546	.546	-.269	-.238	-.155	-0.122	0.174	-2.4	0.8	-2.3	0.8	A+	
1284	639889	EC	172	.692	.105	.692	.116	.064	.023	.512	-.261	.512	-.231	-.124	-0.536	0.184	-1.3	0.9	-1.8	0.8	A+	
1285	634320	EC	172	.529	.198	.192	.529	.058	.023	.383	-.091	-.102	.383	-.268	0.317	0.169	0.7	1.0	0.2	1.0	A-	
1286	635738	EC	172	.186	.186	.326	.244	.221	.023	.179	.179	.020	-.109	.048	2.211	0.209	0.8	1.1	3.0	1.7	A-	
1287	633534	EC	172	.488	.488	.285	.116	.076	.035	.265	.265	-.053	-.054	-.152	0.486	0.169	2.7	1.2	2.2	1.2	A-	
1288	639937	EC	174	.810	.810	.069	.040	.081	.000	.254	.254	-.070	-.211	-.147	-1.246	0.204	0.1	1.0	0.5	1.1	A-	
1289	639939	EC	174	.494	.454	.494	.017	.035	.000	.265	-.141	.265	-.176	-.217	0.452	0.164	1.8	1.1	1.4	1.1	A-	
1290	626920	EC	174	.672	.035	.029	.264	.672	.000	.474	-.132	-.215	-.369	.474	-0.412	0.173	-1.6	0.9	-1.6	0.8	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1291	626947	EC	174	.529	.270	.132	.529	.058	.012	.365	-.134	-.107	.365	-.244	0.272	0.165	0.3	1.0	0.1	1.0	A-	
1292	639983	EC	174	.299	.437	.299	.115	.144	.006	.211	.052	.211	-.251	-.063	1.404	0.177	1.7	1.1	1.5	1.2	A+	
1293	639961	EC	174	.483	.172	.190	.144	.483	.012	.348	-.084	-.096	-.222	.348	0.484	0.165	1.0	1.1	0.9	1.1	A+	
1294	639980	EC	174	.333	.213	.167	.333	.282	.006	.197	.027	-.176	.197	-.040	1.221	0.172	1.9	1.1	2.9	1.3	A+	
1295	639984	EC	174	.592	.063	.264	.592	.075	.006	.471	-.199	-.266	.471	-.173	-0.025	0.167	-1.6	0.9	-1.5	0.9	A+	
1296	630387	EC	174	.615	.615	.218	.092	.069	.006	.461	.461	-.128	-.275	-.281	-0.138	0.169	-1.7	0.9	-0.5	1.0	A+	
1297	640065	EC	174	.655	.655	.058	.058	.218	.012	.490	.490	-.342	-.325	-.113	-0.365	0.173	-1.6	0.9	-1.1	0.9	A+	
1298	640086	EC	174	.483	.109	.483	.144	.253	.012	.327	-.040	.327	-.209	-.108	0.478	0.165	1.0	1.1	1.0	1.1	A-	
1299	640068	EC	174	.615	.144	.121	.109	.615	.012	.453	-.276	-.099	-.193	.453	-0.159	0.169	-0.9	0.9	-0.8	0.9	A+	
1300	639907	EC	174	.661	.161	.121	.661	.046	.012	.485	-.171	-.336	.485	-.125	-0.395	0.174	-1.0	0.9	-1.3	0.9	A-	
1301	640004	EC	174	.316	.420	.316	.138	.115	.012	.290	.044	.290	-.231	-.144	1.300	0.175	0.9	1.1	0.8	1.1	A+	
1302	639918	EC	174	.741	.178	.741	.046	.023	.012	.529	-.326	.529	-.236	-.177	-0.851	0.187	-1.6	0.9	-1.9	0.8	A-	
1303	639899	EC	174	.592	.017	.592	.253	.126	.012	.449	-.181	.449	-.225	-.206	-0.044	0.168	-0.9	0.9	-0.8	0.9	A-	
1304	640012	EC	174	.414	.414	.305	.213	.046	.023	.420	.420	-.146	-.264	-.006	0.776	0.167	-0.7	1.0	-0.3	1.0	A-	
1305	639911	EC	174	.615	.615	.098	.109	.155	.023	.360	.360	-.173	-.222	-.042	-0.197	0.171	0.4	1.0	1.0	1.1	A-	
1306	630416	EC	174	.581	.086	.138	.167	.581	.029	.635	-.199	-.272	-.319	.635	-0.037	0.169	-3.9	0.8	-3.8	0.7	A-	
1307	635478	EC	174	.322	.126	.115	.408	.322	.029	.343	.004	-.320	-.029	.343	1.243	0.175	0.5	1.0	0.1	1.0	A-	
1308	639890	EC	174	.351	.218	.201	.351	.201	.029	.151	-.105	-.007	.151	.048	1.092	0.172	2.8	1.2	3.6	1.4	A+	
1309	635569	EC	174	.615	.081	.126	.615	.144	.035	.405	-.113	-.147	.405	-.200	-0.231	0.173	0.0	1.0	0.1	1.0	A-	
1310	635751	EC	174	.529	.086	.121	.529	.230	.035	.432	-.249	.006	.432	-.239	0.203	0.168	-0.6	1.0	-0.1	1.0	B+	
1311	633535	EC	174	.259	.069	.259	.443	.195	.035	.227	-.234	.227	.042	-.035	1.590	0.186	0.9	1.1	2.1	1.3	A+	
1312	639943	EC	173	.468	.035	.468	.353	.133	.012	.154	-.096	.154	-.011	.003	0.655	0.166	3.4	1.2	3.7	1.3	A+	
1313	639942	EC	173	.711	.069	.104	.711	.098	.017	.578	-.176	-.214	.578	-.252	-0.609	0.184	-2.6	0.8	-2.6	0.7	A-	
1314	627284	EC	173	.630	.185	.630	.104	.064	.017	.471	-.179	.471	-.130	-.169	-0.166	0.173	-1.5	0.9	-1.4	0.9	A+	
1315	636022	EC	173	.578	.173	.578	.081	.150	.017	.416	-.112	.416	-.137	-.136	0.125	0.168	-0.6	1.0	-0.6	1.0	A-	
1316	639986	EC	173	.769	.069	.098	.046	.769	.017	.442	-.102	-.185	-.133	.442	-0.974	0.198	-0.4	1.0	-0.1	1.0	A+	
1317	639962	EC	173	.642	.150	.642	.127	.064	.017	.540	-.202	.540	-.209	-.163	-0.226	0.174	-2.5	0.8	-2.5	0.8	A-	
1318	639981	EC	173	.723	.035	.069	.723	.150	.023	.383	-.131	-.169	.383	-.068	-0.665	0.187	0.0	1.0	-0.2	1.0	A-	
1319	639989	EC	173	.266	.266	.451	.156	.110	.017	.254	.254	.007	-.024	-.095	1.675	0.185	0.6	1.1	2.3	1.3	A-	
1320	640060	EC	173	.549	.087	.549	.156	.185	.023	.365	-.024	.365	-.230	-.024	0.229	0.168	0.2	1.0	0.4	1.0	A+	
1321	628016	EC	173	.405	.306	.052	.405	.214	.023	.197	.009	-.205	.197	.063	0.929	0.169	2.9	1.2	2.9	1.3	A-	
1322	622421	EC	173	.428	.179	.150	.225	.428	.017	.456	-.185	-.115	-.088	.456	0.822	0.167	-1.8	0.9	-1.7	0.9	A-	
1323	640097	EC	173	.462	.254	.462	.220	.041	.023	.436	-.153	.436	-.072	-.167	0.649	0.167	-1.1	0.9	-1.3	0.9	B+	
1324	640069	EC	173	.642	.642	.162	.064	.110	.023	.496	.496	-.220	-.158	-.095	-0.207	0.174	-2.0	0.9	-1.5	0.8	A-	
1325	640005	EC	173	.549	.549	.266	.093	.069	.023	.320	.320	-.019	-.105	-.125	0.230	0.168	1.2	1.1	2.6	1.2	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1326	639922	EC	173	.150	.486	.150	.121	.220	.023	-.004	.201	-.004	-.100	.053	2.544	0.229	1.4	1.2	2.8	1.8	A-	
1327	639908	EC	173	.902	.902	.035	.012	.017	.035	.526	.526	-.147	-.064	-.178	-2.404	0.319	-0.3	0.9	-1.4	0.5	A-	
1328	640014	EC	173	.434	.405	.052	.075	.434	.035	.424	-.027	-.248	-.161	.424	0.764	0.168	-0.9	1.0	-0.8	0.9	A-	
1329	639913	EC	173	.457	.139	.254	.457	.116	.035	.262	-.027	-.038	.262	-.017	0.651	0.168	2.4	1.1	2.6	1.2	A-	
1330	630417	EC	173	.526	.526	.127	.110	.202	.035	.399	.399	-.073	-.123	-.093	0.313	0.168	0.0	1.0	0.0	1.0	A+	
1331	635479	EC	173	.312	.162	.237	.312	.249	.041	.161	-.003	.043	.161	.035	1.417	0.179	2.6	1.2	2.7	1.3	A-	
1332	639891	EC	173	.665	.075	.064	.665	.150	.046	.392	-.113	-.016	.392	-.106	-0.428	0.182	0.5	1.0	0.4	1.1	A+	
1333	635773	EC	173	.462	.081	.353	.064	.462	.041	.381	-.179	-.008	-.124	.381	0.618	0.168	0.3	1.0	0.2	1.0	A+	
1334	635772	EC	173	.208	.104	.208	.370	.278	.041	.187	-.123	.187	.040	.110	2.022	0.201	1.0	1.1	2.6	1.5	A+	
1335	633538	EC	173	.173	.382	.110	.289	.173	.046	.317	.041	-.142	.040	.317	2.280	0.214	-0.3	1.0	0.1	1.0	A-	
1336	639944	EC	174	.184	.374	.310	.184	.126	.006	.112	.049	.031	.112	-.156	2.333	0.206	1.1	1.1	2.9	1.7	A+	
1337	639949	EC	174	.776	.776	.058	.035	.126	.006	.314	.314	-.281	-.196	-.001	-0.900	0.198	0.1	1.0	1.1	1.2	A+	
1338	630383	EC	174	.707	.000	.707	.155	.126	.012	.451	.000	.451	-.286	-.177	-0.481	0.184	-0.5	1.0	-0.6	0.9	A-	
1339	640059	EC	174	.649	.649	.259	.029	.058	.006	.325	.325	-.094	-.205	-.216	-0.145	0.175	0.5	1.0	0.9	1.1	A+	
1340	639991	EC	174	.374	.310	.247	.374	.058	.012	.364	-.120	-.065	.364	-.213	1.215	0.170	0.4	1.0	0.5	1.1	A+	
1341	639965	EC	174	.615	.069	.069	.615	.236	.012	.506	-.278	-.233	.506	-.160	0.022	0.172	-1.4	0.9	-1.8	0.8	A+	
1342	639987	EC	174	.839	.035	.035	.839	.081	.012	.551	-.212	-.135	.551	-.332	-1.425	0.227	-1.3	0.8	-1.4	0.7	A-	
1343	640003	EC	174	.810	.035	.810	.058	.081	.017	.590	-.228	.590	-.303	-.210	-1.213	0.215	-1.8	0.8	-2.3	0.6	B+	
1344	622419	EC	174	.753	.052	.753	.115	.063	.017	.463	-.142	.463	-.217	-.150	-0.792	0.196	-0.6	0.9	-0.8	0.9	A-	
1345	639978	EC	174	.833	.833	.012	.069	.063	.023	.492	.492	-.006	-.325	-.149	-1.458	0.230	-0.8	0.9	-0.7	0.8	A-	
1346	630710	EC	174	.782	.058	.782	.063	.075	.023	.473	-.180	.473	-.170	-.148	-1.021	0.207	-0.4	1.0	-0.5	0.9	B+	
1347	640103	EC	174	.517	.161	.138	.517	.155	.029	.538	-.265	-.116	.538	-.123	0.490	0.168	-2.7	0.8	-2.4	0.8	A+	
1348	640073	EC	174	.402	.086	.402	.345	.138	.029	.350	-.172	.350	-.050	-.037	1.057	0.169	0.9	1.1	0.8	1.1	A-	
1349	640006	EC	174	.397	.132	.167	.270	.397	.035	.324	-.028	-.112	-.034	.324	1.069	0.170	1.4	1.1	1.6	1.2	A-	
1350	639924	EC	174	.810	.023	.092	.810	.040	.035	.497	-.143	-.086	.497	-.287	-1.318	0.224	-0.4	1.0	-0.5	0.9	C+	
1351	640032	EC	174	.879	.879	.012	.046	.029	.035	.611	.611	-.135	-.280	-.201	-2.067	0.282	-0.8	0.8	-2.3	0.4	A+	
1352	640019	EC	174	.322	.218	.322	.385	.046	.029	.259	-.026	.259	.012	-.176	1.460	0.176	1.6	1.1	1.6	1.2	A-	
1353	640038	EC	174	.667	.081	.063	.161	.667	.029	.497	-.162	-.207	-.166	.497	-0.307	0.181	-0.9	0.9	-0.7	0.9	A-	
1354	635590	EC	174	.718	.075	.121	.718	.040	.046	.589	-.145	-.353	.589	-.071	-0.695	0.195	-1.8	0.8	-1.6	0.8	A+	
1355	635480	EC	174	.310	.190	.310	.270	.190	.040	.221	-.007	.221	-.117	.094	1.503	0.178	2.3	1.2	2.1	1.3	A+	
1356	635667	EC	174	.287	.081	.241	.345	.287	.046	.241	-.051	-.021	.025	.241	1.629	0.181	1.4	1.1	2.2	1.3	A+	
1357	636476	EC	174	.287	.046	.287	.431	.195	.040	.128	-.113	.128	.097	.006	1.632	0.181	2.7	1.2	4.1	1.7	A+	
1358	621393	EC	174	.563	.563	.058	.052	.282	.046	.513	.513	-.080	-.297	-.161	0.201	0.173	-1.3	0.9	-1.4	0.9	B-	
1359	633539	EC	174	.506	.259	.063	.132	.506	.040	.427	-.064	-.159	-.183	.427	0.503	0.170	0.0	1.0	0.2	1.0	A+	
1360	639945	EC	174	.603	.603	.218	.092	.075	.012	.373	.373	-.095	-.155	-.160	-0.014	0.166	-1.0	0.9	-0.9	0.9	A-	

Table B–5 (continued). Writing/English Composition Multiple-Choice Item Statistics

Item Information			Classical												Rasch		Infit		Outfit		DIF	
Ref	ID	Grade	*N*	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MSE	*t*	MS	*t*	MS	M /F	W /B
1361	640056	EC	174	.218	.661	.218	.086	.017	.017	.358	-.021	.358	-.128	-.185	1.902	0.194	-0.6	0.9	-0.6	0.9	A+	
1362	630667	EC	174	.448	.035	.448	.397	.103	.017	.256	-.076	.256	-.090	.028	0.685	0.164	2.0	1.1	1.6	1.1	A+	
1363	636023	EC	174	.851	.063	.046	.851	.023	.017	.482	-.113	-.210	.482	-.149	-1.592	0.233	-0.6	0.9	-1.1	0.8	A+	
1364	639993	EC	174	.201	.207	.241	.201	.333	.017	.108	.154	-.023	.108	-.037	2.019	0.200	1.0	1.1	2.0	1.4	B-	
1365	639967	EC	174	.603	.138	.603	.075	.161	.023	.246	.030	.246	-.176	-.008	-0.055	0.168	1.9	1.1	1.2	1.1	A+	
1366	639988	EC	174	.448	.190	.448	.178	.167	.017	.265	.017	.265	-.083	-.077	0.685	0.164	1.9	1.1	1.5	1.1	A+	
1367	640088	EC	174	.632	.213	.046	.632	.086	.023	.324	-.064	-.262	.324	.055	-0.200	0.170	0.8	1.1	0.8	1.1	A-	
1368	640081	EC	174	.172	.132	.500	.167	.172	.029	.065	-.036	.129	.036	.065	2.217	0.211	1.5	1.2	1.9	1.4	A-	
1369	635581	EC	174	.644	.121	.144	.069	.644	.023	.499	-.154	-.115	-.229	.499	-0.259	0.172	-2.4	0.9	-2.2	0.8	A+	
1370	636885	EC	174	.328	.236	.201	.328	.213	.023	.148	.011	.020	.148	.021	1.265	0.173	2.6	1.2	2.4	1.3	A+	
1371	640094	EC	174	.500	.086	.184	.201	.500	.029	.351	-.104	-.191	.047	.351	0.413	0.164	0.1	1.0	0.2	1.0	A-	
1372	640084	EC	174	.356	.224	.155	.356	.241	.023	.212	-.040	-.087	.212	.088	1.119	0.170	1.5	1.1	3.6	1.4	A-	
1373	639921	EC	174	.598	.218	.598	.081	.075	.029	.425	-.073	.425	-.127	-.159	-0.038	0.168	-1.2	0.9	-0.5	1.0	A-	
1374	621156	EC	174	.241	.224	.201	.299	.241	.035	.206	-.040	-.052	.110	.206	1.738	0.188	0.8	1.1	2.6	1.4	A+	
1375	640031	EC	174	.512	.328	.017	.115	.512	.029	.379	-.043	-.118	-.165	.379	0.374	0.164	-0.2	1.0	-0.2	1.0	A+	
1376	640035	EC	174	.695	.695	.075	.155	.046	.029	.459	.459	-.150	-.139	-.097	-0.549	0.180	-1.0	0.9	-0.9	0.9	A+	
1377	628314	EC	174	.695	.121	.695	.121	.023	.040	.489	-.155	.489	-.166	-.108	-0.604	0.183	-1.3	0.9	-1.4	0.8	A+	
1378	635591	EC	174	.483	.103	.483	.218	.155	.040	.412	-.159	.412	-.072	-.065	0.473	0.165	-0.9	1.0	-1.2	0.9	B+	
1379	635481	EC	174	.316	.316	.247	.259	.138	.040	.401	.401	-.074	-.032	-.105	1.295	0.175	-1.1	0.9	-1.2	0.9	A+	
1380	621159	EC	174	.408	.247	.178	.408	.126	.040	.407	-.101	-.103	.407	-.039	0.830	0.167	-1.3	0.9	-0.7	0.9	A-	
1381	635946	EC	174	.356	.144	.299	.356	.161	.040	.315	-.105	-.049	.315	.034	1.086	0.170	0.4	1.0	0.5	1.0	A+	
1382	628062	EC	174	.310	.161	.310	.247	.236	.046	.334	-.059	.334	-.021	-.048	1.314	0.176	-0.3	1.0	0.4	1.0	A+	
1383	633541	EC	174	.282	.282	.132	.448	.092	.046	.269	.269	.050	.014	-.142	1.474	0.181	0.5	1.0	1.3	1.2	A+	

Appendix B: Field Test Item Statistics

APPENDIX C: VERTICAL LINKING ITEM DETAILS

This appendix provides details on the items used to build the vertical scales in each content area. Information such as n-count, eligible content code, and diagnostic category is provided for each of the vertical linking items. Summary tables indicate the number of linking items in each diagnostic category. A sample of the vertical linking Excel file is provided as well as plots of the vertical linking items.

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Tables C–1 through C–8 show n-counts, eligible content code, and diagnostic category for each of the vertical linking items.

Each item was administered in two grades so there are two n-counts: one for the lower grade and one for the upper grade. For example, item 600869 is a grade 3 item used to link grades 3 and 4. It was administered 1,280 times on the lower grade forms (grade 3) and 964 times on the upper grade forms (grade 4).

Diagnostic categories for Algebra I, Geometry, and Algebra II are different than diagnostic categories for grades 3 through 8 and 11 Mathematics. Items may fall into both a Mathematics diagnostic category and an Algebra I, Geometry, or Algebra II diagnostic category. This is shown in Tables C–6, C–7, and C–8. For example, item 601329 is in the Mathematics diagnostic category "Geometry" and the Geometry diagnostic category "Coordinate Geometry and Right Triangles".

The Mathematics diagnostic categories are:

- Numbers and Operations
- Measurement
- Geometry
- Algebraic Concepts
- Data Analysis and Probability

The Algebra I diagnostic categories are:

- Operations with Real Numbers and Expressions
- Linear Equations and Inequalities
- Functions and Coordinate Geometry
- Data Analysis

The Geometry diagnostic categories are:

- Geometric Properties
- Congruence, Similarity, and Proofs
- Coordinate Geometry and Right Triangles
- Measurement

Appendix C: Vertical Linking Item Details

The Algebra II diagnostic categories are:

- Operations with Complex Numbers
- Non-linear Expressions and Equations
- Functions
- Data Analysis

Appendix C: Vertical Linking Item Details

Table C–1. Mathematics Items Used to Link Grade 3 to Grade 4

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category
			Lower Grade	Upper Grade		
600869	3	Grade 3 to Grade 4	1280	964	M3.B.1.1.1	Measure.
600871	3	Grade 3 to Grade 4	1275	964	M3.B.2.2.1	Measure.
601980	3	Grade 3 to Grade 4	1280	964	M3.B.1.2.1	Measure.
604352	3	Grade 3 to Grade 4	1281	964	M3.D.2.1.1	Alg. Con.
600442	3	Grade 3 to Grade 4	1280	964	M3.C.2.1.1	Geo.
600431	3	Grade 3 to Grade 4	1274	964	M3.A.1.1.1	Numbers & Op.
601975	3	Grade 3 to Grade 4	1281	964	M3.A.2.1.1	Numbers & Op.
600865	3	Grade 3 to Grade 4	1279	964	M3.A.1.3.1	Numbers & Op.
601985	3	Grade 3 to Grade 4	1285	963	M3.E.1.1.1	Data & Prob.
601897	3	Grade 3 to Grade 4	1282	964	M3.A.1.2.1	Numbers & Op.
601437	3	Grade 3 to Grade 4	1274	963	M3.A.1.1.4	Numbers & Op.
600438	3	Grade 3 to Grade 4	1277	963	M3.A.1.2.2	Numbers & Op.
600427	3	Grade 3 to Grade 4	1282	963	M3.C.1.1.1	Geo.
600877	3	Grade 3 to Grade 4	1283	963	M3.E.1.2.1	Data & Prob.
601587	3	Grade 3 to Grade 4	1276	963	M3.A.2.1.3	Numbers & Op.
600440	3	Grade 3 to Grade 4	639	963	M3.B.2.1.1	Measure.
600921	3	Grade 3 to Grade 4	1271	963	M3.A.1.3.2	Numbers & Op.
601589	3	Grade 3 to Grade 4	639	962	M3.D.1.1.1	Alg. Con.
601440	3	Grade 3 to Grade 4	1272	962	M3.B.1.1.3	Measure.
601984	3	Grade 3 to Grade 4	1278	962	M3.D.2.1.2	Alg. Con.
604193	4	Grade 3 to Grade 4	1283	959	M4.D.1.1.2	Alg. Con.
602015	4	Grade 3 to Grade 4	1284	481	M4.E.1.2.1	Data & Prob.
601993	4	Grade 3 to Grade 4	1282	1447	M4.C.1.1.1	Geo.
603609	4	Grade 3 to Grade 4	1284	959	M4.B.2.1.1	Measure.
604189	4	Grade 3 to Grade 4	1280	962	M4.B.1.1.3	Measure.
602010	4	Grade 3 to Grade 4	1285	961	M4.C.1.1.2	Geo.
601646	4	Grade 3 to Grade 4	1283	960	M4.D.2.2.2	Alg. Con.
604186	4	Grade 3 to Grade 4	1279	965	M4.A.3.1.1	Numbers & Op.
601958	4	Grade 3 to Grade 4	1281	961	M4.A.1.1.2	Numbers & Op.
604488	4	Grade 3 to Grade 4	1279	958	M4.A.1.2.2	Numbers & Op.
603744	4	Grade 3 to Grade 4	1279	481	M4.B.2.2.1	Measure.
602009	4	Grade 3 to Grade 4	1279	963	M4.C.1.1.2	Geo.
604514	4	Grade 3 to Grade 4	1280	481	M4.C.2.1.1	Geo.
604492	4	Grade 3 to Grade 4	1278	961	M4.A.3.1.2	Numbers & Op.
601972	4	Grade 3 to Grade 4	1281	965	M4.E.1.2.2	Data & Prob.
601962	4	Grade 3 to Grade 4	1278	962	M4.A.1.3.2	Numbers & Op.
601987	4	Grade 3 to Grade 4	1278	961	M4.A.1.1.4	Numbers & Op.
604195	4	Grade 3 to Grade 4	1279	481	M4.D.2.1.1	Alg. Con.
604501	4	Grade 3 to Grade 4	1279	959	M4.E.1.1.1	Data & Prob.
604493	4	Grade 3 to Grade 4	1279	1443	M4.B.1.1.4	Measure.

Appendix C: Vertical Linking Item Details

Table C–2. Mathematics Items Used to Link Grade 4 to Grade 5

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category
			Lower Grade	Upper Grade		
601646	4	Grade 4 to Grade 5	960	1187	M4.D.2.2.2	Alg. Con.
601987	4	Grade 4 to Grade 5	961	1186	M4.A.1.1.4	Numbers & Op.
604493	4	Grade 4 to Grade 5	1443	1183	M4.B.1.1.4	Measure.
601961	4	Grade 4 to Grade 5	965	1184	M4.A.1.3.2	Numbers & Op.
604499	4	Grade 4 to Grade 5	962	1188	M4.E.1.1.1	Data & Prob.
602889	4	Grade 4 to Grade 5	962	1187	M4.E.1.2.2	Data & Prob.
602885	4	Grade 4 to Grade 5	965	1186	M4.B.2.2.1	Measure.
602887	4	Grade 4 to Grade 5	962	1187	M4.C.3.1.1	Geo.
601639	4	Grade 4 to Grade 5	960	1184	M4.A.3.1.3	Numbers & Op.
604969	4	Grade 4 to Grade 5	480	1184	M4.C.1.2.2	Geo.
601994	4	Grade 4 to Grade 5	479	1185	M4.D.1.2.2	Alg. Con.
601998	4	Grade 4 to Grade 5	960	1191	M4.E.3.1.1	Data & Prob.
602000	4	Grade 4 to Grade 5	959	1190	M4.C.1.1.1	Geo.
601991	4	Grade 4 to Grade 5	959	1189	M4.A.2.1.2	Numbers & Op.
604879	4	Grade 4 to Grade 5	1441	1188	M4.D.1.1.3	Alg. Con.
601964	4	Grade 4 to Grade 5	961	1188	M4.A.3.2.2	Numbers & Op.
602971	4	Grade 4 to Grade 5	480	1187	M4.B.2.1.1	Measure.
604486	4	Grade 4 to Grade 5	481	1186	M4.E.1.2.1	Data & Prob.
604967	4	Grade 4 to Grade 5	962	1187	M4.A.1.2.2	Numbers & Op.
602973	4	Grade 4 to Grade 5	964	1186	M4.C.2.1.1	Geo.
600853	5	Grade 4 to Grade 5	964	1790	M5.B.2.1.1	Measure.
604790	5	Grade 4 to Grade 5	964	586	M5.C.2.1.2	Geo.
604956	5	Grade 4 to Grade 5	959	1175	M5.A.2.1.1	Numbers & Op.
604862	5	Grade 4 to Grade 5	960	1182	M5.D.1.2.1	Alg. Con.
604783	5	Grade 4 to Grade 5	961	1179	M5.A.1.2.1	Numbers & Op.
606159	5	Grade 4 to Grade 5	960	1190	M5.A.1.5.1	Numbers & Op.
604848	5	Grade 4 to Grade 5	961	1784	M5.E.3.1.1	Data & Prob.
604843	5	Grade 4 to Grade 5	959	1186	M5.C.1.1.2	Geo.
604966	5	Grade 4 to Grade 5	961	596	M5.E.1.1.1	Data & Prob.
606163	5	Grade 4 to Grade 5	961	1188	M5.B.1.1.1	Measure.
601532	5	Grade 4 to Grade 5	956	2369	M5.A.1.1.1	Numbers & Op.
606160	5	Grade 4 to Grade 5	958	1190	M5.A.3.1.1	Numbers & Op.
604960	5	Grade 4 to Grade 5	957	594	M5.B.2.2.3	Measure.
600852	5	Grade 4 to Grade 5	958	1178	M5.D.1.1.1	Alg. Con.
604834	5	Grade 4 to Grade 5	954	1189	M5.A.1.3.1	Numbers & Op.
604959	5	Grade 4 to Grade 5	956	1183	M5.B.1.2.2	Measure.
604961	5	Grade 4 to Grade 5	956	1193	M5.C.1.2.1	Geo.
606278	5	Grade 4 to Grade 5	954	1177	M5.D.2.1.2	Alg. Con.
604965	5	Grade 4 to Grade 5	957	1190	M5.E.1.1.1	Data & Prob.
604865	5	Grade 4 to Grade 5	956	1192	M5.A.1.6.2	Numbers & Op.

Appendix C: Vertical Linking Item Details

Table C–3. Mathematics Items Used to Link Grade 5 to Grade 6

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category
			Lower Grade	Upper Grade		
606277	5	Grade 5 to Grade 6	1175	1225	M5.D.2.1.2	Alg. Con.
606153	5	Grade 5 to Grade 6	590	1225	M5.A.1.4.2	Numbers & Op.
604796	5	Grade 5 to Grade 6	1194	1224	M5.B.1.3.2	Measure.
606154	5	Grade 5 to Grade 6	1195	1223	M5.A.2.1.3	Numbers & Op.
604962	5	Grade 5 to Grade 6	1192	1222	M5.C.1.2.1	Geo.
606826	5	Grade 5 to Grade 6	593	1221	M5.A.1.3.2	Numbers & Op.
604859	5	Grade 5 to Grade 6	1766	1223	M5.C.1.1.1	Geo.
604860	5	Grade 5 to Grade 6	1184	1215	M5.D.1.2.1	Alg. Con.
606167	5	Grade 5 to Grade 6	1181	1216	M5.E.3.1.1	Data & Prob.
604836	5	Grade 5 to Grade 6	1176	1216	M5.A.1.6.1	Numbers & Op.
606162	5	Grade 5 to Grade 6	593	1216	M5.B.1.1.1	Measure.
604841	5	Grade 5 to Grade 6	594	1215	M5.B.2.2.1	Measure.
606155	5	Grade 5 to Grade 6	1193	1215	M5.C.2.1.2	Geo.
601592	5	Grade 5 to Grade 6	595	1214	M5.E.2.1.1	Data & Prob.
601590	5	Grade 5 to Grade 6	2372	1214	M5.A.1.1.1	Numbers & Op.
604953	5	Grade 5 to Grade 6	1171	1226	M5.A.1.3.3	Numbers & Op.
604853	5	Grade 5 to Grade 6	1175	1227	M5.A.1.5.1	Numbers & Op.
604784	5	Grade 5 to Grade 6	1178	1227	M5.A.1.2.1	Numbers & Op.
604868	5	Grade 5 to Grade 6	1176	1225	M5.B.1.2.1	Measure.
604964	5	Grade 5 to Grade 6	1190	1226	M5.E.1.1.1	Data & Prob.
601542	5	Grade 5 to Grade 6	1189	1225	M5.B.2.1.1	Measure.
606276	5	Grade 5 to Grade 6	590	1223	M5.C.2.1.1	Geo.
604856	5	Grade 5 to Grade 6	1180	1219	M5.A.3.1.1	Numbers & Op.
606166	5	Grade 5 to Grade 6	1181	1220	M5.D.2.1.1	Alg. Con.
604958	5	Grade 5 to Grade 6	1176	1219	M5.A.2.1.1	Numbers & Op.
604842	5	Grade 5 to Grade 6	1182	1219	M5.C.1.1.2	Geo.
606157	5	Grade 5 to Grade 6	1188	1219	M5.D.1.1.2	Alg. Con.
604794	5	Grade 5 to Grade 6	1177	1217	M5.E.2.1.2	Data & Prob.
604869	5	Grade 5 to Grade 6	1191	1216	M5.B.2.2.2	Measure.
606279	5	Grade 5 to Grade 6	1196	1219	M5.E.3.1.2	Data & Prob.
601040	6	Grade 5 to Grade 6	1190	609	M6.E.3.1.1	Data & Prob.
602096	6	Grade 5 to Grade 6	1190	1213	M6.B.2.1.1	Measure.
601730	6	Grade 5 to Grade 6	1191	1223	M6.B.2.2.1	Measure.
602081	6	Grade 5 to Grade 6	1188	1199	M6.E.1.1.3	Data & Prob.
599668	6	Grade 5 to Grade 6	1186	608	M6.A.1.3.1	Numbers & Op.
600989	6	Grade 5 to Grade 6	1184	1223	M6.D.1.1.1	Alg. Con.
602070	6	Grade 5 to Grade 6	1184	614	M6.E.1.1.1	Data & Prob.
601689	6	Grade 5 to Grade 6	1185	609	M6.C.1.2.2	Geo.
601031	6	Grade 5 to Grade 6	1185	1206	M6.D.2.1.2	Alg. Con.
602174	6	Grade 5 to Grade 6	1181	1210	M6.A.3.2.1	Numbers & Op.

Table C–3 (continued). Mathematics Items Used to Link Grade 5 to Grade 6

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category
			Lower Grade	Upper Grade		
601249	6	Grade 5 to Grade 6	1186	600	M6.C.3.1.1	Geo.
599670	6	Grade 5 to Grade 6	1181	1199	M6.A.1.3.2	Numbers & Op.
600978	6	Grade 5 to Grade 6	1184	615	M6.D.2.2.1	Alg. Con.
601706	6	Grade 5 to Grade 6	1186	1209	M6.E.2.1.1	Data & Prob.
601024	6	Grade 5 to Grade 6	1183	608	M6.D.1.2.1	Alg. Con.
602176	6	Grade 5 to Grade 6	1183	1213	M6.B.1.1.1	Measure.
602071	6	Grade 5 to Grade 6	1184	1210	M6.E.1.1.2	Data & Prob.
602104	6	Grade 5 to Grade 6	1179	607	M6.B.2.1.2	Measure.
599667	6	Grade 5 to Grade 6	1181	1226	M6.A.1.2.1	Numbers & Op.
601260	6	Grade 5 to Grade 6	1181	610	M6.C.1.1.1	Geo.

Appendix C: Vertical Linking Item Details

Table C–4. Mathematics Items Used to Link Grade 6 to Grade 7

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category
			Lower Grade	Upper Grade		
599606	6	Grade 6 to Grade 7	1224	792	M6.A.1.2.1	Numbers & Op.
601257	6	Grade 6 to Grade 7	1214	792	M6.C.3.1.1	Geo.
601026	6	Grade 6 to Grade 7	614	790	M6.D.1.2.1	Alg. Con.
601705	6	Grade 6 to Grade 7	1221	786	M6.E.1.1.1	Data & Prob.
601811	6	Grade 6 to Grade 7	1220	785	M6.A.2.1.1	Numbers & Op.
601714	6	Grade 6 to Grade 7	1203	786	M6.C.1.2.1	Geo.
601032	6	Grade 6 to Grade 7	1210	783	M6.D.2.1.2	Alg. Con.
599590	6	Grade 6 to Grade 7	2447	783	M6.A.1.1.1	Numbers & Op.
602095	6	Grade 6 to Grade 7	606	784	M6.B.2.1.3	Measure.
601700	6	Grade 6 to Grade 7	1230	785	M6.C.1.1.3	Geo.
601277	6	Grade 6 to Grade 7	1223	785	M6.E.3.1.1	Data & Prob.
602073	6	Grade 6 to Grade 7	603	784	M6.E.1.1.3	Data & Prob.
599643	6	Grade 6 to Grade 7	1217	778	M6.A.1.3.2	Numbers & Op.
602177	6	Grade 6 to Grade 7	1217	778	M6.B.1.1.1	Measure.
601220	6	Grade 6 to Grade 7	1205	778	M6.B.2.3.1	Measure.
601030	6	Grade 6 to Grade 7	1217	789	M6.D.2.1.1	Alg. Con.
601275	6	Grade 6 to Grade 7	592	786	M6.E.2.1.1	Data & Prob.
601678	6	Grade 6 to Grade 7	1220	785	M6.D.1.1.1	Alg. Con.
601301	6	Grade 6 to Grade 7	1220	785	M6.E.1.1.2	Data & Prob.
601245	6	Grade 6 to Grade 7	1225	783	M6.E.3.1.2	Data & Prob.
599593	6	Grade 6 to Grade 7	1221	784	M6.A.1.1.2	Numbers & Op.
601664	6	Grade 6 to Grade 7	600	780	M6.C.1.1.4	Geo.
599609	6	Grade 6 to Grade 7	1207	776	M6.A.1.3.1	Numbers & Op.
601799	6	Grade 6 to Grade 7	1211	778	M6.A.1.4.1	Numbers & Op.
602101	6	Grade 6 to Grade 7	612	775	M6.B.2.1.1	Measure.
602175	6	Grade 6 to Grade 7	614	773	M6.A.3.2.1	Numbers & Op.
601044	6	Grade 6 to Grade 7	1210	773	M6.D.2.2.1	Alg. Con.
601694	6	Grade 6 to Grade 7	1211	773	M6.C.1.1.2	Geo.
602088	6	Grade 6 to Grade 7	1226	772	M6.B.2.2.1	Measure.
601702	6	Grade 6 to Grade 7	605	771	M6.C.1.2.2	Geo.
601287	7	Grade 6 to Grade 7	1222	395	M7.D.2.1.1	Alg. Con.
601050	7	Grade 6 to Grade 7	1223	399	M7.E.2.1.1	Data & Prob.
601772	7	Grade 6 to Grade 7	1222	793	M7.D.1.1.1	Alg. Con.
602215	7	Grade 6 to Grade 7	1222	765	M7.B.2.1.3	Measure.
601132	7	Grade 6 to Grade 7	1221	764	M7.E.4.1.1	Data & Prob.
599720	7	Grade 6 to Grade 7	1221	757	M7.A.2.1.1	Numbers & Op.
602190	7	Grade 6 to Grade 7	1219	788	M7.B.1.1.1	Measure.
601273	7	Grade 6 to Grade 7	1215	762	M7.D.2.2.1	Alg. Con.
599734	7	Grade 6 to Grade 7	1215	792	M7.A.1.2.1	Numbers & Op.
601784	7	Grade 6 to Grade 7	1216	373	M7.C.1.1.2	Geo.

Table C–4 (continued). Mathematics Items Used to Link Grade 6 to Grade 7

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category
			Lower Grade	Upper Grade		
601278	7	Grade 6 to Grade 7	1213	401	M7.D.3.1.1	Alg. Con.
601704	7	Grade 6 to Grade 7	1214	788	M7.C.3.1.1	Geo.
602189	7	Grade 6 to Grade 7	1212	780	M7.A.3.2.2	Numbers & Op.
601123	7	Grade 6 to Grade 7	1209	385	M7.E.3.1.1	Data & Prob.
599633	7	Grade 6 to Grade 7	1209	797	M7.A.2.2.4	Numbers & Op.
601099	7	Grade 6 to Grade 7	1218	777	M7.E.1.1.1	Data & Prob.
599685	7	Grade 6 to Grade 7	1214	400	M7.A.2.2.2	Numbers & Op.
601124	7	Grade 6 to Grade 7	1216	785	M7.E.3.1.2	Data & Prob.
602193	7	Grade 6 to Grade 7	1214	792	M7.B.2.1.1	Measure.
601827	7	Grade 6 to Grade 7	1211	772	M7.C.1.1.3	Geo.
601067	7	Grade 6 to Grade 7	1208	781	M7.D.2.1.1	Alg. Con.
601379	7	Grade 6 to Grade 7	1212	793	M7.E.2.1.2	Data & Prob.
599708	7	Grade 6 to Grade 7	1206	563	M7.A.1.1.1	Numbers & Op.
601771	7	Grade 6 to Grade 7	1202	767	M7.D.1.1.1	Alg. Con.
601271	7	Grade 6 to Grade 7	1206	761	M7.D.2.2.1	Alg. Con.
599715	7	Grade 6 to Grade 7	1206	781	M7.A.1.2.2	Numbers & Op.
599650	7	Grade 6 to Grade 7	1193	798	M7.A.3.2.1	Numbers & Op.
602180	7	Grade 6 to Grade 7	1199	789	M7.B.1.1.1	Measure.
601355	7	Grade 6 to Grade 7	1190	399	M7.D.3.1.1	Alg. Con.
602202	7	Grade 6 to Grade 7	1194	795	M7.C.1.1.1	Geo.

Appendix C: Vertical Linking Item Details

Table C–5. Mathematics Items Used to Link Grade 8 to Grade 7

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category
			Lower Grade	Upper Grade		
601054	7	Grade 8 to Grade 7	745	312	M7.E.3.1.1	Data & Prob.
601365	7	Grade 8 to Grade 7	746	312	M7.D.3.1.1	Alg. Con.
601117	7	Grade 8 to Grade 7	747	311	M7.E.1.1.1	Data & Prob.
601835	7	Grade 8 to Grade 7	748	310	M7.C.1.1.3	Geo.
601677	7	Grade 8 to Grade 7	749	312	M7.C.1.2.2	Geo.
602155	7	Grade 8 to Grade 7	750	312	M7.A.3.2.2	Numbers & Op.
602142	7	Grade 8 to Grade 7	751	312	M7.B.2.1.3	Measure.
601300	7	Grade 8 to Grade 7	752	312	M7.D.2.1.2	Alg. Con.
601130	7	Grade 8 to Grade 7	753	312	M7.E.3.1.3	Data & Prob.
599682	7	Grade 8 to Grade 7	754	311	M7.A.2.2.1	Numbers & Op.
602144	7	Grade 8 to Grade 7	755	309	M7.B.2.2.2	Measure.
599732	7	Grade 8 to Grade 7	756	309	M7.A.2.2.6	Numbers & Op.
599727	7	Grade 8 to Grade 7	757	309	M7.A.1.2.1	Numbers & Op.
599686	7	Grade 8 to Grade 7	758	309	M7.A.2.2.3	Numbers & Op.
601687	7	Grade 8 to Grade 7	759	307	M7.C.3.1.2	Geo.
601218	7	Grade 8 to Grade 7	760	315	M7.C.3.1.1	Geo.
599722	7	Grade 8 to Grade 7	761	314	M7.A.2.1.1	Numbers & Op.
599684	7	Grade 8 to Grade 7	762	313	M7.A.2.2.2	Numbers & Op.
602141	7	Grade 8 to Grade 7	763	311	M7.B.2.1.2	Measure.
601051	7	Grade 8 to Grade 7	764	314	M7.E.2.1.2	Data & Prob.
599712	7	Grade 8 to Grade 7	765	314	M7.A.3.2.1	Numbers & Op.
602234	7	Grade 8 to Grade 7	766	314	M7.C.1.1.1	Geo.
602146	7	Grade 8 to Grade 7	767	314	M7.C.1.2.1	Geo.
601773	7	Grade 8 to Grade 7	768	313	M7.D.2.1.1	Alg. Con.
599711	7	Grade 8 to Grade 7	769	313	M7.A.2.2.5	Numbers & Op.
602143	7	Grade 8 to Grade 7	770	313	M7.B.2.2.1	Measure.
601110	7	Grade 8 to Grade 7	771	313	M7.E.3.1.2	Data & Prob.
601272	7	Grade 8 to Grade 7	772	312	M7.D.2.2.1	Alg. Con.
601357	7	Grade 8 to Grade 7	773	313	M7.D.3.1.2	Alg. Con.
601086	7	Grade 8 to Grade 7	774	313	M7.E.4.1.1	Data & Prob.
601263	8	Grade 8 to Grade 7	775	309	M8.C.3.1.1	Geo.
601757	8	Grade 8 to Grade 7	776	158	M8.D.1.1.2	Alg. Con.
601069	8	Grade 8 to Grade 7	777	308	M8.E.4.1.2	Data & Prob.
599651	8	Grade 8 to Grade 7	778	318	M8.A.3.1.2	Numbers & Op.
601073	8	Grade 8 to Grade 7	779	314	M8.D.2.1.3	Alg. Con.
601801	8	Grade 8 to Grade 7	780	154	M8.B.1.1.1	Measure.
599610	8	Grade 8 to Grade 7	781	160	M8.A.2.1.1	Numbers & Op.
601097	8	Grade 8 to Grade 7	782	159	M8.E.1.1.1	Data & Prob.
601725	8	Grade 8 to Grade 7	783	316	M8.B.1.1.3	Measure.
601744	8	Grade 8 to Grade 7	784	157	M8.B.2.2.3	Measure.

Table C–5 (continued). Mathematics Items Used to Link Grade 8 to Grade 7

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category
			Lower Grade	Upper Grade		
601288	8	Grade 8 to Grade 7	785	157	M8.D.2.1.1	Alg. Con.
601247	8	Grade 8 to Grade 7	786	312	M8.D.2.2.2	Alg. Con.
599698	8	Grade 8 to Grade 7	787	156	M8.A.2.2.2	Numbers & Op.
601763	8	Grade 8 to Grade 7	788	306	M8.D.4.1.2	Alg. Con.
601090	8	Grade 8 to Grade 7	789	154	M8.E.1.1.3	Data & Prob.
601804	8	Grade 8 to Grade 7	790	318	M8.B.1.1.4	Measure.
599640	8	Grade 8 to Grade 7	791	311	M8.A.3.1.1	Numbers & Op.
602158	8	Grade 8 to Grade 7	792	310	M8.B.1.1.2	Measure.
602072	8	Grade 8 to Grade 7	793	315	M8.D.1.1.1	Alg. Con.
601707	8	Grade 8 to Grade 7	794	317	M8.D.1.1.3	Alg. Con.
601332	8	Grade 8 to Grade 7	795	312	M8.D.2.1.2	Alg. Con.
599613	8	Grade 8 to Grade 7	796	317	M8.A.2.2.1	Numbers & Op.
601675	8	Grade 8 to Grade 7	797	317	M8.D.4.1.3	Alg. Con.
601100	8	Grade 8 to Grade 7	798	157	M8.E.3.1.1	Data & Prob.
599583	8	Grade 8 to Grade 7	799	636	M8.A.1.1.1	Numbers & Op.
601340	8	Grade 8 to Grade 7	800	156	M8.D.2.2.1	Alg. Con.
601344	8	Grade 8 to Grade 7	801	321	M8.D.4.1.1	Alg. Con.
600990	8	Grade 8 to Grade 7	802	306	M8.E.1.1.2	Data & Prob.
599645	8	Grade 8 to Grade 7	803	160	M8.A.3.3.1	Numbers & Op.
602058	8	Grade 8 to Grade 7	804	307	M8.C.1.1.1	Geo.

Appendix C: Vertical Linking Item Details

Table C–6. Mathematics Items Used to Link Algebra I to Grade 8

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category	Algebra I Diagnostic Category
			Lower Grade	Upper Grade			
601121	8	Algebra I to Grade 8	316	1400	M8.A.3.3.1	Numbers & Op.	Op. with Real Num.
601102	8	Algebra I to Grade 8	310	1406	M8.E.3.1.1	Data & Prob.	Data Anal.
601360	8	Algebra I to Grade 8	155	1403	M8.D.4.1.1	Alg. Con.	Functions & Geo.
601764	8	Algebra I to Grade 8	316	1396	M8.D.4.1.3	Alg. Con.	Functions & Geo.
602052	8	Algebra I to Grade 8	318	1396	M8.D.1.1.3	Alg. Con.	Functions & Geo.
599639	8	Algebra I to Grade 8	154	1391	M8.A.3.1.1	Numbers & Op.	Op. with Real Num.
602065	8	Algebra I to Grade 8	156	1376	M8.D.1.1.1	Alg. Con.	Functions & Geo.
601346	8	Algebra I to Grade 8	306	1390	M8.D.2.2.2	Alg. Con.	Linear Eq.
599582	8	Algebra I to Grade 8	625	1387	M8.A.1.1.1	Numbers & Op.	Op. with Real Num.
599697	8	Algebra I to Grade 8	314	1377	M8.A.2.2.1	Numbers & Op.	Op. with Real Num.
600980	8	Algebra I to Grade 8	318	1376	M8.D.2.1.3	Alg. Con.	Linear Eq.
601127	8	Algebra I to Grade 8	158	1376	M8.E.4.1.1	Data & Prob.	Data Anal.
601776	8	Algebra I to Grade 8	311	1370	M8.D.4.1.2	Alg. Con.	Functions & Geo.
601092	8	Algebra I to Grade 8	306	1362	M8.E.1.1.2	Data & Prob.	Data Anal.
601232	8	Algebra I to Grade 8	151	1359	M8.D.2.1.1	Alg. Con.	Linear Eq.
601348	8	Algebra I to Grade 8	311	1402	M8.D.2.2.1	Alg. Con.	Linear Eq.
601777	8	Algebra I to Grade 8	307	1401	M8.D.4.1.3	Alg. Con.	Functions & Geo.
599619	8	Algebra I to Grade 8	314	1388	M8.A.2.2.2	Numbers & Op.	Op. with Real Num.
601222	8	Algebra I to Grade 8	311	1389	M8.C.3.1.1	Geo.	None
601384	8	Algebra I to Grade 8	317	1388	M8.D.4.1.1	Alg. Con.	Functions & Geo.
601091	8	Algebra I to Grade 8	314	1390	M8.E.1.1.3	Data & Prob.	Data Anal.
599585	8	Algebra I to Grade 8	310	1377	M8.A.2.1.1	Numbers & Op.	Op. with Real Num.
599637	8	Algebra I to Grade 8	308	1380	M8.A.3.1.2	Numbers & Op.	Op. with Real Num.
601231	8	Algebra I to Grade 8	313	1374	M8.D.2.1.1	Alg. Con.	Linear Eq.
601663	8	Algebra I to Grade 8	155	1368	M8.D.1.1.2	Alg. Con.	Functions & Geo.
601126	8	Algebra I to Grade 8	308	1370	M8.E.4.1.2	Data & Prob.	Data Anal.
601089	8	Algebra I to Grade 8	151	1357	M8.E.1.1.2	Data & Prob.	Data Anal.
601234	8	Algebra I to Grade 8	303	1356	M8.D.2.1.2	Alg. Con.	Linear Eq.
601775	8	Algebra I to Grade 8	312	1349	M8.D.4.1.2	Alg. Con.	Functions & Geo.
601103	8	Algebra I to Grade 8	319	1344	M8.E.3.2.1	Data & Prob.	Data Anal.
602259	11	Algebra I to Grade 8	312	714	M11.E.2.1.3	Data & Prob.	Data Anal.
604952	11	Algebra I to Grade 8	312	710	M11.E.4.1.2	Data & Prob.	Data Anal.
601837	A1	Algebra I to Grade 8	312	700	A1.2.2.1.1	Alg. Con.	Functions & Geo.
602184	A1	Algebra I to Grade 8	313	1421	A1.2.1.1.1	Alg. Con.	Functions & Geo.
601554	11	Algebra I to Grade 8	313	711	M11.E.2.1.3	Data & Prob.	Data Anal.
602171	A1	Algebra I to Grade 8	309	1382	A1.2.1.2.2	Alg. Con.	Functions & Geo.
601841	A1	Algebra I to Grade 8	313	1383	A1.2.2.1.2	Alg. Con.	Functions & Geo.
604806	11	Algebra I to Grade 8	312	710	M11.E.4.1.2	Data & Prob.	Data Anal.
600839	11	Algebra I to Grade 8	313	713	M11.E.1.1.1	Data & Prob.	Data Anal.
601461	11	Algebra I to Grade 8	313	711	M11.E.1.1.1	Data & Prob.	Data Anal.

Table C–6 (continued). Mathematics Items Used to Link Algebra I to Grade 8

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category	Algebra I Diagnostic Category
			Lower Grade	Upper Grade			
604804	11	Algebra I to Grade 8	313	705	M11.E.2.1.3	Data & Prob.	Data Anal.
602241	A1	Algebra I to Grade 8	312	1420	A1.2.1.2.1	Alg. Con.	Functions & Geo.
601793	A1	Algebra I to Grade 8	313	1425	A1.2.2.1.4	Alg. Con.	Functions & Geo.
602159	A1	Algebra I to Grade 8	312	1416	A1.2.2.2.1	Alg. Con.	Functions & Geo.
602274	11	Algebra I to Grade 8	312	713	M11.E.4.1.2	Data & Prob.	Data Anal.
601135	A1	Algebra I to Grade 8	315	1418	A1.2.3.3.1	Data & Prob.	Data Anal.
601144	A1	Algebra I to Grade 8	317	1415	A1.1.2.1.3	Alg. Con.	Linear Eq.
600842	11	Algebra I to Grade 8	316	717	M11.A.2.1.3	Numbers & Op.	Op. with Real Num.
601370	A1	Algebra I to Grade 8	314	1364	A1.1.3.1.3	Alg. Con.	Linear Eq.
600646	11	Algebra I to Grade 8	315	710	M11.A.3.1.1	Numbers & Op.	Op. with Real Num.
601630	11	Algebra I to Grade 8	314	718	M11.A.3.1.1	Numbers & Op.	Op. with Real Num.
601138	A1	Algebra I to Grade 8	313	1378	A1.2.3.2.1	Data & Prob.	Data Anal.
601139	A1	Algebra I to Grade 8	310	1413	A1.2.3.2.2	Data & Prob.	Data Anal.
600826	11	Algebra I to Grade 8	311	716	M11.A.3.1.1	Numbers & Op.	Op. with Real Num.
601140	A1	Algebra I to Grade 8	310	1408	A1.2.3.2.3	Data & Prob.	Data Anal.
600930	A1	Algebra I to Grade 8	311	707	A1.1.1.4.1	Numbers & Op.	Op. with Real Num.
602260	11	Algebra I to Grade 8	312	717	M11.A.2.1.1	Numbers & Op.	Op. with Real Num.
600931	A1	Algebra I to Grade 8	310	1375	A1.1.1.5.1	Alg. Con.	Op. with Real Num.
602644	11	Algebra I to Grade 8	311	714	M11.A.2.1.1	Numbers & Op.	Op. with Real Num.
604162	11	Algebra I to Grade 8	310	714	M11.A.2.1.2	Numbers & Op.	Op. with Real Num.

Appendix C: Vertical Linking Item Details

Table C–7. Mathematics Items Used to Link Geometry to Grade 8

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category	Geometry Diagnostic Category
			Lower Grade	Upper Grade			
601740	8	Geometry to Grade 8	306	1052	M8.B.2.1.3	Measure.	Measure.
602118	8	Geometry to Grade 8	319	1049	M8.B.2.2.1	Measure.	Measure.
602056	8	Geometry to Grade 8	306	1052	M8.C.1.1.2	Geo.	Geo. Prop.
602059	8	Geometry to Grade 8	156	1052	M8.C.1.1.2	Geo.	Geo. Prop.
601733	8	Geometry to Grade 8	151	1039	M8.B.2.1.1	Measure.	Measure.
602133	8	Geometry to Grade 8	320	1049	M8.C.1.1.3	Geo.	Geo. Prop.
602117	8	Geometry to Grade 8	151	1046	M8.B.2.2.2	Measure.	Measure.
602128	8	Geometry to Grade 8	312	1047	M8.C.1.1.1	Geo.	Geo. Prop.
601802	8	Geometry to Grade 8	319	1047	M8.B.1.1.3	Measure.	None
602205	8	Geometry to Grade 8	318	1047	M8.C.1.1.1	Geo.	Geo. Prop.
601723	8	Geometry to Grade 8	306	1037	M8.B.1.1.1	Measure.	None
602208	8	Geometry to Grade 8	317	1043	M8.C.1.1.3	Geo.	Geo. Prop.
601326	8	Geometry to Grade 8	317	1038	M8.C.1.2.1	Geo.	Coor. Geo.
601338	8	Geometry to Grade 8	311	1038	M8.C.3.1.1	Geo.	Coor. Geo.
601371	8	Geometry to Grade 8	316	1031	M8.C.3.1.1	Geo.	Coor. Geo.
601736	8	Geometry to Grade 8	316	1048	M8.B.2.1.2	Measure.	Measure.
602136	8	Geometry to Grade 8	316	1034	M8.C.1.2.1	Geo.	Coor. Geo.
601755	8	Geometry to Grade 8	306	1039	M8.C.1.2.1	Geo.	Coor. Geo.
601372	8	Geometry to Grade 8	316	1037	M8.C.3.1.1	Geo.	Coor. Geo.
601782	8	Geometry to Grade 8	156	1028	M8.B.1.1.4	Measure.	None
602204	8	Geometry to Grade 8	308	1039	M8.C.1.1.1	Geo.	Geo. Prop.
602131	8	Geometry to Grade 8	317	1037	M8.C.1.1.2	Geo.	Geo. Prop.
602061	8	Geometry to Grade 8	314	1035	M8.C.1.1.2	Geo.	Geo. Prop.
602115	8	Geometry to Grade 8	317	1029	M8.B.2.2.2	Measure.	Measure.
602087	8	Geometry to Grade 8	312	1034	M8.C.1.1.3	Geo.	Geo. Prop.
602212	8	Geometry to Grade 8	319	1030	M8.C.1.1.3	Geo.	Geo. Prop.
601724	8	Geometry to Grade 8	310	1023	M8.B.1.1.2	Measure.	None
602113	8	Geometry to Grade 8	315	1023	M8.B.2.2.1	Measure.	Measure.
601329	8	Geometry to Grade 8	302	1031	M8.C.3.1.1	Geo.	Coor. Geo.
601743	8	Geometry to Grade 8	305	1029	M8.B.2.2.3	Measure.	Measure.
602661	11	Geometry to Grade 8	316	531	M11.B.2.1.1	Measure.	Measure.
604163	11	Geometry to Grade 8	317	531	M11.B.2.2.2	Measure.	Measure.
604671	GE	Geometry to Grade 8	311	1963	G.1.1.1.1	Geo.	Geo. Prop.
604400	GE	Geometry to Grade 8	316	992	G.1.3.1.1	Geo.	Congruence
604389	GE	Geometry to Grade 8	316	1001	G.2.1.1.1	Geo.	Coor. Geo.
604799	11	Geometry to Grade 8	316	528	M11.B.2.3.1	Measure.	Measure.
604418	GE	Geometry to Grade 8	312	478	G.1.2.1.4	Geo.	Geo. Prop.
600651	11	Geometry to Grade 8	315	531	M11.B.2.2.4	Measure.	Measure.
604707	GE	Geometry to Grade 8	314	1053	G.1.2.1.5	Geo.	Geo. Prop.
604180	11	Geometry to Grade 8	316	528	M11.B.2.2.3	Measure.	Measure.

Table C–7 (continued). Mathematics Items Used to Link Geometry to Grade 8

Item ID	Item Grade	Link	N Count		Eligible Content	Mathematics Diagnostic Category	Geometry Diagnostic Category
			Lower Grade	Upper Grade			
604378	GE	Geometry to Grade 8	316	1048	G.2.2.1.1	Geo.	Measure.
601544	11	Geometry to Grade 8	316	532	M11.B.2.1.1	Measure.	Measure.
600749	11	Geometry to Grade 8	314	531	M11.B.2.2.4	Measure.	Measure.
604392	GE	Geometry to Grade 8	315	1053	G.1.1.1.4	Geo.	Geo. Prop.
604395	GE	Geometry to Grade 8	314	1024	G.1.3.1.2	Geo.	Congruence
604178	11	Geometry to Grade 8	315	531	M11.C.1.3.1	Geo.	Congruence
600785	11	Geometry to Grade 8	315	530	M11.C.1.2.2	Geo.	Geo. Prop.
604522	11	Geometry to Grade 8	313	533	M11.C.1.4.1	Geo.	Coor. Geo.
604763	GE	Geometry to Grade 8	308	503	G.2.2.2.1	Geo.	Measure.
602650	11	Geometry to Grade 8	313	530	M11.C.1.3.1	Geo.	Congruence
604474	GE	Geometry to Grade 8	313	988	G.2.2.1.2	Geo.	Measure.
604600	GE	Geometry to Grade 8	310	1053	G.2.2.2.4	Geo.	Measure.
604361	GE	Geometry to Grade 8	312	525	G.2.3.2.1	Geo.	Measure.
601550	11	Geometry to Grade 8	311	530	M11.C.1.2.3	Geo.	Geo. Prop.
604360	GE	Geometry to Grade 8	309	1042	G.2.3.1.3	Geo.	Measure.
604170	11	Geometry to Grade 8	309	528	M11.C.1.4.1	Geo.	Coor. Geo.
604354	GE	Geometry to Grade 8	306	1007	G.2.2.3.1	Geo.	Measure.
601549	11	Geometry to Grade 8	306	530	M11.C.1.2.3	Geo.	Geo. Prop.
602268	11	Geometry to Grade 8	305	527	M11.C.1.3.1	Geo.	Congruence
604453	GE	Geometry to Grade 8	304	955	G.2.2.2.2	Geo.	Measure.

Appendix C: Vertical Linking Item Details

Table C–8. Mathematics Items Used to Link Algebra II to Algebra I

Item ID	Item Grade	Link	N Count		Eligible Content	Algebra I Diagnostic Category	Algebra II Diagnostic Category
			Lower Grade	Upper Grade			
602167	A1	Algebra II to Algebra I	701	949	A1.1.3.2.1	Linear Eq.	Non-linear
601423	A1	Algebra II to Algebra I	709	951	A1.1.2.1.3	Linear Eq.	Non-linear
602188	A1	Algebra II to Algebra I	708	943	A1.2.2.1.4	Functions & Geo.	Functions
600971	A1	Algebra II to Algebra I	1407	944	A1.1.1.5.1	Op. with Real Num.	Non-linear
601180	A1	Algebra II to Algebra I	1372	948	A1.1.2.1.1	Linear Eq.	Non-linear
601854	A1	Algebra II to Algebra I	670	937	A1.1.2.2.2	Linear Eq.	Non-linear
602253	A1	Algebra II to Algebra I	705	939	A1.2.2.1.2	Functions & Geo.	Functions
601419	A1	Algebra II to Algebra I	693	941	A1.1.3.1.2	Linear Eq.	Non-linear
602251	A1	Algebra II to Algebra I	1371	942	A1.2.1.2.2	Functions & Geo.	Functions
601176	A1	Algebra II to Algebra I	676	941	A1.2.3.2.3	Data Anal.	Data Anal.
600928	A1	Algebra II to Algebra I	1405	935	A1.1.1.2.1	Op. with Real Num.	Non-linear
600926	A1	Algebra II to Algebra I	2816	940	A1.1.1.1.1	Op. with Real Num.	Non-linear
602237	A1	Algebra II to Algebra I	662	931	A1.2.1.1.1	Functions & Geo.	Functions
601394	A1	Algebra II to Algebra I	697	931	A1.2.1.1.3	Functions & Geo.	Functions
600973	A1	Algebra II to Algebra I	682	925	A1.1.1.5.3	Op. with Real Num.	Non-linear
601397	A1	Algebra II to Algebra I	1378	943	A1.1.3.1.1	Linear Eq.	Non-linear
601368	A1	Algebra II to Algebra I	1374	948	A1.1.3.1.3	Linear Eq.	Non-linear
601136	A1	Algebra II to Algebra I	709	942	A1.1.2.1.2	Linear Eq.	Non-linear
601836	A1	Algebra II to Algebra I	713	946	A1.2.2.1.1	Functions & Geo.	Functions
601148	A1	Algebra II to Algebra I	1395	942	A1.2.3.3.1	Data Anal.	Data Anal.
602160	A1	Algebra II to Algebra I	1397	947	A1.2.2.2.1	Functions & Geo.	Functions
601813	A1	Algebra II to Algebra I	1424	941	A1.2.1.2.1	Functions & Geo.	Functions
601805	A1	Algebra II to Algebra I	1348	920	A1.2.2.1.3	Functions & Geo.	Functions
600953	A1	Algebra II to Algebra I	659	940	A1.1.1.1.2	Op. with Real Num.	Non-linear
600932	A1	Algebra II to Algebra I	1411	941	A1.1.1.5.2	Op. with Real Num.	Non-linear
601398	A1	Algebra II to Algebra I	1410	931	A1.1.2.2.1	Linear Eq.	Non-linear
600948	A1	Algebra II to Algebra I	1387	920	A1.2.3.1.1	Data Anal.	Data Anal.
600966	A1	Algebra II to Algebra I	1395	912	A1.1.1.3.1	Op. with Real Num.	Non-linear
602154	A1	Algebra II to Algebra I	1387	918	A1.1.3.2.2	Linear Eq.	Non-linear
601380	A1	Algebra II to Algebra I	1392	915	A1.2.1.1.2	Functions & Geo.	Functions
604700	A2	Algebra II to Algebra I	1406	927	A2.2.1.1.1	Functions & Geo.	Functions
603013	A2	Algebra II to Algebra I	1406	957	A2.1.3.1.4	Linear Eq.	Non-linear
604570	A2	Algebra II to Algebra I	1386	462	A2.2.2.1.3	Functions & Geo.	Functions
603086	A2	Algebra II to Algebra I	1400	914	A2.1.2.1.4	Op. with Real Num.	Non-linear
604625	A2	Algebra II to Algebra I	1380	948	A2.2.1.1.3	Functions & Geo.	Functions
604530	A2	Algebra II to Algebra I	1380	935	A2.1.3.2.2	Linear Eq.	Non-linear
604686	A2	Algebra II to Algebra I	1379	446	A2.2.2.2.1	Functions & Geo.	Functions
603043	A2	Algebra II to Algebra I	1383	932	A2.1.2.1.2	Op. with Real Num.	Non-linear
603037	A2	Algebra II to Algebra I	1366	950	A2.2.1.1.4	Functions & Geo.	Functions
604572	A2	Algebra II to Algebra I	1377	453	A2.2.2.1.4	Functions & Geo.	Functions

Table C–8 (continued). Mathematics Items Used to Link Algebra II to Algebra I

Item ID	Item Grade	Link	N Count		Eligible Content	Algebra I Diagnostic Category	Algebra II Diagnostic Category
			Lower Grade	Upper Grade			
603000	A2	Algebra II to Algebra I	1372	471	A2.1.2.2.2	Op. with Real Num.	Non-linear
604537	A2	Algebra II to Algebra I	1373	908	A2.2.1.1.2	Functions & Geo.	Functions
604634	A2	Algebra II to Algebra I	1369	472	A2.2.3.2.3	Data Anal.	Data Anal.
603106	A2	Algebra II to Algebra I	1360	898	A2.2.3.1.2	Data Anal.	Data Anal.
603057	A2	Algebra II to Algebra I	1351	456	A2.2.3.2.1	Data Anal.	Data Anal.
603055	A2	Algebra II to Algebra I	1397	919	A2.2.3.1.1	Data Anal.	Data Anal.
603018	A2	Algebra II to Algebra I	1408	937	A2.1.2.2.1	Op. with Real Num.	Non-linear
604685	A2	Algebra II to Algebra I	1404	476	A2.2.2.2.1	Functions & Geo.	Functions
603126	A2	Algebra II to Algebra I	1396	474	A2.2.3.2.3	Data Anal.	Data Anal.
604539	A2	Algebra II to Algebra I	1395	941	A2.1.3.2.1	Linear Eq.	Non-linear
604540	A2	Algebra II to Algebra I	1382	889	A2.1.3.2.2	Linear Eq.	Non-linear
604703	A2	Algebra II to Algebra I	1397	479	A2.2.1.1.1	Functions & Geo.	Functions
604629	A2	Algebra II to Algebra I	1387	902	A2.2.2.1.1	Functions & Geo.	Functions
603056	A2	Algebra II to Algebra I	1390	928	A2.2.3.2.1	Data Anal.	Data Anal.
603003	A2	Algebra II to Algebra I	1376	473	A2.1.3.1.2	Linear Eq.	Non-linear
604550	A2	Algebra II to Algebra I	1369	939	A2.2.2.1.4	Functions & Geo.	Functions
603098	A2	Algebra II to Algebra I	1374	944	A2.1.2.1.3	Op. with Real Num.	Non-linear
604544	A2	Algebra II to Algebra I	1370	461	A2.2.1.1.2	Functions & Geo.	Functions
604627	A2	Algebra II to Algebra I	1363	953	A2.2.1.1.3	Functions & Geo.	Functions
603042	A2	Algebra II to Algebra I	1368	936	A2.1.2.1.1	Op. with Real Num.	Non-linear

Appendix C: Vertical Linking Item Details

Tables C–9 through C–16 summarize the number of linking items by diagnostic category. Items coded in a Mathematics diagnostic category and an Algebra I, Geometry, or Algebra II diagnostic category are noted.

Table C–9. Number of Items Linking Grade 3 to Grade 4 by Diagnostic Category

	Link Grade 3 to Grade 4		
	Grade 3 Items	**Grade 4 Items**	**Total**
Numbers & Operations	8	6	14
Measurement	5	4	9
Geometry	2	4	6
Algebraic Concepts	3	3	6
Data Analysis & Probability	2	3	5
TOTAL	20	20	40

Table C–10. Number of Items Linking Grade 4 to Grade 5 by Diagnostic Category

	Grade 4 to Grade 5		
	Grade 4 Items	**Grade 5 Items**	**Total**
Numbers & Operations	6	7	13
Measurement	3	4	7
Geometry	4	3	7
Algebraic Concepts	3	3	6
Data Analysis & Probability	4	3	7
TOTAL	20	20	40

Table C–11. Number of Items Linking Grade 5 to Grade 6 by Diagnostic Category

	Grade 5 to Grade 6		
	Grade 5 Items	**Grade 6 Items**	**Total**
Numbers & Operations	10	4	14
Measurement	6	4	10
Geometry	5	3	8
Algebraic Concepts	4	4	8
Data Analysis & Probability	5	5	10
TOTAL	30	20	50

Appendix C: Vertical Linking Item Details

Table C–12. Number of Items Linking Grade 6 to Grade 7 by Diagnostic Category

	Grade 6 to Grade 7		
	Grade 6 Items	**Grade 7 Items**	**Total**
Numbers & Operations	8	8	16
Measurement	5	4	9
Geometry	6	4	10
Algebraic Concepts	5	8	13
Data Analysis & Probability	6	6	12
TOTAL	30	30	60

Table C–13. Number of Items Linking Grade 8 to Grade 7 by Diagnostic Category

	Grade 8 to Grade 7		
	Grade 7 Items	**Grade 8 Items**	**Total**
Numbers & Operations	9	7	16
Measurement	4	5	9
Geometry	6	2	8
Algebraic Concepts	5	11	16
Data Analysis & Probability	6	5	11
TOTAL	30	30	60

Table C–14. Number of Items Linking Algebra I to Grade 8 by Diagnostic Category

	Algebra I to Grade 8		
	Grade 8 Items	**Algebra I Items**	**Total**
Numbers & Operations	7	8	15
Measurement	0	0	0
Geometry	1	0	1
Algebraic Concepts	15	10	25
Data Analysis & Probability	7	12	19
No Grade 8 DC	0	0	0
TOTAL	30	30	60
	Algebra I to Grade 8		
	Grade 8 Items	**Algebra I Items**	**Total**
Operations with Real Numbers	7	9	16
Linear Equations	6	2	8
Functions	9	7	16
Data Analysis	7	12	19
No Algebra I DC	1	0	1
TOTAL	30	30	60

Appendix C: Vertical Linking Item Details

Table C–15. Number of Items Linking Geometry to Grade 8 by Diagnostic Category

	Geometry to Grade 8		
	Grade 8 Items	**Geometry Items**	**Total**
Numbers & Operations	0	0	0
Measurement	12	0	12
Geometry	18	30	48
Algebraic Concepts	0	0	0
Data Analysis & Probability	0	0	0
No Grade 8 DC	0	0	0
TOTAL	30	30	60
	Geometry to Grade 8		
	Grade 8 Items	**Geometry Items**	**Total**
Geometric Properties	11	8	19
Congruence	0	4	4
Coordinate	7	2	9
Measurement	8	16	24
No Geometry DC	4	0	4
TOTAL	30	30	60

Table C–16. Number of Items Linking Algebra II to Algebra I by Diagnostic Category

	Algebra II to Algebra I		
	Algebra I Items	**Algebra II Items**	**Total**
Operations with Real Numbers	7	6	13
Linear Equations	10	5	15
Functions	10	13	23
Data Analysis	3	6	9
No Algebra I DC	0	0	0
TOTAL	30	30	60
	Algebra II to Algebra I		
	Algebra I Items	**Algebra II Items**	**Total**
Op. with Complex Numbers	0	0	0
Non-linear	17	11	28
Functions	10	13	23
Data Analysis	3	6	9
No Algebra II DC	0	0	0
TOTAL	30	30	60

Appendix C: Vertical Linking Item Details

Table C–17. Mathematics Example of Vertical Linking Workbook

		Grade 4 Calibration			Grade 5 Calibration				Grade 4 on		
Item ID	Item Grade	Difficulty	Fit	Displace	Difficulty	Fit	Displace	Discrepancy	Grade 5 Scale	Robust Z	Flag
601646	4	-1.028	1.020	-0.006	-1.880	1.000	-0.004	-0.852	-1.650	-0.458	
601987	4	0.195	0.970	0.001	-0.384	0.930	0.000	-0.579	-0.427	0.205	
604493	4	0.784	1.030	0.000	0.204	1.010	0.000	-0.580	0.162	0.203	
601961	4	0.684	1.000	0.002	-0.469	0.910	0.000	-1.153	0.062	-1.189	
604499	4	-0.488	0.900	0.001	-0.492	0.910	0.000	-0.004	-1.110	1.601	
602889	4	-0.160	0.920	-0.002	-1.157	0.840	0.000	-0.997	-0.782	-0.810	
602885	4	0.112	1.200	0.003	0.051	1.220	0.000	-0.061	-0.510	1.463	
602887	4	-0.493	1.070	-0.002	-1.063	1.030	0.000	-0.570	-1.115	0.227	
601639	4	0.397	1.070	0.001	0.149	1.090	0.000	-0.248	-0.225	1.009	
604969	4	1.559	1.060	0.000	1.469	1.080	0.000	-0.090	0.937	1.393	
601994	4	0.257	0.950	0.000	0.100	1.090	0.000	-0.157	-0.365	1.230	
601998	4	-0.551	1.120	-0.001	-1.376	1.140	-0.004	-0.825	-1.173	-0.392	
602000	4	2.034	1.070	-0.006	1.248	1.060	-0.003	-0.786	1.412	-0.297	
601991	4	1.106	0.900	0.001	0.095	0.860	-0.003	-1.011	0.484	-0.844	
604879	4	-0.099	1.020	0.000	-1.101	0.870	-0.003	-1.002	-0.721	-0.822	
601964	4	1.069	1.020	0.001	0.154	1.010	-0.003	-0.915	0.447	-0.611	
602971	4	-0.355	1.000	0.000	-0.858	1.070	-0.003	-0.503	-0.977	0.390	
604486	4	-0.420	0.940	0.000	-0.749	0.970	-0.003	-0.329	-1.042	0.812	
604967	4	-1.495	0.900	0.001	-1.254	0.960	-0.003	0.241	-2.117	2.196	high robust Z
602973	4	-0.035	0.940	0.003	0.362	1.220	-0.003	0.397	-0.657	2.575	high robust Z
600853	5	0.883	1.100	0.004	-0.047	1.100	-0.003	-0.930	0.261	-0.647	
604790	5	-0.495	1.010	0.004	-1.082	0.970	0.000	-0.587	-1.117	0.186	
604956	5	1.299	0.870	0.004	0.590	0.820	-0.003	-0.709	0.677	-0.110	
604862	5	1.405	0.920	0.004	0.368	0.850	-0.003	-1.037	0.783	-0.907	
604783	5	0.764	0.970	0.004	-0.814	0.890	0.001	-1.578	0.142	-2.221	high robust Z
606159	5	0.793	1.090	0.004	-0.157	0.990	-0.003	-0.950	0.171	-0.696	
604848	5	0.301	0.910	0.004	-0.707	1.020	0.001	-1.008	-0.321	-0.837	
604843	5	1.481	1.050	0.004	0.819	0.940	0.001	-0.662	0.859	0.004	
604966	5	-1.974	0.920	0.004	-3.190	0.870	-0.005	-1.216	-2.596	-1.342	
606163	5	0.780	1.130	0.004	0.478	1.200	0.002	-0.302	0.158	0.878	
601532	5	-0.368	0.950	0.000	-1.033	0.920	-0.001	-0.665	-0.990	-0.004	
606160	5	0.382	1.070	0.000	-0.313	0.940	-0.005	-0.695	-0.240	-0.076	
604960	5	0.618	0.910	0.000	0.223	1.050	0.000	-0.395	-0.004	0.652	
600852	5	0.753	1.100	0.000	0.050	1.020	0.002	-0.703	0.131	-0.096	
604834	5	-0.673	0.980	0.000	-1.151	0.980	-0.004	-0.478	-1.295	0.450	
604959	5	0.012	0.880	0.000	-0.871	0.840	-0.001	-0.883	-0.610	-0.533	
604961	5	0.141	1.000	0.000	-0.319	1.010	0.002	-0.460	-0.481	0.494	
606278	5	1.197	1.000	0.000	0.700	0.960	0.001	-0.497	0.575	0.404	
604965	5	-1.454	0.890	0.000	-1.565	0.900	-0.005	-0.111	-2.076	1.342	
604865	5	0.454	0.930	0.000	-0.537	0.910	-0.001	-0.991	-0.168	-0.795	
	Mean	0.234			-0.388			-0.622	-0.388	0.101	
	SD	0.887			0.893			0.413	0.887	1.002	
	SD Ratio	0.993									
	Correlation	0.892									
	Add. Constant	-0.622									
	Median							-0.664			
	Q							0.557			

Appendix C: Vertical Linking Item Details

Figures C–1 through C–8 are the adjacent grade linking plots. Items removed from final linking procedure are colored red.

Figure C–1. CDT Mathematics: Grade 3 to Grade 4 Linking – All Links

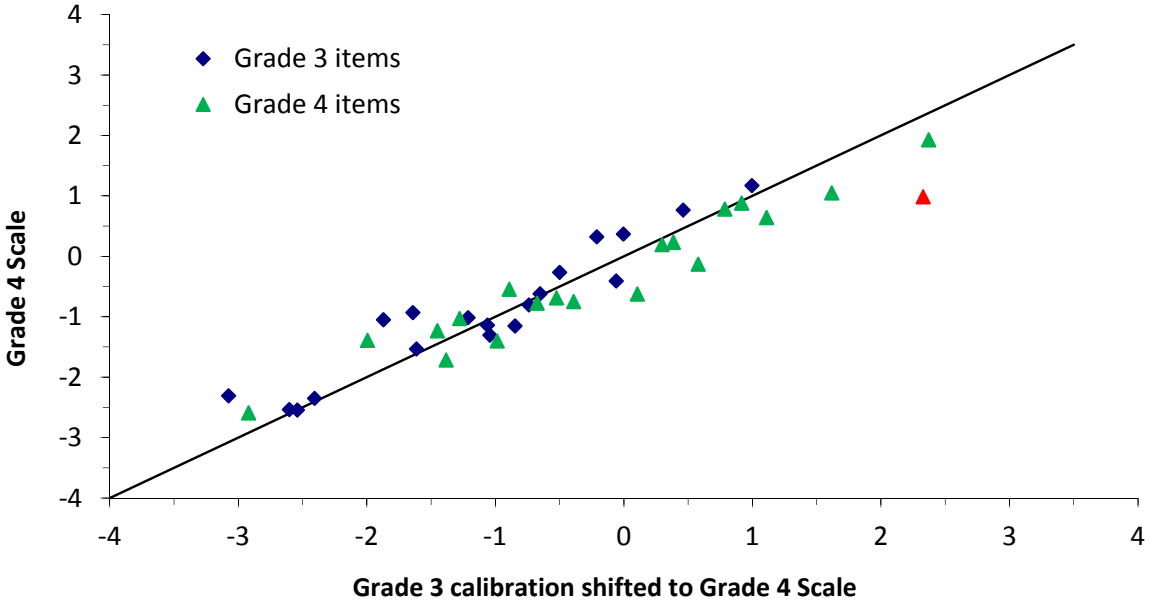


Figure C–2. CDT Mathematics: Grade 4 to Grade 5 Linking – All Links

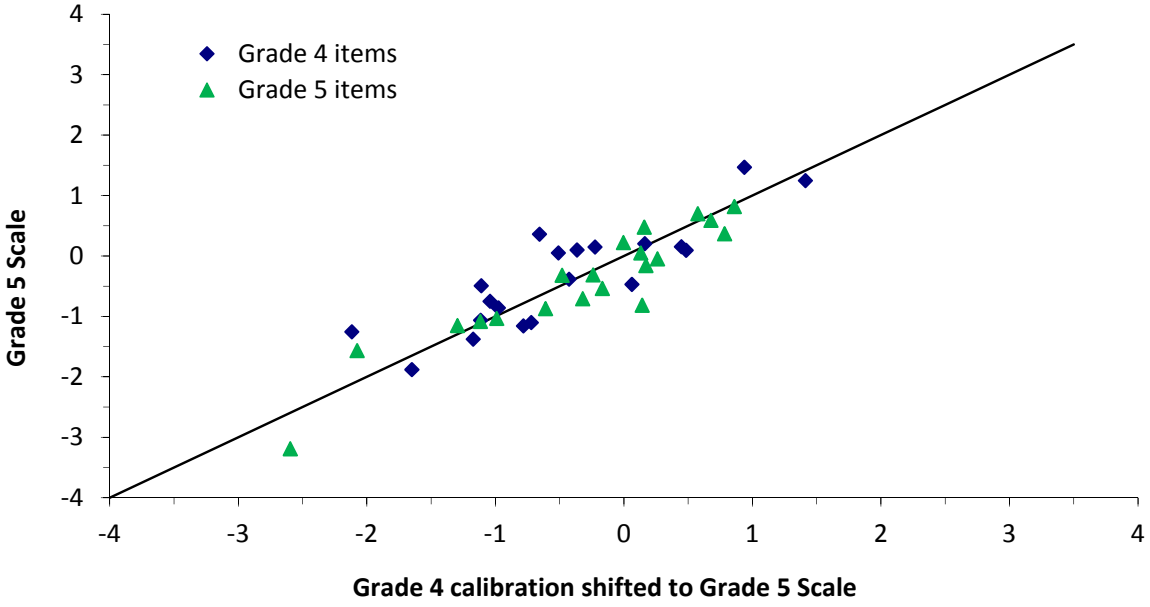


Figure C–3. CDT Mathematics: Grade 5 to Grade 6 Linking – All Links

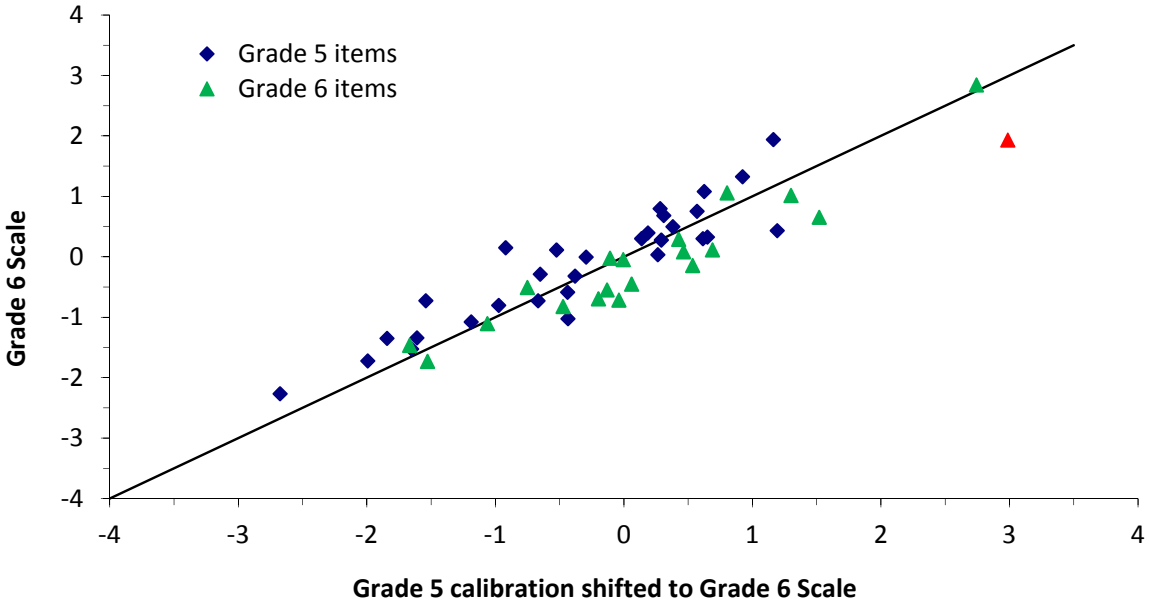


Figure C–4. CDT Mathematics: Grade 6 to Grade 7 Linking – All Links

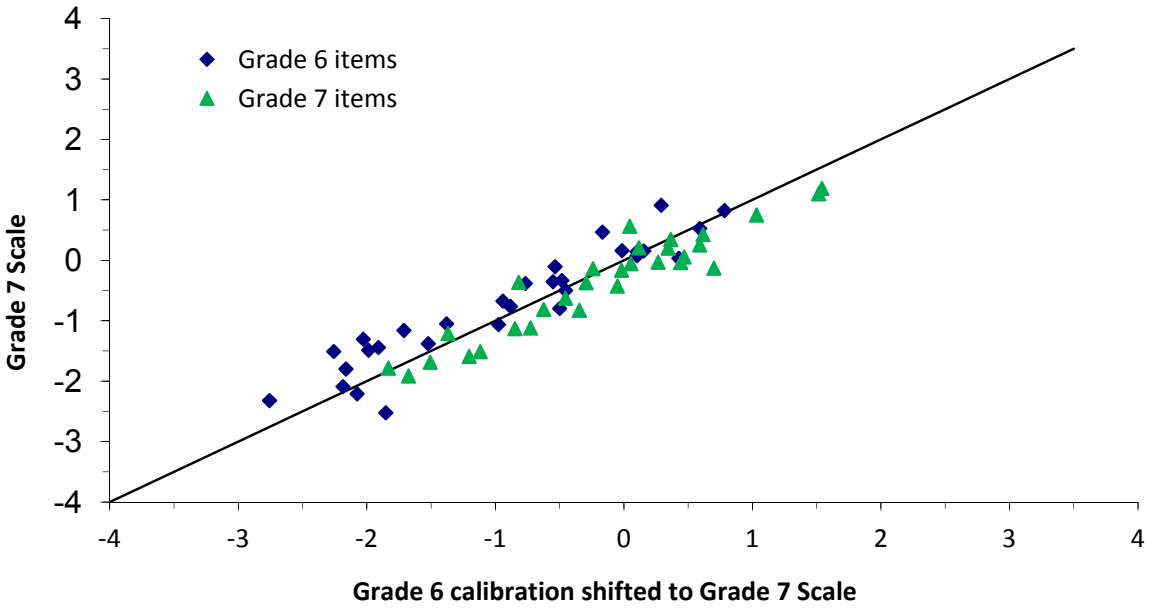


Figure C–5. CDT Mathematics: Grade 8 to Grade 7 Linking – All Links

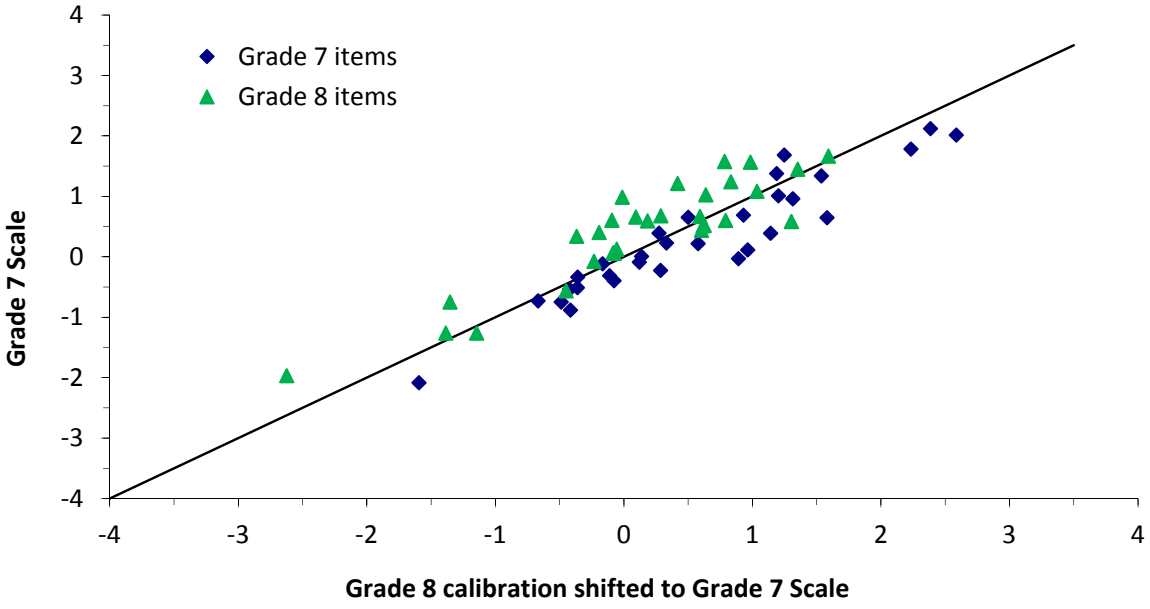


Figure C–6. CDT Mathematics: Algebra I to Grade 8 Linking – All Links

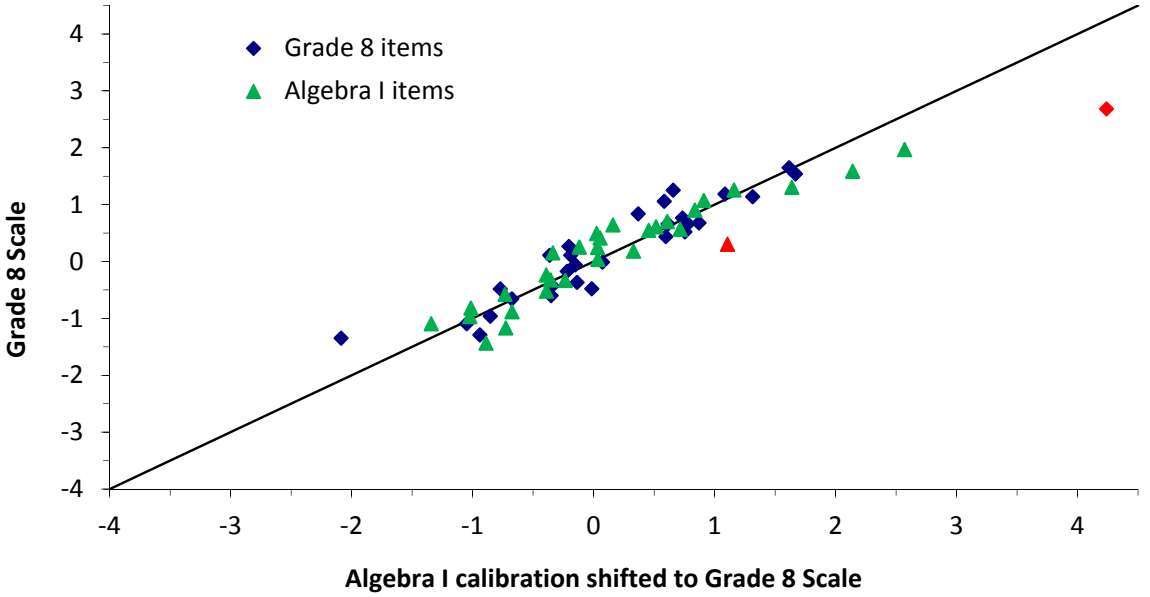


Figure C–7. CDT Mathematics: Geometry to Grade 8 Linking – All Links

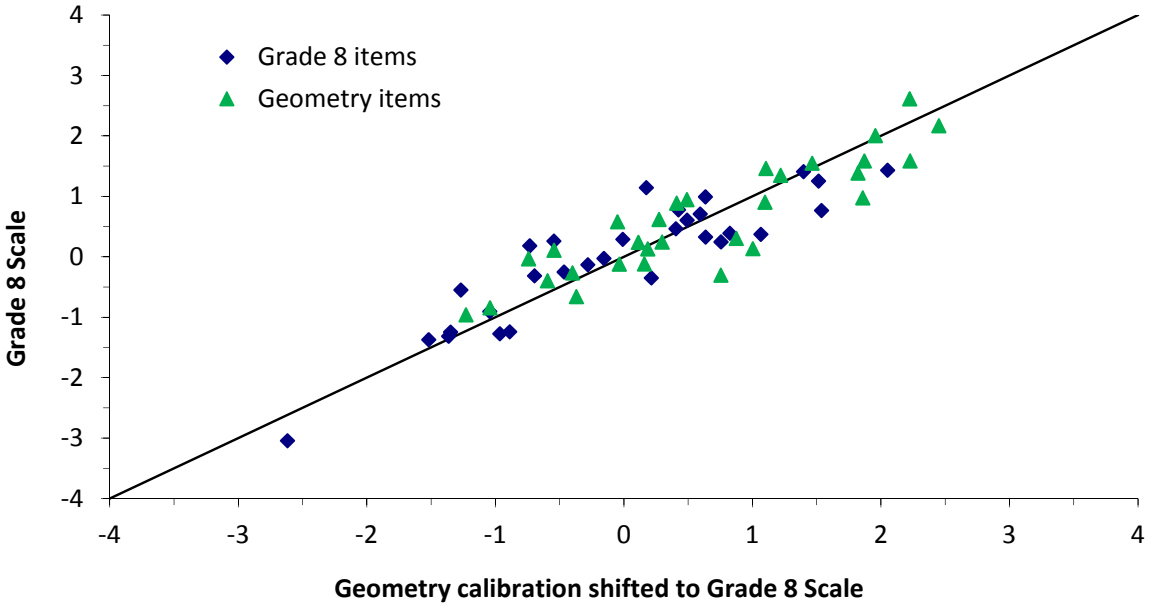
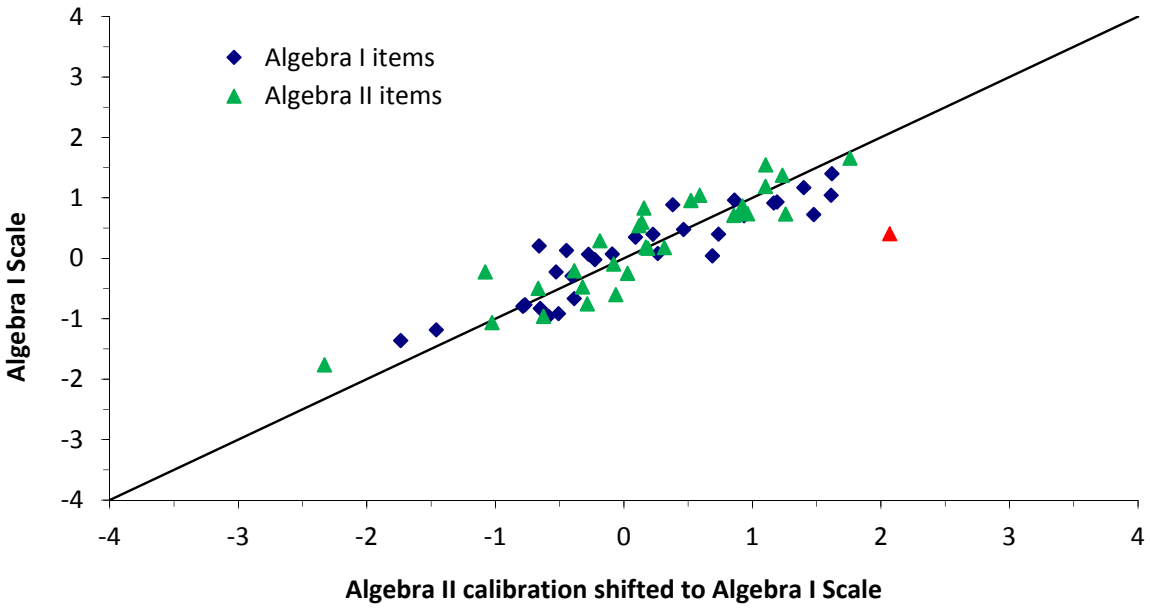


Figure C–8. CDT Mathematics: Algebra II to Algebra I Linking – All Links



Appendix C: Vertical Linking Item Details

READING/LITERATURE

Tables C–18 through C–23 show n-counts, eligible content code, and diagnostic category for each of the vertical linking items.

Each item was administered in two grades so there are two n-counts: one for the lower grade and one for the upper grade. For example, item 613607 is a grade 3 item used to link grades 3 and 4. It was administered 761 times on the lower grade form (grade 3) and 826 times on the upper grade form (grade 4). In some cases, a linking item was also a common item. This results in n-count that is much higher in one of the two grades. For example, item 613400 is a grade 4 item used to link grades 3 and 4. It was also a common grade 4 item (meaning it appeared on all grade 4 forms). The n-counts reflect this: Grade 3 n-count is 754 while grade 4 n-count is 6,574.

The diagnostic categories are:

- Comprehension
- Vocabulary
- Interpretation/Analysis Literary Elements & Devices
- Interpretation/Analysis Persuasive Techniques
- Interpretation/Analysis Organizational Skills

Appendix C: Vertical Linking Item Details

Table C–18. Reading/Literature Items Used to Link Grade 3 to Grade 4

Item ID	Item Grade	Link	N Count		Eligible Content	Reading/Literature Diagnostic Category
			Lower Grade	Upper Grade		
613605	3	Grade 3 to Grade 4	5272	823	R3A.1.1.2	Vocabulary
613613	3	Grade 3 to Grade 4	5270	822	R3A.2.2.1	Vocabulary
613614	3	Grade 3 to Grade 4	5275	822	R3A.2.1.1	Vocabulary
613592	3	Grade 3 to Grade 4	5262	822	R3A.2.3.1	Comprehension
613593	3	Grade 3 to Grade 4	5263	822	R3A.2.4.1	Comprehension
613460	3	Grade 3 to Grade 4	5251	823	R3A.1.2.2	Vocabulary
613459	3	Grade 3 to Grade 4	5245	822	R3A.1.1.1	Vocabulary
613461	3	Grade 3 to Grade 4	5242	823	R3A.1.4.1	Comprehension
613463	3	Grade 3 to Grade 4	5246	823	R3B.2.1.1	I/A Literary
613462	3	Grade 3 to Grade 4	5241	823	R3A.1.5.1	Comprehension
613607	3	Grade 3 to Grade 4	761	826	R3A.1.2.1	Vocabulary
613446	3	Grade 3 to Grade 4	752	825	R3A.1.1.1	Vocabulary
613444	3	Grade 3 to Grade 4	752	824	R3B.1.1.1	I/A Literary
613445	3	Grade 3 to Grade 4	751	823	R3A.1.5.1	Comprehension
613440	3	Grade 3 to Grade 4	744	823	R3A.1.2.2	Vocabulary
613439	3	Grade 3 to Grade 4	740	823	R3A.1.1.1	Vocabulary
613438	3	Grade 3 to Grade 4	739	822	R3B.1.1.1	I/A Literary
613443	3	Grade 3 to Grade 4	739	823	R3A.1.6.1	Comprehension
613442	3	Grade 3 to Grade 4	735	822	R3A.1.5.1	Comprehension
613441	3	Grade 3 to Grade 4	733	821	R3A.1.3.1	Comprehension
613220	4	Grade 3 to Grade 4	755	6576	R4B.2.1.3	I/A Literary
613219	4	Grade 3 to Grade 4	754	6573	R4B.2.1.2	I/A Literary
613399	4	Grade 3 to Grade 4	757	6569	R4A.2.2.1	Vocabulary
613400	4	Grade 3 to Grade 4	754	6574	R4A.2.3.1	Comprehension
613402	4	Grade 3 to Grade 4	756	6568	R4B.3.2.1	I/A Persuasive
613403	4	Grade 3 to Grade 4	759	6566	R4B.3.2.1	I/A Persuasive
613401	4	Grade 3 to Grade 4	756	6570	R4A.2.6.1	Comprehension
613288	4	Grade 3 to Grade 4	757	6569	R4A.1.1.2	Vocabulary
613291	4	Grade 3 to Grade 4	756	6567	R4A.1.1.1	Vocabulary
613295	4	Grade 3 to Grade 4	757	6563	R4A.2.2.1	Vocabulary
613289	4	Grade 3 to Grade 4	756	804	R4A.1.2.1	Vocabulary
613292	4	Grade 3 to Grade 4	756	805	R4A.1.2.2	Vocabulary
613215	4	Grade 3 to Grade 4	755	805	R4A.1.2.2	Vocabulary
613213	4	Grade 3 to Grade 4	751	803	R4B.2.1.1	I/A Literary
613214	4	Grade 3 to Grade 4	752	804	R4A.1.4.1	Comprehension
613388	4	Grade 3 to Grade 4	749	827	R4A.2.3.1	Comprehension
613389	4	Grade 3 to Grade 4	750	827	R4A.2.4.1	Comprehension
613391	4	Grade 3 to Grade 4	748	827	R4B.3.3.2	I/A Organizational
613392	4	Grade 3 to Grade 4	746	826	R4B.3.3.3	I/A Organizational
613390	4	Grade 3 to Grade 4	746	826	R4A.2.5.1	Comprehension

Appendix C: Vertical Linking Item Details

Table C–19. Reading/Literature Items Used to Link Grade 4 to Grade 5

Item ID	Item Grade	Link	N Count		Eligible Content	Reading/Literature Diagnostic Category
			Lower Grade	Upper Grade		
613220	4	Grade 4 to Grade 5	6576	955	R4B.2.1.3	I/A Literary
613219	4	Grade 4 to Grade 5	6573	957	R4B.2.1.2	I/A Literary
613399	4	Grade 4 to Grade 5	6569	958	R4A.2.2.1	Vocabulary
613400	4	Grade 4 to Grade 5	6574	958	R4A.2.3.1	Comprehension
613402	4	Grade 4 to Grade 5	6568	957	R4B.3.2.1	I/A Persuasive
613403	4	Grade 4 to Grade 5	6566	957	R4B.3.2.1	I/A Persuasive
613401	4	Grade 4 to Grade 5	6570	958	R4A.2.6.1	Comprehension
613288	4	Grade 4 to Grade 5	6569	958	R4A.1.1.2	Vocabulary
613291	4	Grade 4 to Grade 5	6567	958	R4A.1.1.1	Vocabulary
613295	4	Grade 4 to Grade 5	6563	958	R4A.2.2.1	Vocabulary
613293	4	Grade 4 to Grade 5	830	931	R4A.2.1.2	Vocabulary
613297	4	Grade 4 to Grade 5	829	930	R4A.2.2.2	Vocabulary
613212	4	Grade 4 to Grade 5	829	930	R4A.1.1.2	Vocabulary
613211	4	Grade 4 to Grade 5	830	926	R4A.1.5.1	Comprehension
613210	4	Grade 4 to Grade 5	829	925	R4A.1.6.1	Comprehension
613369	4	Grade 4 to Grade 5	815	920	R4A.2.2.1	Vocabulary
613370	4	Grade 4 to Grade 5	813	920	R4A.2.4.1	Comprehension
613372	4	Grade 4 to Grade 5	813	919	R4B.3.1.1	I/A Persuasive
613371	4	Grade 4 to Grade 5	813	917	R4A.2.5.1	Comprehension
613373	4	Grade 4 to Grade 5	812	915	R4B.3.3.1	I/A Organizational
611554	5	Grade 4 to Grade 5	812	7546	R5A.2.1.1	Vocabulary
613007	5	Grade 4 to Grade 5	813	7530	R5B.2.1.4	I/A Literary
613005	5	Grade 4 to Grade 5	810	7528	R5B.1.1.1	I/A Literary
613006	5	Grade 4 to Grade 5	812	7526	R5A.1.6.2	Comprehension
611354	5	Grade 4 to Grade 5	811	7530	R5A.2.1.2	Vocabulary
611377	5	Grade 4 to Grade 5	808	7524	R5B.3.3.2	I/A Organizational
611376	5	Grade 4 to Grade 5	812	7526	R5B.3.1.1	I/A Persuasive
611390	5	Grade 4 to Grade 5	810	7517	R5B.3.3.3	I/A Organizational
611374	5	Grade 4 to Grade 5	807	7510	R5A.2.5.1	Comprehension
611375	5	Grade 4 to Grade 5	808	7509	R5A.2.6.2	Comprehension
611550	5	Grade 4 to Grade 5	826	931	R5A.2.1.2	Vocabulary
611245	5	Grade 4 to Grade 5	826	924	R5B.2.1.1	I/A Literary
611246	5	Grade 4 to Grade 5	826	924	R5B.2.2.1	I/A Literary
611244	5	Grade 4 to Grade 5	826	921	R5A.1.4.1	Comprehension
611269	5	Grade 4 to Grade 5	826	935	R5A.2.1.1	Vocabulary
611272	5	Grade 4 to Grade 5	824	935	R5B.3.1.1	I/A Persuasive
611270	5	Grade 4 to Grade 5	823	935	R5A.2.3.1	Comprehension
611274	5	Grade 4 to Grade 5	824	935	R5B.3.3.2	I/A Organizational
611271	5	Grade 4 to Grade 5	824	934	R5A.2.6.1	Comprehension
611273	5	Grade 4 to Grade 5	824	933	R5B.3.3.1	I/A Organizational

Appendix C: Vertical Linking Item Details

Table C–20. Reading/Literature Items Used to Link Grade 5 to Grade 6

Item ID	Item Grade	Link	N Count		Eligible Content	Reading/Literature Diagnostic Category
			Lower Grade	Upper Grade		
611554	5	Grade 5 to Grade 6	7546	716	R5A.2.1.1	Vocabulary
613007	5	Grade 5 to Grade 6	7530	719	R5B.2.1.4	I/A Literary
613005	5	Grade 5 to Grade 6	7528	721	R5B.1.1.1	I/A Literary
613006	5	Grade 5 to Grade 6	7526	720	R5A.1.6.2	Comprehension
611354	5	Grade 5 to Grade 6	7530	719	R5A.2.1.2	Vocabulary
611377	5	Grade 5 to Grade 6	7524	717	R5B.3.3.2	I/A Organizational
611376	5	Grade 5 to Grade 6	7526	719	R5B.3.1.1	I/A Persuasive
611390	5	Grade 5 to Grade 6	7517	718	R5B.3.3.3	I/A Organizational
611374	5	Grade 5 to Grade 6	7510	717	R5A.2.5.1	Comprehension
611375	5	Grade 5 to Grade 6	7509	717	R5A.2.6.2	Comprehension
611247	5	Grade 5 to Grade 6	928	697	R5A.1.1.1	Vocabulary
611251	5	Grade 5 to Grade 6	928	698	R5B.2.1.4	I/A Literary
611250	5	Grade 5 to Grade 6	926	697	R5B.2.1.3	I/A Literary
611249	5	Grade 5 to Grade 6	926	696	R5A.1.3.2	Comprehension
611248	5	Grade 5 to Grade 6	926	694	R5A.1.3.1	Comprehension
611309	5	Grade 5 to Grade 6	925	688	R5B.3.3.3	I/A Organizational
611278	5	Grade 5 to Grade 6	924	687	R5A.2.3.2	Comprehension
611291	5	Grade 5 to Grade 6	921	685	R5B.3.3.1	I/A Organizational
611545	5	Grade 5 to Grade 6	942	682	R5A.1.1.2	Vocabulary
611553	5	Grade 5 to Grade 6	945	680	R5A.2.1.1	Vocabulary
610132	6	Grade 5 to Grade 6	936	7111	R6A.1.2.1	Vocabulary
610135	6	Grade 5 to Grade 6	937	7105	R6B.2.1.2	I/A Literary
610133	6	Grade 5 to Grade 6	935	7086	R6A.1.4.1	Comprehension
610355	6	Grade 5 to Grade 6	935	7075	R6A.1.3.2	Comprehension
610136	6	Grade 5 to Grade 6	935	7066	R6B.2.2.2	I/A Literary
610134	6	Grade 5 to Grade 6	936	7069	R6A.1.6.1	Comprehension
612249	6	Grade 5 to Grade 6	937	7035	R6B.3.3.4	I/A Organizational
612248	6	Grade 5 to Grade 6	936	7026	R6A.2.6.2	Comprehension
607918	6	Grade 5 to Grade 6	937	7150	R6A.2.1.1	Vocabulary
607921	6	Grade 5 to Grade 6	937	7142	R6A.2.1.2	Vocabulary
607927	6	Grade 5 to Grade 6	941	713	R6A.2.2.1	Vocabulary
607917	6	Grade 5 to Grade 6	941	716	R6A.2.1.1	Vocabulary
610141	6	Grade 5 to Grade 6	938	703	R6A.1.1.1	Vocabulary
610144	6	Grade 5 to Grade 6	937	701	R6B.2.1.1	I/A Literary
610305	6	Grade 5 to Grade 6	933	700	R6A.1.3.1	Comprehension
610145	6	Grade 5 to Grade 6	932	695	R6B.2.2.2	I/A Literary
610142	6	Grade 5 to Grade 6	927	695	R6A.1.5.1	Comprehension
610143	6	Grade 5 to Grade 6	925	694	R6A.1.6.1	Comprehension
610310	6	Grade 5 to Grade 6	917	726	R6B.3.2.2	I/A Persuasive
610309	6	Grade 5 to Grade 6	917	726	R6A.2.6.1	Comprehension

Appendix C: Vertical Linking Item Details

Table C–21. Reading/Literature Items Used to Link Grade 6 to Grade 7

Item ID	Item Grade	Link	N Count		Eligible Content	Reading/Literature Diagnostic Category
			Lower Grade	Upper Grade		
610132	6	Grade 6 to Grade 7	7111	549	R6A.1.2.1	Vocabulary
610135	6	Grade 6 to Grade 7	7105	550	R6B.2.1.2	I/A Literary
610133	6	Grade 6 to Grade 7	7086	551	R6A.1.4.1	Comprehension
610355	6	Grade 6 to Grade 7	7075	551	R6A.1.3.2	Comprehension
610136	6	Grade 6 to Grade 7	7066	551	R6B.2.2.2	I/A Literary
610134	6	Grade 6 to Grade 7	7069	551	R6A.1.6.1	Comprehension
607921	6	Grade 6 to Grade 7	7142	550	R6A.2.1.2	Vocabulary
610327	6	Grade 6 to Grade 7	685	550	R6A.1.2.2	Vocabulary
610328	6	Grade 6 to Grade 7	682	549	R6B.2.1.4	I/A Literary
610329	6	Grade 6 to Grade 7	679	548	R6B.2.2.1	I/A Literary
610065	6	Grade 6 to Grade 7	696	551	R6A.1.1.1	Vocabulary
610071	6	Grade 6 to Grade 7	692	550	R6A.1.3.1	Comprehension
610066	6	Grade 6 to Grade 7	691	550	R6B.2.1.4	I/A Literary
610070	6	Grade 6 to Grade 7	689	551	R6A.1.3.2	Comprehension
610078	6	Grade 6 to Grade 7	687	551	R6B.2.1.3	I/A Literary
609022	6	Grade 6 to Grade 7	1433	551	R6A.1.1.2	Vocabulary
609025	6	Grade 6 to Grade 7	1431	550	R6B.2.1.1	I/A Literary
609026	6	Grade 6 to Grade 7	1431	550	R6B.2.1.4	I/A Literary
609023	6	Grade 6 to Grade 7	1431	549	R6A.1.3.1	Comprehension
609024	6	Grade 6 to Grade 7	1432	548	R6A.1.6.2	Comprehension
609658	7	Grade 6 to Grade 7	722	4978	R7A.1.1.1	Vocabulary
609663	7	Grade 6 to Grade 7	725	4976	R7B.2.2.1	I/A Literary
609661	7	Grade 6 to Grade 7	723	4971	R7A.1.5.1	Comprehension
610324	7	Grade 6 to Grade 7	724	4974	R7A.2.2.1	Vocabulary
610325	7	Grade 6 to Grade 7	723	4968	R7A.2.3.2	Comprehension
610146	7	Grade 6 to Grade 7	722	563	R7A.1.1.1	Vocabulary
610149	7	Grade 6 to Grade 7	723	565	R7B.2.1.1	I/A Literary
610147	7	Grade 6 to Grade 7	722	564	R7A.1.3.1	Comprehension
610338	7	Grade 6 to Grade 7	721	563	R7B.1.1.1	I/A Literary
610148	7	Grade 6 to Grade 7	721	564	R7A.1.6.1	Comprehension
607933	7	Grade 6 to Grade 7	705	545	R7A.1.1.2	Vocabulary
607936	7	Grade 6 to Grade 7	703	545	R7A.1.2.1	Vocabulary
609243	7	Grade 6 to Grade 7	701	544	R7B.2.1.2	I/A Literary
609053	7	Grade 6 to Grade 7	700	544	R7A.1.3.2	Comprehension
609219	7	Grade 6 to Grade 7	700	544	R7A.1.6.2	Comprehension
609037	7	Grade 6 to Grade 7	695	553	R7A.2.2.2	Vocabulary
609038	7	Grade 6 to Grade 7	692	552	R7A.2.4.1	Comprehension
609039	7	Grade 6 to Grade 7	684	551	R7A.2.6.2	Comprehension
609040	7	Grade 6 to Grade 7	680	553	R7B.3.1.1	I/A Persuasive
609041	7	Grade 6 to Grade 7	678	552	R7B.3.3.1	I/A Organizational

Table C–22. Reading/Literature Items Used to Link Grade 8 to Grade 7

Item ID	Item Grade	Link	N Count		Eligible Content	Reading/Literature Diagnostic Category
			Lower Grade	Upper Grade		
609658	7	Grade 8 to Grade 7	4978	518	R7A.1.1.1	Vocabulary
609663	7	Grade 8 to Grade 7	4976	518	R7B.2.2.1	I/A Literary
609661	7	Grade 8 to Grade 7	4971	517	R7A.1.5.1	Comprehension
610324	7	Grade 8 to Grade 7	4974	516	R7A.2.2.1	Vocabulary
610325	7	Grade 8 to Grade 7	4968	515	R7A.2.3.2	Comprehension
610146	7	Grade 8 to Grade 7	563	491	R7A.1.1.1	Vocabulary
610149	7	Grade 8 to Grade 7	565	491	R7B.2.1.1	I/A Literary
610147	7	Grade 8 to Grade 7	564	490	R7A.1.3.1	Comprehension
610338	7	Grade 8 to Grade 7	563	488	R7B.1.1.1	I/A Literary
610148	7	Grade 8 to Grade 7	564	485	R7A.1.6.1	Comprehension
614855	7	Grade 8 to Grade 7	559	516	R7A.1.1.2	Vocabulary
614859	7	Grade 8 to Grade 7	558	516	R7B.2.2.1	I/A Literary
614858	7	Grade 8 to Grade 7	559	515	R7B.2.1.2	I/A Literary
614856	7	Grade 8 to Grade 7	559	515	R7A.1.3.2	Comprehension
614857	7	Grade 8 to Grade 7	558	514	R7A.1.6.1	Comprehension
609152	7	Grade 8 to Grade 7	550	504	R7B.3.1.1	I/A Persuasive
609072	7	Grade 8 to Grade 7	551	502	R7A.2.5.1	Comprehension
609209	7	Grade 8 to Grade 7	548	500	R7B.1.1.1	I/A Literary
609210	7	Grade 8 to Grade 7	548	496	R7B.2.1.1	I/A Literary
609208	7	Grade 8 to Grade 7	548	495	R7A.1.3.1	Comprehension
609060	8	Grade 8 to Grade 7	550	4645	R8B.3.1.1	I/A Persuasive
609059	8	Grade 8 to Grade 7	550	4647	R8A.2.5.1	Comprehension
608017	8	Grade 8 to Grade 7	550	4637	R8A.1.1.2	Vocabulary
608016	8	Grade 8 to Grade 7	551	4629	R8B.2.1.2	I/A Literary
607999	8	Grade 8 to Grade 7	550	4622	R8A.1.6.2	Comprehension
610087	8	Grade 8 to Grade 7	550	510	R8B.3.3.4	I/A Organizational
610260	8	Grade 8 to Grade 7	550	509	R8B.3.3.2	I/A Organizational
610090	8	Grade 8 to Grade 7	550	511	R8B.3.3.4	I/A Organizational
610089	8	Grade 8 to Grade 7	550	511	R8B.3.3.4	I/A Organizational
610088	8	Grade 8 to Grade 7	550	510	R8B.3.3.4	I/A Organizational
609135	8	Grade 8 to Grade 7	540	531	R8B.3.2.1	I/A Persuasive
609131	8	Grade 8 to Grade 7	540	532	R8B.3.2.1	I/A Persuasive
609120	8	Grade 8 to Grade 7	539	532	R8B.3.3.2	I/A Organizational
609143	8	Grade 8 to Grade 7	539	531	R8A.2.3.2	Comprehension
609140	8	Grade 8 to Grade 7	539	532	R8A.2.6.2	Comprehension
609264	8	Grade 8 to Grade 7	539	513	R8A.1.1.2	Vocabulary
609267	8	Grade 8 to Grade 7	539	513	R8B.2.1.2	I/A Literary
609265	8	Grade 8 to Grade 7	539	514	R8A.1.3.2	Comprehension
609269	8	Grade 8 to Grade 7	539	514	R8B.2.2.1	I/A Literary
609266	8	Grade 8 to Grade 7	539	515	R8A.1.6.1	Comprehension

Appendix C: Vertical Linking Item Details

Table C–23. Reading/Literature Items Used to Link Literature to Grade 8

Item ID	Item Grade	Link	N Count		Eligible Content	Reading/Literature Diagnostic Category
			Lower Grade	Upper Grade		
608017	8	Literature to Grade 8	4637	255	R8A.1.1.2	Vocabulary
608016	8	Literature to Grade 8	4629	253	R8B.2.1.2	I/A Literary
607999	8	Literature to Grade 8	4622	252	R8A.1.6.2	Comprehension
610087	8	Literature to Grade 8	510	256	R8B.3.3.4	I/A Organizational
610260	8	Literature to Grade 8	509	256	R8B.3.3.2	I/A Organizational
610090	8	Literature to Grade 8	511	255	R8B.3.3.4	I/A Organizational
610089	8	Literature to Grade 8	511	255	R8B.3.3.4	I/A Organizational
610088	8	Literature to Grade 8	510	255	R8B.3.3.4	I/A Organizational
607957	8	Literature to Grade 8	502	254	R8A.1.1.2	Vocabulary
607963	8	Literature to Grade 8	501	254	R8A.1.1.1	Vocabulary
607958	8	Literature to Grade 8	516	258	R8A.1.2.1	Vocabulary
607962	8	Literature to Grade 8	516	258	R8A.1.1.1	Vocabulary
612324	8	Literature to Grade 8	516	257	R8B.3.3.4	I/A Organizational
612280	8	Literature to Grade 8	517	257	R8B.3.3.4	I/A Organizational
612279	8	Literature to Grade 8	517	257	R8A.2.6.1	Comprehension
609244	8	Literature to Grade 8	523	257	R8A.1.1.1	Vocabulary
609254	8	Literature to Grade 8	523	256	R8B.2.1.1	I/A Literary
609279	8	Literature to Grade 8	522	256	R8B.1.1.1	I/A Literary
609245	8	Literature to Grade 8	523	256	R8A.1.3.1	Comprehension
609252	8	Literature to Grade 8	523	256	R8A.1.6.1	Comprehension
608136	Lit	Literature to Grade 8	515	258	L.F.1.3.1	Comprehension
608138	Lit	Literature to Grade 8	515	258	L.F.2.3.4	I/A Literary
608137	Lit	Literature to Grade 8	512	257	L.F.2.2.1	Comprehension
614029	Lit	Literature to Grade 8	515	271	L.F.1.2.4	Vocabulary
614032	Lit	Literature to Grade 8	515	271	L.F.2.3.1	I/A Literary
614030	Lit	Literature to Grade 8	515	271	L.F.2.1.1	Comprehension
614031	Lit	Literature to Grade 8	515	271	L.F.2.2.2	Comprehension
614033	Lit	Literature to Grade 8	515	271	L.F.2.3.2	I/A Literary
614034	Lit	Literature to Grade 8	510	271	L.F.2.5.1	I/A Literary
608118	Lit	Literature to Grade 8	514	265	L.F.1.2.4	Vocabulary
610352	Lit	Literature to Grade 8	516	261	L.F.2.5.2	I/A Literary
610092	Lit	Literature to Grade 8	511	261	L.F.2.2.1	Comprehension
610094	Lit	Literature to Grade 8	509	260	L.F.2.3.6	I/A Literary
610095	Lit	Literature to Grade 8	510	259	L.F.2.4.1	I/A Literary
610093	Lit	Literature to Grade 8	509	260	L.F.2.3.4	I/A Literary
610091	Lit	Literature to Grade 8	507	260	L.F.1.1.1	Comprehension
612547	Lit	Literature to Grade 8	504	258	L.F.1.2.2	Vocabulary
612498	Lit	Literature to Grade 8	502	258	L.F.2.2.2	Comprehension
612548	Lit	Literature to Grade 8	499	258	L.F.1.3.2	Comprehension
612496	Lit	Literature to Grade 8	497	258	L.F.1.1.1	Comprehension

Appendix C: Vertical Linking Item Details

Tables C–24 through C–29 summarize the number of linking items by diagnostic category.

Vertical linking items are not distributed evenly across the diagnostic categories. This is due to the fact that Reading and Literature items are passage based. The three passage types (literary, persuasive, and organizational) may each have associated comprehension and vocabulary items, as well as interpretation/analysis items.

Table C–24. Number of Items Linking Grade 3 to Grade 4 by Diagnostic Category

	Link Grade 3 to Grade 4		
	Grade 3 Items	**Grade 4 Items**	**Total**
Comprehension	8	6	14
Vocabulary	9	7	16
I/A Literary	3	3	6
I/A Persuasive	0	2	2
I/A Organizational	0	2	2
TOTAL	20	20	40

Table C–25. Number of Items Linking Grade 4 to Grade 5 by Diagnostic Category

	Grade 4 to Grade 5		
	Grade 4 Items	**Grade 5 Items**	**Total**
Comprehension	6	6	12
Vocabulary	8	4	12
I/A Literary	2	4	6
I/A Persuasive	3	2	5
I/A Organizational	1	4	5
TOTAL	20	20	40

Table C–26. Number of Items Linking Grade 5 to Grade 6 by Diagnostic Category

	Grade 5 to Grade 6		
	Grade 5 Items	**Grade 6 Items**	**Total**
Comprehension	6	8	14
Vocabulary	5	6	11
I/A Literary	4	4	8
I/A Persuasive	1	1	2
I/A Organizational	4	1	5
TOTAL	20	20	40

Appendix C: Vertical Linking Item Details

Table C–27. Number of Items Linking Grade 6 to Grade 7 by Diagnostic Category

	Grade 6 to Grade 7		
	Grade 6 Items	**Grade 7 Items**	**Total**
Comprehension	7	8	15
Vocabulary	5	6	11
I/A Literary	8	4	12
I/A Persuasive	0	1	1
I/A Organizational	0	1	1
TOTAL	20	20	40

Table C–28. Number of Items Linking Grade 8 to Grade 7 by Diagnostic Category

	Grade 8 to Grade 7		
	Grade 7 Items	**Grade 8 Items**	**Total**
Comprehension	8	6	14
Vocabulary	4	2	6
I/A Literary	7	3	10
I/A Persuasive	1	3	4
I/A Organizational	0	6	6
TOTAL	20	20	40

Table C–29. Number of Items Linking Grade 8 to Grade 7 by Diagnostic Category

	Link Literature to Grade 8		
	Grade 8 Items	**Literature Items**	**Total**
Comprehension	4	9	13
Vocabulary	6	3	9
I/A Literary	3	8	11
I/A Persuasive	0	0	0
I/A Organizational	7	0	7
TOTAL	20	20	40

Appendix C: Vertical Linking Item Details

Table C–30. Reading/Literature Example of Vertical Linking Workbook

		Grade 4 Calibration			Grade 5 Calibration				Grade 4 on		
Item ID	Item Grade	Difficulty	Fit	Displace	Difficulty	Fit	Displace	Discrepancy	Grade 5 Scale	Robust Z	Flag
613220	4	0.700	1.090	0.000	0.258	1.040	-0.003	-0.442	0.290	-0.271	
613219	4	-0.063	0.980	0.000	-0.495	0.960	-0.003	-0.432	-0.473	-0.235	
613399	4	0.557	1.040	0.000	0.056	0.980	-0.003	-0.501	0.147	-0.486	
613400	4	0.589	1.020	0.000	0.131	1.000	-0.003	-0.458	0.179	-0.329	
613402	4	0.316	1.070	0.000	0.014	0.930	-0.003	-0.302	-0.094	0.238	
613403	4	0.295	0.970	0.000	-0.446	0.890	-0.003	-0.741	-0.115	-1.360	
613401	4	-0.657	0.810	0.000	-1.307	0.810	-0.003	-0.650	-1.067	-1.028	
613288	4	-0.608	0.960	0.000	-1.044	0.950	-0.003	-0.436	-1.018	-0.249	
613291	4	0.927	1.200	0.000	0.628	1.170	-0.003	-0.299	0.517	0.249	
613295	4	-1.117	0.880	0.000	-1.712	0.900	-0.003	-0.595	-1.527	-0.828	
613293	4	0.173	0.930	0.002	-0.113	0.880	0.000	-0.286	-0.237	0.297	
613297	4	0.807	1.070	0.002	0.424	0.990	0.000	-0.383	0.397	-0.056	
613212	4	1.664	1.210	0.003	1.491	1.220	0.000	-0.173	1.254	0.708	
613211	4	0.245	0.930	0.002	0.082	0.890	0.000	-0.163	-0.165	0.744	
613210	4	0.203	1.000	0.002	-0.273	0.910	0.000	-0.476	-0.207	-0.395	
613369	4	-0.556	0.900	0.004	-0.791	0.920	0.000	-0.235	-0.966	0.482	
613370	4	0.433	0.930	0.004	0.151	0.950	0.000	-0.282	0.023	0.311	
613372	4	-0.305	0.860	0.004	-0.698	0.870	0.000	-0.393	-0.715	-0.093	
613371	4	-0.513	0.910	0.004	-0.670	0.960	0.000	-0.157	-0.923	0.766	
613373	4	1.012	1.060	0.004	1.002	1.040	0.000	-0.010	0.602	1.301	
611554	5	1.180	1.170	0.003	1.126	1.050	0.000	-0.054	0.770	1.141	
613007	5	-0.124	0.900	0.003	-0.476	0.960	-0.001	-0.352	-0.534	0.056	
613005	5	2.069	1.250	0.003	2.138	1.220	0.000	0.069	1.659	1.589	
613006	5	2.275	1.240	0.003	2.367	1.120	0.000	0.092	1.865	1.673	
611354	5	0.669	1.020	0.003	0.576	1.020	-0.001	-0.093	0.259	0.999	
611377	5	0.336	1.060	0.003	0.559	1.010	-0.001	0.223	-0.074	2.149	high robust Z
611376	5	-0.804	0.840	0.003	-0.946	0.850	-0.001	-0.142	-1.214	0.821	
611390	5	1.351	1.110	0.003	1.443	1.040	0.000	0.092	0.941	1.673	
611374	5	0.109	0.930	0.003	-0.065	0.920	-0.001	-0.174	-0.301	0.704	
611375	5	0.581	1.160	0.003	0.605	1.120	-0.001	0.024	0.171	1.425	
611550	5	0.355	1.000	0.001	-0.586	0.900	0.000	-0.941	-0.055	-2.088	high robust Z
611245	5	1.298	1.070	0.001	0.635	1.030	0.000	-0.663	0.888	-1.076	
611246	5	-0.051	0.860	0.001	-0.532	0.850	0.000	-0.481	-0.461	-0.413	
611244	5	-0.152	0.910	0.001	-0.226	0.940	0.000	-0.074	-0.562	1.068	
611269	5	-0.287	0.900	0.001	-1.341	0.960	-0.006	-1.054	-0.697	-2.499	high robust Z
611272	5	-0.860	0.840	0.001	-2.081	0.930	-0.006	-1.221	-1.270	-3.107	high robust Z
611270	5	-0.274	0.900	0.001	-1.286	0.960	-0.006	-1.012	-0.684	-2.346	high robust Z
611274	5	-0.784	0.760	0.001	-2.720	0.870	-0.006	-1.936	-1.194	-5.709	high robust Z
611271	5	0.972	0.910	0.001	0.157	0.900	-0.005	-0.815	0.562	-1.629	
611273	5	2.533	1.250	0.001	2.056	1.040	-0.004	-0.477	2.123	-0.399	
	Mean	0.362			-0.048			-0.410	-0.048	-0.155	
	SD	0.868			1.107			0.415	0.868	1.511	
	SD Ratio	0.784									
	Correlation	0.940									
	Add. Constant	-0.410									
	Median							-0.368			
	Q							0.371			

Figures C–9 through C–14 are the adjacent grade linking plots. Items removed from final linking procedure are colored red.

Figure C–9. CDT Reading/Literature: Grade 3 to Grade 4 Linking – All Links

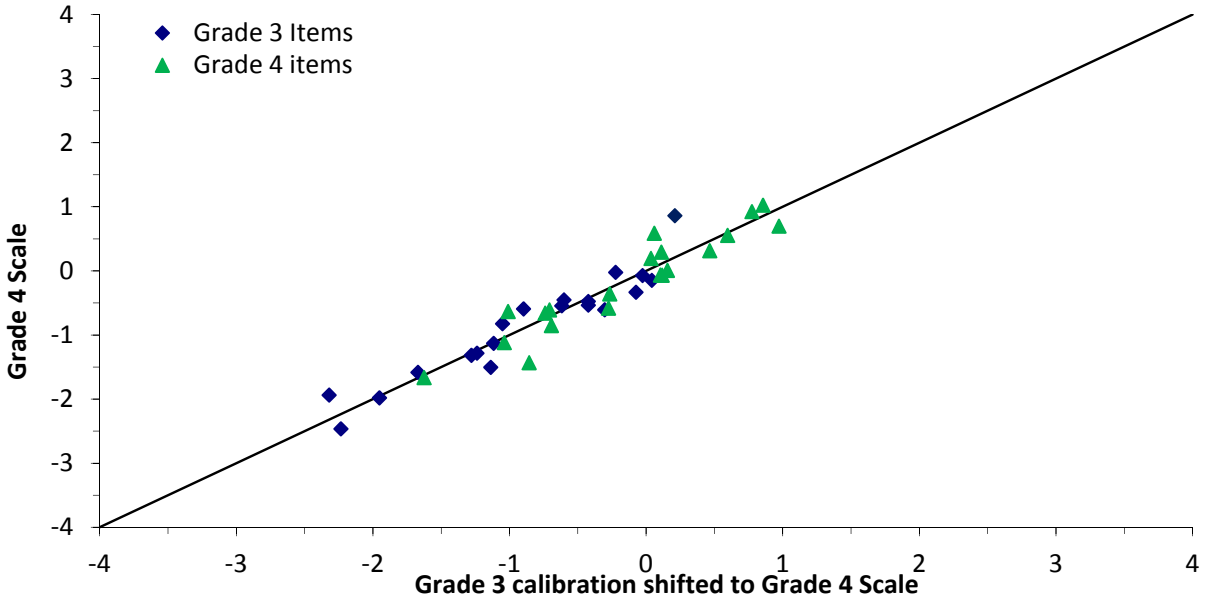


Figure C–10. CDT Reading/Literature: Grade 4 to Grade 5 Linking – All Links

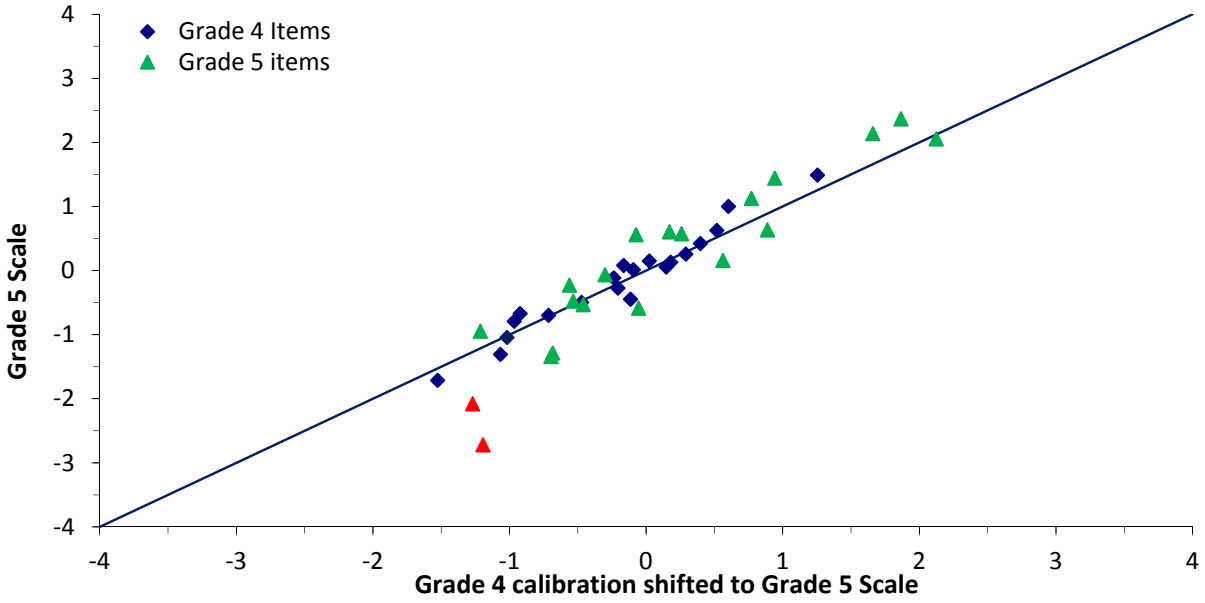


Figure C–11. CDT Reading/Literature: Grade 5 to Grade 6 Linking – All Links

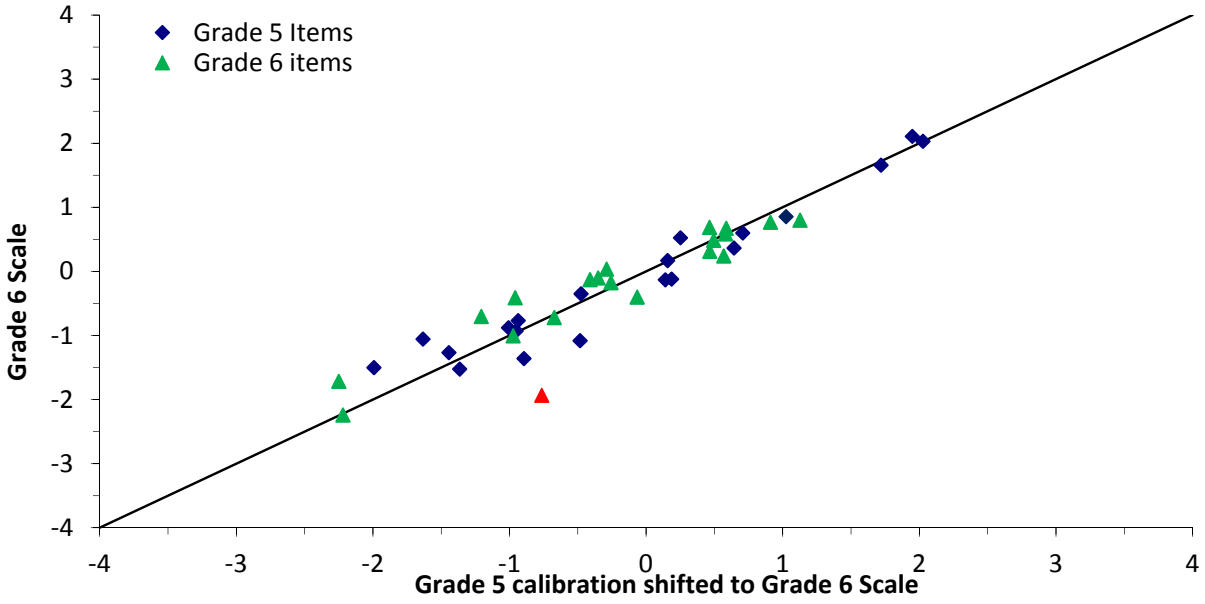


Figure C–12. CDT Reading/Literature: Grade 6 to Grade 7 Linking – All Links

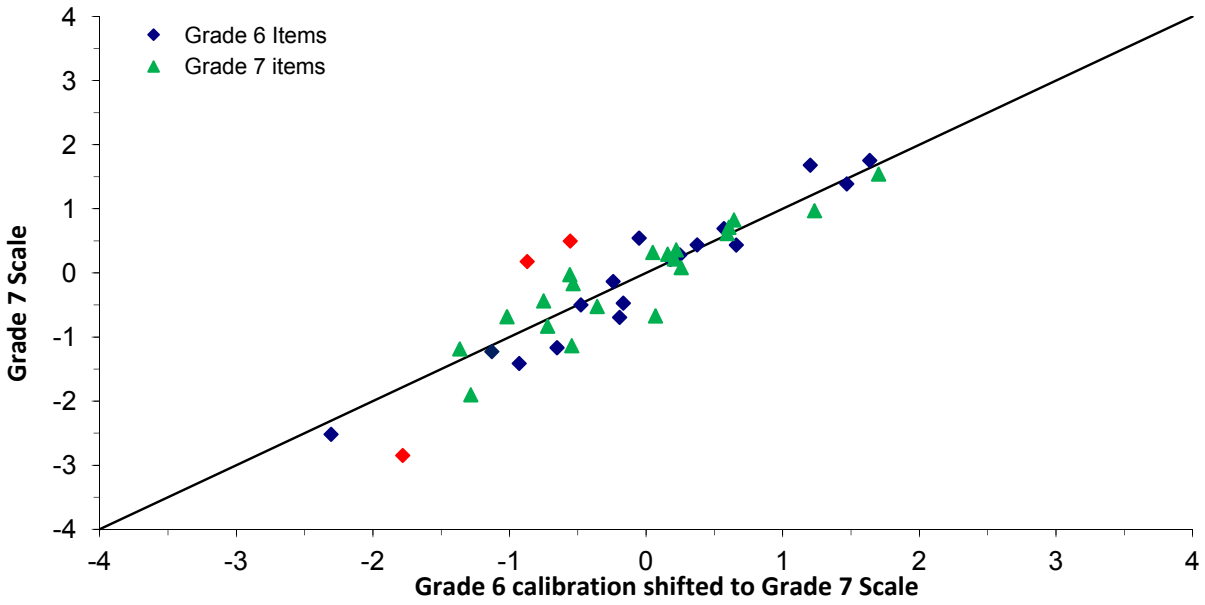


Figure C–13. CDT Reading/Literature: Grade 8 to Grade 7 Linking – All Links

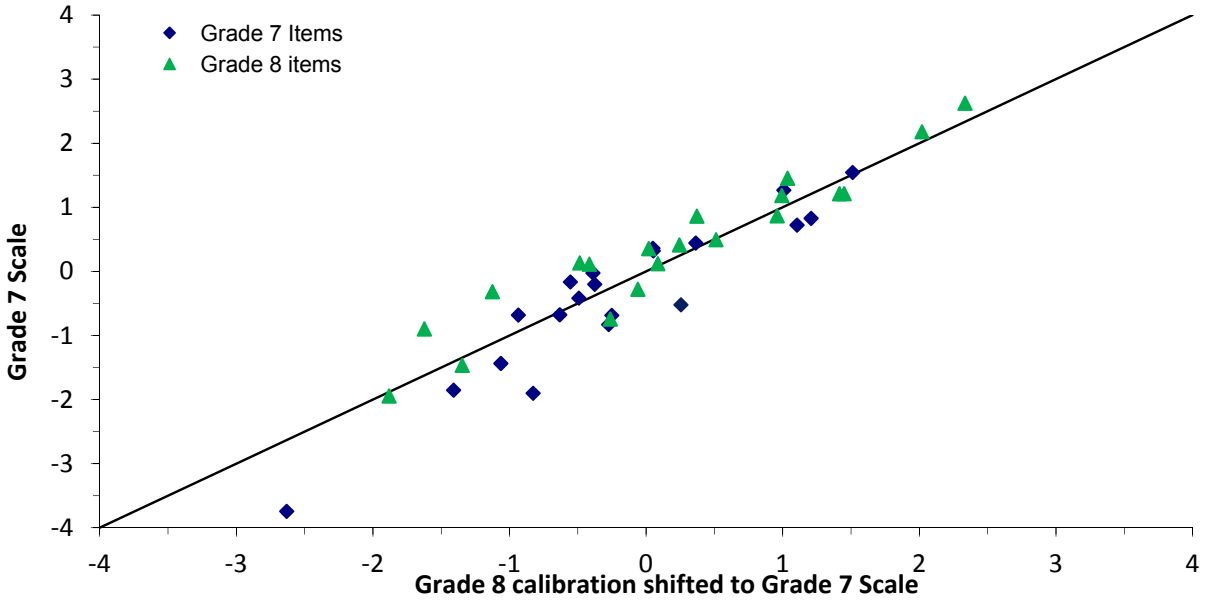
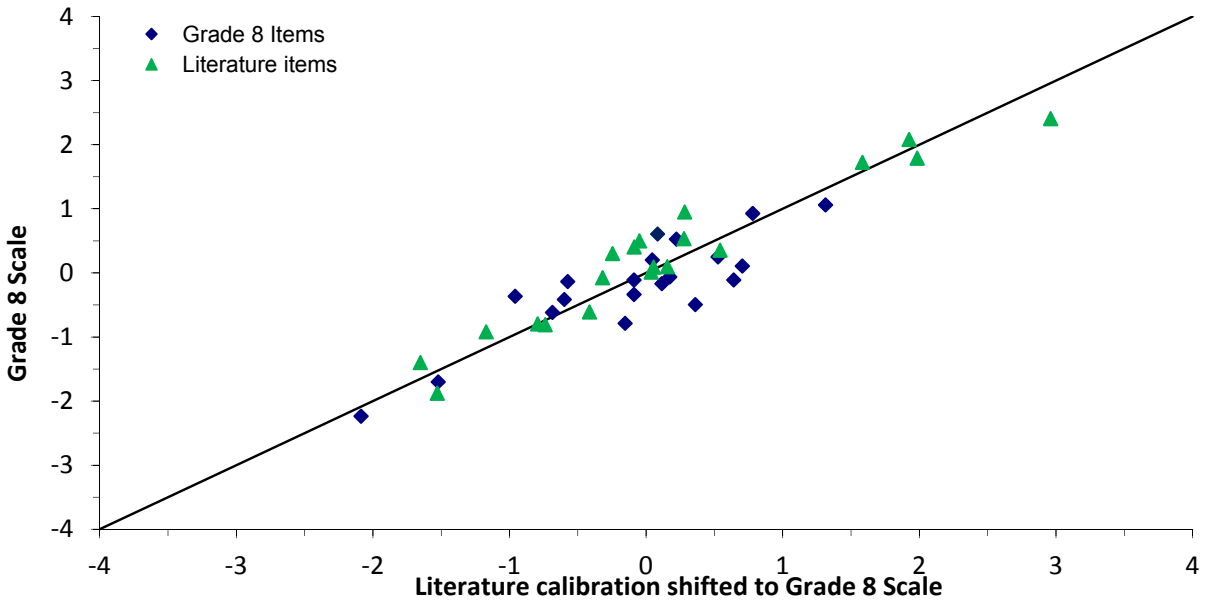


Figure C–14. CDT Reading/Literature: Literature to Grade 8 Linking – All Links



Appendix C: Vertical Linking Item Details

SCIENCE

Tables C–31 through C–37 show n-counts, eligible content code, and diagnostic category for each of the vertical linking items.

Each item was administered in two grades so there are two n-counts: one for the lower grade and one for the upper grade. For example, item 615315 is a grade 3 item used to link grades 3 and 4. It was administered 789 times on the lower grade form (grade 3) and 530 times on the upper grade form (grade 4). In some cases, a linking item was also a common item. This results in n-count that is much higher in one of the two grades. For example, item 617401 is a Biology item used to link Biology and grade 8. It was also a common Biology item (meaning it appeared on all Biology forms). The n-counts reflect this: Grade 8 n-count is 256 while Biology n-count is 4,874.

Diagnostic categories for Biology and Chemistry are different than diagnostic categories for grades 3 through 8 and 11 Science. Items may fall into both a Science diagnostic category and a Biology or Chemistry diagnostic category. This is shown in Tables C–36 and C–37. For example, item 615777 is in the Science diagnostic category "Biological Sciences" and the Biology diagnostic category "Basic Biological Principles".

The Science diagnostic categories are:

- The Nature of Science
- Biological Science
- Physical Sciences
- Earth and Space Sciences

The Biology diagnostic categories are:

- Basic Biological Principles/Chemical Basis for Life
- Bioenergetics/Homeostasis and Transport
- Cell Growth and Reproduction/Genetics
- Theory of Evolution/Ecology

The Chemistry diagnostic categories are:

- Properties and Classification of Matter
- Atomic Structure and the Periodic Table
- The Mole and Chemical Bonding
- Chemical Relationships and Reactions

Appendix C: Vertical Linking Item Details

Table C–31. Science Items Used to Link Grade 3 to Grade 4

Item ID	Item Grade	Link	N Count		Eligible Content	Science Diagnostic Category
			Lower Grade	Upper Grade		
615315	3	Grade 3 to Grade 4	789	530	S3.A.2.1.3	Nature of Science
615379	3	Grade 3 to Grade 4	790	530	S3.D.1.2.1	Earth and Space Sci.
615333	3	Grade 3 to Grade 4	770	530	S3.B.2.1.1	Biological Sci.
615395	3	Grade 3 to Grade 4	797	530	S3.D.1.3.3	Earth and Space Sci.
615363	3	Grade 3 to Grade 4	1559	530	S3.C.1.1.4	Physical Sci.
615368	3	Grade 3 to Grade 4	773	530	S3.C.2.1.2	Physical Sci.
615314	3	Grade 3 to Grade 4	796	530	S3.A.2.1.2	Nature of Science
615331	3	Grade 3 to Grade 4	782	529	S3.B.1.1.4	Biological Sci.
615324	3	Grade 3 to Grade 4	786	529	S3.A.2.1.3	Nature of Science
615347	3	Grade 3 to Grade 4	796	528	S3.B.3.1.2	Biological Sci.
615385	3	Grade 3 to Grade 4	771	525	S3.D.1.2.1	Earth and Space Sci.
615319	3	Grade 3 to Grade 4	790	524	S3.A.3.1.1	Nature of Science
615339	3	Grade 3 to Grade 4	785	524	S3.B.2.2.1	Biological Sci.
617274	3	Grade 3 to Grade 4	796	525	S3.A.1.1.1	Nature of Science
615400	3	Grade 3 to Grade 4	771	524	S3.D.3.1.1	Earth and Space Sci.
615322	3	Grade 3 to Grade 4	1572	523	S3.A.3.2.1	Nature of Science
615325	3	Grade 3 to Grade 4	773	523	S3.B.1.1.1	Biological Sci.
615376	3	Grade 3 to Grade 4	785	521	S3.D.1.1.1	Earth and Space Sci.
615327	3	Grade 3 to Grade 4	787	521	S3.B.1.1.2	Biological Sci.
615334	3	Grade 3 to Grade 4	794	521	S3.B.2.1.2	Biological Sci.
617229	4	Grade 3 to Grade 4	792	538	S4.C.1.1.2	Physical Sci.
617061	4	Grade 3 to Grade 4	793	1086	S4.A.2.1.4	Nature of Science
617244	4	Grade 3 to Grade 4	789	558	S4.D.1.1.1	Earth and Space Sci.
617095	4	Grade 3 to Grade 4	792	1097	S4.B.2.1.2	Biological Sci.
615621	4	Grade 3 to Grade 4	793	1065	S4.A.1.1.1	Nature of Science
617239	4	Grade 3 to Grade 4	793	1073	S4.C.3.1.1	Physical Sci.
617099	4	Grade 3 to Grade 4	793	539	S4.B.2.2.1	Biological Sci.
617249	4	Grade 3 to Grade 4	792	539	S4.D.1.1.3	Earth and Space Sci.
617084	4	Grade 3 to Grade 4	790	536	S4.B.1.1.1	Biological Sci.
615625	4	Grade 3 to Grade 4	791	539	S4.A.1.3.1	Nature of Science
617233	4	Grade 3 to Grade 4	780	535	S4.C.2.1.2	Physical Sci.
615632	4	Grade 3 to Grade 4	782	534	S4.A.1.3.5	Nature of Science
617245	4	Grade 3 to Grade 4	780	536	S4.D.1.1.1	Earth and Space Sci.
617096	4	Grade 3 to Grade 4	780	1092	S4.B.2.1.2	Biological Sci.
615627	4	Grade 3 to Grade 4	781	528	S4.A.1.3.2	Nature of Science
617255	4	Grade 3 to Grade 4	779	538	S4.D.1.2.3	Earth and Space Sci.
617101	4	Grade 3 to Grade 4	778	540	S4.B.3.1.1	Biological Sci.
617253	4	Grade 3 to Grade 4	779	559	S4.D.1.2.2	Earth and Space Sci.
617071	4	Grade 3 to Grade 4	779	531	S4.A.3.1.4	Nature of Science
617091	4	Grade 3 to Grade 4	779	529	S4.B.1.1.5	Biological Sci.

Appendix C: Vertical Linking Item Details

Table C–32. Science Items Used to Link Grade 4 to Grade 5

Item ID	Item Grade	Link	N Count		Eligible Content	Science Diagnostic Category
			Lower Grade	Upper Grade		
617231	4	Grade 4 to Grade 5	1099	608	S4.C.2.1.1	Physical Sci.
617060	4	Grade 4 to Grade 5	527	606	S4.A.2.1.3	Nature of Science
617092	4	Grade 4 to Grade 5	524	607	S4.B.1.1.5	Biological Sci.
617074	4	Grade 4 to Grade 5	528	608	S4.A.3.2.2	Nature of Science
617246	4	Grade 4 to Grade 5	537	606	S4.D.1.1.2	Earth and Space Sci.
617237	4	Grade 4 to Grade 5	538	607	S4.C.2.1.4	Physical Sci.
617068	4	Grade 4 to Grade 5	536	607	S4.A.3.1.3	Nature of Science
617102	4	Grade 4 to Grade 5	534	604	S4.B.3.1.2	Biological Sci.
617075	4	Grade 4 to Grade 5	557	606	S4.A.3.2.2	Nature of Science
617259	4	Grade 4 to Grade 5	523	604	S4.D.1.3.3	Earth and Space Sci.
617072	4	Grade 4 to Grade 5	539	599	S4.A.3.2.1	Nature of Science
617240	4	Grade 4 to Grade 5	540	600	S4.C.3.1.2	Physical Sci.
617112	4	Grade 4 to Grade 5	533	600	S4.B.3.3.3	Biological Sci.
617080	4	Grade 4 to Grade 5	533	601	S4.A.3.3.1	Nature of Science
617257	4	Grade 4 to Grade 5	538	600	S4.D.1.3.1	Earth and Space Sci.
617271	4	Grade 4 to Grade 5	533	600	S4.D.3.1.3	Earth and Space Sci.
617089	4	Grade 4 to Grade 5	534	600	S4.B.1.1.4	Biological Sci.
617234	4	Grade 4 to Grade 5	527	600	S4.C.2.1.3	Physical Sci.
617070	4	Grade 4 to Grade 5	537	599	S4.A.3.1.4	Nature of Science
617260	4	Grade 4 to Grade 5	531	599	S4.D.1.3.3	Earth and Space Sci.
617311	5	Grade 4 to Grade 5	532	604	S5.B.1.1.2	Biological Sci.
616317	5	Grade 4 to Grade 5	533	609	S5.A.1.1.2	Nature of Science
615950	5	Grade 4 to Grade 5	532	616	S5.B.2.1.1	Biological Sci.
617328	5	Grade 4 to Grade 5	532	610	S5.C.3.2.1	Physical Sci.
617304	5	Grade 4 to Grade 5	533	598	S5.A.2.1.2	Nature of Science
615962	5	Grade 4 to Grade 5	533	606	S5.D.3.1.1	Earth and Space Sci.
615936	5	Grade 4 to Grade 5	533	633	S5.A.1.1.2	Nature of Science
617330	5	Grade 4 to Grade 5	532	636	S5.D.1.1.1	Earth and Space Sci.
615958	5	Grade 4 to Grade 5	532	629	S5.C.1.2.1	Physical Sci.
617307	5	Grade 4 to Grade 5	528	635	S5.A.2.2.1	Nature of Science
617338	5	Grade 4 to Grade 5	540	617	S5.D.1.2.2	Earth and Space Sci.
615939	5	Grade 4 to Grade 5	538	610	S5.A.2.1.1	Nature of Science
617504	5	Grade 4 to Grade 5	541	630	S5.B.3.2.2	Biological Sci.
616969	5	Grade 4 to Grade 5	541	637	S5.C.2.1.1	Physical Sci.
615943	5	Grade 4 to Grade 5	538	627	S5.B.1.1.1	Biological Sci.
617502	5	Grade 4 to Grade 5	539	616	S5.B.2.1.3	Biological Sci.
617499	5	Grade 4 to Grade 5	540	614	S5.A.1.1.3	Nature of Science
615965	5	Grade 4 to Grade 5	540	608	S5.D.1.1.1	Earth and Space Sci.
615942	5	Grade 4 to Grade 5	539	608	S5.A.3.1.1	Nature of Science
617507	5	Grade 4 to Grade 5	539	607	S5.C.2.1.2	Physical Sci.

Appendix C: Vertical Linking Item Details

Table C–33. Science Items Used to Link Grade 5 to Grade 6

Item ID	Item Grade	Link	N Count		Eligible Content	Science Diagnostic Category
			Lower Grade	Upper Grade		
617334	5	Grade 5 to Grade 6	605	621	S5.C.2.1.4	Physical Sci.
615949	5	Grade 5 to Grade 6	629	622	S5.B.1.1.3	Biological Sci.
615938	5	Grade 5 to Grade 6	608	622	S5.A.2.1.1	Nature of Science
615963	5	Grade 5 to Grade 6	617	623	S5.D.3.1.2	Earth and Space Sci.
615946	5	Grade 5 to Grade 6	617	621	S5.B.1.1.3	Biological Sci.
616968	5	Grade 5 to Grade 6	608	620	S5.C.1.2.2	Physical Sci.
617725	5	Grade 5 to Grade 6	602	620	S5.A.2.2.2	Nature of Science
616319	5	Grade 5 to Grade 6	637	618	S5.C.1.1.2	Physical Sci.
617318	5	Grade 5 to Grade 6	629	618	S5.B.3.1.2	Biological Sci.
616970	5	Grade 5 to Grade 6	637	617	S5.C.2.1.1	Physical Sci.
617339	5	Grade 5 to Grade 6	602	624	S5.D.1.2.1	Earth and Space Sci.
617729	5	Grade 5 to Grade 6	1215	623	S5.B.2.1.4	Biological Sci.
617501	5	Grade 5 to Grade 6	606	625	S5.A.1.1.3	Nature of Science
617342	5	Grade 5 to Grade 6	616	627	S5.D.2.1.2	Earth and Space Sci.
617310	5	Grade 5 to Grade 6	628	626	S5.A.3.2.1	Nature of Science
617326	5	Grade 5 to Grade 6	636	625	S5.C.2.1.4	Physical Sci.
617305	5	Grade 5 to Grade 6	617	625	S5.A.2.1.2	Nature of Science
617323	5	Grade 5 to Grade 6	1219	626	S5.C.1.1.1	Physical Sci.
617312	5	Grade 5 to Grade 6	634	618	S5.B.1.1.2	Biological Sci.
617327	5	Grade 5 to Grade 6	629	609	S5.C.2.1.4	Physical Sci.
615560	6	Grade 5 to Grade 6	614	623	S6.C.1.2.2	Physical Sci.
615518	6	Grade 5 to Grade 6	614	625	S6.A.2.2.1	Nature of Science
617741	6	Grade 5 to Grade 6	614	616	S6.B.2.1.2	Biological Sci.
615520	6	Grade 5 to Grade 6	614	619	S6.A.2.1.1	Nature of Science
615594	6	Grade 5 to Grade 6	614	624	S6.D.2.1.1	Earth and Space Sci.
619132	6	Grade 5 to Grade 6	614	617	S6.C.2.1.3	Physical Sci.
615554	6	Grade 5 to Grade 6	613	625	S6.B.3.2.1	Biological Sci.
615557	6	Grade 5 to Grade 6	613	620	S6.C.1.2.1	Physical Sci.
615514	6	Grade 5 to Grade 6	614	624	S6.A.1.1.3	Nature of Science
615603	6	Grade 5 to Grade 6	612	616	S6.D.3.1.2	Earth and Space Sci.
615574	6	Grade 5 to Grade 6	613	620	S6.C.2.1.3	Physical Sci.
618591	6	Grade 5 to Grade 6	612	625	S6.A.1.2.2	Nature of Science
615532	6	Grade 5 to Grade 6	612	621	S6.B.2.1.2	Biological Sci.
619296	6	Grade 5 to Grade 6	611	625	S6.A.2.1.1	Nature of Science
615601	6	Grade 5 to Grade 6	610	616	S6.D.3.1.1	Earth and Space Sci.
617512	6	Grade 5 to Grade 6	610	625	S6.C.2.1.1	Physical Sci.
615540	6	Grade 5 to Grade 6	610	624	S6.B.3.1.1	Biological Sci.
617508	6	Grade 5 to Grade 6	608	619	S6.B.1.1.1	Biological Sci.
615526	6	Grade 5 to Grade 6	608	620	S6.A.3.2.1	Nature of Science
619365	6	Grade 5 to Grade 6	608	618	S6.D.2.1.1	Earth and Space Sci.

Appendix C: Vertical Linking Item Details

Table C–34. Science Items Used to Link Grade 6 to Grade 7

Item ID	Item Grade	Link	N Count		Eligible Content	Science Diagnostic Category
			Lower Grade	Upper Grade		
615535	6	Grade 6 to Grade 7	1248	428	S6.A.3.2.1	Nature of Science
615562	6	Grade 6 to Grade 7	620	428	S6.C.1.2.2	Physical Sci.
615530	6	Grade 6 to Grade 7	1234	428	S6.B.2.1.1	Biological Sci.
619141	6	Grade 6 to Grade 7	616	426	S6.D.2.1.3	Earth and Space Sci.
615510	6	Grade 6 to Grade 7	1253	425	S6.A.1.1.2	Nature of Science
618609	6	Grade 6 to Grade 7	625	426	S6.C.3.1.2	Physical Sci.
618590	6	Grade 6 to Grade 7	1243	425	S6.A.1.2.1	Nature of Science
615576	6	Grade 6 to Grade 7	621	424	S6.C.2.1.3	Physical Sci.
615551	6	Grade 6 to Grade 7	621	424	S6.C.1.2.1	Physical Sci.
615512	6	Grade 6 to Grade 7	1233	423	S6.A.1.1.3	Nature of Science
615577	6	Grade 6 to Grade 7	619	428	S6.C.3.1.1	Physical Sci.
618791	6	Grade 6 to Grade 7	1235	428	S6.A.1.2.1	Nature of Science
615531	6	Grade 6 to Grade 7	1225	428	S6.B.2.1.1	Biological Sci.
619624	6	Grade 6 to Grade 7	627	428	S6.D.3.1.2	Earth and Space Sci.
616332	6	Grade 6 to Grade 7	1228	426	S6.A.1.1.3	Nature of Science
619149	6	Grade 6 to Grade 7	618	425	S6.C.3.2.1	Physical Sci.
617533	6	Grade 6 to Grade 7	1249	427	S6.B.2.1.1	Biological Sci.
618794	6	Grade 6 to Grade 7	624	426	S6.C.3.2.1	Physical Sci.
615517	6	Grade 6 to Grade 7	1245	426	S6.A.1.2.2	Nature of Science
615567	6	Grade 6 to Grade 7	616	425	S6.C.2.1.1	Physical Sci.
616616	7	Grade 6 to Grade 7	619	428	S7.D.1.1.2	Earth and Space Sci.
615235	7	Grade 6 to Grade 7	619	430	S7.B.1.1.2	Biological Sci.
617184	7	Grade 6 to Grade 7	616	424	S7.A.1.1.1	Nature of Science
618806	7	Grade 6 to Grade 7	618	427	S7.D.2.1.1	Earth and Space Sci.
615974	7	Grade 6 to Grade 7	618	443	S7.A.1.2.1	Nature of Science
618603	7	Grade 6 to Grade 7	617	439	S7.C.2.1.3	Physical Sci.
615973	7	Grade 6 to Grade 7	617	424	S7.A.1.1.4	Nature of Science
615275	7	Grade 6 to Grade 7	614	870	S7.B.3.3.2	Biological Sci.
615238	7	Grade 6 to Grade 7	609	427	S7.B.1.1.3	Biological Sci.
618802	7	Grade 6 to Grade 7	606	430	S7.C.2.1.1	Physical Sci.
617531	7	Grade 6 to Grade 7	624	424	S7.D.1.1.2	Earth and Space Sci.
616339	7	Grade 6 to Grade 7	626	431	S7.A.2.2.3	Nature of Science
615970	7	Grade 6 to Grade 7	625	429	S7.A.1.1.2	Nature of Science
616626	7	Grade 6 to Grade 7	625	443	S7.D.3.1.1	Earth and Space Sci.
617195	7	Grade 6 to Grade 7	626	444	S7.A.1.3.1	Nature of Science
617526	7	Grade 6 to Grade 7	624	422	S7.C.1.2.2	Physical Sci.
619627	7	Grade 6 to Grade 7	625	428	S7.A.1.1.4	Nature of Science
615252	7	Grade 6 to Grade 7	624	444	S7.B.2.1.3	Biological Sci.
615234	7	Grade 6 to Grade 7	620	427	S7.B.1.1.1	Biological Sci.
616039	7	Grade 6 to Grade 7	618	424	S7.C.2.1.3	Physical Sci.

Appendix C: Vertical Linking Item Details

Table C–35. Science Items Used to Link Grade 8 to Grade 7

Item ID	Item Grade	Link	N Count		Eligible Content	Science Diagnostic Category
			Lower Grade	Upper Grade		
617198	7	Grade 8 to Grade 7	431	256	S7.A.1.3.2	Nature of Science
616619	7	Grade 8 to Grade 7	426	256	S7.D.1.2.2	Earth and Space Sci.
615969	7	Grade 8 to Grade 7	427	255	S7.A.1.1.1	Nature of Science
616038	7	Grade 8 to Grade 7	424	256	S7.C.2.1.2	Physical Sci.
616622	7	Grade 8 to Grade 7	427	254	S7.D.2.1.1	Earth and Space Sci.
615971	7	Grade 8 to Grade 7	429	254	S7.A.1.1.3	Nature of Science
615249	7	Grade 8 to Grade 7	425	255	S7.B.2.1.2	Biological Sci.
618803	7	Grade 8 to Grade 7	432	254	S7.D.2.1.1	Earth and Space Sci.
618801	7	Grade 8 to Grade 7	427	252	S7.C.2.1.3	Physical Sci.
615999	7	Grade 8 to Grade 7	423	251	S7.B.1.1.3	Biological Sci.
615308	7	Grade 8 to Grade 7	422	253	S7.C.3.1.3	Physical Sci.
618855	7	Grade 8 to Grade 7	430	254	S7.A.2.1.1	Nature of Science
618853	7	Grade 8 to Grade 7	425	254	S7.A.1.3.1	Nature of Science
616348	7	Grade 8 to Grade 7	438	254	S7.B.2.2.2	Biological Sci.
616621	7	Grade 8 to Grade 7	426	254	S7.D.1.2.3	Earth and Space Sci.
617000	7	Grade 8 to Grade 7	441	254	S7.D.3.1.3	Earth and Space Sci.
616014	7	Grade 8 to Grade 7	419	254	S7.B.3.1.1	Biological Sci.
617196	7	Grade 8 to Grade 7	441	252	S7.A.1.3.1	Nature of Science
616313	7	Grade 8 to Grade 7	430	251	S7.C.3.1.1	Physical Sci.
616007	7	Grade 8 to Grade 7	429	252	S7.B.2.1.2	Biological Sci.
615771	8	Grade 8 to Grade 7	445	262	S8.A.3.3.2	Nature of Science
617489	8	Grade 8 to Grade 7	445	257	S8.C.3.1.1	Physical Sci.
615784	8	Grade 8 to Grade 7	444	262	S8.B.2.1.1	Biological Sci.
620362	8	Grade 8 to Grade 7	444	271	S8.D.1.2.1	Earth and Space Sci.
618535	8	Grade 8 to Grade 7	444	267	S8.A.3.2.2	Nature of Science
617484	8	Grade 8 to Grade 7	444	258	S8.D.1.1.2	Earth and Space Sci.
618896	8	Grade 8 to Grade 7	443	272	S8.D.1.3.2	Earth and Space Sci.
615776	8	Grade 8 to Grade 7	443	255	S8.B.1.1.2	Biological Sci.
618543	8	Grade 8 to Grade 7	442	264	S8.C.2.2.2	Physical Sci.
617735	8	Grade 8 to Grade 7	441	287	S8.A.2.1.2	Nature of Science
617294	8	Grade 8 to Grade 7	432	262	S8.D.2.1.3	Earth and Space Sci.
617289	8	Grade 8 to Grade 7	432	255	S8.B.2.2.1	Biological Sci.
618544	8	Grade 8 to Grade 7	432	260	S8.C.2.2.2	Physical Sci.
620027	8	Grade 8 to Grade 7	432	289	S8.A.3.1.5	Nature of Science
617962	8	Grade 8 to Grade 7	432	259	S8.A.1.3.4	Nature of Science
615810	8	Grade 8 to Grade 7	432	267	S8.C.2.1.1	Physical Sci.
617279	8	Grade 8 to Grade 7	432	258	S8.B.1.1.1	Biological Sci.
617293	8	Grade 8 to Grade 7	430	286	S8.D.2.1.3	Earth and Space Sci.
620020	8	Grade 8 to Grade 7	430	256	S8.A.1.1.2	Nature of Science
620400	8	Grade 8 to Grade 7	430	255	S8.B.3.2.3	Biological Sci.

Appendix C: Vertical Linking Item Details

Table C–36. Science Items Used to Link Biology to Grade 8

Item ID	Item Grade	Link	N Count		Eligible Content	Science Diagnostic Category	Biology Diagnostic Category
			Lower Grade	Upper Grade			
615777	8	Biology to Grade 8	261	306	S8.B.1.1.3	Biological Sci.	Basic Bio. Princ.
615790	8	Biology to Grade 8	259	306	S8.B.2.1.3	Biological Sci.	Cell Growth
615817	8	Biology to Grade 8	519	306	S8.C.2.1.3	Physical Sci.	No Biology DC
620364	8	Biology to Grade 8	256	305	S8.D.1.3.1	Earth and Space Sci.	Theory of Evolution
617739	8	Biology to Grade 8	288	304	S8.A.2.1.4	Nature of Science	No Biology DC
615789	8	Biology to Grade 8	257	303	S8.B.2.1.2	Biological Sci.	Theory of Evolution
618786	8	Biology to Grade 8	257	305	S8.A.3.2.3	Nature of Science	No Biology DC
617059	8	Biology to Grade 8	266	306	S8.B.1.1.1	Biological Sci.	Basic Bio. Princ.
615791	8	Biology to Grade 8	529	305	S8.B.2.1.3	Biological Sci.	Cell Growth
617284	8	Biology to Grade 8	259	305	S8.B.2.1.3	Biological Sci.	Cell Growth
620015	8	Biology to Grade 8	254	298	S8.A.1.1.1	Nature of Science	No Biology DC
620396	8	Biology to Grade 8	256	298	S8.B.3.2.2	Biological Sci.	Theory of Evolution
617737	8	Biology to Grade 8	252	298	S8.A.2.1.3	Nature of Science	No Biology DC
617292	8	Biology to Grade 8	255	297	S8.B.2.2.2	Biological Sci.	Cell Growth
615822	8	Biology to Grade 8	542	298	S8.C.2.2.3	Physical Sci.	Theory of Evolution
620637	8	Biology to Grade 8	262	298	S8.B.3.1.3	Biological Sci.	Theory of Evolution
618540	8	Biology to Grade 8	259	298	S8.A.3.3.1	Nature of Science	No Biology DC
618548	8	Biology to Grade 8	260	298	S8.D.1.3.4	Earth and Space Sci.	Theory of Evolution
620029	8	Biology to Grade 8	522	298	S8.A.3.2.3	Nature of Science	No Biology DC
620401	8	Biology to Grade 8	259	298	S8.B.3.2.3	Biological Sci.	Theory of Evolution
617377	Bio	Biology to Grade 8	257	305	BIO.A.4.2.1	Biological Sci.	Bioenergetics
617565	Bio	Biology to Grade 8	256	311	BIO.B.4.2.5	Biological Sci.	Theory of Evolution
616111	Bio	Biology to Grade 8	256	303	BIO.A.1.2.1	Biological Sci.	Basic Bio. Princ.
617401	Bio	Biology to Grade 8	256	4874	BIO.B.2.1.1	Biological Sci.	Cell Growth
617430	Bio	Biology to Grade 8	256	309	BIO.B.3.1.1	Biological Sci.	Theory of Evolution
617395	Bio	Biology to Grade 8	256	310	BIO.B.1.2.2	Biological Sci.	Cell Growth
617013	Bio	Biology to Grade 8	257	311	BIO.A.2.2.3	Biological Sci.	Basic Bio. Princ.
617444	Bio	Biology to Grade 8	257	311	BIO.B.3.2.1	Biological Sci.	Theory of Evolution
617458	Bio	Biology to Grade 8	256	295	BIO.B.4.1.2	Biological Sci.	Theory of Evolution
617449	Bio	Biology to Grade 8	256	311	BIO.B.3.3.1	Biological Sci.	Theory of Evolution
617839	Bio	Biology to Grade 8	263	300	BIO.A.4.2.1	Biological Sci.	Bioenergetics
617462	Bio	Biology to Grade 8	263	297	BIO.B.3.3.1	Biological Sci.	Theory of Evolution
616112	Bio	Biology to Grade 8	263	305	BIO.A.1.2.1	Biological Sci.	Basic Bio. Princ.
617457	Bio	Biology to Grade 8	263	4863	BIO.B.4.1.2	Biological Sci.	Theory of Evolution
617394	Bio	Biology to Grade 8	262	296	BIO.B.1.2.2	Biological Sci.	Cell Growth
617454	Bio	Biology to Grade 8	263	310	BIO.B.4.1.1	Biological Sci.	Theory of Evolution
617349	Bio	Biology to Grade 8	263	309	BIO.A.3.1.1	Biological Sci.	Bioenergetics
617414	Bio	Biology to Grade 8	263	300	BIO.B.2.2.2	Biological Sci.	Cell Growth
617880	Bio	Biology to Grade 8	263	305	BIO.B.2.2.2	Biological Sci.	Cell Growth
617451	Bio	Biology to Grade 8	263	298	BIO.B.3.3.1	Biological Sci.	Theory of Evolution

Appendix C: Vertical Linking Item Details

Table C–37. Science Items Used to Link Chemistry to Grade 8

Item ID	Item Grade	Link	N Count		Eligible Content	Science Diagnostic Category	Chemistry Diagnostic Category
			Lower Grade	Upper Grade			
615817	8	Chemistry to Grade 8	519	305	S8.C.2.1.3	Physical Sci.	Properties of Matter
615822	8	Chemistry to Grade 8	542	304	S8.C.2.2.3	Physical Sci.	No Chemistry DC
620029	8	Chemistry to Grade 8	522	307	S8.A.3.2.3	Nature of Science	No Chemistry DC
620025	8	Chemistry to Grade 8	258	308	S8.A.2.1.1	Nature of Science	No Chemistry DC
615819	8	Chemistry to Grade 8	261	308	S8.C.2.2.1	Physical Sci.	No Chemistry DC
620021	8	Chemistry to Grade 8	262	308	S8.A.1.1.3	Nature of Science	No Chemistry DC
615833	8	Chemistry to Grade 8	265	306	S8.D.1.1.2	Earth and Space Sci.	No Chemistry DC
615749	8	Chemistry to Grade 8	259	307	S8.A.2.2.3	Nature of Science	No Chemistry DC
620426	8	Chemistry to Grade 8	253	306	S8.B.3.3.4	Biological Sci.	No Chemistry DC
615723	8	Chemistry to Grade 8	270	305	S8.A.1.3.3	Nature of Science	No Chemistry DC
615809	8	Chemistry to Grade 8	511	307	S8.C.1.1.3	Physical Sci.	Chem. Relation.
615884	8	Chemistry to Grade 8	253	306	S8.A.2.1.1	Nature of Science	No Chemistry DC
615919	8	Chemistry to Grade 8	260	306	S8.C.1.1.1	Physical Sci.	Mole
620030	8	Chemistry to Grade 8	258	307	S8.A.3.2.3	Nature of Science	No Chemistry DC
620427	8	Chemistry to Grade 8	287	304	S8.B.3.3.4	Biological Sci.	No Chemistry DC
615927	8	Chemistry to Grade 8	266	305	S8.A.1.3.1	Nature of Science	No Chemistry DC
615826	8	Chemistry to Grade 8	262	306	S8.C.3.1.2	Physical Sci.	No Chemistry DC
620023	8	Chemistry to Grade 8	262	305	S8.A.1.3.2	Nature of Science	No Chemistry DC
615857	8	Chemistry to Grade 8	267	304	S8.D.2.1.1	Earth and Space Sci.	No Chemistry DC
615804	8	Chemistry to Grade 8	259	306	S8.C.1.1.1	Physical Sci.	Mole
616406	Chem	Chemistry to Grade 8	258	305	CHEM.A.2.1.2	Physical Sci.	Atomic Structure
618699	Chem	Chemistry to Grade 8	259	302	CHEM.B.2.1.5	Physical Sci.	Chem. Relation.
616511	Chem	Chemistry to Grade 8	259	299	CHEM.B.1.4.1	Physical Sci.	Mole
616362	Chem	Chemistry to Grade 8	258	303	CHEM.A.1.1.2	Physical Sci.	Properties of Matter
618734	Chem	Chemistry to Grade 8	259	307	CHEM.B.2.1.4	Physical Sci.	Chem. Relation.
616367	Chem	Chemistry to Grade 8	259	615	CHEM.A.1.2.2	Physical Sci.	Properties of Matter
616559	Chem	Chemistry to Grade 8	259	305	CHEM.A.1.1.5	Physical Sci.	Properties of Matter
619910	Chem	Chemistry to Grade 8	259	306	CHEM.B.1.4.2	Physical Sci.	Mole
616494	Chem	Chemistry to Grade 8	259	305	CHEM.A.1.2.3	Physical Sci.	Properties of Matter
616518	Chem	Chemistry to Grade 8	259	304	CHEM.B.2.1.5	Physical Sci.	Chem. Relation.
616427	Chem	Chemistry to Grade 8	260	306	CHEM.A.1.1.1	Physical Sci.	Properties of Matter
618726	Chem	Chemistry to Grade 8	260	309	CHEM.B.1.3.1	Physical Sci.	Mole
616365	Chem	Chemistry to Grade 8	260	301	CHEM.A.1.1.5	Physical Sci.	Properties of Matter
616516	Chem	Chemistry to Grade 8	260	306	CHEM.B.2.1.3	Physical Sci.	Chem. Relation.
618733	Chem	Chemistry to Grade 8	260	307	CHEM.B.2.1.3	Physical Sci.	Chem. Relation.
620468	Chem	Chemistry to Grade 8	260	315	CHEM.B.2.1.1	Physical Sci.	Chem. Relation.
616561	Chem	Chemistry to Grade 8	260	307	CHEM.A.1.2.2	Physical Sci.	Properties of Matter
616376	Chem	Chemistry to Grade 8	259	304	CHEM.A.2.3.1	Physical Sci.	Atomic Structure
616533	Chem	Chemistry to Grade 8	259	306	CHEM.A.2.2.2	Physical Sci.	Atomic Structure
618698	Chem	Chemistry to Grade 8	259	302	CHEM.B.2.1.4	Physical Sci.	Chem. Relation.

Appendix C: Vertical Linking Item Details

Tables C–38 through C–44 summarize the number of linking items by diagnostic category. Items coded in a Science diagnostic category and a Biology or Chemistry diagnostic category are noted.

Table C–38. Number of Items Linking Grade 3 to Grade 4 by Diagnostic Category

	Link Grade 3 to Grade 4		
	Grade 3 Items	Grade 4 Items	Total
Nature of Science	6	6	12
Biological Sciences	7	6	13
Physical Sciences	2	3	5
Earth and Space Sciences	5	5	10
TOTAL	20	20	40

Table C–39. Number of Items Linking Grade 4 to Grade 5 by Diagnostic Category

	Grade 4 to Grade 5		
	Grade 4 Items	Grade 5 Items	Total
Nature of Science	7	7	14
Biological Sciences	4	5	9
Physical Sciences	4	4	8
Earth and Space Sciences	5	4	9
TOTAL	20	20	40

Table C–40. Number of Items Linking Grade 5 to Grade 6 by Diagnostic Category

	Grade 5 to Grade 6		
	Grade 5 Items	Grade 6 Items	Total
Nature of Science	5	6	11
Biological Sciences	5	5	10
Physical Sciences	7	5	12
Earth and Space Sciences	3	4	7
TOTAL	20	20	40

Table C–41. Number of Items Linking Grade 6 to Grade 7 by Diagnostic Category

	Grade 6 to Grade 7		
	Grade 6 Items	Grade 7 Items	Total
Nature of Science	7	7	14
Biological Sciences	3	5	8
Physical Sciences	8	4	12
Earth and Space Sciences	2	4	6
TOTAL	20	20	40

Appendix C: Vertical Linking Item Details

Table C–42. Number of Items Linking Grade 8 to Grade 7 by Diagnostic Category

	Grade 8 to Grade 7		
	Grade 7 Items	**Grade 8 Items**	**Total**
Nature of Science	6	6	12
Biological Sciences	5	5	10
Physical Sciences	4	4	8
Earth and Space Sciences	5	5	10
TOTAL	20	20	40

Table C–43. Number of Items Linking Algebra I to Grade 8 by Diagnostic Category

	Biology to Grade 8		
	Grade 8 Items	**Biology Items**	**Total**
Nature of Science	6	0	6
Biological Sciences	10	20	30
Physical Sciences	2	0	2
Earth and Space Sciences	2	0	2
No Grade 8 DC	0	0	0
TOTAL	20	20	40
	Biology to Grade 8		
	Grade 8 Items	**Biology Items**	**Total**
Basic Biological Principles	2	3	5
Bioenergetics	0	3	3
Cell Growth	4	5	9
Theory of Evolution	7	9	16
No Biology DC	7	0	7
TOTAL	20	20	40

Table C–44. Number of Items Linking Geometry to Grade 8 by Diagnostic Category

	Chemistry to Grade 8		
	Grade 8 Items	**Chemistry Items**	**Total**
Nature of Science	9	0	9
Biological Sciences	2	0	2
Physical Sciences	7	20	27
Earth and Space Sciences	2	0	2
No Grade 8 DC	0	0	0
TOTAL	20	20	40
	Chemistry to Grade 8		
	Grade 8 Items	**Chemistry Items**	**Total**
Properties of Matter	1	7	8
Atomic Structure	0	3	3
The Mole	2	3	5
Chemical Relationships	1	7	8
No Chemistry DC	16	0	16
TOTAL	20	20	40

Appendix C: Vertical Linking Item Details

Table C–45. Science Example of Vertical Linking Workbook

		Grade 4 Calibration			Grade 5 Calibration				Grade 4 on		
Item ID	Item Grade	Difficulty	Fit	Displace	Difficulty	Fit	Displace	Discrepancy	Grade 5 Scale	Robust Z	Flag
617231	4	-0.669	0.980	0.001	-1.440	1.040	-0.004	-0.771	-1.442	-0.097	
617060	4	0.409	1.030	-0.002	-0.267	1.050	-0.003	-0.676	-0.364	0.312	
617092	4	-0.519	1.040	-0.002	-1.314	0.930	-0.004	-0.795	-1.292	-0.200	
617074	4	-0.048	0.950	-0.002	-0.773	1.000	-0.003	-0.725	-0.821	0.101	
617246	4	0.952	0.930	0.000	-0.093	0.900	-0.003	-1.045	0.179	-1.275	
617237	4	0.497	0.970	0.000	-0.250	0.950	-0.003	-0.747	-0.276	0.006	
617068	4	-0.016	1.030	0.002	-0.396	0.980	-0.003	-0.380	-0.789	1.585	
617102	4	2.758	1.090	-0.006	1.678	1.100	-0.003	-1.080	1.985	-1.426	
617075	4	0.654	1.030	-0.001	0.375	1.010	-0.003	-0.279	-0.119	2.019	high robust Z
617259	4	1.107	1.120	-0.001	0.532	1.070	-0.003	-0.575	0.334	0.746	
617072	4	0.683	0.970	0.004	-0.653	0.950	-0.002	-1.336	-0.090	-2.526	high robust Z
617240	4	0.983	1.080	0.004	0.131	1.100	-0.002	-0.852	0.210	-0.445	
617112	4	0.827	0.970	-0.001	0.145	0.930	-0.002	-0.682	0.054	0.286	
617080	4	1.924	1.230	-0.001	1.183	1.110	-0.002	-0.741	1.151	0.032	
617257	4	0.184	0.950	0.004	-0.368	0.960	-0.002	-0.552	-0.589	0.845	
617271	4	0.518	0.980	0.002	-0.502	0.920	-0.002	-1.020	-0.255	-1.168	
617089	4	0.146	1.140	-0.006	-0.345	1.080	-0.002	-0.491	-0.627	1.107	
617234	4	0.420	0.990	-0.002	0.000	1.060	-0.002	-0.420	-0.353	1.413	
617070	4	-0.383	0.940	0.000	-1.133	0.920	-0.002	-0.750	-1.156	-0.006	
617260	4	1.940	1.120	0.003	1.201	1.140	-0.002	-0.739	1.167	0.041	
617311	5	-0.320	1.000	0.002	-0.902	0.970	-0.001	-0.582	-1.093	0.716	
616317	5	-0.027	1.040	0.002	-0.296	1.080	0.001	-0.269	-0.800	2.062	high robust Z
615950	5	0.038	0.970	0.002	-0.902	0.920	0.001	-0.940	-0.735	-0.823	
617328	5	-0.257	0.960	0.002	-0.859	0.860	0.001	-0.602	-1.030	0.630	
617304	5	1.292	1.120	0.002	0.486	1.020	0.001	-0.806	0.519	-0.247	
615962	5	-0.868	0.940	0.002	-1.223	0.930	0.001	-0.355	-1.641	1.692	
615936	5	-0.152	0.990	0.002	-1.059	0.890	0.003	-0.907	-0.925	-0.682	
617330	5	0.732	0.940	0.002	-0.012	0.840	-0.002	-0.744	-0.041	0.019	
615958	5	0.180	1.070	0.002	-0.560	1.010	0.003	-0.740	-0.593	0.037	
617307	5	1.109	0.950	0.002	0.289	0.970	-0.002	-0.820	0.336	-0.307	
617338	5	0.456	0.940	0.005	-0.715	0.920	0.001	-1.171	-0.317	-1.817	
615939	5	0.484	0.980	0.005	-0.418	0.850	-0.002	-0.902	-0.289	-0.660	
617504	5	2.443	0.990	0.005	1.115	1.020	0.004	-1.328	1.670	-2.492	high robust Z
616969	5	-0.111	1.080	0.005	-0.812	1.030	-0.002	-0.701	-0.884	0.204	
615943	5	0.657	1.070	0.005	-0.391	0.940	0.003	-1.048	-0.116	-1.288	
617502	5	0.997	0.980	0.005	0.107	0.970	0.001	-0.890	0.224	-0.608	
617499	5	0.794	1.030	0.005	-0.130	1.000	-0.002	-0.924	0.021	-0.755	
615965	5	1.460	0.920	0.005	0.316	0.920	-0.001	-1.144	0.687	-1.701	
615942	5	-1.725	0.940	0.005	-2.577	0.940	-0.001	-0.852	-2.498	-0.445	
617507	5	0.870	1.230	0.005	0.340	1.130	0.001	-0.530	0.097	0.940	
	Mean	0.510			-0.262			-0.773	-0.262	-0.104	
	SD	0.875			0.810			0.259	0.875	1.114	
	SD Ratio	1.080									
	Correlation	0.956									
	Add. Constant	-0.773									
	Median							-0.749			
	Q							0.314			

Figures C–15 through C–21 are the adjacent grade linking plots. Items removed from final linking procedure are colored red.

Figure C–15. CDT Science: Grade 3 to Grade 4 Linking – All Links

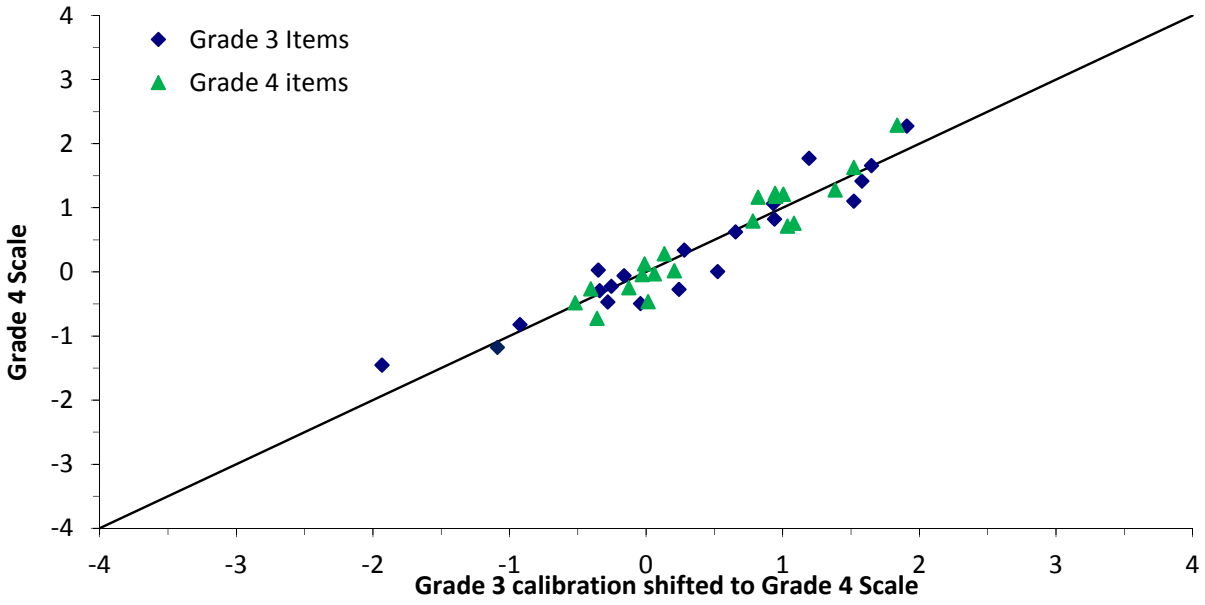
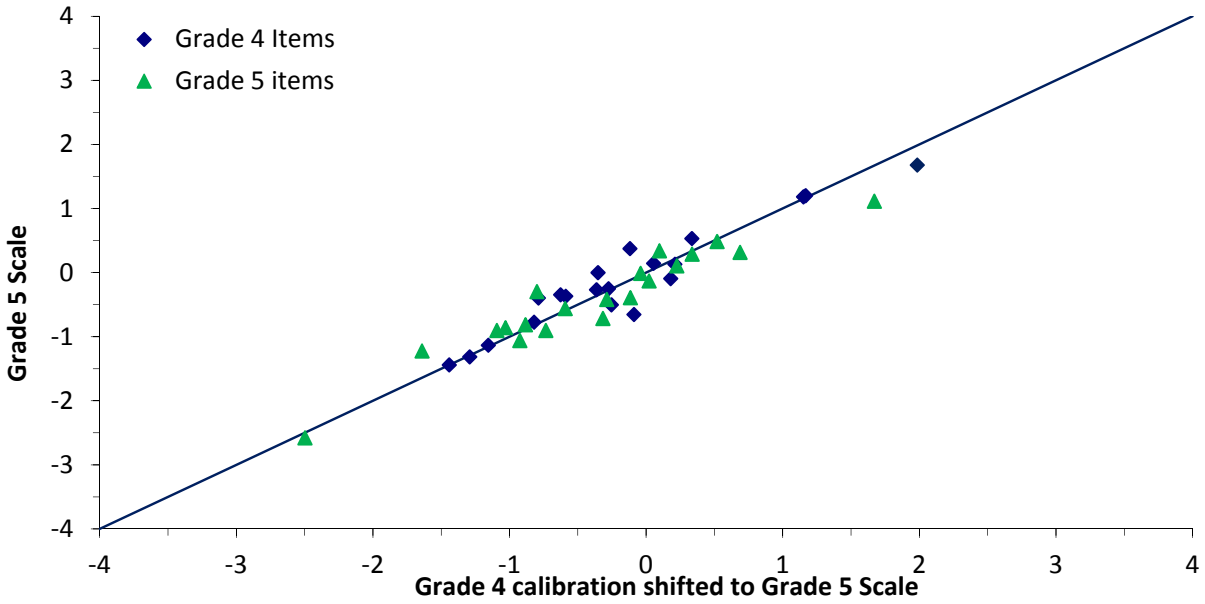


Figure C–16. CDT Science: Grade 4 to Grade 5 Linking – All Links



Appendix C: Vertical Linking Item Details

Figure C–17. CDT Science: Grade 5 to Grade 6 Linking – All Links

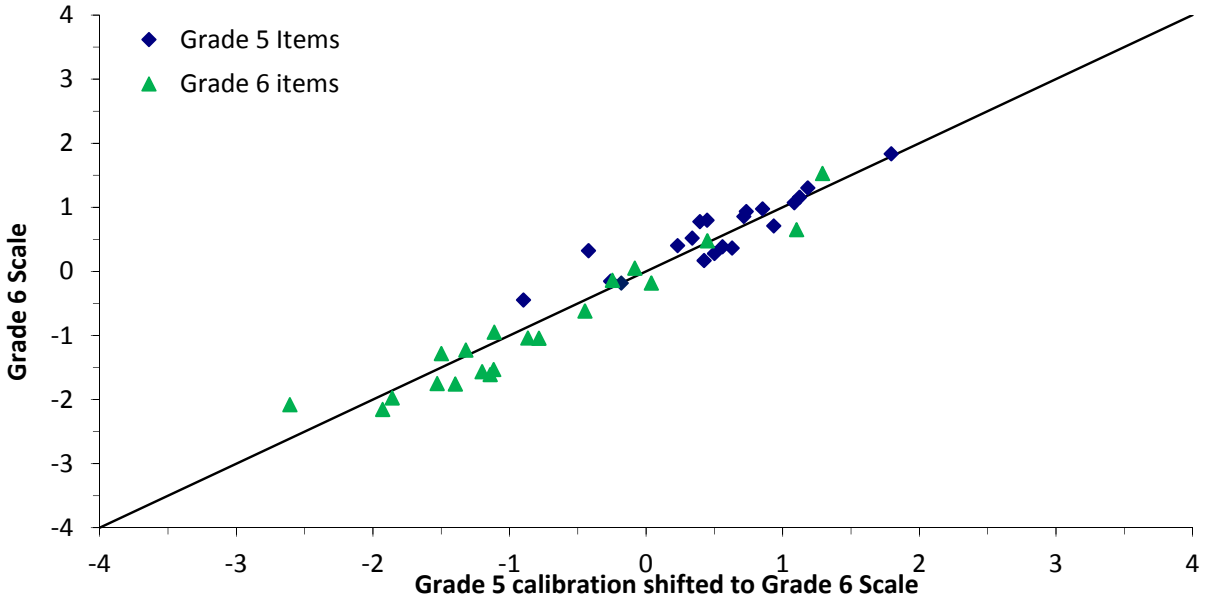


Figure C–18. CDT Science: Grade 6 to Grade 7 Linking – All Links

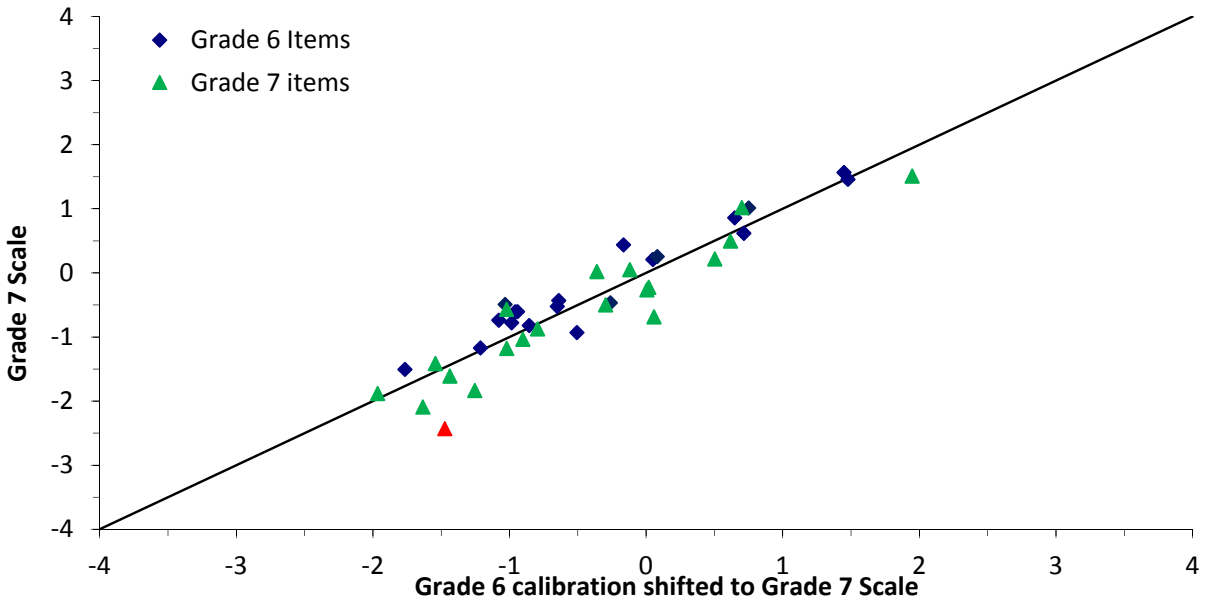


Figure C–19. CDT Science: Grade 8 to Grade 7 Linking – All Links

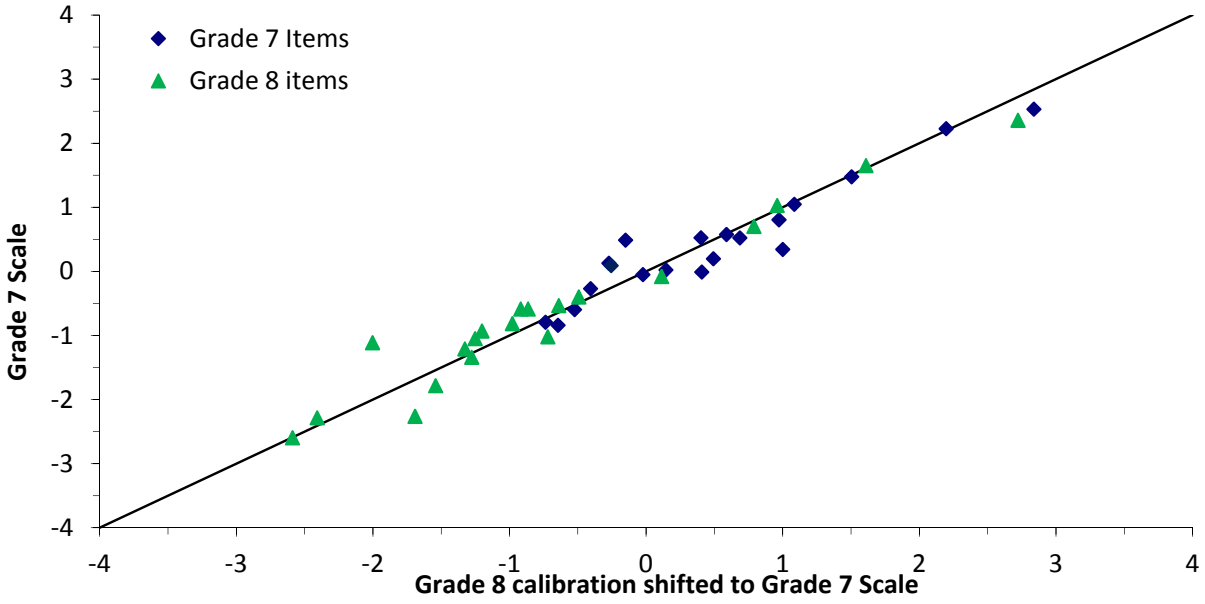


Figure C–20. CDT Science: Biology to Grade 8 Linking – All Links

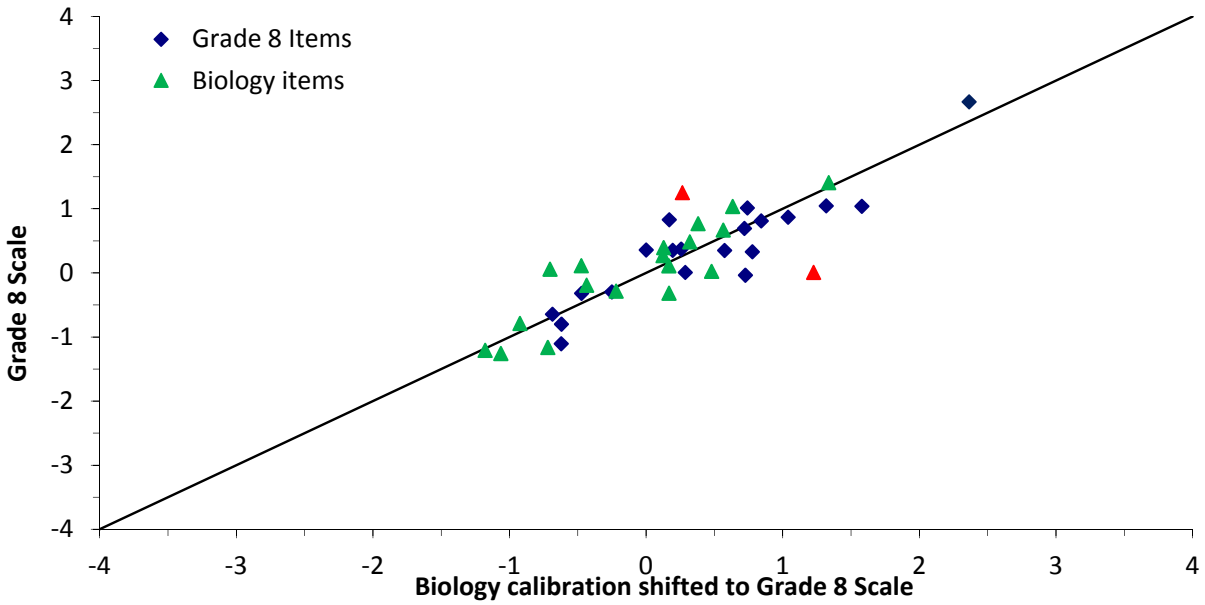
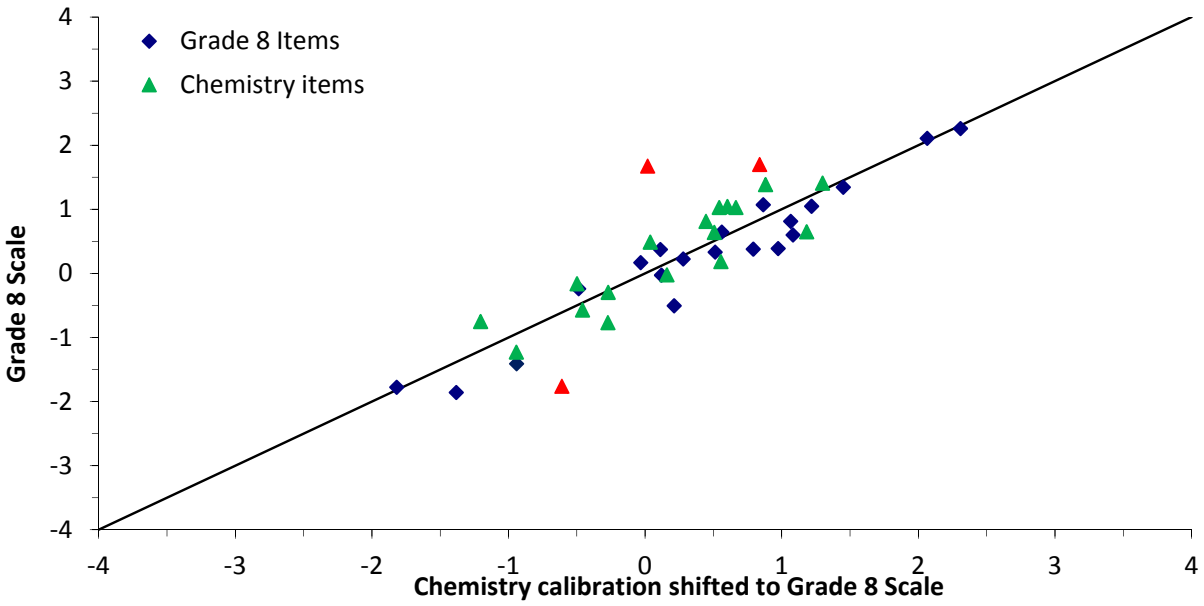


Figure C–21. CDT Science: Chemistry to Grade 8 Linking – All Links



WRITING/ENGLISH COMPOSITION

Tables C–46 through C–51 show n-counts, eligible content code, and diagnostic category for each of the vertical linking items.

Each item was administered in two grades so there are two n-counts: one for the lower grade and one for the upper grade. For example, item 626547 is a grade 3 item used to link grades 3 and 4. It was administered 274 times on the lower grade form (grade 3) and 234 times on the upper grade form (grade 4).

The diagnostic categories are:

- Quality of Writing: Focus and Content
- Quality of Writing: Organization and Style
- Quality of Writing: Editing
- Conventions: Spelling, Capitalization, and Punctuation
- Conventions: Grammar and Sentence Formation

Table C–46. Writing/English Composition Items Used to Link Grade 3 to Grade 4

Item ID	Item Grade	Link	N Count		Eligible Content	Writing/Composition Diagnostic Category
			Lower Grade	Upper Grade		
626547	3	Grade 3 to Grade 4	274	234	W.1.5.3.F.b	Spell., Cap., Punct.
621012	3	Grade 3 to Grade 4	276	234	W.1.5.3.F.d	Gram. and Sent.
634030	3	Grade 3 to Grade 4	277	234	W.1.5.3.F.a	Spell., Cap., Punct.
634160	3	Grade 3 to Grade 4	275	234	W.1.5.3.D	Org and Style
623056	3	Grade 3 to Grade 4	275	234	W.1.5.3.C	Org and Style
621006	3	Grade 3 to Grade 4	277	234	W.1.5.3.F.d	Gram. and Sent.
624801	3	Grade 3 to Grade 4	276	234	W.1.5.3.A	Focus and Content
623023	3	Grade 3 to Grade 4	274	234	W.1.5.3.F.d	Gram. and Sent.
622985	3	Grade 3 to Grade 4	274	234	W.1.5.3.B	Focus and Content
624847	3	Grade 3 to Grade 4	277	234	W.1.5.3.F.c	Spell., Cap., Punct.
624849	3	Grade 3 to Grade 4	276	232	W.1.5.3.F.b	Spell., Cap., Punct.
622465	3	Grade 3 to Grade 4	277	232	W.1.5.3.F.d	Gram. and Sent.
634029	3	Grade 3 to Grade 4	275	232	W.1.5.3.F.a	Spell., Cap., Punct.
634162	3	Grade 3 to Grade 4	275	232	W.1.5.3.D	Org and Style
626574	3	Grade 3 to Grade 4	277	232	W.1.5.3.C	Org and Style
636550	3	Grade 3 to Grade 4	276	232	W.1.5.3.F.d	Gram. and Sent.
622979	3	Grade 3 to Grade 4	274	232	W.1.5.3.A	Focus and Content
621008	3	Grade 3 to Grade 4	274	232	W.1.5.3.F.d	Gram. and Sent.
623107	3	Grade 3 to Grade 4	276	232	W.1.5.3.B	Focus and Content
625516	3	Grade 3 to Grade 4	275	232	W.1.5.3.F.c	Spell., Cap., Punct.
623113	4	Grade 3 to Grade 4	274	233	W.1.5.4.C	Org and Style
637175	4	Grade 3 to Grade 4	274	232	W.1.5.4.D	Org and Style
633445	4	Grade 3 to Grade 4	274	235	W.1.5.4.F.a	Spell., Cap., Punct.
635414	4	Grade 3 to Grade 4	274	233	W.1.5.4.A	Focus and Content
639852	4	Grade 3 to Grade 4	274	234	W.1.5.4.F.c	Spell., Cap., Punct.
623033	4	Grade 3 to Grade 4	274	232	W.1.5.4.F.b	Spell., Cap., Punct.
623013	4	Grade 3 to Grade 4	274	233	W.1.5.4.B	Focus and Content
633852	4	Grade 3 to Grade 4	274	233	W.1.5.4.C	Org and Style
624765	4	Grade 3 to Grade 4	274	233	W.1.5.4.F.d	Gram. and Sent.
625527	4	Grade 3 to Grade 4	274	232	W.1.5.4.E	Editing
627004	4	Grade 3 to Grade 4	275	232	W.1.5.4.E	Editing
637177	4	Grade 3 to Grade 4	275	235	W.1.5.4.D	Org and Style
633432	4	Grade 3 to Grade 4	275	233	W.1.5.4.F.a	Spell., Cap., Punct.
633464	4	Grade 3 to Grade 4	275	234	W.1.5.4.A	Focus and Content
639854	4	Grade 3 to Grade 4	275	232	W.1.5.4.F.c	Spell., Cap., Punct.
623136	4	Grade 3 to Grade 4	275	233	W.1.5.4.F.b	Spell., Cap., Punct.
635900	4	Grade 3 to Grade 4	275	233	W.1.5.4.B	Focus and Content
635412	4	Grade 3 to Grade 4	275	233	W.1.5.4.C	Org and Style
630419	4	Grade 3 to Grade 4	275	232	W.1.5.4.F.d	Gram. and Sent.
630295	4	Grade 3 to Grade 4	275	235	W.1.5.4.E	Editing

Table C–47. Writing/English Composition Items Used to Link Grade 4 to Grade 5

Item ID	Item Grade	Link	N Count		Eligible Content	Writing/Composition Diagnostic Category
			Lower Grade	Upper Grade		
623017	4	Grade 4 to Grade 5	235	221	W.1.5.4.E	Editing
625455	4	Grade 4 to Grade 5	233	221	W.1.5.4.A	Focus and Content
622453	4	Grade 4 to Grade 5	234	221	W.1.5.4.E	Editing
623135	4	Grade 4 to Grade 5	232	221	W.1.5.4.F.b	Spell., Cap., Punct.
632573	4	Grade 4 to Grade 5	233	221	W.1.5.4.F.d	Gram. and Sent.
623020	4	Grade 4 to Grade 5	233	221	W.1.5.4.C	Org and Style
633435	4	Grade 4 to Grade 5	233	221	W.1.5.4.F.a	Spell., Cap., Punct.
623108	4	Grade 4 to Grade 5	232	221	W.1.5.4.B	Focus and Content
633468	4	Grade 4 to Grade 5	235	221	W.1.5.4.C	Org and Style
627696	4	Grade 4 to Grade 5	233	221	W.1.5.4.F.c	Spell., Cap., Punct.
623115	4	Grade 4 to Grade 5	233	221	W.1.5.4.E	Editing
622983	4	Grade 4 to Grade 5	234	221	W.1.5.4.A	Focus and Content
622454	4	Grade 4 to Grade 5	232	221	W.1.5.4.E	Editing
621395	4	Grade 4 to Grade 5	233	221	W.1.5.4.F.b	Spell., Cap., Punct.
632587	4	Grade 4 to Grade 5	233	221	W.1.5.4.F.d	Gram. and Sent.
623019	4	Grade 4 to Grade 5	233	221	W.1.5.4.C	Org and Style
634025	4	Grade 4 to Grade 5	232	221	W.1.5.4.F.a	Spell., Cap., Punct.
626922	4	Grade 4 to Grade 5	235	221	W.1.5.4.B	Focus and Content
633469	4	Grade 4 to Grade 5	233	221	W.1.5.4.C	Org and Style
628471	4	Grade 4 to Grade 5	234	221	W.1.5.4.F.c	Spell., Cap., Punct.
637149	5	Grade 4 to Grade 5	233	218	W.1.5.5.F.d	Gram. and Sent.
633440	5	Grade 4 to Grade 5	233	221	W.1.5.5.F.a	Spell., Cap., Punct.
635884	5	Grade 4 to Grade 5	233	221	W.1.5.5.E	Editing
637062	5	Grade 4 to Grade 5	233	218	W.1.5.5.F.d	Gram. and Sent.
623027	5	Grade 4 to Grade 5	233	220	W.1.5.5.F.d	Gram. and Sent.
622469	5	Grade 4 to Grade 5	233	221	W.1.5.5.F.b	Spell., Cap., Punct.
639843	5	Grade 4 to Grade 5	233	222	W.1.5.5.F.c	Spell., Cap., Punct.
635417	5	Grade 4 to Grade 5	233	221	W.1.5.5.C	Org and Style
620819	5	Grade 4 to Grade 5	233	220	W.1.5.5.C	Org and Style
635605	5	Grade 4 to Grade 5	233	221	W.1.5.5.C	Org and Style
637148	5	Grade 4 to Grade 5	232	221	W.1.5.5.C	Org and Style
633439	5	Grade 4 to Grade 5	232	221	W.1.5.5.F.a	Spell., Cap., Punct.
620820	5	Grade 4 to Grade 5	232	218	W.1.5.5.E	Editing
626566	5	Grade 4 to Grade 5	232	220	W.1.5.5.F.d	Gram. and Sent.
623129	5	Grade 4 to Grade 5	232	221	W.1.5.5.F.d	Gram. and Sent.
629858	5	Grade 4 to Grade 5	232	222	W.1.5.5.F.b	Spell., Cap., Punct.
639864	5	Grade 4 to Grade 5	232	221	W.1.5.5.F.c	Spell., Cap., Punct.
627291	5	Grade 4 to Grade 5	232	220	W.1.5.5.C	Org and Style
639349	5	Grade 4 to Grade 5	232	218	W.1.5.5.C	Org and Style
626818	5	Grade 4 to Grade 5	232	221	W.1.5.5.C	Org and Style

Table C–48. Writing/English Composition Items Used to Link Grade 5 to Grade 6

Item ID	Item Grade	Link	N Count		Eligible Content	Writing/Composition Diagnostic Category
			Lower Grade	Upper Grade		
623105	5	Grade 5 to Grade 6	221	303	W.1.5.5.A	Focus and Content
626927	5	Grade 5 to Grade 6	218	303	W.1.5.5.F.d	Gram. and Sent.
632608	5	Grade 5 to Grade 6	220	303	W.1.5.5.E	Editing
625460	5	Grade 5 to Grade 6	221	303	W.1.5.5.C	Org and Style
626923	5	Grade 5 to Grade 6	222	303	W.1.5.5.E	Editing
628065	5	Grade 5 to Grade 6	221	303	W.1.5.5.F.b	Spell., Cap., Punct.
633443	5	Grade 5 to Grade 6	220	303	W.1.5.5.F.a	Spell., Cap., Punct.
621390	5	Grade 5 to Grade 6	218	303	W.1.5.5.F.c	Spell., Cap., Punct.
626820	5	Grade 5 to Grade 6	221	303	W.1.5.5.E	Editing
624842	5	Grade 5 to Grade 6	218	303	W.1.5.5.F.d	Gram. and Sent.
624800	5	Grade 5 to Grade 6	218	304	W.1.5.5.A	Focus and Content
627413	5	Grade 5 to Grade 6	220	304	W.1.5.5.F.d	Gram. and Sent.
630403	5	Grade 5 to Grade 6	221	304	W.1.5.5.E	Editing
624804	5	Grade 5 to Grade 6	222	304	W.1.5.5.C	Org and Style
626570	5	Grade 5 to Grade 6	221	304	W.1.5.5.E	Editing
624773	5	Grade 5 to Grade 6	220	304	W.1.5.5.F.b	Spell., Cap., Punct.
633442	5	Grade 5 to Grade 6	218	304	W.1.5.5.F.a	Spell., Cap., Punct.
629854	5	Grade 5 to Grade 6	221	304	W.1.5.5.F.c	Spell., Cap., Punct.
623060	5	Grade 5 to Grade 6	221	304	W.1.5.5.E	Editing
627488	5	Grade 5 to Grade 6	220	304	W.1.5.5.F.d	Gram. and Sent.
624292	6	Grade 5 to Grade 6	221	304	W.1.5.6.E	Editing
626934	6	Grade 5 to Grade 6	221	303	W.1.5.6.A	Focus and Content
627013	6	Grade 5 to Grade 6	221	304	W.1.5.6.F.b	Spell., Cap., Punct.
632646	6	Grade 5 to Grade 6	221	305	W.1.5.6.F.d	Gram. and Sent.
624829	6	Grade 5 to Grade 6	221	304	W.1.5.6.F.d	Gram. and Sent.
630378	6	Grade 5 to Grade 6	221	304	W.1.5.6.B	Focus and Content
624297	6	Grade 5 to Grade 6	221	303	W.1.5.6.C	Org and Style
635654	6	Grade 5 to Grade 6	221	304	W.1.5.6.F.c	Spell., Cap., Punct.
639363	6	Grade 5 to Grade 6	221	305	W.1.5.6.C	Org and Style
633448	6	Grade 5 to Grade 6	221	304	W.1.5.6.F.a	Spell., Cap., Punct.
623114	6	Grade 5 to Grade 6	222	303	W.1.5.6.E	Editing
626932	6	Grade 5 to Grade 6	222	304	W.1.5.6.A	Focus and Content
635660	6	Grade 5 to Grade 6	222	305	W.1.5.6.F.b	Spell., Cap., Punct.
626822	6	Grade 5 to Grade 6	222	304	W.1.5.6.F.d	Gram. and Sent.
625478	6	Grade 5 to Grade 6	222	304	W.1.5.6.F.d	Gram. and Sent.
626776	6	Grade 5 to Grade 6	222	303	W.1.5.6.B	Focus and Content
624296	6	Grade 5 to Grade 6	222	304	W.1.5.6.C	Org and Style
628055	6	Grade 5 to Grade 6	222	305	W.1.5.6.F.c	Spell., Cap., Punct.
627289	6	Grade 5 to Grade 6	222	304	W.1.5.6.C	Org and Style
633444	6	Grade 5 to Grade 6	222	304	W.1.5.6.F.a	Spell., Cap., Punct.

Table C–49. Writing/English Composition Items Used to Link Grade 6 to Grade 7

Item ID	Item Grade	Link	N Count		Eligible Content	Writing/Composition Diagnostic Category
			Lower Grade	Upper Grade		
633446	6	Grade 6 to Grade 7	304	279	W.1.5.6.F.a	Spell., Cap., Punct.
635619	6	Grade 6 to Grade 7	305	279	W.1.5.6.D	Org and Style
635662	6	Grade 6 to Grade 7	304	279	W.1.5.6.F.b	Spell., Cap., Punct.
623111	6	Grade 6 to Grade 7	304	279	W.1.5.6.E	Editing
624754	6	Grade 6 to Grade 7	303	279	W.1.5.6.F.d	Gram. and Sent.
628060	6	Grade 6 to Grade 7	304	279	W.1.5.6.F.c	Spell., Cap., Punct.
627415	6	Grade 6 to Grade 7	305	279	W.1.5.6.F.d	Gram. and Sent.
624287	6	Grade 6 to Grade 7	304	279	W.1.5.6.E	Editing
624763	6	Grade 6 to Grade 7	304	279	W.1.5.6.F.d	Gram. and Sent.
627960	6	Grade 6 to Grade 7	303	279	W.1.5.6.A	Focus and Content
633447	6	Grade 6 to Grade 7	305	279	W.1.5.6.F.a	Spell., Cap., Punct.
639392	6	Grade 6 to Grade 7	304	279	W.1.5.6.D	Org and Style
635661	6	Grade 6 to Grade 7	304	279	W.1.5.6.F.b	Spell., Cap., Punct.
624289	6	Grade 6 to Grade 7	303	279	W.1.5.6.E	Editing
624756	6	Grade 6 to Grade 7	304	279	W.1.5.6.F.d	Gram. and Sent.
628061	6	Grade 6 to Grade 7	305	279	W.1.5.6.F.c	Spell., Cap., Punct.
628112	6	Grade 6 to Grade 7	304	279	W.1.5.6.F.d	Gram. and Sent.
626567	6	Grade 6 to Grade 7	304	279	W.1.5.6.E	Editing
624840	6	Grade 6 to Grade 7	303	279	W.1.5.6.F.d	Gram. and Sent.
627030	6	Grade 6 to Grade 7	304	279	W.1.5.6.A	Focus and Content
627052	7	Grade 6 to Grade 7	303	280	W.1.5.7.F.d	Gram. and Sent.
639447	7	Grade 6 to Grade 7	303	280	W.1.5.7.F.d	Gram. and Sent.
627058	7	Grade 6 to Grade 7	303	280	W.1.5.7.F.d	Gram. and Sent.
639380	7	Grade 6 to Grade 7	303	279	W.1.5.7.A	Focus and Content
624286	7	Grade 6 to Grade 7	303	280	W.1.5.7.B	Focus and Content
624822	7	Grade 6 to Grade 7	303	280	W.1.5.7.F.b	Spell., Cap., Punct.
636003	7	Grade 6 to Grade 7	303	280	W.1.5.7.C	Org and Style
633454	7	Grade 6 to Grade 7	303	280	W.1.5.7.F.a	Spell., Cap., Punct.
635909	7	Grade 6 to Grade 7	303	279	W.1.5.7.D	Org and Style
634300	7	Grade 6 to Grade 7	303	280	W.1.5.7.F.c	Spell., Cap., Punct.
626992	7	Grade 6 to Grade 7	303	280	W.1.5.7.F.d	Gram. and Sent.
639438	7	Grade 6 to Grade 7	303	280	W.1.5.7.F.d	Gram. and Sent.
628116	7	Grade 6 to Grade 7	303	279	W.1.5.7.F.d	Gram. and Sent.
626764	7	Grade 6 to Grade 7	303	280	W.1.5.7.A	Focus and Content
639394	7	Grade 6 to Grade 7	303	280	W.1.5.7.B	Focus and Content
628476	7	Grade 6 to Grade 7	303	280	W.1.5.7.F.b	Spell., Cap., Punct.
636008	7	Grade 6 to Grade 7	303	280	W.1.5.7.C	Org and Style
633455	7	Grade 6 to Grade 7	303	279	W.1.5.7.F.a	Spell., Cap., Punct.
639420	7	Grade 6 to Grade 7	303	280	W.1.5.7.D	Org and Style
634299	7	Grade 6 to Grade 7	303	280	W.1.5.7.F.c	Spell., Cap., Punct.

Appendix C: Vertical Linking Item Details

Table C–50. Writing/English Composition Items Used to Link Grade 8 to Grade 7

Item ID	Item Grade	Link	N Count		Eligible Content	Writing/Composition Diagnostic Category
			Lower Grade	Upper Grade		
627684	7	Grade 8 to Grade 7	280	145	W.1.5.7.F.d	Gram. and Sent.
625487	7	Grade 8 to Grade 7	279	145	W.1.5.7.F.d	Gram. and Sent.
627464	7	Grade 8 to Grade 7	280	145	W.1.5.7.A	Focus and Content
639375	7	Grade 8 to Grade 7	280	145	W.1.5.7.C	Org and Style
633458	7	Grade 8 to Grade 7	280	145	W.1.5.7.F.a	Spell., Cap., Punct.
626996	7	Grade 8 to Grade 7	280	145	W.1.5.7.E	Editing
628098	7	Grade 8 to Grade 7	279	145	W.1.5.7.F.b	Spell., Cap., Punct.
639358	7	Grade 8 to Grade 7	280	145	W.1.5.7.B	Focus and Content
635665	7	Grade 8 to Grade 7	280	145	W.1.5.7.F.c	Spell., Cap., Punct.
627361	7	Grade 8 to Grade 7	280	145	W.1.5.7.C	Org and Style
627056	7	Grade 8 to Grade 7	279	145	W.1.5.7.F.d	Gram. and Sent.
639407	7	Grade 8 to Grade 7	280	145	W.1.5.7.F.d	Gram. and Sent.
626943	7	Grade 8 to Grade 7	280	145	W.1.5.7.A	Focus and Content
639364	7	Grade 8 to Grade 7	280	145	W.1.5.7.C	Org and Style
633457	7	Grade 8 to Grade 7	280	145	W.1.5.7.F.a	Spell., Cap., Punct.
626997	7	Grade 8 to Grade 7	279	145	W.1.5.7.F.d	Gram. and Sent.
630429	7	Grade 8 to Grade 7	280	145	W.1.5.7.F.b	Spell., Cap., Punct.
625506	7	Grade 8 to Grade 7	280	145	W.1.5.7.B	Focus and Content
635668	7	Grade 8 to Grade 7	280	145	W.1.5.7.F.c	Spell., Cap., Punct.
627362	7	Grade 8 to Grade 7	280	145	W.1.5.7.C	Org and Style
633498	8	Grade 8 to Grade 7	279	144	W.1.5.8.F.a	Spell., Cap., Punct.
639580	8	Grade 8 to Grade 7	279	145	W.1.5.8.C	Org and Style
624848	8	Grade 8 to Grade 7	279	143	W.1.5.8.F.b	Spell., Cap., Punct.
639612	8	Grade 8 to Grade 7	279	144	W.1.5.8.B	Focus and Content
628115	8	Grade 8 to Grade 7	279	144	W.1.5.8.F.d	Gram. and Sent.
627963	8	Grade 8 to Grade 7	279	144	W.1.5.8.A	Focus and Content
628311	8	Grade 8 to Grade 7	279	145	W.1.5.8.F.d	Gram. and Sent.
628242	8	Grade 8 to Grade 7	279	143	W.1.5.8.B	Focus and Content
639857	8	Grade 8 to Grade 7	279	144	W.1.5.8.F.c	Spell., Cap., Punct.
639441	8	Grade 8 to Grade 7	279	144	W.1.5.8.F.d	Gram. and Sent.
633497	8	Grade 8 to Grade 7	280	145	W.1.5.8.F.a	Spell., Cap., Punct.
639588	8	Grade 8 to Grade 7	280	143	W.1.5.8.C	Org and Style
625522	8	Grade 8 to Grade 7	280	144	W.1.5.8.F.b	Spell., Cap., Punct.
639610	8	Grade 8 to Grade 7	280	144	W.1.5.8.B	Focus and Content
624828	8	Grade 8 to Grade 7	280	144	W.1.5.8.F.d	Gram. and Sent.
625520	8	Grade 8 to Grade 7	280	145	W.1.5.8.A	Focus and Content
625508	8	Grade 8 to Grade 7	280	143	W.1.5.8.F.d	Gram. and Sent.
626775	8	Grade 8 to Grade 7	280	144	W.1.5.8.B	Focus and Content
639856	8	Grade 8 to Grade 7	280	144	W.1.5.8.F.c	Spell., Cap., Punct.
639439	8	Grade 8 to Grade 7	280	144	W.1.5.8.F.d	Gram. and Sent.

Table C–51. Writing/English Composition Items Used to Link Literature to Grade 8

Item ID	Item Grade	Link	N Count		Eligible Content	Writing/Composition Diagnostic Category
			Lower Grade	Upper Grade		
636213	8	English Comp to Grade 8	143	173	W.1.5.8.F.d	Gram. and Sent.
639599	8	English Comp to Grade 8	144	173	W.1.5.8.C	Org and Style
633503	8	English Comp to Grade 8	144	173	W.1.5.8.F.a	Spell., Cap., Punct.
629857	8	English Comp to Grade 8	144	173	W.1.5.8.F.b	Spell., Cap., Punct.
634156	8	English Comp to Grade 8	145	173	W.1.5.8.F.c	Spell., Cap., Punct.
639577	8	English Comp to Grade 8	143	173	W.1.5.8.E	Editing
635385	8	English Comp to Grade 8	144	173	W.1.5.8.F.d	Gram. and Sent.
635351	8	English Comp to Grade 8	144	173	W.1.5.8.F.d	Gram. and Sent.
627964	8	English Comp to Grade 8	144	173	W.1.5.8.A	Focus and Content
626786	8	English Comp to Grade 8	145	173	W.1.5.8.C	Org and Style
636212	8	English Comp to Grade 8	144	171	W.1.5.8.F.d	Gram. and Sent.
639597	8	English Comp to Grade 8	144	171	W.1.5.8.C	Org and Style
633502	8	English Comp to Grade 8	144	171	W.1.5.8.F.a	Spell., Cap., Punct.
629860	8	English Comp to Grade 8	145	171	W.1.5.8.F.b	Spell., Cap., Punct.
634157	8	English Comp to Grade 8	143	171	W.1.5.8.F.c	Spell., Cap., Punct.
639608	8	English Comp to Grade 8	144	171	W.1.5.8.E	Editing
635386	8	English Comp to Grade 8	144	171	W.1.5.8.F.d	Gram. and Sent.
635350	8	English Comp to Grade 8	144	171	W.1.5.8.F.d	Gram. and Sent.
628143	8	English Comp to Grade 8	145	171	W.1.5.8.A	Focus and Content
626785	8	English Comp to Grade 8	143	171	W.1.5.8.C	Org and Style
622816	EC	English Comp to Grade 8	143	173	C.E.1.1.1	Focus and Content
639932	EC	English Comp to Grade 8	143	173	C.E.3.1.5	Gram. and Sent.
639920	EC	English Comp to Grade 8	143	171	C.E.3.1.4	Gram. and Sent.
634313	EC	English Comp to Grade 8	143	173	C.E.3.1.2	Spell., Cap., Punct.
633540	EC	English Comp to Grade 8	143	172	C.E.3.1.1	Spell., Cap., Punct.
622613	EC	English Comp to Grade 8	143	173	C.E.1.1.3	Org and Style
623126	EC	English Comp to Grade 8	143	173	C.E.3.1.4	Gram. and Sent.
639971	EC	English Comp to Grade 8	143	174	C.E.1.1.2	Focus and Content
629853	EC	English Comp to Grade 8	143	174	C.E.3.1.3	Spell., Cap., Punct.
630391	EC	English Comp to Grade 8	143	173	C.E.1.1.3	Org and Style
622815	EC	English Comp to Grade 8	145	174	C.P.1.1.1	Focus and Content
639933	EC	English Comp to Grade 8	145	173	C.E.3.1.5	Gram. and Sent.
639919	EC	English Comp to Grade 8	145	173	C.E.3.1.4	Gram. and Sent.
634349	EC	English Comp to Grade 8	145	174	C.E.3.1.2	Spell., Cap., Punct.
633536	EC	English Comp to Grade 8	145	174	C.E.3.1.1	Spell., Cap., Punct.
622611	EC	English Comp to Grade 8	145	174	C.E.1.1.3	Org and Style
621166	EC	English Comp to Grade 8	145	173	C.E.3.1.4	Gram. and Sent.
630659	EC	English Comp to Grade 8	145	173	C.E.1.1.2	Focus and Content
629822	EC	English Comp to Grade 8	145	173	C.E.3.1.3	Spell., Cap., Punct.
630392	EC	English Comp to Grade 8	145	171	C.E.1.1.3	Org and Style

Appendix C: Vertical Linking Item Details

Tables C–52 through C–57 summarize the number of linking items by diagnostic category.

Table C–52. Number of Items Linking Grade 3 to Grade 4 by Diagnostic Category

	Link Grade 3 to Grade 4		
	Grade 3 Items	Grade 4 Items	Total
Focus and Content	4	4	8
Org and Style	4	5	9
Editing	0	3	3
Spell., Cap., Punct.	6	6	12
Gram. and Sent.	6	2	8
TOTAL	20	20	40

Table C–53. Number of Items Linking Grade 4 to Grade 5 by Diagnostic Category

	Grade 4 to Grade 5		
	Grade 4 Items	Grade 5 Items	Total
Focus and Content	4	0	4
Org and Style	4	7	11
Editing	4	2	6
Spell., Cap., Punct.	6	6	12
Gram. and Sent.	2	5	7
TOTAL	20	20	40

Table C–54. Number of Items Linking Grade 5 to Grade 6 by Diagnostic Category

	Grade 5 to Grade 6		
	Grade 5 Items	Grade 6 Items	Total
Focus and Content	2	4	6
Org and Style	2	4	6
Editing	6	2	8
Spell., Cap., Punct.	6	6	12
Gram. and Sent.	4	4	8
TOTAL	20	20	40

Table C–55. Number of Items Linking Grade 6 to Grade 7 by Diagnostic Category

	Grade 6 to Grade 7		
	Grade 6 Items	Grade 7 Items	Total
Focus and Content	2	4	6
Org and Style	2	4	6
Editing	4	0	4
Spell., Cap., Punct.	6	6	12
Gram. and Sent.	6	6	12
TOTAL	20	20	40

Appendix C: Vertical Linking Item Details

Table C–56. Number of Items Linking Grade 8 to Grade 7 by Diagnostic Category

	Grade 8 to Grade 7		
	Grade 7 Items	**Grade 8 Items**	**Total**
Focus and Content	4	6	10
Org and Style	4	2	6
Editing	1	0	1
Spell., Cap., Punct.	6	6	12
Gram. and Sent.	5	6	11
TOTAL	20	20	40

Table C–57. Number of Items Linking Grade 8 to Grade 7 by Diagnostic Category

	Link English Composition to Grade 8		
	Grade 8 Items	**Eng Comp Items**	**Total**
Focus and Content	2	4	6
Org and Style	4	4	8
Editing	2	0	2
Spell., Cap., Punct.	6	6	12
Gram. and Sent.	6	6	12
TOTAL	20	20	40

Appendix C: Vertical Linking Item Details

Table C–58. Writing/English Composition Example of Vertical Linking Workbook

		Grade 4 Calibration			Grade 5 Calibration				Grade 4 on		
Item ID	Item Grade	Difficulty	Fit	Displace	Difficulty	Fit	Displace	Discrepancy	Grade 5 Scale	Robust Z	Flag
623017	4	-0.784	0.910	-0.006	-0.927	0.910	0.000	-0.143	-1.005	0.233	
625455	4	-0.205	1.030	-0.001	0.132	1.010	0.001	0.337	-0.426	1.437	
622453	4	-0.955	0.910	0.003	-1.526	0.860	0.000	-0.571	-1.176	-0.840	
623135	4	1.520	1.200	0.005	1.516	1.110	0.001	-0.004	1.299	0.582	
632573	4	0.527	1.250	-0.002	0.872	1.190	0.001	0.345	0.306	1.457	
623020	4	-1.254	0.890	-0.001	-1.487	0.900	0.000	-0.233	-1.475	0.008	
633435	4	-0.452	1.020	-0.003	-0.441	0.910	0.000	0.011	-0.673	0.620	
623108	4	-0.152	0.830	0.000	0.025	0.920	0.000	0.177	-0.373	1.036	
633468	4	-0.857	0.900	-0.006	-0.475	0.860	0.000	0.382	-1.078	1.550	
627696	4	1.837	1.210	-0.001	1.968	1.140	0.001	0.131	1.616	0.921	
623115	4	-0.678	0.960	-0.001	-1.072	0.890	-0.003	-0.394	-0.899	-0.396	
622983	4	-0.797	1.020	0.003	-1.360	0.980	-0.003	-0.563	-1.018	-0.820	
622454	4	0.922	1.070	0.005	0.483	1.000	-0.002	-0.439	0.701	-0.509	
621395	4	1.634	1.080	-0.002	0.998	1.090	-0.002	-0.636	1.413	-1.003	
632587	4	0.650	0.830	-0.001	0.149	0.980	-0.002	-0.501	0.429	-0.665	
623019	4	-1.134	0.990	-0.003	-1.611	1.020	-0.003	-0.477	-1.355	-0.605	
634025	4	-0.885	0.960	0.000	-1.496	0.920	-0.003	-0.611	-1.106	-0.941	
626922	4	0.516	1.000	-0.006	0.159	0.970	-0.002	-0.357	0.295	-0.304	
633469	4	-0.151	0.880	-0.001	-0.121	0.900	-0.002	0.030	-0.372	0.667	
628471	4	2.662	1.140	0.003	2.119	1.130	-0.001	-0.543	2.441	-0.770	
637149	5	-2.406	0.960	0.003	-2.126	0.960	0.005	0.280	-2.627	1.294	
633440	5	-0.302	1.040	0.003	-0.227	0.960	0.001	0.075	-0.523	0.780	
635884	5	-1.607	0.840	0.003	-1.708	0.870	-0.001	-0.101	-1.828	0.339	
637062	5	0.739	1.110	0.004	0.794	1.170	0.000	0.055	0.518	0.730	
623027	5	-0.341	0.780	0.003	-0.917	0.800	-0.004	-0.576	-0.562	-0.853	
622469	5	1.057	1.110	0.004	0.730	1.000	0.000	-0.327	0.836	-0.228	
639843	5	-0.548	0.910	0.003	-1.127	0.990	-0.002	-0.579	-0.769	-0.860	
635417	5	0.499	1.050	0.004	0.561	1.050	-0.005	0.062	0.278	0.747	
620819	5	0.739	0.970	0.004	0.337	0.950	-0.005	-0.402	0.518	-0.416	
635605	5	1.417	1.220	0.004	1.437	1.080	0.001	0.020	1.196	0.642	
637148	5	-0.606	0.950	0.002	-1.440	0.920	0.001	-0.834	-0.827	-1.500	
633439	5	0.404	1.100	0.002	0.544	1.050	-0.001	0.140	0.183	0.943	
620820	5	0.287	0.950	0.002	0.089	0.960	0.000	-0.198	0.066	0.095	
626566	5	-0.764	0.860	0.002	-1.003	0.860	-0.004	-0.239	-0.985	-0.008	
623129	5	-1.331	0.800	0.002	-1.323	0.820	0.000	0.008	-1.552	0.612	
629858	5	1.124	1.020	0.003	0.983	1.020	-0.002	-0.141	0.903	0.238	
639864	5	-0.729	0.950	0.002	-1.075	0.900	-0.005	-0.346	-0.950	-0.276	
627291	5	0.515	0.880	0.002	0.008	0.970	-0.005	-0.507	0.294	-0.680	
639349	5	0.658	1.040	0.002	0.285	0.890	0.005	-0.373	0.437	-0.344	
626818	5	1.722	0.970	0.003	0.913	0.990	-0.001	-0.809	1.501	-1.437	
	Mean	0.062			-0.159			-0.221	-0.159	0.037	
	SD	1.088			1.095			0.330	1.088	0.828	
	SD Ratio	0.993									
	Correlation	0.954									
	Add. Constant	-0.221									
	Median							-0.236			
	Q							0.539			

Figures C–22 through C–27 are the adjacent grade linking plots. No items were removed from final linking procedure so there are no red items in these plots.

Figure C–22. CDT Writing/English Composition: Grade 3 to Grade 4 Linking – All Links

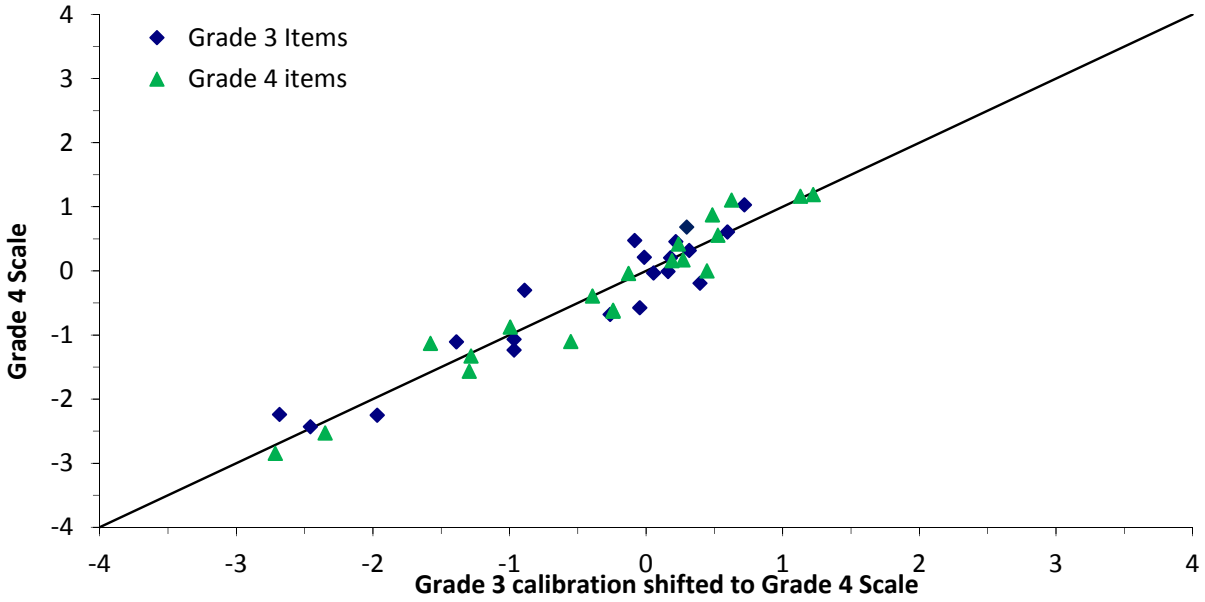


Figure C–23. CDT Writing/English Composition: Grade 4 to Grade 5 Linking – All Links

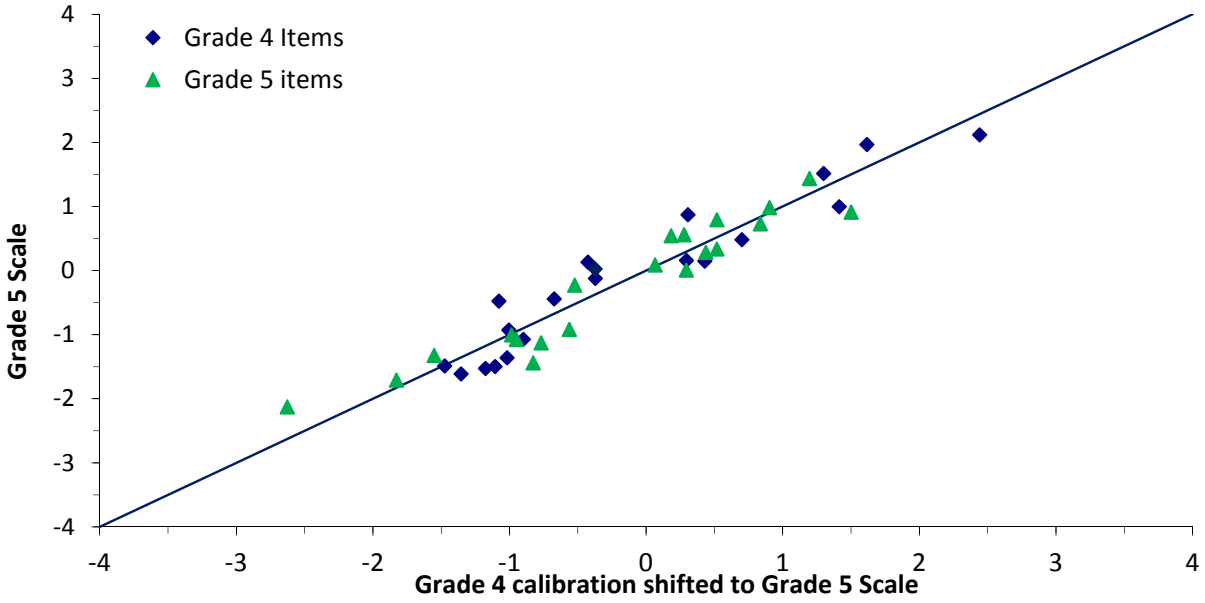


Figure C–24. CDT Writing/English Composition: Grade 5 to Grade 6 Linking – All Links

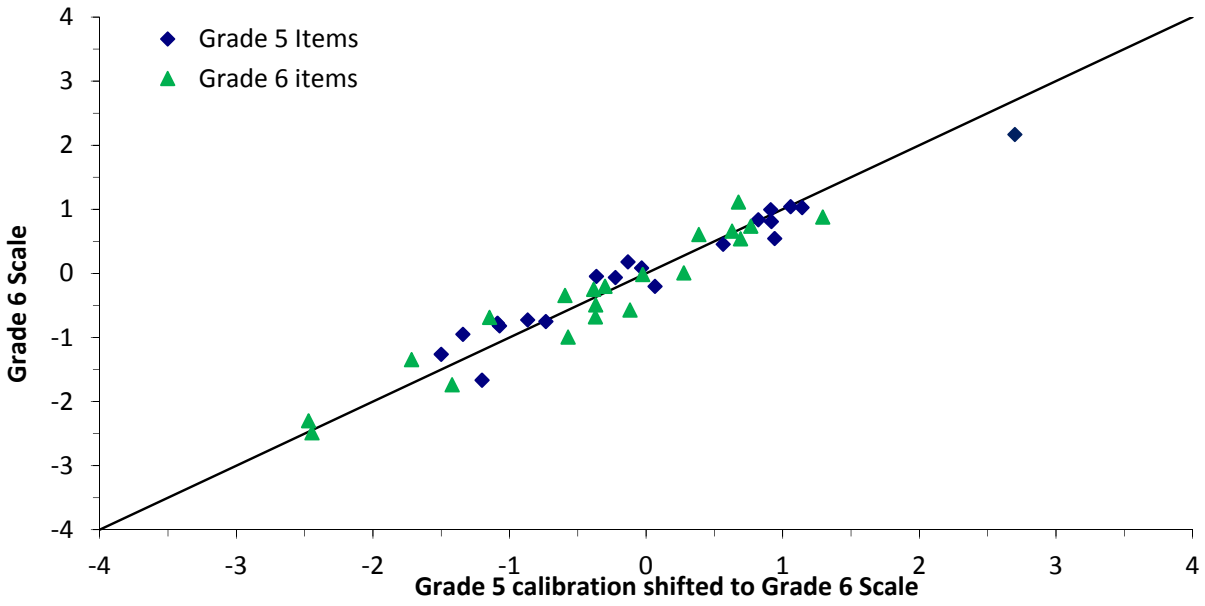


Figure C–25. CDT Writing/English Composition: Grade 6 to Grade 7 Linking – All Links

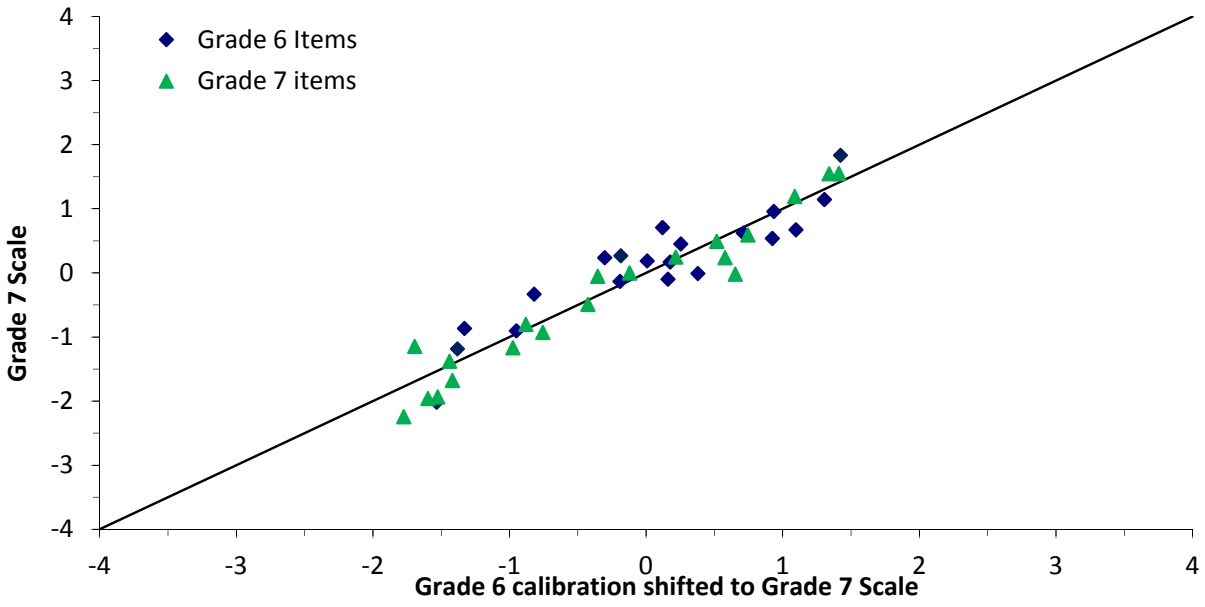


Figure C–26. CDT Writing/English Composition: Grade 8 to Grade 7 Linking – All Links

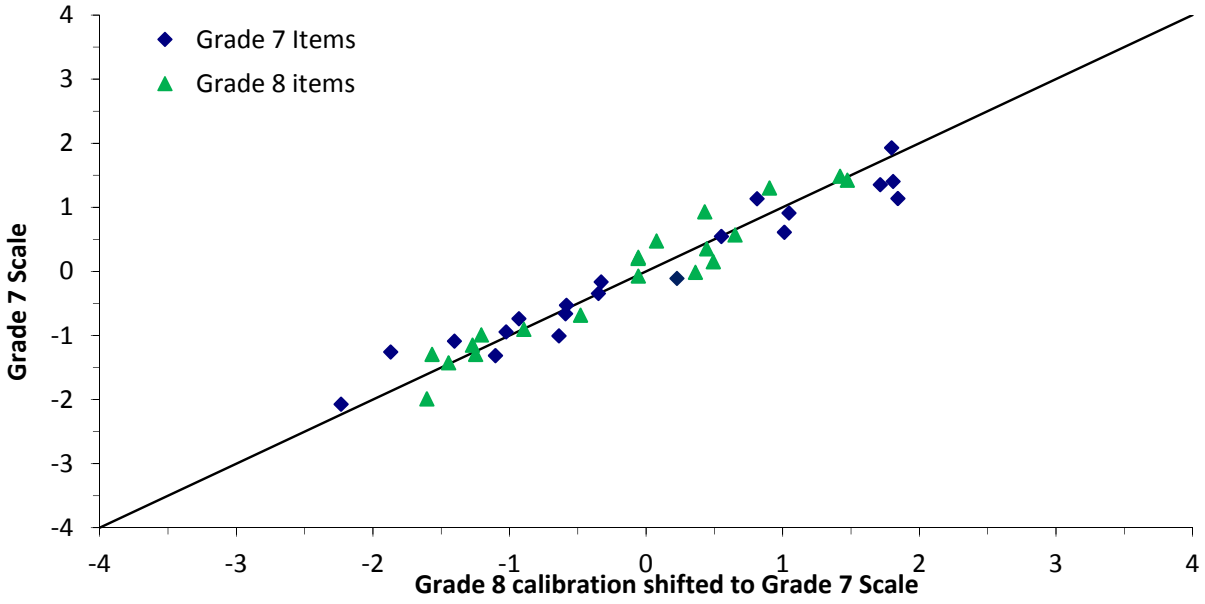
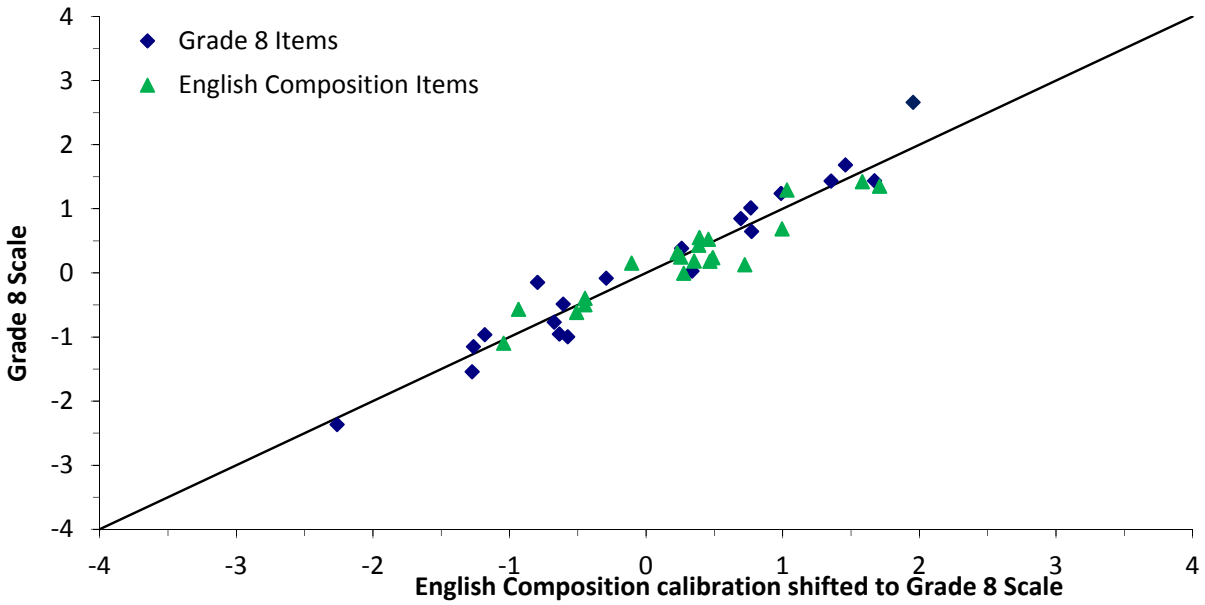


Figure C–27. CDT Writing/English Composition: Literature to Grade 8 Linking – All Links



APPENDIX D: SIGNIFICANT DIFFERENCES AMONG DIAGNOSTIC CATEGORIES

In Chapter Fifteen (Operational Administration 2012–2013), significant differences among diagnostic categories were tested with a t-test using a Bonferroni correction for multiple comparisons to keep the familywise Type I error rate at 0.32. The tables in this appendix show the significant differences with the familywise Type I error rate at 0.10.

DIAGNOSTIC CATEGORY SIGNIFICANT DIFFERENCES

Table D–1a. Diagnostic Category Significant Differences – Mathematics

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	396	104,260	0.4%	99.6%
DC1	DC3	562	104,094	0.5%	99.5%
DC1	DC4	437	104,219	0.4%	99.6%
DC1	DC5	460	104,196	0.4%	99.6%
DC2	DC3	301	104,355	0.3%	99.7%
DC2	DC4	342	104,314	0.3%	99.7%
DC2	DC5	333	104,323	0.3%	99.7%
DC3	DC4	467	104,189	0.4%	99.6%
DC3	DC5	463	104,193	0.4%	99.6%
DC4	DC5	400	104,256	0.4%	99.6%

Note: Z value is 2.58

Table D–1b. Total Number of Diagnostic Category Significant Differences – Mathematics

Number of Significant Differences	Number of Students	Percent of Students
0	101,768	97.2%
1	2,003	1.9%
2	592	0.6%
3	204	0.2%
4	85	0.1%
5	2	0.0%
6	2	0.0%
7	0	0.0%
8	0	0.0%
9	0	0.0%
10	0	0.0%

Appendix D: Significant Differences Among Diagnostic Categories

Table D–2a. Diagnostic Category Significant Differences – Algebra I

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	1,982	201,689	1.0%	99.0%
DC1	DC3	1,880	201,791	0.9%	99.1%
DC1	DC4	2,454	201,217	1.2%	98.8%
DC2	DC3	859	202,812	0.4%	99.6%
DC2	DC4	1,989	201,682	1.0%	99.0%
DC3	DC4	1,956	201,715	1.0%	99.0%

Note: Z value is 2.39

Table D–2b. Total Number of Diagnostic Category Significant Differences – Algebra I

Number of Significant Differences	Number of Students	Percent of Students
0	195,645	96.1%
1	5,562	2.7%
2	1,891	0.9%
3	517	0.3%
4	55	0.0%
5	1	0.0%
6	0	0.0%

Table D–3a. Diagnostic Category Significant Differences – Geometry

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	94	10,961	0.9%	99.1%
DC1	DC3	119	10,936	1.1%	98.9%
DC1	DC4	92	10,963	0.8%	99.2%
DC2	DC3	96	10,959	0.9%	99.1%
DC2	DC4	96	10,959	0.9%	99.1%
DC3	DC4	93	10,962	0.8%	99.2%

Note: Z value is 2.39

Appendix D: Significant Differences Among Diagnostic Categories

Table D–3b. Total Number of Diagnostic Category Significant Differences – Geometry

Number of Significant Differences	Number of Students	Percent of Students
0	10,614	96.0%
1	321	2.9%
2	93	0.8%
3	25	0.2%
4	2	0.0%
5	0	0.0%
6	0	0.0%

Table D–4a. Diagnostic Category Significant Differences – Algebra II

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	183	10,101	1.8%	98.2%
DC1	DC3	168	10,116	1.6%	98.4%
DC1	DC4	321	9,963	3.1%	96.9%
DC2	DC3	93	10,191	0.9%	99.1%
DC2	DC4	107	10,177	1.0%	99.0%
DC3	DC4	139	10,145	1.4%	98.6%

Note: Z value is 2.39

Table D–4b. Total Number of Diagnostic Category Significant Differences – Algebra II

Number of Significant Differences	Number of Students	Percent of Students
0	9,571	93.1%
1	480	4.7%
2	173	1.7%
3	55	0.5%
4	5	0.0%
5	0	0.0%
6	0	0.0%

Appendix D: Significant Differences Among Diagnostic Categories

Table D–5a. Diagnostic Category Significant Differences – Reading/Literature

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	208	266,550	0.1%	99.9%
DC1	DC3	48	266,710	0.0%	100.0%
DC1	DC4	48	266,710	0.0%	100.0%
DC1	DC5	104	266,654	0.0%	100.0%
DC2	DC3	160	266,598	0.1%	99.9%
DC2	DC4	74	266,684	0.0%	100.0%
DC2	DC5	148	266,610	0.1%	99.9%
DC3	DC4	50	266,708	0.0%	100.0%
DC3	DC5	122	266,636	0.0%	100.0%
DC4	DC5	48	266,710	0.0%	100.0%

Note: Z value is 2.58

Table D–5b. Total Number of Diagnostic Category Significant Differences – Reading/Literature

Number of Significant Differences	Number of Students	Percent of Students
0	265,857	99.7%
1	805	0.3%
2	84	0.0%
3	11	0.0%
4	1	0.0%
5	0	0.0%
6	0	0.0%
7	0	0.0%
8	0	0.0%
9	0	0.0%
10	0	0.0%

Appendix D: Significant Differences Among Diagnostic Categories

Table D–6a. Diagnostic Category Significant Differences – Science

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	233	40,101	0.6%	99.4%
DC1	DC3	239	40,095	0.6%	99.4%
DC1	DC4	242	40,092	0.6%	99.4%
DC2	DC3	248	40,086	0.6%	99.4%
DC2	DC4	208	40,126	0.5%	99.5%
DC3	DC4	186	40,148	0.5%	99.5%

Note: Z value is 2.39

Table D–6b. Total Number of Diagnostic Category Significant Differences – Science

Number of Significant Differences	Number of Students	Percent of Students
0	39,315	97.5%
1	736	1.8%
2	230	0.6%
3	52	0.1%
4	1	0.0%
5	0	0.0%
6	0	0.0%

Table D–7a. Diagnostic Category Significant Differences – Biology

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	481	116,670	0.4%	99.6%
DC1	DC3	460	116,691	0.4%	99.6%
DC1	DC4	598	116,553	0.5%	99.5%
DC2	DC3	226	116,925	0.2%	99.8%
DC2	DC4	671	116,480	0.6%	99.4%
DC3	DC4	605	116,546	0.5%	99.5%

Note: Z value is 2.39

Appendix D: Significant Differences Among Diagnostic Categories

Table D–7b. Total Number of Diagnostic Category Significant Differences – Biology

Number of Significant Differences	Number of Students	Percent of Students
0	114,662	97.9%
1	2,008	1.7%
2	414	0.4%
3	63	0.1%
4	4	0.0%
5	0	0.0%
6	0	0.0%

Table D–8a. Diagnostic Category Significant Differences – Chemistry

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	89	7,992	1.1%	98.9%
DC1	DC3	76	8,005	0.9%	99.1%
DC1	DC4	47	8,034	0.6%	99.4%
DC2	DC3	5	8,076	0.1%	99.9%
DC2	DC4	9	8,072	0.1%	99.9%
DC3	DC4	9	8,072	0.1%	99.9%

Note: Z value is 2.39

Table D–8b. Total Number of Diagnostic Category Significant Differences – Chemistry

Number of Significant Differences	Number of Students	Percent of Students
0	7,882	97.5%
1	168	2.1%
2	26	0.3%
3	5	0.1%
4	0	0.0%
5	0	0.0%
6	0	0.0%

Appendix D: Significant Differences Among Diagnostic Categories

Table D–9a. Diagnostic Category Significant Differences – Writing/English Composition

Comparison		Significant Difference			
Group 1	Group 2	Yes	No	% Yes	% No
DC1	DC2	21	21,879	0.1%	99.9%
DC1	DC3	32	21,868	0.1%	99.9%
DC1	DC4	39	21,861	0.2%	99.8%
DC1	DC5	32	21,868	0.1%	99.9%
DC2	DC3	26	21,874	0.1%	99.9%
DC2	DC4	41	21,859	0.2%	99.8%
DC2	DC5	33	21,867	0.2%	99.8%
DC3	DC4	32	21,868	0.1%	99.9%
DC3	DC5	37	21,863	0.2%	99.8%
DC4	DC5	33	21,867	0.2%	99.8%

Note: Z value is 2.58

Table D–9b. Total Number of Diagnostic Category Significant Differences – Writing/English Composition

Number of Significant Differences	Number of Students	Percent of Students
0	21,664	98.9%
1	166	0.8%
2	55	0.3%
3	11	0.1%
4	3	0.0%
5	1	0.0%
6	0	0.0%
7	0	0.0%
8	0	0.0%
9	0	0.0%
10	0	0.0%

Appendix D: Significant Differences Among Diagnostic Categories

APPENDIX E: DECISION CONSISTENCY

In Chapter Sixteen (Reliability), decision consistency for each CDT test and benchmark cut is reported with two values: exact agreement rate and kappa. However, as noted in the chapter, retest classification probability varies at different points along the scale. For example, the retest probability of green is higher for scores near the red/green cut than for scores very low in the red range. This appendix provides a more detailed examination of the differences in retest probability across the score range. 3 X 3 retest classification probability tables and retest classification percent tables by score range are presented for all CDT tests and benchmark cuts.

3 X 3 RETEST CLASSIFICATION PROBABILITY

Table E–1. Retest Classification Probability – Mathematics Grade 6

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.908	0.092	0.000
	green	0.092	0.830	0.077
	blue	0.000	0.178	0.822

Exact Agreement Rate = 0.863

Kappa = 0.777

N-count = 35,412

Table E–2. Retest Classification Probability – Mathematics Grade 7

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.914	0.086	0.000
	green	0.087	0.839	0.074
	blue	0.000	0.183	0.817

Exact Agreement Rate = 0.868

Kappa = 0.780

N-count = 42,248

Appendix E: Decision Consistency

Table E–3. Retest Classification Probability – Mathematics Grade 8

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.914	0.086	0.000
	green	0.111	0.843	0.046
	blue	0.000	0.212	0.788

Exact Agreement Rate = 0.878

Kappa = 0.773

N-count = 23,769

Table E–4. Retest Classification Probability – Mathematics High School

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.958	0.042	0.000
	green	0.116	0.830	0.054
	blue	0.000	0.134	0.866

Exact Agreement Rate = 0.922

Kappa = 0.827

N-count = 3,227

Table E–5. Retest Classification Probability – Algebra I

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.902	0.098	0.000
	green	0.140	0.823	0.037
	blue	0.000	0.169	0.831

Exact Agreement Rate = 0.868

Kappa = 0.750

N-count = 203,671

Appendix E: Decision Consistency

Table E–6. Retest Classification Probability – Geometry

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.925	0.075	0.000
	green	0.145	0.816	0.040
	blue	0.000	0.159	0.841

Exact Agreement Rate = 0.892
Kappa = 0.764
N-count = 11,055

Table E–7. Retest Classification Probability – Algebra II

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.936	0.064	0.000
	green	0.146	0.812	0.042
	blue	0.000	0.158	0.842

Exact Agreement Rate = 0.905
Kappa = 0.771
N-count = 10,284

Table E–8. Retest Classification Probability – Reading/Literature Grade 6

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.913	0.087	0.000
	green	0.084	0.857	0.059
	blue	0.000	0.235	0.765

Exact Agreement Rate = 0.874
Kappa = 0.777
N-count = 27,361

Appendix E: Decision Consistency

Table E–9. Retest Classification Probability – Reading/Literature Grade 7

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.913	0.087	0.000
	green	0.082	0.860	0.058
	blue	0.000	0.238	0.762

Exact Agreement Rate = 0.875
Kappa = 0.776
N-count = 34,608

Table E–10. Retest Classification Probability – Reading/Literature Grade 8

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.909	0.091	0.000
	green	0.086	0.861	0.054
	blue	0.000	0.247	0.753

Exact Agreement Rate = 0.874
Kappa = 0.773
N-count = 33,297

Table E–11. Retest Classification Probability – Literature

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.908	0.092	0.000
	green	0.073	0.860	0.067
	blue	0.000	0.236	0.764

Exact Agreement Rate = 0.867
Kappa = 0.765
N-count = 171,492

Appendix E: Decision Consistency

Table E–12. Retest Classification Probability – Science Grade 6

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.906	0.094	0.000
	green	0.106	0.834	0.061
	blue	0.000	0.242	0.758

Exact Agreement Rate = 0.864

Kappa = 0.756

N-count = 8,247

Table E–13. Retest Classification Probability – Science Grade 7

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.910	0.090	0.000
	green	0.111	0.836	0.053
	blue	0.000	0.259	0.741

Exact Agreement Rate = 0.871

Kappa = 0.759

N-count = 13,261

Table E–14. Retest Classification Probability – Science Grade 8

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.903	0.097	0.000
	green	0.133	0.834	0.034
	blue	0.000	0.270	0.730

Exact Agreement Rate = 0.87

Kappa = 0.747

N-count = 15,973

Appendix E: Decision Consistency

Table E–15. Retest Classification Probability – Science High School

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.953	0.047	0.000
	green	0.175	0.806	0.019
	blue	0.000	0.273	0.727

Exact Agreement Rate = 0.931
Kappa = 0.742
N-count = 2,853

Table E–16. Retest Classification Probability – Biology

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.900	0.100	0.000
	green	0.128	0.829	0.043
	blue	0.000	0.188	0.812

Exact Agreement Rate = 0.866
Kappa = 0.751
N-count = 117,151

Table E–17. Retest Classification Probability – Chemistry

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.908	0.092	0.000
	green	0.150	0.822	0.028
	blue	0.000	0.195	0.805

Exact Agreement Rate = 0.877
Kappa = 0.742
N-count = 8,081

Appendix E: Decision Consistency

Table E–18. Retest Classification Probability – Writing/English Composition Grade 6

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.898	0.102	0.000
	green	0.062	0.853	0.085
	blue	0.000	0.183	0.817

Exact Agreement Rate = 0.859
Kappa = 0.764
N-count = 2,406

Table E–19. Retest Classification Probability – Writing/English Composition Grade 7

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.908	0.092	0.000
	green	0.090	0.848	0.062
	blue	0.000	0.210	0.790

Exact Agreement Rate = 0.865
Kappa = 0.767
N-count = 4,670

Table E–20. Retest Classification Probability – Writing/English Composition Grade 8

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.906	0.094	0.000
	green	0.113	0.843	0.044
	blue	0.000	0.223	0.777

Exact Agreement Rate = 0.873
Kappa = 0.763
N-count = 4,464

Table E–21. Retest Classification Probability – English Composition

		Retest Classification Probability		
CDT Test		red	green	blue
	red	0.896	0.104	0.000
	green	0.082	0.846	0.072
	blue	0.000	0.174	0.826

Exact Agreement Rate = 0.86

Kappa = 0.764

N-count = 10,360

RETEST CLASSIFICATION PERCENT FOR VARIOUS SCALE SCORE RANGES

Tables E–22 through E–42 show the percent chance of scoring in each color range if retested without additional instruction for various scale scores ranges.

Appendix E: Decision Consistency

Table E–22. Retest Classification Percent for Various Scale Score Ranges – Mathematics Grade 6

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	1	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	21	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	123	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	379	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	738	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	1,259	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	2,044	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	2,985	99.8%	0.2%	0.0%	99.8%	
850 to 899	4,097	94.0%	6.0%	0.0%	94.0%	
900 to 949	4,963	60.4%	39.6%	0.0%	65.0%	Red/Green cut = 936
950 to 999	4,779	15.5%	84.4%	0.1%	84.4%	
1000 to 1049	4,736	1.1%	96.3%	2.7%	96.3%	
1050 to 1099	4,184	0.0%	74.4%	25.6%	74.4%	Green/Blue cut = 1099
1100 to 1149	3,050	0.0%	27.6%	72.4%	72.4%	
1150 to 1199	1,370	0.0%	3.1%	96.9%	96.9%	
1200 to 1249	474	0.0%	0.1%	99.9%	99.9%	
1250 to 1299	150	0.0%	0.0%	>99.9%	>99.9%	
1300 to 1349	41	0.0%	0.0%	>99.9%	>99.9%	
1350 to 1399	15	0.0%	0.0%	>99.9%	>99.9%	
1400 to 1449	3	0.0%	0.0%	>99.9%	>99.9%	
1450 to 1499	0					
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	35,412					
* Retest assuming no additional instruction						

Table E–23. Retest Classification Percent for Various Scale Score Ranges – Mathematics Grade 7

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	2	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	7	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	76	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	230	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	530	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	997	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	1,548	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	2,222	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	3,210	99.9%	0.1%	0.0%	99.9%	
900 to 949	4,278	96.0%	4.0%	0.0%	96.0%	
950 to 999	5,263	67.8%	32.2%	0.0%	68.7%	Red/Green cut = 994
1000 to 1049	6,236	20.6%	79.4%	0.0%	79.4%	
1050 to 1099	6,478	1.8%	96.6%	1.6%	96.6%	
1100 to 1149	5,567	0.0%	81.0%	19.0%	81.0%	
1150 to 1199	3,343	0.0%	35.2%	64.8%	66.5%	Green/Blue cut = 1157
1200 to 1249	1,539	0.0%	4.6%	95.4%	95.4%	
1250 to 1299	542	0.0%	0.1%	99.9%	99.9%	
1300 to 1349	137	0.0%	0.0%	>99.9%	>99.9%	
1350 to 1399	32	0.0%	0.0%	>99.9%	>99.9%	
1400 to 1449	10	0.0%	0.0%	>99.9%	>99.9%	
1450 to 1499	1	0.0%	0.0%	>99.9%	>99.9%	
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	42,248					
* Retest assuming no additional instruction						

Table E–24. Retest Classification Percent for Various Scale Score Ranges – Mathematics Grade 8

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	1	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	4	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	23	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	89	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	223	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	475	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	716	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	1,108	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	1,604	>99.9%	0.0%	0.0%	>99.9%	
900 to 949	2,390	99.8%	0.2%	0.0%	99.8%	
950 to 999	3,175	94.1%	5.9%	0.0%	94.1%	
1000 to 1049	3,806	61.3%	38.7%	0.0%	65.3%	Red/Green cut = 1037
1050 to 1099	4,122	16.2%	83.8%	0.1%	83.8%	
1100 to 1149	3,314	1.2%	96.5%	2.3%	96.5%	
1150 to 1199	1,793	0.0%	77.9%	22.1%	77.9%	
1200 to 1249	636	0.0%	29.8%	70.2%	70.2%	Green/Blue cut = 1200
1250 to 1299	201	0.0%	3.3%	96.7%	96.7%	
1300 to 1349	55	0.0%	0.1%	99.9%	99.9%	
1350 to 1399	17	0.0%	0.0%	>99.9%	>99.9%	
1400 to 1449	7	0.0%	0.0%	>99.9%	>99.9%	
1450 to 1499	6	0.0%	0.0%	>99.9%	>99.9%	
1500 to 1549	1	0.0%	0.0%	>99.9%	>99.9%	
1550 to 1599	3	0.0%	0.0%	>99.9%	>99.9%	
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	23,769					
* Retest assuming no additional instruction						

Table E–25. Retest Classification Percent for Various Scale Score Ranges – Mathematics High School

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	1	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	3	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	3	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	32	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	64	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	118	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	143	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	203	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	235	>99.9%	0.0%	0.0%	>99.9%	
900 to 949	287	>99.9%	0.0%	0.0%	>99.9%	
950 to 999	276	>99.9%	0.0%	0.0%	>99.9%	
1000 to 1049	327	99.7%	0.3%	0.0%	99.7%	
1050 to 1099	353	93.3%	6.7%	0.0%	93.3%	
1100 to 1149	312	57.6%	42.4%	0.0%	63.9%	Red/Green cut = 1134
1150 to 1199	299	15.5%	84.4%	0.1%	84.4%	
1200 to 1249	239	0.9%	96.3%	2.8%	96.3%	
1250 to 1299	151	0.0%	74.3%	25.7%	74.4%	Green/Blue cut = 1297
1300 to 1349	84	0.0%	24.9%	75.1%	75.1%	
1350 to 1399	46	0.0%	2.6%	97.4%	97.4%	
1400 to 1449	38	0.0%	0.1%	99.9%	99.9%	
1450 to 1499	6	0.0%	0.0%	>99.9%	>99.9%	
1500 to 1549	4	0.0%	0.0%	>99.9%	>99.9%	
1550 to 1599	1	0.0%	0.0%	>99.9%	>99.9%	
1600 to 1649	1	0.0%	0.0%	>99.9%	>99.9%	
1650 to 1699	1	0.0%	0.0%	>99.9%	>99.9%	
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	3,227					
* Retest assuming no additional instruction						

Table E–26. Retest Classification Percent for Various Scale Score Ranges – Algebra I

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	2	>99.9%	0.0%	0.0%	>99.9%	
450 to 499	8	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	28	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	99	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	290	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	735	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	1,408	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	2,445	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	3,685	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	5,805	>99.9%	0.0%	0.0%	>99.9%	
900 to 949	9,226	>99.9%	0.0%	0.0%	>99.9%	
950 to 999	13,905	>99.9%	0.0%	0.0%	>99.9%	
1000 to 1049	20,726	99.6%	0.4%	0.0%	99.6%	
1050 to 1099	30,371	92.4%	7.6%	0.0%	92.4%	
1100 to 1149	39,166	57.8%	42.2%	0.0%	63.8%	Red/Green cut = 1134
1150 to 1199	36,159	15.5%	84.4%	0.1%	84.4%	
1200 to 1249	21,406	1.2%	95.9%	2.8%	95.9%	
1250 to 1299	9,953	0.0%	74.4%	25.6%	74.5%	Green/Blue cut = 1297
1300 to 1349	4,432	0.0%	27.0%	73.0%	73.0%	
1350 to 1399	2,164	0.0%	3.0%	97.0%	97.0%	
1400 to 1449	954	0.0%	0.1%	99.9%	99.9%	
1450 to 1499	438	0.0%	0.0%	>99.9%	>99.9%	
1500 to 1549	145	0.0%	0.0%	>99.9%	>99.9%	
1550 to 1599	62	0.0%	0.0%	>99.9%	>99.9%	
1600 to 1649	30	0.0%	0.0%	>99.9%	>99.9%	
1650 to 1699	15	0.0%	0.0%	>99.9%	>99.9%	
1700 to 1749	6	0.0%	0.0%	>99.9%	>99.9%	
1750 to 1799	5	0.0%	0.0%	>99.9%	>99.9%	
1800 to 1849	3	0.0%	0.0%	>99.9%	>99.9%	
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	203,671					
* Retest assuming no additional instruction						

Table E–27. Retest Classification Percent for Various Scale Score Ranges – Geometry

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	0					
500 to 549	1	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	3	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	10	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	40	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	72	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	142	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	234	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	365	>99.9%	0.0%	0.0%	>99.9%	
900 to 949	526	>99.9%	0.0%	0.0%	>99.9%	
950 to 999	762	>99.9%	0.0%	0.0%	>99.9%	
1000 to 1049	1,193	>99.9%	0.0%	0.0%	>99.9%	
1050 to 1099	1,751	98.7%	1.3%	0.0%	98.7%	
1100 to 1149	1,976	83.8%	16.2%	0.0%	83.8%	
1150 to 1199	1,620	41.2%	58.8%	0.0%	64.1%	Red/Green cut = 1165
1200 to 1249	1,082	6.9%	92.7%	0.4%	92.7%	
1250 to 1299	613	0.3%	92.2%	7.6%	92.2%	
1300 to 1349	320	0.0%	56.2%	43.8%	64.1%	Green/Blue cut = 1328
1350 to 1399	177	0.0%	14.3%	85.7%	85.7%	
1400 to 1449	94	0.0%	1.3%	98.7%	98.7%	
1450 to 1499	40	0.0%	0.1%	99.9%	99.9%	
1500 to 1549	24	0.0%	0.0%	>99.9%	>99.9%	
1550 to 1599	7	0.0%	0.0%	>99.9%	>99.9%	
1600 to 1649	1	0.0%	0.0%	>99.9%	>99.9%	
1650 to 1699	0					
1700 to 1749	2	0.0%	0.0%	>99.9%	>99.9%	
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	11,055					
* Retest assuming no additional instruction						

Table E–28. Retest Classification Percent for Various Scale Score Ranges – Algebra II

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	0					
500 to 549	1	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	0					
600 to 649	4	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	12	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	45	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	70	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	118	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	177	>99.9%	0.0%	0.0%	>99.9%	
900 to 949	256	>99.9%	0.0%	0.0%	>99.9%	
950 to 999	393	>99.9%	0.0%	0.0%	>99.9%	
1000 to 1049	740	>99.9%	0.0%	0.0%	>99.9%	
1050 to 1099	1,245	>99.9%	0.0%	0.0%	>99.9%	
1100 to 1149	1,766	99.5%	0.5%	0.0%	99.5%	
1150 to 1199	1,913	91.0%	9.0%	0.0%	91.0%	
1200 to 1249	1,412	54.2%	45.8%	0.0%	63.4%	Red/Green cut = 1228
1250 to 1299	903	12.0%	87.9%	0.1%	87.9%	
1300 to 1349	537	0.7%	95.1%	4.1%	95.1%	
1350 to 1399	317	0.0%	67.3%	32.7%	68.8%	Green/Blue cut = 1391
1400 to 1449	178	0.0%	21.8%	78.2%	78.2%	
1450 to 1499	109	0.0%	2.4%	97.6%	97.6%	
1500 to 1549	48	0.0%	0.1%	99.9%	99.9%	
1550 to 1599	21	0.0%	0.0%	>99.9%	>99.9%	
1600 to 1649	6	0.0%	0.0%	>99.9%	>99.9%	
1650 to 1699	7	0.0%	0.0%	>99.9%	>99.9%	
1700 to 1749	2	0.0%	0.0%	>99.9%	>99.9%	
1750 to 1799	1	0.0%	0.0%	>99.9%	>99.9%	
1800 to 1849	0					
1850 to 1899	3	0.0%	0.0%	>99.9%	>99.9%	
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	10,284					
* Retest assuming no additional instruction						

Table E–29. Retest Classification Percent for Various Scale Score Ranges – Reading/Literature Grade 6

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	14	>99.9%	0.0%	0.0%	>99.9%	
450 to 499	62	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	172	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	494	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	902	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	1,122	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	1,310	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	1,719	99.9%	0.1%	0.0%	99.9%	
800 to 849	2,147	97.0%	3.0%	0.0%	97.0%	
850 to 899	2,760	77.2%	22.8%	0.0%	77.2%	
900 to 949	3,429	35.9%	64.1%	0.0%	65.6%	Red/Green cut = 910
950 to 999	3,764	7.3%	92.7%	0.0%	92.7%	
1000 to 1049	3,614	0.6%	98.1%	1.4%	98.1%	
1050 to 1099	2,847	0.0%	86.7%	13.3%	86.7%	
1100 to 1149	1,795	0.0%	52.6%	47.4%	60.7%	Green/Blue cut = 1125
1150 to 1199	775	0.0%	18.3%	81.7%	81.7%	
1200 to 1249	313	0.0%	4.0%	96.0%	96.0%	
1250 to 1299	87	0.0%	0.7%	99.3%	99.3%	
1300 to 1349	24	0.0%	0.1%	99.9%	99.9%	
1350 to 1399	10	0.0%	0.0%	>99.9%	>99.9%	
1400 to 1449	1	0.0%	0.0%	>99.9%	>99.9%	
1450 to 1499	0					
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	27,361					
* Retest assuming no additional instruction						

Table E–30. Retest Classification Percent for Various Scale Score Ranges – Reading/Literature Grade 7

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	9	>99.9%	0.0%	0.0%	>99.9%	
450 to 499	51	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	158	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	445	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	763	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	1,138	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	1,332	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	1,581	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	2,179	99.7%	0.3%	0.0%	99.7%	
850 to 899	2,732	95.0%	5.0%	0.0%	95.0%	
900 to 949	3,528	69.9%	30.1%	0.0%	69.9%	
950 to 999	4,493	28.0%	72.0%	0.0%	72.0%	Red/Green cut = 950
1000 to 1049	4,960	4.6%	95.3%	0.1%	95.3%	
1050 to 1099	4,719	0.3%	97.3%	2.4%	97.3%	
1100 to 1149	3,390	0.0%	81.4%	18.6%	81.4%	
1150 to 1199	1,918	0.0%	45.3%	54.7%	60.3%	Green/Blue cut = 1165
1200 to 1249	810	0.0%	14.3%	85.7%	85.7%	
1250 to 1299	292	0.0%	3.1%	96.9%	96.9%	
1300 to 1349	81	0.0%	0.6%	99.4%	99.4%	
1350 to 1399	22	0.0%	0.2%	99.8%	99.8%	
1400 to 1449	5	0.0%	0.1%	99.9%	99.9%	
1450 to 1499	2	0.0%	0.0%	>99.9%	>99.9%	
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	34,608					
* Retest assuming no additional instruction						

Table E–31. Retest Classification Percent for Various Scale Score Ranges – Reading/Literature Grade 8

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	4	>99.9%	0.0%	0.0%	>99.9%	
450 to 499	14	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	81	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	269	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	554	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	845	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	1,027	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	1,392	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	1,808	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	2,310	98.9%	1.1%	0.0%	98.9%	
900 to 949	3,031	88.2%	11.8%	0.0%	88.2%	
950 to 999	4,162	52.7%	47.3%	0.0%	61.7%	Red/Green cut = 979
1000 to 1049	4,731	14.6%	85.3%	0.0%	85.3%	
1050 to 1099	4,833	1.6%	97.9%	0.4%	97.9%	
1100 to 1149	3,929	0.1%	93.5%	6.4%	93.5%	
1150 to 1199	2,472	0.0%	67.8%	32.2%	68.2%	Green/Blue cut = 1194
1200 to 1249	1,176	0.0%	30.3%	69.7%	69.7%	
1250 to 1299	473	0.0%	8.3%	91.7%	91.7%	
1300 to 1349	131	0.0%	1.9%	98.1%	98.1%	
1350 to 1399	40	0.0%	0.4%	99.6%	99.6%	
1400 to 1449	10	0.0%	0.1%	99.9%	99.9%	
1450 to 1499	5	0.0%	0.1%	99.9%	99.9%	
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	33,297					
* Retest assuming no additional instruction						

Appendix E: Decision Consistency

Table E–32. Retest Classification Percent for Various Scale Score Ranges – Literature

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	19	>99.9%	0.0%	0.0%	>99.9%	
450 to 499	78	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	317	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	935	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	2,048	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	3,092	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	4,064	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	5,024	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	6,344	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	8,644	99.7%	0.3%	0.0%	99.7%	
900 to 949	11,410	95.3%	4.7%	0.0%	95.3%	
950 to 999	15,642	70.8%	29.2%	0.0%	70.8%	
1000 to 1049	21,004	28.4%	71.6%	0.0%	71.6%	Red/Green cut = 1001
1050 to 1099	25,312	4.8%	95.1%	0.1%	95.1%	
1100 to 1149	25,783	0.3%	97.2%	2.4%	97.2%	
1150 to 1199	20,102	0.0%	81.4%	18.6%	81.4%	
1200 to 1249	12,447	0.0%	45.7%	54.3%	59.9%	Green/Blue cut = 1216
1250 to 1299	5,982	0.0%	16.0%	84.0%	84.0%	
1300 to 1349	2,199	0.0%	4.1%	95.9%	95.9%	
1350 to 1399	765	0.0%	1.1%	98.9%	98.9%	
1400 to 1449	199	0.0%	0.4%	99.6%	99.6%	
1450 to 1499	60	0.0%	0.2%	99.8%	99.8%	
1500 to 1549	19	0.0%	0.2%	99.8%	99.8%	
1550 to 1599	0					
1600 to 1649	3	0.0%	0.2%	99.8%	99.8%	
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	171,492					
* Retest assuming no additional instruction						

Table E–33. Retest Classification Percent for Various Scale Score Ranges – Science Grade 6

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	1	>99.9%	0.0%	0.0%	>99.9%	
450 to 499	3	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	21	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	136	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	318	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	555	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	681	99.9%	0.1%	0.0%	99.9%	
750 to 799	851	97.8%	2.2%	0.0%	97.8%	
800 to 849	1,047	79.2%	20.8%	0.0%	79.2%	
850 to 899	1,307	36.8%	63.2%	0.0%	65.3%	Red/Green cut = 861
900 to 949	1,315	6.3%	93.3%	0.4%	93.3%	
950 to 999	1,099	0.3%	92.5%	7.2%	92.5%	
1000 to 1049	613	0.0%	61.7%	38.3%	65.0%	Green/Blue cut = 1034
1050 to 1099	229	0.0%	19.2%	80.8%	80.8%	
1100 to 1149	54	0.0%	2.1%	97.9%	97.9%	
1150 to 1199	15	0.0%	0.1%	99.9%	99.9%	
1200 to 1249	2	0.0%	0.0%	>99.9%	>99.9%	
1250 to 1299	0					
1300 to 1349	0					
1350 to 1399	0					
1400 to 1449	0					
1450 to 1499	0					
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	8,247					
* Retest assuming no additional instruction						

Table E–34. Retest Classification Percent for Various Scale Score Ranges – Science Grade 7

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	2	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	24	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	139	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	401	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	685	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	890	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	1,119	99.9%	0.1%	0.0%	99.9%	
800 to 849	1,393	97.4%	2.6%	0.0%	97.4%	
850 to 899	1,820	77.0%	23.0%	0.0%	77.0%	
900 to 949	2,116	34.4%	65.6%	0.0%	66.8%	Red/Green cut = 908
950 to 999	2,108	5.4%	94.1%	0.5%	94.1%	
1000 to 1049	1,528	0.3%	91.8%	8.0%	91.8%	
1050 to 1099	762	0.0%	60.0%	40.0%	64.5%	Green/Blue cut = 1081
1100 to 1149	206	0.0%	18.2%	81.8%	81.8%	
1150 to 1199	58	0.0%	1.8%	98.2%	98.2%	
1200 to 1249	8	0.0%	0.1%	99.9%	99.9%	
1250 to 1299	2	0.0%	0.0%	>99.9%	>99.9%	
1300 to 1349	0					
1350 to 1399	0					
1400 to 1449	0					
1450 to 1499	0					
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	13,261					
* Retest assuming no additional instruction						

Table E–35. Retest Classification Percent for Various Scale Score Ranges – Science Grade 8

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	3	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	20	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	74	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	284	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	536	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	804	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	1,090	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	1,448	99.8%	0.2%	0.0%	99.8%	
850 to 899	1,978	95.8%	4.2%	0.0%	95.8%	
900 to 949	2,655	69.9%	30.1%	0.0%	69.9%	Red/Green cut = 949
950 to 999	3,021	26.1%	73.8%	0.0%	73.8%	
1000 to 1049	2,421	3.7%	95.4%	0.9%	95.4%	
1050 to 1099	1,124	0.2%	89.3%	10.6%	89.3%	
1100 to 1149	397	0.0%	52.4%	47.6%	61.2%	Green/Blue cut = 1122
1150 to 1199	91	0.0%	12.6%	87.4%	87.4%	
1200 to 1249	22	0.0%	1.5%	98.5%	98.5%	
1250 to 1299	2	0.0%	0.0%	>99.9%	>99.9%	
1300 to 1349	3	0.0%	0.0%	>99.9%	>99.9%	
1350 to 1399	0					
1400 to 1449	0					
1450 to 1499	0					
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	15,973					
* Retest assuming no additional instruction						

Table E–36. Retest Classification Percent for Various Scale Score Ranges – Science High School

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	0					
500 to 549	6	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	33	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	157	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	262	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	303	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	275	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	273	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	305	>99.9%	0.0%	0.0%	>99.9%	
900 to 949	359	97.9%	2.1%	0.0%	97.9%	
950 to 999	372	80.9%	19.1%	0.0%	80.9%	
1000 to 1049	267	39.2%	60.8%	0.0%	63.9%	Red/Green cut = 1012
1050 to 1099	162	7.2%	92.5%	0.4%	92.5%	
1100 to 1149	58	0.4%	93.8%	5.7%	93.8%	
1150 to 1199	17	0.0%	62.2%	37.8%	65.9%	Green/Blue cut = 1185
1200 to 1249	3	0.0%	16.2%	83.8%	83.8%	
1250 to 1299	1	0.0%	1.5%	98.5%	98.5%	
1300 to 1349	0					
1350 to 1399	0					
1400 to 1449	0					
1450 to 1499	0					
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	2,853					
* Retest assuming no additional instruction						

Table E–37. Retest Classification Percent for Various Scale Score Ranges – Biology

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	2	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	14	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	60	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	343	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	1,263	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	2,808	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	4,472	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	6,457	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	9,452	99.9%	0.1%	0.0%	99.9%	
900 to 949	13,653	97.9%	2.1%	0.0%	97.9%	
950 to 999	19,038	80.2%	19.8%	0.0%	80.2%	
1000 to 1049	21,025	37.3%	62.7%	0.0%	65.3%	Red/Green cut = 1012
1050 to 1099	18,123	6.8%	92.8%	0.4%	92.8%	
1100 to 1149	11,146	0.4%	93.2%	6.5%	93.2%	
1150 to 1199	5,385	0.0%	63.1%	36.9%	66.1%	Green/Blue cut = 1185
1200 to 1249	2,259	0.0%	19.3%	80.7%	80.7%	
1250 to 1299	997	0.0%	1.9%	98.1%	98.1%	
1300 to 1349	411	0.0%	0.1%	99.9%	99.9%	
1350 to 1399	149	0.0%	0.0%	>99.9%	>99.9%	
1400 to 1449	57	0.0%	0.0%	>99.9%	>99.9%	
1450 to 1499	28	0.0%	0.0%	>99.9%	>99.9%	
1500 to 1549	4	0.0%	0.0%	>99.9%	>99.9%	
1550 to 1599	1	0.0%	0.0%	>99.9%	>99.9%	
1600 to 1649	2	0.0%	0.0%	>99.9%	>99.9%	
1650 to 1699	2	0.0%	0.0%	>99.9%	>99.9%	
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	117,151					
* Retest assuming no additional instruction						

Table E–38. Retest Classification Percent for Various Scale Score Ranges – Chemistry

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	0					
500 to 549	0					
550 to 599	0					
600 to 649	1	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	8	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	49	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	179	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	401	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	697	>99.9%	0.0%	0.0%	>99.9%	
900 to 949	1,052	99.8%	0.2%	0.0%	99.8%	
950 to 999	1,406	95.0%	5.0%	0.0%	95.0%	
1000 to 1049	1,534	68.8%	31.2%	0.0%	69.3%	Red/Green cut = 1045
1050 to 1099	1,358	23.7%	76.3%	0.0%	76.3%	
1100 to 1149	845	3.0%	95.9%	1.1%	95.9%	
1150 to 1199	363	0.1%	87.4%	12.5%	87.4%	
1200 to 1249	112	0.0%	49.5%	50.5%	62.0%	Green/Blue cut = 1218
1250 to 1299	49	0.0%	10.2%	89.8%	89.8%	
1300 to 1349	18	0.0%	0.5%	99.5%	99.5%	
1350 to 1399	5	0.0%	0.0%	>99.9%	>99.9%	
1400 to 1449	2	0.0%	0.0%	>99.9%	>99.9%	
1450 to 1499	1	0.0%	0.0%	>99.9%	>99.9%	
1500 to 1549	1	0.0%	0.0%	>99.9%	>99.9%	
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	8,081					
* Retest assuming no additional instruction						

Table E–39. Retest Classification Percent for Various Scale Score Ranges – Writing/English Comp. Grade 6

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	3	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	11	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	21	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	41	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	68	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	82	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	132	99.1%	0.9%	0.0%	99.1%	
800 to 849	185	86.8%	13.2%	0.0%	86.8%	
850 to 899	241	45.5%	54.5%	0.0%	63.8%	Red/Green cut = 872
900 to 949	388	8.5%	91.3%	0.2%	91.3%	
950 to 999	450	0.5%	95.2%	4.3%	95.2%	
1000 to 1049	378	0.0%	71.4%	28.6%	71.8%	Green/Blue cut = 1045
1050 to 1099	243	0.0%	25.8%	74.2%	74.2%	
1100 to 1149	111	0.0%	2.7%	97.3%	97.3%	
1150 to 1199	35	0.0%	0.1%	99.9%	99.9%	
1200 to 1249	13	0.0%	0.0%	>99.9%	>99.9%	
1250 to 1299	4	0.0%	0.0%	>99.9%	>99.9%	
1300 to 1349	0					
1350 to 1399	0					
1400 to 1449	0					
1450 to 1499	0					
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	2,406					
* Retest assuming no additional instruction						

Table E–40. Retest Classification Percent for Various Scale Score Ranges – Writing/English Comp. Grade 7

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	0					
450 to 499	0					
500 to 549	12	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	41	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	68	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	135	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	181	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	221	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	289	99.8%	0.2%	0.0%	99.8%	
850 to 899	396	94.3%	5.7%	0.0%	94.3%	
900 to 949	557	62.9%	37.1%	0.0%	65.4%	Red/Green cut = 941
950 to 999	790	19.3%	80.7%	0.0%	80.7%	
1000 to 1049	813	1.9%	96.9%	1.3%	96.9%	
1050 to 1099	603	0.0%	84.5%	15.4%	84.5%	
1100 to 1149	353	0.0%	42.0%	58.0%	63.7%	Green/Blue cut = 1114
1150 to 1199	158	0.0%	8.8%	91.2%	91.2%	
1200 to 1249	46	0.0%	0.6%	99.4%	99.4%	
1250 to 1299	7	0.0%	0.0%	>99.9%	>99.9%	
1300 to 1349	0					
1350 to 1399	0					
1400 to 1449	0					
1450 to 1499	0					
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	4,670					
* Retest assuming no additional instruction						

Table E–41. Retest Classification Percent for Various Scale Score Ranges – Writing/English Comp. Grade 8

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	1	>99.9%	0.0%	0.0%	>99.9%	
450 to 499	0					
500 to 549	10	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	30	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	67	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	120	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	142	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	219	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	280	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	350	99.6%	0.4%	0.0%	99.6%	
900 to 949	550	92.1%	7.9%	0.0%	92.1%	
950 to 999	707	58.1%	41.9%	0.0%	63.5%	Red/Green cut = 985
1000 to 1049	797	16.4%	83.6%	0.0%	83.6%	
1050 to 1099	642	1.4%	96.9%	1.6%	96.9%	
1100 to 1149	366	0.0%	81.0%	19.0%	81.0%	
1150 to 1199	121	0.0%	37.4%	62.6%	64.3%	Green/Blue cut = 1158
1200 to 1249	44	0.0%	5.9%	94.1%	94.1%	
1250 to 1299	14	0.0%	0.4%	99.6%	99.6%	
1300 to 1349	2	0.0%	0.0%	>99.9%	>99.9%	
1350 to 1399	1	0.0%	0.0%	>99.9%	>99.9%	
1400 to 1449	1	0.0%	0.0%	>99.9%	>99.9%	
1450 to 1499	0					
1500 to 1549	0					
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	4,464					
* Retest assuming no additional instruction						

Table E–42. Retest Classification Percent for Various Scale Score Ranges – English Composition

		% Chance in Category if Retested*				
Scale Score Range	Number of Students	Red	Green	Blue	% Chance in Same Category if Retested*	
< 400	0					
400 to 449	1	>99.9%	0.0%	0.0%	>99.9%	
450 to 499	1	>99.9%	0.0%	0.0%	>99.9%	
500 to 549	11	>99.9%	0.0%	0.0%	>99.9%	
550 to 599	60	>99.9%	0.0%	0.0%	>99.9%	
600 to 649	116	>99.9%	0.0%	0.0%	>99.9%	
650 to 699	167	>99.9%	0.0%	0.0%	>99.9%	
700 to 749	227	>99.9%	0.0%	0.0%	>99.9%	
750 to 799	259	>99.9%	0.0%	0.0%	>99.9%	
800 to 849	353	>99.9%	0.0%	0.0%	>99.9%	
850 to 899	498	99.8%	0.2%	0.0%	99.8%	
900 to 949	780	95.0%	5.0%	0.0%	95.0%	
950 to 999	1,171	65.2%	34.8%	0.0%	66.2%	Red/Green cut = 994
1000 to 1049	1,615	21.1%	78.9%	0.0%	78.9%	
1050 to 1099	1,854	2.1%	96.8%	1.1%	96.8%	
1100 to 1149	1,501	0.1%	85.9%	14.0%	85.9%	
1150 to 1199	938	0.0%	45.7%	54.3%	62.2%	Green/Blue cut = 1167
1200 to 1249	449	0.0%	9.5%	90.5%	90.5%	
1250 to 1299	211	0.0%	0.7%	99.3%	99.3%	
1300 to 1349	94	0.0%	0.0%	>99.9%	>99.9%	
1350 to 1399	40	0.0%	0.0%	>99.9%	>99.9%	
1400 to 1449	7	0.0%	0.0%	>99.9%	>99.9%	
1450 to 1499	4	0.0%	0.0%	>99.9%	>99.9%	
1500 to 1549	3	0.0%	0.0%	>99.9%	>99.9%	
1550 to 1599	0					
1600 to 1649	0					
1650 to 1699	0					
1700 to 1749	0					
1750 to 1799	0					
1800 to 1849	0					
1850 to 1899	0					
1900 to 1949	0					
1950 to 1999	0					
>= 2000	0					
TOTAL	10,360					
* Retest assuming no additional instruction						

Appendix E: Decision Consistency