TECHNICAL REPORT

for the
2012 Pennsylvania
System of School Assessment

Provided by
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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. A glossary of accommodation terms as applied to the PSSA is provided in Chapter Ten.

Table G–1. Glossary of Terms

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 PSSA, a student's reading ability is measured by how the student performed on the PSSA Reading test. A student who answered more items correctly has a higher ability than a student who answered fewer items correctly.
Adjacent Agreement	A score/rating difference of one (1) point in value usually assigned by two different raters under the same conditions (e.g., two independent raters give the same paper scores that differ by one point).
Alternate Forms	Two or more versions of a test that are considered exchangeable, i.e., 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, and comparable forms) where parallel forms refers to the situation in which the test forms have the highest degree of similarity to each other.
Average	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).
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, etc.). 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 the development of the final operational form of the test (see also Differential Item Functioning).
Constructed-Response Item	See Open-Ended Item.
Content Validity Evidence	Evidence regarding the extent to which a test 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.)

Table G–1 (continued). Glossary of Terms

Term	Common Definition
Core-Linking Item	Items that are utilized during the linking process (see also Linking). They are a subset of the PSSA operational items and so they 1) are the same on all test forms for any grade/subject area test and 2) contribute to student total raw scores and scaled scores.
Criterion-Referenced Interpretation	When a score is interpreted as a measure of a student's performance with respect to 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 with respect to a given content area.
Cut Score	A specified point on a score scale such that scores at or above that point are interpreted or acted upon differently from scores below that point (e.g., a score designated as the minimum level of performance needed to pass a competency test). One or more cut scores can be set for a test that results in dividing the score range into various proficiency level ranges. Methods for establishing cut scores vary. For the PSSA, three cut scores are used to place students into one of four performance levels (see also Performance Level Setting).
Decision Consistency	The extent to which classifications based on test scores would match the decisions 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.
Differential Item Functioning (DIF)	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	An incorrect option in a multiple-choice item (also called a foil).
Equating	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).
Equating Block (EB) Items	The PSSA uses multiple test forms for each grade/subject area test. Each form is composed of operational (OP) items, equating block (EB) items, and field test (FT) items. EB items are utilized during the linking process (see also Linking). Each test form includes a set of EB items. EB items are not part of any student scores.
Error of Measurement	The amount by which the score actually received (an observed score) differs from a hypothetical true score (see also Standard Error of Measurement).
Exact Agreement	When identical scores/ratings are assigned by two different raters under the same conditions (e.g., two independent raters give a paper the same score).

Table G–1 (continued). Glossary of Terms

Term	Common Definition
Field Test (FT) Items	The PSSA uses multiple test forms for each grade/subject area test. Each form is composed of operational (OP) items, equating block (EB) items, and field test (FT) items. An FT item is a newly-developed item that is ready to be tried out to determine its statistical properties (see also *P*-value and Point-Biserial Correlation). Each test form includes a set of FT items. FT items are not part of any student scores.
Frequency	The number of times that a certain value or range of values (score interval) occurs in a distribution of scores.
Frequency Distribution	A tabulation of scores from low to high or high to low showing the number and/or percent of individuals who obtain each score or who fall within each score interval or category.
Infit/Outfit	Statistical indicators of the agreement of the data and the measurement model (see also Outfit/Infit).
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. For a polytomous item, the difficulty is the average of the item's step difficulties (see also Step Difficulty).
Key	The correct response option or answer to a test item.
Linking	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, a student who answers more items correctly has a higher logit than a student who answers fewer items correctly. Logits are transformed into Scaled 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	Also referred to as the arithmetic mean of a set of scores, 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, 97} is 81. The value of a mean can be influenced by extreme values in a score distribution.

Table G–1 (continued). Glossary of Terms

Term	Common Definition
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 PSSA, a student's reading measure might be equal to 0.525 logits. Or, a PSSA Reading test item might have logit equal to -0.905.
Median	The middle point or score in a set of rank-ordered observations that divides the distribution into two equal parts such that 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 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 (see also Open-Ended Item).
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), the number of students who attained a specific score, etc. In the follow set {23, 32, 56, 65, 78, 87}, $n = 6$.
Open-Ended Item	An open-ended (OE) item—referred to by some as a constructed-response (CR) item—is an item format that requires examinees to create their own responses, which can be expressed in various forms (e.g., written paragraph, created table/graph, formulated calculation, etc.). Such items are frequently scored using more than two score categories, that is, polytomously (e.g., 0, 1, 2, and 3). This format is in contrast to when students make a choice from a supplied set of answers options (e.g., multiple-choice (MC) items which are typically dichotomously scored as right = 1 or wrong = 0.) When interpreting item difficulty and discrimination indices it is important to consider whether an item is polytomously or dichotomously scored.
Operational Item	The PSSA uses multiple test forms for each grade/subject area test. Each form is composed of operational (OP) items, equating block (EB) items, and field test (FT) items. OP items are the same on all forms for any grade/subject area test. Student total raw scores and scaled scores are based exclusively on the OP items.
Outfit/Infit	Statistical indicators of the agreement of the data and the measurement model. Infit and Outfit are highly correlated, and 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.

Table G–1 (continued). Glossary of Terms

Term	Common Definition
Percent Correct	When referring to an individual item, the percent correct is the item's *p*-value expressed as a percent (instead of a proportion). When referring to a total test score, it is the percentage of the total number of points that a student received. The percent correct score is obtained by dividing the student's raw score by the total number of possible points and multiplying the result by 100. Percent Correct scores are often used in criterion-referenced interpretations and are generally more helpful if the overall difficulty of a test is known. Sometimes Percent Correct scores are incorrectly interpreted as Percentile Ranks.
Percentile	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 Scaled Score of 1500 on a given test, then the Scaled Score of 1500 would be considered the 72nd percentile. As another example, the median is the 50th percentile.
Percentile Rank	The percentage of scores in a specified distribution falling at/below a certain point on a score distribution. Percentile Ranks range in value from 1 to 99, and 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 Rank are sometimes used interchangeably; however strictly speaking, a percentile is a value on the score scale.
Performance Level Descriptors	Descriptions of an individual's competency in a particular content area, usually defined as ordered categories on a continuum, often labeled from Below Basic to Advanced, that constitute broad ranges for classifying performance. The exact labeling of these categories, and narrative descriptions, may vary from one assessment or testing program to another.
Performance Level Setting	Also referred to as standard setting, a procedure used in the determination of the cut scores for a given assessment that is used to measure students' progress towards certain performance standards. Standard setting methods vary (e.g., modified Angoff, Bookmark Method, etc.), 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.
Point-Biserial Correlation	In classical test theory this 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.

Table G–1 (continued). Glossary of Terms

Term	Common Definition
P-value	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	Sometimes abbreviated by RS—it is an unadjusted score usually determined by tallying the number of questions answered correctly, or by the sum of item scores (i.e., points). (Some rarer situations might include formula-scoring, the amount of time required to perform a task, the number of errors, application of basal/ceiling rules, etc.). Raw scores typically have little or no meaning by themselves and require additional information—like the number of items on the test, the difficulty of the test items, norm-referenced information, or criterion-referenced information.
Reliability	The expected degree to which test scores for a group of examinees are consistent over exchangeable replications of an assessment procedure, and therefore, are 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	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 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).
Scaled Score	A mathematical transformation of a raw score developed through a process called scaling. Scaled 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.
Selected-Response Item	See Multiple-Choice Item.

Table G–1 (continued). Glossary of Terms

Term	Common Definition
Spiraling	A packaging process used when multiple forms of a test exist and it is desired that each form be tested in all classrooms (or other grouping unit (e.g., schools)) participating in the testing process. This process allows for the random distribution of test booklets to students. For example, if a package has four test forms labeled A, B, C, and D, the order of the test booklets in the package would be A, B, C, D, A, B, C, D, A, B, C, D, etc.
Standard Deviation (SD)	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 each other 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)	It 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 errors of measurement (CSEMs) provide an SEM for each possible scaled score.
Step Difficulty	Step difficulty is a parameter estimate in Master's partial credit model (PCM) that represents the relative difficulty of each score step (e.g., going from a score of 1 to a score of 2). The higher the value of a particular step difficulty, the more difficult a particular step is relative to other score steps (e.g., is it harder to go from a 1 to a 2, or to go from a 2 to a 3).
Strand	On score reports, a strand often refers to a set of items on a test measuring the same contextual area (e.g., Number Sense in Mathematics). Items developed to measure the same reporting category would be used to determine the strand score (sometimes called "subscale" score).
Technical Advisory Committee (TAC)	A group of individuals, most often professionals in the field of testing, who are either appointed or selected to make recommendations for and to guide the technical development of a given testing program.
Validity	The degree to which accumulated evidence and theory support specific interpretations of test scores entailed by the purposed uses of a test. There are various ways of gathering validity evidence.

Preface: An Overview of Assessments from 2003 to the Present

The period from 2003 through 2006 brought significant structural changes to the test blueprint for the Pennsylvania System of School Assessment (PSSA). These changes necessitated extensive test development and field testing activity along with phased-in implementation of the operational assessment. Included in this process was the development and implementation of assessments at additional grade levels.

For mathematics and reading, content changes for Grades 5, 8, and 11 were developed in 2003, field tested in spring 2004, and implemented in spring 2005. The *2005 PSSA Technical Report for Reading and Mathematics* provides a description of test development activities including a review of open-ended tasks and multiple-choice items, field testing, selection of items, statistical analysis of assessment data, reliability, validity, standard setting, and other technical characteristics of the operational 2005 PSSA. Test development for the new grade levels of 4, 6, and 7 began in 2004, with field testing in 2005, and full implementation in 2006. Similarly, the *2006 PSSA Technical Report for Reading and Mathematics: Grades 4, 6, and 7* provides a complete description of test development activities, item review, field testing, statistical analysis, item selection, and technical characteristics of the operational 2006 PSSA for these grade levels. In 2007, the Grade 3 reading and mathematics assessment became DRC's responsibility and is covered in the *2007 PSSA Technical Report for Reading and Mathematics*, along with the remaining grades.

Changes implemented in the writing assessment of spring 2006 were designed to sharpen the focus on what is assessed with respect to Academic Standards 1.4 and 1.5. To support this effort, a shift in grade levels assessed was made, moving from Grades 6 and 9 to Grades 5 and 8, thereby aligning assessment to the end of elementary and middle school years. The writing testing window was changed from fall to February 2006 for Grades 5 and 8, making it consistent with Grade 11. Mode-specific scoring guidelines replaced domain scoring, and the introduction of stimulus-based passages and associated multiple-choice items measuring revising and editing expanded the basis of the conventions score. An account of the development of writing prompts and stimulus-based, multiple-choice items, review processes, field testing and item analysis, standard setting, and other technical characteristics of the operational 2006 PSSA may be found in the *2006 PSSA Technical Report for Writing*.

The introduction of an operational science assessment in 2008 moved closer to reality with a major standalone field test at Grades 4, 8, and 11 in April–May of 2007. A description of the development of science scenarios and related multiple-choice, short answer open-ended, and extended open-ended questions, item review processes, statistical analysis of field test data, and selection of items for the 2008 operational science test may be found in the *2008 PSSA Preliminary Technical Report for Science*. Subsequently, the first operational science assessment took place in the spring of 2008, along with standard setting and reporting of results.

With the exception of some shifting of test windows, the spring assessments of 2009, 2010, and 2011 were conducted without change in content structure of the PSSA test instruments.

The following pages provide an overview of the year-to-year changes to the PSSA. Tables and descriptions show the subject areas assessed, time of year the testing activity took place, and the type of testing that occurred (e.g., operational, field testing, Grade 12 retest) for each year.

To access any of the PSSA technical reports referenced in the Preface, please go to the Pennsylvania Department of Education website, www.education.state.pa.us. Click on "Programs" from the menu in the left-hand column, then select "Programs O–R," "Pennsylvania System of School Assessment (PSSA)," then select "PSSA Technical Analysis" from the "Most Requested Content..." box.

ASSESSMENT ACTIVITIES OCCURRING IN THE 2003–04 SCHOOL YEAR

Table P–1 outlines the operational assessments and field tests administered during the 2003–04 school year. (A spring operational assessment in mathematics and reading took place at Grades 3, 5, 8, and 11.)

As a result of new Assessment Anchor Content Standards (Assessment Anchors) developed by the Pennsylvania Department of Education (PDE) during 2003, new test items were developed (see Chapter Two of the *2005 PSSA Technical Report for Reading and Mathematics*). Following the spring operational assessment, a separate, standalone field test of new items for Grades 5, 8, and 11 was conducted. Note that Grade 11 students also took an operational writing assessment in February, and Grades 6 and 9 students participated in a fall writing assessment. Lastly, Grade 12 students who as 11th graders in the preceding spring failed to attain at least the Proficient level in any subject area were offered an opportunity to retest.

Table P–1. Operational Assessment and Field Testing During the 2003–04 School Year

Grade	Assessment Activity	Date
3	Operational mathematics and reading with embedded field test (conducted by CTB/McGraw-Hill)	April 2004
5	Operational mathematics and reading	April 2004
	Standalone field test in mathematics and reading	April/May 2004
6	Operational writing	October 2004
8	Operational mathematics and reading	April 2004
	Standalone field test in mathematics and reading	April/May 2004
9	Operational writing	October 2004
11	Operational mathematics and reading	April 2004
	Standalone field test in mathematics and reading	April/May 2004
	Operational writing	February 2004
12	Retest opportunity for students who as Grade 11 students in the spring of 2003 failed to reach at least the Proficient level in mathematics, reading, or writing	October/ November 2004

ASSESSMENT ACTIVITIES OCCURRING IN THE 2004–05 SCHOOL YEAR

Table P–2 displays the operational assessments and field tests that took place during the 2004–05 school year. The operational assessment at Grades 5, 8, and 11 used items chosen from the spring 2004 field test. This was the first operational assessment that reflected the Pennsylvania Assessment Anchors and Eligible Content. Fulfilling the No Child Left Behind Act of 2001 (NCLB) requirement that states must implement a test at Grades 3–8, a major field test in mathematics and reading was administered at Grades 4, 6, and 7. Item development for these new grade levels took place during 2004.

The Grades 6 and 9 writing assessment was reevaluated in favor of moving the writing assessment to Grades 5 and 8. This accounts for the separate (standalone) field test at these grade levels. There was also a test administration change from October to February. In addition, the writing assessment underwent changes to align the test to the Academic Standards for writing. New writing prompts and stimulus-based multiple-choice items were also field tested at Grade 11 as part of the operational assessment, hence the reference to an embedded field test. No assessment activity of any kind occurred at Grade 9. As in fall 2003, the retest opportunity at Grade 12 continued.

Table P–2. Operational Assessment and Field Testing During the 2004–05 School Year

Grade	Assessment Activity	Date
3	Operational mathematics and reading with embedded field test (conducted by CTB/McGraw-Hill)	April 2005
4	Standalone field test for mathematics and reading	April 2005
5	Operational mathematics and reading with embedded field test	April 2005
	Standalone field test in writing	February 2005
6	Standalone field test for mathematics and reading	April 2005
7	Standalone field test for mathematics and reading	April 2005
8	Operational mathematics and reading with embedded field test	April 2005
	Standalone field test in writing	February 2005
11	Operational mathematics and reading with embedded field test	April 2005
	Operational writing with embedded field test	February 2005
12	Retest opportunity for students who as Grade 11 students in the spring of 2004 failed to reach at least the Proficient level in mathematics, reading, or writing	October/ November 2004

ASSESSMENT ACTIVITIES OCCURRING IN THE 2005–06 SCHOOL YEAR

Table P–3 shows the assessment activities that occurred during the 2005–06 school year. Note that the reading and mathematics operational assessments ran consecutively in Grades 3–8 and Grade 11. For Grades 4, 6, and 7, it was the first year for operational assessments. Field testing for mathematics and reading was embedded as part of the operational assessment at each grade level. At Grade 3, the reference to field testing with items developed by DRC reflects the transition of shifting the assessment from CTB/McGraw-Hill to DRC in 2007. As in previous years, the retest opportunity at Grade 12 continued.

The first operational assessments for writing at Grades 5 and 8 took place in the 2005–06 school year, while the Grade 11 writing assessment continued in the same February testing window. For all three grade levels, the operational writing assessments featured mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis shift in writing modes assessed. See the *2006 PSSA Technical Report for Writing: Grades 5, 8, and 11* for further information about the new writing assessments. Since extensive field testing in February 2005 produced a pool of prompts for use over several years, no additional writing prompts were field tested in 2006. However, new multiple-choice items were field tested in the 2006 writing assessment.

Table P–3. Operational Assessment and Field Testing During the 2005–06 School Year

Grade	Assessment Activity	Date
3	Operational mathematics and reading with embedded field test of DRC-written items (conducted by CTB/McGraw-Hill)	April 2006
4	Operational mathematics and reading with embedded field test	March 2006
5	Operational mathematics and reading with embedded field test	March 2006
	Operational writing with embedded field test	February 2006
6	Operational mathematics and reading with embedded field test	March 2006
7	Operational mathematics and reading with embedded field test	March 2006
8	Operational mathematics and reading with embedded field test	March 2006
	Operational writing with embedded field test	February 2006
11	Operational mathematics and reading with embedded field test	March 2006
	Operational writing with embedded field test	February 2006
12	Retest opportunity for students who as Grade 11 students in the spring of 2005 failed to reach at least the Proficient level in mathematics, reading, or writing	October/ November 2005

ASSESSMENT ACTIVITIES OCCURRING IN THE 2006–07 SCHOOL YEAR

Table P–4 shows the assessment plan for the 2006–07 school year. Note that the mathematics and reading assessments ran consecutively in Grades 3–8 and Grade 11. For Grades 4, 6, and 7, it was the second year for operational assessments and the first year in which these grade levels were included in the adequate yearly progress (AYP) calculations. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. This was the first year in which DRC was responsible for the Grade 3 assessment, as the transition from CTB/McGraw-Hill was complete. As in previous years, the retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued in the same February testing window featuring the mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed, which were introduced in 2006. Since extensive field testing in February 2005 produced a pool of prompts for use over several years, no additional writing prompts needed to be field tested in 2007. However, new multiple-choice items were field tested in the 2007 writing assessment.

Following the spring operational assessments in writing, reading, and mathematics, a separate, standalone field test in science was administered for Grades 4, 8, and 11 with full implementation scheduled for 2008.

Table P–4. Operational Assessment and Field Testing During the 2006–07 School Year

Grade	Assessment Activity	Date
3	Operational mathematics and reading with embedded field test	March 2007
4	Operational mathematics and reading with embedded field test	March 2007
	Standalone field test in science	April/May 2007
5	Operational mathematics and reading with embedded field test	March 2007
	Operational writing with embedded field test	February 2007
6	Operational mathematics and reading with embedded field test	March 2007
7	Operational mathematics and reading with embedded field test	March 2007
8	Operational mathematics and reading with embedded field test	March 2007
	Operational writing with embedded field test	February 2007
	Standalone field test in science	April/May 2007
11	Operational mathematics and reading with embedded field test	March 2007
	Operational writing with embedded field test	February 2007
	Standalone field test in science	April/May 2007
12	Retest opportunity for students who as Grade 11 students in the spring of 2006 failed to reach at least the Proficient level in mathematics, reading, or writing	October/ November 2006

ASSESSMENT ACTIVITIES OCCURRING IN THE 2007–08 SCHOOL YEAR

Table P–5 shows the assessment plan for the 2007–08 school year. Note that the mathematics and reading assessments ran consecutively in Grades 3–8 and Grade 11. For Grades 4, 6, and 7, it was the third year for operational assessments and the second year in which these grade levels were included in the AYP calculations. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. This was the second year in which DRC was responsible for the Grade 3 assessment. As in previous years, the retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued in the same February testing window featuring the mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed, which was introduced in 2006. Since extensive field testing in February 2005 produced a pool of prompts for use over several years, no additional writing prompts needed to be field tested in 2007. However, new multiple-choice items were field tested in the 2008 writing assessment.

Joining the spring operational assessments in writing, reading, and mathematics was science at Grades 4, 8, and 11. See the *2008 PSSA Technical Report for Science: Grades 4, 8, and 11* for further information about the new science assessments.

Table P–5. Operational Assessment and Field Testing During the 2007–08 School Year

Grade	Assessment Activity	Date
3	Operational mathematics and reading with embedded field test	March/April 2008
4	Operational mathematics and reading with embedded field test	March/April 2008
	Operational science with embedded field test	April/May 2008
5	Operational mathematics and reading with embedded field test	March/April 2008
	Operational writing with embedded field test	February 2008
6	Operational mathematics and reading with embedded field test	March/April 2008
7	Operational mathematics and reading with embedded field test	March/April 2008
8	Operational mathematics and reading with embedded field test	March/April 2008
	Operational writing with embedded field test	February 2008
	Operational science with embedded field test	April/May 2008
11	Operational mathematics and reading with embedded field test	March/April 2008
	Operational writing with embedded field test	February 2008
	Operational science with embedded field test	April/May 2008
12	Retest opportunity for students who as Grade 11 students in the spring of 2007 failed to reach at least the Proficient level in mathematics, reading, or writing	October/ November 2007

ASSESSMENT ACTIVITIES OCCURRING IN THE 2008–09 SCHOOL YEAR

Table P–6 shows the assessment plan for the 2008–09 school year. The mathematics and reading assessments continued to be operational for Grades 3–8 and Grade 11. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. As in previous years, the fall retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued with a February testing window featuring mode-specific scoring guidelines; stimulus-based, multiple-choice items; and a grade-specific emphasis in writing modes assessed. An embedded field test of writing prompts was incorporated in the 2009 assessment along with a set of embedded field test multiple-choice items.

The second operational assessment in science took place in April/May. Similar to the other operational assessments, field testing for science was embedded as part of the operational assessments at each grade level.

Table P–6. Operational Assessment and Field Testing During the 2008–09 School Year

Grade	Assessment Activity	Date
3	Operational mathematics and reading with embedded field test	March 2009
4	Operational mathematics and reading with embedded field test	March 2009
	Operational science with embedded field test	April/May 2009
5	Operational mathematics and reading with embedded field test	March 2009
	Operational writing with embedded field test	February 2009
6	Operational mathematics and reading with embedded field test	March 2009
7	Operational mathematics and reading with embedded field test	March 2009
8	Operational mathematics and reading with embedded field test	March 2009
	Operational writing with embedded field test	February 2009
	Operational science with embedded field test	April/May 2009
11	Operational mathematics and reading with embedded field test	March 2009
	Operational writing with embedded field test	February 2009
	Operational science with embedded field test	April/May 2009
12	Retest opportunity for students who as Grade 11 students in the spring of 2008 failed to reach at least the Proficient level in mathematics, reading, or writing	October/ November 2008

ASSESSMENT ACTIVITIES OCCURRING IN THE 2009–10 SCHOOL YEAR

Table P–7 shows the assessment plan for the 2009–10 school year. A notable change from previous years was that all assessments and make-ups were completed during the testing window from April through the first week of May.

The mathematics and reading assessments continued to be operational for Grades 3–8 and Grade 11. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. As in previous years, the fall retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued to feature mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed. An embedded field test of writing prompts was included in the 2010 assessment along with a set of embedded field test multiple-choice items.

The operational assessment for science at Grades 4, 8, and 11 included multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (all grades) as well as scenario-based multiple-choice (Grades 8 and 11) and open-ended (Grade 11 only) questions. Field testing was embedded as part of the operational assessments at each grade level.

Table P–7. Operational Assessment and Field Testing During the 2009–10 School Year

Grade	Assessment Activity	Date
3	Operational mathematics and reading with embedded field test	April/May 2010
4	Operational mathematics and reading with embedded field test	April/May 2010
	Operational science with embedded field test	April/May 2010
5	Operational mathematics and reading with embedded field test	April/May 2010
	Operational writing with embedded field test	April/May 2010
6	Operational mathematics and reading with embedded field test	April/May 2010
7	Operational mathematics and reading with embedded field test	April/May 2010
8	Operational mathematics and reading with embedded field test	April/May 2010
	Operational writing with embedded field test	April/May 2010
	Operational science with embedded field test	April/May 2010
11	Operational mathematics and reading with embedded field test	April/May 2010
	Operational writing with embedded field test	April/May 2010
	Operational science with embedded field test	April/May 2010
12	Retest opportunity for students who as Grade 11 students in the spring of 2009 failed to reach at least the Proficient level in mathematics, reading, science, or writing	October/ November 2009

ASSESSMENT ACTIVITIES OCCURRING IN THE 2010–11 SCHOOL YEAR

Table P–8 shows the assessment plan for the 2010–11 school year. A change from the previous year is an earlier testing window, beginning in mid-March for mathematics and reading, late-March to April for writing, and early April for science. A make-up period extended into mid-April for all assessments.

The mathematics and reading assessments continued to be operational for Grades 3−8 and Grade 11. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. As in previous years, the fall retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued to feature mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed. An embedded field test of writing prompts was included in the 2011 assessment along with a set of embedded field test multiple-choice items.

The operational assessment for science at Grades 4, 8, and 11 included multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (all grades) as well as scenario-based multiple-choice (Grades 8 and 11) and open-ended (Grade 11 only) questions. Field testing was embedded as part of the operational assessments at each grade level.

Table P–8. Operational Assessment and Field Testing During the 2010–11 School Year

Grade	Assessment Activity	Date
3	Operational mathematics and reading with embedded field test	March/April 2011
4	Operational mathematics and reading with embedded field test	March/April 2011
	Operational science with embedded field test	March/April 2011
5	Operational mathematics and reading with embedded field test	March/April 2011
	Operational writing with embedded field test	March/April 2011
6	Operational mathematics and reading with embedded field test	March/April 2011
7	Operational mathematics and reading with embedded field test	March/April 2011
8	Operational mathematics and reading with embedded field test	March/April 2011
	Operational writing with embedded field test	March/April 2011
	Operational science with embedded field test	March/April 2011
11	Operational mathematics and reading with embedded field test	March/April 2011
	Operational writing with embedded field test	March/April 2011
	Operational science with embedded field test	March/April 2011
12	Retest opportunity for students who as Grade 11 students in the spring of 2010 failed to reach at least the Proficient level in mathematics, reading, science, or writing	October/ November 2010

ASSESSMENT ACTIVITIES OCCURRING IN THE 2011–12 SCHOOL YEAR

Table P–9 shows the assessment plan for the 2011–12 school year. The testing window for mathematics and reading began in mid-March, while writing and science began in mid to late April. The make-up period for mathematics and reading extended into late March, while writing and science extended into early May.

The mathematics and reading assessments continued to be operational for Grades 3–8 and Grade 11. Field testing for mathematics and reading continued to be embedded as part of the operational assessments at each grade level. As in previous years, the fall retest opportunity at Grade 12 continued.

The operational assessment for writing at Grades 5, 8, and 11 continued to feature mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed. An embedded field test of writing prompts was included in the 2012 assessment along with a set of embedded field test multiple-choice items.

The operational assessment for science at Grades 4, 8, and 11 included multiple-choice and open-ended questions. Students responded to standalone multiple-choice and open-ended questions (all grades) as well as scenario-based multiple-choice (Grades 8 and 11) and open-ended (Grade 11 only) questions. Field testing was embedded as part of the operational assessments at each grade level.

Table P–9. Operational Assessment and Field Testing During the 2011–12 School Year

Grade	Assessment Activity	Date
3	Operational mathematics and reading with embedded field test	March 2012
4	Operational mathematics and reading with embedded field test	March 2012
	Operational science with embedded field test	April 2012
5	Operational mathematics and reading with embedded field test	March 2012
	Operational writing with embedded field test	April 2012
6	Operational mathematics and reading with embedded field test	March 2012
7	Operational mathematics and reading with embedded field test	March 2012
8	Operational mathematics and reading with embedded field test	March 2012
	Operational writing with embedded field test	April 2012
	Operational science with embedded field test	April 2012
11	Operational mathematics and reading with embedded field test	March 2012
	Operational writing with embedded field test	April 2012
	Operational science with embedded field test	April 2012
12	Retest opportunity for students who as Grade 11 students in the spring of 2011 failed to reach at least the Proficient level in mathematics, reading, science, or writing	October/ November 2011

ASSESSMENT ACTIVITIES PLANNED FOR THE 2012–13 SCHOOL YEAR

Table P–10 shows the assessment plan for the 2012–13 school year. The 2012-13 school year begins the initial transition for the PSSA Mathematics, Reading, and Writing tests to align to the newly-developed Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Common Core Standards (PACC). The transition from the Legacy PSSA Mathematics, Reading, and Writing tests to the new PACC-based PSSA tests will occur during the operational 2013-14 and 2014-15 administrations, with grades 3, 4, and 5 part of the first phase, and grades 6, 7, and 8 part of the second phase.

As a part of the PACC transition, the Legacy PSSA Reading test and the Legacy PSSA Writing test will be phased out and will be replaced with an English Language Arts test aligned to the PACC. As part of this transition, there will be a standalone field test at Grades 3, 4, and 5 for the Writing component of the English Language Arts test. This standalone field test will include standalone multiple-choice items (as opposed to stimulus-based multiple-choice items on the Legacy Writing test) and writing prompts at Grades 3, 4, and 5. In addition, at Grade 3 there will be open-ended items on the standalone ELA Writing test. This standalone field test will take place during a two-week testing window in early to mid February. The Reading component of the new PACC ELA test will be embedded in the 2013 Reading field test.

Additionally, PDE modified the order of the testing windows for writing, reading and mathematics, and science. Writing will now take place earlier than reading and mathematics instead of at the same time as science. The testing window for writing will begin mid March; mathematics and reading will begin early to mid April, while science will begin mid to late April. The make-up period for writing extends into mid to late March, while mathematics, reading, and science extends into early May. These operational assessments will all be offered in an online format in addition to the paper/pencil format used in previous assessments.

An additional change from previous years is the removal of Grade 11 from the Mathematics, Reading, Science, and Writing. As Grade 11 will no longer be a part of the assessments, the fall retest opportunity at Grade 12 will no longer be available. Operational tests will continue to be available for Mathematics and Reading at Grades 3–8, Science at grades 4 and 8, and Writing at grades 5 and 8.

Field testing for mathematics and reading will continue to be embedded as part of the operational assessments at each grade level. The embedded field test items for Grades 3, 4, and 5 will be aligned to the Pennsylvania Assessment Anchors and Eligible Content aligned to the Pennsylvania Common Core Standards, while the embedded field test items for Grades 6, 7, and 8 will continue to be aligned to the previous Assessment Anchor Content Standards.

The operational assessment for science at Grades 4 and 8 will include multiple-choice and open-ended questions. Students will respond to standalone multiple-choice and open-ended questions (all grades) as well as scenario-based multiple-choice questions (Grades 8 only). Field testing will be embedded as part of the operational assessments at each grade level.

The operational assessment for writing at Grades 5 and 8 will continue to feature mode-specific scoring guidelines, stimulus-based multiple-choice items, and a grade-specific emphasis in writing modes assessed. An embedded field test of writing prompts will be included in the 2012 assessment along with a set of embedded field test multiple-choice items at Grade 8. The operational assessment at Grade 5 will include placeholder multiple-choice items for consistency in the length of the multiple-choice section of the assessment; however, students will respond to only two writing prompts at Grade 5, as a field-test writing prompt is not needed due to the standalone field test at that grade.

Table P–10. Operational Assessment and Field Testing
During the 2012–13 School Year (Planned)

Grade	Assessment Activity	Date
3	Operational mathematics and reading with embedded field test	April 2013
	Standalone field test in ELA: writing	February 2013
4	Operational mathematics and reading with embedded field test	April 2013
	Operational science with embedded field test	April 2013
	Standalone field test in ELA: writing	February 2013
5	Operational mathematics and reading with embedded field test	April 2013
	Operational writing	March 2013
	Standalone field test in ELA: writing	February 2013
6	Operational mathematics and reading with embedded field test	April 2013
7	Operational mathematics and reading with embedded field test	April 2013
8	Operational mathematics and reading with embedded field test	April 2013
	Operational writing with embedded field test	March 2013
	Operational science with embedded field test	April 2013

Chapter One: Background of the Pennsylvania System of School Assessment (PSSA)

This brief overview of the Pennsylvania System of School Assessment (PSSA) summarizes the history of the current program's development process, the program's intent and purpose, recent changes to the program, and the student population that participates in the assessments. Pennsylvania's involvement in state-wide assessment actually began in the 1969–70 school year with a purely school-based assessment known as *Educational Quality Assessment* (EQA), which continued through the 1987–88 school year. A state mandated student competency testing program called *Testing for Essential Learning and Literacy Skills* (TELLS) also operated from the school years of 1984–85 through 1990–91.

THE PENNSYLVANIA SYSTEM OF SCHOOL ASSESSMENT

The Pennsylvania System of School Assessment program was instituted in 1992 as a school evaluation model with reporting at the school level only. Test administration took place in February/March, and school district participation was every third year based on the strategic planning cycle. Mathematics and reading were assessed at Grades 5, 8, and 11; districts could choose to participate in the writing assessment at Grades 6 and 9. The State Board of Education's revisions to Chapter 5 in November 1994 brought major changes to the PSSA, beginning with the spring 1995 assessment. These changes included the following:

- All districts were required to participate in the mathematics and reading assessment each year.
- Student-level reports were generated in addition to school reports.
- The Grades 6 and 9 writing assessments became mandatory on a three-year cycle corresponding with the district's strategic planning cycle.

Yearly administration of the PSSA in 1996, 1997, and 1998 continued at the assessed grades for mathematics and reading, utilizing essentially the same test structure, reporting practices, and testing window. Writing assessment continued on the established mandatory cycle; however, an increasing number of districts chose to participate every year on a voluntary basis.

Pennsylvania Academic Standards and the PSSA

A major structural change took place in test content with the State Board of Education's adoption of the Pennsylvania Academic Standards for Reading, Writing, Speaking and Listening, and Mathematics in January 1999 (Pennsylvania State Board of Education, 1999). The Academic Standards, which are part of *Chapter 4 Regulations on Academic Standards and Assessment*, detailed what students should know (knowledge) and be able to do (skills) at various grade levels. Subsequently, the State Board approved a set of criteria defining Advanced, Proficient, Basic, and Below Basic levels of performance. Mathematics and reading performance level results were reported at both the student and school levels for the 2000 PSSA. At that point, the PSSA became a standards-based, criterion-referenced assessment measuring student attainment of the Academic Standards while simultaneously determining the extent to which school programs enabled students to achieve proficiency of the Academic Standards. The regulations also stipulated that appropriate results be broadly disseminated to an array of audiences including students, parents, educators, citizens, and state policymakers, including the State Senate, the General Assembly, and the State Board. School reporting was to include the aggregate performance of all students and for relevant subgroups, such as those students with an Individualized Education Plan (IEP). Finally, the data was intended to inform educators regarding school program strengths and weaknesses in order to guide the improvement of curricula and instructional strategies. The data was also intended to be used in the development of strategic plans.

The mathematics and reading assessments from 2001 through 2004 underwent various content enhancements to improve alignment to the Academic Standards. For example, the reading assessment transitioned to utilizing more passages of shorter length and fewer items to improve the range of topics to which students responded. Various reporting modifications were introduced to more effectively communicate results.

ASSESSMENT ANCHOR CONTENT STANDARDS, CONTENT STRUCTURE, AND NEW GRADE LEVELS FOR MATHEMATICS AND READING

Assessment in 2005 was marked by major structural changes to the PSSA. Assessment Anchor Content Standards (Assessment Anchors) developed during the previous school year to clarify content structure and improve articulation between assessment and instruction were implemented in terms of test design and reporting. At the same time, field testing of mathematics and reading occurred at Grades 4, 6, and 7. As specified by PL 107–110, the *No Child Left Behind Act of 2001* (NCLB), states, school districts, and schools must achieve a minimum level of improvement each year, known as adequate yearly progress, or AYP. Accordingly, the third year of calculations for AYP were conducted and reported for Grades 5, 8, and 11.

The 2006 operational mathematics and reading assessment incorporated Grades 4, 6, and 7 for the first time. The assessed grade levels for 2006 included Grades 3−8 and 11. The fourth year of calculations for AYP were conducted and reported for Grades 5, 8, and 11 and, for the first time, Grade 3.

In 2007 the operational mathematics and reading assessment continued in Grades 3−8 and 11. AYP calculations for Grades 4, 6, and 7 took place in 2007 when they were assessed for the second time.

The operational mathematics and reading assessments of 2008, 2009, 2010, 2011, and 2012 continued in Grades 3−8 and 11, utilizing the same content structure. AYP calculations continued for all grades.

The validation of performance levels for mathematics and reading, utilizing the Bookmark method, took place during the summer of the following years: 2005 (Grades 5, 8, and 11), 2006 (Grades 4, 6, and 7), and 2007 (Grade 3). See Chapter Thirteen for a brief summary.

More information regarding the 2012 mathematics and reading tests may be found in Chapter Two and in the following Pennsylvania Department of Education publications available on the PDE website: *2011–2012 PSSA Assessment Handbook*, *2009–2010 PSSA Reading Item and Scoring Sampler Supplement* (one per assessed grade level), and *2009–2010 PSSA Mathematics Item and Scoring Sampler Supplement* (one per assessed grade level). These handbooks can be accessed by going to www.education.state.pa.us. On the left, first click on “Programs,” then “Programs O−R,” next “Pennsylvania System of School Assessment (PSSA)” and then “Resource Materials.”

Core Recycling for Mathematics and Reading

In 2009, PDE made a temporary change to the PSSA test plan for reading and mathematics in order to create required cost savings due to state-level budget concerns. A recycling plan was proposed and accepted that significantly decreased the volume of new item development over a two-year period in 2011 and 2012, and required that a portion of the core from the 2012 administration would be composed of items recycled from prior core administrations. Under this plan, the reduced number of new items in 2011 and 2012 resulted in a reduced number of field test forms in 2011 and 2012 from 9 down to 5. These changes impacted the test design for 2012.

The mathematics core for 2012 was built with the standard core-to-core links from the 2011 core and special core-to-core links recycled from 2010. The remainder of the core was built from items appearing in the embedded field test positions from the 2011 embedded field test, from the existing item bank, or from items recycled from previous cores but not designated as core-to-core links.

The reading core for 2012 was built with the standard core-to-core links from the 2011 core. The remainder of the core was built from items appearing in the embedded field test positions from the 2011 embedded field test, from the existing item bank, or from items recycled from the 2010 or 2011 cores.

The 2012 PSSA has five field test forms per grade, each with a normal core, normal core-to-core link, and normal equating block (per form). Equating block positions for mathematics were reduced due to fewer forms; however due to the reduction in equating block items for mathematics, core items from 2010 were added as a special set of core-to-core linking so that the total linking points remained unchanged.

More information regarding the 2012 operational layout and core recycling for mathematics and reading can be found in Chapter Three.

THE PENNSYLVANIA SCIENCE ASSESSMENT

In accordance with the NCLB requirement to implement an operational science assessment in 2008, a major test development effort in science took place during 2006, followed by a large-scale, standalone field test in April/May of 2007. A full implementation of an operational science assessment at Grades 4, 8, and 11 first occurred in April–May 2008. The 2009 PSSA operational science assessment continued with the same content structure and testing window as in 2008.

Several historical milestones were significant to the development of a science test in Pennsylvania. These include the following:

- The adoption of Act 16 or Pennsylvania Senate Bill 652 in 2000, which redefined the PSSA “as a test developed and implemented by the Department of Education to determine only academic achievement relating directly to objective Academic Standards in the areas of reading, mathematics, and science.” (See the *Science Assessment Handbook*, PDE, November 2006).
- Pennsylvania State Board of Education adoption of the *Science and Technology Standards* on July 12, 2001, and the *Environment and Ecology Standards* on January 5, 2002.

Aligned to the *Pennsylvania Science Assessment Anchor Content Standards* and Eligible Content, the science test is designed to measure and report results in four major categories:

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

Students use their content knowledge and science process skills to answer a set of multiple-choice items and open-ended questions that are standalone or related to a scenario. A science scenario consists of a description of a class project, an experiment, or other research and typically contains text, graphs, charts, and/or tables. Science test questions at Grade 4 consist of standalone multiple-choice and 0–2-point short answer open-ended items. At Grades 8 and 11, multiple-choice questions consist of both standalone and scenario-based items. All open-ended items at Grade 8 are standalone 0–2-point questions. Grade 11 is more complex, as it has standalone 0–2-point questions and scenario-based 0–4-point questions formed by combining two 0–2-point questions. More information may be found in Chapter Two and in the following Pennsylvania Department of Education publications available on the PDE website: *2011–2012 PSSA Assessment Handbook* and *2009–2010 PSSA Science Item and Scoring Sampler Supplement* (one per assessed grade level). These handbooks can be accessed by going to www.education.state.pa.us. On the left, click on “Programs,” then “Programs O–R,” then “Pennsylvania System of School Assessment (PSSA)” and then “Resource Materials.” The establishment of performance levels for science, utilizing the Bookmark method, took place during the summer of 2008. See Chapter Thirteen of this technical report for a brief summary.

THE PENNSYLVANIA WRITING ASSESSMENT

In 1990, the state initiated an on-demand writing assessment in which students wrote an essay in response to a particular topic or prompt. With the advent of the Pennsylvania Academic Standards in 1999, major changes took place in the writing assessment, including alignment to the Academic Standards, as well as changes in scoring method, prompts, testing date, and reporting. These changes, which are summarized below, were implemented in the 2000–01 school year and were followed by performance level reporting in the 2001–02 school year.

- The writing assessment became mandatory for all districts every year.
- Administration of the Grades 6 and 9 writing assessment was changed from February to October.
- Scoring changed to a four-point scale for each of five domains (focus, content, organization, style, and conventions).
- Prompts were different for Grade 6 and Grade 9 rather than being identical at the two grade levels.
- Within a grade level all students responded to two common prompts.
- The reporting model was greatly revised, and individual student reports were issued for the first time.

- A writing assessment for Grade 11 was administered for the first time in February 2001.
- In 2002, performance levels were adopted for writing and implemented in the reporting of total writing results for the February Grade 11 and fall 2002 Grades 6 and 9 writing assessment.

In 2003 and 2004 writing continued to be assessed with a February window for Grade 11 and a fall window for Grades 6 and 9.

In 2005 Grade 11 continued to be assessed in February; however, major field testing took place at Grades 5 and 8 in anticipation of implementation of an operational writing assessment in 2006. Consequently, a fall 2005 operational writing assessment did not take place.

The 2006 PSSA operational writing assessment featured additional revisions that included the following enhancements:

- Testing previously done in Grades 6 and 9 shifted to Grades 5 and 8 to provide better alignment to the end of elementary school and middle school.
- Grades 5 and 8 joined Grade 11 in a February test window rather than the October window used previously for Grades 6 and 9.
- Students responded to two writing prompts, which were evaluated in terms of (1) a mode-specific scoring guideline and (2) a conventions scoring guideline, instead of the former domain scoring.
- Stimulus-based revising/editing multiple-choice items were incorporated to provide a more reliable and valid measure of the Conventions Academic Standard.

The 2007 and 2008 PSSA operational writing assessments continued with the same structure and February testing window as in 2006.

Although the 2009, 2010, 2011, and 2012 PSSA operational writing assessments continued with the same structure as in previous years, students also responded to an embedded field test prompt. In addition, adjustments were made to the testing window in 2010 as it was shifted from February to April/May.

The validation of performance levels for writing, utilizing the Body of Work method, took place during the summer of 2006. See Chapter Thirteen for a brief summary.

More information may be found in Chapter Two and in the following two Pennsylvania Department of Education publications available on the PDE website: *2011–2012 PSSA Assessment Handbook* and *2009–2010 PSSA Writing Item and Scoring Sampler Supplement* (one per assessed grade level). These handbooks can be accessed by going to www.education.state.pa.us. On the left, first click on “Programs,” then “Programs O–R,” next “Pennsylvania System of School Assessment (PSSA)” and then “Resource Materials.”

Chapter Two: Overview of the PSSA Framework

ACADEMIC STANDARDS, ASSESSMENT ANCHOR CONTENT STANDARDS, AND ELIGIBLE CONTENT

PSSA Mathematics, Reading, and Science

The PSSA Assessment Anchor Content Standards and Eligible Content 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 "Programs" from the menu in the left-hand column, then select "Programs O–R," "Pennsylvania System of School Assessment (PSSA)," and then "Assessment Anchors." In addition, see Appendix A for more information about how the Academic Standards are linked to the Reporting Categories, Assessment Anchors, and Eligible Content.

PSSA Writing

Assessment Anchors and Eligible Content have not been developed for the writing content area. 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). 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.

OVERVIEW OF THE 2012 PSSA

Mathematics Assessment Measures

The PSSA mathematics assessment has five major reporting categories: Numbers and Operations, Algebraic Concepts, Geometry, Measurement, and Data Analysis and Probability. By organizing the Assessment Anchors into a five-category reporting structure, there is a similarity to the categories used by the National Council of Teachers of Mathematics (NCTM) and the National Assessment of Educational Progress (NAEP). See Appendix A for more information about how the Academic Standards are linked to the Reporting Categories, Assessment Anchors, and Eligible Content.

The PSSA mathematics assessment employs two types of test items: multiple-choice and open-ended. These item types assess different levels of knowledge and provide different kinds of information about mathematics achievement. Psychometrically, multiple-choice items are very useful and efficient tools for collecting information about a student’s academic achievement. Open-ended performance tasks generally generate fewer scorable points than multiple-choice items in the same amount of testing time; however, they provide tasks that are more realistic and better sample higher-level thinking skills. Furthermore, well-constructed scoring guides have made it possible to include open-ended tasks in large-scale assessments such as the PSSA. Trained scorers can apply the scoring guides to efficiently score large numbers of student papers in a highly reliable way. The design of the PSSA attempts to achieve a reasonable balance between the two item types.

MATHEMATICS MULTIPLE-CHOICE ITEMS

The majority of the mathematics items included on the PSSA are multiple-choice (selected-response) items. This item type is especially efficient for measuring a broad range of content. In the PSSA mathematics assessment, each multiple-choice item has four response options, only one of which is correct. The student is awarded one point for choosing the correct response. Distractors typically represent incorrect concepts, incorrect logic, incorrect application of an algorithm, or computational errors.

Multiple-choice items are used to assess a variety of skill levels, from short-term recall of facts to problem solving. PSSA items involving application emphasize the requirement to carry out some mathematical process to find an answer, rather than simply recalling information from memory.

OPEN-ENDED TASKS FOR MATHEMATICS

Open-ended, or constructed-response, tasks require students to read a problem description and to develop an appropriate solution. The open-ended items are designed to take about ten minutes per item. Most of the open-ended items have several components to the overall task that may enable students to enter or begin the problem at different places. In some items, each successive component is designed to assess progressively more difficult skills or higher knowledge levels. Certain components ask students to explain their reasoning for engaging in particular mathematical operations or for arriving at certain conclusions. The types of tasks utilized do not necessarily require computations. Students may also be asked to perform such tasks as constructing a graph, shading some portion of a figure, or listing object combinations that meet specified criteria.

Open-ended tasks are especially useful for measuring students' problem-solving skills in mathematics. They offer the opportunity to present real-life situations that require students to solve problems using mathematics abilities learned in the classroom. Students must read the task carefully, identify the necessary information, devise a method of solution, perform the calculations, enter the solution directly in the answer document, and when required, offer an explanation. This provides insight into the students' mathematical knowledge, abilities, and reasoning processes.

The open-ended mathematics items are scored on a 0–4 point scale using an item-specific scoring guideline. The item-specific scoring guideline outlines the requirements for each score point. Item-specific scoring guidelines are based on the *General Description of Mathematics Scoring Guidelines for Open-ended Items*. The general guidelines describe a hierarchy of responses, which represent the five score levels. See Appendix B or the *Mathematics Item and Scoring Samplers* available on the PDE website.

Reading Assessment Measures

The PSSA reading assessment has two major reporting categories: Comprehension and Reading Skills, and Interpretation and Analysis of Fictional and Nonfictional Text. These two reporting categories are derived from the Reading Academic Standards 1.1, 1.2, and 1.3. Standards 1.6, 1.7, and 1.8 are not addressed on the PSSA because they are not specific to reading comprehension and can be more accurately evaluated at the school level. Standards 1.4 and 1.5 are addressed on the PSSA writing assessment. See Appendix A for more information about how the Academic Standards are linked to the Reporting Categories, Assessment Anchors, and Eligible Content.

The reading assessment employs two types of test items: multiple-choice and open-ended. The items are designed to measure students' comprehension of the content contained in the reading passages.

READING MULTIPLE-CHOICE ITEMS

Multiple-choice (selected-response) items measure how well students comprehend the overall meaning of a passage or make basic inferences about it. At times, asking students to choose a preferred answer is the best way to determine whether they have gleaned certain information from a story. Such information may include setting, central idea, or main events and their sequence.

Each reading multiple-choice item has four response options, only one of which is correct. The student is awarded one point for choosing the correct response. Incorrect response choices, or distractors, typically represent some kind of misinterpretation, predisposition, unsound reasoning, or casual reading.

OPEN-ENDED TASKS FOR READING

Open-ended, or constructed-response, tasks are designed to address comprehension of text in ways that multiple-choice items cannot. A short written response, requiring about ten minutes per item, allows students to prepare an answer and summarize using supporting details or examples derived from the text.

The reading open-ended items are scored on a 0–3 point scale using an item-specific scoring guideline. This scale is consistent with the scale used on the National Assessment of Educational Progress (NAEP). The change from the former 0–4 point scale improves the alignment with the types of tasks required. Each task is text-dependent and is carefully constructed with the scoring guideline reflecting the task requirements. All item-specific scoring guidelines are based on the *General Scoring Guidelines for Open-ended Reading Items*. The general guidelines describe a hierarchy of responses, which represent the four score levels. See Appendix B or the *Reading Item and Scoring Samplers* available on the PDE website.

Science Assessment Measures

The PSSA science assessment has four major reporting categories: The Nature of Science, Biological Sciences, Physical Sciences, and Earth and Space Sciences. These categories are similar to those used by the National Assessment of Educational Progress (NAEP) and The Third International Mathematics and Science Study (TIMSS). However, the PSSA organizes the categories differently. The science assessment anchors cover seventeen major categories from two sets of standards: Science and Technology Standards (3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, and 3.8) and Environment and Ecology Standards (4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, and 4.9). See Appendix A for more information about how the Academic Standards are linked to the Reporting Categories, Assessment Anchors, and Eligible Content.

The science assessment employs two types of test items: multiple-choice and open-ended. These item types assess different levels of knowledge and provide different kinds of information about science achievement. The design of the operational 2012 PSSA for science achieves a reasonable balance between the two item types.

SCIENCE MULTIPLE-CHOICE ITEMS

The majority of the science items included on the PSSA are multiple-choice (selected-response) items, either as standalone multiple-choice items or as scenario-based multiple-choice items. Multiple-choice items are especially efficient for measuring a broad range of content. In the PSSA science assessment, each multiple-choice item has four response options, only one of which is correct. The student is awarded one point for choosing the correct response. Distractors typically represent incorrect concepts, incorrect logic, or incorrect application of a scientific principle.

Multiple-choice items are used to assess a variety of skill levels, from short-term recall of facts to the application of science content. PSSA items involving application emphasize the requirement to utilize science content to find an answer rather than simply recalling information from memory.

OPEN-ENDED ITEMS FOR SCIENCE

At all grades, standalone open-ended science items require students to read a description of a scientific problem and to develop an appropriate solution. Scenario-based open-ended items for science (exclusive to Grade 11) are similar; however, with scenario-based open-ended items, students also have to consider the stimulus material presented in the associated scenario. Standalone open-ended items require about five minutes per task, while the 2- or 3-part scenario-based open-ended items at Grade 11 require a total of about 10 minutes. At Grade 11 in scenario-based open-ended items, successive components of the open-ended item are designed to measure The Nature of Science and then either Biological Sciences, Physical Sciences, or Earth and Space Sciences.

Open-ended tasks are especially useful for measuring students' skills in science. These tasks may present real-life situations that require students to solve problems using science abilities learned in the classroom. Students must read a task carefully, identify the necessary information, devise a method of solution, enter the solution directly into the answer document, and when required, offer an explanation. This provides insight into students' science knowledge, abilities, and reasoning processes.

The open-ended science items are scored on a 0–2-point scale with an item-specific scoring guideline, and each task is carefully constructed with a scoring guideline reflecting the task requirements. At Grade 11, scenario-based open-ended items combine two 0–2-point scale items into one compound 0–4-point scale item with two of the points associated with The Nature of Science and two of the points associated with Biological Sciences, Physical Sciences, or Earth and Space Sciences. The general guidelines describe a hierarchy of responses, which represent the three score levels. Each item-specific scoring guideline outlines the requirements at each score point, and each item-specific scoring guideline is based on the *Science Scoring Guidelines for Open-ended Items*. See Appendix B or the *Science Item and Scoring Samplers* available on the PDE website.

SCIENCE SCENARIOS FOR GRADES 8 AND 11

In addition to standalone multiple-choice and open-ended items, the science assessment includes scenarios at Grades 8 and 11. In consideration of the multidisciplinary and interdisciplinary nature of science content, science scenarios create stronger connections between The Nature of Science/Science Content and the multiple-choice and open-ended items associated with a scenario. As a result, science scenarios allow the assessment to efficiently address and utilize the connections among the science content domains. A science scenario contains text, graphics, charts, and/or tables, and uses these elements to describe the results of a class project, an experiment, or other similar research. Students use the information found in a science scenario as a platform from which to answer both multiple-choice and open-ended questions (Grade 11 only). Scenarios and questions reach beyond simple fact recollection; they are designed to challenge students to think and to apply the knowledge and skills learned in their classrooms. Scenarios are designed to reflect multi-dimensional classroom activities that incorporate higher cognitive levels of understanding. Science scenarios challenge students to interpret stimulus content and to apply existing knowledge to new data while using science knowledge and process skills to arrive at their answers.

Writing Assessment Measures

WRITING MULTIPLE-CHOICE ITEMS

Each multiple-choice item on the writing test is associated with a passage containing embedded errors. Starting with the 2006 operational assessment and continuing through the 2012 assessment, four multiple-choice items are associated with each passage. Multiple revising and editing instances are incorporated within each passage and require that a student demonstrate both passive (recognizing and identifying grammatical and mechanical errors in text, such as misspellings, errors in word choice, errors in verb tense, or pronoun usage) and active (choosing the appropriate correction of an embedded error, such as deleting an irrelevant detail, changing the sequence of details, or placing correct marks of punctuation) revising and editing skills.

All multiple-choice items have four response options that include only one correct answer. The student is awarded one raw score point for choosing the correct response. Incorrect response choices, or distractors, typically represent some kind of misinterpretation or predisposition, unsound reasoning, or casual reading of the item and/or stimuli.

WRITING PROMPTS

At each assessed grade level, students respond to writing prompts developed to measure composition of writing as specified in the Academic Standards 1.4.A–C and further clarified in Academic Standards 1.5 A–F. A student response to a prompt requires approximately 60 minutes per prompt, though students are allowed more time to finish their responses if necessary. The writing prompts were field tested in a standalone field test in 2005 and in embedded field test positions in 2009, 2010, 2011, and 2012, with only one field test prompt being administered per student in the embedded field test. Prompt modes and prompts were spiraled across the total number of available forms. Spiraling is accomplished by administering each student one of many available field test prompts in a sequential manner. For example, the first student received Prompt 1, the second student Prompt 2, and so on until every prompt was administered. If there were more students than prompts, the sequence was repeated starting with the first prompt until every student was assigned a prompt. This process ensured that each prompt was administered to approximately equal and representative student populations in regard to demographics like gender, ethnicity, school size, and location in the state. Table 2–1 shows the Writing Prompt Field Test Implementation for administrations 2005–2012 at grades 5, 8, and 11.

Table 2–1. Writing Prompt Field Test Implementation

Administration	Activity		
	Grade 5	Grade 8	Grade 11
2005	Standalone FT	Standalone FT	Embedded FT
2006	None	None	None
2007	None	None	None
2008	None	None	None
2009	Embedded FT	Embedded FT	Embedded FT
2010	Embedded FT	Embedded FT	Embedded FT
2011	Embedded FT	Embedded FT	Embedded FT
2012	Embedded FT	Embedded FT	Embedded FT

See Chapter Five for more information about the writing prompt field tests.

Beginning with the operational assessment in 2006 and continuing through 2012, students in Grade 5 responded to two pre-selected operational prompts chosen from across the three modes: narrative, informational, and persuasive. (See Table 2–2 for more information about the modes selected for operational use during a given administration.) The narrative prompt can be story/fiction or personal narrative/recount, which aligns with Academic Standard 1.4.A. The informational prompt can be sequence (process analysis) or simple definition, which aligns with Academic Standard 1.4.B. The persuasive prompt can be problem/solution or evaluation, which aligns with Academic Standard 1.4.C. The 2005 field test yielded enough Grade 5 prompts that no additional writing prompts were field tested in 2006, 2007, or 2008.

Beginning with the operational assessment in 2006 and continuing through 2012, students in Grade 8 responded to two operational prompts: informational and persuasive. The informational prompt can be sequence (process analysis), illustration, conceptual definition, cause/effect, classification, or compare/contrast, which aligns with Academic Standard 1.4.B. The persuasive prompt can be problem/solution or evaluation, which aligns with Academic Standard 1.4.C. The 2005 field test yielded enough Grade 8 prompts that no additional writing prompts were field tested in 2006, 2007, or 2008.

Academic writing is the focus for the Grade 11 PSSA writing assessment, including writing required for students who wish to pursue post-secondary educational and/or career opportunities. Beginning with the operational assessment in 2006 and continuing through 2012, students in Grade 11 responded to two operational prompts: informational and persuasive. The informational prompt can be advanced sequence (process analysis), illustration, definition, cause/effect, classification, or compare/contrast, which aligns with Academic Standard 1.4.B. The persuasive prompt can be problem/solution or evaluation, which aligns with Academic Standard 1.4.C. The 2005 field test yielded enough Grade 11 prompts that no additional writing prompts were field tested in 2006, 2007, or 2008.

Beginning with the field test in 2005 and continuing through 2012, the responses to writing prompts were scored twice using two different scoring guidelines developed especially for the PSSA. The first score is based on the application of a mode-specific scoring guideline, and the second score is based on the application of a conventions scoring guideline. The mode-specific scoring guideline is designed to evaluate first-draft, on-demand responses. It identifies the essential criteria for successfully responding to a particular mode of writing relating to the core areas of writing: focus, development of content, organization, and style. In contrast, the conventions scoring guideline measures the demonstrated level of control of sentence formation, grammar, usage, spelling, and punctuation. For more information on the application of the new scoring guidelines, see Appendix B or the current *Writing Item and Scoring Sampler*, available on the PDE website.

Table 2–2. Writing Prompt Operational Mode Summary

Administration	Operational Modes		
	Grade 5	Grade 8	Grade 11
2006	Narrative, Informational	Informational, Persuasive	Informational, Persuasive
2007	Informational, Persuasive	Informational, Persuasive	Informational, Persuasive
2008	Narrative, Persuasive	Informational, Persuasive	Informational, Persuasive
2009	Informational, Persuasive	Informational, Persuasive	Informational, Persuasive
2010	Narrative, Informational	Informational, Persuasive	Informational, Persuasive
2011	Informational, Persuasive	Informational, Persuasive	Informational, Persuasive
2012	Narrative, Persuasive	Informational, Persuasive	Informational, Persuasive

Chapter Three: Item Development Process

The core portion of the 2012 PSSA operational administration is made up of items that were field tested primarily in the 2011 PSSA administration. Therefore, the activities that led to the 2012 PSSA operational administration began with the development of the test items that appeared in the field test portion of the 2011 operational administration. In turn, items that appeared on the field test portion of the 2011 operational administration were developed during and prior to 2010. (See Table 3–1 for a graphic representation of the basic process flow and overlap of the development cycles.)

Table 3–1. General Development Timeline Pattern of the PSSA

	Events Occurring in Calendar Year					
Operational Admin Year	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
2008	Operational Core Admin with embedded matrix items →	Core-to-Core Link				
2009	Field Test →	Operational Core Admin with embedded equating block items→	Core-to-Core Link			
2010	Initial Item Development* →	Field Test →	Operational Core Admin with embedded equating block items→	Core-to-Core Link		
2011		Initial Item Development →	Field Test →	Operational Core Admin with embedded equating block items→	Core-to-Core Link	
2012			Initial Item Development →	Field Test →	Operational Core Admin with embedded equating block items→	Core-to-Core Link

*The initial item development for 2009 field test forms that occurred in 2008 was only for writing prompts, science scenarios, and science multiple-choice and open-ended items. All 2009 mathematics and reading field test items were selected from an existing item bank of previously developed passages and items. All 2009 writing passages and multiple-choice items were also selected from the existing item bank. In addition, some 2009 science scenarios and science multiple-choice and open-ended field test items were selected from the existing item bank as needed for the field test. All passages and items selected from the item bank had been previously reviewed and approved by past bias and content review committees according to the processes described later in this chapter.

Table 3–2. General Timeline Associated with 2011 Field Test and 2012 Operational Assessment of Mathematics and Reading at Grades 3, 4, 5, 6, 7, 8, and 11

Time Frame	Assessment	Activity
January 2010–July 2010	’11 FT for ’12 OP	Item development for items to embed in 2011 operational test
March 2010–May 2010	’10 FT for ’11 OP	2010 embedded field test in 2010 operational test
July 2010	’11 FT for ’12 OP	Item review for the embedded field test in 2011 operational assessment
July 2010	’10 FT for ’11 OP	Statistical review of 2010 field tested items
September 2010–January 2011	’11 OP & ’11 FT for ’12 OP	Forms construction for 2011 operational assessment with embedded field test
January 2011–June 2011	’12 FT for ’13 OP	Item development for items to embed on 2012 operational assessment
March 2011–May 2011	’11 FT for ’12 OP	2011 embedded field test in 2011 operational test
June 2011	’12 FT for ’13 OP	Item review for the embedded field test in 2012 operational assessment
July 2011	’11 FT for ’12 OP	Statistical review of 2011 field tested items
September 2011–January 2012	’12 OP & ’12 FT for ’13 OP	Forms construction for 2012 operational assessment
March 2012–May 2012	’12 OP & ’12 FT for ’13 OP	2012 operational assessment

MATHEMATICS AND READING

A series of major activities took place in 2003 and 2004, which culminated in the implementation of changes to the structure of the operational PSSA in the 2005 assessment that continued through the 2012 administration. These key activities included the development of the Pennsylvania Assessment Anchor Content Standards (Assessment Anchors); test item development; content review; bias, fairness, and sensitivity review; field testing of items in spring 2011; item review with data; and final selection of items to compose the 2012 PSSA. These activities are described in some detail in this chapter as well as in Chapters Four and Five. It should also be noted that test items for the 2011 field test were developed by Data Recognition Corporation (DRC) and WestEd.

Test Content Blueprint for 2012 Mathematics and Reading Assessment

The 2012 PSSA is based on the Pennsylvania Academic Standards. The 2012 PSSA reflects the new Assessment Anchors (PDE 2004), which were designed as a means of improving the articulation of curricular, instructional, and assessment practices. The Assessment Anchors serve to clarify the Academic Standards assessed on the PSSA and to communicate assessment limits, or the range of knowledge and skills from which the PSSA was designed. Relevant to item development are the refinement and clarification embodied in the Assessment Anchors. Since the Assessment Anchors encompass Grades 3–8 and Grade 11, the document informs test design for the grades undergoing new test development as well as the grades currently assessed.

The PSSA for Grades 3, 5, 8, and 11 in 2005 through 2012 followed a revised blueprint and testing plan to reflect the new Assessment Anchors and item distribution. The first operational administration of the PSSA for Grades 4, 6, and 7 took place in 2006. It followed the revised blueprint and testing plan, and it reflected the new Assessment Anchors and item distribution revised plan first applied to the PSSA for Grades 3, 5, 8, and 11 in 2005 and continued through 2012.

Operational Layout and Core Recycling for 2012 Mathematics and Reading

The mathematics and reading PSSA plan was developed through the collaborative efforts of Data Recognition Corporation (DRC) and the National Center for Improvement of Educational Assessment (NCIEA). The plan was subsequently evaluated and approved by PDE. At Grades 4–8 and Grade 11, the mathematics and reading assessments are combined in one test booklet and one separate answer booklet. The test booklet contains mathematics multiple-choice items and reading passages with multiple-choice items. The answer booklet contains scannable pages for multiple-choice (MC) responses, open-ended (OE) items with response spaces, and demographic data collection areas. At Grade 3, the mathematics and reading assessments are combined into one integrated test/answer booklet. Each MC item is worth 1 point. Mathematics OE items receive a maximum of 4 points (on a scale of 0–4) and reading OE items receive a maximum of 3 points (on a scale of 0–3). Each test form contains common items (identical on all forms) along with equating block (containing equating items) and embedded field test items. The common items consist of a set of core items taken by all students. These core items also include core-to-core linking items, which are items that also appeared on the previous year's core form. The equating block items and the embedded field test items are unique, in most instances, to a form. That is, there can be instances in which an equating block or embedded field test item appears on more than one form.

The 2012 PSSA has five field test forms per grade with a normal core, normal core-to-core link, and normal equating block (per form). Equating block values for mathematics have been reduced due to fewer forms; however due to the reduction in equating block items for mathematics, core items from 2010 have been added as a special set of core-to-core linking so that the total linking points remains unchanged. All of the forms contain the common items identical for all students and sets of generally unique items that fulfill two purposes:

1. Field testing new items (FT items)
2. Using items from the previous years' assessments for the purpose of linking equating block (EB) items

Tables 3–3 through 3–6 display the test design for mathematics and reading for forms 1 through 5. The column entries for these tables denote the following:

- Grade level
- Number of unique common, or core, MC items
- Number of core-to-core linking MC items
- Number of equating block MC items

- Number of embedded MC field test items
- Number of unique common, or core, OE items
- Number of core-to-core linking OE items
- Number of equating block OE items
- Number of embedded OE field test items
- Total number of MC and OE items in the form
- Total number of operational points (derived from Core MC, Core-to-Core MC, Core OE, and Core-to-Core OE only) for producing a student score

Table 3–3. Mathematics Test Plan 2012 per 5 Operational Forms

Grade	Total Core MC per 5 Forms	Total Equating Block MC per 5 Forms*	Total Embedded Field Test MC per 5 Forms	Total MC (Core, EB, & Field Test) positions per 5 Forms	Total Core 4 point OE per 5 Forms	Total Equating Block OE per 5 Forms*	Total Embedded Field Test OE per 5 Forms	Total OE (Core, EB, & Field Test) per 5 Forms	Total No. of Items per Op. Form MC/OE	Total No. of Core Points per Op. Test
3, 4, 5, 6, 7, 8, and 11	60	10	50	120	3	0	5	8	72/4	72

* Some of the equating block items may not be unique.

Table 3–4. Mathematics Operational Recycled Core Test Plan 2012

Grade	Unique Core MC per Form	Recycled Core MC from 2010 and 2011	Recycled Core-to-Core Link MC from 2010	Core-to-Core Equating (from 2011) MC per Form	Unique Core 4 point OE per Form	Core-to-Core (from 2011) Equating OE per Form	Recycled Core-to-Core OE from 2010	Total Number of Core Items (MC/OE)	Total Core Points per Test
3, 4, 5, 6, 7, 8, and 11	16-22	14-20	8	16	1	2	0	60/3	72

The mathematics core for 2012 was built with the standard core-to-core links from the 2011 core and a special core-to-core link recycled from 2010. The remainder of the core was built from items appearing in the embedded field test positions from the 2011 embedded field test, from the existing item bank, or from items recycled form the 2010 and 2011 cores that were not designated as core-to-core links. Specifically, eight MC items from the 2010 core were moved to the 2012 core. Sixteen MC items and two OE items were moved from the previous core to the current year core to serve as linking items. All core linking items appeared in the same relative position as they appeared in the most recent administration. Approximately ten MC items from 2011 (field test) were pulled forward into 2012 to form an Equating Block (EB). Two EB MC items appeared on each form. Some of the equating block items may not be unique. EB items did not contribute to student or school/district scores as the goal for the equating block is to increase the total available equating points.

Table 3–5. Reading Test Plan 2012 per Operational Form

Grade	No. of Unique Core MC per Op. Form	No. of Core-to-Core MC per Op. Form	No. of Equating Block MC per Op. Form	No. of Embedded FT MC per Op. Form	No. of Unique Core 3-pt. OE per Op. Form	No. of Core-to-Core 3-pt. OE per Op. Form	No. of Equating Block OE per Op. Form	No. of Embedded FT OE per Op. Form	Total No. of Items per Op. Form MC/OE	Estimated No. of Passages per Op. Form	Total No. of Core Points per Op. Test
3	22–29 (3 passages)	11–18 (2 passages)	8* (1 passage)	10* (1 passage)	1	1	0	1	58/3	7	46
4, 5, and 11	22–29 (3 passages)	11–18 (2 passages)	8* (1 passage)	10* (1 passage)	2	2	0	1	58/5	7	52
6, 7, and 8	22–29 (4 passages)	11–18 (2 passages)	8* (1 passage)	10* (1 passage)	2	2	0	1	58/5	8	52

* Average

The reading core for 2012 was built with the standard core-to-core links from the 2011 core. The remainder of the core was built from items appearing in the embedded field test positions from the 2011 embedded field test, from the existing item bank, or from items recycled form the 2010 and 2011 cores that were not designated as core-to-core links. The core-to-core link consists of two reading passages with eleven to eighteen MC items and two OE items (one OE item at grade 3) moved from the previous core to the current year core to serve as linking items. Approximately sixteen MC items from the 2010 (field test) were pulled forward into 2012 to form an Equating Block (EB). One passage equal to approximately eight equating block MC items appeared on each form. Up to two equating block passages were alternated across the five forms. EB items did not contribute to student or school/district scores as the goal for the equating block is to increase the total available equating points.

Table 3–6. 2011 Mathematics and Reading Core Points

Content Area	MC Items	Grade	OE Items	Total Score
Mathematics	60	3, 4, 5, 6, 7, 8, and 11	3 items × 4-points=12 points	72
Reading	40	3	2 items × 3-points=6 points	46
		4, 5, 6, 7, 8, and 11	4 items × 3-points=12 points	52

For more information concerning the process used to convert the operational layout into forms (i.e., form construction), see Chapter Six. For more information about operational layout across forms and across years (i.e., form equivalency) see Chapter Ten.

Linking for 2012 Mathematics and Reading Assessment

Linking provides a statistical bridge between assessment administrations. The 2012 administration is linked back to the 2011 administration through the use of linking items in the core (core-to-core linking items) and the equating block (equating items).

MULTIPLE-CHOICE ITEMS

For Grades 3−8 and 11, mathematics used 16 core-to-core linking MC items, 8 recycled core-to-core linking MC items from the 2010 form, and 10 equating block MC items per grade, and reading used 11 to 18 core-to-core linking MC items and 16 equating block MC items per grade.

OPEN-ENDED ITEMS

For Grades 3−8 and 11, mathematics used two 4-point core-to-core linking OE items and no [zero] equating block OE items per grade. For Grade 3, reading used one 3-point core-to-core linking OE item and no [zero] equating block OE items. For Grades 4−8 and 11, reading used two 3-point core-to-core linking OE item and no [zero] equating block OE items. Table 3–7 shows the 2012 linking points plan for mathematics and reading.

Table 3–7. 2012 Mathematics and Reading Linking Points Plan

Content	Grade	No. of Core-to-Core MC	No. of Equating Block MC	No. of Recycled Core-to-Core MC	No. of Core-to-Core OE	No. of Equating Block OE	Max. No. of Linking Points per Op. Test*
Mathematics	3, 4, 5, 6, 7, 8, and 11	16	2*	8	2 (4 pt)	0	34*
Reading	3	11–18	8*	0	1 (3 pt)	0	29*
	4, 5, 6, 7, 8, and 11	11–18	8*	0	2 (3 pt)	0	32*

*Not all equating block items will be unique to each form as some may appear on more than one form.

The topic of *linking* will be detailed thoroughly in Chapter Fifteen.

Test Sessions and Timing for 2012 Mathematics and Reading Assessment

The testing window for the 2012 operational assessment, including make-up sessions, extended from March 12 through March 30, 2012. The mathematics and reading assessments consisted of six sections. Test administration recommendations called for each section to be scheduled as one assessment session, although schools were permitted to combine multiple sections in a single session. Administration guidelines stipulated that the sections be administered in the sequence in which they were printed in the test booklets. Table 3–8 outlines the assessment schedule and estimated times for each section, as well as the number and types of items tested for each grade level. The estimated Student Testing Times shown on the next page do not include time for administrative tasks that occur during the pre- and post-administration activities. These times are estimated separately. Times are approximate and are supplied to test administrators for scheduling purposes only.

Table 3–8. Mathematics and Reading—2012 Administration and Testing Times

Test Section & Content	Suggested Times (In Minutes)			Grade Level Number of Items and Item Type						
	Administration (Total)	Administrative (Pre & Post)	Student Testing	3	4	5	6	7	8	11
1 Mathematics	70 to 85	15 to 20	55 to 65	24 MC 2 OE	24 MC 2 OE	24 MC 2 OE	24 MC 2 OE	24 MC 2 OE	24 MC 2 OE	24 MC 2 OE
2 Reading	70 to 105	15 to 20	55 to 85	19-24 MC 1 OE	19-24 MC 2 OE	19-24 MC 2 OE	19-24 MC 2 OE	19-24 MC 2 OE	19-24 MC 2 OE	19-24 MC 2 OE
3 Mathematics	65 to 80	15 to 20	50 to 60	24 MC 1 OE	24 MC 1 OE	24 MC 1 OE	24 MC 1 OE	24 MC 1 OE	24 MC 1 OE	24 MC 1 OE
4 Reading	65 to 80	15 to 20	50 to 60	18 MC 1 OE	18 MC 1 OE	18 MC 1 OE	18 MC 1 OE	18 MC 1 OE	18 MC 1 OE	18 MC 1 OE
5 Mathematics	65 to 80	15 to 20	50 to 60	24 MC 1 OE	24 MC 1 OE	24 MC 1 OE	24 MC 1 OE	24 MC 1 OE	24 MC 1 OE	24 MC 1 OE
6 Reading	65 to 100	15 to 20	50 to 80	16-21 MC 1 OE	16-21 MC 2 OE	16-21 MC 2 OE	16-21 MC 2 OE	16-21 MC 2 OE	16-21 MC 2 OE	16-21 MC 2 OE

During the assessment, students may request an extended assessment period if they indicate that they have not completed the task. Such requests are granted if the test administrator finds the request to be educationally valid. See Chapter Seven for more information about testing sessions.

Reporting Categories and Points Distributions for 2012 Mathematics and Reading Assessments

The mathematics assessment results will be reported in five categories that approximately correspond to those advocated by the National Council of Teachers of Mathematics (NCTM). The code letters for these Assessment Anchor categories are A–E and correspond to the following:

A. Numbers and Operations

B. Measurement

C. Geometry

D. Algebraic Concepts

E. Data Analysis and Probability

The distribution of mathematics items into these five categories is shown in Table 3–9.

Table 3–9. Mathematics Reporting Categories

Grade	Reporting Categories				
	A: Numbers and Operations	B: Measurement	C: Geometry	D: Algebraic Concepts	E: Data Analysis & Probability
3	40%–50%	12%–15%	12%–15%	12%–15%	12%–15%
4	43%–47%	12%–15%	12%–15%	12%–15%	12%–15%
5	41%–45%	12%–15%	12%–15%	13%–17%	12%–15%
6	28%–32%	12%–15%	15%–20%	15%–20%	15%–20%
7	20%–24%	12%–15%	15%–20%	20%–27%	15%–20%
8	18%–22%	12%–15%	15%–20%	25%–30%	15%–20%
11	12%–15%	12%–15%	12%–18%	38%–42%	12%–18%

The reading assessment results will be reported in two broad categories:

A. Comprehension and Reading Skills

B. Interpretation and Analysis of Fictional and Nonfictional Text

Assessment Anchors associated with Comprehension and Reading Skills are coded with an initial letter A, and those related to Interpretation and Analysis of Fictional and Nonfictional Text are coded with an initial letter B. The distribution of items into these two categories across genres is shown in Table 3–10.

Table 3–10. Reading Reporting Categories and Genre

Grade	Reporting Categories			
	A: Comprehension and Reading Skills % Range	B: Interpretation and Analysis of Fictional and Nonfictional Text % Range	% of Passages (Genre) Fiction	% Passages (Genre) Nonfiction
3	60%–80%	20%–40%	50%–70%	30%–50%
4	60%–80%	20%–40%	50%–70%	30%–50%
5	60%–80%	20%–40%	50%–70%	30%–50%
6	50%–70%	30%–50%	40%–60%	40%–60%
7	50%–70%	30%–50%	40%–60%	40%–60%
8	40%–60%	40%–60%	40%–60%	40%–60%
11	40%–60%	40%–60%	30%–50%	50%–70%

Both the mathematics and reading content area reporting categories are further subdivided for specificity and Eligible Content or limits. Each subdivision is coded by adding an additional numeral, such as A.1. These subdivisions are called Assessment Anchors and Eligible Content.

Assessment Anchor Content Standards Subsumed within Reporting Categories for 2012 Mathematics and Reading Assessment

For mathematics, there are 16 Assessment Anchor Content Standards (Assessment Anchors) that occur at all grade levels (Grades 3–8 and 11), although they are not all assessed at each grade level. More specifically, the number targeted for assessment by grade level are 10 at Grade 3; 12 at Grade 4; 13 at Grade 5; 12 at Grade 6; 14 at Grade 7; 13 at Grade 8; and 13 at Grade 11.

For reading, there are five Assessment Anchors that vary to reflect grade-level appropriateness. Within the Comprehension and Reading Skills Reporting Category, two Assessment Anchors pertain to understanding fiction text and understanding nonfiction text. Within the Interpretation and Analysis of Fiction and Nonfiction Text Reporting Category, three Assessment Anchors pertain to Components of Text, Literary Devices and Concepts, and Organization of Nonfiction Text.

Mathematics and reading scores are based on the core (common) sections. Also reported are the student’s mathematics and reading performance levels. See Appendix C for a summary by grade level and content.

SCIENCE

In 2003, the existing Science, Technology, Environment, and Ecology (STEE) test was deferred, and PDE began efforts to develop a new science assessment. In the winter of 2006, a series of cognitive labs or item pilots were conducted across Pennsylvania with the primary focus of ascertaining language and contextual issues within the draft open-ended test items (Grade 4), scenario-based multiple-choice items (Grades 8 and 11), and scenario-based open-ended items (Grade 11), as well as determining the relative difficulty of the test items, the time required to complete the individual tasks, and the opportunity to know factors related to the implementation of the new science Assessment Anchors and Eligible Content by the participating schools. (See the section on the science cognitive labs discussed later in this chapter.)

Following the series of successful cognitive labs or item pilots, DRC developed another set of test items for the proposed voluntary, standalone field test. During the development phase, PDE made the determination to change the designation of the field test from a voluntary assessment to a census-based assessment. Leading up to the administration of the standalone field test, both content review and bias, fairness, and sensitivity review were conducted in Pennsylvania with Pennsylvania educators. In the spring of 2007, the initial standalone field test was administered to the census populations at Grades 4, 8, and 11, followed by a rangefinding for the open-ended items. After the scoring was completed, an item review with data was conducted for the field test items administered in 2007. Table 3–11 shows a timeline for development of the science assessment.

Table 3–11. Science Development Implementation Timeline

Year	Event
2003	STEE test put on hold
2004–2005	New assessment plan developed by PDE
2006	Item Pilot (Cognitive Labs) to try out scenario-based science items
2007	Initial Standalone Field Test for Grades 4, 8, and 11
2008	Initial Operational Administration with core, matrix, and embedded field test positions
2009	Second Operational Administration with core, equating block, and embedded field test positions
2010–2012	Continuation of Operational Administration with core, equating block, and embedded field test positions

Test Content Blueprint for the 2012 Operational Science Test

The PSSA is based on the Pennsylvania Academic Standards as defined by the Eligible Content. The PSSA science assessment for 2012 reflects the Assessment Anchor Content Standards, which were designed as a means of improving the articulation of curricular, instructional, and assessment practices. The Assessment Anchors serve to clarify the Academic Standards assessed on the PSSA and to communicate assessment limits, or the range of knowledge and skills from which the PSSA would be designed. Relevant to item development are the refinement and clarification embodied in the Assessment Anchors (PDE, 2004).

The Assessment Anchors are rooted in the Academic Standards adopted by the State Board of Education in January of 2002, and the standards—under two documents: *Science and Technology Standards* and the *Environment and Ecology Standards*—cover seventeen major categories describing what students need to know. Rather than attempting to report results for all seventeen standards, the categories are organized into only four. These categories are similar to those used by the National Assessment of Educational Progress (NEAP) and The Third International Mathematics and Science Study (TIMSS). However, the PSSA organizes the categories differently.

Achieve, Inc. conducted a preliminary review of the anchors in 2003 and produced a follow-up report on the anchors in 2005. More information about the Assessment Anchors and the Eligible Content can be found by referencing the Pennsylvania Science Assessment Anchors located on PDE's website at www.education.state.pa.us.

More information on the Assessment Anchors can be found in Chapter Two.

Operational Layout for 2012 Science

The fifth operational administration of the PSSA science test took place in 2012. Critical to the preparation for this operational assessment, the design of the operational assessment had to be configured to meet NCLB requirements as well as other test development and psychometric requirements. The preliminary science PSSA plan was developed in 2004 through the collaborative efforts of DRC and PDE based on the recommendations of the Pennsylvania Technical Advisory Committee (TAC). At Grades 4 and 8, the science assessment consists of one test booklet and one separate answer booklet. The test booklet contains multiple-choice items and at Grade 8 contains stimulus scenario text. The answer booklet contains scannable pages for multiple-choice (MC) responses (answer grids), open-ended (OE) items with response spaces, and demographic data collection areas. At Grade 11, the science assessment is in one integrated test/answer booklet with items and scenario text appearing with scannable multiple-choice answer grids, OE response space, and demographic data collection areas.

All MC items are worth 1 point. Standalone OE items receive a maximum of 2 points (on a scale of 0–2), and scenario-based OE items (at Grade 11 only) receive a maximum of 4 points (on a scale of 0–4). Each test form contains common items (that are identical on all forms) along with equating block (equating items) and embedded field test items. The common items consist of a set of core items taken by all students. The equating block items and the embedded field test items are unique, in most instances, to a form. That is, there can be instances in which an equating block or embedded field test item appears on more than one form.

At Grades 4 and 8, the 2011 PSSA science assessment is composed of 12 forms per grade. At Grade 11, the 2011 PSSA science assessment is composed of 8 forms. All of the forms contain common items identical for all students and sets of generally unique items that fulfill two purposes:

1. Field testing new items
2. Using items from the previous years' assessments for the purpose of linking

Tables 3–12 through 3–14 display the 2012 operational test design for science.

Table 3–12. 2012 Science Test Plan per Operational Form

Grade	No. of Unique Core MC per Op. Form	No. of Core-to-Core MC per Op. Form	No. of Equating Block MC per Op. Form	No. of Embedded FT MC per Op. Form	No. of Unique Core OE per Op. Form	No. of Core-to-Core OE per Op. Form	No. of Equating Block OE per Op. Form	No. of Embedded FT OE per Op. Form	Total No. of Items per Op. Form MC/OE	Total No. of Core Points per Op Test*
4	42	16	2	8	3 (2 pt)	2 (2 pt)	0	1 (2 pt)	68 MC 6 OE	68
8	38 + 4 scenario-based	16	2	6 + 4 scenario-based	3 (2 pt)	2 (2 pt)	0	1 (2 pt)	70 MC 6 OE	68
11	22 + 12 scenario-based	16	2	6 + 4 scenario-based	4 (2 pt) 3 (4 pt scenario-based)	2 (2 pt)	0	1 (2 pt) 1 (4 pt scenario-based)	62 MC 11 OE	74

*Some equating block items may not be unique to each form.

Since an individual student's score is based solely on the common (or core) items, the total number of operational points is 68 for Grades 4 and 8 and 74 for Grade 11. The total score is obtained by combining the points from the core MC and OE portions of the test as follows:

Table 3–13. 2012 Science Core Plan per Grade

Grade	Standalone MC Items	Scenario-based MC Items	Standalone OE Items	Scenario-based OE Items	Total Points
4	58	0	5 (2 pt)	0 (4 pt)	68
8	54	4	5 (2 pt)	0 (4 pt)	68
11	38	12	6 (2 pt)	3 (4 pt)	74

For more information concerning the process used to convert the operational layout into forms (i.e., form construction), see Chapter Six. For more information about operational layout across forms and across years (i.e., form equivalency), see Chapter Ten.

Linking for 2012 Science Assessment

Linking provides a statistical bridge between assessment administrations. The 2012 administration is linked back to the 2011 administration through the use of linking items in the core (core-to-core linking items) and the equating block (equating items).

MULTIPLE-CHOICE ITEMS

For Grades 4 and 8, science used 16 core-to-core linking MC items and 24 equating block MC items per grade. For Grade 11, science used 16 core-to-core linking MC items and 16 equating block MC items.

OPEN-ENDED ITEMS

For all three grades, science used two 2-point core-to-core linking OE items and no [zero] equating block OE items per grade.

Table 3–14. 2012 Science Linking Points Plan

Grade	No. of Core-to-Core MC	No. of Equating Block MC	No. of Core-to-Core. OE	No. of Equating Block OE	Max. No. of Linking Points per Op. Test*
4 and 8	16	24*	2 (2 pt)	0	44*
11	16	16*	2 (2 pt)	0	36*

*Not all equating block items will be unique; some may appear on more than one form.

The topic of *linking* is discussed thoroughly in Chapter Fifteen.

Test Sessions and Timing for 2012 Science Assessment

The testing window for the 2012 operational assessment extended from April 23 through May 4, 2012, including make-up session. The science assessments consisted of two sections at Grades 4 and 8 and three sections at Grade 11. Test administration recommendations call for each section to be scheduled as one assessment session, although schools are permitted to combine multiple sections in a single session. Administration guidelines stipulate that the sections be administered in the sequence in which they are printed in the booklets. Table 3–15 and Table 3–16 outline the assessment schedule and estimated times for each section and the number and types of items tested for each grade level. The estimated student testing times did not include time for administrative tasks that occur during the pre- and post-administration activities.

Table 3–15. Science – 2012 Administration and Testing Times

Test Section	Suggested Times (In Minutes)			Grade Level Number of Items and Item Type		
	Administration (Total)	Administrative (Pre & Post)	Student Testing	4	8	11
1	60 to 85	15 to 20	45 to 65	34 MC 3 OE	35 MC 3 OE	22 MC 3 OE
2	60 to 80	15 to 20	45 to 60	34 MC 3 OE	35 MC 3 OE	20 MC 4 OE
3	60 to 75	15 to 20	45 to 55			20 MC 4 OE

During the assessment, students were allowed to request an extended assessment period if they indicated that they had not completed the task. Such requests were granted if the assessment administrator found them to be educationally valid. See Chapter Seven for more information about testing sessions.

Reporting Categories and Points Distributions

The science assessment results will be reported in four categories, coded as A through D:

- **A.** The Nature of Science
- **B.** Biological Sciences
- **C.** Physical Sciences
- **D.** Earth and Space Sciences

The distribution of science items into these four categories is shown in Table 3–16.

Table 3–16. Science Reporting Categories

Grade	Reporting Categories			
	A: Nature of Science	B: Biological Sciences	C: Physical Sciences	D: Earth & Space Sciences
4	~50%	~17%	~17%	~17%
8	~50%	~17%	~17%	~17%
11	~50%	~17%	~17%	~17%

The Reporting Categories are further subdivided for specificity and Eligible Content limits. Each subdivision is coded by adding an additional numeral, such as A.1. These subdivisions are called Assessment Anchors, Descriptors (Sub-Assessment Anchors), and Eligible Content.

Assessment Anchor Content Standards Subsumed within Reporting Categories for 2012 Science Assessment

Distributed across the four Reporting Categories are a dozen Sub-Reporting Categories. Each of the 12 Assessment Anchors exists at each grade level, with the Assessment Anchors and Eligible Content varying to reflect grade-level appropriateness. The numbers of Assessment Anchors targeted by grade level are 21 at Grade 4; 23 at Grade 8; and 23 at Grade 11.

Total science scores reported at the student level are based on the core (common) sections. School and district-level scores are reported at the Eligible Content level under the Assessment Anchors and are based on the core (common) positions. See Appendix C for a summary by grade level and subject.

2006 Science Item Pilot

Prior to the initial field test in 2007, DRC, in collaboration with PDE, conducted a science cognitive lab/item pilot in selected schools throughout the Commonwealth from February 27 through March 17, 2006. A sample of 507 students from urban, suburban, and rural school districts from across the Commonwealth participated in the PSSA Science Item Tryout Project. The impetus for this study was Pennsylvania’s response to the mandatory science assessment component of the No Child Left Behind legislation to create a rigorous science test for Grades 4, 8, and 11 by 2008. The primary purpose of the cognitive lab or item tryout was to pilot the use of the new science scenarios at Grade 8 and Grade 11, and to pilot the multiple-choice items at Grade 4.

The project involved development of science scenarios, refinement of science test items, creation of survey questions, and design of interview protocols to be administered using a cognitive laboratory technique. The cognitive laboratory technique was developed in the early 1980s through an interdisciplinary effort by survey methodologists and psychologists (Willis, 1999; Erickson and Simon, 1993). Different models of the cognitive process to solve a test item have evolved over the years, but all have four major processes in common: 1) comprehension of the question, 2) retrieval of relevant information, 3) decision process, and 4) response process (Tourangearu, 1984).

In the development and execution of the cognitive laboratory project, DRC customized the techniques employed specifically to meet PDE’s goal and expectations. The goal of the project was to gather relevant information about the thinking processes of students enrolled in science in Grades 4, 8, and 11 in order to create a better science assessment for Pennsylvania students.

Logistics and Demographics

PDE provided DRC with a list of the Science, Technology, Environment, and Ecology Assessment Advisory Committee (STEEAAC) members who agreed to participate and to facilitate the PSSA Science Item Tryout Project in their respective districts. Disbursed throughout Pennsylvania, participating districts provided a representative sample of students enrolled in science in Grades 4, 8, and 11 in urban, suburban, and rural schools. Participating districts are listed in Table 3–17.

Table 3–17. Participating Districts by Region

Region of Commonwealth	School District
Western	Athens Area Grove City Area Penn Hills Pittsburgh Public Schools
Central	Manheim Township Newport State College Area West Shore Wilkes-Barre Area
Eastern	Haverford Township Lower Merion Mid-Valley Philadelphia City SD Upper Merion

Process and Procedures for the 2006 Item Pilot

Two parallel forms of the science assessment were designed for each grade level, with a designated administration time of thirty minutes. No attempt was made to replicate the design of a PSSA science operational test for the cognitive lab or pilot test because of testing-time limitations and the objectives of this study. The items were representative of items from each of the proposed PSSA's four reporting strands (i.e., The Nature of Science, Biological Sciences, Physical Sciences, and Earth and Space Sciences). All test items were approved by PDE before inclusion in the PSSA Science Item Tryout Project.

In Grade 4, each form of the test consisted of ten multiple-choice items, 70 percent of which included graphs, graphics, charts, or tables with relevant information associated with the item. All four reporting strands were assessed in each Grade 4 test form. In Grades 8 and 11, age/grade-appropriate science scenarios were developed. The scenarios included graphics, charts, tables, graphs, and diagrams to support the scenario text. A set of test items associated with each science scenario was developed. In Grade 8, each test form included items from all four reporting strands. In Grade 11, scenarios in test Form A assessed the biological, earth and space, and nature of science reporting strands, while test Form B assessed the physical, earth and space, and nature of science reporting strands.

Scenarios and questions reached beyond simple fact recollection; they were designed to challenge students to think and to apply knowledge and skills learned in their classrooms. The science scenarios were based on Pennsylvania Assessment Anchors and Eligible Content. Scenarios were designed to reflect multi-dimensional classroom activities that incorporate higher cognitive levels of understanding. Each scenario was stimulus-based and included passages with graphics, charts, graphs, or a combination of all three media. Science scenarios challenged students to interpret passage content while using science knowledge and process skills to determine their answers.

Implementation and Test Administration for 2006 Item Pilot

Two classrooms within one geographic region participated in the project each day. At least two test development specialists were present at all but one school district during the pilot study project sessions; in addition, representatives from PDE attended most sessions. The PSSA Science Item Tryout Project field work occurred during a three-week window, beginning on February 27 and concluding on March 16.

WRITING

Test Content Blueprint for 2012 Writing Assessment

As indicated in Chapter One and Chapter Two, the PSSA is based on the Pennsylvania Academic Standards for Reading, Writing, Speaking, and Listening. The writing test specifically measures Academic Standards 1.4 (Types of Writing) and 1.5 (Quality of Writing). The Reading, Writing, Speaking, and Listening Standards were designed to show what students should know and be able to do with the English language at each grade level. The Standards establish an outline for what can be assessed on the PSSA writing test and help to communicate the range of knowledge and skills from which the PSSA items would be designed.

The PSSA writing test for Grades 5, 8, and 11 in 2006 through 2012 followed this content blueprint and testing plan in order to reflect the Academic Standards.

Operational Layout for 2012 Writing

The PSSA operational layout was developed through the collaborative efforts of Data Recognition Corporation (DRC), the National Center for Improvement of Educational Assessment (NCIEA), and the Pennsylvania Department of Education. The layout was subsequently evaluated and approved by PDE. The writing test book is scannable and includes fields for student demographic data, stimuli (i.e., embedded error passages) linked to multiple-choice (MC) items, and writing prompts (WP). Each MC item is worth 1 point. Responses to WP items receive a maximum of 4 points (on a scale of 1–4) for demonstrating control in a given mode and also receive a maximum of 4 points (on a scale of 1–4) for demonstrating control of conventions. The writing scoring guidelines have a 1, 2, 3, and 4 score point, but there is no zero score point. Blanks and other non-scorable responses are the only situations in which a student's raw score is zero.

MULTIPLE-CHOICE ITEMS

Each test form contains a common set of operational items (i.e., each student is tested on an identical set of core items) along with embedded field test items. The embedded field test items are unique across each form.

WRITING PROMPTS

Each test form contains two common operational writing prompts along with one embedded field test item. The core prompts are taken by all students at a grade level, and the embedded field test items are unique across each form. The 2006 through 2008 operational forms did not contain matrix or embedded field test writing prompts; however, in order to begin building a bank of usable prompts for use in future operational administrations, writing prompts began to appear in field test positions starting again in 2009. For more information on the field test process that occurred for the development of the writing prompts used operationally in 2012, see Chapter Five.

Forms

The 2012 writing PSSA is comprised of six forms at each grade level. All of the forms contain common items identical for all students and sets of unique embedded field test items that expand the total pool of available items.

Table 3–18 and Table 3–19 display the design for the writing test forms. The column entries for these tables denote the following:

- Number of core Revising and Editing (R&E) stimulus-based MC items
- Number of embedded field test R&E stimulus-based MC items
- Total number of R&E stimulus-based MC items
- Number of pre-equated core 4-point writing prompts (WP)
- Number of field test WP
- Total number of MC and OE items in the form (Total Items MC/WP)

Table 3–18. 2012 Writing Test Plan per Operational Form per Grade

No. of Core R&E Stimulus-based MC Items per Form	No. of FT R&E Stimulus-based MC Items per Form	Total No. of R&E MC Items per Form	No. of Pre-equated Core 4-point WP per Form	No. of FT WP per Form	Total No. of Items per Op. Form (MC/WP)
12	8	20	2	1	20/3

Since an individual student's score is based solely on the common, or core items, the total number of operational points is 100. The total score is obtained by combining the points from the core MC and WP portions of the test as displayed in Table 3–19.

Table 3–19. Maximum Eligible Core Points for Writing Prompts

Multiple-choice	Writing Prompts		Totals
	Conventions	Mode	
12	8	80	100
12 items × 1 point each (12×1)	2 items, each worth a maximum of 4 points each (2×4)	2 items, each worth a maximum of 4 points each The raw score is then multiplied by 10. (2×4)×10	(12 + 8 + 80)

Linking for 2012 Writing Assessment

The matter of linking for the PSSA writing assessment is covered in Chapter Fifteen.

Test Sessions and Timing

The testing window for the 2012 operational assessment was from April 16 through May 4, 2012, including make-up sessions. The writing assessment consisted of four sections. Test administration required each complete section to be scheduled as one assessment session, although schools were permitted to combine multiple sections as a single session. Administration guidelines stipulated that the sections be administered in the sequence in which they were printed in the test book. Table 3–20 outlines the assessment schedule and estimated times for each section.

Table 3–20. Writing—All Grades

Section	Contents	Administration (Total in minutes)	Administrative (Pre & Post in minutes)	Student Testing in minutes
1	20 Multiple-choice	60 to 75	15 to 20	45 to 55
2	1 Writing Prompt	70 to 85	15 to 20	55 to 65
3	1 Writing Prompt	70 to 85	15 to 20	55 to 65
4	1 Writing Prompt	70 to 85	15 to 20	55 to 65

During the assessment, students may request an extended assessment period if they indicate that they have not completed the task. Such requests are granted if the test administrator finds them to be educationally valid. See Chapter Seven for more information about testing sessions.

Reporting Categories and Point Distribution for 2012 Writing Assessment

The writing assessment results will be reported in two categories:

1. Composition – Academic Standard 1.4, Types of Writing
2. Revising and Editing – Academic Standard 1.5, Quality of Writing

Academic Standards A, B, and C are associated with Composition. Academic Standards E and F are associated with Revising and Editing. The distribution of core items into these two categories is shown in Table 3–21. See also Appendix C for a summary by grade level and subject.

Table 3–21. Core Points Distribution

Reporting Category	Composition	Revising and Editing	Total
Academic Standards	1.4.A, 1.4.B, 1.4.C	1.5.E and 1.5.F	
Multiple-choice Items	N/A	12	12
Writing Prompt 1	4 (Mode)	4 (Conventions)	8
Writing Prompt 2	4 (Mode)	4 (Conventions)	8
Raw Sub-total	8	20	28
Weighting Factor applied to Raw Score	x10	x1	
Total Possible Points	80	20	100

For more information concerning the process used to convert the operational layout into forms (i.e., form construction), see Chapter Six. For more information about operational layout across forms and across years (i.e., form equivalency), see Chapter Ten.

TEST DEVELOPMENT CONSIDERATIONS: ALL ASSESSMENTS

Alignment to the PSSA Assessment Anchors and Eligible Content (or, in the case or writing, strong alignment with the PSSA Academic Standards), grade-level appropriateness (reading/interest level, etc.), depth of knowledge, cognitive level, 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 manual, *Fairness in Testing: Guidelines for Training on Bias, Fairness, and Sensitivity Issues* was used for developing items. All items were reviewed for fairness by bias and sensitivity committees and for content by Pennsylvania educators and field-specialists. Items were also reviewed for adherence to the Principles of Universal Design by representatives from the National Center for Educational Outcomes (NCEO). In addition, the items were reviewed for adherence to the guidelines outlined in the Pennsylvania publication *Principles, Guidelines and Procedures for Developing Fair Assessment Systems: Pennsylvania Assessment Through Themes* (PATT).

Bias, Fairness, and Sensitivity: All Assessments

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 include 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, 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: All Assessments

As stated above, the Principles of Universal Design were incorporated throughout the item development process to allow participation of the widest possible range of students in the PSSA. 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.
- Items allow changes to other formats, such as Braille, without changing meaning or difficulty.
- 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 described in Chapter Four.

Depth of Knowledge: All Assessments

An important element in statewide assessment is the alignment between the overall assessment system and the state's standards. A methodology developed by Norman Webb (1999) 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 they represented. Generally, multiple-choice items are written to DOK levels 1 and 2, and open-ended items are written to DOK level 3.

Passage Readability

Evaluating the readability of a passage is essentially a judgmental process by individuals familiar with the classroom context and what is linguistically appropriate at a given grade level as described in the section on reading passage selection later in this chapter. 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: All Assessments

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 areas such as mathematics or science 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 one grade level below the tested grade level for non-reading tests. There was a conscious consideration made to ensure that each test question was evaluating a student’s ability to build toward mastery of the mathematics standards or the science 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 several different committees comprised of grade-level experts in the field of mathematics education and science education. 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.

Vocabulary was also addressed at the Bias, Fairness, and Sensitivity Review, although the focus was on how certain words or phrases may represent a possible source of bias or issues of fairness or sensitivity.

TEST DEVELOPMENT PROCESS: ALL ASSESSMENTS

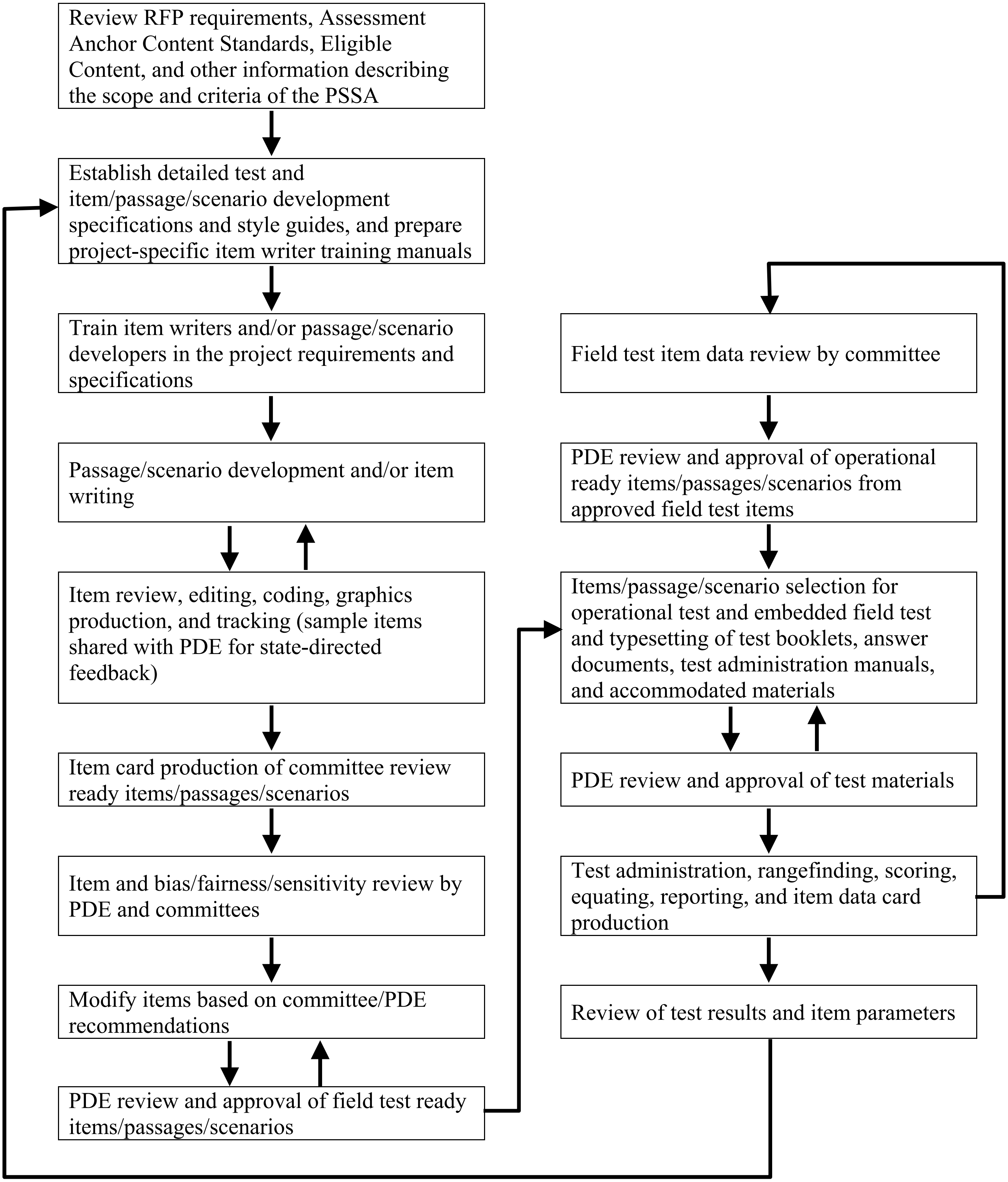
The test development process for passages, scenarios, and items followed a logical timeline, which is outlined below in Figure 3–1. On the front end of the schedule, tasks were generally completed with the goal of presenting field test candidate items to committees of Pennsylvania educators. On the back-end of the schedule, all tasks lead to the field test data review.

Figure 3–1. Item and Test Development Cycle and Timeline

Steps in Development Cycle	Timeline Before/After New Item Review		
Development planning	Fall	⇩	-12 to -9 months
Reading passage selection	Fall	⇩	-12 to -9 months
Item writer training	Fall/Winter	⇩	-9 months
Initial item authoring	Winter/Spring	⇩	-9 to -4 months
Internal reviews and PDE reviews	Spring/Summer	⇳	-8 to -1 month
Bias, Fairness, and Sensitivity Review	Summer/Fall	⇩	+/- 0 months
New Item Content Review	**Summer/Fall**	⇨	**+/- 0 months**
Post-review resolution and clean-up	Summer/Fall	⇩	+1 to +2 months
Build test forms	Fall	⇩	+2 to +4 months
Internal form reviews and PDE reviews	Fall/Winter	⇳	+3 to +4 months
Form printing, packaging, and shipping	Winter/Spring	⇩	+4 to +8 months
Test administration	Spring	⇩	+9 months
Material/data processing, rangefinding, and scoring	Spring/Summer	⇩	+10 to +12 months
Field Test Item Data Review	**Summer**	⇨	**+12 months**
Select operational items	Summer/Fall	⇩	+13 to +15 months

The process flowchart in Figure 3–2 illustrates the interrelationship among the steps in the process that occur in a normal year of development (i.e., when the items for field testing are primarily from new development, as opposed to being selected from an existing item bank). In addition, a detailed process table describing the item and test development processes also appears in Appendix D.

Figure 3–2. DRC Item and Test Development Process


Review RFP requirements, Assessment Anchor Content Standards, Eligible Content, and other information describing the scope and criteria of the PSSA
Establish detailed test and item/passage/scenario development specifications and style guides, and prepare project-specific item writer training manuals
Train item writers and/or passage/scenario developers in the project requirements and specifications
Passage/scenario development and/or item writing
Item review, editing, coding, graphics production, and tracking (sample items shared with PDE for state-directed feedback)
Item card production of committee review ready items/passages/scenarios
Item and bias/fairness/sensitivity review by PDE and committees
Modify items based on committee/PDE recommendations
PDE review and approval of field test ready items/passages/scenarios
Field test item data review by committee
PDE review and approval of operational ready items/passages/scenarios from approved field test items
Items/passage/scenario selection for operational test and embedded field test and typesetting of test booklets, answer documents, test administration manuals, and accommodated materials
PDE review and approval of test materials
Test administration, rangefinding, scoring, equating, reporting, and item data card production
Review of test results and item parameters

The following paragraphs describe the processes which lead up to the operational test in a normal round of development. These processes were used to develop all the 2011 field test items used as operational items in the 2012 administration.

Item Development Planning Meeting: All Assessments

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 for the next PSSA administration, including the test blueprint, the field test plan (including development counts), procedures, timelines, etc. With a complete development cycle lasting several years (from item authoring through field test, data review, and operational usage), the initial planning begins well in advance of the anticipated administration. For the 2012 operational administration, the initial planning meeting for the item authoring process for the 2011 field test occurred in fall 2009. Item authoring began early in 2010, with the item review meetings occurring in July 2010. See Table 3–2.

Item Writer Training: All Assessments

Item writers were selected and trained for the content areas of mathematics, reading, science, and writing. 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 and open-ended items. Prior to developing items for the PSSA, the cadre of item writers was trained with regard to the following:

- Pennsylvania Academic Standards, Assessment Anchors, and Eligible Content
- Webb's Four Levels of Cognitive Complexity: Recall, Basic Application of Skill/Concept, Strategic Thinking, and Extended Thinking
- General Scoring Guidelines for Each Content Area
- Specific and General Guidelines for Item Writing
- Bias, Fairness, and Sensitivity Guidelines
- Principles of Universal Design
- Item Quality Technical Style Guidelines
- Reference Information
- Sample Items

Reading Passage Selection

The task of searching for 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 selection included appropriate length, text structure, density, and vocabulary for the grade level. 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 finders were given the charge to search for a specified number of passages for each genre. Generally, at least twice as many passages as needed were sought. Most passages acquired for the 2011 field test were authentic in that they were culled from published materials. Approval to reprint was secured from the publishers. 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 grade-appropriate in terms of vocabulary and language characteristics.
- Passages are free of bias, fairness, and sensitivity issues.
- Passages represent different cultures.
- Passages are from a variety of sources.
- Passages are able to stand the test of time.
- Passages are sufficiently rich to generate a variety of MC and OE items.
- Passages are complete with all necessary permissions documentation.
- 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: All Assessments

Initially, items are generated with software-prepared PSSA Item Cards, which allows for preliminary sorting and reviewing. Although very similar, the PSSA Item Card for Multiple-Choice Items differs from the PSSA Item Card for Open-Ended Items in that the former has a location at the bottom of the card for comments regarding the distractors. Examples of these two cards are shown in Appendix E. In both instances a column against the right margin includes codes to identify the subject area, grade level, content categories, passage information (in the case of reading), item type, depth of knowledge (cognitive complexity), estimated difficulty, answer key (for MC items), and calculator use (for mathematics items).

All items undergoing field testing in 2011 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 an extensive item history that includes 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). A sample IDEAS Item Card is presented in Appendix E.

Internal Reviews and PDE Reviews: All Assessments

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 grade level, 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 difficulty.

As part of the item construction process, each item was reviewed by content specialists and editors at DRC, at WestEd, or at both companies (depending on the grade level and content). Content specialists and editors evaluated each item to make sure that it measured the intended Eligible Content and/or Assessment Anchor Content Standard. They also assessed each item to make certain that it was appropriate for the intended grade and that it provided and cued only one correct answer (MC items only). 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 PSSA style.

Following this internal process, items were reviewed by content specialists at the Pennsylvania Department of Education. PDE staff then consulted with DRC and WestEd about any general issues or concerns (e.g., style, format, interpretation of Assessment Anchors and Eligible Content) and about edits to specific items. Following PDE's review, the items were prepared for the content review meetings conducted with Pennsylvania educators.

Item Content Review in Summer 2010: All Assessments

Prior to the 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 appropriateness, estimated difficulty, depth of knowledge, and source of challenge. With source of challenge, items are identified where the cognitive demand is 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. In some cases when an item was deleted, the committee suggested a replacement item and/or reviewed a suggested replacement item provided by the facilitators. The committee 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 was held July 14–15, 2010 for writing and July 26–30, 2010 for reading, mathematics, and science. 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 and WestEd. Committee members, grouped by grade level and content area, worked through and reviewed the items for quality and content, as well as for the following categories:

- Assessment Anchor Alignment (classified as Full, Partial, or No)
- Content Limits (classified as Yes or No)
- Grade-Level Appropriateness (classified as At Grade Level, Below Grade Level, or Above Grade Level)
- Difficulty Level (classified as Easy, Medium, or Hard)
- Depth of Knowledge (classified as Recall, Application, Strategic Thinking)
- Appropriate Source of Challenge (classified as Yes or No)
- Correct Answer (classified as Yes or No)
- Quality of Distractors (classified as Yes or No)
- Graphics (classified as Yes or No) in regards to appropriateness
- Appropriate Language Demand (classified as Yes or No)
- Freedom from Bias (classified as Yes or No)

The members then came to consensus and assigned a status to each item as a group: Approved, Accepted with Revision, Move to Another Assessment Anchor or Grade, or Rejected. All comments were recorded, and a master rating sheet was completed. Committee facilitators recorded the committee consensus on the Item Review Rating Sheet. A sample form and rating criteria may be found in Appendix F.

Security was addressed by adhering to a strict set of procedures. Items in binders were distributed for committee review by number and signed for by each member on a daily basis. 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 and the contents of which were shredded.

Bias, Fairness, and Sensitivity Reviews in July 2010: All Assessments

Prior to 2011 field testing, all newly-developed test items for science and writing were also submitted to a Bias, Fairness, and Sensitivity Committee for review. This took place from July 12–15, 2010 for reading, mathematics, science, and writing. The committee's primary responsibility was to evaluate items with regard to bias, fairness, and sensitivity issues. They also made recommendations for changes 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, 2003–2011). Members of the committee also had expertise with special needs students and English Language Learners. PDE staff members were also trained and participated in the review. All reading, mathematics, science, and writing 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, regional, religious, socioeconomic, or stereotyping. These categories were then the framework through which recommendations for modification or rejection of items occurred during the subsequent committee consensus process. The committee then discussed each of the issues as a group and came to 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 PDE. This review followed the same security procedures as outlined above, except that the materials were locked up and stored at the DRC offices in Harrisburg. Table 3–22 shows the gender and race/ethnicity composition for the members of the bias committee who reviewed the PSSA items and passages for bias, fairness, and sensitivity.

Table 3–22. Demographic Composition of the 2010 Bias, Fairness, and Sensitivity Committee

Member #	Gender	Race/Ethnicity	Background
1.	Female	Hispanic	Migrant Education Specialist Support Specialist
2.	Female	Hispanic	Community Leader
3.	Female	Asian	Retired Educator/National Consultant
4.	Male	Asian	Educator/National Consultant
5.	Female	Caucasian	Educator/Special Education
6.	Male	Caucasian	PDE Representative
7.	Male	Caucasian	Special Education/PATTAN Representative
8.	Female	African American	Special Education/National Consultant
9.	Female	African American	Higher Education Community Relations Representative
10.	Male	African American	Retired Superintendent/ National Consultant
11.	Male	African American	PATTAN Representative
Totals	6 Females 5 Males	2 Hispanics 2 Asians 3 Caucasians 4 African Americans	

The results from the Bias, Fairness, and Sensitivity Committee review of mathematics are summarized in Table 3–23.

Table 3–23. Number of Items—2010
Bias, Fairness, and Sensitivity Committee Review for Mathematics

Grade	Writing Prompts			
	Total items reviewed per grade	Accepted As Is	Accepted With Revision	Rejected
3	128	120	8	0
4	115	100	15	0
5	110	106	4	0
6	112	111	1	0
7	112	109	3	0
8	112	112	0	0
11	112	110	2	0
Total	801	768	33	0

The results from the Bias, Fairness, and Sensitivity Committee review of reading are summarized in Table 3–24.

Table 3–24. Number of Items—2010
Bias, Fairness, and Sensitivity Committee Review for Reading

Grade	Reading Passages and Items			
	Total items reviewed per grade	Accepted As Is	Accepted With Revision	Rejected
3	128	123	5	0
4	120	119	1	0
5	133	133	0	0
6	110	108	2	0
7	123	122	0	1
8	133	131	2	0
11	136	134	0	2
Total	883	870	10	3

The results from the Bias, Fairness, and Sensitivity Committee review of science are summarized in Table 3–25.

Table 3–25. Number of Items—2010
Bias, Fairness, and Sensitivity Committee Review for Science

Grade	Science Items			
	Total items reviewed per grade	Accepted As Is	Accepted With Revision	Rejected
4	152	150	1	1
8	212	207	5	0
11	181	171	8	2
Total	545	528	14	3

The results from the Bias, Fairness, and Sensitivity Committee review of writing are summarized in Table 3–26.

Table 3–26. Number of Items—2010
Bias, Fairness, and Sensitivity Committee Review for Writing

Grade	Writing Items, Passages, and Prompts			
	Total items or prompts reviewed per grade	Accepted As Is	Accepted With Revision	Rejected
5	75	75	0	0
8	75	75	0	0
11	75	75	0	0
Total	225	225	0	0

Chapter Four: Universal Design Procedures Applied in the PSSA Test Development Process

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, including the 2011 field test, 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 1 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.

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 PSSA.

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 PSSA item development.

- **Inclusive Assessment Population**

  The PSSA target population includes all students at the assessed grades attending Commonwealth schools. For state, district, and school accountability purposes, the target population includes all students except those who will participate in accountability through an alternate assessment.

- **Precisely Defined Constructs**

  An important function of well-designed assessments is that they actually measure what they are intended to measure. The Pennsylvania Assessment Anchor Content Standards (Assessment Anchors) provided clear descriptions of the constructs to be measured by the PSSA at the assessed grade levels. 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 test is compatible with accommodations and a variety of widely used adaptive equipment and assistive technology. (See the section on Assessment Accommodations later in Chapter Four.)

- **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 new PSSA 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 developed and updated annually (DRC, 2004–2010) was utilized, with PDE approval, 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. For more information on the checklist, see the Universal Design section in Chapter Three of this report.

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 Assessment Anchors. During all phases of test development, items were presented with content-standard information to ensure that each item reflected the intended Assessment Anchor. 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 mathematics 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 for 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, footnotes, keys, and legends were at least a 12-point size (11 pt. for Grade 11). 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.** A Braille version of the PSSA was available at each assessed grade. Attention was given to using items that allow for Braille. Specific accommodations were permitted, such as signing to a student, the use of oral presentation under specified conditions, and the use of various assistive technologies. A Spanish version of the PSSA mathematics and PSSA science test was available for use by English Language Learners who would benefit from this accommodation.
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, visual crowding, shading) 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.

ITEM DEVELOPMENT

DRC and WestEd work closely with the Pennsylvania Department of Education to help ensure that PSSA tests comply with nationally recognized Principles of Universal Design. The implementation of accommodations on large-scale statewide assessments for students with disabilities is supported in the development of the PSSA. In addition to the Principles of Universal Design as described in the Pennsylvania Technical Report, DRC and WestEd apply to each content area assessment 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 and WestEd embrace the following precepts:

- Test directions are carefully worded to allow for alternate responses to open-ended questions.
- During item and bias reviews, test committee members 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 PSSA tests are bias free for all students.

- With the goal of ensuring that the PSSA tests are accessible to the widest range of diverse student populations, PDE instructs DRC and WestEd to limit item types that are difficult to format in Braille and that may become distorted when published in large print. DRC and WestEd are instructed to limit the following on the PSSA.
    - Mathematics: Complicated tessellations; charts or graphs that extend beyond one page
    - Reading: Graphics and illustrations that are not germane to the content presented
    - All content areas: Unnecessary boxes and framing of text, unless enclosing the text provides necessary context for the student; use of italics (limited to only when it is absolutely necessary, such as with variables)

ITEM FORMATTING

For all content areas, DRC formats PSSA tests 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, charts, and the number of items per page so that there is sufficient white space on each page. Whenever possible, 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. Tests are published on dull-finish paper to avoid the glare encountered on glossy paper. DRC pays close attention to the binding of the PSSA test booklets to ensure that they lie flat for two-page viewing and ease of reading and handling.

DRC ensures consistency across PSSA 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.
- Pictures that require physical measurement are true to size.

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. Accommodations manuals for the PSSA titled *Accommodations Guidelines for Students with IEPs and Students with 504 Plans, Accommodations Guidelines for Students without IEPs and 504 Plans,* and *Accommodations Guidelines for English Language Learners* were developed for use with the 2012 PSSA.

The manuals can be accessed by going to www.education.state.pa.us. On the left, click on “Programs,” then “Programs O–R,” then “Pennsylvania System of School Assessment (PSSA),” and then “Testing Accommodations & Security.”

In addition, Spanish-language versions, translated from the original English versions, were made available for both the mathematics and science PSSA. The Spanish-translation versions are discussed in Chapter Six.

Chapter Five: Field Test Leading to the 2012 Core

Generally, all non-linking core items appearing on the 2012 assessment came from the 2011 embedded field test positions. Prior to 2009, PSSA test forms contained common items that were identical on all forms along with matrix/embedded field test items. On the 2009 administration, equating block positions (equating items) replaced matrix positions. The common items consisted of a set of core items taken by all students. The matrix and field test items were embedded and were unique, in most instances, to a form; however, there were instances in which a matrix or embedded field test item appeared on more than one form. The purpose of administering field test items is to obtain statistics so they can be reviewed before becoming operational. Based on this statistical review, many of the field test items embedded in the 2011 PSSA were selected for use as common or equating block items (equating items) in the 2012 PSSA.

More information on the field test designs for all contents can be found in the content-specific portions of Chapter Three.

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 corrected point-biserial correlation (Pt. Bis.) for the correct and incorrect responses (distractors), percent correct (*p*-value), and the percent responding to incorrect responses. For open-ended (OE) items, the statistical indices included the item-test correlation, the point-biserial correlation for each score level, percent in each score category or level, and the percent of non-scorable responses.

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 problem and the characteristics of the students affected. The primary way of detecting such conditions is through the point-biserial correlation coefficient for dichotomous (MC) items and the item-total correlation for polytomous (OE) items. In each case the statistic will be positive if the total test mean score is higher for the students who respond correctly to MC items (or attain a higher OE item score) and negative when the reverse is true.

Item statistics are used as a means of detecting items that deserve closer scrutiny, rather than being a mechanism for automatic retention or rejection. Toward this end, a set of criteria was used as a screening tool to identify items that needed a closer review by committees of Pennsylvania educators. For an MC item to be flagged, the criteria included any of the following:

- Point-biserial correlation for the correct response of less than 0.25
- Point-biserial correlation for any incorrect response greater than 0.0
- Percent correct less than 0.3 or greater than 0.9
- Percent responding to any incorrect responses greater than the percent correct
- Gender DIF code of either C- or C+
- Any ethnic DIF code of C-

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

- Score Proportion < .05
- Gender DIF code of B-, B+, C- or C+
- Any ethnic DIF code of B- or C-

Item analysis results for MC and OE field test items are presented in Appendix I.

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 2011 field test to identify items for further review. Specific flagging criteria for this purpose were specified in the previous section. Items not identified for the review had good statistical characteristics and, consequently, were regarded as statistically acceptable. Likewise, items of extremely poor statistical quality were regarded as unacceptable and needed no further review. However, there were some items—relatively few in number—that DRC content-area test development specialists and DRC psychometric specialists regarded as needing further review by a committee of Pennsylvania educators. The intent was to capture all items that needed a closer look; thus, the criteria employed tended to over-identify rather than under-identify items.

Data review (review of items with data) was conducted with more than 50 Pennsylvania educators (including PDE staff) broken out into subject-area content committees. The review for reading, mathematics, and science took place on July 19, 2011; Writing took place on July 20, 2011. In these sessions, committee members were first trained by a representative from DRC's psychometrics staff 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., potential 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 tested items and made recommendations on each item and/or scenario/passage. Further discussion on how this information was used is detailed in Chapter Six. Additional information regarding the data review committee, including gender, ethnicity (when available), and Instructional Unit (geographic location within Pennsylvania), is provided in Tables 5–1 through 5–4.

Table 5–1. Demographic Composition of the 2011 Mathematics Data Review Committee

Member #	Gender	Race/Ethnicity	Instructional Unit Represented
1.	Female	Caucasian	15
2.	Female	Caucasian	01
3.	Female	Caucasian	18
4.	Male	Caucasian	23
5.	Female	Caucasian	07
6.	Male	Caucasian	06
7.	Female	Hispanic	07
8.	Female	Caucasian	25
9.	Female	Caucasian	18
10.	Female	Caucasian	28
11.	Female	Caucasian	17
Totals	9 Females 2 Males	10 Caucasians 1 Hispanic	

Table 5–2. Demographic Composition of the 2011 Reading Data Review Committee

Member #	Gender	Race/Ethnicity	Instructional Unit Represented
1.	Female	Caucasian	05
2.	Female	Caucasian	17
3.	Female	Caucasian	06
4.	Female	Caucasian	25
5.	Female	Caucasian	05
6.	Female	Caucasian	03
7.	Female	Caucasian	11
8.	Female	Caucasian	13
9.	Female	Caucasian	10
10.	Female	Caucasian	23
11.	Female	Caucasian	07
Totals	11 Females	11 Caucasians	

Table 5–3. Demographic Composition of the 2011 Science Data Review Committee

Member #	Gender	Race/Ethnicity	Instructional Unit Represented
1.	Female	Caucasian	03
2.	Male	Caucasian	04
3.	Female	Caucasian	05
4.	Female	Caucasian	01
5.	Female	Caucasian	06
6.	Female	Caucasian	10
7.	Male	Caucasian	24
8.	Male	Caucasian	20
9.	Female	Caucasian	20
10.	Female	Caucasian	23
11.	Female	Multi-racial	24
12.	Male	Caucasian	12
Totals	8 Females 4 Males	11 Caucasians 1 Multi-racial	

Table 5–4. Demographic Composition of the 2011 Writing Data Review Committee

Member #	Gender	Race/Ethnicity	Instructional Unit Represented
1.	Female	Caucasian	05
2.	Female	Caucasian	17
3.	Female	Caucasian	06
4.	Female	Caucasian	07
5.	Female	Caucasian	25
6.	Female	Caucasian	03
7.	Female	Caucasian	13
8.	Female	Caucasian	02
9.	Female	Caucasian	03
10.	Female	Caucasian	08
11.	Female	Caucasian	07
Totals	11 Females	11 Caucasians	

Table 5–5. 2011 Data Review Committee Results

Assessment	Grade	No. of Items in 2011 Field Test	Flagged Items in 2011 Field Test Examined at 2011 Data Review Committee					Flagged Items in 2011 Field Test Rejected by 2011 Data Review Committee		Items Classified as “Rejected” from 2011 Field Test (all sources: Data Review Committee, PDE, and DRC)	
			MC	OE	Items flagged for DIF only	Total	Total (% of FT)	No. of	% of FT	No. of	% of FT
Mathematics	**3**	55	26	5	3	31	56.4%	5	9.1%	5	9.1%
	4	55	11	4	3	15	27.3%	1	1.8%	1	1.8%
	5	55	12	3	4	15	27.3%	3	5.5%	3	5.5%
	6	55	14	3	4	17	30.9%	1	1.8%	1	1.8%
	7	55	9	3	1	12	21.8%	3	5.5%	4	7.3%
	8	55	8	3	2	11	20.0%	1	1.8%	1	1.8%
	11	55	8	3	0	11	20.0%	1	1.8%	1	1.8%
Reading	**3**	55	8	3	4	11	20.0%	1	1.8%	1	1.8%
	4	55	13	3	1	16	29.1%	3	5.5%	3	5.5%
	5	55	12	3	7	15	27.3%	1	1.8%	1	1.8%
	6	55	9	4	1	13	23.6%	1	1.8%	1	1.8%
	7	55	9	3	5	12	21.8%	0	0.0%	0	0.0%
	8	55	11	5	1	16	29.1%	2	3.6%	2	3.6%
	11	55	21	4	5	25	45.5%	2	3.6%	2	3.6%
Science	**4**	108	38	4	3	42	38.9%	11	10.2%	13	12.0%
	8	132	44	6	5	50	37.9%	13	9.8%	13	9.8%
	11	96	19	10	3	29	30.2%	10	10.4%	10	10.4%
Writing	**5**	54	9	5	2	14	25.9%	1	1.9%	1	1.9%
	8	54	16	6	3	22	40.7%	1	1.9%	3	5.6%
	11	54	10	6	0	16	29.6%	3	5.6%	3	5.6%
Totals		**1,268**	**307**	**86**	**57**	**393**	**31.0%**	**64**	**5.0%**	**69**	**5.4%**

DIFFERENTIAL ITEM FUNCTIONING

Differential item functioning (DIF) 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 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 bias is often plain to trained judges, DIF may have no clear cause. However, studying how DIF arises and how it presents itself can provide information about how 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 single 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 for Differential Item Functioning

For multiple-choice (MC) items, the *Mantel-Haenszel* 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 Mantel-Haenszel (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 populations.

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.

For OE items, a comparable statistic is computed based on the standardized mean difference (SMD) (Dorans, Schmitt, & Bleistein, 1992), which is computed as the differences in mean scores for the focal and reference groups if both groups had the same score distribution.

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 from each grade and subject area that were assigned to each severity code are shown below in Table 5–6A (MC items) and 5–6B (OE items). DIF analyses were conducted on the 2012 PSSA field test items and may be compared to the 2011 results.

The number of field test items in each DIF category across the two years was quite similar. Overall, relatively few items had B or C DIF for the Male/Female or White/Black reference and focal groups. Generally speaking, there were more items showing White/Black DIF than Male/Female DIF. However, it was the Male/Female DIF for OE items in Reading and Writing that exhibited the highest proportion of B or C classifications, with Reading having relatively more C DIF codes. While this matches historical trends, additional monitoring and study of DIF in these areas may be warranted.[1]

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[1] As suggested earlier, only a subset of items showing DIF will actually be biased. For example, any given B or C DIF code might be a false positive. It may also be the result of one of a number of systematic factors not actually attributable to bias. Of course, only items approved by teacher review committees will actually appear on operational PSSA tests.

Table 5–6A. DIF Summary—MC Items

	Grade	Male/Female														White/Black													
		2011							2012							2011							2012						
		A+	A-	B+	B-	C+	C-	Tot	A+	A-	B+	B-	C+	C-	Tot	A+	A-	B+	B-	C+	C-	Tot	A+	A-	B+	B-	C+	C-	Tot
Mathematics	**3**	31	17	1	1	0	0	50	25	23	1	1	0	0	50	1	29	0	15	0	5	50	2	35	0	11	0	2	50
	4	20	28	1	1	0	0	50	33	17	0	0	0	0	50	4	27	0	17	0	2	50	3	38	0	9	0	0	50
	5	20	29	1	0	0	0	50	18	29	1	2	0	0	50	3	36	0	9	0	2	50	9	33	0	7	0	1	50
	6	28	20	0	1	0	1	50	28	20	1	1	0	0	50	4	36	0	9	0	1	50	11	38	0	1	0	0	50
	7	25	24	0	1	0	0	50	25	24	0	1	0	0	50	7	39	0	4	0	0	50	8	39	0	3	0	0	50
	8	23	25	2	0	0	0	50	24	24	1	1	0	0	50	9	36	1	3	0	1	50	8	35	0	7	0	0	50
	11	22	25	1	2	0	0	50	20	29	0	1	0	0	50	15	32	0	3	0	0	50	16	30	0	4	0	0	50
Reading	**3**	24	26	0	0	0	0	50	38	12	0	0	0	0	50	7	39	0	3	0	1	50	4	36	0	9	0	1	50
	4	29	19	0	2	0	0	50	32	17	1	0	0	0	50	5	41	0	4	0	0	50	6	36	0	7	0	1	50
	5	28	21	0	1	0	0	50	22	26	0	2	0	0	50	0	34	0	12	0	4	50	6	36	0	6	0	2	50
	6	29	19	1	0	0	1	50	17	28	2	2	0	1	50	10	32	0	8	0	0	50	7	38	0	4	0	1	50
	7	21	27	0	1	0	1	50	26	23	0	1	0	0	50	6	30	0	11	0	3	50	9	36	0	3	0	2	50
	8	26	24	0	0	0	0	50	16	34	0	0	0	0	50	11	36	0	2	0	1	50	7	37	0	4	0	2	50
	11	21	25	0	3	0	1	50	22	24	1	2	0	1	50	7	34	0	5	0	4	50	5	35	0	8	0	2	50
Science	**4**	49	46	1	0	0	0	96	45	46	4	0	0	1	96	11	72	0	10	0	3	96	15	73	0	8	0	0	96
	8	47	72	0	1	0	0	120	65	50	2	2	0	1	120	18	99	0	3	0	0	120	23	94	0	1	0	2	120
	11	32	43	2	2	0	1	80	32	47	1	0	0	0	80	19	60	0	1	0	0	80	21	57	0	2	0	0	80
Writing	**5**	24	24	0	0	0	0	48	23	25	0	0	0	0	48	3	33	0	12	0	0	48	2	35	0	11	0	0	48
	8	28	20	0	0	0	0	48	27	21	0	0	0	0	48	6	33	0	5	0	4	48	4	32	0	11	0	1	48
	11	27	21	0	0	0	0	48	21	27	0	0	0	0	48	4	35	0	8	0	1	48	4	39	0	5	0	0	48

Table 5–6B. DIF Summary—OE Items

	Grade	Male/Female														White/Black													
		2011							2012							2011							2012						
		A+	A-	B+	B-	C+	C-	Tot	A+	A-	B+	B-	C+	C-	Tot	A+	A-	B+	B-	C+	C-	Tot	A+	A-	B+	B-	C+	C-	Tot
Mathematics	**3**	4	1	0	0	0	0	5	3	2	0	0	0	0	5	0	3	0	0	0	2	5	0	3	0	1	0	1	5
	4	5	0	0	0	0	0	5	2	2	0	0	0	0	4	0	2	0	0	0	3	5	0	1	0	2	0	1	4
	5	5	0	0	0	0	0	5	3	2	0	0	0	0	5	0	3	0	1	0	1	5	0	4	0	0	0	1	5
	6	4	1	0	0	0	0	5	2	3	0	0	0	0	5	1	2	0	2	0	0	5	0	4	0	0	0	1	5
	7	1	3	0	0	1	0	5	2	2	1	0	0	0	5	0	4	0	1	0	0	5	0	3	0	1	0	1	5
	8	4	1	0	0	0	0	5	4	1	0	0	0	0	5	1	2	0	1	0	1	5	2	1	0	1	0	1	5
	11	2	2	0	1	0	0	5	0	0	0	0	0	0	0	0	5	0	0	0	0	5	0	0	0	0	0	0	0
Reading	**3**	3	2	0	0	0	0	5	3	0	1	0	1	0	5	1	1	0	2	0	1	5	2	3	0	0	0	0	5
	4	4	0	0	0	1	0	5	2	0	2	0	1	0	5	1	3	0	1	0	0	5	3	1	0	1	0	0	5
	5	3	0	2	0	0	0	5	2	1	2	0	0	0	5	1	2	0	1	0	1	5	3	2	0	0	0	0	5
	6	1	0	1	0	3	0	5	4	0	1	0	0	0	5	2	3	0	0	0	0	5	2	3	0	0	0	0	5
	7	2	0	2	0	1	0	5	1	0	2	0	2	0	5	3	2	0	0	0	0	5	3	2	0	0	0	0	5
	8	3	0	0	0	2	0	5	0	0	4	0	1	0	5	3	2	0	0	0	0	5	2	3	0	0	0	0	5
	11	4	0	1	0	0	0	5	0	0	0	0	0	0	0	1	3	0	0	0	1	5	0	0	0	0	0	0	0
Science	**4**	8	4	0	0	0	0	12	7	4	1	0	0	0	12	2	8	0	1	0	1	12	1	6	0	2	0	3	12
	8	8	3	0	1	0	0	12	8	3	0	1	0	0	12	0	7	0	1	0	4	12	3	6	0	3	0	0	12
	11	8	7	1	0	0	0	16	0	0	0	0	0	0	0	0	14	0	2	0	0	16	0	0	0	0	0	0	0
Writing	**5**	4	0	6	0	2	0	12	3	0	8	0	1	0	12	0	7	0	3	0	2	12	0	11	0	1	0	0	12
	8	6	0	5	0	1	0	12	9	0	3	0	0	0	12	0	10	0	2	0	0	12	0	2	0	2	0	8	12
	11	12	0	0	0	0	0	12	0	0	0	0	0	0	0	1	7	0	2	0	2	12	0	0	0	0	0	0	0

Chapter Six: Operational Forms Construction for 2012

FINAL SELECTION OF ITEMS AND 2012 PSSA FORMS CONSTRUCTION

When the final selection of items for the operational 2012 test was ready to begin, the candidate items that emerged from the spring 2011 field test had undergone multiple reviews, including:

- Reviews by DRC and WestEd content-area test development specialists and curriculum specialists to ensure that all items were properly aligned with content standards
- Formal bias, fairness, and sensitivity review by the Bias, Fairness, and Sensitivity Committee consisting of a multi-ethnic group of men and women having expertise with special needs students and English Language Learners
- Formal review by the content committees consisting of Pennsylvania educators, including teachers as well as district personnel
- PDE review
- Item data review by members of the PDE subject-area teacher committees

The item and bias reviews are detailed in Chapter Three. The results of the data review are summarized in Chapter Five.

The end product of the above process was an item status designation for each field tested item. All items having an item status code of Acceptable/Active were candidates to be selected for the 2012 PSSA. To have an item status code of Acceptable/Active meant that the item met the following criteria:

- Appropriately aligned with its designated Assessment Anchor Content Standard (Assessment Anchor) and sub-classifications
- Acceptable in terms of bias/fairness/sensitivity issues, including differential item functioning (for gender and ethnicity)
- Acceptable in terms of psychometric standards, including a special review of flagged items

Next, all relevant information regarding the acceptable items, including associated graphics, was entered into the item banking system known as IDEAS (Item Development and Education Assessment System). From IDEAS and other database sources, Microsoft Excel files were created for each content area at each grade. These files contained all relevant content codes and statistical characteristics. IDEAS also created an item card displaying each acceptable item, any associated graphic, and all relevant content codes and item statistics for use by the content-area test development specialists and psychometric services staff.

DRC test development specialists reviewed the test design blueprint, including the number of items per strand for each content-area test. Special considerations, such as calculator use and manipulatives, were noted.

Psychometricians provided content-area test development specialists with an overview of the psychometric guidelines for forms construction, including guidelines for selecting linking items to link to previous test forms.

Senior DRC content-area test development specialists reviewed all items in the operational pool to make an initial selection for common (core) and equating block (equating items) positions according to test blueprint requirements and psychometric guidelines. Changes to items were not encouraged since alterations could affect how an item performs on subsequent testing.

For the common items, this meant that the combination of MC and OE items would yield the appropriate range of points while tapping an appropriate variety of the Assessment Anchors and related Eligible Content within each Reporting Category. Items selected in the first round were examined with regard to how well they went together as a set. Of particular concern were the following:

- One item providing cues as to the correct answer to another item
- Context redundancy (e.g., mathematics items with a sports context)
- Presence of clang (distractors not unique from one another)
- Diversity of names and artwork for gender and ethnicity

The first round of items was then evaluated for statistical features such as an acceptable point-biserial correlation and whether correct answers were distributed equally—that is, whether approximately 25 percent of correct answers appeared in each of the four possible positions (A, B, C, or D). Selected items that were deemed psychometrically less advantageous in contrast to the overall psychometric characteristics of the core resulted in a search by the senior reviewer for suitable replacements. At this point, the second round of items was analyzed. If necessary, this iterative process between content-based selections and statistical properties continued in an effort to reach the best possible balance.

In the case of the core-to-core linking items (part of the overall core pull), content considerations remained relevant, together with statistical features, such as an acceptable point-biserial correlation and whether the items, as a collection, had an average logit value and a test characteristic curve approximating that of the previous year.

The process for selecting equating block items was slightly different. The chief consideration was that items in equating block positions of the various forms mirrored the psychometric considerations of the core. In some cases, the selection of equating block items also required multiple rounds of selection and evaluation until the best possible balance of content and statistical properties was obtained. The content-area test development specialist's task was to distribute these items in equating block positions across the five forms so that the MC items assigned to a particular form would go well with one another and reflect the same content and statistical considerations as previously outlined. Additionally, the forms needed to display similar difficulty levels.

Once the recommendations were finalized for the core items, core-to-core linking items, and equating block items, they were submitted to PDE for review. Department staff provided feedback, which could be in the form of approval or recommendations for replacing certain items. Any item replacement was accomplished by the collective effort of the test development specialists, psychometricians, and PDE staff until final PDE approval was given.

SPECIAL FORMS USED IN THE 2012 PSSA

Braille and Large Print

Students with visual impairments were able to respond to test materials that were available in either Braille or large print. At each grade level assessed, one form was selected for the creation of a Braille and a large print edition. School district personnel ordered Braille or large print assessment materials directly from DRC. They could also contact PaTTAN for technical assistance regarding students with visual impairments.

School personnel were directed to transcribe all student answers (MC and OE) into scannable answer documents exactly as the student responded. No alterations or corrections of student work were permitted, and the transcribed answer document had to have the same form designation as the Braille and large print version.

Spanish Translation of the Mathematics and Science Assessments

Starting with the 2005 assessment, school personnel had the option of allowing Spanish-speaking students who had been enrolled in schools in the United States for less than three years to respond to a Spanish version of the PSSA for mathematics. In 2009, a Spanish version was also added for the science component of the PSSA. The original translation of the items and the *Directions for Administration Manual* was completed by Second Language Testing, Incorporated. Second Language Testing, Incorporated uses translators with varying cultural and regional backgrounds to create the Spanish versions of the mathematics and science assessments. The translations were then reviewed and verified by DRC’s internal Spanish group. As part of the internal review, a Spanish style guide is maintained to document Spanish word choice from administration to administration and across grades within an administration. After discussions with PDE and Second Language Testing, Incorporated, the mathematics sections of the mathematics and reading test booklets for Grades 4–8 and 11 and the entire science assessment for Grades 4 and 8 were designed with a side-by-side format with the English text and Spanish translated text on facing pages. The Spanish translated text was on the left-hand side followed by the original English text on the right-hand (facing) side.

The mathematics sections of the answer booklets for Grades 4–8 and 11 and the science answer booklets for Grades 4 and 8 were also presented in Spanish and English. In the case of mathematics, each open-ended item covered a total of four pages in the answer booklet. In the case of science, each open-ended item covered either two or four pages in the answer booklet, depending on the length of the original English-language item. In the case of four-page open-ended items, the first set of facing pages of an item was presented in Spanish. The second set of facing pages of an item was presented in the original English. Those students using this accommodated version of the mathematics assessment could write their answers on either the English language pages or on the translated Spanish language pages. Their answers could be written in English, Spanish, or a combination of both Spanish and English as all pages were evaluated and scored, and the highest possible scores from those combinations recorded for the students.

The mathematics sections of the scannable booklets for Grade 3 and the Grade 11 science assessment scannable booklets were also presented in Spanish and English using a modified over/under format, with the Spanish presented directly above or to the left of the English. To assist the presentation of the two languages on the same page, the English portion was presented in italics and in a smaller font. Those students using this accommodated version of the mathematics assessment could write their answers in English, Spanish, or a combination of both Spanish and English, with the highest possible scores from those combinations recorded for the students.

Spanish-translated versions of the mathematics assessment were used by a total of 2,587 students at Grades 3–8 and 11 in 2012. Spanish-translated versions of the science assessment were used by a total of 1,045 students at Grades 4, 8, and 11 in 2012.

Instructions for the appropriate use of these special forms are detailed in accommodation manuals titled *Accommodations Guidelines for Students with IEPs and Students with 504 Plans, Accommodations Guidelines for Students without IEPs and 504 Plans,* and *Accommodations Guidelines for English Language Learners.*

Summary of the Translation Verification Study by SLTI of the 2009 PSSA Science Assessments

From November 2009 through January 2010, Second Language Testing, Incorporated conducted a translation verification study of the 2009 PSSA science assessments titled "Translation Verification Study of the 2009 Pennsylvania System of School Assessment (PSSA) of Science for Grades 4, 8, and 11." In this study, the appropriateness of the transadaptation of the PSSA Science Assessments into Spanish was investigated. Three independent reviewers, specialists in bilingual science education and science translation, were used to determine the appropriateness of each translated or adapted item. The purpose of the report was to conduct qualitative research on the comparability of the Spanish and English versions of the PSSA Science assessments.

The report of this study by Second Language Testing, Incorporated described the assessments, the purpose of the translation verification study, the reviewers, the translation verification process, and the translation verification results. A total of 185 items covering tests at Grades 4 (63 items), 8 (63 items), and 11 (59 items) were reviewed. The study shows that none of the 185 reviewed items were judged by the reviewers to be inappropriately translated or adapted into Spanish. The study did provide suggestions for nine items that were judged as appropriate but the translation could still be improved in the event the items were used again.

Overall, the report concluded that the transadaptation of the 2009 PSSA Science Assessments was clearly appropriate. Since both the English and Spanish versions are comparable in the sense that both versions assess the same content, use the same format, have equal numbers of items, follow the same test administration and scoring procedures, and are used and interpreted in the same way, the study concluded that the English and Spanish versions of the science assessments measured the same content in two different languages. Thus, the study indicated that both language versions showed the same degree of alignment and the same depth-of-knowledge described in the Assessment Anchors alignment study. As a result, the report concluded that there is no need to conduct a separate alignment study of the Spanish version of the PSSA Science Assessments.

Beyond the findings presented in the study, the report recommended that appropriate quantitative analyses be carried out on construct equivalence. Unless such analyses clearly demonstrate a lack of equivalence, it is appropriate to assume that there is no need to conduct a separate linking study or a separate standard setting study for the Spanish versions of the tests. Both versions can be scored on the same scale, and scores on each version have the same meaning in terms of student mastery of the Science Assessment Anchors as defined by the Eligible Content.

The full report can be obtained by request from the Pennsylvania Department of Education.

Summary of Comparability Report from Sireci Psychometric Services

In addition to the study conducted by Second Language Testing, Incorporated, a second comparability study of the 2009 PSSA Spanish translations for science was completed in February 2010 by Sireci Psychometric Services. The report of the study is titled "Evaluating the Comparability of English and English-Spanish Science Tests from the Pennsylvania System of School Assessment."

In this study, the data from the English-language and English-Spanish dual-language Pennsylvania science tests for Grades 4, 8, and 11 were analyzed. These analyses were designed to evaluate the consistency of the structure of the data and the consistency of item functioning across the English and Spanish versions of these assessments using various psychometrics methods.

The full report can be obtained by request from the Pennsylvania Department of Education.

Chapter Seven: Test Administration Procedures

TEST SESSIONS, TEST SECTIONS, TEST TIMING, AND TEST LAYOUT

Some assessments utilized separate test booklets and answer booklets. An answer booklet was used to respond to the multiple-choice and open-ended items and to collect demographic information. The multiple-choice items and all stimulus-text were placed within the test booklet. Other assessments used a single consumable booklet. When a single scannable answer booklet was utilized, the contents of the answer booklet and the test booklet were combined into one integrated booklet. Each assessment's booklet type by grade level is shown in Table 7–1.

Table 7–1. Booklet Type by Administration

Assessment	Grade	Test Booklet	Answer Booklet	Single Consumable Booklet
Mathematics & Reading	3			✓
	4	✓	✓	
	5	✓	✓	
	6	✓	✓	
	7	✓	✓	
	8	✓	✓	
	11	✓	✓	
Science	4	✓	✓	
	8	✓	✓	
	11			✓
Writing	5			✓
	8			✓
	11			✓

Generally, a separate test booklet and answer booklet were used to separate the multiple-choice items and the open-ended items. For the Grade 3 mathematics and reading assessment, a single booklet was used to accommodate the younger age of the students. Grade 11 science utilized one booklet to allow the science scenarios to be presented along with the corresponding scenario open-ended items. The writing assessments also utilized one booklet, since sections 2, 3, and 4 all required student writing only.

The number of sections for the 2012 operational assessment varied based on the content area of the assessment. The reading and mathematics assessments consisted of six sections. The science assessments consisted of two sections for Grades 4 and 8, and three sections for Grade 11. The writing assessments consisted of four sections. Table 7–2 shows test section information for each PSSA assessment. See also Appendix G.

Table 7–2. PSSA Test Section Information

	Assessment	No. of Sections per Content	No. of Sections per Form
1.	**Mathematics**	3	6
	Reading	3	
2.	**Writing**	4	4
3.	**Science, Grade 4 and 8**	2	2
	Science, Grade 11	3	3

In general, the estimated testing times allowed 1–3 minutes per multiple-choice item, depending on the content area. The open-ended items were estimated to take approximately 5–10 minutes per item, also depending on the content area. Writing prompts were estimated to take approximately 55–65 minutes per prompt.

Test administrators were instructed that each section in a form should be scheduled as one assessment session. However, they were allowed to combine multiple sections into a single session, as long as the sections were administered in the sequence in which they are printed in the test booklets. In all cases, individual assessment sections had to be completed within one school day.

Table 7–3. PSSA Testing Load and Duration by Subject by Grade

Assessment	Grade	Total No. of MC Items per Form per Administration	Total No. of OE Items per Form per Administration	Total Estimated Administration Time per Form (in Minutes)
Mathematics	**3**	72	4	200 to 245
	4	72	4	200 to 245
	5	72	4	200 to 245
	6	72	4	200 to 245
	7	72	4	200 to 245
	8	72	4	200 to 245
	11	72	4	200 to 245
Reading	**3**	58	3	210 to 255
	4	58	5	220 to 265
	5	58	5	220 to 265
	6	58	5	230 to 275
	7	58	5	225 to 270
	8	58	5	230 to 275
	11	58	5	220 to 265
Science	**4**	68	6	120 to 150
	8	70	6	130 to 160
	11	62	11	190 to 235
Writing	**5**	20	3	270 to 330
	8	20	3	270 to 330
	11	20	3	270 to 330

Table 7–4. PSSA Testing Load and Duration by Grade by Subject

Grade	Content	Total No. of Items per Form per Administration	Total Estimated Administration Time per Form (in Minutes)	Total No. of Items per Student	Total Estimated Administration Time per Student (in Minutes)
3	**Mathematics**	76	200 to 245	137	410 to 500
	Reading	61	210 to 255		
4	**Mathematics**	76	200 to 245	213	540 to 660
	Reading	63	220 to 265		
	Science	74	120 to 150		
5	**Mathematics**	76	200 to 245	162	690 to 840
	Reading	63	220 to 265		
	Writing	23	270 to 330		
6	**Mathematics**	76	200 to 245	139	430 to 520
	Reading	63	230 to 275		
7	**Mathematics**	76	200 to 245	139	425 to 515
	Reading	63	225 to 270		
8	**Mathematics**	76	200 to 245	238	830 to 1010
	Reading	63	230 to 275		
	Science	76	130 to 160		
	Writing	23	270 to 330		
11	**Mathematics**	76	200 to 245	235	880 to 1075
	Reading	63	220 to 265		
	Science	73	190 to 235		
	Writing	23	270 to 330		

Since not all students finished the assessment sections at the same time, test administrators were advised to use the flexibility of the time limits to the students' advantage. For example, test administrators managed the testing time so that students did not feel rushed while they were taking any assessment section, and no student was penalized because he or she worked slowly. It was equally stressed to test administrators that a student should not be given an opportunity to waste time. Students were told to close their booklets when they had finished the section of the assessment in which they had been working. Students who finished early were allowed to sit quietly or read for pleasure until all students had finished. Students with special requirements and/or abilities (i.e., physical, visual, auditory, or learning disabilities as defined by their IEP or service contracts) and students who just worked slowly may have required extended time. Special assessment situations were arranged for these students. When all students in a testing session indicated that they had finished an assessment section, test administrators ended the section and began the next section or allowed the students to return to regular activities.

Scheduled extended time was provided by a test administrator, and students were allowed to request extended time if they indicated that they had not completed the task. Such requests were granted if the test administrator found the request to be educationally valid. Test administrators were advised that not permitting ample time for students to complete the assessment might impact the students' and school's performance.

As a general guideline, however, when all students indicated that they had finished a section, that section was closed. Students requiring time beyond the majority of the student population were allowed to continue immediately following the regularly scheduled session in another setting. When such accommodations were made, school personnel ensured that students were monitored at all times to prevent sharing of information. Students were not permitted to continue a section of the assessment after a significant lapse of time from the original session.

Additional information concerning testing time and test layouts can be found in Chapter Three.

TESTING WINDOW

The testing windows for the 2012 operational assessments were as follows:

- Mathematics and Reading – March 12 through March 23, 2012
- Mathematics and Reading Make-up – March 26 through March 30, 2012
- Writing – April 16 through April 20, 2012
- Science – April 23 through April 27, 2012
- Writing and Science Make-up – April 30 through May 4, 2012

Additional information concerning testing time and test layouts can be found in Chapter Three.

SHIPPING, PACKAGING, AND DELIVERY OF MATERIALS

DRC sent two shipments for the 2012 PSSA operational assessment:

- Shipment one contained the *Handbook for Assessment Coordinators* and the *Directions for Administration Manual*s for each grade tested at a school participating in the mathematics, reading, science, and writing assessments. Shipment one was delivered by February 13, 2012.
- Shipment two contained the administrative materials (e.g., Return Shipping labels, District/School labels, Do Not Score labels, and Student Precode labels) and secure materials (e.g., consumable test/answer booklets) for each grade tested at a school participating in the mathematics, reading, science, and writing assessments. Shipment two was delivered by February 27, 2012.

DRC ensured that all assessment materials were assembled correctly prior to shipping. DRC operations staff used the automated Operations Materials Management System (Ops MMS) to assign secure materials to a school at the time of ship out. This system used barcode technology to provide an automated quality check between items requested for a site and items shipped to a site. A shipment box manifest was produced for and placed in each box shipped. DRC operations staff double-checked all box contents with the box manifest prior to sealing the box for shipping to ensure accurate delivery of materials. DRC operations staff performed lot acceptance sampling on both shipments. Districts and schools were selected at random and examined for correct and complete packaging and labeling. This sampling represented a minimum of 10 percent of all shipping sites.

DRC's materials management system, along with the systems of shippers, allowed DRC to track materials from DRC's warehouse facility to receipt at the district, school, or testing site. All DRC shipping facilities, materials processing facilities, and storage facilities are secure. Access is restricted by security code. Non-DRC personnel are escorted by a DRC employee at all times. Only DRC inventory control personnel have access to stored secure materials. DRC employees are trained in and made aware of the high level of security that is required.

DRC packed 3,318,489 assessment booklets and 164,964 *Directions for Administration Manual*s for 3,335 testing sites. DRC used United Parcel Service (UPS) and Advanced Shipping Technologies to deliver the secure materials to the testing sites.

MATERIALS RETURNED

DRC used UPS for all returns. The return windows for the PSSA materials were as follows:

- Mathematics and Reading primary return window – March 14 through March 23, 2012
- Mathematics and Reading make-up return window – March 26 through March 30, 2012
- Science and Writing primary return window – April 18 through April 27, 2012
- Science and Writing make-up return window – April 30 through May 4, 2012

TEST SECURITY MEASURES

Test security is essential to obtaining reliable and valid scores for accountability purposes. Test Security Certifications were required to be signed by each building Principal, School Assessment Coordinator, District Assessment Coordinator, Test Administrator, and Proctor prior to the assessment being administered. All signed Certifications were returned to the Chief School Administrator who must retain the Certifications for three years. The purpose of the Certifications was to serve as a tool to document that the individuals responsible for administering the assessments both understood and acknowledged the importance of test security and accountability. The Certifications attested that all security measures were followed concerning the handling of secure materials.

SAMPLE MANUALS

Copies of the *Handbook for Assessment Coordinators* and the *Directions for Administration Manual*s can be found on the PDE website at www.education.state.pa.us. On the left, select “Programs,” “Programs O−R,” “Pennsylvania System of School Assessment (PSSA),” and then “Test Administration.”

TESTING WINDOW ASSESSMENT ACCOMMODATIONS

Three accommodations manuals, *PSSA & PSSA-M Accommodations Guidelines for Students with IEPs and Students with 504 Plans, Accommodations for English Language Learners,* and *Accommodations Guidelines for All Students*, were developed for use with the 2012 PSSA. These manuals can be found at www.education.state.pa.us. On the left, select “Programs,” “Programs O–R,” “Pennsylvania System of School Assessment (PSSA),” and then “Testing Accommodations & Security.” Additional information regarding assessment accommodations can be found in Chapter Four of this report.

Chapter Eight: Processing and Scoring

RECEIPT OF MATERIALS

Receipt of PSSA test materials began on March 19, 2012, and concluded with all make-up tests on May 4, 2012. DRC's Operations Materials Management System (Ops MMS) was utilized to receive assessment materials securely, accurately, and efficiently. This system features innovative automation and advanced barcode scanners. Captured data were organized into reports, which provided timely information with respect to suspected missing material.

The first step in the Ops MMS was the Box Receipt System. When a shipment arrived at DRC, the boxes were removed from the carrier's truck and passed under a barcode reader that read the barcode printed on the return label and identified the district and school. If the label could not be read automatically, a floor operator entered the information into the system manually. The data collected in this process were stored in the Ops MMS database. After the barcode data were captured, the boxes were placed on a pallet and assigned a corresponding pallet number.

Once the box receipt process was completed, the materials separation phase began. Warehouse personnel opened the boxes and sorted materials by grade and status (used or unused booklets) into new boxes. Once filled, a sorted box's documents were loaded into an automated counter that recorded a booklet count for each box. An on-demand DRC box label was produced that contained a description of each box's contents and quantity in both barcode and human-readable formats. This count remained correlated to the box as an essential quality-control step throughout secure booklet processing and provided a target number for all steps of the check-in process.

Once labeled, the sorted and counted boxes proceeded to booklet check-in. This system used streamfeeder automation to carry documents past oscillating scanners that captured data from up to two representative barcodes and stored it in the Ops MMS database.

The secure booklet check-in operator used a hand scanner to scan the counted box label. This procedure identified the material type and quantity parameters for what the Ops MMS should expect within a box. The box's contents were then loaded into the streamfeeder.

The documents were fed past oscillating scanners that captured both the security code and precode from the booklets. A human operator monitored an Ops MMS screen that displayed scan errors, an ordered accounting of what was successfully scanned, and the document count for each box.

When all materials were scanned and the correct document count was reached, the box was sealed and placed on a pallet. If the correct document count was not reached, or if the operator encountered difficulties with material scanning, the box and its contents were delivered to an exception handling station for resolution.

This check-in process occurred immediately upon receipt of materials; therefore, DRC provided feedback to districts and schools regarding any missing materials based on actual receipt versus expected receipt. Sites that had 100 percent of their materials missing after the date they were due to DRC were contacted, and any issues were resolved.

Throughout the process of secure booklet check-in, DRC project management ran a daily missing materials report. Every site that was missing any number of booklets was contacted by DRC. Results of these correspondences were recorded for inclusion in the final Missing Materials Report if the missing booklets were not returned by the testing site. DRC produced the Missing Materials Report for PDE upon completion of secure booklet check-in. The report listed all schools in each participating district along with security barcodes for any booklets not returned to DRC.

After scannable materials (used answer booklets) were processed through booklet check-in, the materials became available to the DRC Document Processing log-in staff for document log-in. The booklets were logged-in using the following process:

- A DRC scannable barcode batch header was scanned, and a batch number was assigned to each box of booklets.
- The DRC box label barcode was scanned into the system to link the box and booklets to the newly created batch and to create a Batch Control Sheet.
- The DRC box label barcode number, along with the number of booklets in the box, was printed on the Batch Control Sheet for document tracking purposes. All booklets that were linked to the box barcode were assigned to the batch number and tracked through all processing steps. As booklets were processed, DRC staff dated and initialed the Batch Control Sheet to indicate that proper processing and controls were observed.

Before the booklets were scanned, all batches went through a quality inspection to ensure batch integrity and correct document placement.

After a quality check-in at the DRC Document Processing log-in area, the spines were cut off the scannable documents and the pages were sent to DRC’s Imaging and Scoring System.

SCANNING OF MATERIALS

Customized scanning programs for all scannable documents were prepared to read the booklets and to format the scanned information electronically. Before materials arrived, all image scanning programs went through a quality review process that included scanning of mock data from production booklets to ensure proper data collection.

DRC’s image scanners were calibrated using a standard deck of scannable pages with 16 known levels of gray. On a predefined page location, the average pixel darkness was compared to the standard calibration to determine the level of gray. Marks with an average darkness level of 4 or above on a scale of 16 (0 through F) were determined to be valid responses, per industry standards. If multiple marks were read for a single item and the difference of the grayscale reads was greater than four levels, the lighter mark was discarded. If the multiple marks had fewer than four levels of grayscale difference, the response was flagged systematically and forwarded to an editor for resolution.

DRC’s image scanners read selected-response, demographic, and identification information. The image scanners also used barcode readers to read pre-printed barcodes from a label on the booklets.

The scannable documents were automatically fed into the image scanners where predefined processing criteria determined which fields were to be captured electronically. Open-ended response images were separated out for image-based scoring.

During scanning, a unique serial number was printed on each sheet of paper. This serial number was used for document integrity and to maintain sequencing within a batch of booklets.

A monitor randomly displayed images, and the human operator adjusted or cleaned the scanner when the scanned image did not meet DRC's strict quality standards for image clarity.

All images passed through a software clean-up program that despeckled, deskewed, and desmeared the images. A random sample of images was reviewed for image quality approval. If any document failed to meet image quality standards, the document was returned for rescanning.

Page-scan verification was performed to ensure that all predefined portions of the booklets were represented in their entirety in the image files. If a page was missing, the entire booklet was flagged for resolution.

After each batch was scanned, booklets were processed through a computer-based editing program to detect potential errors as a result of smudges, multiple marks, and omissions in predetermined fields. Marks that did not meet the predefined editing standards were routed to editors for resolution.

Experienced DRC Document Processing editing staff reviewed all potential errors detected during scanning and made necessary corrections to the data files. The imaging system displayed each suspected error. The editing staff then inspected the image and made any needed corrections using the unique serial number printed on the document during scanning.

Upon completion of editing, quality control reports were run to ensure that all detected potential errors were reviewed again and a final disposition was determined.

Before batches of booklets were extracted for scoring, a final edit was performed to ensure that all requirements for final processing were met. If a batch contained errors, it was flagged for further review before being extracted for scoring and reporting.

During this processing step, the actual number of documents scanned was compared to the number of booklets assigned to the box during book receipt. Count discrepancies between book receipt and booklets scanned were resolved at this time.

Once all requirements for final processing were met, the batch was released for scoring and student level processing.

Table 8–1 shows the number of answer booklets received through booklet check-in; the number of booklets that contained student responses that were scanned and scored; the number of test booklets received; and the total number of booklets received for the writing assessment (W), the mathematics and reading assessment (MR), and the science assessment (S).

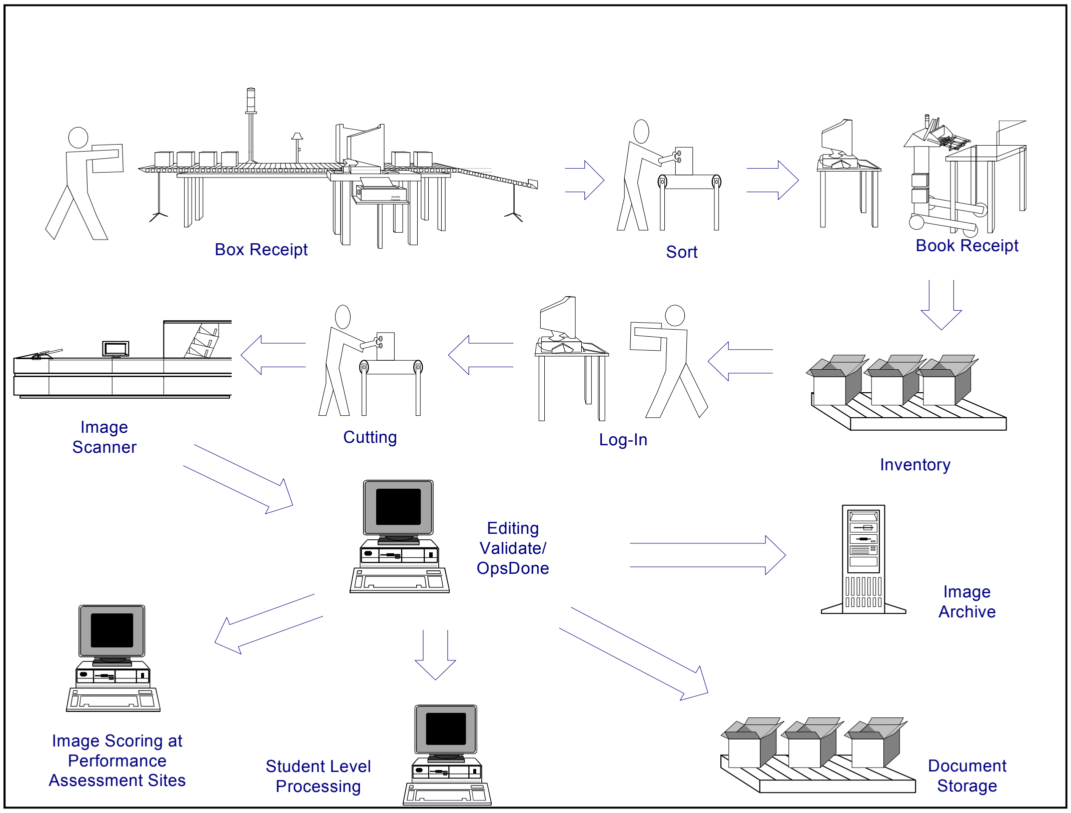
Table 8–1. Counts of 2012 PSSA Materials Received: Grades 3–8 and 11

	Answer Booklets Received	Used Answer Booklets Received	Test Booklets Received	Total Booklets Received	Total Booklets Shipped
Grade 3 MR	164,306	128,988	n/a*	164,306	164,338
Grade 4 MR	163,273	125,772	163,274	326,547	326,588
Grade 4 S	163,467	127,882	163,455	326,922	327,032
Grade 5 MR	165,790	128,384	165,788	331,578	331,645
Grade 5 W	165,861	131,464	n/a*	165,861	165,906
Grade 6 MR	165,190	130,308	165,172	330,362	330,411
Grade 7 MR	164,929	131,178	164,927	329,856	329,918
Grade 8 MR	164,360	130,700	164,363	328,723	328,849
Grade 8 S	164,479	129,849	164,466	328,945	329,116
Grade 8 W	164,522	133,870	n/a*	164,522	164,589
Grade 11 MR	167,505	130,700	167,512	335,017	335,130
Grade 11 S	167,730	133,464	n/a*	167,730	167,782
Grade 11 W	167,872	133,464	n/a*	167,872	167,994

* Grades 5, 8, and 11 writing; Grade 3 mathematics and reading; and Grade 11 science were presented in a single, integrated test/answer booklet.

Figure 8–1 illustrates the production workflow for DRC's Ops MMS and Image Scanning and Scoring System from receipt of materials through all processing of materials and the presentation of scanned images for scoring.

Figure 8–1. Workflow System



MATERIALS STORAGE

Upon completion of processing, student response documents were boxed for security purposes and final storage:

- Project-specific box labels were created containing unique customer and project information, material type, batch number, pallet/box number, and the number of boxes for a given batch.
- Boxes were stacked on pallets that were labeled with the project information and a list of the pallet's contents before delivery to the Materials Distribution Center for final secure storage.
- Materials will be destroyed one year after contract year ends, with PDE written approval.

SCORING MULTIPLE-CHOICE ITEMS

The scoring process included the scoring of multiple-choice items against the answer key and the aggregation of raw scores from the open-ended responses. A student's raw score is the actual number of points achieved by the student for tested elements of an assessment. From the raw scores, the scale scores were calculated.

The student file was scored against the final and approved multiple-choice answer key. Items were scored as right, wrong, omitted, or double-gridded (more than one answer was bubbled for an item). Sections of the test were evaluated as a whole and an attempt status was determined for each student for each subject. The score program defined all data elements at the student level for reporting.

RANGEFINDING

After student answer documents were received and processed, DRC's Performance Assessment Services (PAS) staff assembled groups of responses that exemplified the different score points for each subject. The score point ranges were represented by the following scoring guidelines:

- 0–4 item-specific scoring guidelines for math
- 0–3 item-specific scoring guidelines for reading
- 0–2 and 0–4 item-specific scoring guidelines for science
- 1–4 mode-specific composing and 1–4 revising and editing scoring guidelines for writing

Responses were pulled from the embedded field test portion of the PSSA for each subject. Once examples of all score points were selected for each item, sets were assembled for rangefinding. Copies were made for each rangefinding participant. Rangefinding committees consisted of Pennsylvania educators, PDE staff members, DRC Test Development staff, and DRC Performance Assessment Services staff. The rangefinding meetings were as follows:

- Reading Field Test Rangefinding, May 24–25, 2012, The Penn Stater, State College
- Math Field Test Rangefinding, May 23–24, 2012, The Penn Stater, State College
- Science Field Test Rangefinding, June 4–5, 2012, Best Western, Harrisburg
- Writing Field Test Rangefinding, May 21–23, 2012, The Penn Stater, State College

Each rangefinding meeting began in a joint session with a review of the history of the assessment and then broke into subject/grade-specific groups. Sets of student responses were presented to the committees, one item at a time. Each committee initially reviewed and scored student responses as a group to ensure that everyone was interpreting the scoring guidelines consistently. Committee members then went on to score responses independently. For each student response, committee members' scores were discussed until a consensus was reached. Only those responses for which there was strong agreement among committee members were chosen for inclusion in training materials for DRC raters.

Discussions of student responses included the mandatory use of scoring guideline language. This ensured that committee members remained focused on the specific requirements of each score level. DRC PAS staff took notes addressing how and why the committees arrived at score point decisions, and this information was used by the scoring directors in rater training.

DRC and PDE discussed scoring guideline edits suggested by the rangefinding committees. Changes approved by PDE were then incorporated into the scoring guidelines by DRC Test Development staff. The edited scoring guidelines were used in the preparation of materials and the training of raters.

RATER RECRUITMENT/QUALIFICATIONS

DRC retains a number of raters from year to year. This pool of experienced raters was drawn from to staff the scoring of the 2012 PSSA. To complete the rater staffing for this project, DRC placed advertisements in local newspapers and utilized a variety of web sites. Open houses were held and applications for rater positions were screened by DRC's recruiting staff. Candidates were personally interviewed by DRC staff. In addition, each candidate was required to provide an on-demand writing sample, an on-demand math sample, references, and proof of a four-year college degree. In this screening process, preference was given to candidates who had previous experience scoring large-scale assessments and who had degrees emphasizing expertise in mathematics, reading, science, or writing. Thus, the rater pool consisted of educators and other professionals with content-specific backgrounds. These individuals were valued for their content-specific knowledge, but they were required to set aside their own biases about student performance and accept the scoring standards outlined in the PSSA.

LEADERSHIP RECRUITMENT/QUALIFICATIONS

Scoring directors and team leaders were selected by content specialists from a pool of employees who displayed expertise as raters and leaders on previous DRC projects. These individuals had strong backgrounds in mathematics, reading, science, or writing and demonstrated organizational, leadership, and management skills. A majority of scoring directors and team leaders had at least five years of leadership experience working on large-scale assessments, including the PSSA. All scoring directors, team leaders, and raters were required to sign confidentiality agreements before handling secure materials.

Each room of raters was assigned a scoring director. This individual led all handscoring activities for the duration of the project. Scoring directors assisted in rangefinding, worked with supervisors to create training materials, conducted team leader training, and were responsible for training the raters. The scoring director made sure that reports were available and interpreted those reports for the raters. The scoring director also supervised the team leaders. All scoring directors were monitored by the project director and the content specialists.

Team leaders assisted the scoring director with rater training by leading their teams in small group discussions and answering individual questions that raters may not have felt comfortable asking in a large group. Once raters were qualified, team leaders were responsible for maintaining the accuracy and workload of each team member. Ongoing monitoring identified those individuals having difficulty scoring accurately. These raters received one-on-one retraining from the team leader. Any rater who could not be successfully retrained had his/her scores purged and was released from the project.

TRAINING

As part of preparation for the 2012 mathematics, reading, science, and writing assessments, DRC's PAS staff assembled the PDE-approved scoring guidelines and scored student responses approved by rangefinding committees into sets used for training raters. The item-specific scoring guidelines (and the revising and editing writing guidelines) served as the raters' constant reference. Responses that were relevant in terms of the scoring concepts they illustrated were annotated and included in an anchor set. The full range of each score point was clearly represented and annotated in the anchor set, which was used for reference by raters throughout the project.

Training sets and qualifying sets contained student responses reviewed by rangefinding committee members. Raters were instructed on how to apply the scoring guidelines and were required to demonstrate a clear comprehension of each anchor set by performing well on the associated training materials. Responses were selected for training to show raters the range of each score point (e.g., high, mid, and low 2s). Examples of 0s were also included for all mathematics, reading, and science items. This process helped raters recognize the various ways that a student could respond in order to earn each score point outlined and defined in the item-specific scoring guidelines.

The scoring director conducted a team leader training session before training the raters. This session followed the same procedures as rater training, but qualifying standards were more stringent due to the extra responsibilities required of team leaders. During team leader training, all PSSA materials were reviewed and discussed. Team leaders were required to annotate all of their training materials with committee justifications from the rangefinding meetings. To facilitate scoring consistency, it was imperative that all team leaders imparted the same rationale for each response. Once the team leaders were qualified, leadership responsibilities were reviewed and team assignments were given. A ratio of one team leader per each 8–10 raters ensured a sufficient monitoring rate for each team member.

The 2012 assessment included the opportunity for students to respond in Spanish to mathematics and science items. The scoring director responsible for overseeing this is a Spanish language speaker who has a strong mathematics and science background and has worked closely with the PSSA for three years. All Spanish raters were bilingual and hired specifically to score the Spanish portion of the assessment. They were required to meet the same training and scoring standards set for the raters of the English version of the assessment.

Rater training began with the scoring director providing an intensive review of the scoring guidelines and anchor papers. Next, raters practiced by independently scoring the responses in the training sets. After each training set, the scoring director or team leaders led a thorough discussion of the responses, either in a large-group or small-group setting.

Once the scoring guidelines, anchor sets, and training sets were thoroughly discussed, each rater was required to demonstrate understanding of the scoring criteria by qualifying (i.e., scoring with acceptable agreement to the true scores) on at least one of the qualifying sets. Raters who failed to achieve 70 percent exact agreement on the first qualifying set were given additional, individual training. Raters who did not perform at the required level of agreement by the end of the qualifying process were not allowed to score any student responses. These individuals were removed from the pool of potential raters in DRC's imaging system and released from the project.

HANDSCORING PROCESS

Student responses were scored independently. All responses were scored once, and ten percent of the responses were scored a second time. The data collected from the ten percent double-read portion were used to calculate the exact and adjacent agreement rates in the Scoring Summary Reports. The responses that were used for the ten percent read behind were randomly chosen by the imaging system at the item level. Additional read behinds by the team leaders and scoring directors were done to further ensure reliability.

Raters scored the imaged student responses on PC monitors at DRC Scoring Centers in Sharonville and Columbus, Ohio; Plymouth and Woodbury, Minnesota; Pittsburgh, Pennsylvania; and Austin, Texas. Raters were seated at tables with two imaging stations at each table. Image distribution was controlled, ensuring that student images were sent only to designated groups of raters qualified to score those items. Imaged student responses were electronically separated for routing to individual raters by item. Raters were only provided with student responses that they were qualified to score. Scores were keyed into DRC's imaging system.

To handle possible alerts (i.e., student responses indicating potential issues related to students' safety and well-being that sometimes require attention at the state or local level), DRC's imaging system allows raters to forward responses needing attention to the scoring director. These alerts are reviewed by the project director, who then notifies the students' schools and PDE of the occurrences. However, PDE does not receive students' responses or any other identifying information about the students. At no time in the alerts process do raters acquire any knowledge concerning a student's personal identity.

HANDSCORING VALIDITY PROCESS

One of the training tools PAS utilized to ensure rater accuracy was the validity process. The goal of the validity process is to ensure that scoring standards are maintained. Specifically, the objective is to make sure that raters score student responses in a manner consistent with statewide standards both within a single administration of the PSSA and across consecutive administrations. In scoring the 2012 PSSA, this scoring consistency was maintained, in part, through the validity process.

The validity process began with the selection of scored responses from the initial field test. The content specialist for each subject selected 40 validity papers for each core open-ended (OE) item. These 40 papers were drawn from a pool of exemplars (responses that are representative of a particular score point and have been verified by the scoring director and the content specialist). The scores on validity papers are considered true scores.

The validity papers were then implemented to test rater accuracy. The responses were scanned into the imaging system and dispersed intermittently to the raters. By the end of the project, raters had scored all 40 validity papers for any items they were qualified to score. Raters were unaware that they were being dealt pre-scored responses and assumed that they were scoring live student responses. This helped bolster the internal validity of the process. It is important to note that all raters who received validity papers had already successfully completed the training/qualifying process.

Next, the scores that the raters assigned to the validity papers were compared to the true scores in order to determine the validity of the raters' scores. For each item, the percentage of exact agreement as well as the percentage of high and low scores was computed. This data were accessed through the Validity Item Detail Report. The same sort of data was also computed for each specific rater. This data were accessed through the Validity Reader Detail Report. Both of these may be run as daily or cumulative reports.

The Validity Reader Detail Report was used to identify particular raters for retraining. If a rater on a certain day generated a lower rate of agreement on a group of validity papers, it was immediately apparent in the Validity Reader Detail Report. A lower rate of agreement was defined as anything below 70 percent exact agreement with the true scores. Any time a rater's validity agreement rate fell below 70 percent, the scoring director was cued to examine that rater's scoring. First, the scoring director attempted to ascertain what kind of validity papers the rater was scoring incorrectly. This was done to determine whether there was any sort of a trend (e.g., trending low on the 1–2 line). Once the source of the low agreement was determined, the rater was retrained. If it was determined that the rater had been scoring live papers inaccurately, then his/her scores were purged for that day, and the responses were re-circulated and scored by other raters.

The cumulative Validity Item Detail Report was utilized to identify potential room-wide trends in need of correction. For instance, if a particular validity response with a true score of 3 was given a score of 2 by a significant number of raters within the room, that trend would be revealed in the Validity Item Detail Report. To correct a trend of this sort, the scoring director would look for student responses similar to the validity paper being scored incorrectly. Once located, these responses would be used in room-wide re-training, usually in the form of an annotated handout or a short set of papers without printed scores given to raters as a recalibration test.

Validity was employed on all core mathematics, reading, and science OE items and for all operational writing prompts. Each 40-paper validity set was formulated to mirror the score point distribution that the item generated during its previous administration. Each validity set included at least five examples of each score point. Examples of different types of responses were included to ensure that raters were tested on the full spectrum of response types.

The exact rater agreement rate generated during the validity process was often higher than the inter-rater agreement rate for the same item. The reason for this discrepancy has to do with how validity sets are formulated. The 40 validity papers for each item, chosen by the content specialist, are intended to cover the full breadth of each score point. For example, each validity set contains examples of high, mid, and low 2s. This scope ensures that the validity process is truly valid in terms of addressing the complete spectrum of response types. However, certain types of responses are generally not included in validity sets. These include line papers (i.e., examples of score points that are so close to the adjacent score point that raters are instructed to consult with a supervisor before assigning a score) and responses that, because of poor word choice/writing, are difficult to understand. The reason for these exclusions is that confusing/line/illegible papers often do not impart a teachable lesson. Since these types of papers are usually unique, any potential lesson the response might teach would apply only to that particular paper. Conversely, the papers in validity sets are chosen because they represent common response-types and teach lessons that can be applied to other similar papers. Due to this distinction, validity sets generate a slightly higher agreement rate than is typically generated during operational scoring.

QUALITY CONTROL

Rater accuracy was monitored throughout the scoring session by means of daily and on-demand reports. These reports ensured that an acceptable level of scoring accuracy was maintained throughout the project. Inter-rater reliability was tracked and monitored with multiple quality control reports that were reviewed by quality assurance analysts. These reports and other quality control documents were generated at the scoring centers, where they were reviewed by the scoring directors, team leaders, content specialists, and project directors. The following reports and documents were used during the scoring of the open-ended items:

The Scoring Summary Report (includes two related reports)

1. The Reader Monitor Report monitored how often raters were in exact agreement with one another and ensured that an acceptable agreement rate was maintained. This report provided daily and cumulative exact and adjacent inter-rater agreement on the ten percent that was double read.
2. The Score Point Distribution Report monitored the percentage of responses given each of the score points. For example, the mathematics daily and cumulative reports showed what percentage of 0s, 1s, 2s, 3s, and 4s a rater had given to all the responses scored at the time the report was produced. It also indicated the number of responses read by each rater so that production rates could be monitored.

The Item Status Report monitored the progress of handscoring. This report tracked each response and indicated the status (e.g., not read, complete, awaiting supervisor review, etc.). This report ensured that all responses were scored by the end of the project.

The Read-Behind Report identified all responses scored by an individual rater. This report was useful if any responses needed rescoring because of possible rater drift.

The Validity Reports (addressed on previous page) tracked how raters performed by comparing pre-scored responses to raters' scores for the same responses. If a rater's scoring fell below the 70 percent determined agreement rate, remediation occurred. Raters who did not retrain to the required level of agreement were released from the project.

The Read-Behind Log was used by the team leader/scoring director to monitor individual rater reliability. Team leaders read randomly-selected, scored items from each team member. If the team leader disagreed with a rater's score, remediation occurred. This proved to be a very effective type of feedback because it was done with live items scored by a particular rater.

Recalibration Sets were used throughout the scoring sessions to ensure accuracy by comparing each rater's scores with the true scores on a pre-selected set of responses. Recalibration sets helped to refocus raters on Pennsylvania scoring standards. This check made sure there was no change in the scoring pattern as the project progressed. Raters failing to achieve 70 percent agreement with the recalibration true scores were given additional training to achieve the highest degree of accuracy possible. Raters who were unable to recalibrate were released from the project. The process for creating and administering recalibration sets was similar to the one used for training sets.

Table 8–2 shows exact and adjacent agreement rates of raters on the core open-ended responses for the mathematics items in the 2012 PSSA. All student responses were read once, and ten percent of the responses were read a second time. The data collected from this ten percent double read were used to calculate the exact and adjacent agreement rates.

Table 8–2. Inter-rater Agreement for 2012 PSSA Mathematics Grades 3–8 and 11 Open-Ended Response Items and Validity

Mathematics	Common Item	% Exact Agreement	% Adjacent Agreement	% Exact + Adjacent Agreement	% Exact Validity Agreement
Grade 3	1	94	6	100	96
	2	87	13	100	91
	3	96	4	100	97
Grade 4	1	94	6	100	97
	2	93	7	100	92
	3	93	7	100	91
Grade 5	1	94	6	100	97
	2	93	6	99	97
	3	95	5	100	97
Grade 6	1	94	6	100	97
	2	85	15	100	92
	3	87	13	100	87
Grade 7	1	88	12	100	93
	2	88	12	100	90
	3	88	11	99	92
Grade 8	1	92	8	100	95
	2	87	13	100	95
	3	83	17	100	81
Grade 11	1	90	10	100	96
	2	93	6	99	90
	3	93	7	100	96

Note. 0–4 possible score points

Table 8–3 shows the distribution of scores for the mathematics items. All mathematics items are scored with a 0–4 score point range.

Table 8–3. Percentages Awarded for Each Possible Score Point
2012 PSSA Mathematics Grades 3–8 and 11

Mathematics	Common Item	%0	%1	%2	%3	%4	%B/NS*
Grade 3	1	10	28	18	24	19	0
	2	5	20	35	18	22	1
	3	1	7	20	24	47	0
Grade 4	1	6	12	23	42	15	1
	2	13	15	19	41	8	4
	3	4	9	33	25	28	1
Grade 5	1	4	11	56	22	6	1
	2	7	26	26	24	11	5
	3	8	29	26	24	11	1
Grade 6	1	4	11	14	54	16	2
	2	9	31	28	24	3	6
	3	13	41	28	11	6	1
Grade 7	1	14	32	33	16	3	2
	2	14	11	23	27	17	7
	3	14	9	31	35	9	2
Grade 8	1	9	22	13	37	17	2
	2	11	34	25	15	11	5
	3	10	27	26	21	14	2
Grade 11	1	31	25	14	13	14	3
	2	15	30	10	35	3	7
	3	22	36	22	14	3	4

*B=blank and NS=non-scorable

Table 8–4 shows exact and adjacent agreement rates of raters on the core open-ended responses for the reading items in the 2012 PSSA. All student responses were read once, and ten percent of responses were read a second time. The data collected from this ten percent double read were used to calculate the exact and adjacent agreement rates.

Table 8–4. Inter-rater Agreement for 2012 PSSA Reading Grades 3–8 and 11 Open-Ended Response Items and Validity

Reading	Common Item	% Exact Agreement	% Adjacent Agreement	% Exact + Adjacent Agreement	% Exact Validity Agreement
Grade 3	1	82	18	100	78
	2	78	22	100	77
Grade 4	1	86	13	99	85
	2	84	15	99	81
	3	88	12	100	82
	4	84	16	100	92
Grade 5	1	81	19	100	78
	2	83	17	100	93
	3	81	19	100	89
	4	80	20	100	87
Grade 6	1	81	19	100	70
	2	80	20	100	79
	3	81	19	100	79
	4	77	23	100	79
Grade 7	1	75	25	100	75
	2	76	24	100	77
	3	75	24	99	71
	4	78	21	99	77
Grade 8	1	79	21	100	87
	2	80	20	100	89
	3	79	21	100	81
	4	76	24	100	82
Grade 11	1	79	21	100	79
	2	81	19	100	86
	3	81	19	100	80
	4	81	19	100	74

Note. 0–3 possible score points

Table 8–5 shows the distribution of scores for the reading items. All reading items are scored with a 0–3 score point range.

Table 8–5. Percentages Awarded for Each Possible Score Point
2012 PSSA Reading Grades 3–8 and 11

Reading	Common Item	%0	%1	%2	%3	%B/NS*
Grade 3	1	6	47	33	3	1
	2	6	41	45	7	1
Grade 4	1	5	13	43	37	2
	2	11	21	25	41	2
	3	6	55	17	20	2
	4	4	29	40	25	2
Grade 5	1	3	21	55	18	2
	2	2	26	56	13	2
	3	3	22	46	27	2
	4	4	32	44	17	2
Grade 6	1	5	42	38	12	3
	2	2	17	60	19	2
	3	3	30	43	22	2
	4	7	24	46	21	2
Grade 7	1	3	27	48	20	2
	2	6	21	54	17	2
	3	7	30	44	17	2
	4	11	38	39	9	2
Grade 8	1	2	15	55	27	2
	2	3	14	31	49	2
	3	3	16	54	25	2
	4	9	35	45	9	3
Grade 11	1	3	21	46	27	3
	2	3	21	56	15	4
	3	4	21	50	21	3
	4	2	15	52	28	3

*B=blank and NS=non-scorable

Table 8–6 shows exact and adjacent agreement rates of raters on the core open-ended responses for the science items in the 2012 PSSA. All student responses were read once, and ten percent of responses were read a second time. The data collected from this 10 percent double read were used to calculate the exact and adjacent agreement rates.

Table 8–6. Inter-rater Agreement for 2012 PSSA
Science Grades 4, 8, and 11
Open-Ended Response Items and Validity

Science	Common Item	% Exact Agreement	% Adjacent Agreement	% Exact + Adjacent Agreement	% Exact Validity Agreement
Grade 4	1	89	11	100	95
	2	87	12	99	95
	3	87	13	100	95
	4	93	7	100	97
	5	93	7	100	94
Grade 8	1	87	13	100	96
	2	86	14	100	92
	3	86	14	100	97
	4	91	9	100	97
	5	93	7	100	99
Grade 11	1	77	23	100	84
	2a	79	18	97	85
	2b	75	25	100	89
	3a	82	18	100	98
	3b	90	9	99	94
	4	90	10	100	97
	5	89	11	100	95
	6	80	20	100	89
	7a	87	13	100	89
	7b	86	14	100	94
	8	78	22	100	83
	9	87	13	100	95

Note. 0–2 possible score points

Table 8–7 shows the distribution of scores for the science items. All science items are scored with a 0–2 score point range for reporting purposes. However, Grade 11's scenario items, designated in this table by a 2-point part a and a 2-point part b, are considered to be 0–4 score point items with regard to test design.

Table 8–7. Percentages Awarded for Each Possible Score Point
2012 PSSA Science Grades 4, 8, and 11

Science	Common Item	%0	%1	%2	%B/NS*
Grade 4	1	21	50	28	1
	2	30	44	24	2
	3	24	26	48	2
	4	7	33	59	1
	5	26	34	39	1
Grade 8	1	20	46	32	1
	2	17	63	17	4
	3	33	41	22	3
	4	12	19	67	2
	5	21	17	58	3
Grade 11	1	14	44	31	10
	2a	63	16	13	8
	2b	23	45	24	8
	3a	45	32	13	9
	3b	39	35	16	9
	4	31	51	8	10
	5	29	35	28	8
	6	42	29	20	8
	7a	43	36	11	9
	7b	59	24	8	9
	8	40	34	16	10
	9	19	37	31	13

*B=blank and NS=non-scorable

Table 8–8 shows exact and adjacent agreement rates of raters on the core open-ended responses for the writing items in the 2012 PSSA. All student responses were read once, and ten percent of responses were read a second time. The data collected from this ten percent double read were used to calculate the exact and adjacent agreement rates.

Table 8–8. Inter-rater Agreement for 2012 PSSA Writing Grades 5, 8, and 11 Open-Ended Response Items and Validity

Writing		Composition % Agreement			Revising and Editing % Agreement		
Grade	Prompt	Exact	Adjacent	Exact + Adjacent	Exact	Adjacent	Exact + Adjacent
5	1	75	25	100	73	27	100
	2	80	20	100	79	21	100
	1 Validity	73	27	100	73	27	100
	2 Validity	78	22	100	77	23	100
8	1	81	19	100	80	20	100
	2	81	19	100	80	20	100
	1 Validity	76	24	100	76	24	100
	2 Validity	77	23	100	78	22	100
11	1	81	19	100	79	21	100
	2	81	19	100	78	22	100
	1 Validity	84	16	100	74	26	100
	2 Validity	79	21	100	74	26	100

Note. 1–4 possible score points

Table 8–9 shows the distribution of scores for the writing items. All prompts are scored with a 1–4 score point range for both Composition and for Revising and Editing.

Table 8–9. Percentages Awarded for Each Possible Score Point 2012 PSSA Writing Grades 5, 8, and 11

Writing		Composition					Revising and Editing				
Grade	Prompt	%1	%2	%3	%4	%NS/ NT*	%1	%2	%3	%4	%NS/ NT*
5	1	6	34	52	7	1	7	34	50	7	1
	2	7	42	45	4	1	7	42	45	4	1
8	1	4	33	56	6	1	4	32	56	6	1
	2	5	33	55	6	1	5	33	54	6	1
11	1	5	24	59	8	3	6	24	58	9	3
	2	6	27	55	8	4	6	26	56	9	4

* NS=non-scorable and NT=not taken

Chapter Nine: Description of Data Sources and Sampling Adequacy

This chapter describes the data sources (e.g., *n*-counts, characteristics of students) used for the various analysis procedures discussed in the remaining chapters of this technical report. Psychometric analyses are conducted at several points for the PSSA: 1) early analyses for quality control purposes; 2) analyses associated with the calibration, scaling, and linking processes; 3) analyses used for item banking; and 4) analyses for the technical report. Detailed information regarding the attributes of students used for Adequate Yearly Progress (AYP) reporting is provided in Chapter Ten.

PRIMARY STUDENT FILTERING CRITERIA

For many data files, the primary means of filtering students for inclusion/exclusion from any data analysis are based on the state reporting criteria, which are outlined below. Within the state reporting rules are separate attempt criteria for individual subject areas. The attempt criteria are discussed more fully below.

State Reporting Criteria

The state reporting criteria are as follows:

- The student must be enrolled for the full academic year.
- The student must be attributed to a public district/school (state).
- The student must receive a score (i.e., met the subject attempt logic—see additional information below).
- The student is not a homeschool student.
- The student is not a foreign exchange student.
- The student is not a first year ELL student (mathematics/reading only).

PSSA Attempt Criteria

For all data sources, only students who meet the attempt criteria are included. For mathematics, reading, and science, the attempt criteria required students to complete a minimum of five items, multiple-choice (MC) or open-ended (OE), in each respective subject-area section of the test booklets. Science counts were based on operational items only, while mathematics and reading counts were based on operational and nonoperational items. For writing, a student must complete at least five MC items and respond to both operational writing prompts.

KEY VALIDATION DATA

These data are only mentioned for the sake of completeness, as no formal results from these data are provided in this technical document. An analysis on all operational MC items is conducted early in the scoring process to ensure that the items are performing as expected. This is an important quality check that is always done for the PSSA. This analysis is usually (but not always) done using all students from early-return schools. The sample does not need to be representative of the entire state for these quality checks. Available student data typically suffices as long as there is reasonable variability in the total test scores of students.

For 2012 this data included all public school students who 1) had their MC items scanned and scored by March 27 (mathematics/reading), May 2 (writing), or May 9 (science) and 2) met preliminary attempt criteria (i.e., attempt was determined based on MC items only). Note that the full state reporting criteria were not in effect for this file (only attribution to a public school based on tested site and preliminary attempt criteria were used to filter students).

CALIBRATION DATA

Calibration data included students who met the preliminary state reporting criteria (including attempt criteria) by May 15 (mathematics/reading) or May 22 (science/writing). The state reporting criteria were preliminary, meaning that attributions and final PIMS[2] information were not complete by this time. No sampling was undertaken in this data (i.e., it included all students who met the previously specified criteria with operational test scores up to this point[3]). This data file was used to provide impact results to the Technical Advisory Committee (TAC) during the linking review process.

ITEM BANK DATA

The item bank data included students who met the state reporting criteria and pre-AYP appeals (including attempt criteria) by June 22. No sampling was undertaken in this data (i.e., it included all students who met the previously specified criteria with scored field test data up to this point). The data banked for field test items were based on this data file.

FINAL DATA

This file included all students who met state reporting criteria and post-AYP appeals (including attempt criteria) by August 29 for all subject areas. The final data was post-appeals data, meaning that schools had an opportunity to correct certain fields within the data during the AYP appeals process (e.g., student ethnicity). All other files contained pre-appeals data. The majority of the results included in this technical report were derived using the final data file.

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[2] Pennsylvania Information Management System

[3] Historically, PSSA has retained all students who met the stated criteria in the calibration data set, even those who had testing accommodations.

FINAL *N*-COUNTS FOR ALL DATA SOURCES

The *n*-counts for all data sources are provided in Table 9–1. The calibration count includes students who met the preliminary state reporting criteria, while the final count includes students who met the final state reporting criteria.[4]

Table 9–1. Data Source *N*-Counts

		Key Validation	Calibration	Item Bank	Final
Mathematics	**3**	30958	125724	126097	126139
	4	23996	122192	122489	122526
	5	27326	124522	124911	124973
	6	26627	126095	126610	126661
	7	26715	126296	127086	127152
	8	22392	125042	126144	126204
	11	31726	123322	125116	125113
Reading	**3**	30866	125655	126020	126062
	4	23735	121156	121442	121479
	5	27081	123571	123947	124007
	6	26498	125583	126095	126146
	7	26576	125916	126704	126765
	8	22346	125100	126191	126250
	11	31750	123591	125383	125380
Science	**4**	81361	124846	125155	125170
	8	74004	125043	126094	126112
	11	56804	120137	121699	121693
Writing	**5**	51888	127117	127499	127549
	8	38049	127888	128975	129035
	11	30132	123523	125096	125095

SPIRALING OF FORMS

During the PSSA administration, test forms were spiraled within classrooms. All students were administered the same set of operational items but different field test and equating-block items. The goal of spiraling is to achieve randomly equivalent samples of students across forms. When spiraling achieves randomly equivalent samples, the forms will have equal standard deviations and means (within sampling error) over the operational items.

Appendix H provides summary statistics for all test forms for each grade and subject area test. The tables provide the form number (Form), the number of students (N), test length in items (L), total points (Pts.), the minimum (Min) score, the maximum (Max) score, the mean (Mean) score, the median score (Med), and the standard deviation (SD). The extent to which the mean raw scores across forms are similar indicates the extent to which the student populations taking each form are of approximately equal ability. This equivalence of ability distributions across forms is the desired outcome of spiraling and allows for optimum analysis of the embedded field test items.

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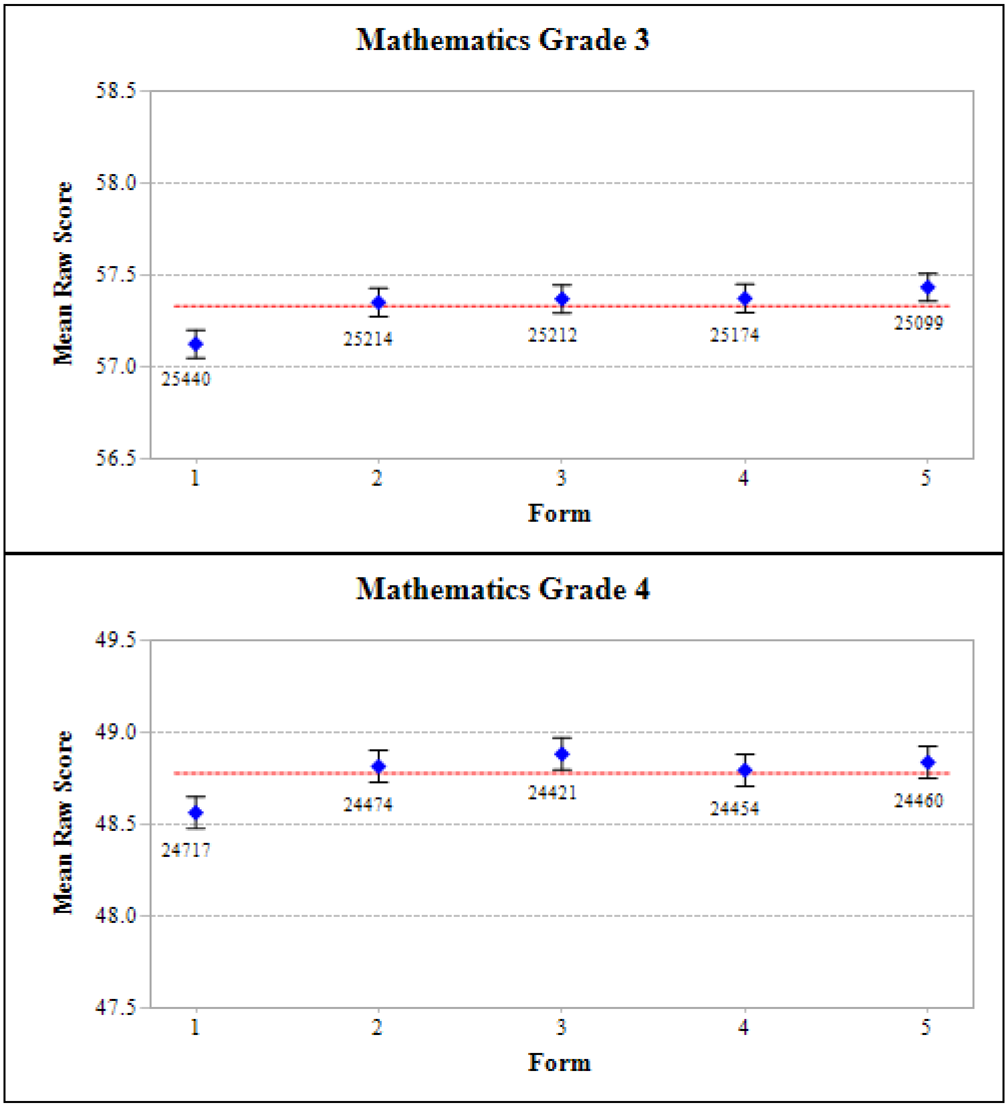
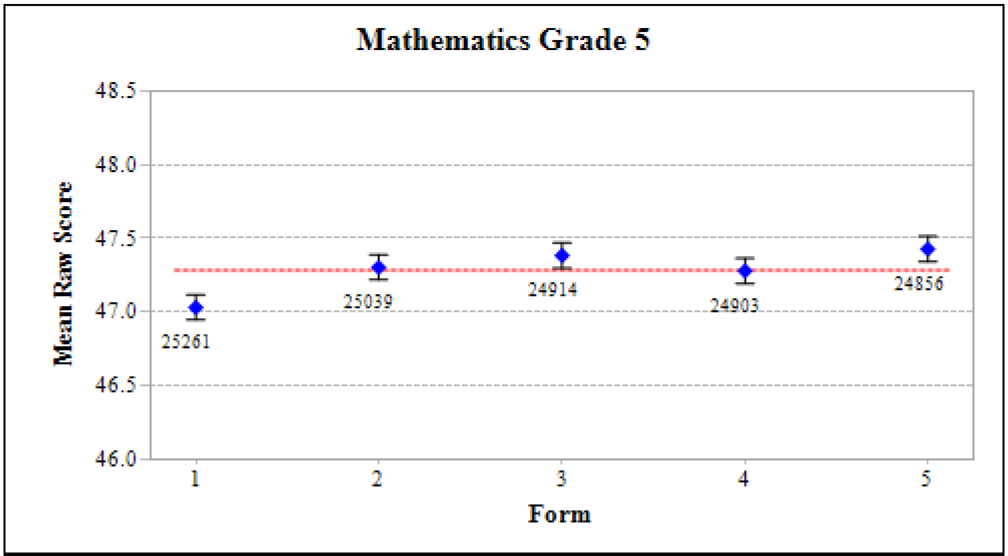
[4] For this reason, the final count may be smaller than the calibration count in any given year.

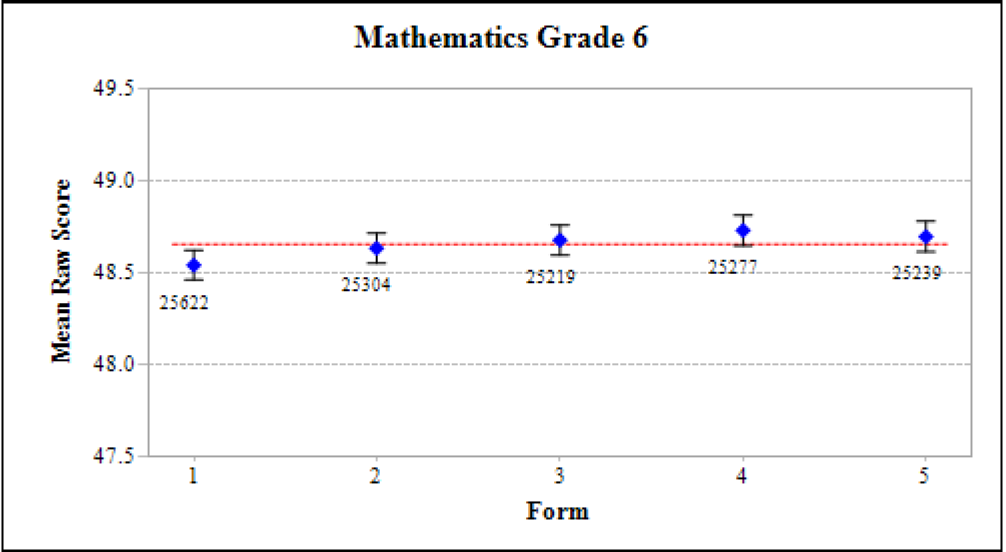
In Figure 9–1, the form means are plotted (diamond-shaped marker) with standard error (SE) lines. *N*-counts for each form are shown below the markers. For each form, the standard error was computed by taking the standard deviation of all student scores (assumed as the population standard deviation divided by the square-root of the form *n*-count). The mean score across all forms is indicated by the horizontal line. If a form's standard error band captures the horizontal line, then that suggests only random differences exist between the form mean and the population mean. This was true in nearly all instances.

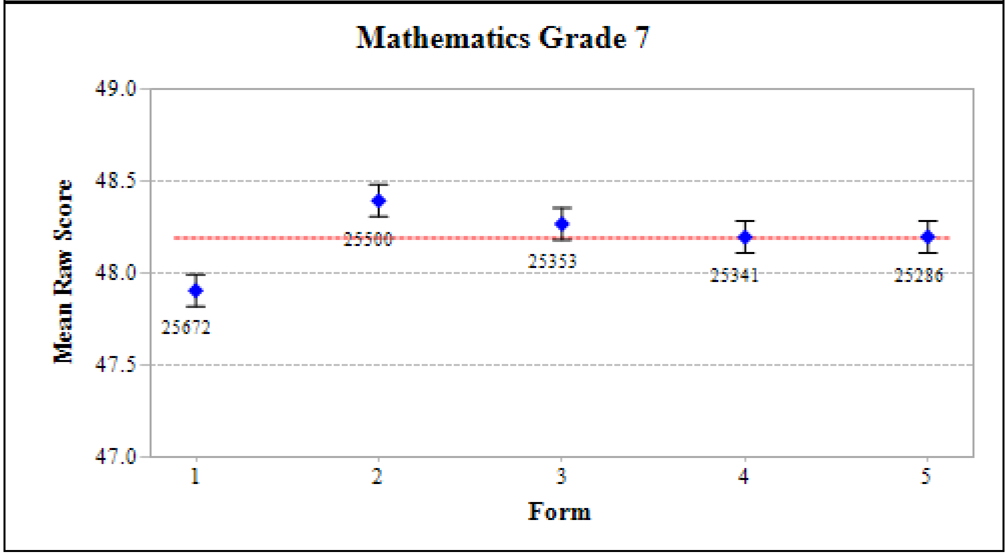
One exception occurring frequently across grades involves Form 1. Form 1 was used to generate accommodated versions (e.g., large print and Braille) of the operational form; thus, the averages for these forms are somewhat lower because its sample is not entirely derived from the spiraling process.

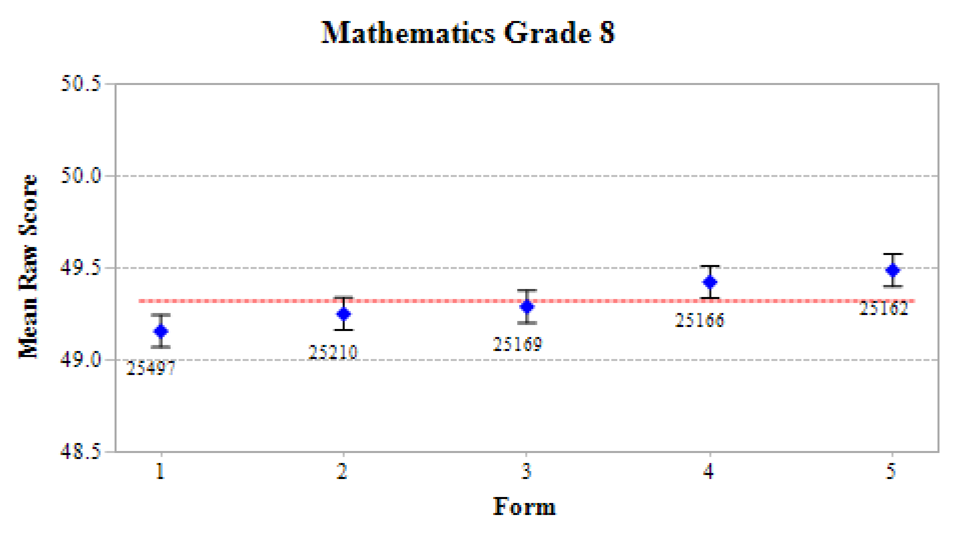
Figure 9–1. Form Mean Scores with +/- One Standard Error (SE) Bands

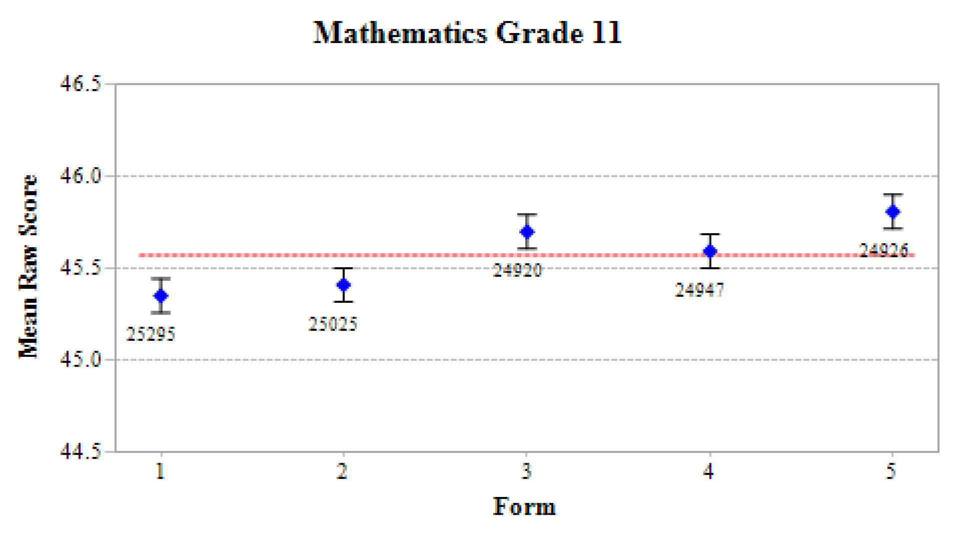


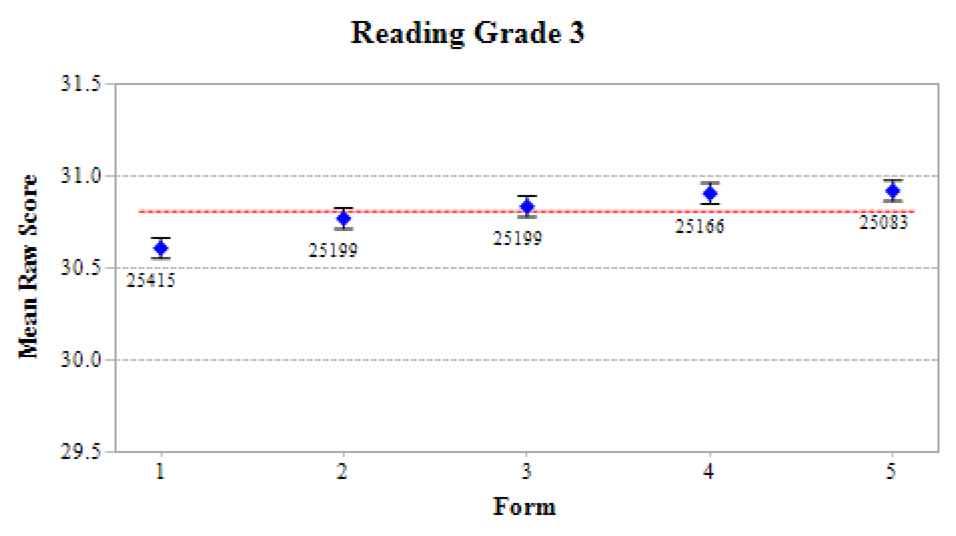

Mathematics Grade 5

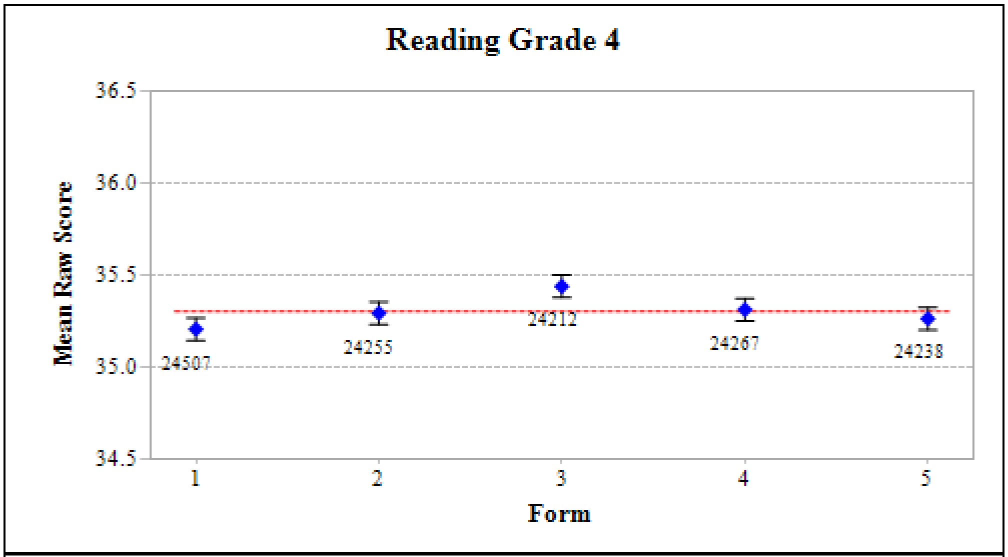

Mathematics Grade 6


Mathematics Grade 7

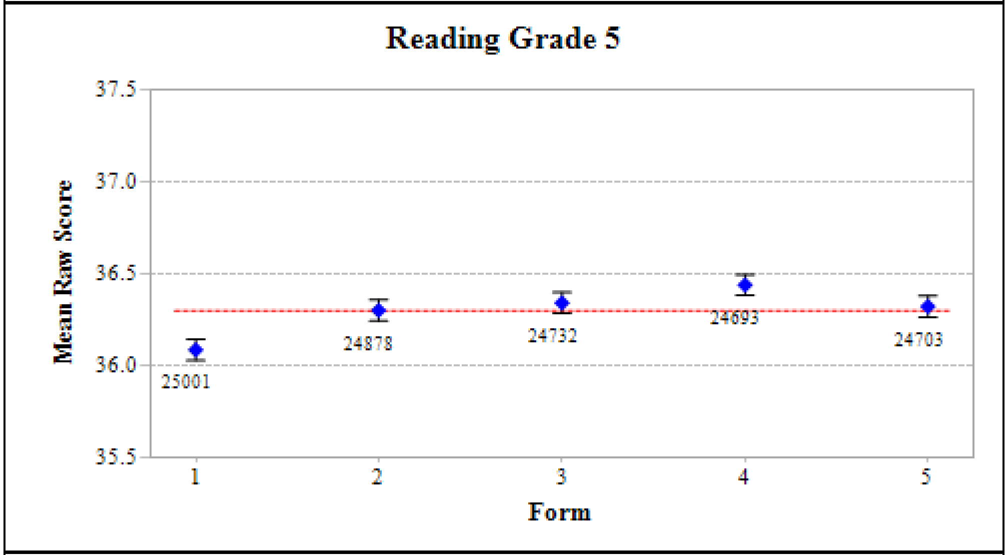

Mathematics Grade 8
Mean Raw Score
50.5
50.0
49.5
49.0
48.5
25497
25210
25169
25166
25162
1
2
3
4
5
Form


Mathematics Grade 11
Mean Raw Score
46.5
46.0
45.5
45.0
44.5
25295
25025
24920
24947
24926
1
2
3
4
5
Form

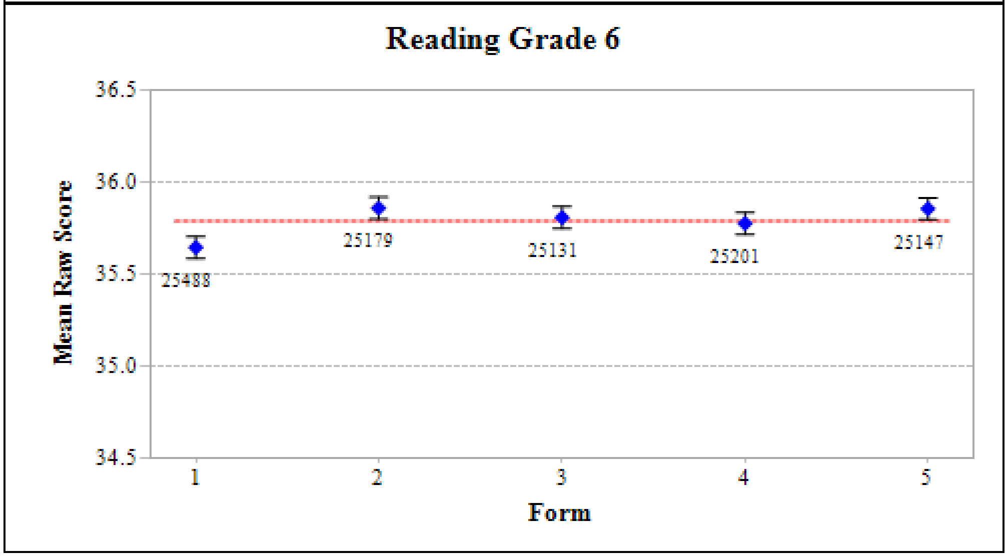

Reading Grade 3
Mean Raw Score
31.5
31.0
30.5
30.0
29.5
25415
25199
25199
25166
25083
1
2
3
4
5
Form



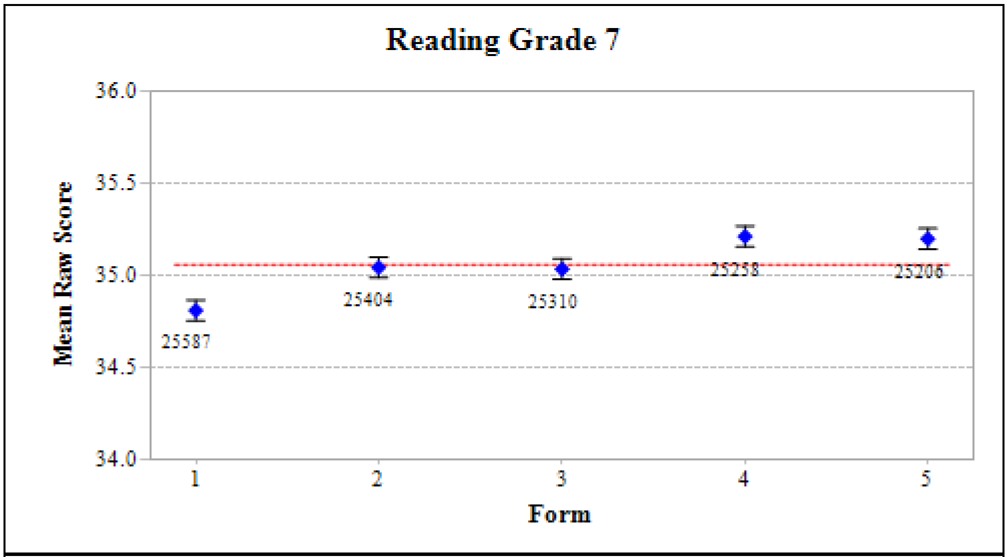
Reading Grade 4

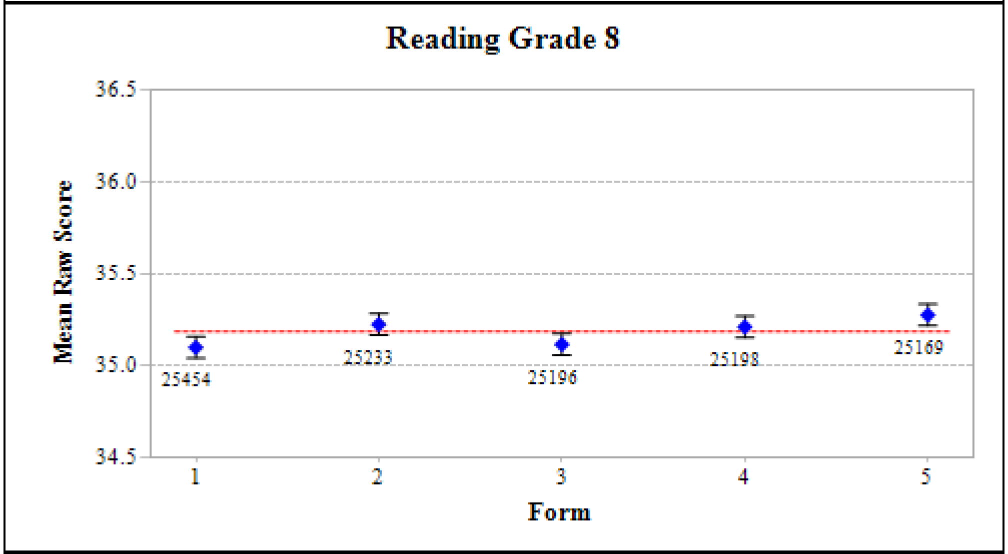


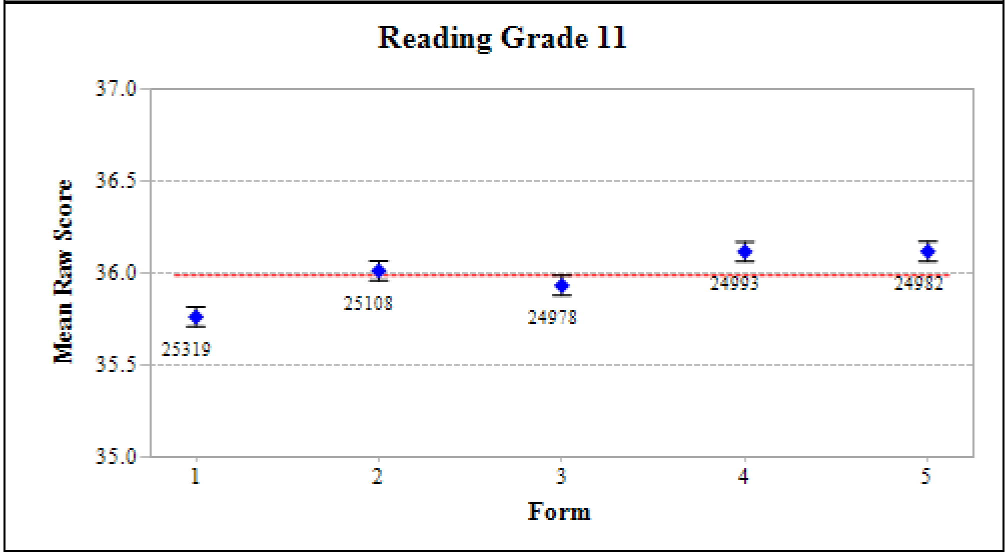
Reading Grade 5

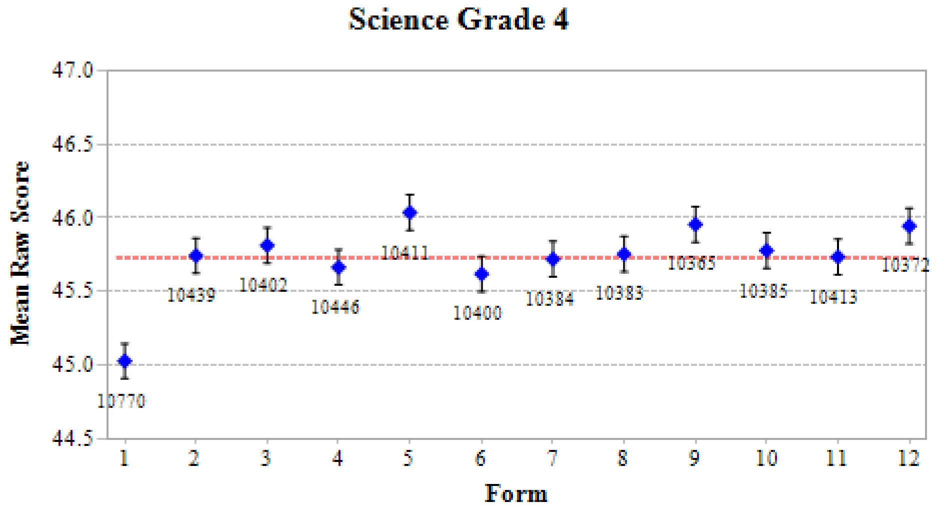


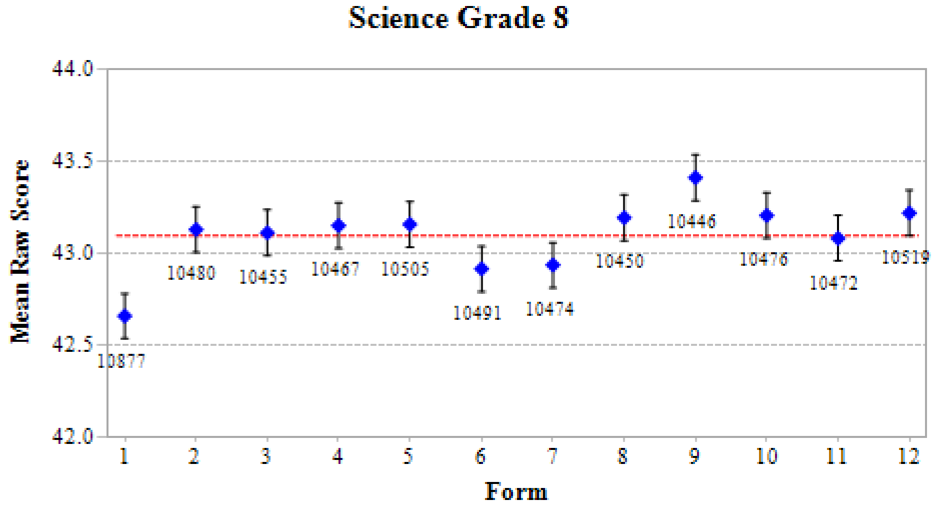
Reading Grade 6


Reading Grade 7


Reading Grade 8


Reading Grade 11


Science Grade 4
Mean Raw Score
47.0
46.5
46.0
45.5
45.0
44.5
10770
10439
10402
10446
10411
10400
10384
10383
10365
10385
10413
10372
1
2
3
4
5
6
7
8
9
10
11
12
Form


Science Grade 8
Mean Raw Score
44.0
43.5
43.0
42.5
42.0
10877
10480
10455
10467
10505
10491
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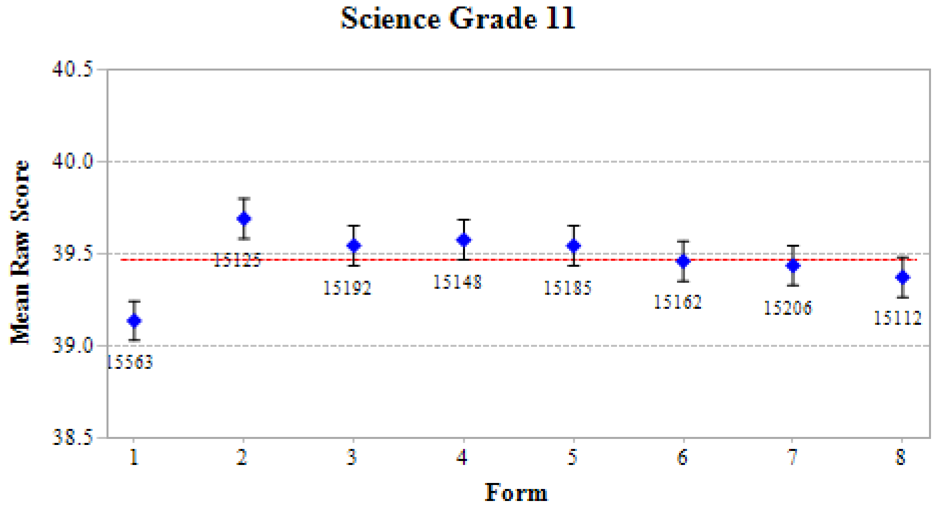
8
9
10
11
12
Form


Science Grade 11
Mean Raw Score
40.5
40.0
39.5
39.0
38.5
15563
15125
15192
15148
15185
15162
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15112
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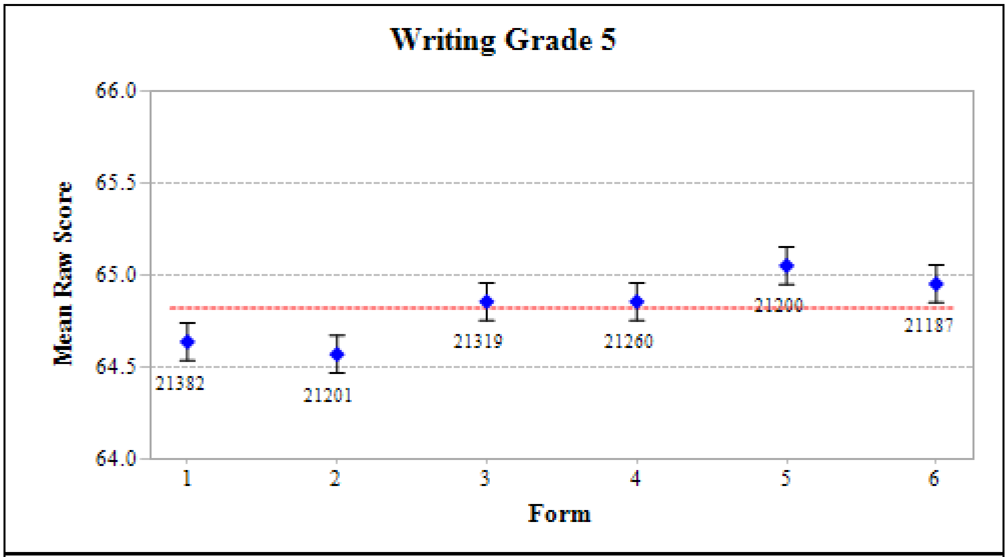
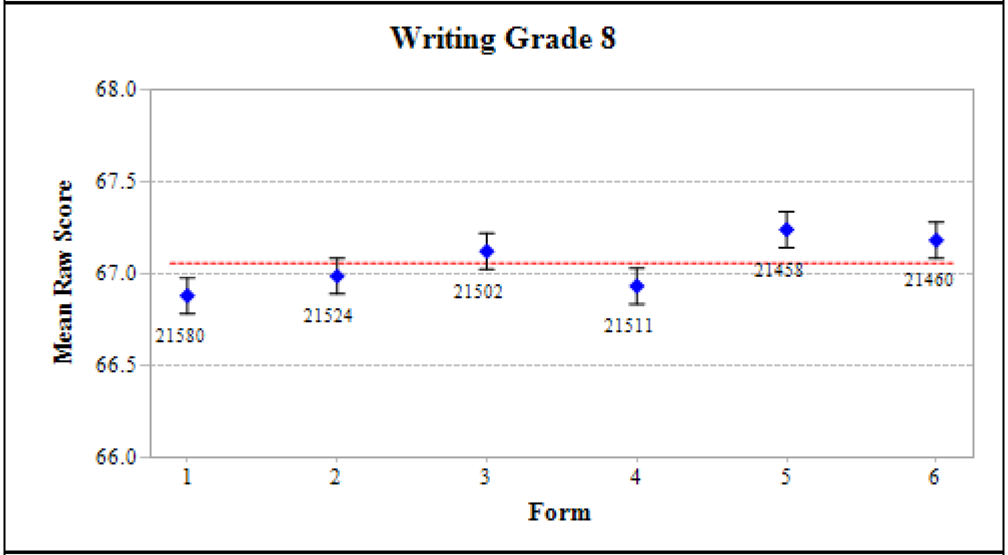
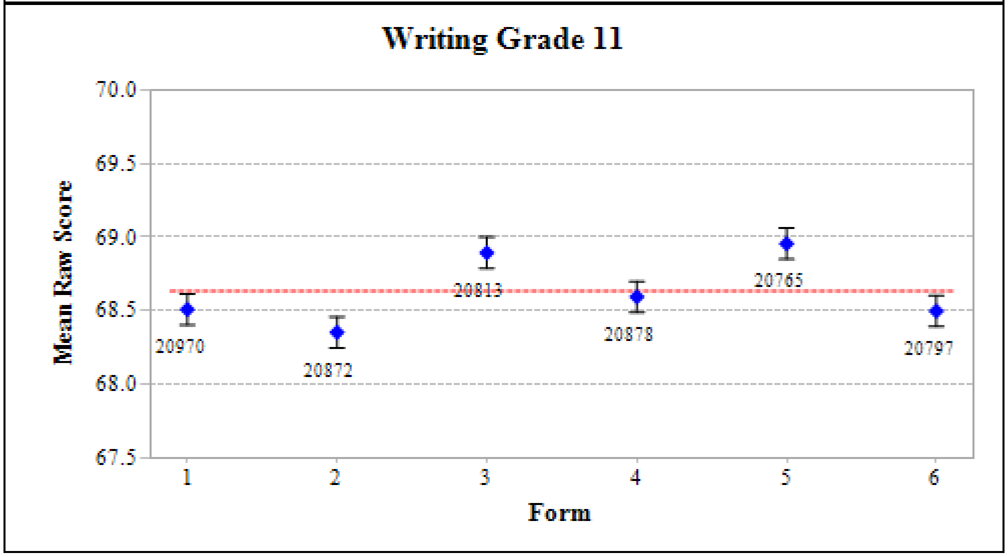
2
3
4
5
6
7
8
Form



Writing Grade 5



Writing Grade 8



Writing Grade 11

Chapter Ten: Summary Demographic, Program, and Accommodation Data for the 2012 PSSA

ASSESSED STUDENTS

The PSSA assessed students include those from public schools who are required to participate as well as those from a small number of non-public schools (fewer than 500 students per grade level) that elected to participate. Also included were home-schooled students (fewer than 100 per grade) and a small number of foreign exchange students, (generally fewer than 30 per grade through Grade 8 and approximately 100 at Grade 11). An exception was granted for those IEP students with significant cognitive impairments who met each of the following criteria, making them eligible to participate in the Pennsylvania Alternate System of Assessment (PASA) for mathematics, reading, and science and a school-administered alternate assessment for writing: 1) was enrolled in the assessed grade level for the subject area, 2) had a significant cognitive disability, 3) required intensive instruction, 4) required adaptation and support to perform or participate meaningfully, 5) required substantial modification of the general education curriculum, and 6) participated in the general education curriculum that differed markedly in form and substance from that of other students. (See the *2011–2012 PSSA Handbook for Assessment Coordinators: Reading and Mathematics, Writing, Science*, PDE, 2012, p.9.)

In 2010 the PSSA Modified Assessment (PSSA-M) was introduced for mathematics and expanded in 2011 to include reading and science. Eligibility for the PSSA-M requires that a student 1) is not eligible for the PASA, 2) has a grade-level standards aligned IEP that clearly documents that the student requires significant instructional accommodations to successfully access grade level content, 3) demonstrates persistent academic difficulties, and 4) demonstrates a lack of academic progress. More detailed information on the PSSA-M eligibility criteria may be accessed at www.education.state.pa.us. On the left side, select “Programs,” “Programs S–Z,” and then “Special Education.” From the “Special Education” page select “Assessment” to access the relevant documents.

Results for this chapter are presented in sets of tables for the four PSSA subject areas (mathematics, reading, science, and writing). Accompanying each numbered table is a letter (M, R, S, or W) to designate the subject area. Table set 10–1M through 10–1W provides a summary of the assessed students for each subject. Presented on the first line is the total number of non-blank answer documents processed by grade level for the 2012 PSSA. This number pertains to the total number of records on the student file and is typically less than the “Used Answer Booklets Scanned” column shown in Table 8–1. The reason for the difference is that completely blank answer booklets (no student name and no items responded to) get removed from the initial batch of materials scanned. See Chapter Eight for more details on processing. The second line shows the number and percentage of students with a PSSA score in the subject area, followed by the number and percentage not receiving a score. The final line shows the number of students contributing to state summary statistics, which is especially relevant for all tables following 10–2 (M through W). (See the section of this chapter entitled “Composition of Sample Used in Subsequent Tables” for additional explanation.)

Noteworthy in the 2012 assessment is the slightly lower number of students taking the PSSA mathematics, reading, and science relative to those taking writing. This departure from previous years is due to the advent of the modified assessment (PSSA-M) in mathematics (Grades 4–8 and 11), implemented for the first time in 2010, and in reading (Grades 4–8 and 11) and science (Grades 8 and 11), implemented in 2011. Combining all students who were assessed in 2012 by either the PSSA or the PSSA-M whose scores contributed to state summary statistics at a given grade level, the median percentage taking the PSSA-M was about 3.2 percent, 3.4 percent, and 2.9 percent, respectively, for mathematics, reading, and science. Since all students taking a modified assessment have an IEP, the PSSA demographics are also slightly affected as discussed in Appendix O of the *2012 Modified PSSA Technical Report*.

Table 10–1M. Students Assessed on the 2012 PSSA: Mathematics

	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Number of non-blank answer documents processed	129,266	125,519	127,930	129,636	130,440	129,739	129,693
Students with a mathematics score	128,934 99.7	125,140 99.7	127,515 99.7	129,136 99.6	129,766 99.5	128,830 99.3	127,744 98.5
Number processed but not assessed (without a total score)	332 0.3	379 0.3	415 0.3	500 0.4	674 0.5	909 0.7	1,949 1.5
Students with a mathematics score used in state summaries	126,139	122,526	124,973	126,661	127,152	126,204	125,113

Table 10–1R. Students Assessed on the 2012 PSSA: Reading

	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Number of non-blank answer documents processed	129,266	124,503	126,980	129,138	130,145	129,878	130,027
Students with a reading score	128,558 99.5	123,779 99.4	126,262 99.4	128,381 99.4	129,115 99.2	128,656 99.1	127,837 98.3
Number processed but not assessed (without a total score)	708 0.5	724 0.6	718 0.6	757 0.6	1,030 0.8	1,222 0.9	2,190 1.7
Students with a reading score used in state summaries	126,062	121,479	124,007	126,146	126,765	126,250	125,380

Table 10–1S. Students Assessed on the 2012 PSSA: Science

	Gr. 4		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Number of non-blank answer documents processed	128,016		129,924		128,701	
Students with a science score	127,401	99.5	128,324	98.8	123,907	96.3
Number processed but not assessed (without a total score)	615	0.5	1,600	1.2	4,794	3.7
Students with a science score used in state summaries	125,170		126,112		121,693	

Table 10–1W. Students Assessed on the 2012 PSSA: Writing

	Gr. 5		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Number of non-blank answer documents processed	131,300		133,739		133,024	
Students with a writing score	129,861	98.9	131,444	98.3	127,419	95.8
Number processed but not assessed (without a score)	1,439	1.1	2,295	1.7	5,605	4.2
Students with a writing score used in state summaries	127,549		129,035		125,095	

As may be observed from Tables 10–1M through 10–1W, not all students were assessed. Although there are a variety of reasons for this, the major ones pertain to the following:

- Extended absence from school that continued beyond the assessment window
- Absence without make-up for at least one section of a subject-area test
- Failure to meet the attempt criteria on one or more subject-area test sections and no exclusion code was marked by school personnel. For mathematics, reading, and science, the attempt criteria required a minimum of five items to be completed in each subject area section. For writing, the attempt criteria required is at least five multiple-choice items and a response to both operational writing prompts
- ELL students in the first year in U.S. schools (reading and writing only)
- Medical emergency
- Other reasons (includes parental request due to religious reasons, students who are court-agency placed, students with multiple reasons coded, and the category of other)

The numbers of students without test scores for these reasons are presented in Tables 10–2M through 10–2W.

Table 10–2M. Counts of Students without Scores on the 2012 PSSA: Mathematics

Reason for Non-Assessment	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Extended Absence from School	23 6.9	29 7.7	54 13.0	58 11.6	109 16.2	184 20.2	488 25.0
Absent Without Make-up	32 9.6	31 8.2	44 10.6	62 12.4	72 10.7	108 11.9	282 14.5
Non-Attempt	152 45.8	189 49.9	159 38.3	181 36.2	231 34.3	240 26.4	545 28.0
Medical Emergency	67 20.2	74 19.5	103 24.8	117 23.4	147 21.8	202 22.2	295 15.1
Other Reasons	58 17.5	56 14.8	55 13.3	82 16.4	115 17.1	175 19.3	339 17.4
Total Not Assessed	332	379	415	500	674	909	1,949

Table 10–2R. Counts of Students without Scores on the 2012 PSSA: Reading

Reason for Non-Assessment	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Extended Absence from School	23 3.2	29 4.0	54 7.5	58 7.7	109 10.6	185 15.1	491 22.4
Absent Without Make-up	39 5.5	35 4.8	45 6.3	75 9.9	86 8.3	133 10.9	301 13.7
Non-Attempt	251 35.5	241 33.3	185 25.8	185 24.4	310 30.1	301 24.6	596 27.2
ELL in First Year in U.S. Schools	265 37.4	283 39.1	274 38.2	238 31.4	255 24.8	210 17.2	152 6.9
Medical Emergency	70 9.9	77 10.6	103 14.3	116 15.3	150 14.6	208 17.0	298 13.6
Other Reasons	60 8.5	59 8.1	57 7.9	85 11.2	120 11.7	185 15.1	352 16.1
Total Not Assessed	708	724	718	757	1,030	1,222	2,190

Table 10–2S. Counts of Students without Scores on the 2012 PSSA: Science

Reason for Non-Assessment	Gr. 4		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Extended Absence from School	131	21.3	425	26.6	1,336	27.9
Absent Without Make-up	37	6.0	157	9.8	988	20.6
Non-Attempt	246	40.0	440	27.5	1,406	29.3
Medical Emergency	75	12.2	276	17.3	343	7.2
Other Reasons	126	20.5	302	18.9	721	15.0
Total Not Assessed	615		1,600		4,794	

Table 10–2W. Counts of Students without Scores on the 2012 PSSA: Writing

Reason for Non-Assessment	Gr. 5		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Extended Absence from School	125	8.7	364	15.9	1,167	20.8
Absent Without Make-up	39	2.7	134	5.8	815	14.5
Non-Attempt	984	68.4	1,212	52.8	2,544	45.4
ELL in First Year in U.S. Schools	76	5.3	36	1.6	32	0.6
Medical Emergency	94	6.5	259	11.3	327	5.8
Other Reasons	121	8.4	290	12.6	720	12.8
Total Not Assessed	1,439		2,295		5,605	

COMPOSITION OF SAMPLE USED IN SUBSEQUENT TABLES

Students included in the following demographic analyses were those who contributed to state summary statistics, using the post-appeals Adequate Yearly Progress (AYP) individual student data file provided to the Pennsylvania Department of Education on August 27, 2012. Students not included in the present state summary data were those who were 1) enrolled in a Pennsylvania school after October 1, 2011, 2) coded as ELL and enrolled after April 15, 2011, except for science, 3) foreign exchange students, 4) home schooled, 5) enrolled in a non-public school, or 6) without a subject-area test score.

Demographic data for students taking the PSSA are presented separately for each subject area in Tables 10–3M, 10–3R, 10–3S, and 10–3W. Results for accommodations received were collected separately by subject area and are presented in separate tables as well. For example, tables involving accommodations for reading (Tables 10–4R, 10–5R, 10–6R, and 10–7R) were calculated for those students having a reading score.

COLLECTION OF STUDENT DEMOGRAPHIC INFORMATION

Data for analyses involving demographic characteristics were obtained primarily from information supplied by school district personnel through the Pennsylvania Information Management System (PIMS) and subsequently transmitted to DRC. Updates of attribution data (for AYP) were carried out through the DRC Attribution System. Some data such as accommodation information is marked directly on the student answer document at the time the PSSA is administered.

DEMOGRAPHIC CHARACTERISTICS

Frequency data for each category is presented in Tables 10–3M through 10–3W. Percentages are based on students with scores in a subject area and are shown at the bottom of the appropriate table. Included are students receiving education in a non-traditional setting, such as a court-agency placement.

Table 10–3M. Demographic Characteristics of Students Taking the 2012 PSSA: Mathematics

Demographic or Educational Characteristic	**Gr. 3** **N / Pct**	**Gr. 4** **N / Pct**	**Gr. 5** **N / Pct**	**Gr. 6** **N / Pct**	**Gr. 7** **N / Pct**	**Gr. 8** **N / Pct**	**Gr. 11** **N / Pct**
Gender							
Female	61,906 49.1	59,966 48.9	61,405 49.1	62,175 49.1	62,354 49.0	61,931 49.1	62,192 49.7
Male	64,186 50.9	62,529 51.0	63,540 50.8	64,471 50.9	64,787 51.0	64,238 50.9	62,852 50.2
Race/Ethnicity							
American Indian or Alaskan Native	183 0.1	185 0.2	168 0.1	188 0.1	188 0.1	177 0.1	190 0.2
Asian or Pacific Islander	4,471 3.5	4,322 3.5	4,364 3.5	4,237 3.3	3,970 3.1	4,007 3.2	4,198 3.4
Black/African American non-Hispanic	19,052 15.1	18,383 15.0	18,477 14.8	18,601 14.7	18,929 14.9	18,310 14.5	16,710 13.4
Latino/Hispanic	11,129 8.8	10,682 8.7	10,762 8.6	10,304 8.1	10,454 8.2	10,215 8.1	8,234 6.6
White non-Hispanic	88,320 70.0	86,555 70.6	89,142 71.3	91,287 72.1	91,699 72.1	91,606 72.6	94,411 75.5
Multi-Racial/Ethnic	2,930 2.3	2,363 1.9	2,028 1.6	2,021 1.6	1,884 1.5	1,849 1.5	1,288 1.0
Educational Category and Other Demographic Groups							
IEP (not gifted)	18,661 14.8	16,874 13.8	16,722 13.4	16,461 13.0	15,930 12.5	15,648 12.4	13,506 10.8
Student exited IEP in last 2 years	2,413 1.9	2,863 2.3	3,315 2.7	3,537 2.8	3,134 2.5	2,577 2.0	1,489 1.2
Title I	47,967 38.0	44,347 36.2	42,374 33.9	33,559 26.5	25,962 20.4	24,582 19.5	18,502 14.8
Title III Served	3,551 2.8	2,676 2.2	2,472 2.0	2,309 1.8	2,312 1.8	2,253 1.8	1,942 1.6
Title III Not Served	223 0.2	178 0.1	207 0.2	209 0.2	207 0.2	211 0.2	128 0.1
Migrant Student	27 0.0	22 0.0	46 0.0	40 0.0	30 0.0	30 0.0	28 0.0
ELL (enrolled after 4-15-11)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
ELL (enrolled before 4-15-11)	3,785 3.0	2,861 2.3	2,690 2.2	2,522 2.0	2,528 2.0	2,473 2.0	2,081 1.7

Table 10–3M (continued). Demographic Characteristics of Students Taking the 2012 PSSA: Mathematics

Demographic or Educational Characteristic	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Educational Category and Other Demographic Groups (continued)							
Exited ESL/bilingual program and in first year of monitoring	932 0.7	1,106 0.9	975 0.8	630 0.5	432 0.3	404 0.3	343 0.3
Exited ESL/bilingual program and in second year of monitoring	434 0.3	1,049 0.9	1,138 0.9	845 0.7	591 0.5	422 0.3	316 0.3
Former ELL no longer monitored	412 0.3	721 0.6	1,415 1.1	1,928 1.5	2,142 1.7	2,242 1.8	1,613 1.3
Economically Disadvantaged	55,790 44.2	53,538 43.7	52,982 42.4	52,432 41.4	51,411 40.4	49,369 39.1	40,405 32.3
Enrollment							
Current Enrollment in school of residence after 10-1-11	3,570 2.8	3,153 2.6	3,041 2.4	2,688 2.1	3,132 2.5	3,308 2.6	3,064 2.4
Current Enrollment in district of residence after 10-1-11	1,736 1.4	1,576 1.3	1,591 1.3	1,471 1.2	1,780 1.4	1,918 1.5	1,747 1.4
Current Enrollment as PA resident after 10-1-11	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
Enrolled in school of residence after 10-1-10 but on/before 10-1-11	23,717 18.8	23,065 18.8	23,482 18.8	30,132 23.8	26,614 20.9	18,970 15.0	17,840 14.3
Enrolled in district of residence after 10-1-10 but on/before 10-1-11	9,956 7.9	8,811 7.2	9,619 7.7	10,170 8.0	10,831 8.5	8,207 6.5	7,770 6.2
Education in Non-Traditional Settings							
Court/agency placed	44 0.0	47 0.0	91 0.1	108 0.1	182 0.1	371 0.3	601 0.5
Students with mathematics scores used in state summaries	126,139	122,526	124,973	126,661	127,152	126,204	125,113

Table 10–3R. Demographic Characteristics of Students Taking the 2012 PSSA: Reading

Demographic or Educational Characteristic	**Gr. 3**	**Gr. 4**	**Gr. 5**	**Gr. 6**	**Gr. 7**	**Gr. 8**	**Gr. 11**
	N / Pct	**N / Pct**	**N / Pct**	**N / Pct**	**N / Pct**	**N / Pct**	**N / Pct**
Gender							
Female	61,872 49.1	59,695 49.1	61,227 49.4	62,106 49.2	62,304 49.1	62,064 49.2	62,439 49.8
Male	64,143 50.9	61,756 50.8	62,752 50.6	64,025 50.8	64,449 50.8	64,155 50.8	62,870 50.1
Race/Ethnicity							
American Indian or Alaskan Native	183 0.1	184 0.2	168 0.1	184 0.1	190 0.1	178 0.1	191 0.2
Asian or Pacific Islander	4,463 3.5	4,300 3.5	4,336 3.5	4,226 3.4	3,967 3.1	4,000 3.2	4,190 3.3
Black/African American non-Hispanic	19,042 15.1	18,245 15.0	18,374 14.8	18,567 14.7	18,893 14.9	18,341 14.5	16,730 13.3
Latino/Hispanic	11,104 8.8	10,592 8.7	10,683 8.6	10,284 8.2	10,378 8.2	10,191 8.1	8,234 6.6
White non-Hispanic	88,289 70.0	85,773 70.6	88,381 71.3	90,847 72.0	91,427 72.1	91,651 72.6	94,660 75.5
Multi-Racial/Ethnic	2,927 2.3	2,352 1.9	2,033 1.6	2,015 1.6	1,881 1.5	1,853 1.5	1,290 1.0
Educational Category and Other Demographic Groups							
IEP (not gifted)	18,648 14.8	15,860 13.1	15,770 12.7	15,955 12.6	15,614 12.3	15,758 12.5	13,821 11.0
Student exited IEP in last 2 years	2,411 1.9	2,863 2.4	3,317 2.7	3,538 2.8	3,134 2.5	2,575 2.0	1,489 1.2
Title I	47,933 38.0	44,001 36.2	42,092 33.9	33,445 26.5	25,885 20.4	24,538 19.4	18,543 14.8
Title III Served	3,522 2.8	2,613 2.2	2,432 2.0	2,283 1.8	2,268 1.8	2,220 1.8	1,932 1.5
Title III Not Served	221 0.2	178 0.1	204 0.2	207 0.2	201 0.2	206 0.2	126 0.1
Migrant Student	27 0.0	21 0.0	46 0.0	39 0.0	30 0.0	31 0.0	29 0.0
ELL (enrolled after 4-15-11)	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
ELL (enrolled before 4-15-11)	3,753 3.0	2,798 2.3	2,645 2.1	2,493 2.0	2,478 2.0	2,432 1.9	2,069 1.7
Exited ESL/bilingual program and in first year of monitoring	931 0.7	1,102 0.9	970 0.8	627 0.5	427 0.3	401 0.3	340 0.3

Table 10–3R (continued). Demographic Characteristics of Students Taking the 2012 PSSA: Reading

Demographic or Educational Characteristic	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Educational Category and Other Demographic Groups (continued)							
Exited ESL/bilingual program and in second year of monitoring	434 0.3	1,046 0.9	1,136 0.9	840 0.7	589 0.5	421 0.3	312 0.2
Former ELL no longer monitored	412 0.3	723 0.6	1,408 1.1	1,927 1.5	2,136 1.7	2,239 1.8	1,608 1.3
Economically Disadvantaged	55,727 44.2	52,984 43.6	52,480 42.3	52,175 41.4	51,202 40.4	49,388 39.1	40,433 32.2
Enrollment							
Current Enrollment in school of residence after 10-1-11	3,550 2.8	3,126 2.6	3,035 2.4	2,685 2.1	3,112 2.5	3,283 2.6	3,044 2.4
Current Enrollment in district of residence after 10-1-11	1,726 1.4	1,560 1.3	1,581 1.3	1,465 1.2	1,764 1.4	1,903 1.5	1,743 1.4
Current Enrollment as PA resident after 10-1-11	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0
Enrolled in school of residence after 10-1-10 but on/before 10-1-11	23,677 18.8	22,884 18.8	23,342 18.8	30,066 23.8	26,506 20.9	18,977 15.0	17,838 14.2
Enrolled in district of residence after 10-1-10 but on/before 10-1-11	9,940 7.9	8,756 7.2	9,553 7.7	10,143 8.0	10,781 8.5	8,230 6.5	7,755 6.2
Education in Non-Traditional Settings							
Court/agency placed	44 0.0	47 0.0	92 0.1	109 0.1	181 0.1	371 0.3	592 0.5
Students with reading scores used in state summaries	126,062	121,479	124,007	126,146	126,765	126,250	125,380

Table 10–3S. Demographic Characteristics of Students Taking the 2012 PSSA: Science

Demographic or Educational Characteristic	Gr. 4		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Gender						
Female	61,021	48.8	61,865	49.1	60,536	49.7
Male	64,106	51.2	64,199	50.9	61,062	50.2
Race/Ethnicity						
American Indian or Alaskan Native	187	0.1	179	0.1	184	0.2
Asian or Pacific Islander	4,448	3.6	4,084	3.2	4,174	3.4
Black/African American non-Hispanic	18,860	15.1	18,193	14.4	15,127	12.4
Latino/Hispanic	11,150	8.9	10,200	8.1	7,525	6.2
White non-Hispanic	88,069	70.4	91,570	72.6	93,340	76.7
Multi-Racial/Ethnic	2,413	1.9	1,831	1.5	1,231	1.0
Educational Category and Other Demographic Groups						
IEP (not gifted)	19,489	15.6	16,114	12.8	13,386	11.0
Student exited IEP in last 2 years	2,856	2.3	2,574	2.0	1,455	1.2
Title I	45,300	36.2	24,358	19.3	16,552	13.6
Title III - Served	3,174	2.5	2,462	2.0	1,926	1.6
Title III - Not Served	281	0.2	286	0.2	167	0.1
Migrant Student	26	0.0	35	0.0	31	0.0
ELL (enrolled after 4-15-11)	489	0.4	364	0.3	237	0.2
ELL (enrolled before 4-15-11)	2,973	2.4	2,392	1.9	1,869	1.5
Exited ESL/bilingual program–1 yr	1,108	0.9	394	0.3	323	0.3
Exited ESL/bilingual program–2 yr	1,052	0.8	413	0.3	299	0.2
Former ELL no longer monitored	723	0.6	2,209	1.8	1,514	1.2
Economically Disadvantaged	55,195	44.1	49,224	39.0	37,903	31.1

Table 10–3S (continued). Demographic Characteristics of Students Taking the 2012 PSSA: Science

Demographic or Educational Characteristic	**Gr. 4**		**Gr. 8**		**Gr. 11**	
	N	**Pct**	**N**	**Pct**	**N**	**Pct**
Enrollment						
Current Enrollment in school of residence after 10-1-11	3,258	2.6	3,213	2.5	2,643	2.2
Current Enrollment in district of residence after 10-1-11	1,646	1.3	1,885	1.5	1,631	1.3
Current Enrollment as PA resident after 10-1-11	0	0.0	0	0.0	0	0.0
Enrolled in school of residence after 10-1-10 but on/before 10-1-11	23,815	19.0	18,947	15.0	16,047	13.2
Enrolled in district of residence after 10-1-10 but on/before 10-1-11	9,286	7.4	8,374	6.6	7,424	6.1
Education in Non-Traditional Settings						
Court/agency placed	51	0.0	364	0.3	569	0.5
Students with science scores used in state summaries	125,170		126,112		121,693	

Table 10–3W. Demographic Characteristics of Students Taking the 2012 PSSA: Writing

Demographic or Educational Characteristic	Gr. 5		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Gender						
Female	62,453	49.0	63,076	48.9	62,092	49.6
Male	65,074	51.0	65,923	51.1	62,908	50.3
Race/Ethnicity						
American Indian or Alaskan Native	170	0.1	186	0.1	190	0.2
Asian or Pacific Islander	4,357	3.4	4,016	3.1	4,127	3.3
Black/African American non-Hispanic	19,000	14.9	18,740	14.5	16,001	12.8
Latino/Hispanic	10,951	8.6	10,308	8.0	7,710	6.2
White non-Hispanic	90,973	71.3	93,858	72.7	95,702	76.5
Multi-Racial/Ethnic	2,074	1.6	1,884	1.5	1,251	1.0
Educational Category and Other Demographic Groups						
IEP (not gifted)	19,947	15.6	19,395	15.0	16,806	13.4
Student exited IEP in last 2 years	3,306	2.6	2,569	2.0	1,449	1.2
Title I	43,059	33.8	24,818	19.2	17,368	13.9
Title III - Served	2,525	2.0	2,238	1.7	1,721	1.4
Title III - Not Served	213	0.2	210	0.2	135	0.1
Migrant Student	47	0.0	29	0.0	31	0.0
ELL (enrolled after 4-15-11)	0	0.0	0	0.0	0	0.0
ELL (enrolled before 4-15-11)	2,745	2.2	2,453	1.9	1,863	1.5
Exited ESL/bilingual program–1 yr	983	0.8	409	0.3	329	0.3
Exited ESL/bilingual program–2 yr	1,138	0.9	423	0.3	312	0.2
Former ELL no longer monitored	1,418	1.1	2,262	1.8	1,599	1.3
Economically Disadvantaged	54,561	42.8	50,840	39.4	39,684	31.7

Table 10–3W (continued). Demographic Characteristics of Students Taking the 2012 PSSA: Writing

Demographic or Educational Characteristic	Gr. 5		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Enrollment						
Current Enrollment in school of residence after 10-1-11	3,072	2.4	3,234	2.5	2,682	2.1
Current Enrollment in district of residence after 10-1-11	1,624	1.3	1,928	1.5	1,647	1.3
Current Enrollment as PA resident after 10-1-11	0	0.0	0	0.0	0	0.0
Enrolled in school of residence after 10-1-10 but on/before 10-1-11	23,821	18.7	19,117	14.8	16,658	13.3
Enrolled in district of residence after 10-1-10 but on/before 10-1-11	9,724	7.6	8,336	6.5	7,492	6.0
Education in Non-Traditional Settings						
Court/agency placed	98	0.1	369	0.3	573	0.5
Students with writing scores used in state summaries	127,549		129,035		125,095	

TEST ACCOMMODATIONS PROVIDED

School personnel supplied information regarding accommodations that a student may have received while taking the PSSA. Accommodations are classified in terms of presentation, response, setting, and timing to enable students to better manage disabilities that hinder their ability to learn and respond to assessments. An accommodations manual for the PSSA entitled *PSSA, PSSA-M, and Keystone (paper/pencil) Accommodations Guidelines for Students with IEPs and Students with 504 Plans* was updated for use with the 2012 PSSA. The manual can be accessed at www.education.state.pa.us. On the left, select “Programs,” “Programs O–R,” “Pennsylvania System of School Assessment (PSSA),” and then “Testing Accommodations & Security.”

The frequency with which these accommodations were utilized is summarized separately for each subject area in Tables 10–4M through 10–7W. Table values are based on all students receiving a score, which contributed to state summary statistics in a given subject area. A glossary of accommodation terms as applied to the PSSA is provided in Table 10–10 at the end of this chapter.

PRESENTATION ACCOMMODATIONS RECEIVED

Presentation Accommodations are those that provide alternate ways for students to access and process printed instructional material and assessments. These include auditory, tactile, visual, and combined auditory/visual modes of presentation. The number of presentation accommodations provided in the 2012 PSSA varied by subject as follows: mathematics and science, 13; reading, 9; and writing, 11. As depicted in Tables 10–4M through 10–4W, the actual frequencies were quite low, generally representing less than two-tenths of one percent of assessed students statewide (73 to 79 percent of the instances depending on subject area). Frequencies of less than one-tenth of one percent ranged from 45 to 59 percent. The most notable exceptions were test directions read aloud (each subject), test items read aloud (mathematics and science), and writing prompts read aloud (writing).

RESPONSE ACCOMMODATIONS RECEIVED

Response Accommodations permit students to complete assignments, tests, and activities in different ways to solve or organize problems using some type of assistive device or organizer. The number of response accommodations provided on the 2012 PSSA varied by subject as follows: mathematics and science, 12, reading, 9, and writing, 8. Summarized in Tables 10–5M through 10–5W is the frequency with which these accommodations were utilized, most of which are quite low. Frequencies less than two-tenths of one percent ranged from 75 to 92 percent of the instances; frequencies less than one-tenth of one percent ranged from 57 to 67 percent.

SETTING ACCOMMODATIONS RECEIVED

Setting Accommodations permit a change in location in which a student receives instruction or participates in an assessment. There were four categories of setting accommodations for each subject area on the 2012 PSSA. As depicted in Tables 10–6M through 10–6W, the most common accommodation was small group testing followed closely by separate setting, which was also heavily used. In mathematics and reading the percentage of use for both accommodations was greatest at Grade 3 with small decreases through Grade 5, a drop of about 2.5 percent at Grade 6, then continued decreases through Grade 11. Similarly, usage of these two accommodations was greatest at the elementary level for science (Grade 4) and writing (Grade 5) with diminishing percentages at Grades 8 and 11.

TIMING ACCOMMODATIONS RECEIVED

Timing Accommodations involve a change in the allowable length of time to complete assignments or assessments, including the way in which time is organized. There were three categories of timing accommodations on the 2012 PSSA for each subject area. As depicted in Tables 10–7M through 10–7W, the most common accommodations were extended time and frequent breaks. For mathematics and reading, usage of extended time peaked at Grade 5 then diminished, while frequent breaks steadily decreased from Grade 3 throughout the remaining grades. In science and writing, both accommodations demonstrated a clear and consistent pattern as percentage of use diminished linearly across grades.

Table 10–4M. Incidence of Presentation Accommodations Received on the 2012 PSSA: Mathematics

Type of Presentation Accommodation	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Braille Format	7 0.0	7 0.0	7 0.0	3 0.0	7 0.0	5 0.0	5 0.0
Large Print Format	109 0.1	88 0.1	90 0.1	80 0.1	63 0.0	60 0.0	44 0.0
Audio CD	4 0.0	5 0.0	2 0.0	1 0.0	1 0.0	2 0.0	0 0.0
Electronic Screen Reader	4 0.0	1 0.0	0 0.0	2 0.0	1 0.0	2 0.0	6 0.0
Test directions read aloud (provided by live reader)	6,477 5.1	5,651 4.6	5,190 4.2	3,652 2.9	2,868 2.3	2,732 2.2	1,244 1.0
Test directions signed, interpreted for ELL student, or recorded	165 0.1	155 0.1	134 0.1	79 0.1	101 0.1	95 0.1	74 0.1
Test items/questions read aloud (provided by live reader) or signed	12,821 10.2	11,081 9.0	9,629 7.7	6,365 5.0	3,632 2.9	3,076 2.4	908 0.7
Test items/questions interpreted for ELL student	159 0.1	132 0.1	133 0.1	66 0.1	85 0.1	62 0.0	35 0.0
Amplification device	73 0.1	70 0.1	34 0.0	22 0.0	17 0.0	18 0.0	4 0.0
Magnification device	14 0.0	7 0.0	12 0.0	13 0.0	10 0.0	4 0.0	6 0.0
Reading windows, reading guides	308 0.2	275 0.2	211 0.2	129 0.1	34 0.0	26 0.0	3 0.0
Other (per *Accommodations Guidelines*)	316 0.3	252 0.2	196 0.2	197 0.2	156 0.1	146 0.1	93 0.1
Spanish version for mathematics	116 0.1	143 0.1	159 0.1	195 0.2	234 0.2	249 0.2	250 0.2

Table 10–4R. Incidence of Presentation Accommodations Received on the 2012 PSSA: Reading

Type of Presentation Accommodation	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Braille Format	8 0.0	5 0.0	6 0.0	4 0.0	8 0.0	4 0.0	7 0.0
Large Print Format	112 0.1	87 0.1	90 0.1	74 0.1	62 0.0	61 0.0	45 0.0
Electronic Screen Reader	5 0.0	1 0.0	0 0.0	2 0.0	0 0.0	3 0.0	0 0.0
Test directions read aloud (provided by live reader)	5,421 4.3	4,547 3.7	4,232 3.4	3,215 2.5	2,605 2.1	2,567 2.0	1,244 1.0
Test directions signed, interpreted for ELL student, or recorded	103 0.1	92 0.1	82 0.1	44 0.0	62 0.0	74 0.1	63 0.1
Amplification device	98 0.1	89 0.1	35 0.0	30 0.0	17 0.0	17 0.0	3 0.0
Magnification device	15 0.0	8 0.0	12 0.0	8 0.0	9 0.0	5 0.0	5 0.0
Reading windows, reading guides	901 0.7	688 0.6	495 0.4	268 0.2	108 0.1	93 0.1	7 0.0
Other (per *Accommodations Guidelines*)	389 0.3	286 0.2	257 0.2	219 0.2	156 0.1	171 0.1	93 0.1

Table 10–4S. Incidence of Presentation Accommodations Received on the 2012 PSSA: Science

Type of Presentation Accommodation	**Gr. 4**		**Gr. 8**		**Gr. 11**	
	N	**Pct**	**N**	**Pct**	**N**	**Pct**
Braille Format	6	0.0	3	0.0	6	0.0
Large Print Format	91	0.1	47	0.0	30	0.0
Audio CD	1	0.0	0	0.0	1	0.0
Electronic Screen Reader	2	0.0	0	0.0	1	0.0
Test directions read aloud (provided by live reader)	5,794	4.6	2,122	1.7	985	0.8
Test directions signed, interpreted for ELL student, or recorded	168	0.1	71	0.1	48	0.0
Test items/questions read aloud (provided by live reader) or signed	11,423	9.1	2,180	1.7	597	0.5
Test items/questions interpreted for ELL student	142	0.1	46	0.0	27	0.0
Amplification device	60	0.0	11	0.0	2	0.0
Magnification device	10	0.0	1	0.0	6	0.0
Reading windows, reading guides	160	0.1	18	0.0	0	0.0
Other (per *Accommodations Guidelines*)	156	0.1	129	0.1	49	0.0
Spanish version for science	210	0.2	311	0.2	274	0.2

Table 10–4W. Incidence of Presentation Accommodations Received on the 2012 PSSA: Writing

Type of Presentation Accommodation	Gr. 5		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Braille Format	8	0.0	5	0.0	10	0.0
Large Print Format	83	0.1	64	0.0	51	0.0
Electronic Screen Reader	0	0.0	0	0.0	1	0.0
Test directions read aloud (provided by live reader)	4,696	3.7	2,636	2.0	1,122	0.9
Test directions signed, interpreted for ELL student, or recorded	65	0.1	66	0.1	55	0.0
Writing prompts read aloud	7,582	5.9	3,372	2.6	1,181	0.9
Writing prompts signed, interpreted for ELL student, or recorded	64	0.1	39	0.0	33	0.0
Amplification device	26	0.0	14	0.0	3	0.0
Magnification device	7	0.0	4	0.0	11	0.0
Reading windows, reading guides	206	0.2	36	0.0	1	0.0
Other	162	0.1	142	0.1	82	0.1

Table 10–5M. Incidence of Response Accommodations Received on the 2012 PSSA: Mathematics

Type of Response Accommodation	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N /Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Test administrator marked multiple-choice responses at student's direction	245 0.2	437 0.4	463 0.4	274 0.2	203 0.2	154 0.1	42 0.0
Test administrator scribed open-ended responses at student's direction	1,059 0.8	727 0.6	579 0.5	349 0.3	216 0.2	152 0.1	43 0.0
Test administrator transcribed student responses	348 0.3	476 0.4	420 0.3	309 0.2	279 0.2	187 0.1	74 0.1
Qualified interpreter for ELL student	20 0.0	22 0.0	19 0.0	10 0.0	28 0.0	26 0.0	25 0.0
Keyboard, word processor, or computer	9 0.0	14 0.0	50 0.0	57 0.0	76 0.1	62 0.0	13 0.0
Brailler/Notetaker	5 0.0	6 0.0	4 0.0	2 0.0	4 0.0	2 0.0	3 0.0
Augmentative communication device	4 0.0	0 0.0	0 0.0	3 0.0	1 0.0	0 0.0	0 0.0
Audio recording of student responses	0 0.0	0 0.0	0 0.0	2 0.0	0 0.0	0 0.0	0 0.0
Electronic Screen Reader	1 0.0	0 0.0	0 0.0	1 0.0	1 0.0	0 0.0	0 0.0
Manipulative	407 0.3	207 0.2	56 0.0	74 0.1	50 0.0	16 0.0	15 0.0
Translation dictionary for ELL student	20 0.0	68 0.1	60 0.0	78 0.1	79 0.1	127 0.1	126 0.1
Other (approved by PDE)	156 0.1	107 0.1	100 0.1	80 0.1	46 0.0	32 0.0	13 0.0

Table 10–5R. Incidence of Response Accommodations Received on the 2012 PSSA: Reading

Type of Response Accommodation	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Test administrator marked multiple-choice responses at student's direction	239 0.2	399 0.3	435 0.4	267 0.2	199 0.2	158 0.1	43 0.0
Test administrator scribed open-ended responses at student's direction	1,138 0.9	766 0.6	610 0.5	405 0.3	236 0.2	185 0.1	55 0.0
Test administrator transcribed student responses	380 0.3	492 0.4	492 0.4	377 0.3	355 0.3	279 0.2	118 0.1
Keyboard, word processor, or computer	22 0.0	41 0.0	116 0.1	142 0.1	143 0.1	150 0.1	54 0.0
Brailler/Notetaker	5 0.0	4 0.0	2 0.0	4 0.0	6 0.0	4 0.0	4 0.0
Augmentative communication device	4 0.0	1 0.0	0 0.0	3 0.0	1 0.0	1 0.0	0 0.0
Audio recording of student responses	0 0.0	0 0.0	0 0.0	1 0.0	0 0.0	1 0.0	0 0.0
Electronic Screen Reader	1 0.0	0 0.0	0 0.0	1 0.0	0 0.0	1 0.0	0 0.0
Other (approved by PDE)	104 0.1	126 0.1	135 0.1	117 0.1	40 0.0	33 0.0	10 0.0

Table 10–5S. Incidence of Response Accommodations Received on the 2012 PSSA: Science

Type of Response Accommodation	Gr. 4		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Test administrator marked multiple-choice responses at student's direction	518	0.4	125	0.1	21	0.0
Test administrator scribed open-ended responses at student's direction	906	0.7	121	0.1	32	0.0
Test administrator transcribed student responses	562	0.4	185	0.1	65	0.1
Qualified interpreter for ELL student	25	0.0	6	0.0	3	0.0
Keyboard, word processor, or computer	14	0.0	78	0.1	23	0.0
Brailler/Notetaker	5	0.0	2	0.0	3	0.0
Augmentative communication device	0	0.0	0	0.0	0	0.0
Audio recording of student responses	0	0.0	0	0.0	0	0.0
Electronic Screen Reader	2	0.0	0	0.0	2	0.0
Manipulative	0	0.0	0	0.0	0	0.0
Translation dictionary for ELL student	44	0.0	76	0.1	75	0.1
Other (approved by PDE)	74	0.1	70	0.1	17	0.0

Table 10–5W. Incidence of Response Accommodations Received on the 2012 PSSA: Writing

Type of Response Accommodation	Gr. 5		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Test administrator marked multiple-choice responses at student's direction	93	0.1	101	0.1	28	0.0
Test administrator transcribed student responses	1,034	0.8	592	0.5	257	0.2
Keyboard, word processor, or computer	346	0.3	352	0.3	205	0.2
Brailler/Notetaker	6	0.0	4	0.0	6	0.0
Augmentative communication device	1	0.0	1	0.0	2	0.0
Audio recording of student responses	1	0.0	0	0.0	3	0.0
Electronic Screen Reader	0	0.0	0	0.0	9	0.0
Other (approved by PDE)	86	0.1	54	0.0	18	0.0

Table 10–6M. Incidence of Setting Accommodations Received on the 2012 PSSA: Mathematics

Type of Setting Accommodation	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Hospital/Home Testing	48 0.0	52 0.0	42 0.0	54 0.0	82 0.1	94 0.1	84 0.1
Separate Setting	13,011 10.3	11,831 9.7	10,803 8.6	7,653 6.0	5,982 4.7	5,813 4.6	3,688 2.9
Small Group Testing	17,227 13.7	15,377 12.6	14,691 11.8	11,398 9.0	9,422 7.4	9,377 7.4	6,742 5.4
Other (PDE Approved)	200 0.2	144 0.1	125 0.1	108 0.1	66 0.1	91 0.1	55 0.0

Table 10–6R. Incidence of Setting Accommodations Received on the 2012 PSSA: Reading

Type of Setting Accommodation	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Hospital/Home Testing	46 0.0	46 0.0	43 0.0	52 0.0	82 0.1	92 0.1	86 0.1
Separate Setting	12,959 10.3	10,987 9.0	10,170 8.2	7,369 5.8	5,868 4.6	5,881 4.7	3,763 3.0
Small Group Testing	16,986 13.5	14,390 11.8	13,797 11.1	10,887 8.6	9,194 7.3	9,373 7.4	6,881 5.5
Other (PDE Approved)	194 0.2	148 0.1	86 0.1	101 0.1	72 0.1	74 0.1	55 0.0

Table 10–6S. Incidence of Setting Accommodations Received on the 2012 PSSA: Science

Type of Setting Accommodation	Gr. 4		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Hospital/Home Testing	51	0.0	77	0.1	54	0.0
Separate Setting	11,244	9.0	5,029	4.0	2,915	2.4
Small Group Testing	14,546	11.6	8,175	6.5	5,473	4.5
Other (PDE Approved)	63	0.1	72	0.1	27	0.0

Table 10–6W. Incidence of Setting Accommodations Received on the 2012 PSSA: Writing

Type of Setting Accommodation	Gr. 5		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Hospital/Home Testing	38	0.0	74	0.1	77	0.1
Separate Setting	10,319	8.1	6,103	4.7	3,810	3.0
Small Group Testing	12,953	10.2	9,953	7.7	6,990	5.6
Other (PDE Approved)	67	0.1	67	0.1	21	0.0

Table 10–7M. Incidence of Timing Accommodations Received on the 2012 PSSA: Mathematics

Type of Timing Accommodation	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Extended Time	5,384 4.3	5,476 4.5	7,725 6.2	6,463 5.1	6,562 5.2	5,409 4.3	7,639 6.1
Frequent Breaks	3,518 2.8	2,764 2.3	2,654 2.1	1,888 1.5	1,392 1.1	1,301 1.0	683 0.5
Changed Test Schedule	558 0.4	535 0.4	656 0.5	587 0.5	519 0.4	514 0.4	311 0.2

Table 10–7R. Incidence of Timing Accommodations Received on the 2012 PSSA: Reading

Type of Timing Accommodation	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Extended Time	5,791 4.6	6,222 5.1	8,416 6.8	6,804 5.4	6,069 4.8	6,869 5.4	5,868 4.7
Frequent Breaks	3,543 2.8	2,643 2.2	2,531 2.0	1,886 1.5	1,408 1.1	1,345 1.1	673 0.5
Changed Test Schedule	590 0.5	530 0.4	484 0.4	385 0.3	410 0.3	421 0.3	306 0.2

Table 10–7S. Incidence of Timing Accommodations Received on the 2012 PSSA: Science

Type of Timing Accommodation	Gr. 4		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Extended Time	4,970	4.0	3,898	3.1	2,036	1.7
Frequent Breaks	2,213	1.8	809	0.6	402	0.3
Changed Test Schedule	308	0.2	218	0.2	201	0.2

Table 10–7W. Incidence of Timing Accommodations Received on the 2012 PSSA: Writing

Type of Timing Accommodation	Gr. 5		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Extended Time	8,167	6.4	6,660	5.2	3,114	2.5
Frequent Breaks	2,057	1.6	1,006	0.8	493	0.4
Changed Test Schedule	333	0.3	288	0.2	198	0.2

ACCOMMODATION RATE FOR NON-IEP AND IEP STUDENTS

A comparison between students without an IEP (non-IEP students) and those with an IEP (IEP Students) with regard to having received an accommodation is provided in Tables 10–8M through 10–8W). In this data, Accommodated means that a student received one or more of the total number of accommodations available for a given subject area as follows: mathematics and science, 32; reading, 25; and writing, 26. The category of Non-Accommodated indicates that a student did not receive any accommodation during testing.

The general pattern of findings provided in Tables 10–8M through 10–8W reveals a consistent and substantially higher percentage of IEP students receiving an accommodation in contrast to non-IEP students. For example, of the non-IEP students taking the Grade 3 mathematics test (see Table 10–8M), 9.9 percent received an accommodation of some type as contrasted with 61.2 percent of IEP students. For mathematics, the percentage of accommodated IEP students rose initially, reaching a peak at Grade 5 before gradually diminishing through Grade 8 followed by a drop of about 10 percent at Grade 11. By contrast, reading displayed a rather steady, but slightly wobbly, usage rate through Grade 8, then a similar drop of about 10 percent at Grade 11. Science and writing displayed similar usage drops across their respective assessed grade levels.

Table 10–8M. Accommodation Rate for Non-IEP and IEP Students: Mathematics

Student Subgroup	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Non-IEP Students	107,478	105,652	108,251	110,200	111,222	110,556	111,607
Non-Accommodated	96,882 90.1	95,773 90.6	97,715 90.3	102,850 93.3	105,004 94.4	105,201 95.2	105,109 94.2
Accommodated	10,596 9.9	9,879 9.4	10,536 9.7	7,350 6.7	6,218 5.6	5,355 4.8	6,498 5.8
IEP Students	18,661	16,874	16,722	16,461	15,930	15,648	13,506
Non-Accommodated	7,238 38.8	6,385 37.8	5,913 35.4	6,387 38.8	6,326 39.7	6,319 40.4	6,753 50.0
Accommodated	11,423 61.2	10,489 62.2	10,809 64.6	10,074 61.2	9,604 60.3	9,329 59.6	6,753 50.0

Table 10–8R. Accommodation Rate for Non-IEP and IEP Students: Reading

Student Subgroup	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 11
	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct	N / Pct
Non-IEP Students	107,414	105,619	108,237	110,191	111,151	110,492	111,559
Non-Accommodated	97,685 90.9	95,951 90.8	97,642 90.2	103,050 93.5	105,557 95.0	104,302 94.4	106,971 95.9
Accommodated	9,729 9.1	9,668 9.2	10,595 9.8	7,141 6.5	5,594 5.0	6,190 5.6	4,588 4.1
IEP Students	18,648	15,860	15,770	15,955	15,614	15,758	13,821
Non-Accommodated	7,397 39.7	6,400 40.4	5,850 37.1	6,420 40.2	6,381 40.9	6,349 40.3	6,948 50.3
Accommodated	11,251 60.3	9,460 59.6	9,920 62.9	9,535 59.8	9,233 59.1	9,409 59.7	6,873 49.7

Table 10–8S. Accommodation Rate for Non-IEP and IEP Students: Science

Student Subgroup	Gr. 4		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Non-IEP Students	105,681		109,998		108,307	
Non-Accommodated	97,711	92.5	106,119	96.5	106,495	98.3
Accommodated	7,970	7.5	3,879	3.5	1,812	1.7
IEP Students	19,489		16,114		13,386	
Non-Accommodated	8,165	41.9	7,873	48.9	7,920	59.2
Accommodated	11,324	58.1	8,241	51.1	5,466	40.8

Table 10–8W. Accommodation Rate for Non-IEP and IEP Students: Writing

Student Subgroup	Gr. 5		Gr. 8		Gr. 11	
	N	Pct	N	Pct	N	Pct
Non-IEP Students	107,602		109,640		108,289	
Non-Accommodated	99,121	92.1	103,678	94.6	106,159	98.0
Accommodated	8,481	7.9	5,962	5.4	2,130	2.0
IEP Students	19,947		19,395		16,806	
Non-Accommodated	8,175	41.0	8,787	45.3	9,380	55.8
Accommodated	11,772	59.0	10,608	54.7	7,426	44.2

THE INCIDENCE OF ACCOMMODATIONS AND IEP AND ELL STATUS

As noted in Tables 10–8M through 10–8W, students with an IEP received an accommodation of some type far more often than non-IEP students. Certain accommodations with very low frequencies are specific to particular disabilities while others are far more common and may also apply to students classified as English Language Learners (ELL). As observed in Tables 10–4M through 10–7W, the most frequently occurring accommodations for assessed students were as follows:

- Test directions read aloud
- Test items/questions read aloud or signed (mathematics and science only)
- Test prompts recorded (writing only)
- Tested in separate setting
- Small group testing
- Extended time
- Frequent breaks

Because the accommodations with the largest frequencies can potentially supply the most stable data when separated out for subgroup analysis, these are displayed in Tables 10–9M through 10–9W.

Coding for IEP is dichotomous, as students are classified IEP and non-IEP. For purposes of this analysis, an English Language Learner (ELL) is a student classified ELL and enrolled in a U.S. school on or before April 15, 2011. All other assessed students, including those who have exited an ESL/bilingual program and are in the first or second year of monitoring, are regarded as non-ELL. Students coded as ELL and enrolled in a U.S. school after April 15, 2011, are excluded from state summary statistics as stated earlier in this chapter.

Customarily, a considerably larger percentage of IEP students receive a given accommodation than non-IEP students. Likewise, certain accommodations may occur more frequently for ELL students than for non-ELL students. To separate out the effect of being classified IEP or ELL, four possible combinations are presented in Tables 10–9M through 10–9W. These include general education students (Gen Ed) who are neither IEP nor ELL, students who are IEP but non-ELL (IEP/non-ELL), students who are ELL but non-IEP (ELL/non-IEP), and students who are both IEP and ELL (IEP/ELL). The bottom row for each grade provides the total number of students with a subject-area score in each of the four classifications.

Because the combination of tabled accommodations and grades assessed differs somewhat by subject area, it is useful to reference the number of instances of accommodations for which the tabled results apply. For example, mathematics with six accommodations displayed and seven assessed grade levels results in 42 possible instances. There are 35 instances for reading, 18 for science, and 18 for writing. The total number of instances across subjects is 113.

For purposes of comparing the four groups in terms of whether a group displayed a larger frequency rate than another group, a choice was made to use a difference of five or more percentage points. In many instances, the percentage difference between groups was of little practical significance (from zero to only several percentage points).

A great deal of consistency in the general findings may be gleaned from Tables 10–9M through 10–9W. Among these accommodations, frequent breaks displayed the least differentiation among the four comparison groups. Small group testing had the largest frequency for each subject area at all assessed grades. A dominant pattern was in the especially high number of times that the IEP/ELL group had the largest percent of accommodations at the elementary level (grades 3–5), which then shifted as the IEP/Non-ELL group tended to receive larger percentages of particular accommodations at grades 6–8, 11. Major findings for each of the four classifications of students are summarized below:

- Gen Ed students (neither IEP nor ELL) had a very low incidence of accommodations in general and less than the other three groups in nearly all instances. The frequency of accommodations was less than one percent in 61 of the 113 total instances and less than five percent in all but four instances.
- The IEP/non-ELL students had the largest percentage of these accommodations in 22 of 68 instances, all occurring within Grades 6–8 and 11, and the second largest percentage in 31 instances, 30 of which occurred in the 45 instances for Grades 3–5. In 48 of 113 instances, the percentage of accommodations was within five percentage points of the IEP/ELL group.
- The ELL/non-IEP students received a larger percentage of these accommodations than the general education students in 70 of the 113 instances and within five percent in the remaining instances. Furthermore, they exhibited lower percentages than IEP/non-ELL students (97 of 113 instances) and the IEP/ELL students (96 of 113 instances).
- The IEP/ELL students had the largest percentage of these accommodations in 31 instances (including 30 of 45 instances in Grades 3–5), and the second largest percentage in 22 of 68 instances, all occurring in the Grades 6–8 and 11 span. In 48 of 113 instances, the percentage of accommodations was within five percentage points of the IEP/non-ELL group.

Table 10–9M. Incidence of IEP and ELL Students Receiving Selected Accommodations: Mathematics

Accommodation Received	Classification of Students Regarding IEP and ELL							
	General Education (non-IEP or ELL)		IEP and non-ELL		ELL and non-IEP		Both IEP and ELL	
Gr. 3	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	1,205	1.2	4,642	25.6	422	13.1	208	37.2
Test items/questions read aloud or signed	3,817	3.7	7,734	42.7	943	29.2	327	58.5
Tested in separate setting	4,081	3.9	7,782	43.0	872	27.0	276	49.4
Small group testing	5,889	5.6	9,779	54.0	1,173	36.4	386	69.1
Extended time	1,977	1.9	3,030	16.7	253	7.8	124	22.2
Frequent breaks	448	0.4	2,915	16.1	59	1.8	96	17.2
Column N for Gr. 3	104,252		18,102		3,226		559	
Gr. 4	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	999	1.0	4,145	25.3	325	13.7	182	37.1
Test items/questions read aloud or signed	3,085	3.0	6,942	42.4	745	31.4	309	62.9
Tested in separate setting	3,702	3.6	7,192	43.9	660	27.8	277	56.4
Small group testing	5,345	5.2	8,784	53.6	906	38.2	342	69.7
Extended time	2,427	2.3	2,725	16.6	220	9.3	104	21.2
Frequent breaks	327	0.3	2,332	14.2	38	1.6	67	13.6
Column N for Gr. 4	103,282		16,383		2,370		491	
Gr. 5	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	767	0.7	4,026	24.9	232	10.7	165	31.3
Test items/questions read aloud or signed	2,256	2.1	6,568	40.6	532	24.6	273	51.7
Tested in separate setting	3,068	2.9	6,947	42.9	514	23.8	274	51.9
Small group testing	4,553	4.3	9,030	55.8	739	34.2	369	69.9
Extended time	4,251	4.0	3,132	19.3	217	10.0	125	23.7
Frequent breaks	309	0.3	2,242	13.8	31	1.4	72	13.6
Column N for Gr. 5	106,089		16,194		2,162		528	
Gr. 6	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	373	0.3	3,068	19.3	135	6.8	76	14.0
Test items/questions read aloud or signed	978	0.9	4,967	31.2	273	13.8	147	27.1

Table 10–9M (continued). Incidence of IEP and ELL Students Receiving Selected Accommodations: Mathematics

Accommodation Received	Classification of Students Regarding IEP and ELL							
	General Education (non-IEP or ELL)		IEP and non-ELL		ELL and non-IEP		Both IEP and ELL	
Gr. 6 (continued)	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Tested in separate setting	1,579	1.5	5,709	35.9	222	11.2	143	26.4
Small group testing	2,487	2.3	8,276	52.0	391	19.7	244	45.0
Extended time	3,574	3.3	2,714	17.0	117	5.9	58	10.7
Frequent breaks	168	0.2	1,670	10.5	5	0.3	45	8.3
Column N for Gr. 6	108,220		15,919		1,980		542	
Gr. 7	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	284	0.3	2,406	15.6	95	4.7	83	16.1
Test items/ questions read aloud or signed	388	0.4	2,978	19.3	150	7.5	116	22.5
Tested in separate setting	730	0.7	4,934	32.0	176	8.7	142	27.5
Small group testing	1,404	1.3	7,466	48.4	333	16.6	219	42.4
Extended time	3,805	3.5	2,573	16.7	123	6.1	61	11.8
Frequent breaks	134	0.1	1,228	8.0	1	0.0	29	5.6
Column N for Gr. 7	109,210		15,414		2,012		516	
Gr. 8	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	241	0.2	2,312	15.3	99	5.0	80	15.6
Test items/questions read aloud or signed	334	0.3	2,441	16.1	191	9.7	110	21.5
Tested in separate setting	807	0.7	4,683	30.9	185	9.4	138	27.0
Small group testing	1,390	1.3	7,465	49.3	313	16.0	209	40.8
Extended time	2,777	2.6	2,434	16.1	132	6.7	66	12.9
Frequent breaks	110	0.1	1,161	7.7	2	0.1	28	5.5
Column N for Gr. 8	108,595		15,136		1,961		512	

Table 10–9M (continued). Incidence of IEP and ELL Students Receiving Selected Accommodations: Mathematics

Accommodation Received	**Classification of Students Regarding IEP and ELL**							
	General Education (non-IEP or ELL)		**IEP and non-ELL**		**ELL and non-IEP**		**Both IEP and ELL**	
Gr. 11	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	62	0.1	1,106	8.3	54	2.8	22	12.5
Test items/ questions read aloud or signed	162	0.1	694	5.2	41	2.2	11	6.3
Tested in separate setting	409	0.4	3,113	23.4	123	6.5	43	24.4
Small group testing	883	0.8	5,472	41.1	329	17.3	58	33.0
Extended time	4,787	4.4	2,404	18.0	418	21.9	30	17.0
Frequent breaks	50	0.0	625	4.7	2	0.1	6	3.4
Column N for Gr. 11	109,702		13,330		1,905		176	

Table 10–9R. Incidence of IEP and ELL Students Receiving Selected Accommodations: Reading

Accommodation Received	Classification of Students Regarding IEP and ELL							
	General Education (non-IEP or ELL)		IEP and non-ELL		ELL and non-IEP		Both IEP and ELL	
Gr. 3	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	857	0.8	4,067	22.5	314	9.8	183	33.0
Tested in separate setting	4,063	3.9	7,785	43.0	838	26.2	273	49.2
Small group testing	5,791	5.6	9,688	53.5	1,132	35.4	375	67.6
Extended time	2,273	2.2	3,131	17.3	262	8.2	125	22.5
Frequent breaks	483	0.5	2,906	16.1	58	1.8	96	17.3
Column N for Gr. 3	104,216		18,093		3,198		555	
Gr. 4	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	759	0.7	3,402	22.1	243	10.3	143	32.1
Tested in separate setting	3,670	3.6	6,444	41.8	634	26.9	239	53.7
Small group testing	5,288	5.1	7,934	51.5	871	37.0	297	66.7
Extended time	3,122	3.0	2,725	17.7	273	11.6	102	22.9
Frequent breaks	331	0.3	2,217	14.4	39	1.7	56	12.6
Column N for Gr. 4	103,266		15,415		2,353		445	
Gr. 5	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	573	0.5	3,323	21.8	194	9.0	142	28.6
Tested in separate setting	3,100	2.9	6,318	41.4	503	23.4	249	50.1
Small group testing	4,525	4.3	8,211	53.8	725	33.8	336	67.6
Extended time	4,952	4.7	3,083	20.2	256	11.9	125	25.2
Frequent breaks	327	0.3	2,109	13.8	31	1.4	64	12.9
Column N for Gr. 5	106,089		15,273		2,148		497	
Gr. 6	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	310	0.3	2,709	17.6	128	6.5	68	13.0
Tested in separate setting	1,582	1.5	5,446	35.3	212	10.8	129	24.6
Small group testing	2,436	2.3	7,839	50.8	378	19.2	234	44.7
Extended time	3,904	3.6	2,713	17.6	128	6.5	59	11.3
Frequent breaks	181	0.2	1,656	10.7	5	0.3	44	8.4
Column N for Gr. 6	108,222		15,431		1,969		524	

Table 10–9R (continued). Incidence of IEP and ELL Students Receiving Selected Accommodations: Reading

Accommodation Received	Classification of Students Regarding IEP and ELL							
	General Education (non-IEP or ELL)		IEP and non-ELL		ELL and non-IEP		Both IEP and ELL	
Gr. 7	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	254	0.2	2,194	14.5	89	4.5	68	14.0
Tested in separate setting	739	0.7	4,828	31.9	172	8.6	129	26.5
Small group testing	1,419	1.3	7,256	48.0	316	15.9	203	41.7
Extended time	3,456	3.2	2,432	16.1	126	6.3	55	11.3
Frequent breaks	131	0.1	1,249	8.3	2	0.1	26	5.3
Column N for Gr. 7	109,160		15,127		1,991		487	
Gr. 8	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	230	0.2	2,164	14.2	95	4.9	78	16.0
Tested in separate setting	827	0.8	4,752	31.1	176	9.0	126	25.9
Small group testing	1,401	1.3	7,470	48.9	305	15.7	197	40.5
Extended time	3,998	3.7	2,649	17.3	153	7.9	69	14.2
Frequent breaks	111	0.1	1,204	7.9	2	0.1	28	5.7
Column N for Gr. 8	108,547		15,271		1,945		487	
Gr. 11	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	59	0.1	1,121	8.2	44	2.3	20	11.5
Tested in separate setting	417	0.4	3,188	23.4	118	6.2	40	23.0
Small group testing	852	0.8	5,649	41.4	324	17.1	56	32.2
Extended time	3,077	2.8	2,371	17.4	391	20.6	29	16.7
Frequent breaks	46	0.0	618	4.5	3	0.2	6	3.4
Column N for Gr. 11	109,664		13,647		1,895		174	

Table 10–9S. Incidence of IEP and ELL Students Receiving Selected Accommodations: Science

Accommodation Received	**Classification of Students Regarding IEP and ELL**							
	General Education (non-IEP or ELL)		**IEP and non-ELL**		**ELL and non-IEP**		**Both IEP and ELL**	
Gr. 4	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	803	0.8	4,478	23.8	327	11.7	186	28.0
Test items/questions read aloud or signed	2,760	2.7	7,637	40.6	695	24.8	331	49.8
Tested in separate setting	2,614	2.5	7,694	40.9	631	22.6	305	45.9
Small group testing	3,831	3.7	9,469	50.3	854	30.5	392	59.0
Extended time	2,075	2.0	2,563	13.6	221	7.9	111	16.7
Frequent breaks	241	0.2	1,873	9.9	25	0.9	74	11.1
Column N for Gr. 4	102,883		18,825		2,798		664	
Gr. 8	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	176	0.2	1,785	11.4	95	4.2	66	12.9
Test items/questions read aloud or signed	176	0.2	1,812	11.6	115	5.1	77	15.0
Tested in separate setting	576	0.5	4,161	26.7	187	8.3	105	20.5
Small group testing	1,040	1.0	6,680	42.8	302	13.5	153	29.8
Extended time	1,949	1.8	1,706	10.9	200	8.9	43	8.4
Frequent breaks	70	0.1	728	4.7	0	0.0	11	2.1
Column N for Gr. 8	107,755		15,601		2,243		513	
Gr. 11	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	64	0.1	861	6.5	44	2.3	16	9.5
Test items/questions read aloud or signed	34	0.0	509	3.9	44	2.3	10	6.0
Tested in separate setting	265	0.2	2,520	19.1	100	5.2	30	17.9
Small group testing	529	0.5	4,647	35.2	248	12.8	49	29.2
Extended time	594	0.6	1,242	9.4	181	9.3	19	11.3
Frequent breaks	30	0.0	367	2.8	1	0.1	4	2.4
Column N for Gr. 11	106,369		13,218		1,938		168	

Table 10–9W. Incidence of IEP and ELL Students Receiving Selected Accommodations: Writing

Accommodation Received	**Classification of Students Regarding IEP and ELL**							
	General Education (non-IEP or ELL)		**IEP and non-ELL**		**ELL and non-IEP**		**Both IEP and ELL**	
Gr. 5	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	354	0.3	4,011	20.8	153	7.3	178	27.0
Prompts read aloud	1,058	1.0	5,992	31.1	286	13.7	246	37.3
Tested in separate setting	1,841	1.7	7,938	41.2	269	12.9	271	41.1
Small group testing	2,677	2.5	9,473	49.1	455	21.8	348	52.7
Extended time	4,667	4.4	3,208	16.6	167	8.0	125	18.9
Frequent breaks	175	0.2	1,800	9.3	15	0.7	67	10.2
Column N for Gr. 5	105,517		19,287		2,085		660	
Gr. 8	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	174	0.2	2,318	12.3	67	3.6	77	12.9
Prompts read aloud	321	0.3	2,857	15.2	90	4.9	104	17.4
Tested in separate setting	617	0.6	5,217	27.8	138	7.4	131	21.9
Small group testing	1,130	1.0	8,420	44.8	223	12.0	180	30.1
Extended time	4,139	3.8	2,356	12.5	114	6.1	51	8.5
Frequent breaks	67	0.1	924	4.9	0	0.0	15	2.5
Column N for Gr. 8	107,786		18,796		1,854		599	
Gr. 11	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**	**N**	**Pct**
Test directions read aloud	55	0.1	1,024	6.2	22	1.3	21	9.5
Prompts read aloud	53	0.0	1,069	6.4	41	2.5	18	8.2
Tested in separate setting	274	0.3	3,418	20.6	72	4.4	46	20.9
Small group testing	492	0.5	6,237	37.6	194	11.8	67	30.5
Extended time	1,247	1.2	1,738	10.5	110	6.7	19	8.6
Frequent breaks	37	0.0	445	2.7	6	0.4	5	2.3
Column N for Gr. 11	106,646		16,586		1,643		220	

GLOSSARY OF ACCOMMODATION TERMS

Table 10–10 provides brief descriptions of accommodation terms as they are used in the PSSA and PSSA-M. School personnel identified the accommodations a student received by marking the relevant bubble(s) in the student answer document as noted in the left column. The right column contains an explanation of each accommodation abstracted from the *PSSA, PSSA-M, and Keystone (paper/pencil) Accommodations Guidelines for Students with IEPs and Students with 504 Plans*. This manual can be found at www.education.state.pa.us. On the left, select "Programs," "Programs O–R," "Pennsylvania System of School Assessment (PSSA)," and then "Testing Accommodations & Security."

Table 10–10. Glossary of Accommodation Terms as Applied in the PSSA and PSSA-M

Type of Testing Accommodation	Explanation
Student used the following Presentation Accommodations	
Braille format	Students may use a Braille format of the test. Answers must then be transcribed into the answer booklet without alteration.
Large print format	Students with visual impairments may use a large print format. Answers must then be transcribed into the answer booklet without alteration.
Magnification device	Devices to magnify print may be used for students with visual impairments and/or print disabilities.
Reading windows, reading guides	Students with visual impairments may use reading windows and reading guides in all assessments.
Electronic screen reader (PDE approval required)	Students with severe visual disabilities may use electronic screen readers; however, PDE must approve the program and functions prior to the test window.
Sign language interpreter	Deaf/hearing impaired students may receive test directions from a qualified interpreter. Signing is also permitted for essay prompts in writing and all items in mathematics and science.
Qualified interpreter for ELL student	An interpreter may translate directions or clarify instructions for the assessments. The interpreter may translate, but not define, specific words or test questions on the mathematics and science tests. On the reading test, the interpreter may only translate directions and may not translate or define words in the passages or test questions.
Test directions read aloud, signed, or recorded (provided by live reader)	Directions for all PSSA tests may be read aloud, signed, or presented by audio recording.
Test items/questions read aloud or signed (provided by live reader)	Students unable to decode text visually may have items/questions read aloud for mathematics and science only; however, words may not be defined.
Test prompts recorded	Writing essay prompts may be presented by audio recording.
Amplification device	In addition to using hearing aids, students may require an amplification device to enhance clarity.
Audio CD Format	An audio CD version of mathematics and science test items/questions may be taken by students with severe hearing disabilities as documented by their IEPs.

Table 10–10 (continued). Glossary of Accommodation Terms as Applied in the PSSA and PSSA-M

Type of Testing Accommodation	Explanation
Other (PDE approval required)	Other presentation accommodations indicated in the *Accommodation Guidelines* may be provided; however, PDE approval is required prior to the test window.
Spanish version for mathematics and science	Students whose first language is Spanish and who have been enrolled in U.S. schools for fewer than three years may take this version.
Student used the following Response Accommodations	
Brailler/Note taker (per *Accommodations Guidelines*)	Students using this device as part of their regular instructional program may use it on the PSSA; however, it may only be used without a thesaurus, spelling, or grammar check.
Test administrator scribed open-ended responses at student's direction	A test administrator may record word-for-word exactly what a student dictates directly into the PSSA test booklet. This includes MC and OE responses for reading, mathematics, and science. For writing, this includes MC items only.
Test administrator marked multiple-choice responses at student's direction	A test administrator may mark an answer booklet at the direction of a student (e.g., a student may point to a multiple-choice answer and the test administrator will mark the response in the answer booklet).
Test administrator transcribed (copied) student responses (per *Accommodations Guidelines*)	For writing prompts, the test administrator may transcribe handwriting that is extremely difficult to read. On reading, mathematics, or science assessments, illegible handwriting may be transcribed for open-ended items only.
Qualified Interpreter for ELL student (translated, transcribed, and/or scribed student responses)	A qualified interpreter may interpret a student's non-English oral responses into written English for mathematics and science assessments. Interpreters are not permitted to make corrections or change the meaning of the response.
Augmentative communication device	Students with severe communication difficulties may use a special device to convey responses, which must be transcribed into the test booklet by the test administrator.
Keyboard, word processor, or computer (per *Accommodations Guidelines*)	This is an allowable accommodation as a typing function only for students with the identified need. Supports such as dictionaries, thesauri, spell checkers, and grammar checkers must be turned off. Answers must then be transcribed into the answer booklet without alteration.
Audio recording of student responses (per *Accommodations Guidelines*)	An electronic recording device may be used to record responses, which must be transcribed into the test booklet by the test administrator. (Students who are unable to use a pencil or have illegible handwriting may answer reading, mathematics, and writing multiple-choice questions orally. Answers must be recorded in the answer booklet without alteration during the testing period.)

Table 10–10 (continued). Glossary of Accommodation Terms as Applied in the PSSA and PSSA-M

Type of Testing Accommodation	Explanation
Manipulative (Cranmer Abacus, number line)	An adaptive calculator or a Cranmer Abacus may be used for the calculator portion of the test only. Eligible students are only those with blindness, low vision, or partial sight.
Translation dictionary for ELL student	A word-to-word dictionary that translates native language to English (or vice versa) without word definitions or pictures is allowed on any portion of the mathematics test and the open-ended section of the reading test, but not for the reading passage or multiple-choice items. It cannot be used on any section of the writing test.
Electronic screen reader (PDE approval required)	Students with blindness or extremely low vision may use computer software that converts text to synthesized speech or Braille.
Other (per *Accommodations Guidelines* or PDE approval)	Other accommodations may be appropriate and available if they do not compromise the integrity of the assessment. Documentation must be provided to PDE.
Student used the following Setting Accommodations	
Hospital/home testing	A student who is confined to a hospital or to home during the testing window may be tested in that environment.
Tested in a separate setting	A separate room may be used to reduce distraction.
Small group testing	Some students may require a test setting with fewer students or a setting apart from all other students.
Other (per *Accommodations Guidelines* or PDE approval)	Other accommodations may be appropriate and available if they do not compromise the integrity of the assessment. Documentation must be provided to PDE.
Student used the following Timing Accommodations	
Extended time	Extended time may be allotted for each section of the test as a planned accommodation to enable students to finish.
Frequent breaks	Frequent breaks (breaks within a test section) may be scheduled for the completion of each test section; however, a test section must be completed within one school day.
Changed test schedule	Students whose disabilities prevent them from following a regular, planned test schedule may follow an individual schedule that enables test completion.

Chapter Eleven: Classical Item Statistics

This chapter provides an overview of the two most familiar item-level statistics obtained from any classical (traditional) item analysis: item difficulty and item discrimination. The following results pertain only to operational PSSA items (i.e., those items that contributed to a student's total test score). Rasch item statistics are discussed in Chapter Twelve, and test-level statistics are found in Chapter Seventeen.

ITEM-LEVEL STATISTICS

Appendix I provides classical item statistics for all PSSA items. Results are organized by subject and grade. 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 the appendices include *p*-values for multiple-choice (MC) items and item means for open-ended (OE) items (indicators of item difficulty); point-biserial correlations for MC items and item-test correlations for OE items (indicators of item discrimination); and the proportion of students selecting each MC item option or earning each OE item score point.

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 multiple-choice 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. Therefore, this is also the proportion correct for the item, or the *p*-value. In theory, *p*-values can range from 0.00 to 1.00 on the proportion-correct scale[5]. 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 was relatively easy and/or the students who attempted the item were relatively high achievers. In other words, item difficulty and student ability are somewhat confounded.

For OE items, mean scores can range from the minimum possible score (usually zero) to the maximum possible score (e.g., four points in the case of some mathematics, science, and writing items). Sometimes a pseudo *p*-value is provided for an OE item. This is done by dividing the mean item score by the maximum possible item score.

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. (As a result of this, some assert that this index would be more accurately referred to as the item's easiness.)

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[5] For 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 PSSA tests because of the range of achievement levels of students in Pennsylvania (Below Basic, Basic, Proficient, and Advanced). Items that are either very hard or very easy provide little information about student differences in achievement. However, an item answered correctly by a high percentage of students would suggest that the knowledge or skill the item taps has been mastered by most students. Conversely, an item answered incorrectly by a low percentage of students would suggest few students have mastered the knowledge or skill the item taps. On a standards-referenced test like the PSSAs, a test development goal is to include a wide range of item difficulties.

ITEM DISCRIMINATION

At the most general level, item discrimination[6] 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 PSSA overall) would be more likely to answer any given PSSA item correctly, while students with low ability (i.e., those who perform poorly on the PSSA overall) would be more likely to answer the same item incorrectly. For the PSSA tests, Pearson's product-moment correlation coefficient between item scores and test scores is used to indicate discrimination. (As commonly practiced, DRC removes the item score from the total score so the resulting correlations will not be spuriously high.) 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. This should be the case for all PSSA operational test items.

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.[7] 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., the items have extreme *p*-values) can have reduced power to discriminate and thus can have lower correlations.

Discrimination is an important consideration for the PSSA because the use of more discriminating items on a test is associated with more reliable test scores. This in turn means that score estimates will be more precise (i.e., there will be smaller confidence intervals around the scores), and perhaps more importantly more accurate performance level placements will be made. The issues of reliability, confidence intervals, and performance level classifications are further discussed in Chapter Eighteen.

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[6] As noted earlier, the discrimination index for PSSA dichotomous MC items is typically referred to as the point-biserial correlation coefficient. For OE items, the term item-test correlation is sometimes used.

[7] It is legitimate to view the point-biserial correlation as a standardized mean difference. 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.

DISCRIMINATION ON DIFFICULTY SCATTERPLOTS

Figure 11–1 contains a series of scatterplots showing item discrimination values (*y*-axis) on the item difficulty (*x*-axis) for each grade and subject area test. Note that pseudo *p*-values (described above) are used for mapping the OE items in these plots. These plots provide maximum information about item discrimination and difficulty in a single visual image for each PSSA test. This is because the *x*- and *y*-axes visually represent many important univariate distributional indices, including the following:

- Minimum and maximum values are listed.
- Mean scores are indicated by the red dot.
- P_{25}, P_{50}, and P_{75} are indicated by the red lines.
- Marginal "rugs" indicate the density of the individual data points.

The bivariate relationship between item discrimination (item-test correlations) and difficulty (item mean scores) is also presented through scatterplots in these figures. One does not usually expect any type of trend here. However, as noted earlier, it is often the case that items with extreme difficulties can have lower discrimination values, as this can be revealed in such plots.

OBSERVATIONS AND INTERPRETATIONS

To support the visuals, Table 11–1 provides break-out results for the MC and OE items. The mean *p*-values for the MC items ranged from about 0.61 to 0.83, while the mean proportion-correct values for the OE items ranged from about 0.37 to 0.68. Most means were generally close to their historic values[8] and suggest that the PSSA items, overall, were reasonably challenging to most students based on these past trends. A noteworthy outlier was Grade 3 mathematics, which seems to have been easier for students than other PSSA exams. However, this is also consistent with past data for the Grade 3 PSSA mathematics test. From the difficulty distributions illustrated in the plots, a wide range of item difficulties appeared on each exam, which was one test development goal.

The mean item-test correlations ranged from roughly 0.33 to 0.43 for MC items and 0.45 to 0.72 for OE items. Again, these were similar to historic trends. The writing MC item-test correlations were generally the lowest, but even here were in the mid 0.30s. The writing MC items were correlated against the unweighted writing total scores, which included the prompt scores. The correlations in writing might be somewhat suppressed because the prompt tasks are so different from the MC tasks. The OE correlations tended to be higher than the MC correlations, which is not surprising because the OE items include more score points. Based on the distribution of the discrimination statistics, the overall item quality was quite good.

It is difficult to make global conclusions about overall test quality from these item statistics alone. With that caveat in mind, the results presented in this chapter indicate that the PSSA item difficulty and discrimination were in expected and acceptable ranges when using historic trends as a guide.[9]

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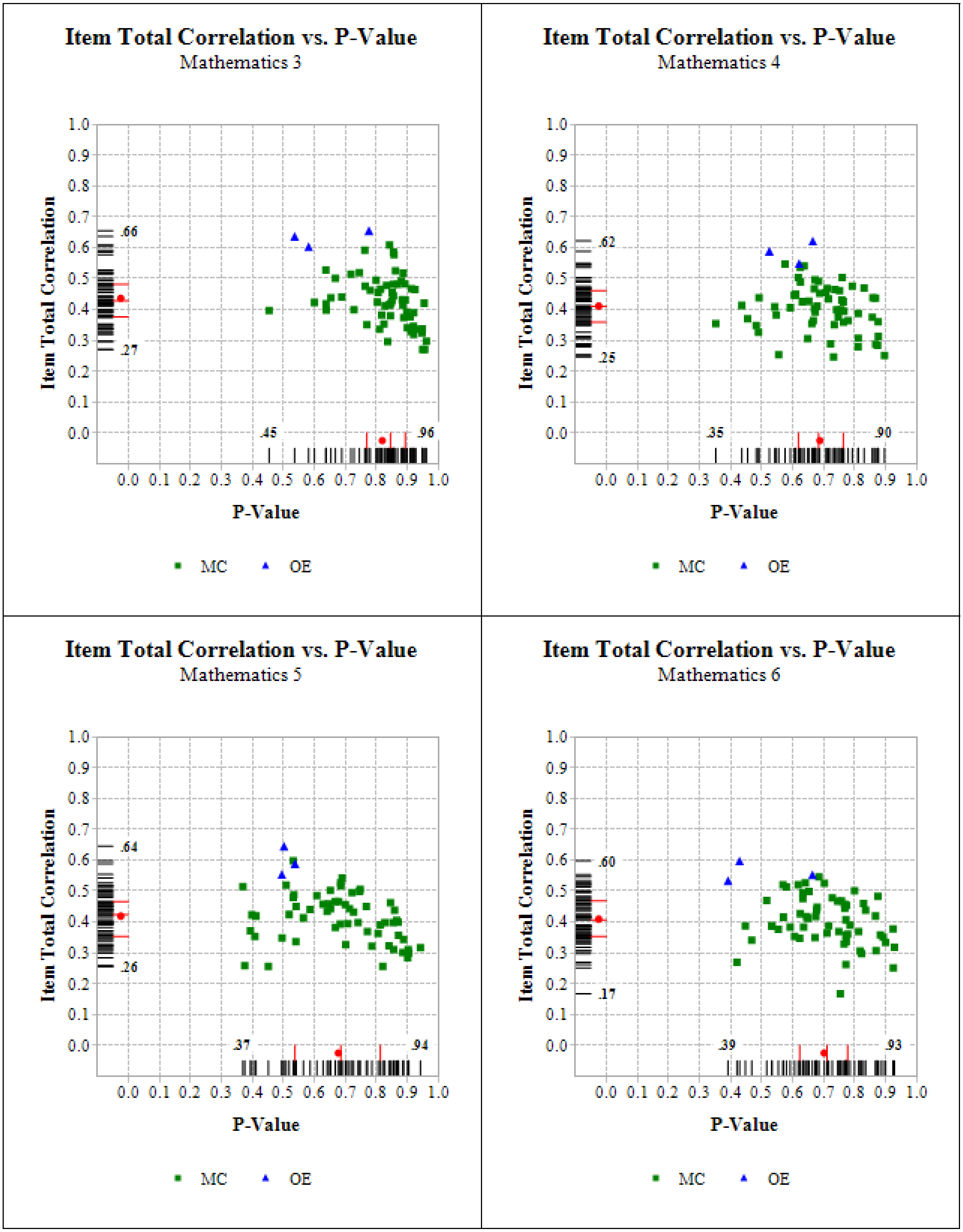
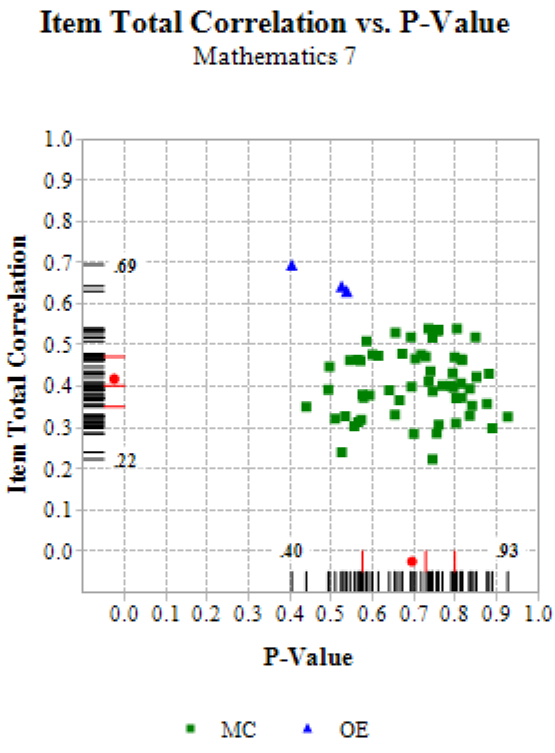
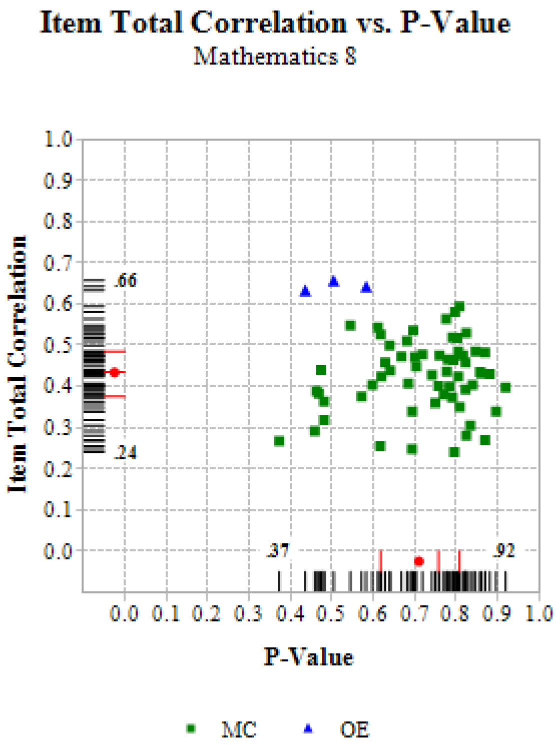
[8] Historically, average item difficulties have ranged from mid 0.60s to low 0.70s for most PSSA tests.

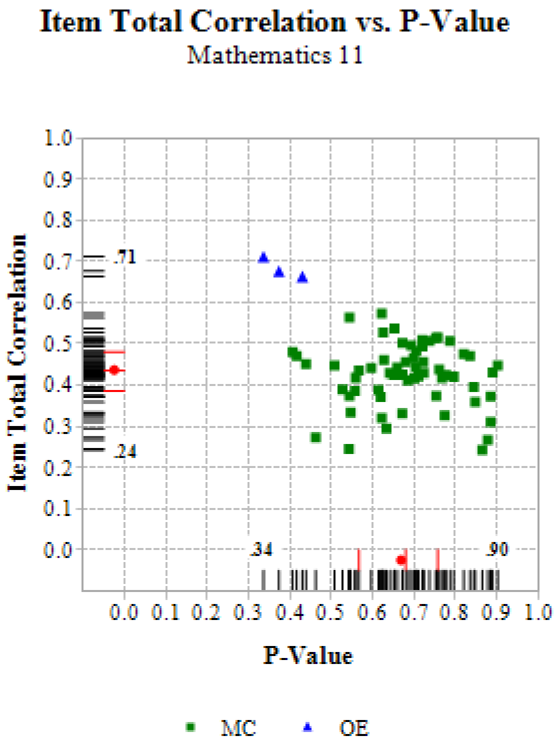
[9] Every year, each PSSA test is built to the same content and statistical specifications. Since the average item difficulty and discrimination indices are similar, the historic trend is expected.

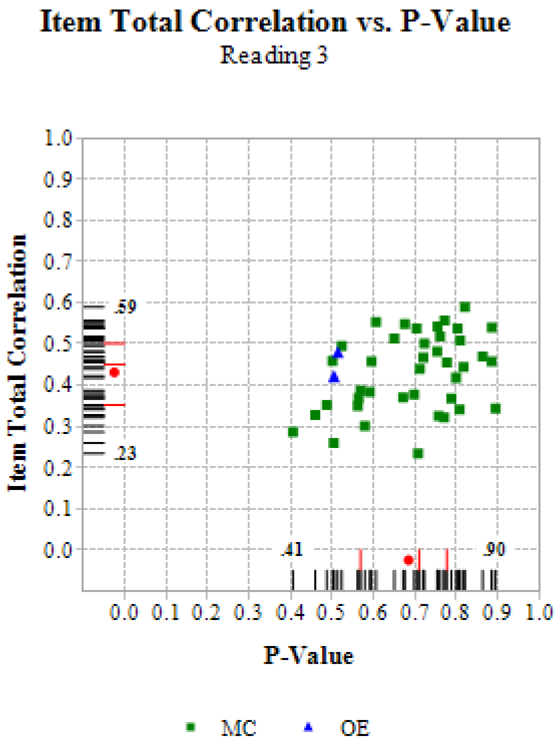
Figure 11–1. Discrimination on Difficulty Scatterplots

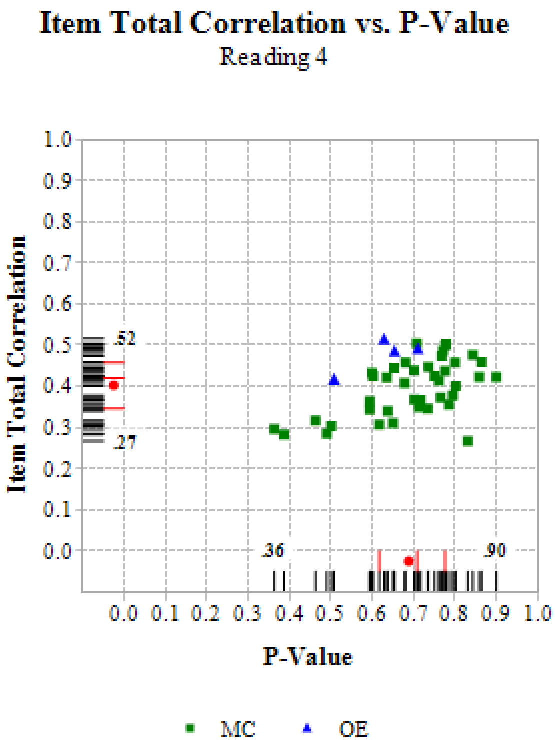


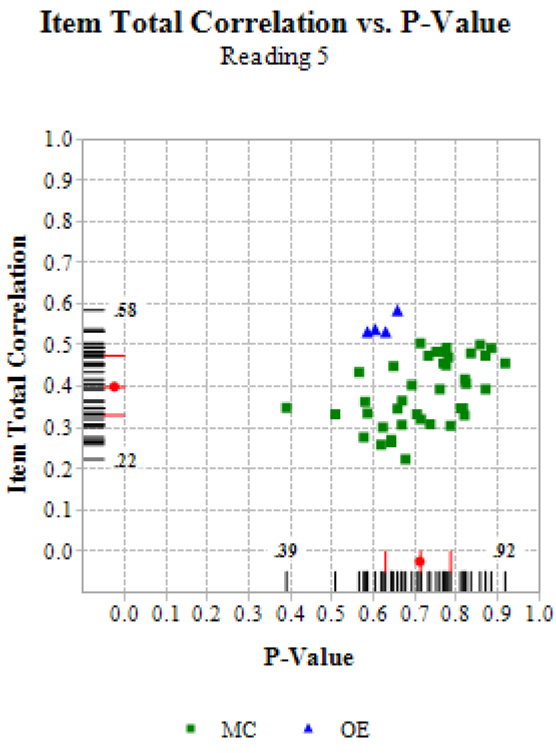

Item Total Correlation vs. P-Value
Mathematics 7
Item Total Correlation
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.69
.22
.40
.93
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE

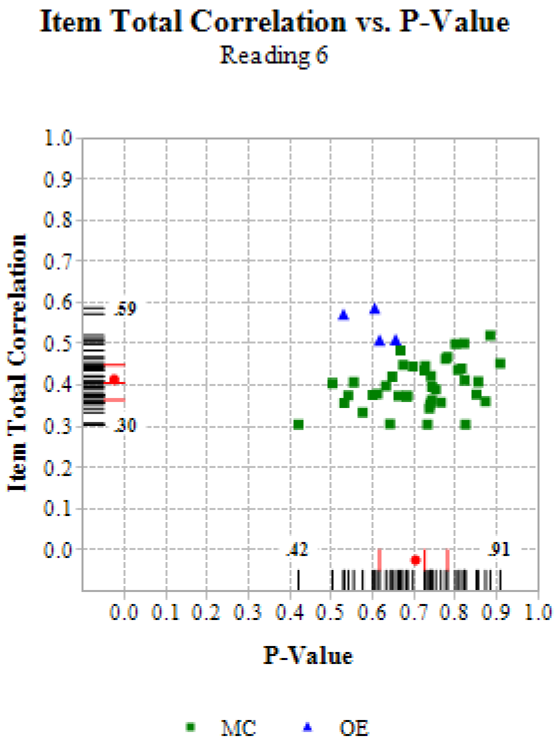

Item Total Correlation vs. P-Value
Mathematics 8
Item Total Correlation
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.66
.24
.37
.92
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE

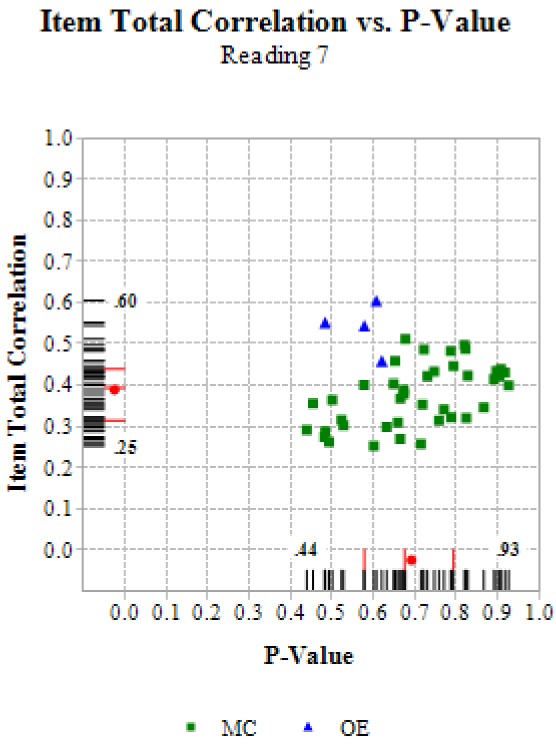

Item Total Correlation vs. P-Value
Mathematics 11
Item Total Correlation
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.71
.24
.34
.90
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE

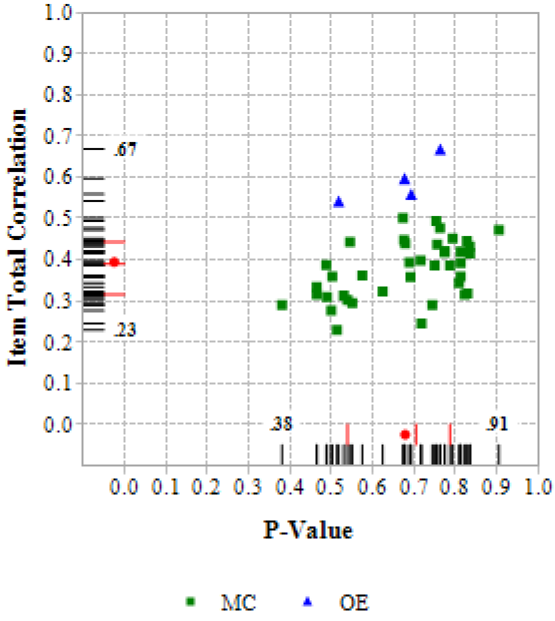

Item Total Correlation vs. P-Value
Reading 3
Item Total Correlation
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.59
.23
.41
.90
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE


Item Total Correlation vs. P-Value
Reading 4
Item Total Correlation
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.52
.27
.36
.90
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE

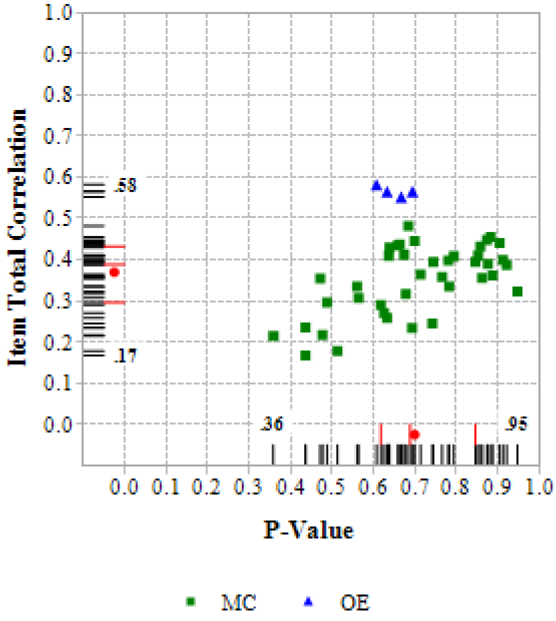

Item Total Correlation vs. P-Value
Reading 5
Item Total Correlation
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.58
.22
.39
.92
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE


Item Total Correlation vs. P-Value
Reading 6
Item Total Correlation
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.59
.30
.42
.91
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE

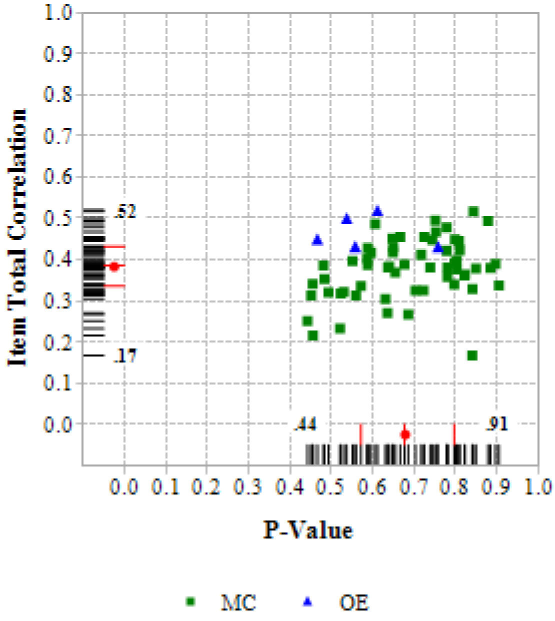

Item Total Correlation vs. P-Value
Reading 7
Item Total Correlation
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.60
.25
.44
.93
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE



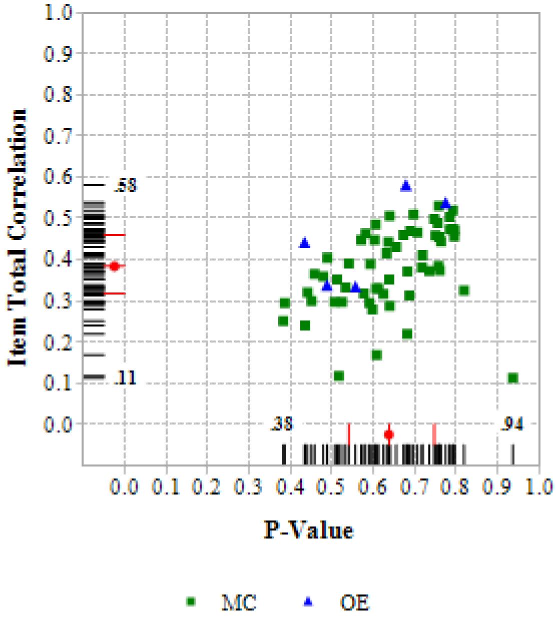
Item Total Correlation vs. P-Value
Reading 8



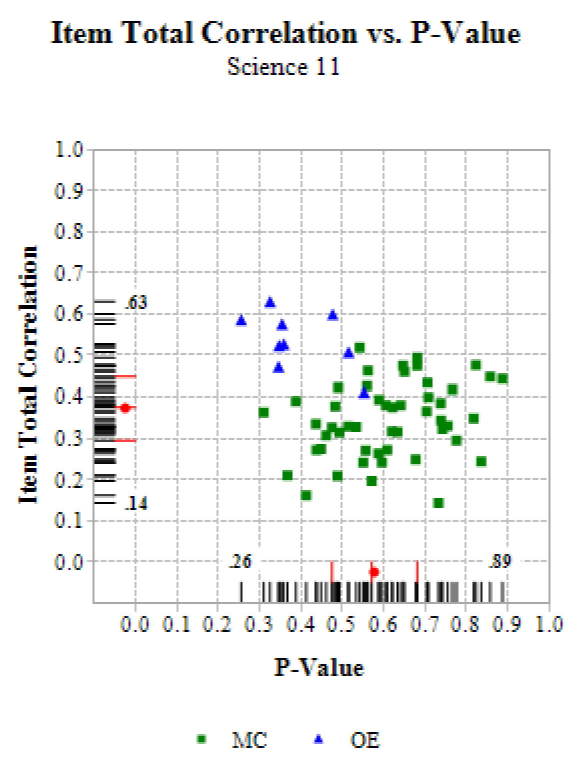
Item Total Correlation vs. P-Value
Reading 11

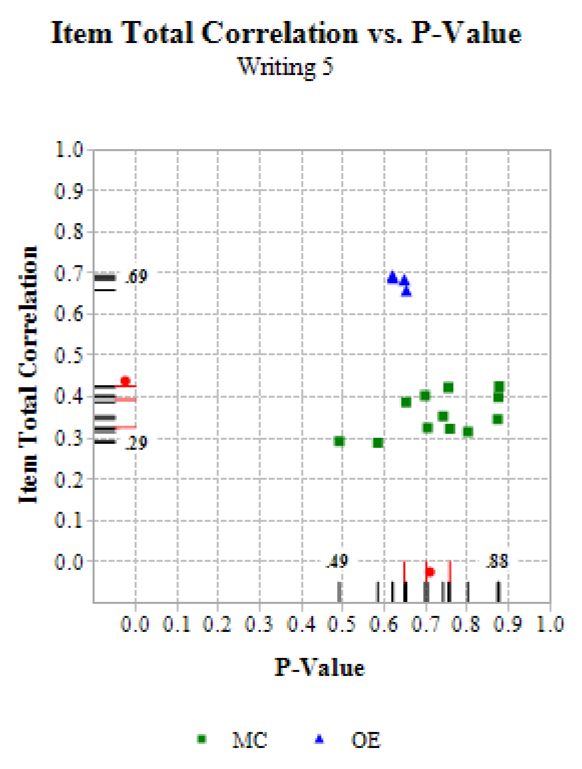


Item Total Correlation vs. P-Value
Science 4



Item Total Correlation vs. P-Value
Science 8


Item Total Correlation vs. P-Value
Science 11
Item Total Correlation
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.63
.14
.26
.89
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE


Item Total Correlation vs. P-Value
Writing 5
Item Total Correlation
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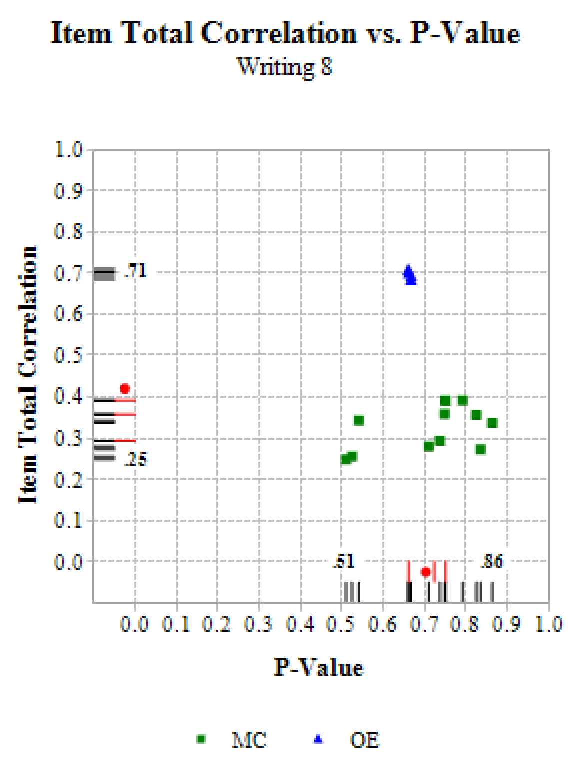
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.69
.29
.49
.88
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE


Item Total Correlation vs. P-Value
Writing 8
Item Total Correlation
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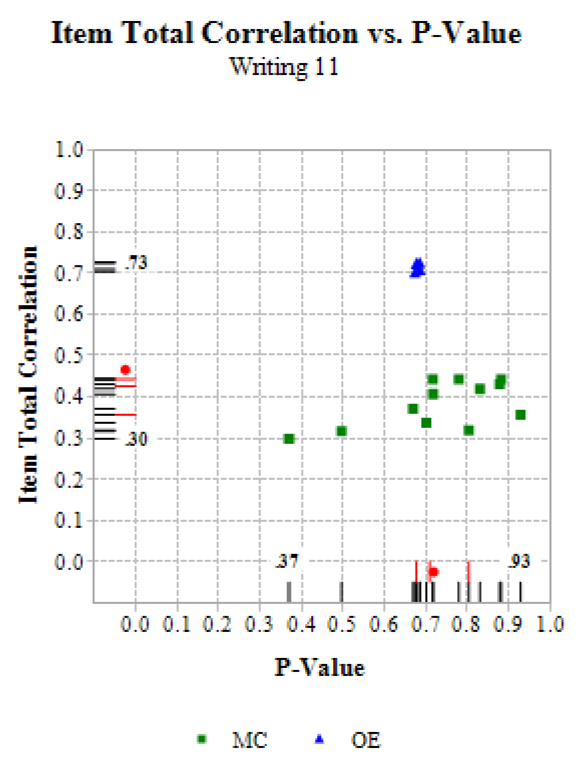
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.71
.25
.51
.86
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE


Item Total Correlation vs. P-Value
Writing 11
Item Total Correlation
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0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
.73
.30
.37
.93
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
P-Value
MC
OE

Table 11–1. Sum and Mean Statistics for MC and OE Items

		Multiple-Choice Items				Open-Ended Items			
Subject	**Grade**	**Points**	**Sum**	**Mean (%/100)**	**Mean I-T Corr.**	**Points**	**Sum**	**Mean (%/100)**	**Mean I-T Corr.**
Mathematics	**3**	60	49.751	0.829	0.426	12	7.580	0.632	0.632
	4	60	41.541	0.692	0.402	12	7.243	0.604	0.586
	5	60	41.153	0.686	0.410	12	6.138	0.512	0.595
	6	60	42.723	0.712	0.401	12	5.936	0.495	0.561
	7	60	42.332	0.706	0.406	12	5.868	0.489	0.656
	8	60	43.231	0.721	0.423	12	6.096	0.508	0.645
	11	60	41.008	0.683	0.424	12	4.560	0.380	0.683
Reading	**3**	40	27.752	0.694	0.429	6	3.057	0.509	0.451
	4	40	27.801	0.695	0.395	12	7.504	0.625	0.478
	5	40	28.866	0.722	0.385	12	7.434	0.620	0.547
	6	40	28.569	0.714	0.400	12	7.224	0.602	0.544
	7	40	28.190	0.705	0.374	12	6.874	0.573	0.540
	8	40	27.226	0.681	0.375	12	7.960	0.663	0.591
	11	40	28.177	0.704	0.350	12	7.809	0.651	0.566
Science	**4**	58	39.867	0.687	0.376	10	5.865	0.586	0.466
	8	58	37.229	0.642	0.378	10	5.868	0.587	0.447
	11	50	30.527	0.611	0.344	24	8.940	0.372	0.537
Writing	**5**	12	8.815	0.735	0.357	16	10.164	0.635	0.681
	8	12	8.593	0.716	0.327	16	10.629	0.664	0.698
	11	12	8.780	0.732	0.382	16	10.891	0.681	0.716

Note. Results for Grade 11 science have SCR and ECR items combined. I-T Corr. is the item-test score correlation. The means for the I-T correlations were not computed using Fisher’s Z transformation. However, this is not expected to affect any conclusions based on these result.

Chapter Twelve: Rasch Item Calibration

The particular item response theory (IRT) model used for the PSSA is based on the work of Georg Rasch. Rasch models have had a long-standing presence in applied testing programs and it has been the methodology continually used to calibrate PSSA items in recent history. 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, model-data fit, and item parameter invariance. 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 operational PSSA items. Generally, item calibration is the process of assigning a difficulty-parameter estimate to each item on an assessment so that all items are placed onto a common scale. This chapter briefly introduces the Rasch model, reports the results from evaluations of the adequacy of the Rasch assumptions, and summarizes the Rasch item statistics for the PSSA mathematics, reading, and science tests. Additional Rasch procedures are discussed with respect to scale linking in Chapter Fifteen.

DESCRIPTION OF THE RASCH MODEL

The Rasch partial credit model (RPCM) was used to calibrate PSSA items because both multiple-choice (MC) and open-ended (OE) items were part of the assessment (Wright and Masters, 1982). The RPCM extends the Rasch model (Rasch, 1960) for dichotomous (0, 1) items so that it accommodates the polytomous OE item data. Under the RPCM, for a given item *i* with m_i score categories, the probability of person *n* scoring *x* ($x = 0, 1, 2, \ldots m_i$) is given by:

$$P_{ni}(X = x) = \frac{\exp\sum_{j=0}^{x}(\theta_n - D_{ij})}{\sum_{k=0}^{m_i}\exp\sum_{j=0}^{k}(\theta_n - D_{ij})},$$

where θ_n represents a student's proficiency (ability) level, and D_{ij} is the step difficulty of the *jth* step on item *i*. For dichotomous MC items, the RPCM reduces to the standard Rasch model and the single step difficulty is referred to as the item's difficulty. The Rasch model predicts the probability of person *n* getting item *i* correct as follows:

$$P_{ni}(X = 1) = \frac{\exp\left(\theta_n - D_{ij}\right)}{1 + \exp\left(\theta_n - D_{ij}\right)}.$$

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, the Rasch model provides estimates of a person's ability that are independent of the items employed in the assessment and conversely, estimates item difficulty independently of the sample of examinees. (As noted in Chapter Eleven, interpretation of item *p*-values confounds item difficulty and student ability.)

Software and Estimation Algorithm

Item calibration was implemented via WINSTEPS 3.54 computer program (Wright and Linacre, 2003), which employs unconditional (UCON) joint-maximum-likelihood estimation (JMLE).

Sample Characteristics

The characteristics of calibration samples are reported in Chapter Nine. These samples only include the students who attempted the tests. All omits (no response) and multiple responses (more than one response selected) were scored as incorrect answers (coded as 0s) for calibration.

CHECKING RASCH ASSUMPTIONS

Since the Rasch model was the basis of all calibration, scoring, and scaling analyses associated with the PSSA, the validity of the inferences from these results depends on the degree to which the assumptions of the model were 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, item fit, and item parameter invariance. It should be noted that only operational items were analyzed since they are the basis of student scores.

Unidimensionality

Rasch models assume that one dominant dimension determines the difference among students' performances. Principal Components Analysis (PCA) can be used to assess the unidimensionality assumption. The purpose of the analysis is to verify whether any other dominant component(s) exist among the items. If any other dimensions are found, the unidimensionality assumption would be violated.

Tables 12–1, 12–2, and 12–3 present the PCA results for the mathematics, reading, and science tests, respectively. The results include the eigenvalues and the percentage of variance explained for the first five components. The scree plots in Figure 12–1 show the eigenvalues plotted by component number and the results from a parallel analysis. A parallel analysis is a technique used to help distinguish components that are real from components that are random (Horn, 1965). For the parallel analysis, 100 random data sets were created of size equal to the original data. For each random data set, a PCA was performed and the resulting eigenvalues stored. Then for each component, the upper 95th percentile value of the distribution of the 100 eigenvalues from the random data sets was plotted. Eigenvalues below this parallel analysis line can be considered random.

As can been seen in Table 12–1, the primary dimension for PSSA mathematics explained about 20 percent to 22 percent of the total variance across Grades 3–8 and 11. The eigenvalues of the second dimensions ranged from 1.5 to 1.8. This indicates that the second dimension accounted for only 1.5 to 1.8 units out of 63 units of total variance. The parallel analysis in the scree plots in Figure 12–1 suggests that only the first factor should be retained in each grade. Overall, the PCA suggests that there is one clearly dominant dimension for all mathematics tests[12].

For the PSSA reading tests (see Table 12–2), the primary dimension explained about 18 percent to 23 percent of the total variance. The second dimension accounted for only 1.2 to 1.6 units out of 42 or 44 units of total variance. The parallel analysis in the scree plots also suggests that only the first factor should be retained in each grade. These results also suggest that each reading test essentially measures a single dominant dimension.

---

[12] According to Reckase (1979), the variance explained by the primary dimension should be greater than 20% to indicate unidimensionality.

For the PSSA science tests (see Table 12–3), the primary dimension explained about 18 percent of the total variance. The second dimension accounted for only 1.5 to 1.7 units out of 59 or 63 units of total variance. The parallel analysis in the scree plots in Figure 12–1 also suggests that only the first factor should be retained in each grade. This, too, suggests that one dominant dimension was measured by each science test.

Table 12–1. Results from PCA – Mathematics

		Component	Eigenvalue	Explained Variance
Mathematics	**3**	1	14.1	22.3%
		2	1.7	2.8%
		3	1.3	2.1%
		4	1.2	1.9%
		5	1.2	1.9%
	4	1	12.6	20.0%
		2	1.7	2.6%
		3	1.4	2.2%
		4	1.2	2.0%
		5	1.1	1.8%
	5	1	13.1	20.7%
		2	1.6	2.6%
		3	1.5	2.3%
		4	1.2	1.9%
		5	1.2	1.9%
	6	1	12.6	19.9%
		2	1.6	2.6%
		3	1.4	2.2%
		4	1.3	2.0%
		5	1.1	1.8%
	7	1	13.1	20.8%
		2	1.5	2.4%
		3	1.2	1.9%
		4	1.1	1.7%
		5	1.0	1.7%
	8	1	14.0	22.2%
		2	1.8	2.9%
		3	1.5	2.3%
		4	1.3	2.1%
		5	1.1	1.7%
	11	1	14.0	22.3%
		2	1.8	2.8%
		3	1.5	2.4%
		4	1.1	1.7%
		5	1.0	1.6%

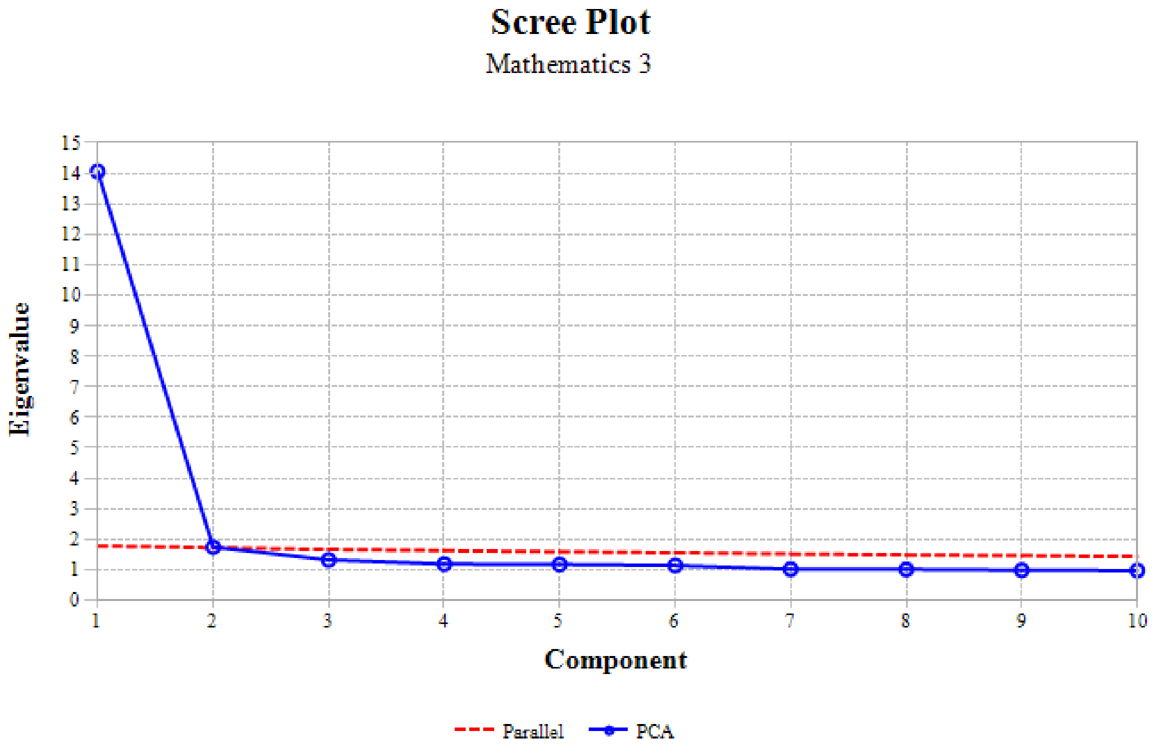
Table 12–2. Results from PCA – Reading

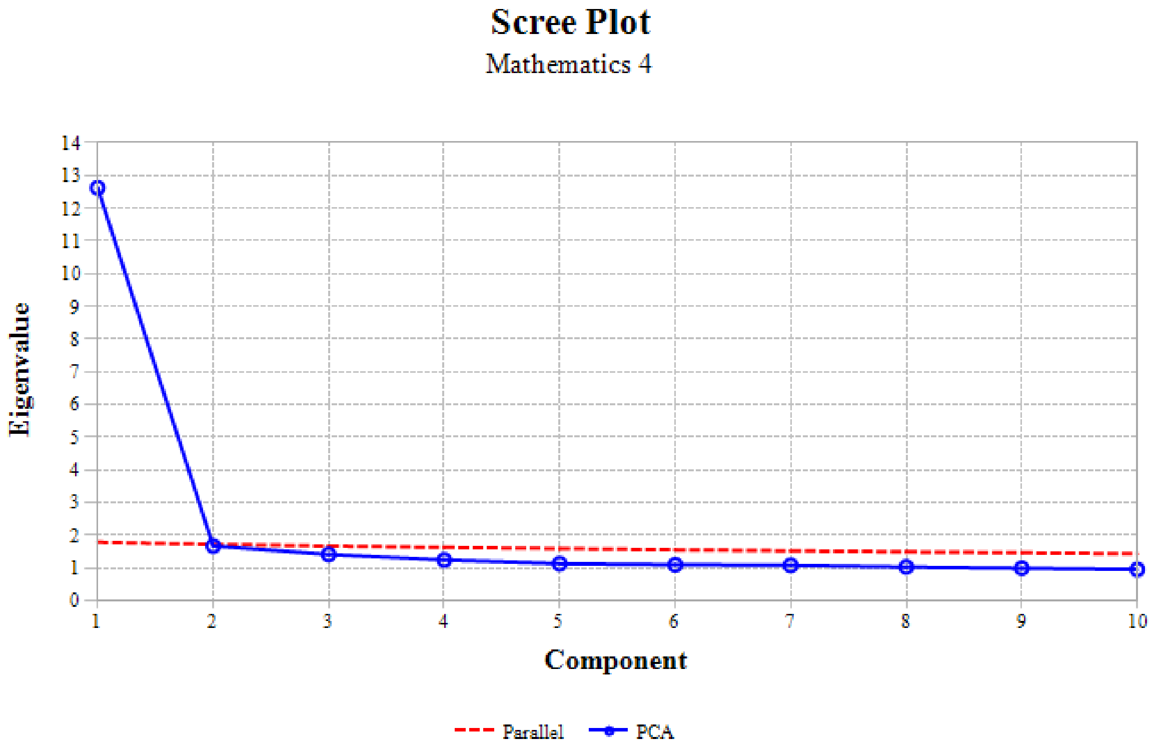
		Component	Eigenvalue	Explained Variance
Reading	**3**	1	9.7	23.1%
		2	1.5	3.5%
		3	1.1	2.6%
		4	1.0	2.3%
		5	1.0	2.3%
	4	1	9.0	20.4%
		2	1.2	2.8%
		3	1.1	2.6%
		4	1.0	2.3%
		5	1.0	2.2%
	5	1	9.0	20.4%
		2	1.2	2.8%
		3	1.1	2.5%
		4	1.1	2.4%
		5	1.0	2.2%
	6	1	9.3	21.1%
		2	1.3	2.9%
		3	1.1	2.5%
		4	1.0	2.3%
		5	1.0	2.3%
	7	1	8.6	19.6%
		2	1.5	3.4%
		3	1.1	2.5%
		4	1.1	2.4%
		5	1.0	2.3%
	8	1	8.8	20.0%
		2	1.4	3.1%
		3	1.2	2.7%
		4	1.1	2.4%
		5	1.0	2.3%
	11	1	8.1	18.4%
		2	1.6	3.5%
		3	1.2	2.7%
		4	1.1	2.5%
		5	1.0	2.3%

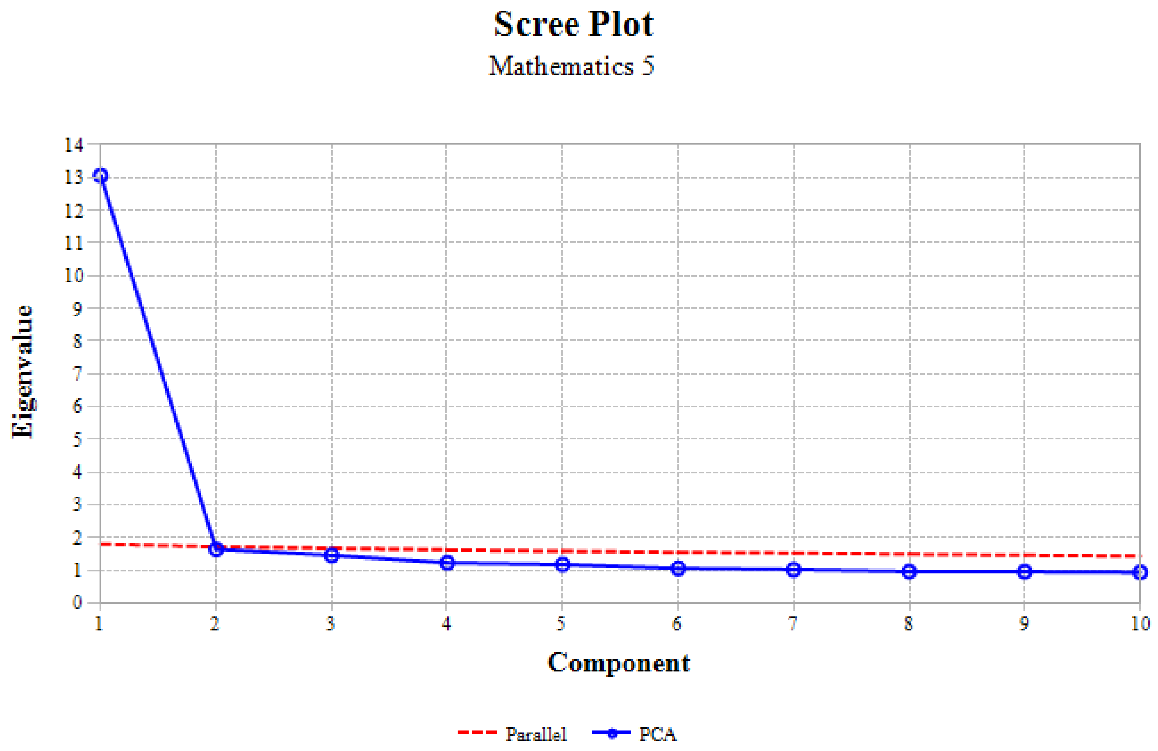
Table 12–3. Results from PCA – Science

		Component	Eigenvalue	Explained Variance
Science	**4**	1	11.3	17.9%
		2	1.6	2.5%
		3	1.2	1.8%
		4	1.1	1.7%
		5	1.1	1.7%
	8	1	11.6	18.3%
		2	1.5	2.4%
		3	1.1	1.8%
		4	1.1	1.7%
		5	1.0	1.6%
	11	1	10.6	17.9%
		2	1.7	2.9%
		3	1.1	1.9%
		4	1.0	1.8%
		5	1.0	1.7%

Figure 12–1. Scree Plots



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Mathematics 5
Eigenvalue
0
1
2
3
4
5
6
7
8
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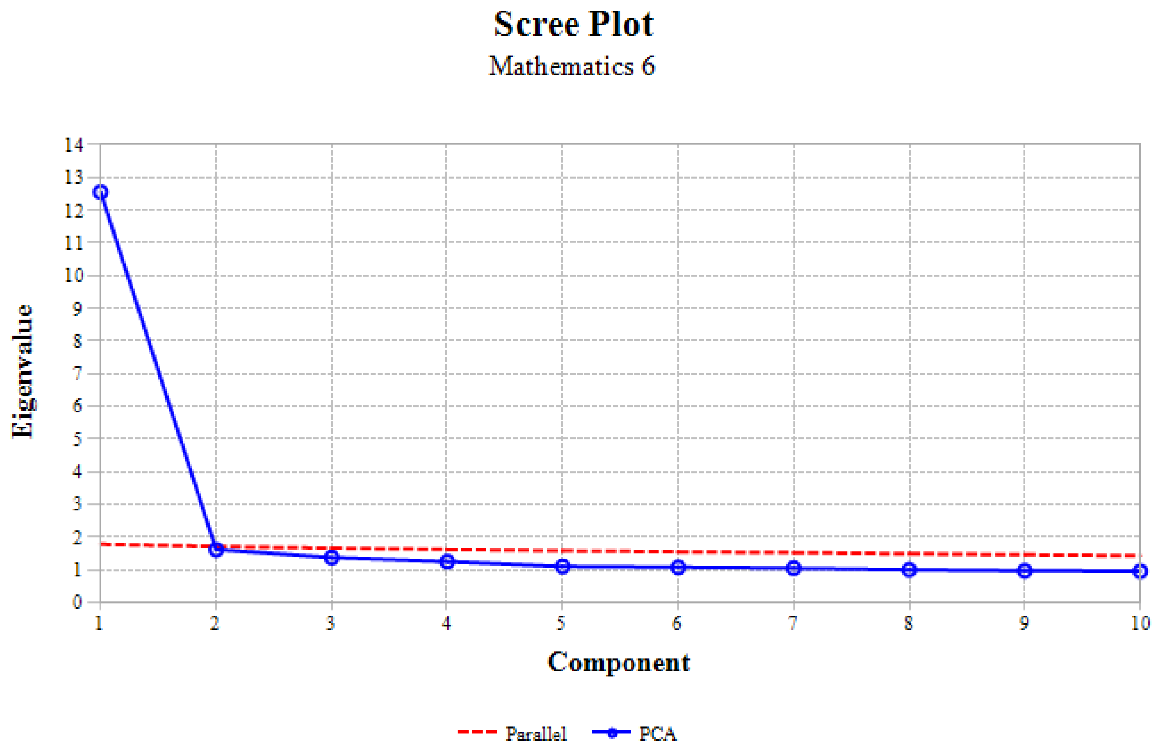
11
12
13
14
Component
1
2
3
4
5
6
7
8
9
10
Parallel
PCA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Eigenvalue
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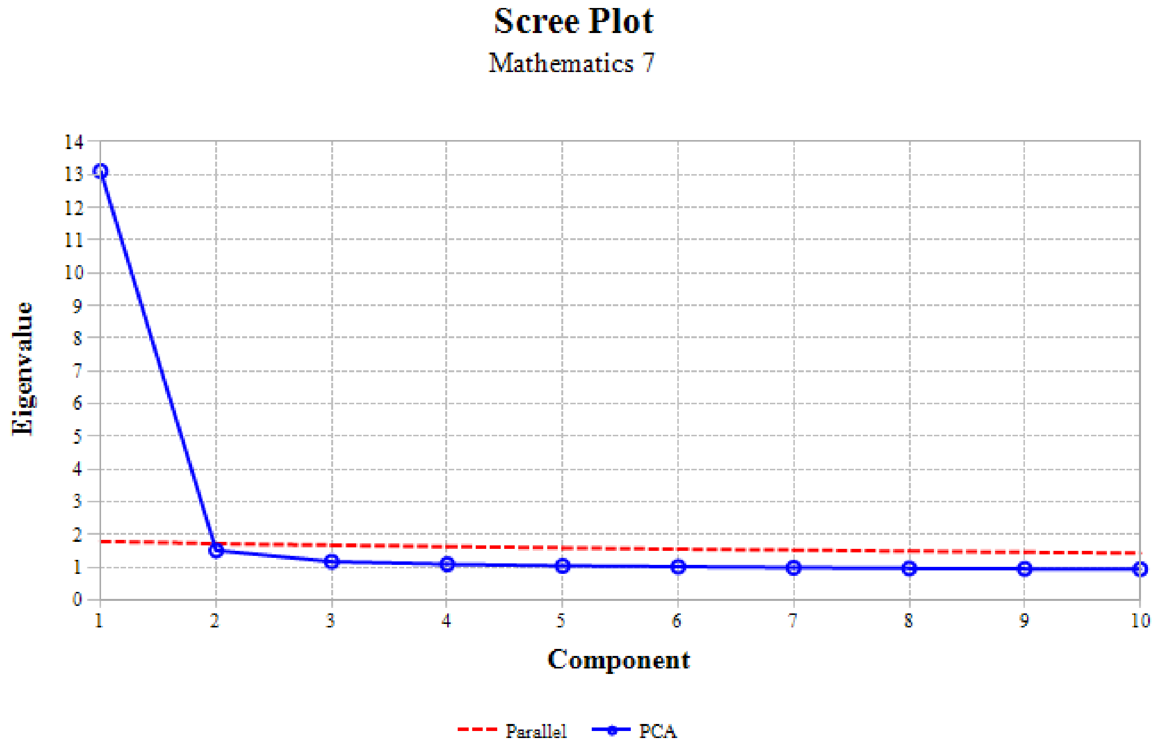
Parallel
PCA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Mathematics 7
Eigenvalue
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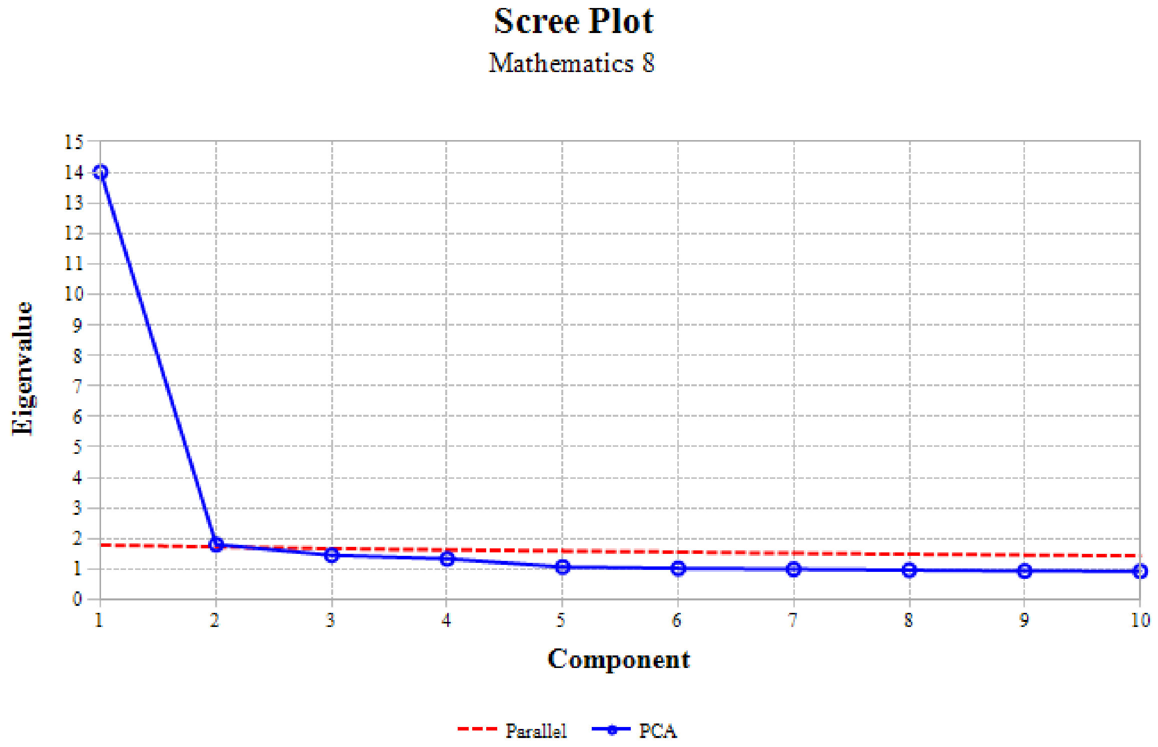
Component
Parallel
PCA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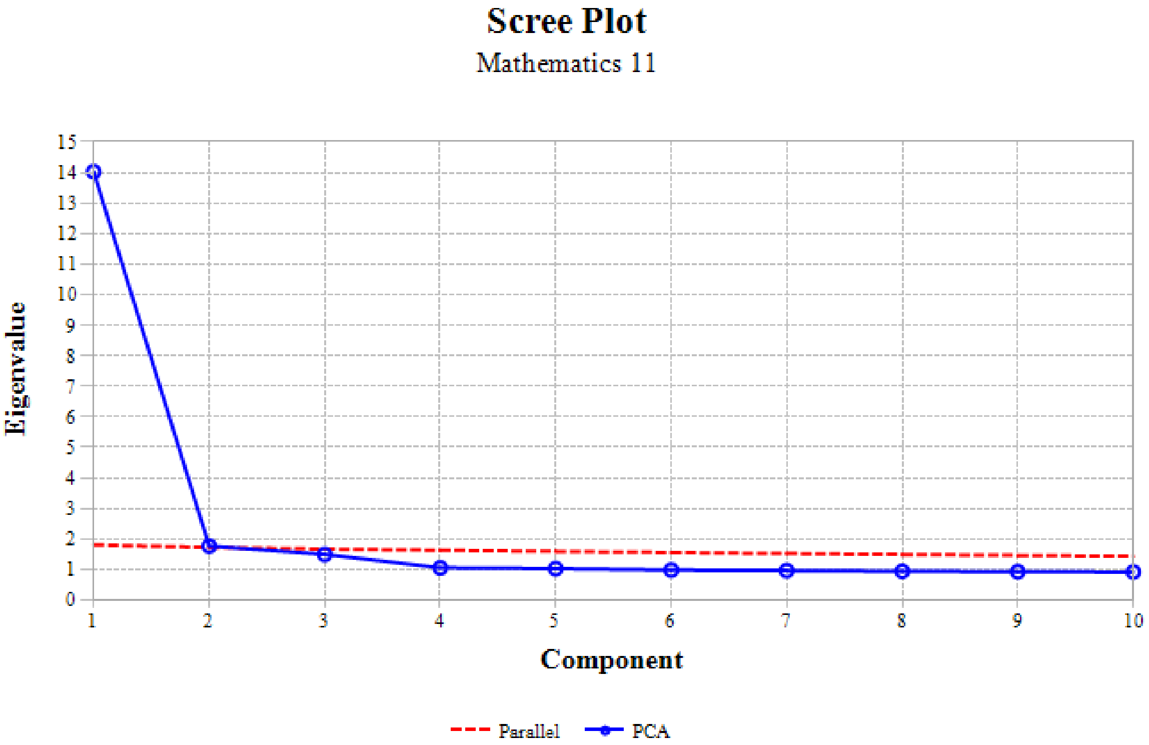
Component
Parallel
PCA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Mathematics 11
Eigenvalue
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14
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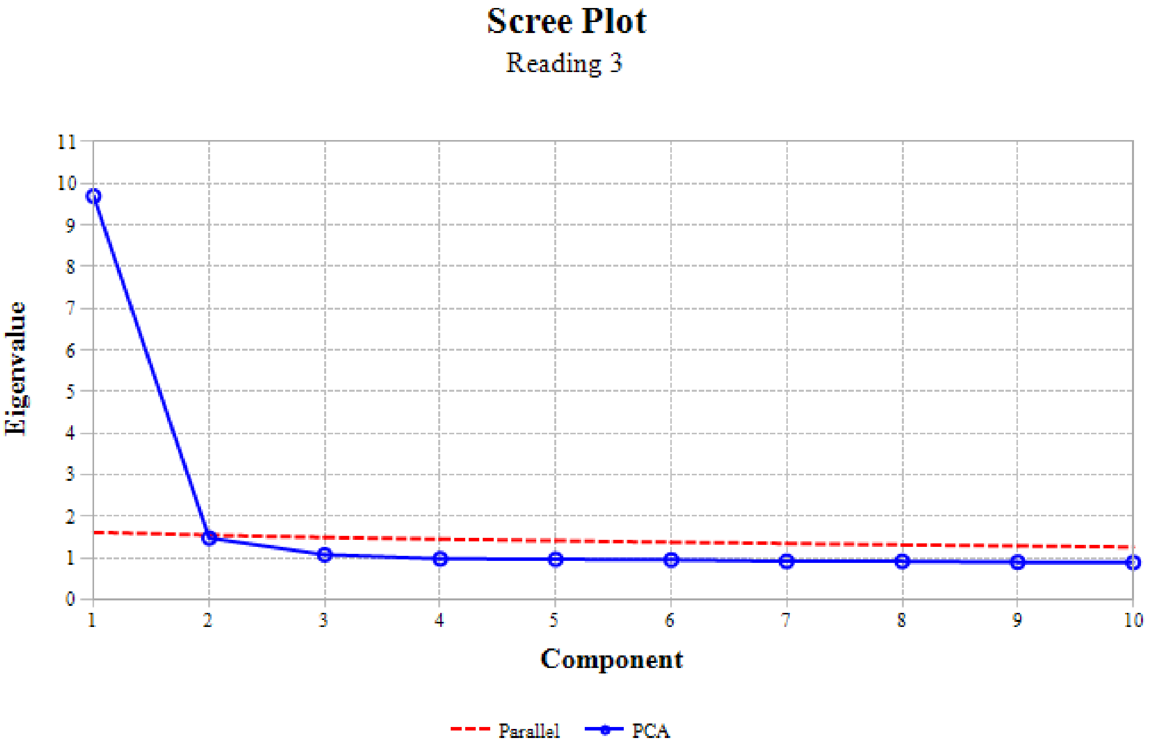
Component
Parallel
PCA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Reading 3
Eigenvalue
11
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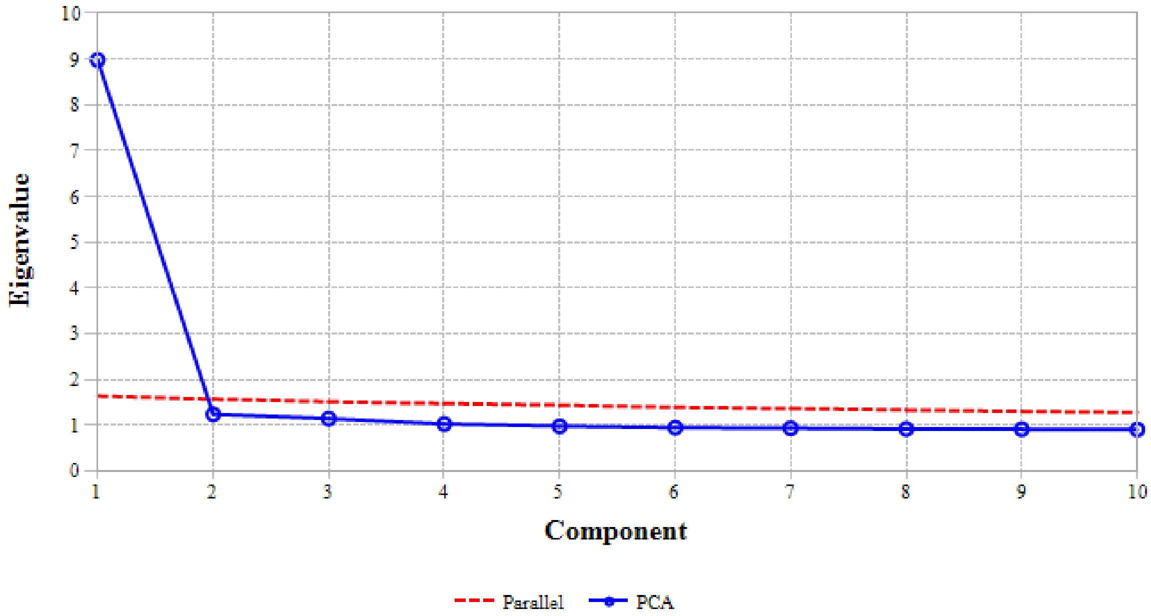
10
Component
Parallel
PCA

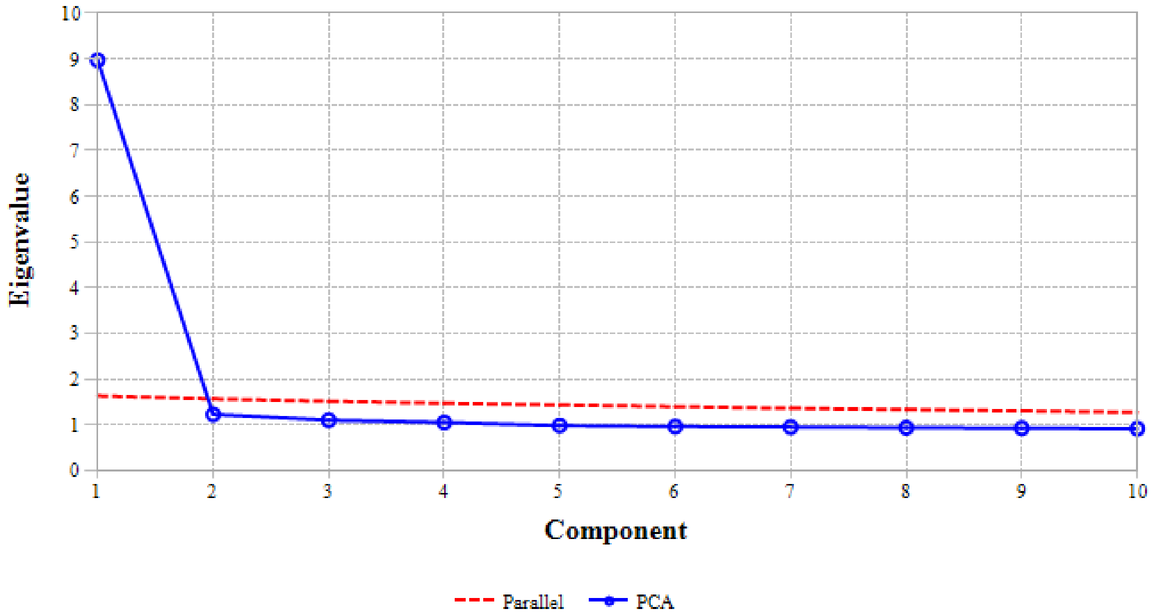
Scree Plot

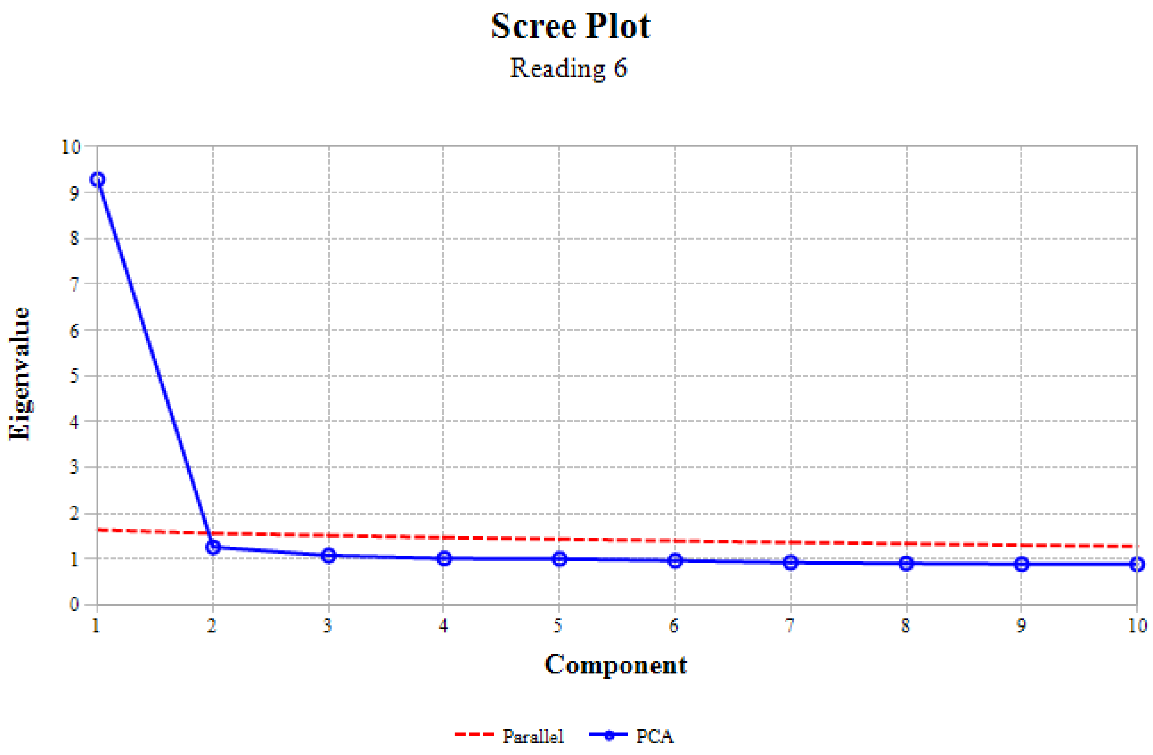
Reading 4



Scree Plot

Reading 5




Scree Plot
Reading 6
Eigenvalue
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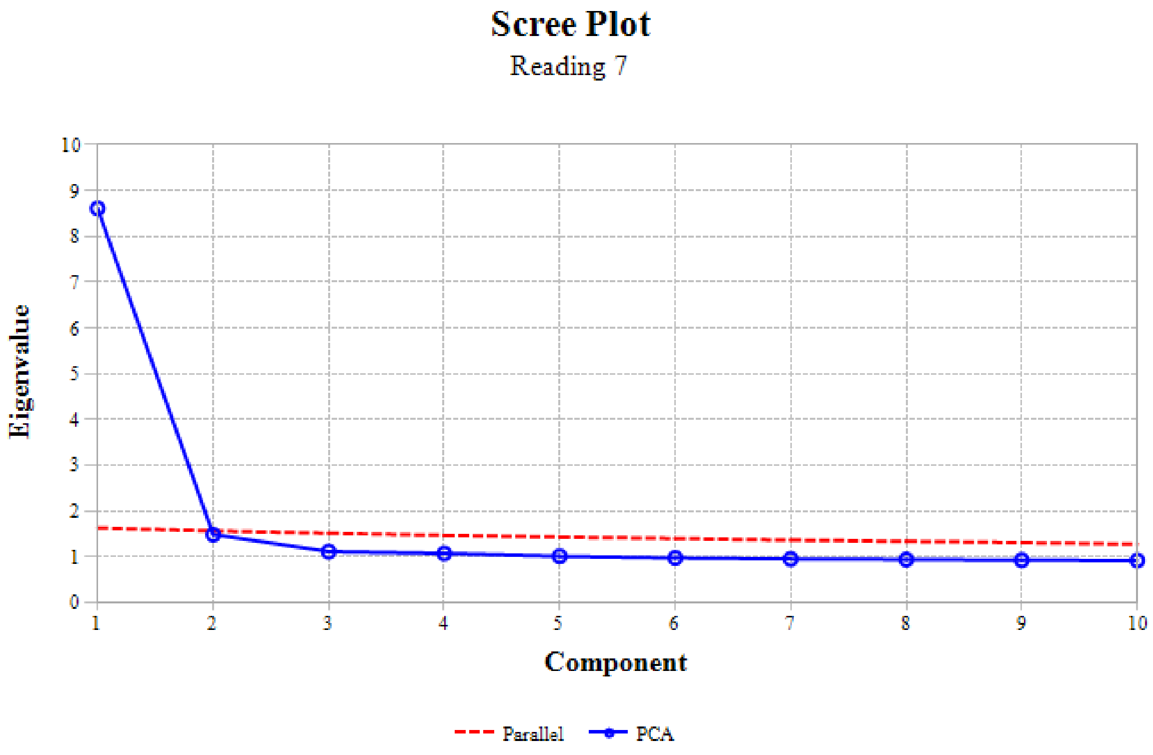
Parallel
PCA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Reading 7
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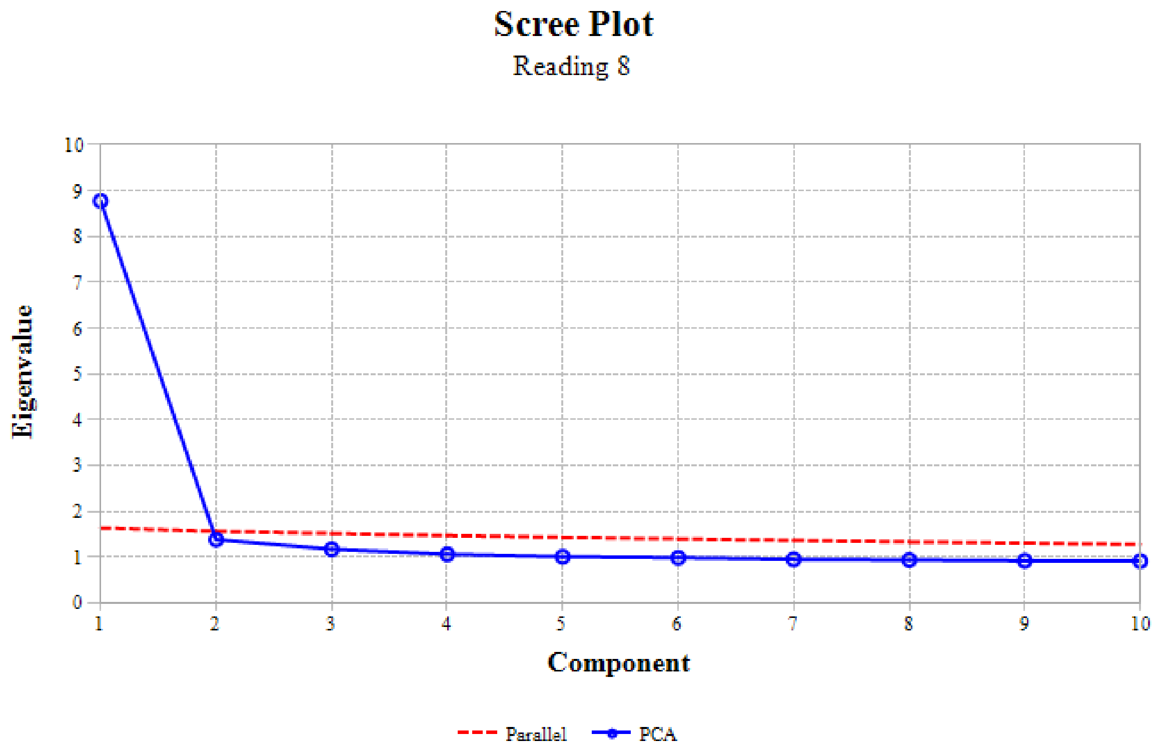
Parallel
PCA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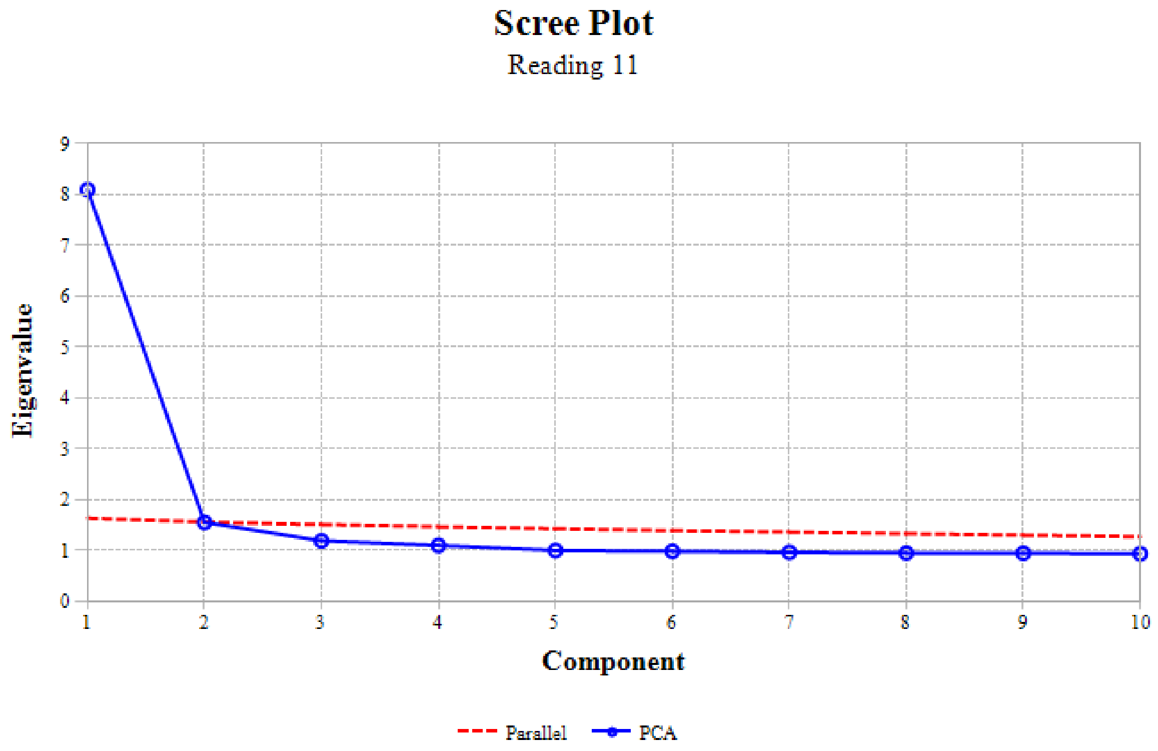
Component
Parallel
PCA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Eigenvalue
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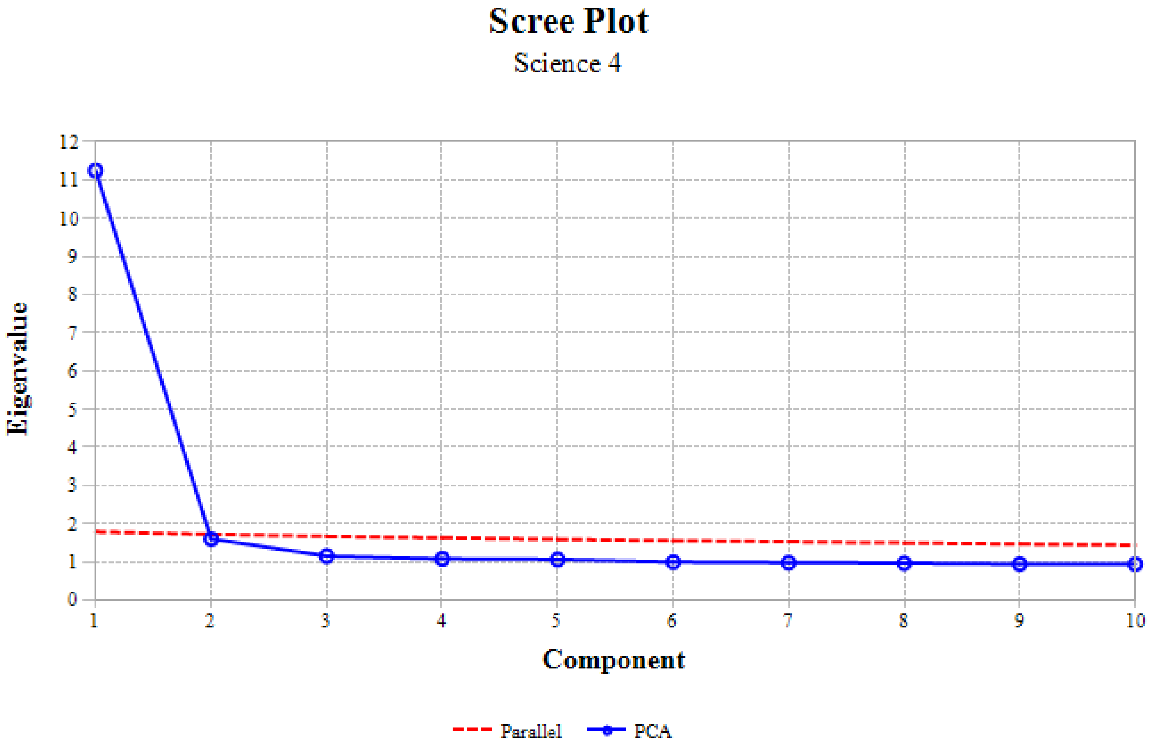
Component
Parallel
PCA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Science 4
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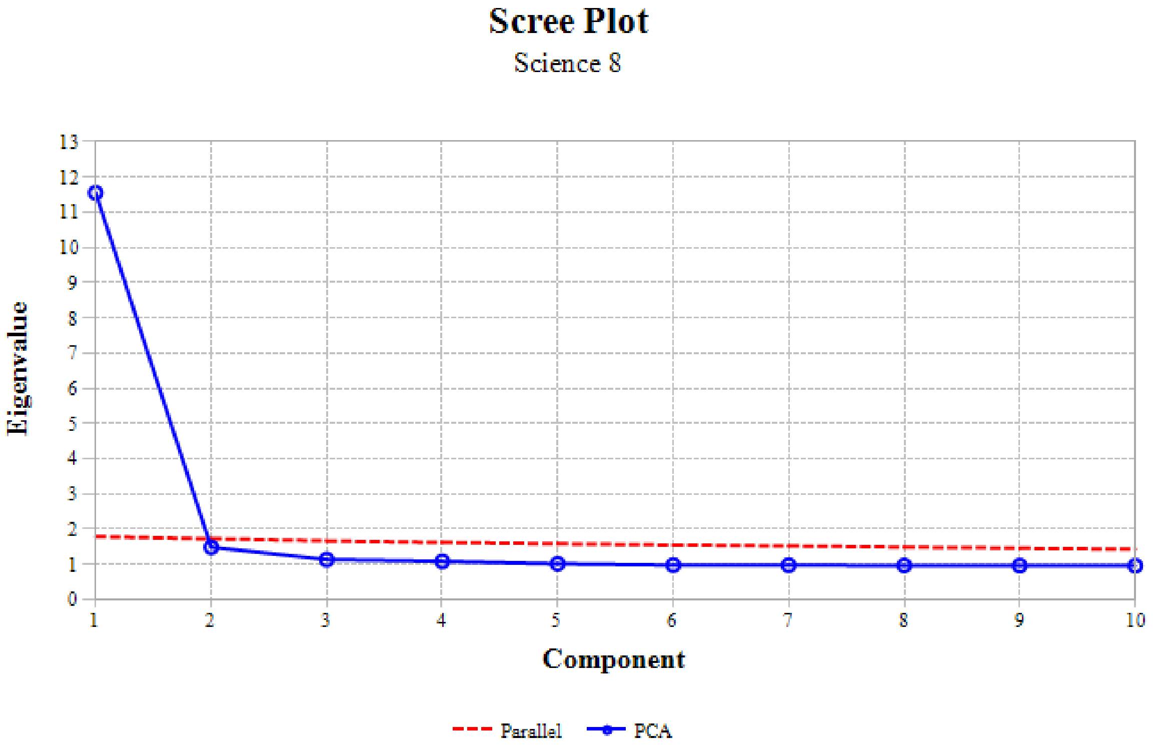
Parallel
PCA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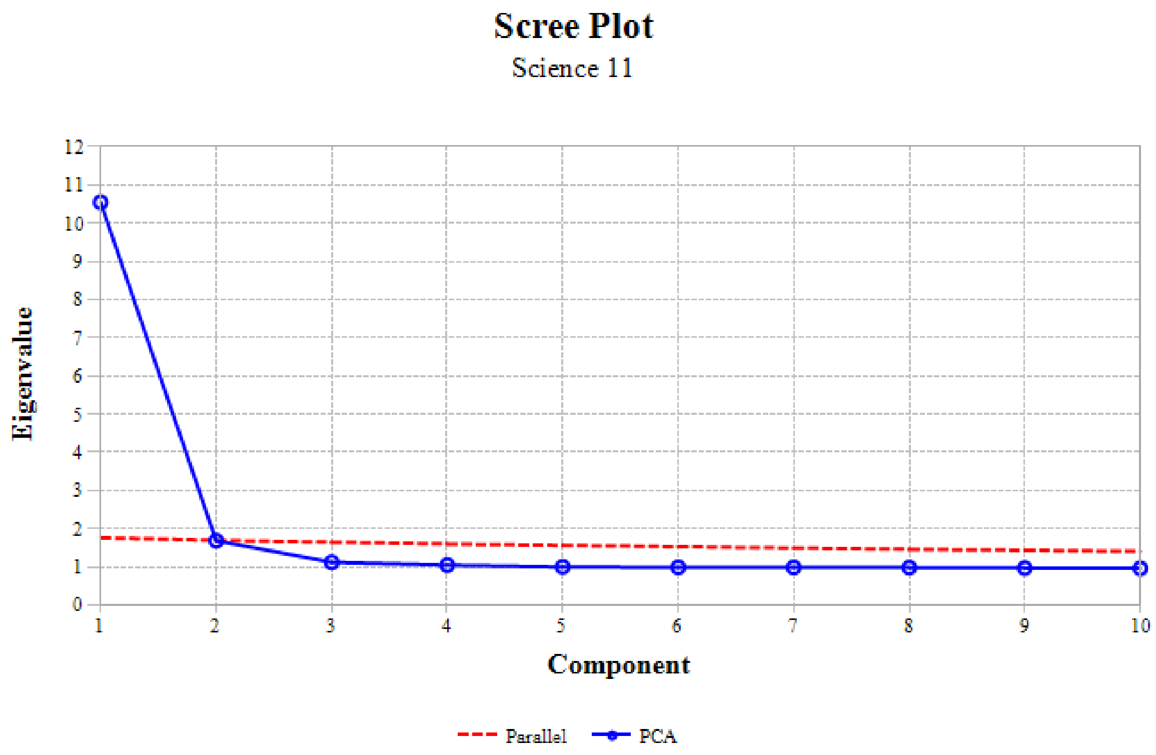
Parallel
PCA



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 $\mathbf{x} = (x_1, x_2, \ldots x_n)$ 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 $\mathbf{x}$, 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 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 shown 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 determine student performance (this can be called “trait dependence”). The second violation occurs when responses to an item depend on responses to another item. 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 PSSA 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, deviations (residuals) 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.

Three types of residual correlations are available in WINSTEPS: raw, standardized, and logit. It should be noted that the raw score residual correlation essentially corresponds to Yen’s Q_3 index, a popular LI statistic. The expected value for the Q_3 statistic is approximately $-1/(k-1)$ when no local dependence exists, where k is test length (Yen, 1993). Thus, the expected Q_3 values should be approximately −0.02 for the PSSA tests (since most of the PSSA tests had more than 50 core items). Index values that are greater than 0.20 indicate a degree of local dependence that probably should be examined by test developers (Chen & Thissen, 1997).

Since the three residual correlations are very similar, the default “standardized residual correlation” in WINSTEPS was used for these analyses. Table 12–4 shows the summary statistics—mean, SD, minimum, maximum, and several percentiles (P_{10}, P_{25}, P_{50}, P_{75}, P_{90})—for all the residual correlations for each test. The total number of item pairs (N) and the number of pairs with the residual correlations greater than 0.20 are also reported in this table. 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 PSSA reading, mathematics, and science tests.

Table 12–4. Summary of Item Residual Correlations for PSSA Mathematics, Reading, and Science

	Mathematics						
Statistic	**3**	**4**	**5**	**6**	**7**	**8**	**11**
N	1953	1953	1953	1953	1953	1953	1953
Mean	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
SD	0.02	0.02	0.03	0.03	0.02	0.03	0.02
Minimum	-0.10	-0.10	-0.11	-0.07	-0.08	-0.11	-0.10
P_{10}	-0.03	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
P_{25}	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03
P_{50}	-0.01	-0.02	-0.02	-0.02	-0.01	-0.02	-0.02
P_{75}	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P_{90}	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Maximum	0.30	0.30	0.32	0.53	0.19	0.39	0.21
>0.20	2	1	3	3	0	3	1

	Reading						
Statistic	**3**	**4**	**5**	**6**	**7**	**8**	**11**
N	861	946	946	946	946	946	946
Mean	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
SD	0.03	0.02	0.02	0.02	0.03	0.03	0.03
Minimum	-0.11	-0.09	-0.08	-0.09	-0.11	-0.10	-0.11
P_{10}	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05
P_{25}	-0.04	-0.03	-0.04	-0.03	-0.03	-0.03	-0.03
P_{50}	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
P_{75}	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
P_{90}	0.01	0.01	0.01	0.00	0.01	0.00	0.01
Maximum	0.13	0.12	0.10	0.13	0.17	0.20	0.19
>0.20	0	0	0	0	0	0	0

Table 12–4 (continued). Summary of Item Residual Correlations for PSSA Mathematics, Reading, and Science

	Science		
Statistic	**4**	**8**	**11**
N	1953	1953	1711
Mean	-0.01	-0.02	-0.02
SD	0.02	0.02	0.02
Minimum	-0.07	-0.10	-0.09
P_{10}	-0.03	-0.04	-0.04
P_{25}	-0.03	-0.03	-0.03
P_{50}	-0.02	-0.02	-0.02
P_{75}	-0.01	0.00	0.00
P_{90}	0.01	0.01	0.01
Maximum	0.10	0.17	0.10
>0.20	0	0	0

Table 12–5 lists all item pairs with residual correlations greater than 0.20 with the session, sequence, type, and Eligible Content for both items. In terms of position, there is not an obvious pattern as some pairs of items were very close together in the test booklet while others appeared at opposites ends of the test booklet in separate sections. The pattern that is evident, however, is that these correlated items share identical or very similar Eligible Content and are testing the same or similar skills. Test blueprints determine what Assessment Anchors, as defined by the Eligible Content, will be assessed. PDE and DRC make every effort to avoid one item cueing another through careful item selection and sequencing.

Table 12–5. Item Pairs with Large Residual Correlations

		Item 1				Item 2				
	Grade	**Session**	**Seq.**	**Type**	**Eligible Content**	**Session**	**Seq.**	**Type**	**Eligible Content**	**Resid. Corr.**
Mathematics	**3**	1	7	MC	C.1.1.1	1	11	MC	C.1.1.1	0.30
	3	5	111	MC	A.3.1.2	5	114	MC	A.3.1.2	0.25
	4	3	65	MC	A.3.1.2	5	103	MC	A.3.1.2	0.30
	5	1	11	MC	E.2.1.2	5	98	MC	E.2.1.2	0.32
	5	1	20	MC	A.1.3.2	5	109	MC	A.1.3.2	0.25
	5	3	59	MC	B.2.2.2	5	107	MC	B.2.2.2	0.27
	6	1	10	MC	A.1.1.2	3	53	MC	A.1.1.2	0.32
	6	1	11	MC	C.3.1.1	5	103	MC	C.3.1.1	0.53
	6	1	24	MC	E.2.1.1	3	54	MC	E.2.1.1	0.24
	8	3	57	MC	D.4.1.3	5	106	MC	D.1.1.3	0.21
	8	3	61	MC	C.1.2.1	5	105	MC	C.1.2.1	0.39
	8	5	102	MC	D.4.1.3	5	106	MC	D.1.1.3	0.24
	11	1	21	MC	B.2.1.1	5	119	MC	B.2.1.1	0.21

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. Though both are informative, the Zstd values are very likely too sensitive to the large sample sizes observed on the PSSA. In this situation it is recommended that the Zstd values be ignored if the MnSq values are acceptable (Linacre, 2009).

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, and 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 since most tests intend to measure the on-target population rather than extreme outliers.

The expected MnSq value is 1.0 and 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 and/or too much redundancy), and values greater than the expected value indicate underfitting items (too unpredictable and/or 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 results below, values outside of 0.7 to 1.3 are given practical importance.

Table 12–6 presents the summary statistics of infit and outfit mean square statistics for the PSSA reading, mathematics, and science tests, including the mean, SD, and minimum and maximum values. The number of items within the range of [0.7, 1.3] is also reported in Table 12–6. As can be seen, the mean values for both fit statistics were close to 1.00 for all tests. All the items had infit values falling in the range of [0.7, 1.3]. Though more outfit values fell outside this range than infit values, most of the extreme values were just barely above 1.3 or below 0.7. Overall, these results indicate that the Rasch model fits the PSSA item data well.

Table 12–6. Summary of Infit and Outfit Mean Square Statistics for PSSA Mathematics, Reading, and Science

		Infit Mean Square					Outfit Mean Square				
		Mean	**SD**	**Min**	**Max**	**[0.7, 1.3]**	**Mean**	**SD**	**Min**	**Max**	**[0.7, 1.3]**
Mathematics	**3**	1.00	0.09	0.79	1.18	63/63	1.00	0.20	0.56	1.37	55/63
	4	1.00	0.08	0.87	1.23	63/63	1.02	0.16	0.74	1.36	61/63
	5	1.00	0.09	0.81	1.35	62/63	0.99	0.16	0.70	1.41	58/63
	6	1.00	0.08	0.85	1.23	63/63	0.99	0.19	0.61	1.85	59/63
	7	1.00	0.10	0.82	1.24	63/63	0.99	0.19	0.62	1.44	56/63
	8	1.00	0.10	0.78	1.24	63/63	0.98	0.20	0.61	1.49	56/63
	11	0.99	0.09	0.85	1.25	63/63	0.98	0.18	0.57	1.43	56/63
Reading	**3**	0.99	0.12	0.78	1.23	42/42	0.98	0.22	0.48	1.50	39/42
	4	1.00	0.09	0.87	1.29	44/44	0.98	0.16	0.67	1.33	41/44
	5	0.99	0.09	0.84	1.19	44/44	0.97	0.18	0.54	1.32	40/44
	6	0.99	0.07	0.81	1.12	44/44	0.97	0.15	0.57	1.36	41/44
	7	1.00	0.09	0.86	1.15	44/44	0.97	0.18	0.60	1.22	39/44
	8	0.99	0.08	0.81	1.17	44/44	0.99	0.15	0.54	1.26	43/44
	11	0.99	0.08	0.87	1.18	44/44	0.97	0.17	0.64	1.30	41/44
Science	**4**	0.99	0.08	0.83	1.16	63/63	0.98	0.14	0.58	1.37	60/63
	8	0.99	0.10	0.84	1.27	63/63	0.99	0.17	0.68	1.66	59/63
	11	0.99	0.09	0.85	1.17	59/59	0.99	0.14	0.60	1.26	57/59

Item Parameter Invariance

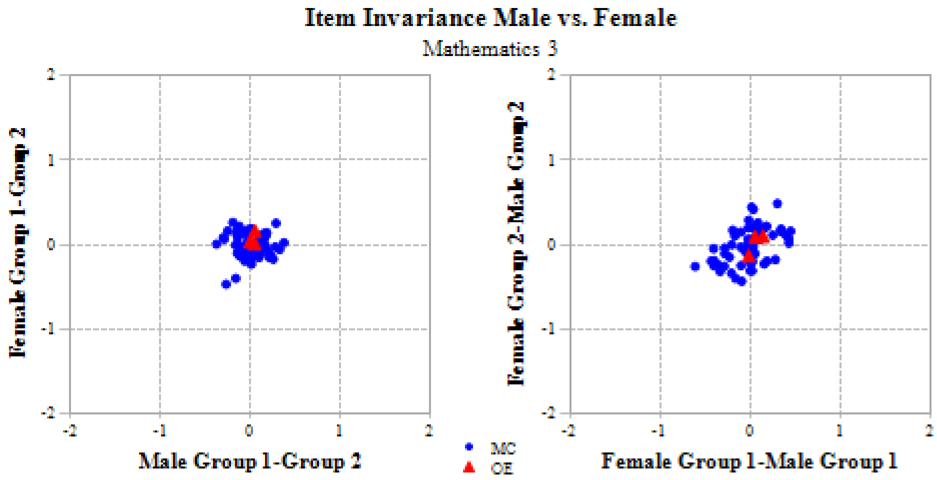
The property of invariance is regarded as the cornerstone of IRT and is its major distinguishing attribute from classical test theory (Hambleton, Swaminathan, & Rogers, 1991). It is this property that makes many IRT applications possible (e.g., equating, item banking, investigation of item bias, adaptive testing) (Hambleton et al., 1991, p. 25). Inferences from these IRT applications are valid to the extent that the property of invariance holds. Therefore, it is important to evaluate invariance whenever applying IRT.

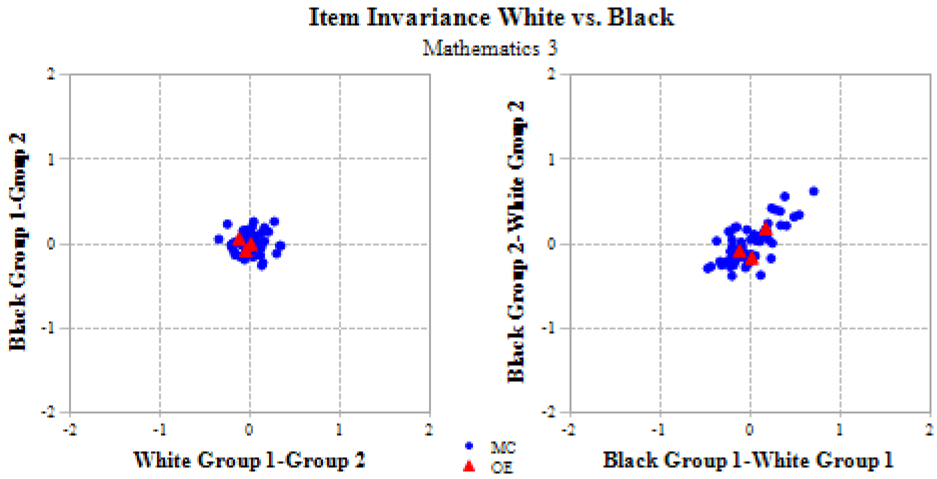
Invariance should hold for both item and ability parameters. Item invariance implies that item parameter estimates do not depend on the particular sample of examinees used to derive them. Person (ability parameter) invariance means that examinees' ability estimates do not depend on which items are administered. For the Rasch item calibrations, it is more important to determine how well the item invariance assumption holds. Therefore, only item invariance is evaluated here.

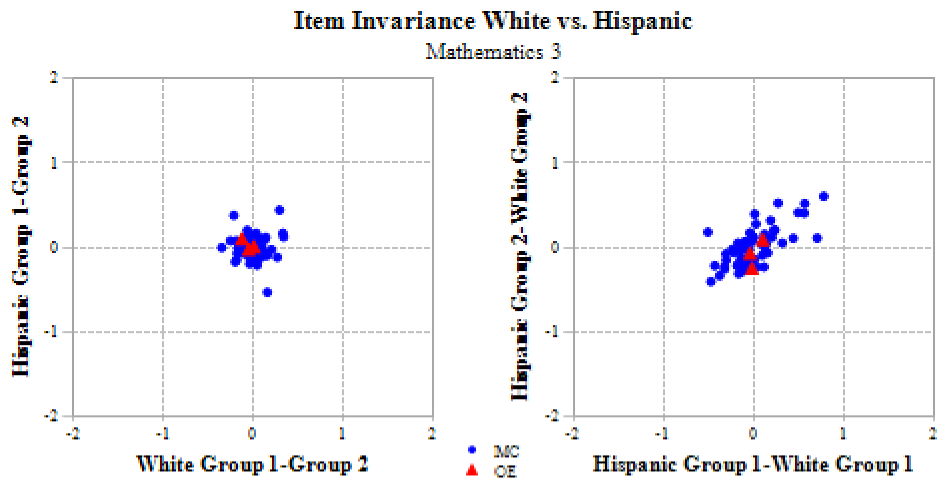
One method of checking the item-invariance property was suggested by Hambleton and Rogers (1986). Two unique random samples of 1,000 students were drawn for each subgroup of interest (males, females, whites, blacks, and Hispanics). Each unique sample was individually calibrated, resulting in two sets of item parameter estimates for each subgroup. To explore the item invariance property, these item parameter estimates were compared across meaningful subgroup pairings (male and female, white and black, and white and Hispanic). Each subgroup pairing comparison requires two plots. In the first plot, the difference between the item parameter estimates within the two unique samples for one subgroup is plotted against this difference within the other subgroup. The points in this first plot should amass around (0, 0) which provides a baseline for what could be considered random error. In the second plot, the difference between the item parameter estimates between two unique subgroup samples is plotted against this difference between the other two unique subgroup samples. A point in the first quadrant means that the first listed subgroup found the item to be more difficult than the second listed subgroup while a point in the third quadrant means that the first listed subgroup found the item to be less difficult that the second listed subgroup. If the plots are similar, then it is reasonable to assume that the subgroups are no more different in their response processes than random equivalent groups.

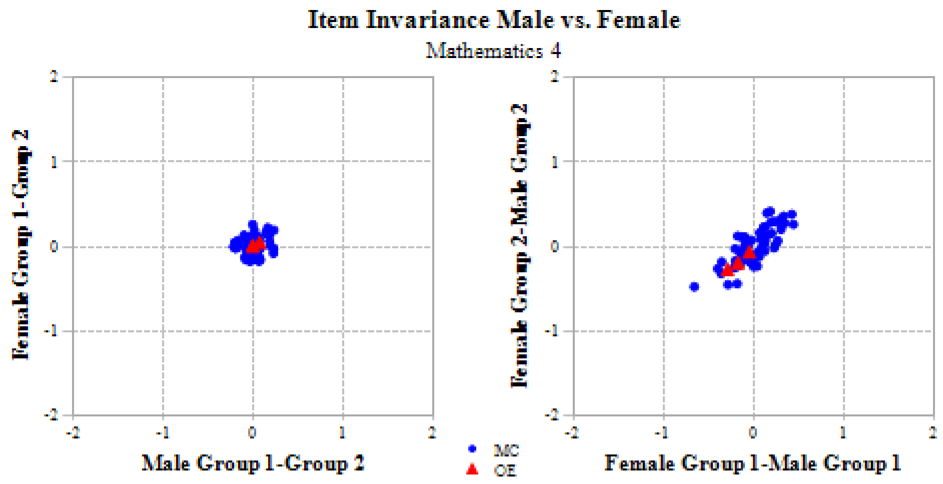
Figure 12–2 shows the aforementioned scatter plots for operational PSSA items. There are three sets of plots (one for each subgroup pairing) for each grade and content area with the MC and OE items plotted with separate markers. In all cases, the spread in the between-subgroup plots was only slightly greater than that of the within-subgroup plots. There were, however, some outliers that required further scrutiny. These items were inspected and either retired or flagged against future use. Given these plots, the assumption of item-parameter invariance cannot be invalidated.

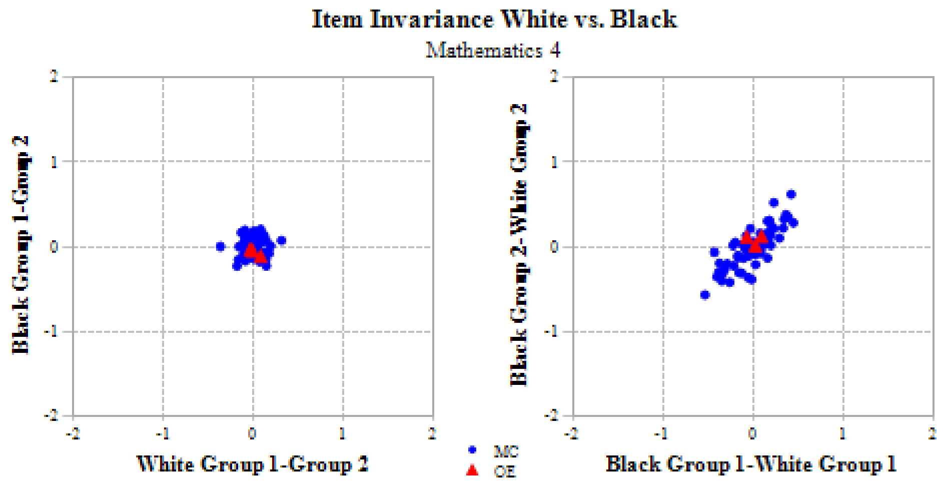
Figure 12–2. Item Invariance Plots





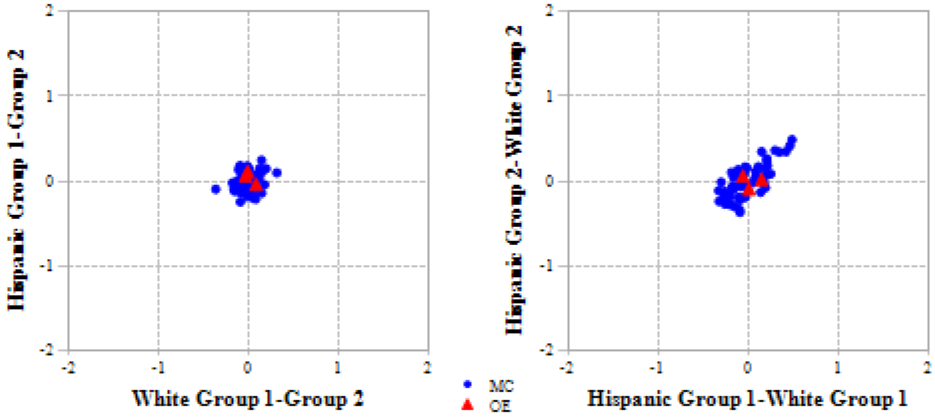

Item Invariance White vs. Hispanic
Mathematics 3


Item Invariance Male vs. Female
Mathematics 4


Item Invariance White vs. Black
Mathematics 4

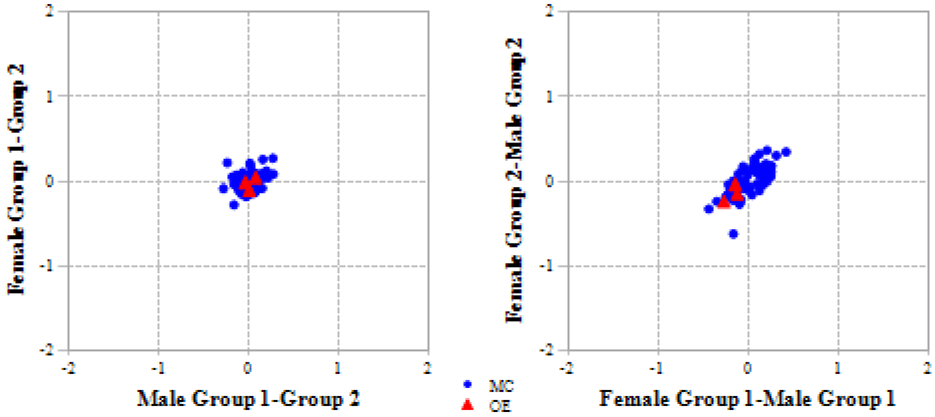
Item Invariance White vs. Hispanic

Mathematics 4



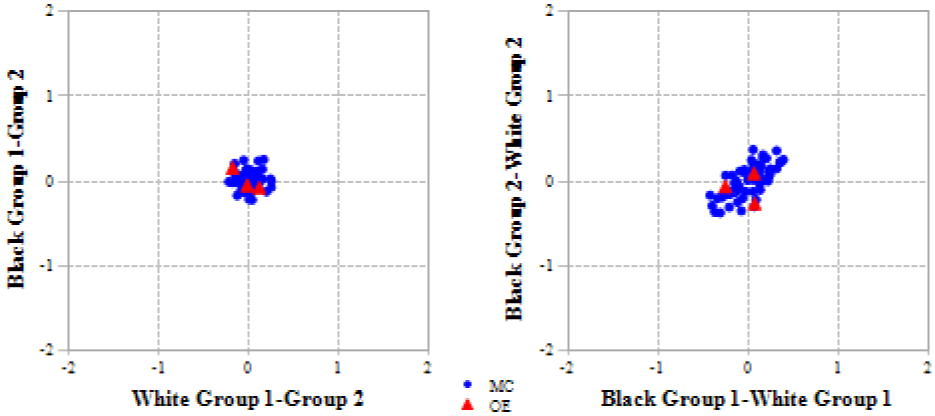
Item Invariance Male vs. Female

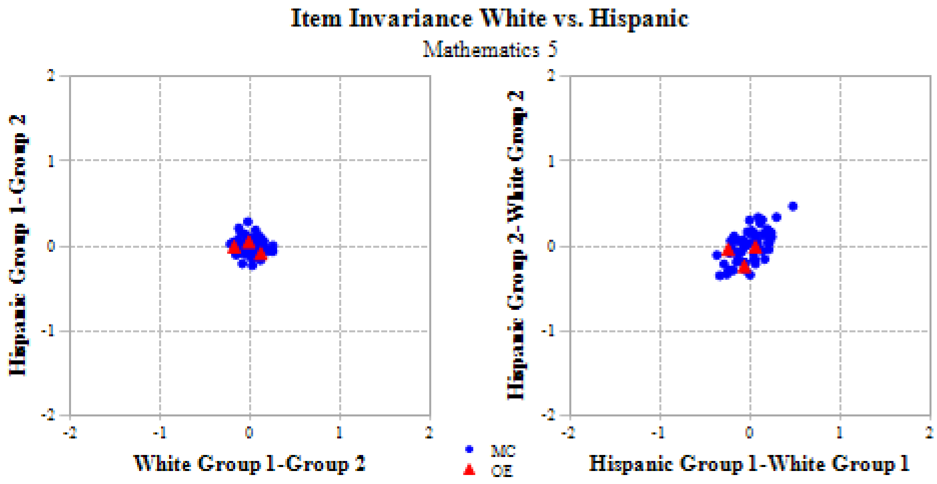
Mathematics 5



Item Invariance White vs. Black

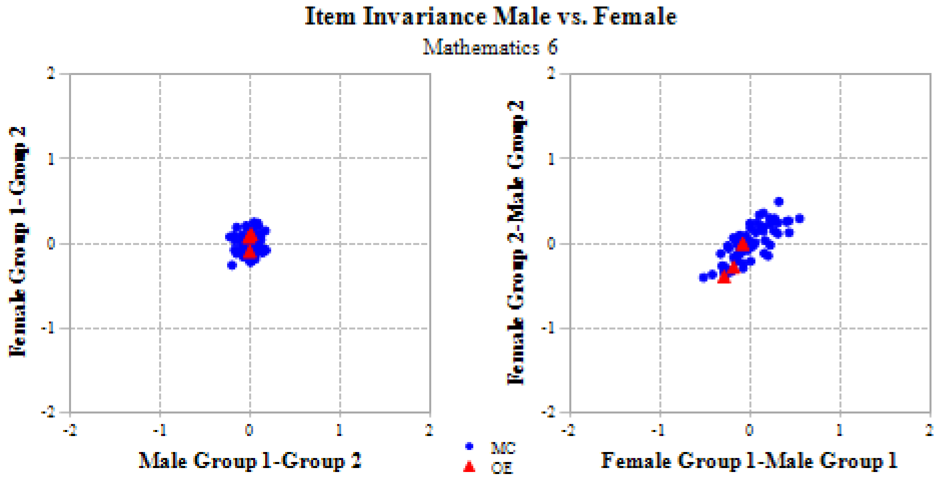
Mathematics 5





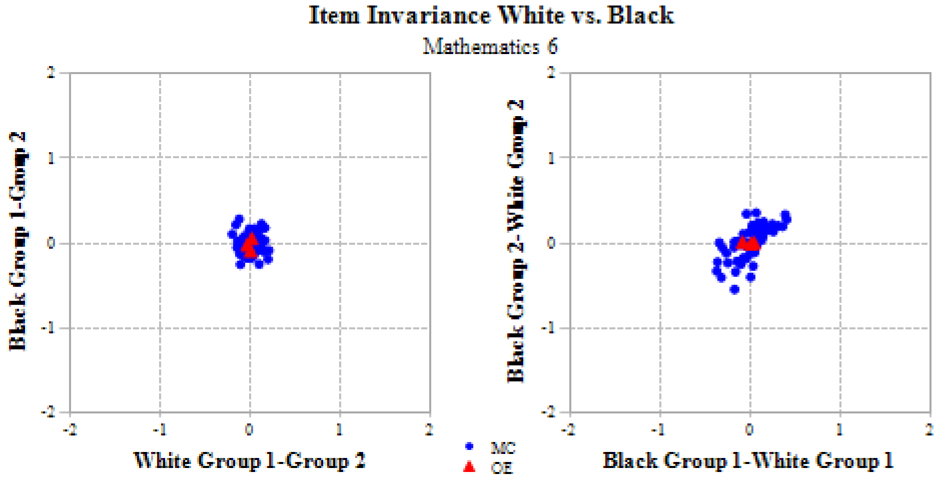
Item Invariance White vs. Hispanic

Mathematics 5



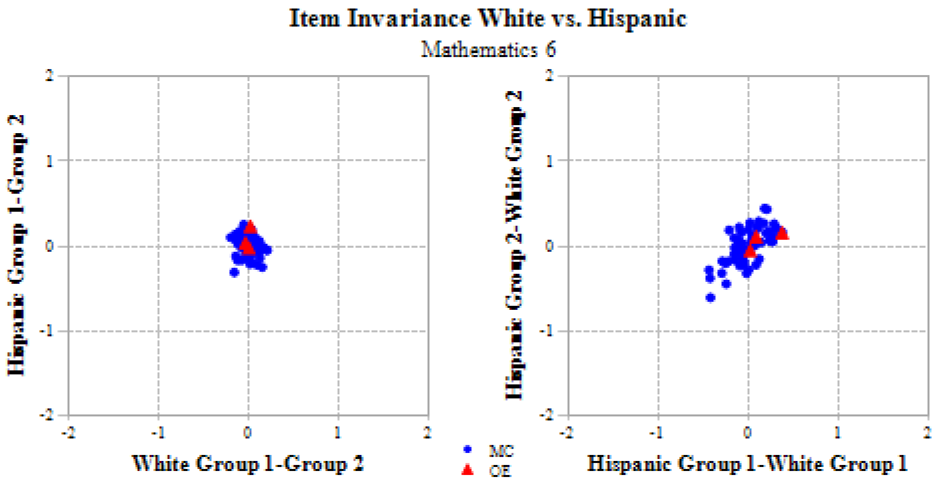
Item Invariance Male vs. Female

Mathematics 6

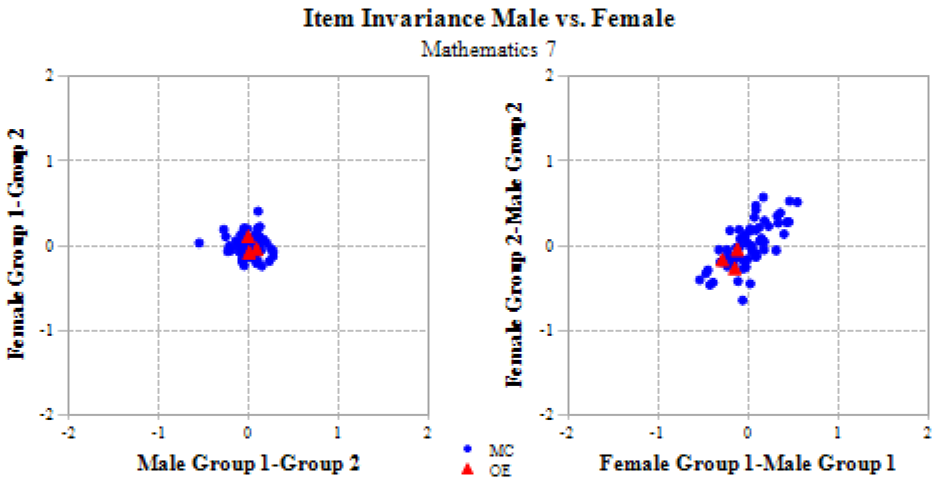


Item Invariance White vs. Black

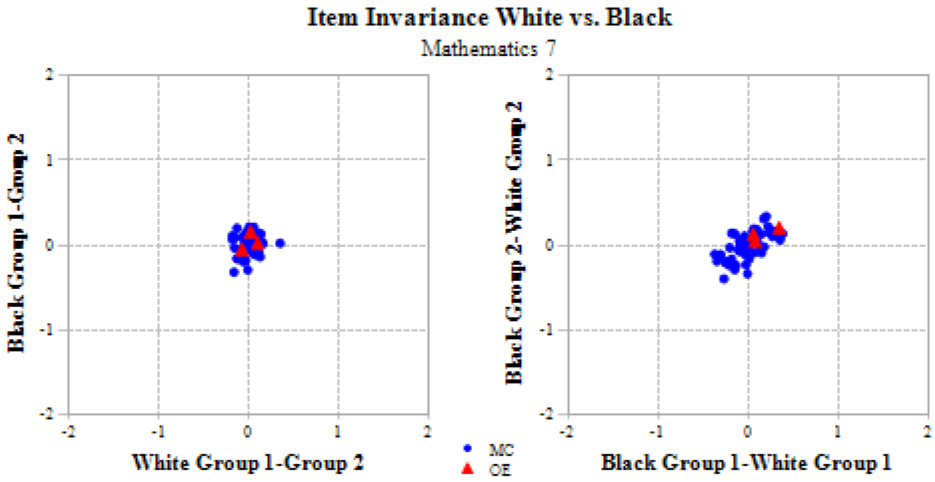
Mathematics 6


Item Invariance White vs. Hispanic

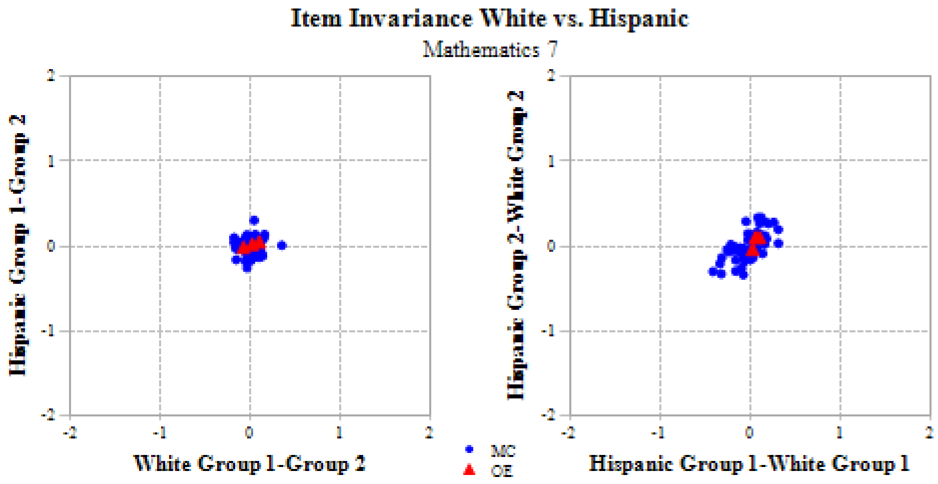
Mathematics 6

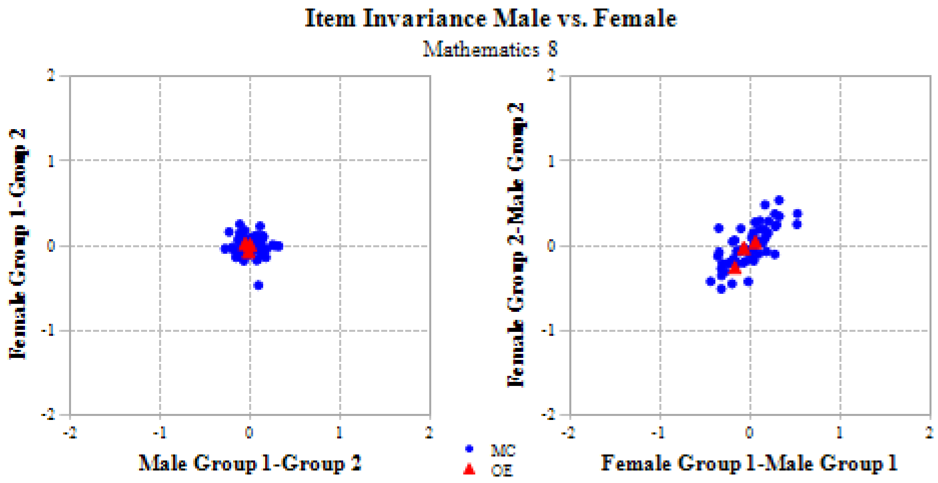

Item Invariance Male vs. Female

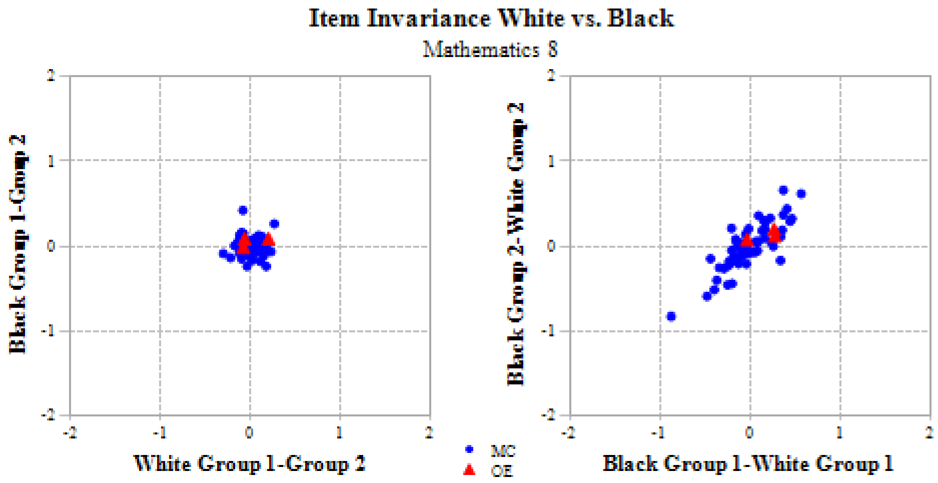
Mathematics 7

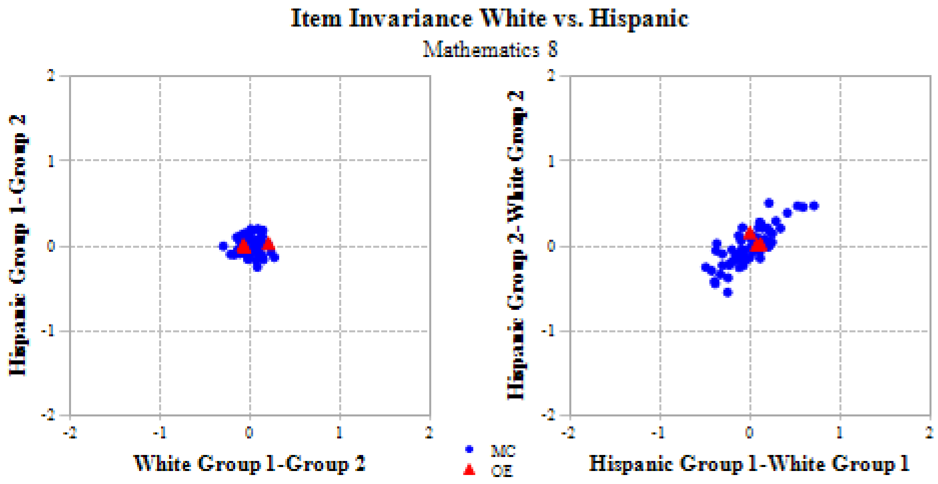

Item Invariance White vs. Black

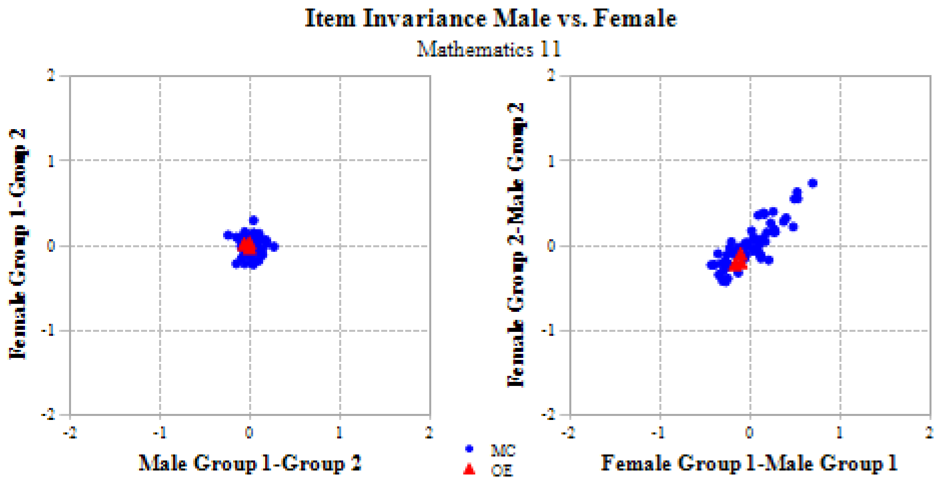
Mathematics 7

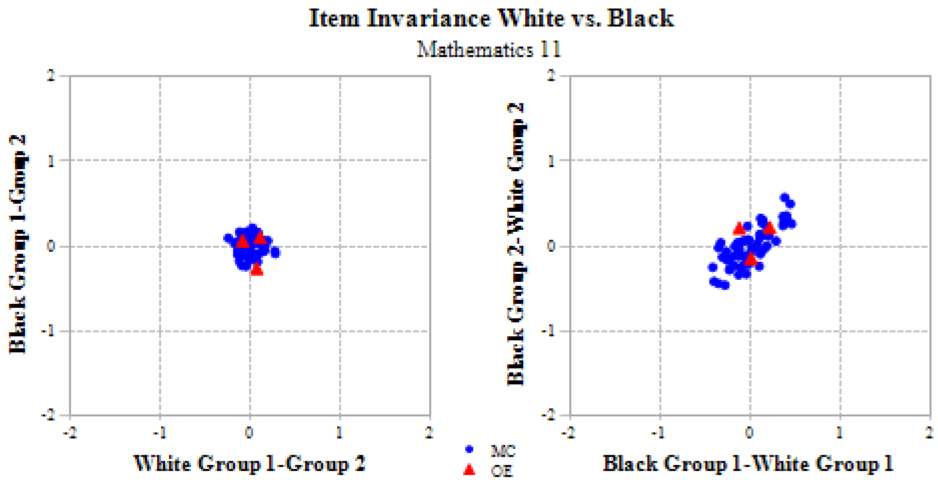

Item Invariance White vs. Hispanic
Mathematics 7
Hispanic Group 1-Group 2
White Group 1-Group 2
Hispanic Group 2-White Group 2
Hispanic Group 1-White Group 1
2
1
0
-1
-2
MC
OE


Item Invariance Male vs. Female
Mathematics 8
Female Group 1-Group 2
Male Group 1-Group 2
Female Group 2-Male Group 2
Female Group 1-Male Group 1
2
1
0
-1
-2
MC
OE


Item Invariance White vs. Black
Mathematics 8
Black Group 1-Group 2
White Group 1-Group 2
Black Group 2-White Group 2
Black Group 1-White Group 1
2
1
0
-1
-2
MC
OE

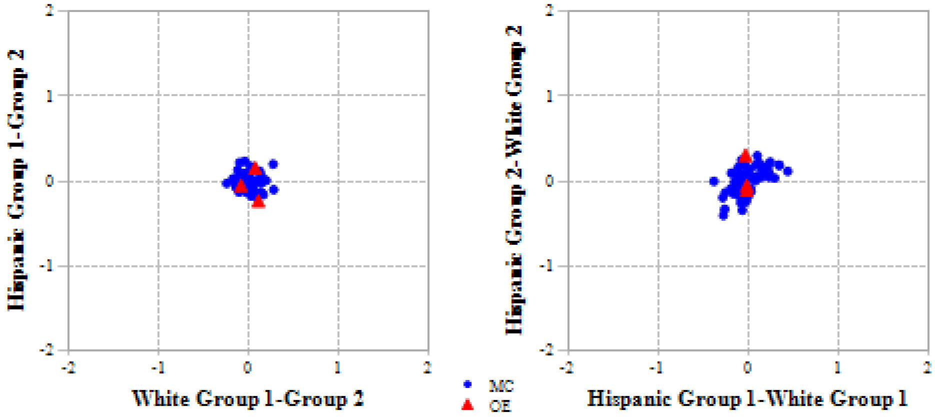

Item Invariance White vs. Hispanic
Mathematics 8
Hispanic Group 1-Group 2
White Group 1-Group 2
Hispanic Group 2-White Group 2
Hispanic Group 1-White Group 1
2
1
0
-1
-2
MC
OE


Item Invariance Male vs. Female
Mathematics 11
Female Group 1-Group 2
Male Group 1-Group 2
Female Group 2-Male Group 2
Female Group 1-Male Group 1
2
1
0
-1
-2
MC
OE


Item Invariance White vs. Black
Mathematics 11
Black Group 1-Group 2
White Group 1-Group 2
Black Group 2-White Group 2
Black Group 1-White Group 1
2
1
0
-1
-2
MC
OE

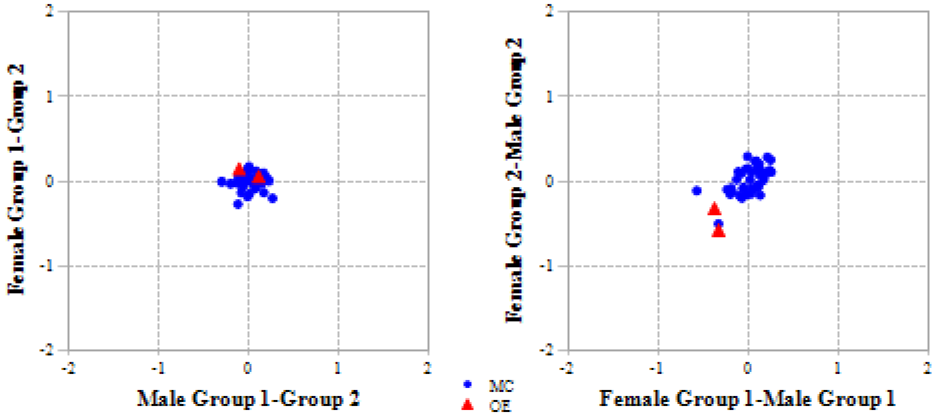
Item Invariance White vs. Hispanic

Mathematics 11



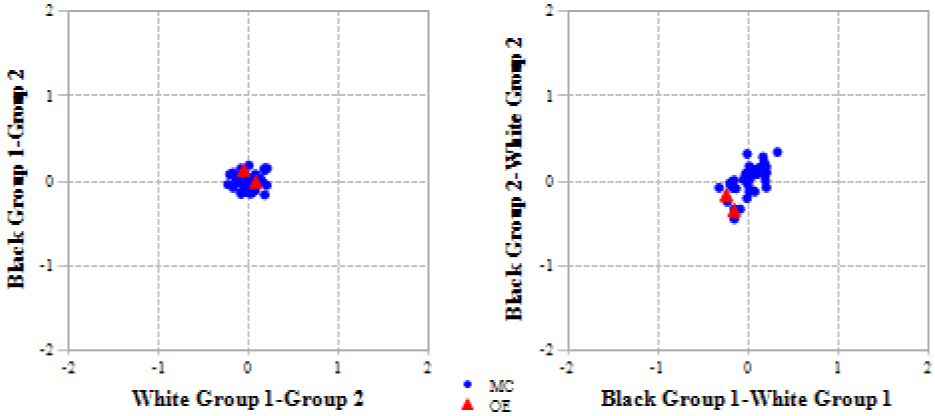
Item Invariance Male vs. Female

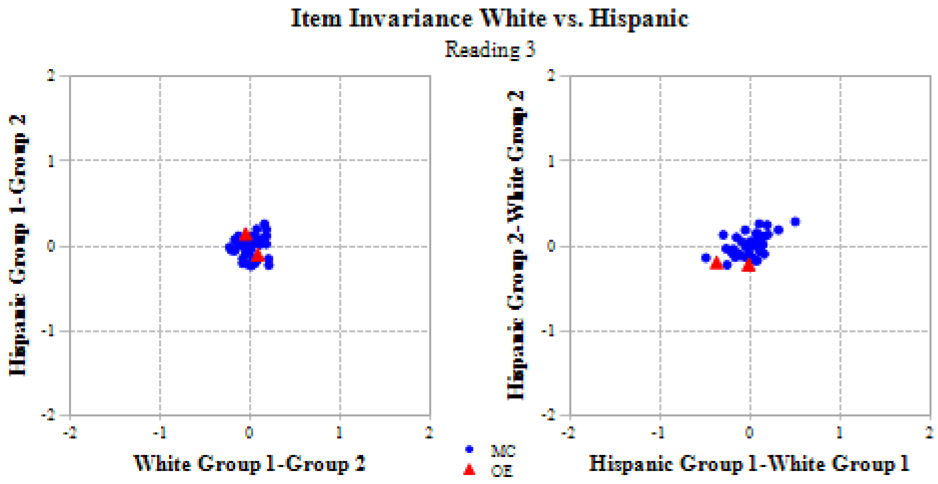
Reading 3



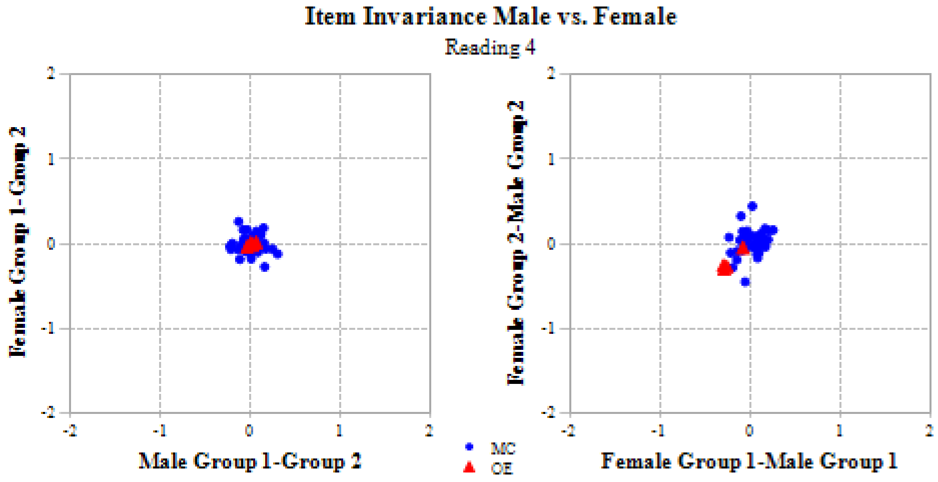
Item Invariance White vs. Black

Reading 3

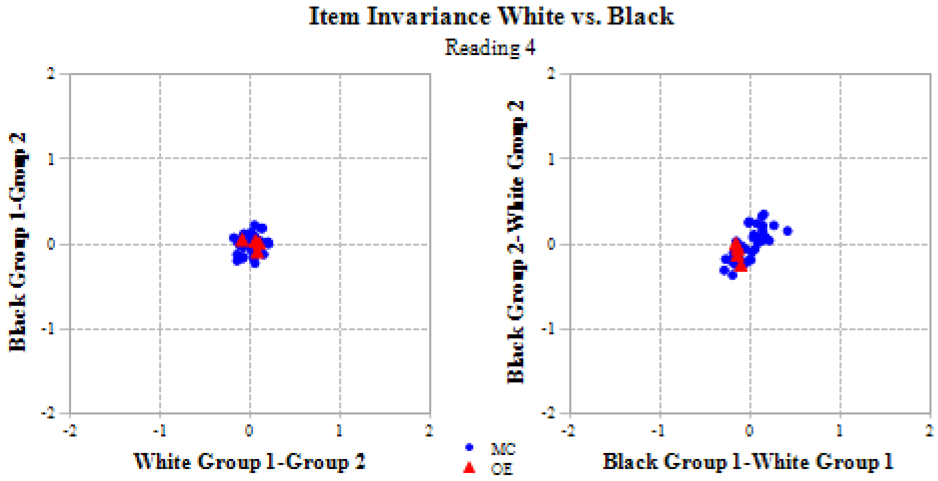



Item Invariance White vs. Hispanic

Reading 3


Item Invariance Male vs. Female

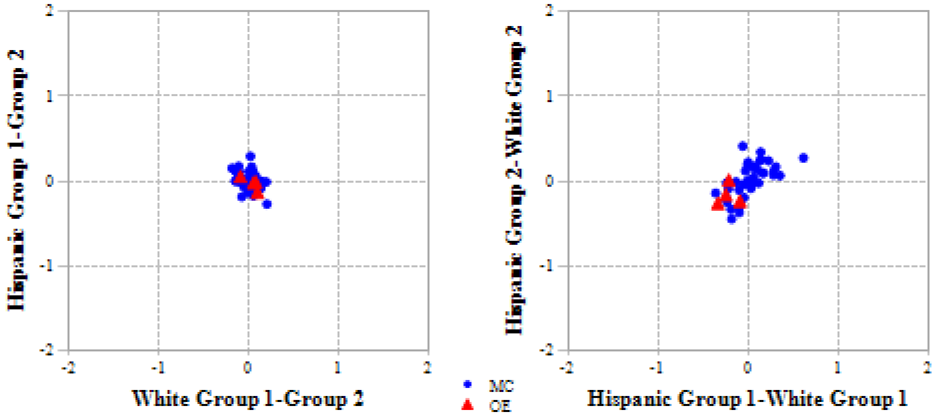
Reading 4


Item Invariance White vs. Black

Reading 4

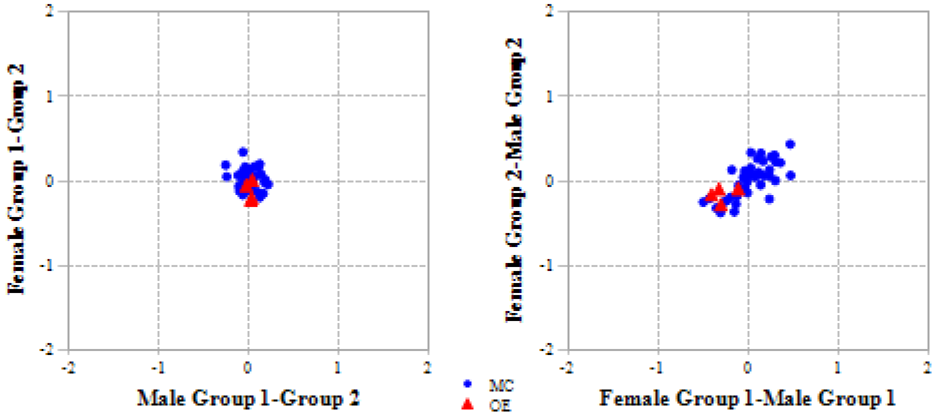
Item Invariance White vs. Hispanic

Reading 4



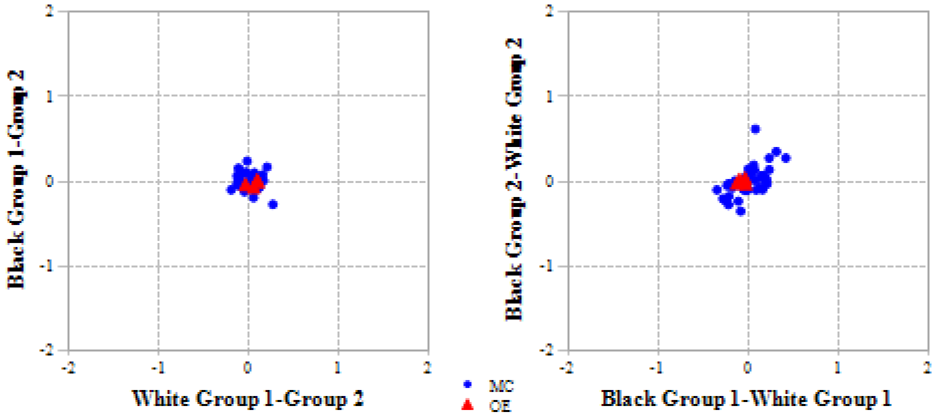
Item Invariance Male vs. Female

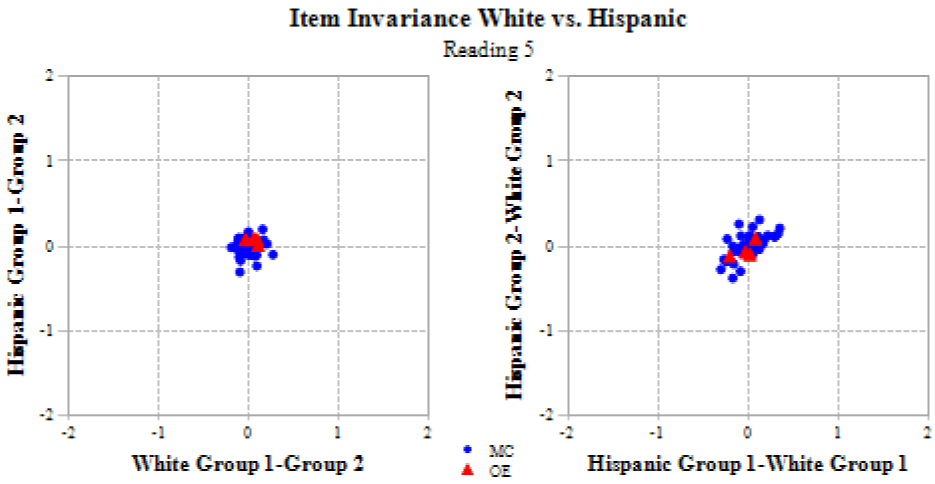
Reading 5

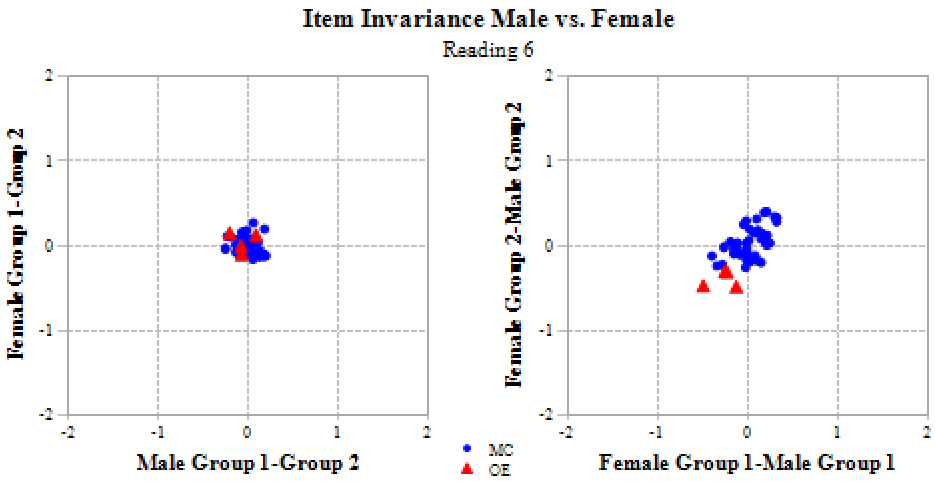


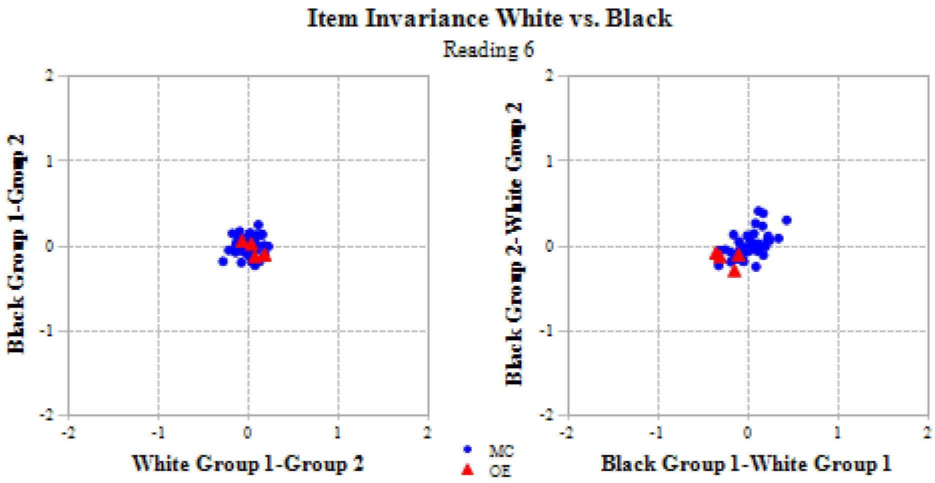
Item Invariance White vs. Black

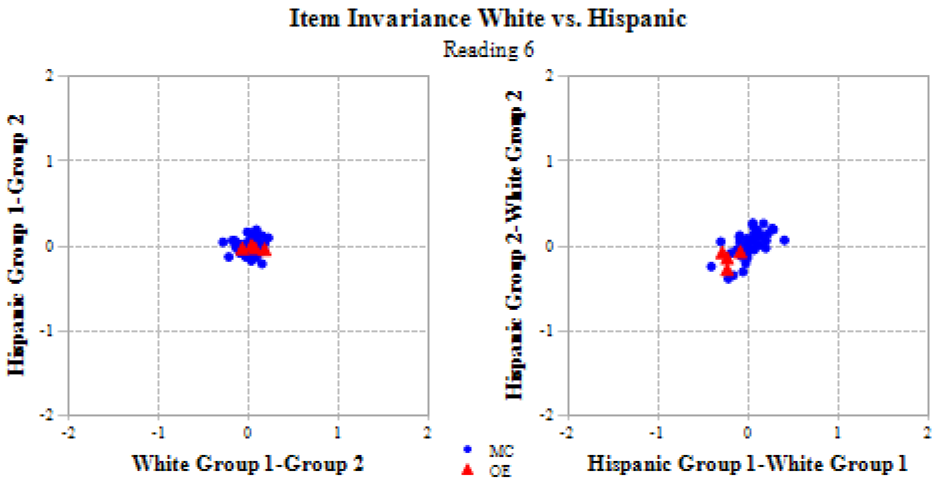
Reading 5

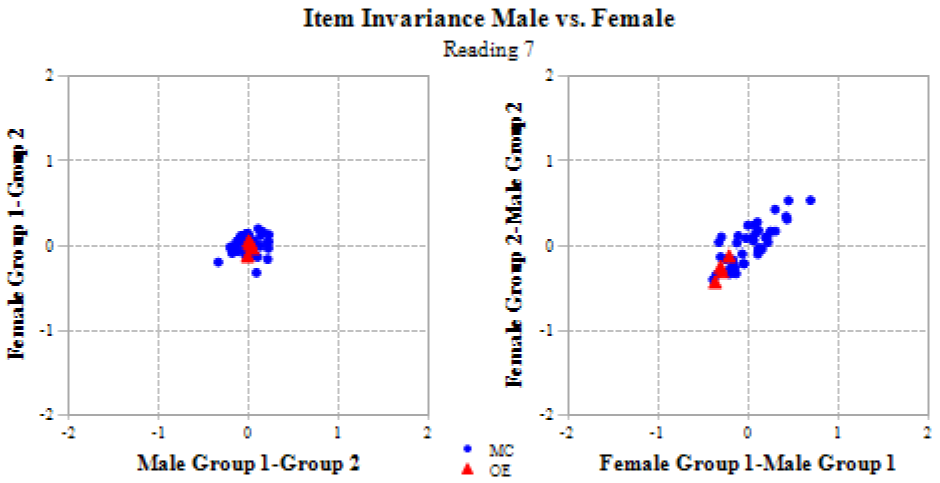


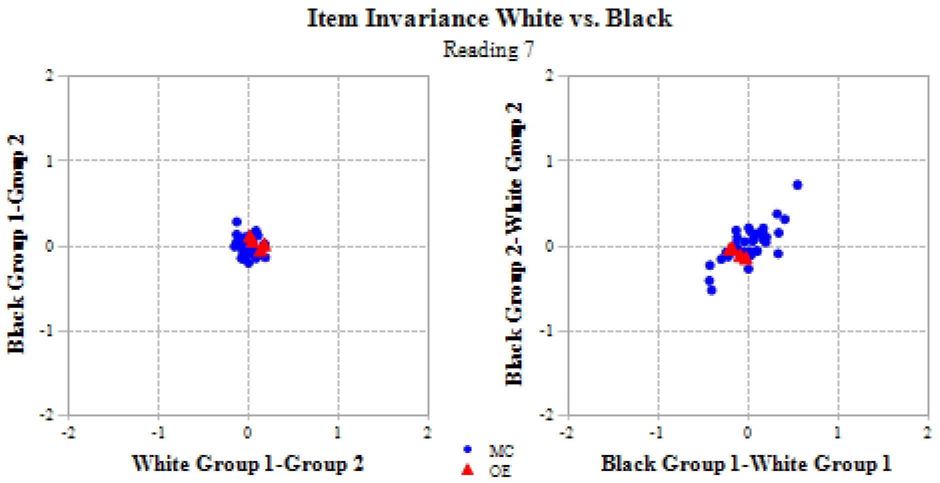

Item Invariance White vs. Hispanic
Reading 5
Hispanic Group 1-Group 2
White Group 1-Group 2
Hispanic Group 2-White Group 2
Hispanic Group 1-White Group 1
2
1
0
-1
-2
MC
OE

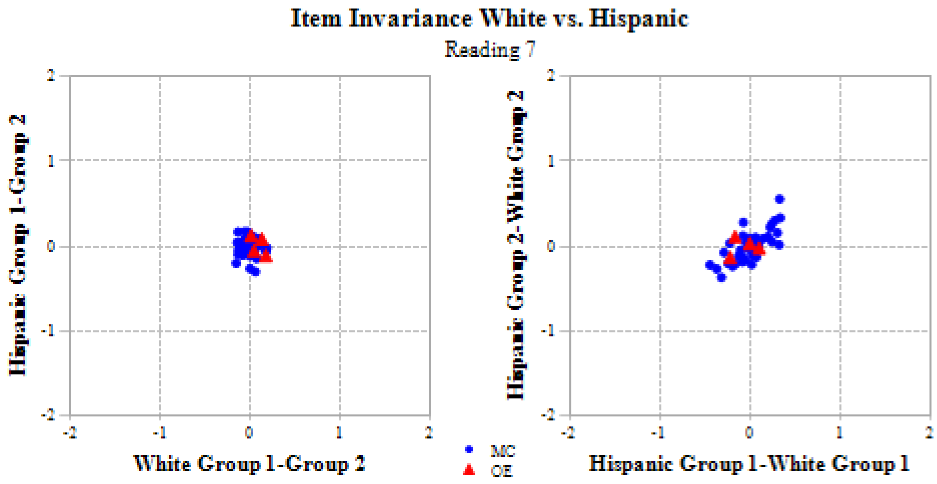

Item Invariance Male vs. Female
Reading 6
Female Group 1-Group 2
Male Group 1-Group 2
Female Group 2-Male Group 2
Female Group 1-Male Group 1
2
1
0
-1
-2
MC
OE


Item Invariance White vs. Black
Reading 6
Black Group 1-Group 2
White Group 1-Group 2
Black Group 2-White Group 2
Black Group 1-White Group 1
2
1
0
-1
-2
MC
OE


Item Invariance White vs. Hispanic
Reading 6
Hispanic Group 1-Group 2
White Group 1-Group 2
Hispanic Group 2-White Group 2
Hispanic Group 1-White Group 1
MC
OE
2
1
0
-1
-2

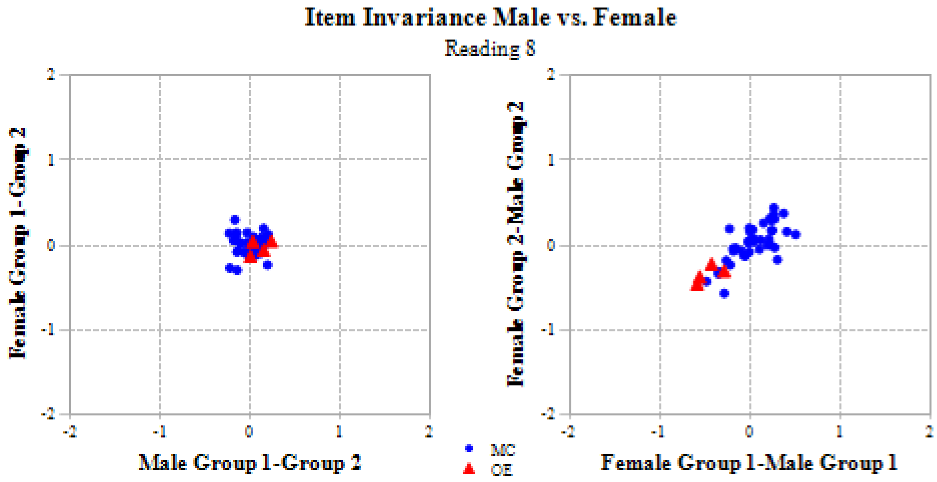

Item Invariance Male vs. Female
Reading 7
Female Group 1-Group 2
Male Group 1-Group 2
Female Group 2-Male Group 2
Female Group 1-Male Group 1
MC
OE
2
1
0
-1
-2


Item Invariance White vs. Black
Reading 7
Black Group 1-Group 2
White Group 1-Group 2
Black Group 2-White Group 2
Black Group 1-White Group 1
MC
OE
2
1
0
-1
-2



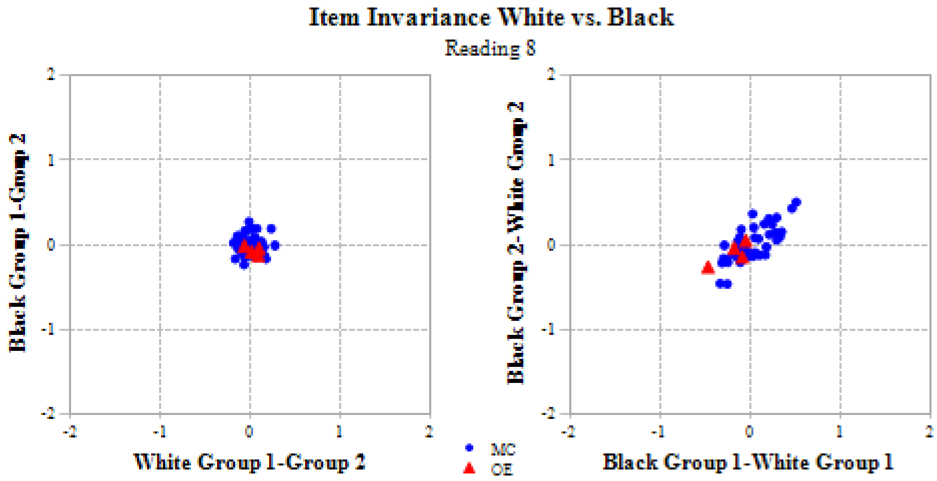
Item Invariance White vs. Hispanic

Reading 7



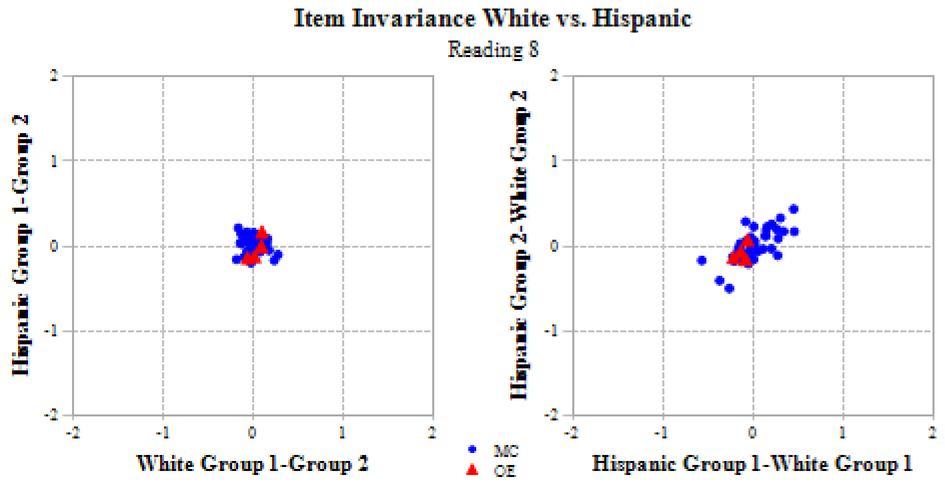
Item Invariance Male vs. Female

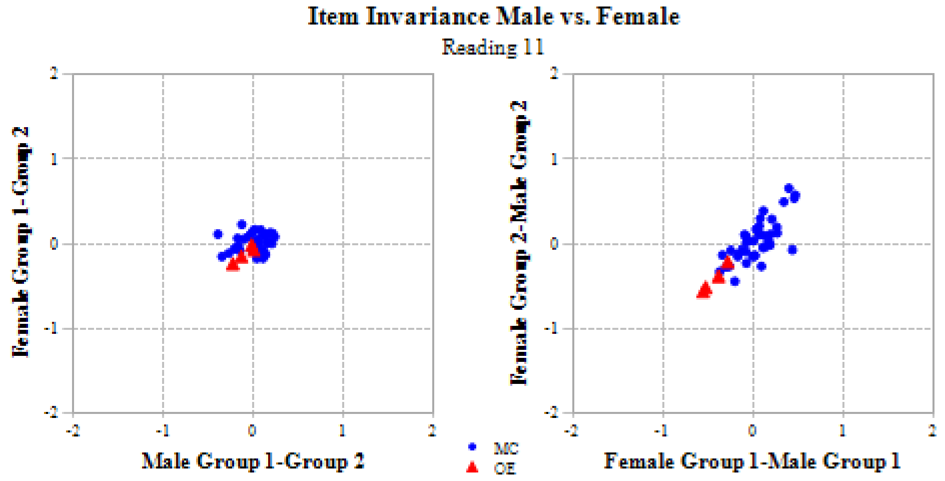
Reading 8

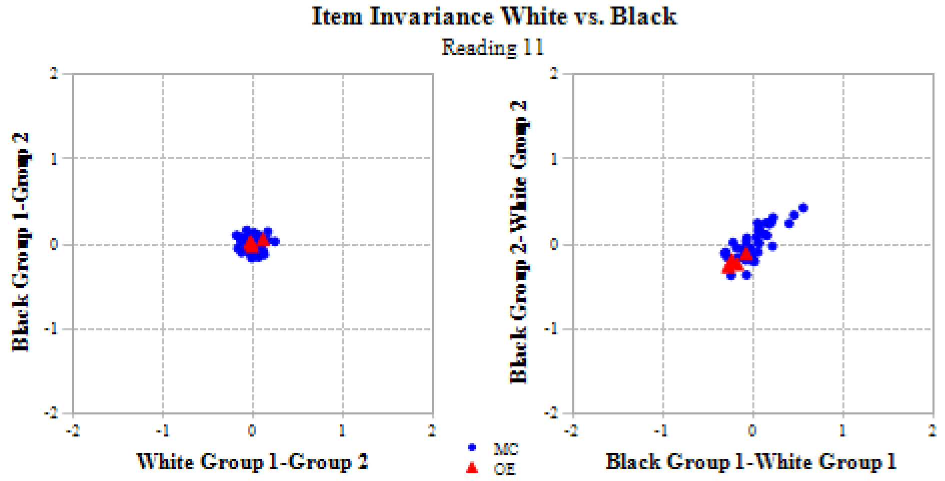


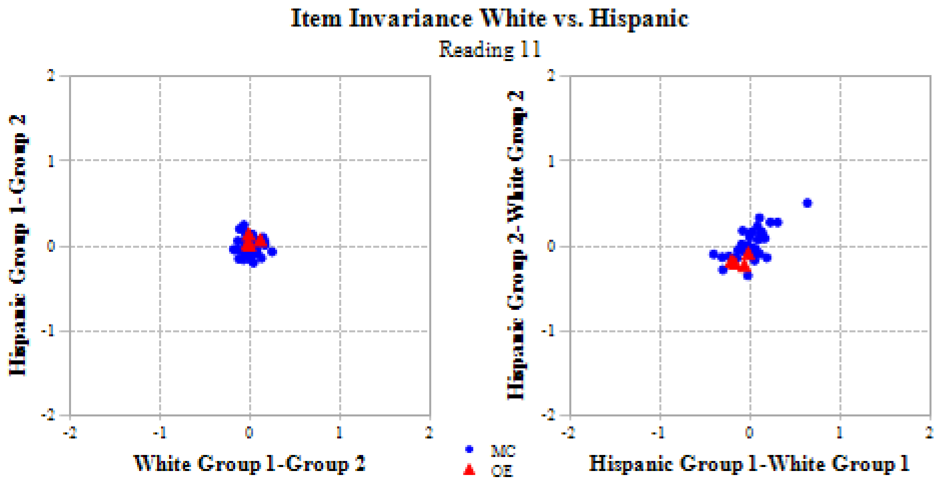
Item Invariance White vs. Black

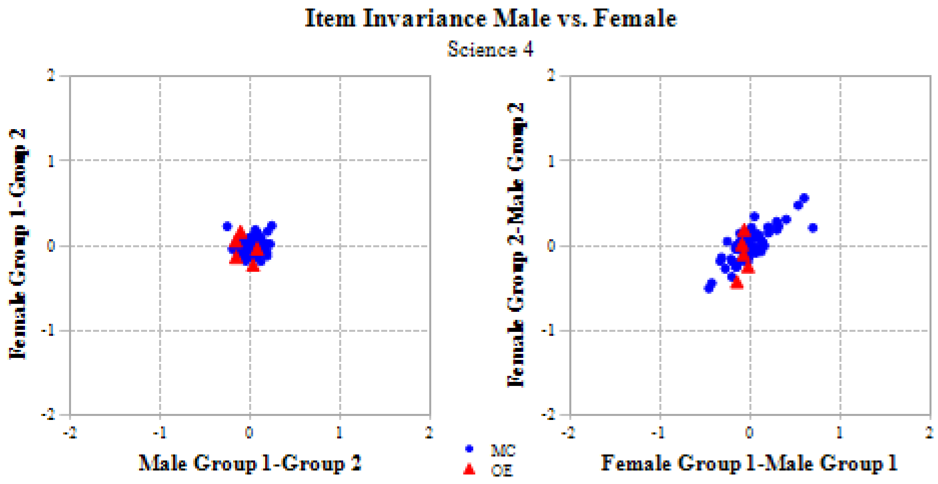
Reading 8

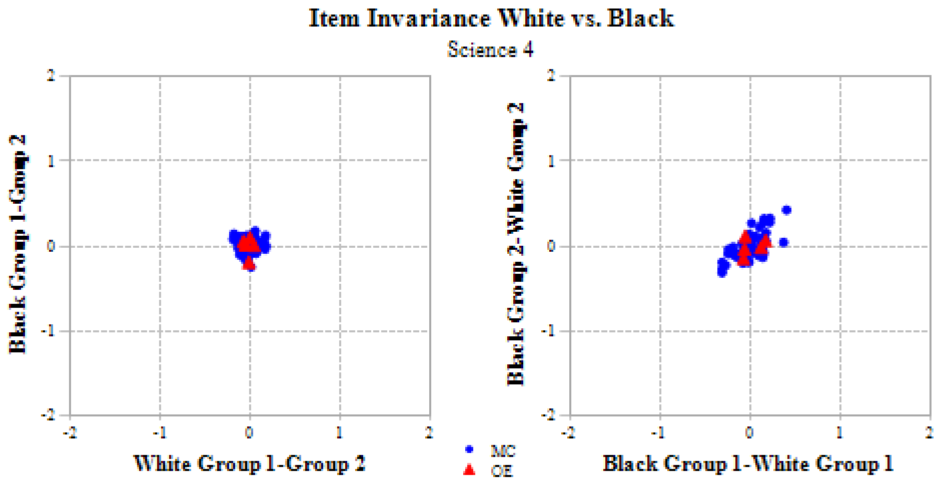

Item Invariance White vs. Hispanic
Reading 8
Hispanic Group 1-Group 2
White Group 1-Group 2
Hispanic Group 2-White Group 2
Hispanic Group 1-White Group 1
2
1
0
-1
-2
-2
-1
0
1
2
● MC
▲ OE

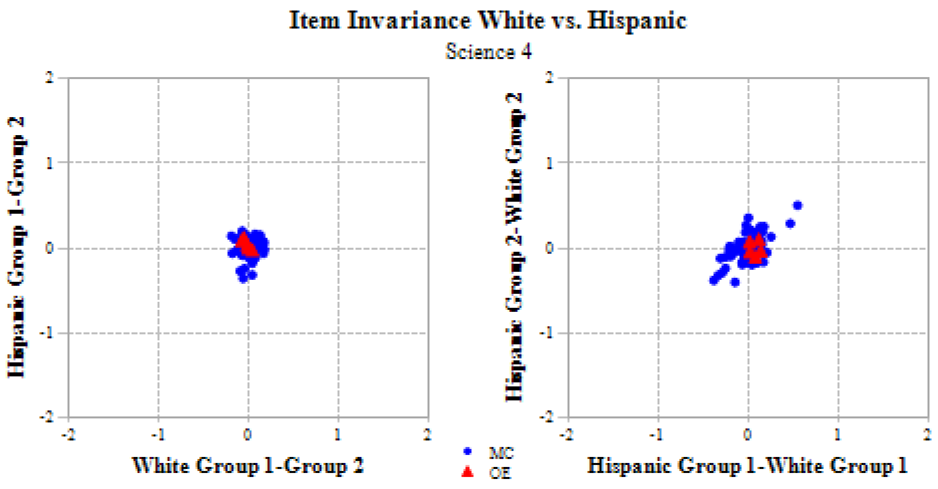

Item Invariance Male vs. Female
Reading 11
Female Group 1-Group 2
Male Group 1-Group 2
Female Group 2-Male Group 2
Female Group 1-Male Group 1
2
1
0
-1
-2
-2
-1
0
1
2
● MC
▲ OE

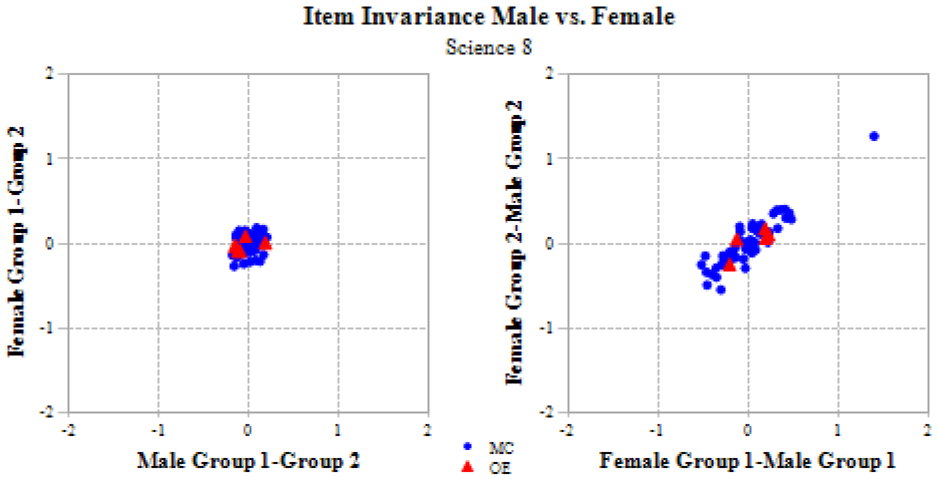

Item Invariance White vs. Black
Reading 11
Black Group 1-Group 2
White Group 1-Group 2
Black Group 2-White Group 2
Black Group 1-White Group 1
2
1
0
-1
-2
-2
-1
0
1
2
● MC
▲ OE

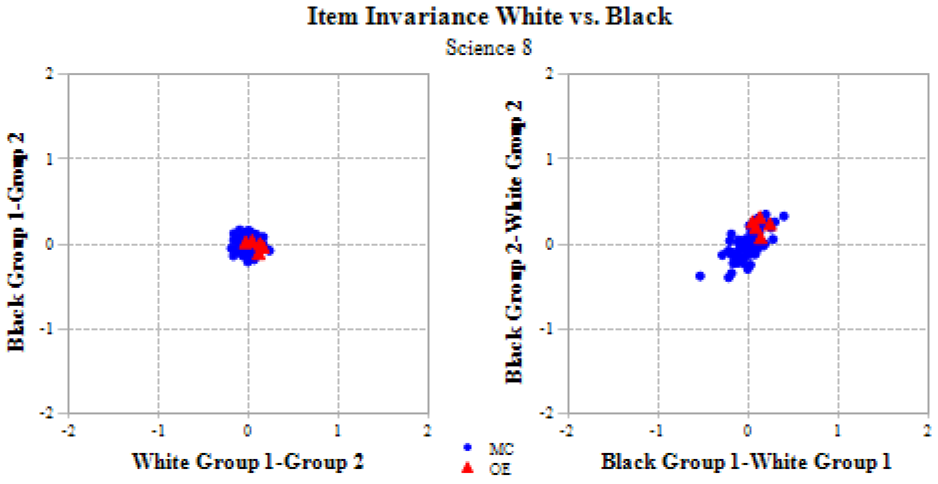

Item Invariance White vs. Hispanic
Reading 11
Hispanic Group 1-Group 2
White Group 1-Group 2
Hispanic Group 2-White Group 2
Hispanic Group 1-White Group 1
2
1
0
-1
-2
MC
OE

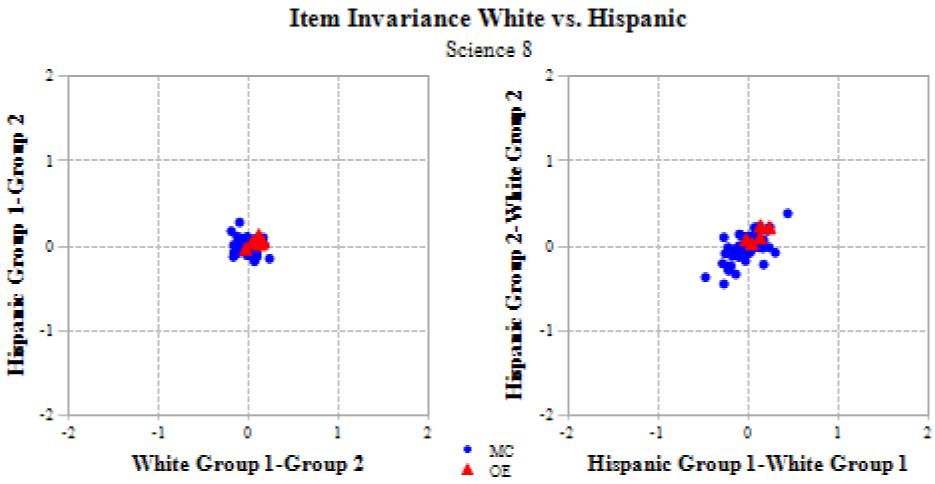

Item Invariance Male vs. Female
Science 4
Female Group 1-Group 2
Male Group 1-Group 2
Female Group 2-Male Group 2
Female Group 1-Male Group 1
2
1
0
-1
-2
MC
OE

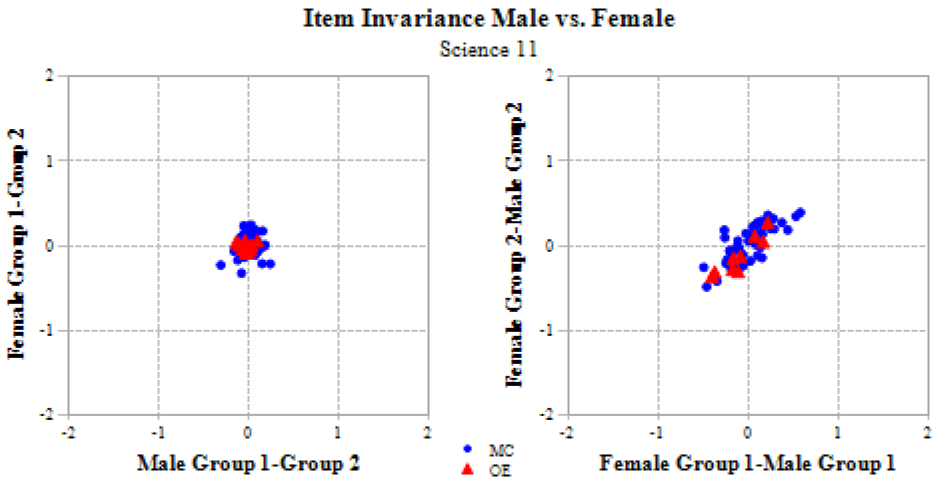

Item Invariance White vs. Black
Science 4
Black Group 1-Group 2
White Group 1-Group 2
Black Group 2-White Group 2
Black Group 1-White Group 1
2
1
0
-1
-2
MC
OE

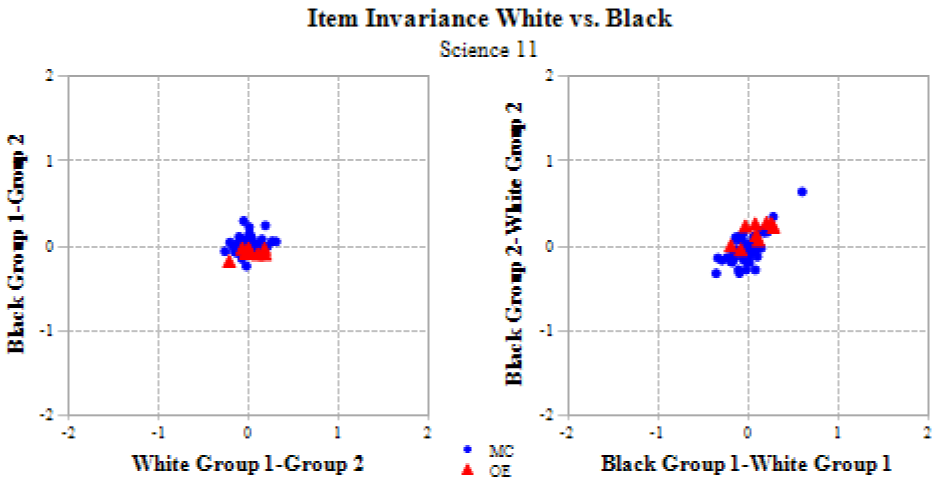

Item Invariance White vs. Hispanic
Science 4
Hispanic Group 1-Group 2
White Group 1-Group 2
Hispanic Group 2-White Group 2
Hispanic Group 1-White Group 1
2
1
0
-1
-2
● MC
▲ OE

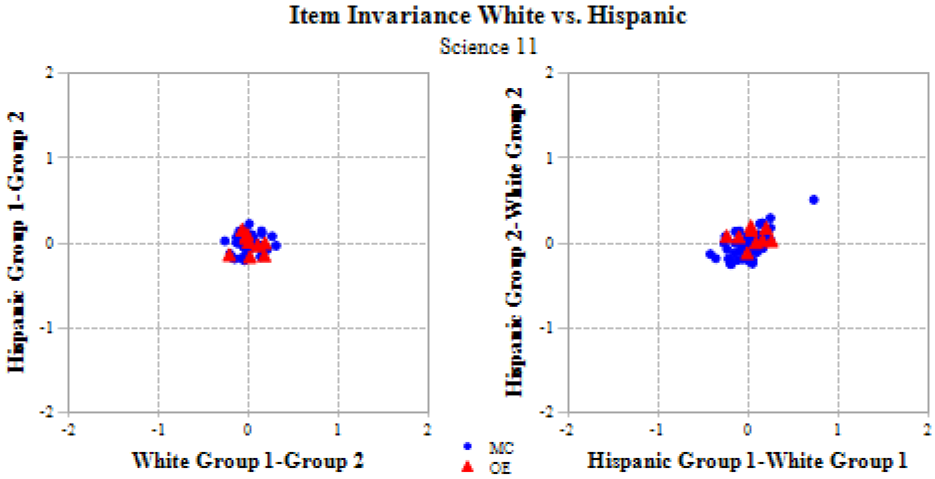

Item Invariance Male vs. Female
Science 8
Female Group 1-Group 2
Male Group 1-Group 2
Female Group 2-Male Group 2
Female Group 1-Male Group 1
2
1
0
-1
-2
● MC
▲ OE


Item Invariance White vs. Black
Science 8
Black Group 1-Group 2
White Group 1-Group 2
Black Group 2-White Group 2
Black Group 1-White Group 1
2
1
0
-1
-2
● MC
▲ OE


Item Invariance White vs. Hispanic
Science 8
Hispanic Group 1-Group 2
White Group 1-Group 2
Hispanic Group 2-White Group 2
Hispanic Group 1-White Group 1
MC
OE
2
1
0
-1
-2


Item Invariance Male vs. Female
Science 11
Female Group 1-Group 2
Male Group 1-Group 2
Female Group 2-Male Group 2
Female Group 1-Male Group 1
MC
OE
2
1
0
-1
-2


Item Invariance White vs. Black
Science 11
Black Group 1-Group 2
White Group 1-Group 2
Black Group 2-White Group 2
Black Group 1-White Group 1
MC
OE
2
1
0
-1
-2



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 on any form at zero. Under normal circumstances where all students are administered the same set of items, any item with a *p*-value lower than the average item on the form receives a positive logit difficulty and any item with a *p*-value higher than the average receives a negative logit difficulty. Consequently, the logits for any calibration, whether it is a third-grade reading test or a high-school science test, relate to an arbitrary origin defined by the center of items on that form. The average third-grade reading item will have a logit of zero; the average high-school science item will have a logit of zero. Logits for both item difficulties and student abilities are placed on the same scale and relate to the same mean item difficulty.

There are a number of other arbitrary choices that could be made for centering the item difficulties. Rather than using all the items, the origin could be defined by a subset. For the PSSA, all test forms in a particular grade and content area share the same operational item set. All items on each form can then be easily adjusted to a single (but still arbitrary) origin by defining the origin as the mean of the operational items. With this done, the origins for all the forms will be statistically equal. For example, items on any two forms that are equally difficult will now have statistically equal logit difficulties. This is partly how PSSA items can be placed on the same logit difficulty scale across years. Chapter Fifteen has more detailed information about the PSSA scale linking procedures.

Appendix I reports the item statistics including classical and Rasch logit difficulties for all the operational items. Table 12–7 summarizes the Rasch logit difficulties of the operational items on each test. The minimum and maximum values and standard deviations suggest that the PSSA items covered a relatively wide range of difficulties. It is important to note that the logit difficulty values presented have not been linked to a common scale of measurement. Therefore, the relative magnitude of the statistics across content areas and grades cannot be compared.

Table 12–7. Summary of Rasch Item Difficulties for PSSA Mathematics, Reading, and Science

		N	Mean	SD	Min	Max
Mathematics	**3**	63	0.60	0.96	-1.26	3.13
	4	63	0.38	0.75	-1.17	2.22
	5	63	0.64	1.01	-1.65	2.41
	6	63	0.23	0.87	-1.69	2.04
	7	63	0.24	0.80	-1.70	2.01
	8	63	0.22	0.85	-1.54	2.17
	11	63	-0.17	0.86	-1.96	1.91
Reading	**3**	42	-0.08	0.82	-1.66	1.52
	4	44	0.00	0.72	-1.59	1.76
	5	44	0.08	0.70	-1.60	1.85
	6	44	-0.15	0.70	-1.76	1.44
	7	44	-0.04	0.92	-1.94	1.41
	8	44	0.65	0.78	-1.04	2.25
	11	44	-0.14	0.97	-2.33	1.72
Science	**4**	63	0.26	0.78	-1.41	1.54
	8	63	-0.09	0.69	-2.47	1.22
	11	59	0.10	0.80	-1.86	1.65

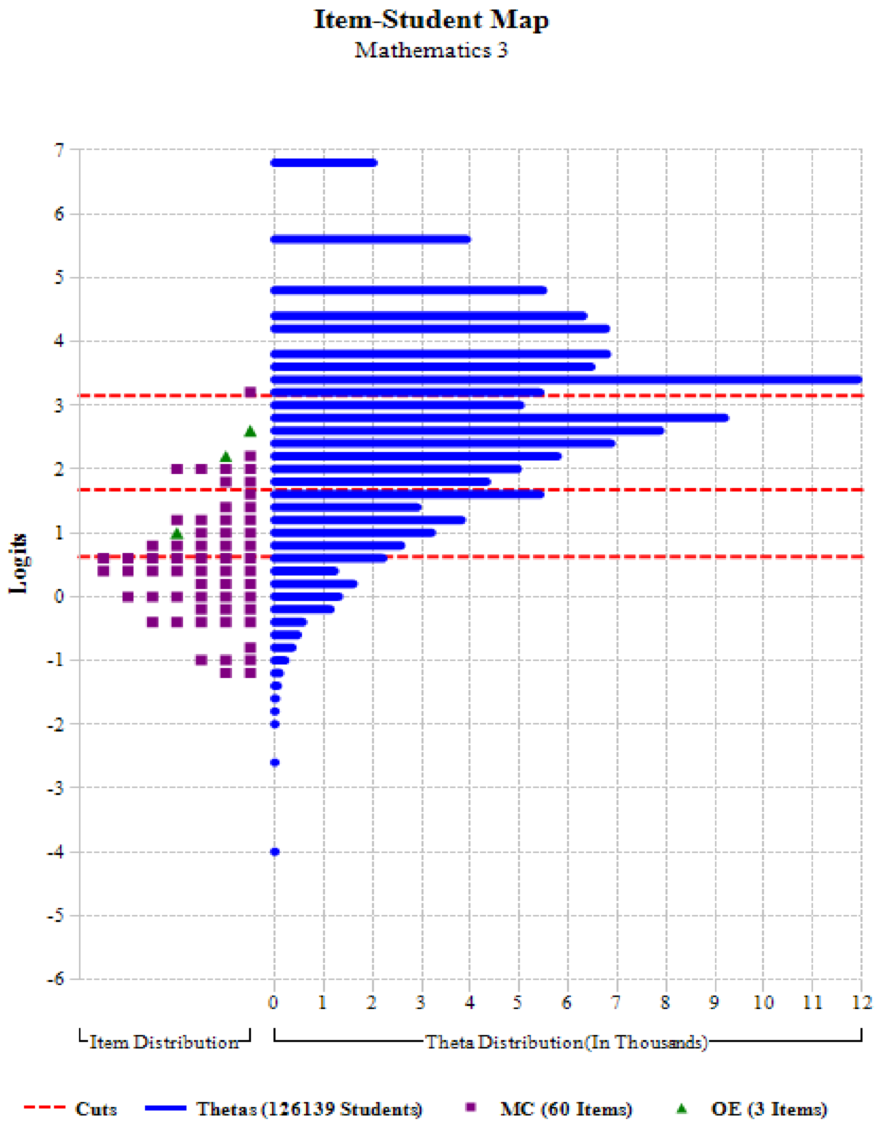
Note. The mean logit values not necessarily 0.0 because the items have been placed on a scale that was developed in prior years.

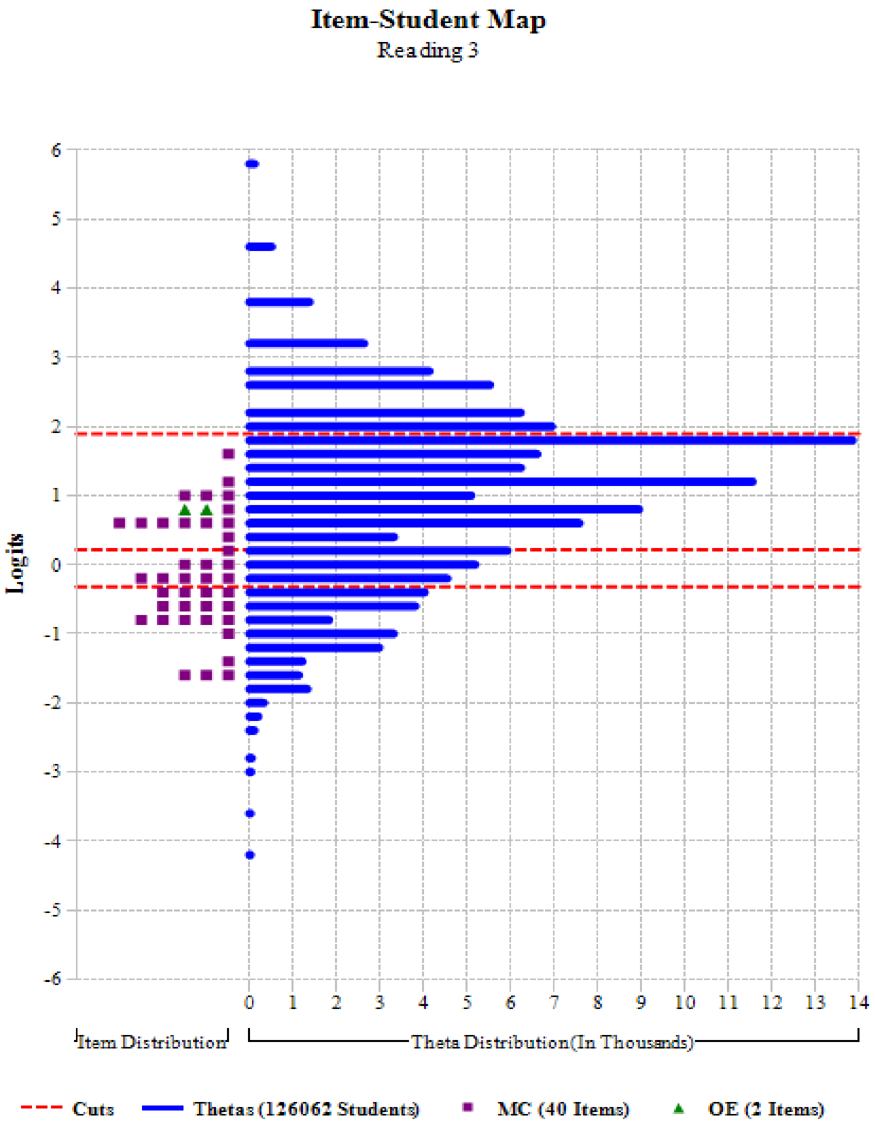
Item Difficulty-Student Ability Maps

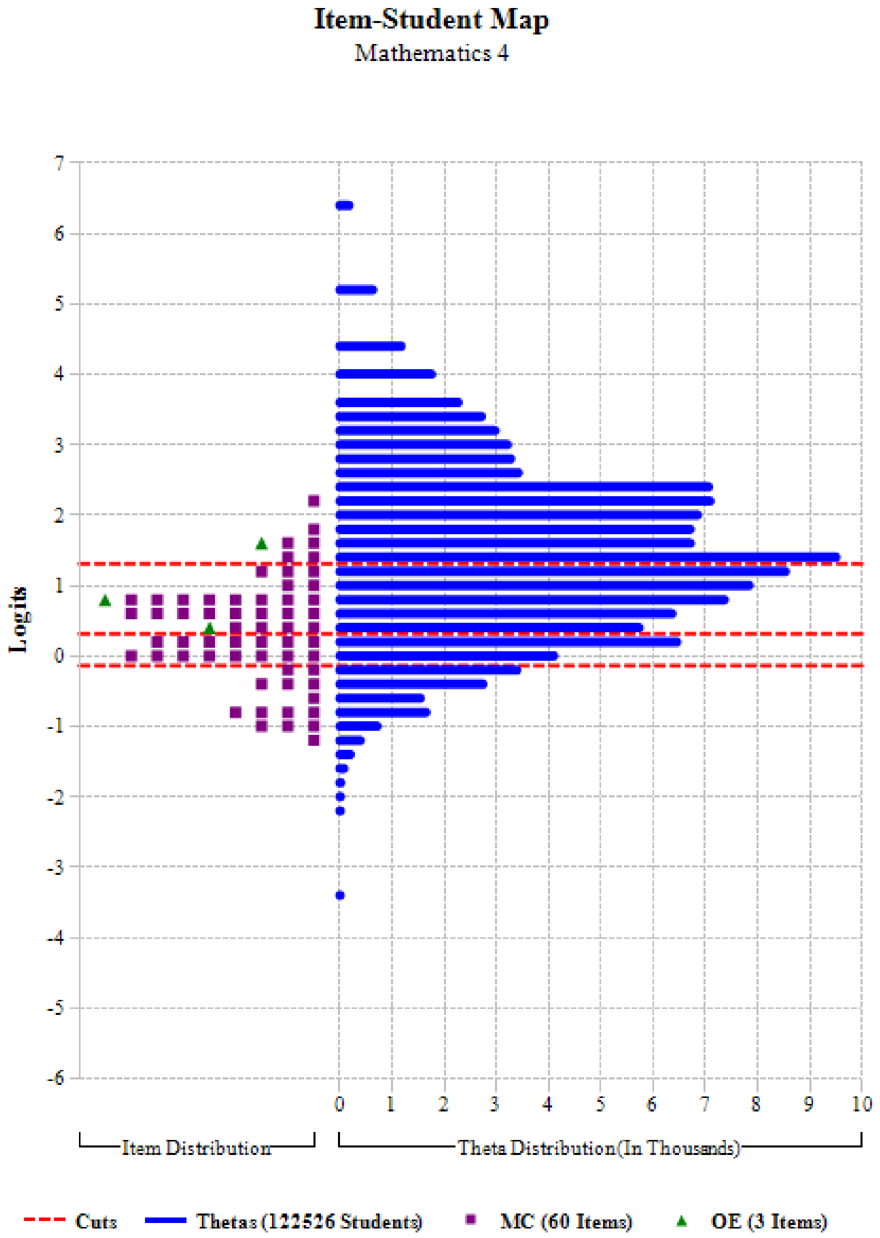
The distributions of the Rasch item logits (item difficulty estimates) are shown on the item difficulty-student ability maps presented in Figure 12–3. In each item-student map, markers on the left-hand side represent item difficult parameter estimates, whereas markers on the right-hand side represent person ability parameter estimates. As noted earlier, the Rasch model enables placement of both items and students on the same scale. Consequently, one can easily visualize information about how the difficulty of the test items related to the ability distribution of students who took the test. The students located in the upper-right quadrant of any given plot have relatively more ability. Items in the lower-left quadrant are relatively easier. High-ability students have higher probabilities of correctly answering easier items. Similarly, low-ability students (in the lower-right quadrant of any given plot) have lower probabilities of answering harder items (in the upper-left quadrant).

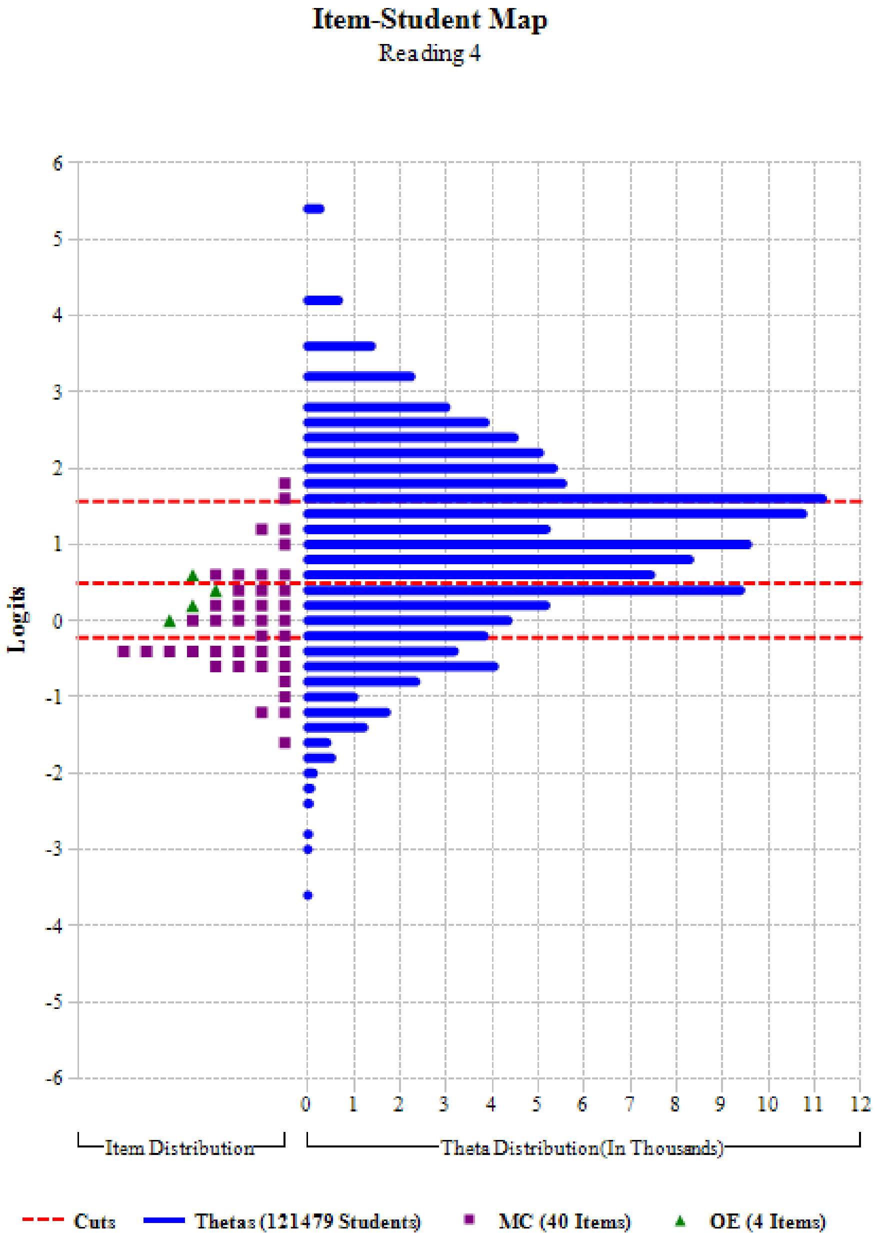
Overall, the most predominant pattern seen across all maps was for students to have relatively higher ability and for items to be relatively easier. It is also important to understand where the items are providing more accurate measurement (e.g., near the cut scores or away from the cut scores). This issue is addressed more fully in Chapter Eighteen (see Figure 18–2).

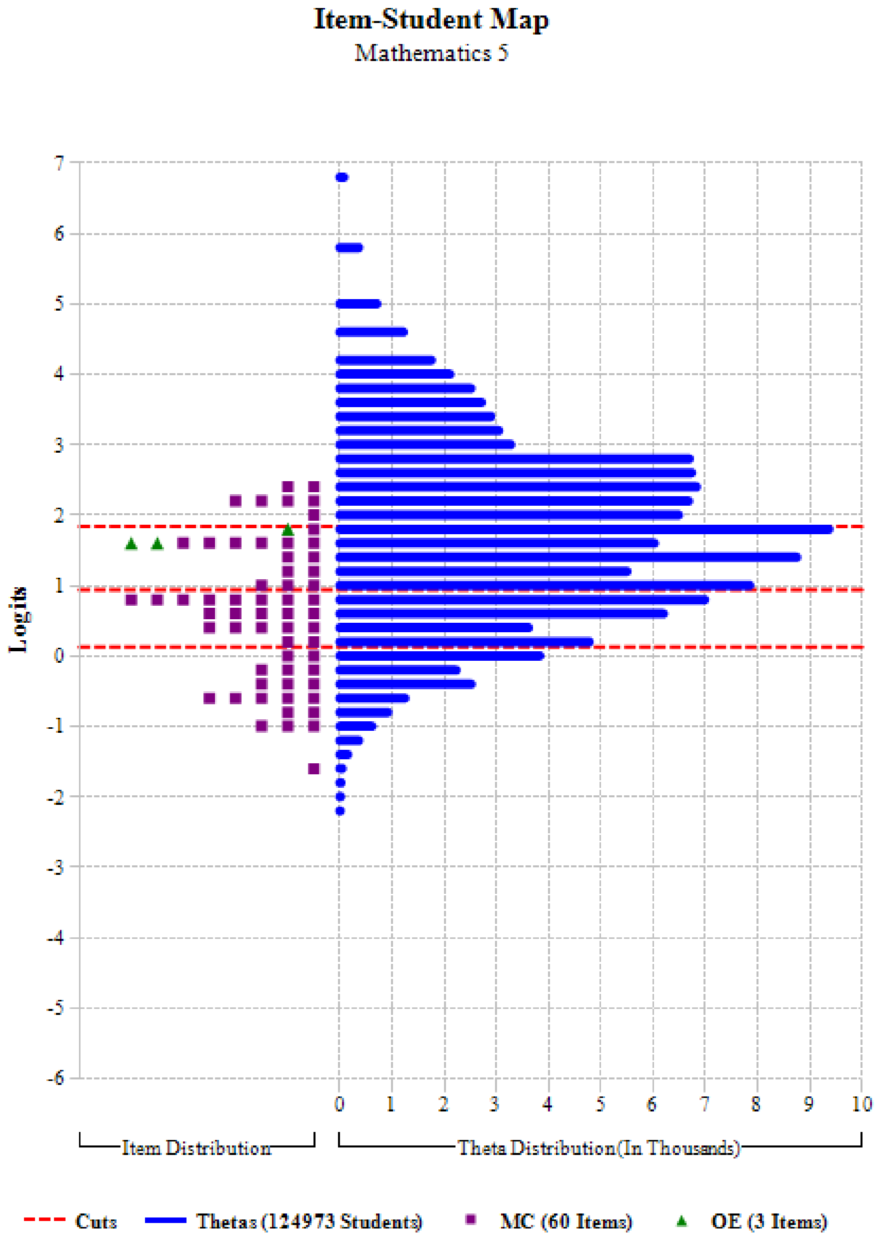
Figure 12–3. Item-Student Maps

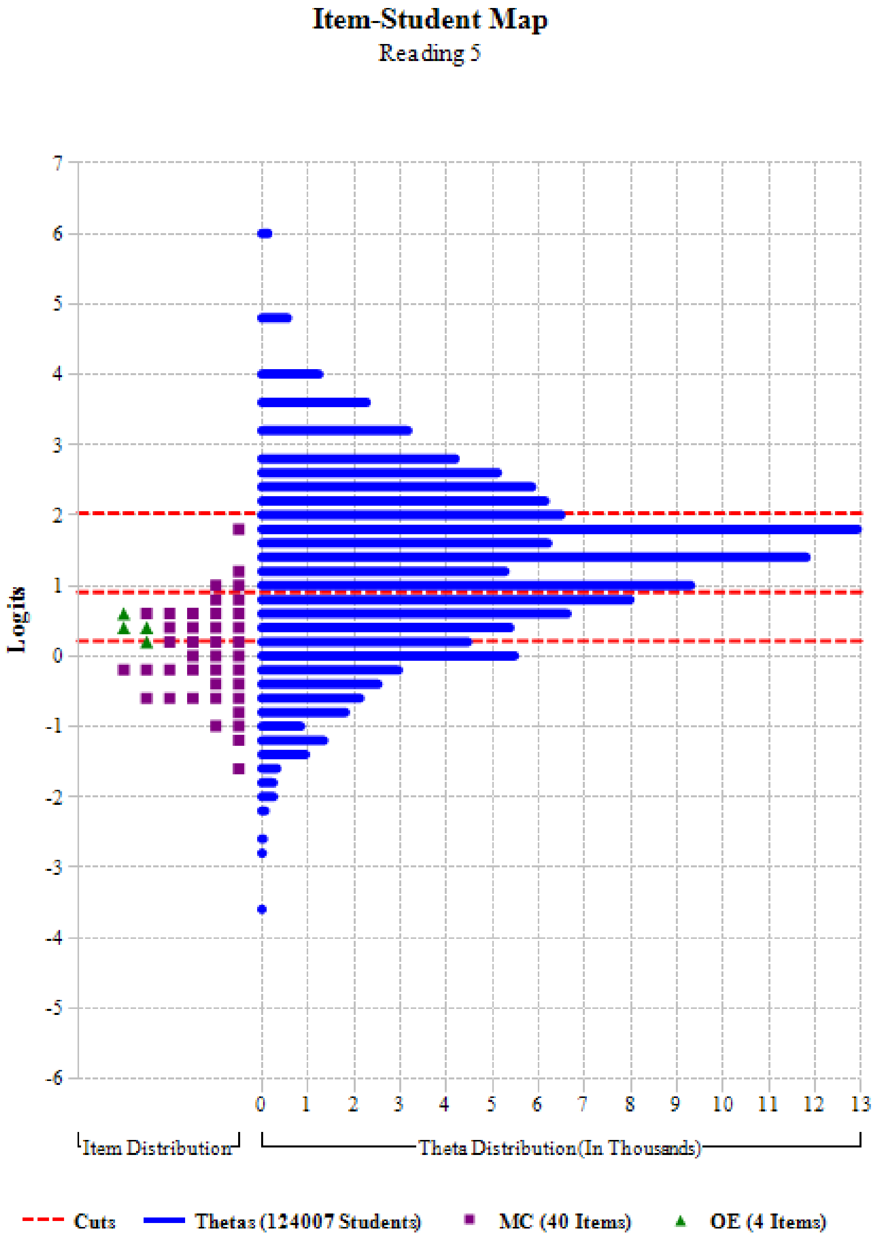


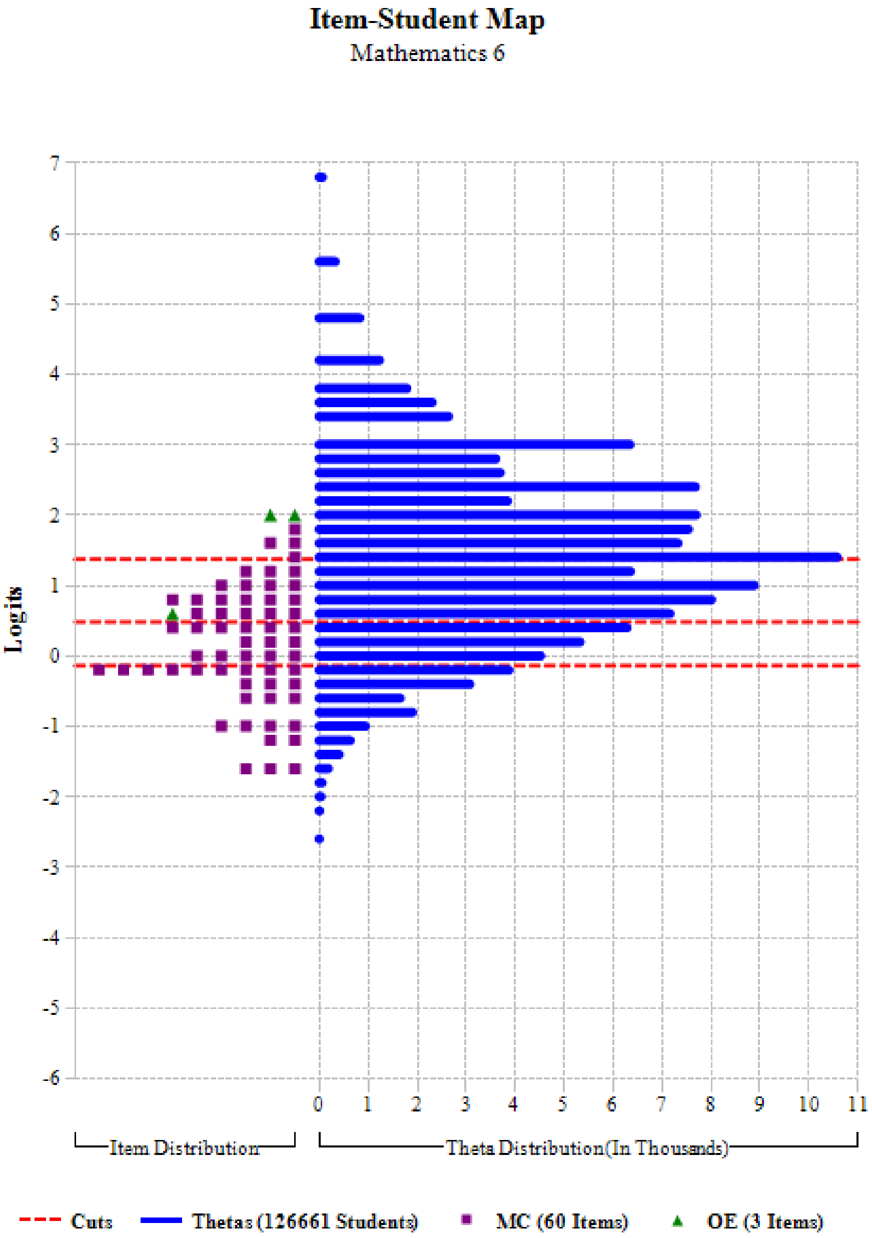


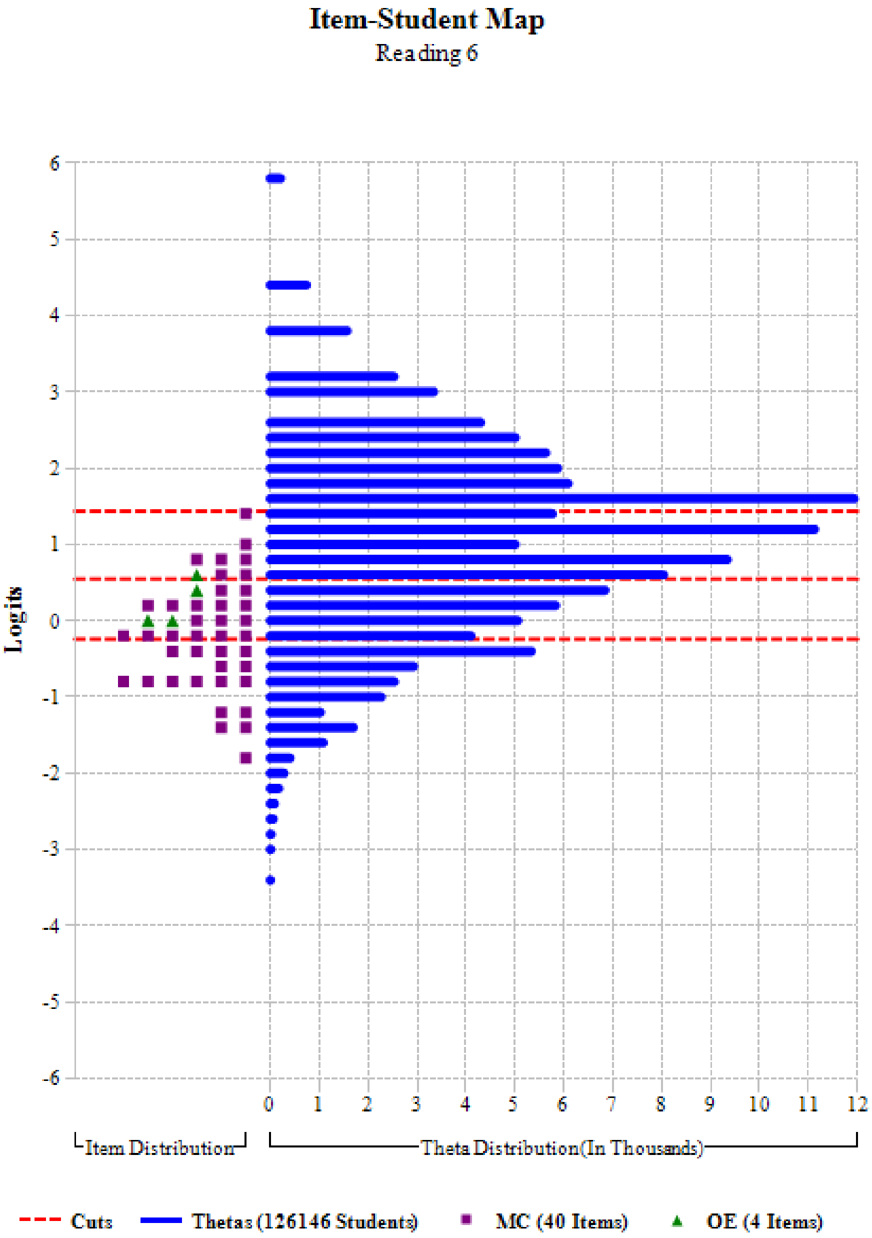

Item-Student Map
Mathematics 4
Logits
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0
1
2
3
4
5
6
7
8
9
10
Item Distribution
Theta Distribution(In Thousands)
Cuts
Thetas (122526 Students)
MC (60 Items)
OE (3 Items)

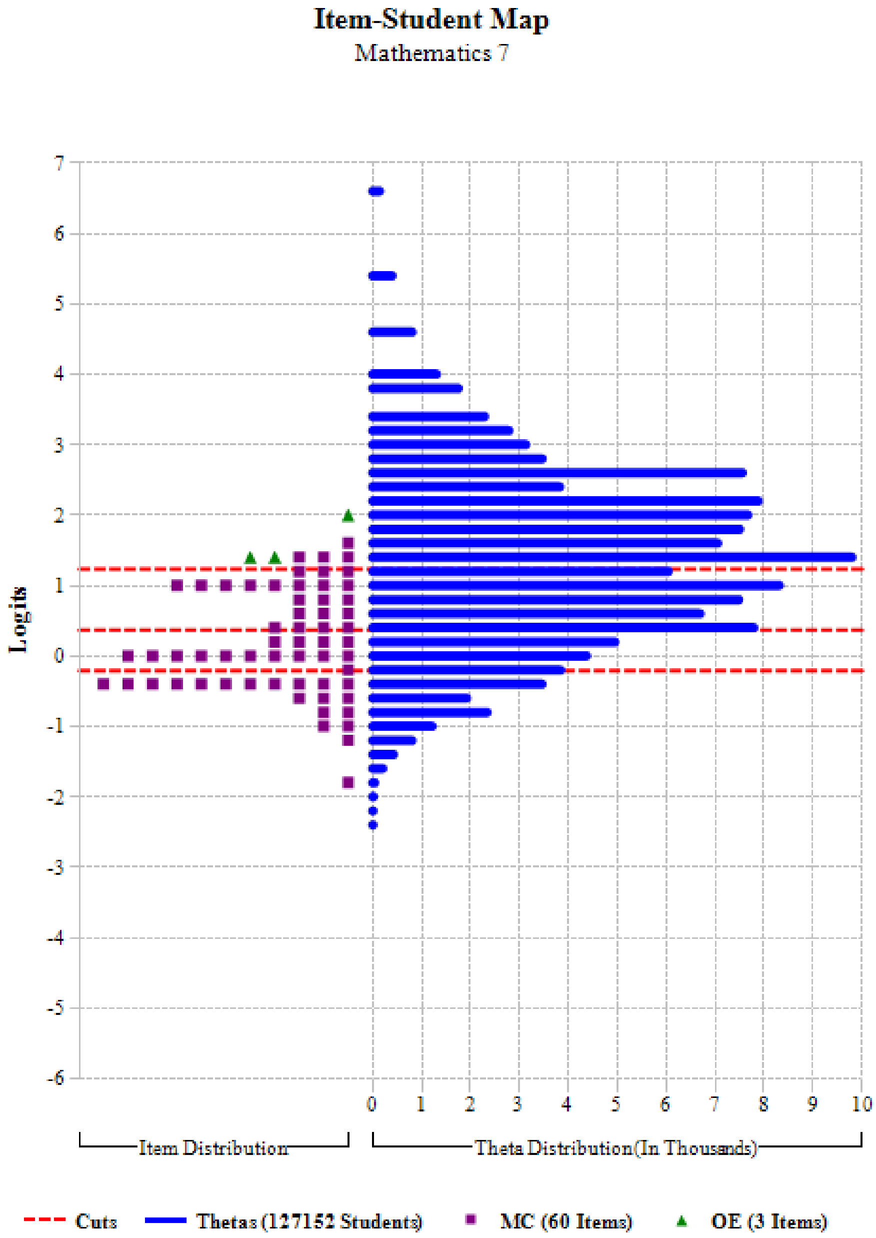

Item-Student Map
Reading 4
Logits
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0
1
2
3
4
5
6
7
8
9
10
11
12
Item Distribution
Theta Distribution(In Thousands)
Cuts
Thetas (121479 Students)
MC (40 Items)
OE (4 Items)


Item-Student Map
Mathematics 5
Logits
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0
1
2
3
4
5
6
7
8
9
10
Item Distribution
Theta Distribution(In Thousands)
Cuts
Thetas (124973 Students)
MC (60 Items)
OE (3 Items)

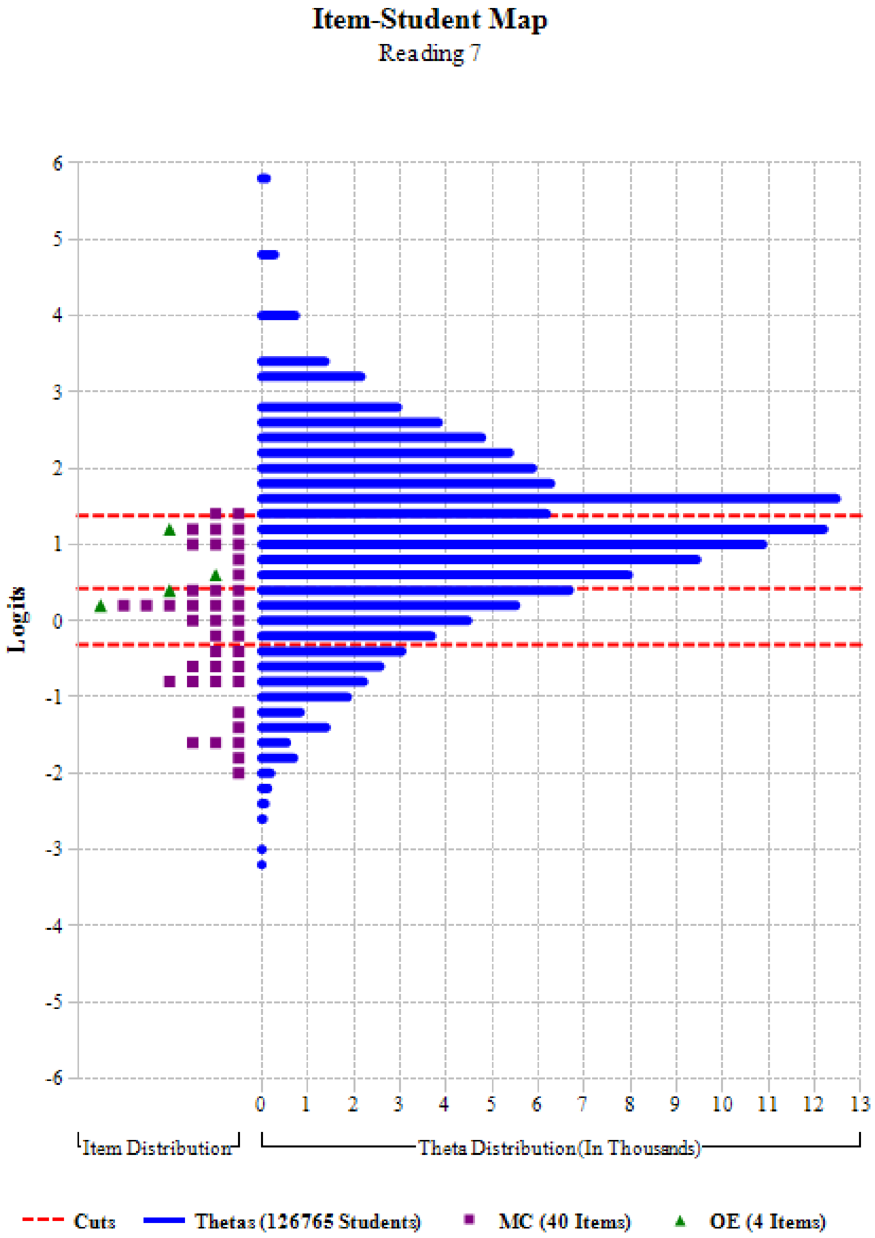

Item-Student Map
Reading 5
Logits
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0
1
2
3
4
5
6
7
8
9
10
11
12
13
Item Distribution
Theta Distribution(In Thousands)
Cuts
Thetas (124007 Students)
MC (40 Items)
OE (4 Items)


Item-Student Map
Mathematics 6
Logits
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0 1 2 3 4 5 6 7 8 9 10 11
Item Distribution
Theta Distribution(In Thousands)
Cuts
Thetas (126661 Students)
MC (60 Items)
OE (3 Items)

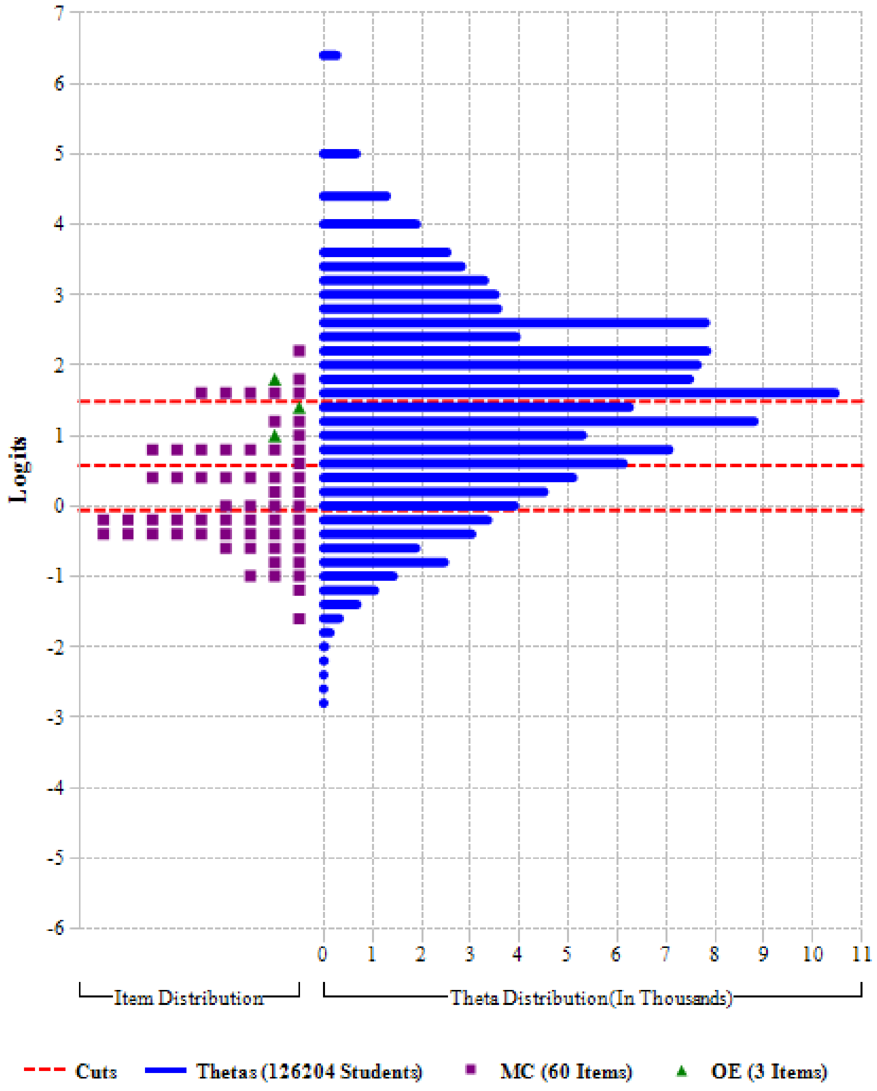

Item-Student Map
Reading 6
Logits
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0 1 2 3 4 5 6 7 8 9 10 11 12
Item Distribution
Theta Distribution(In Thousands)
Cuts
Thetas (126146 Students)
MC (40 Items)
OE (4 Items)



Item-Student Map
Mathematics 7

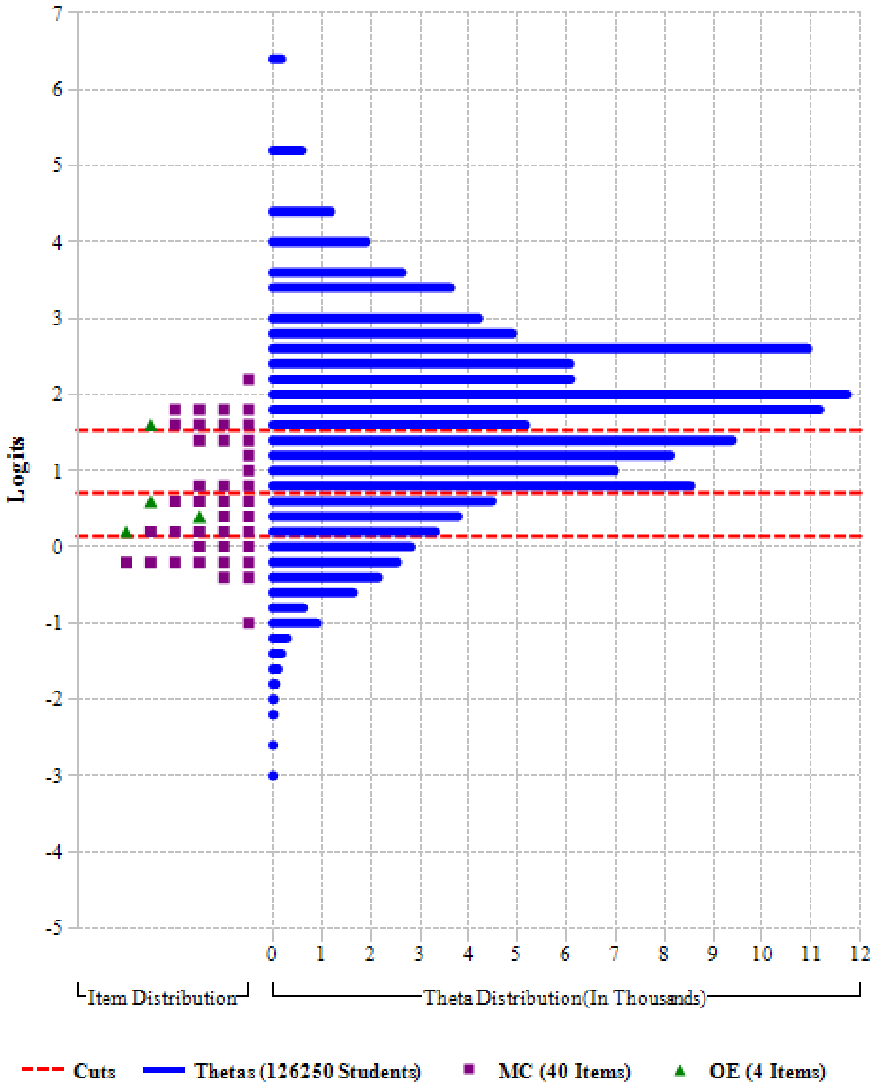


Item-Student Map
Reading 7



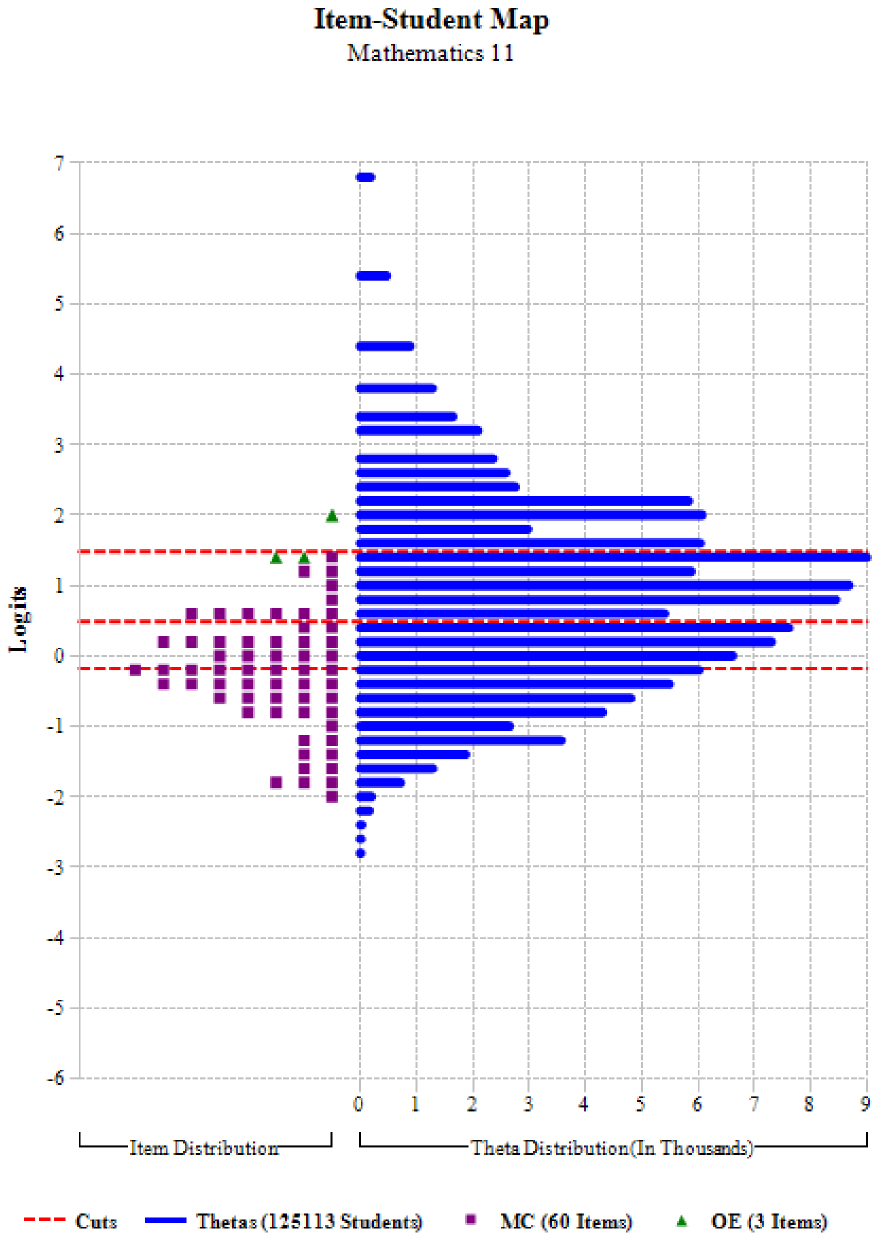
Item-Student Map

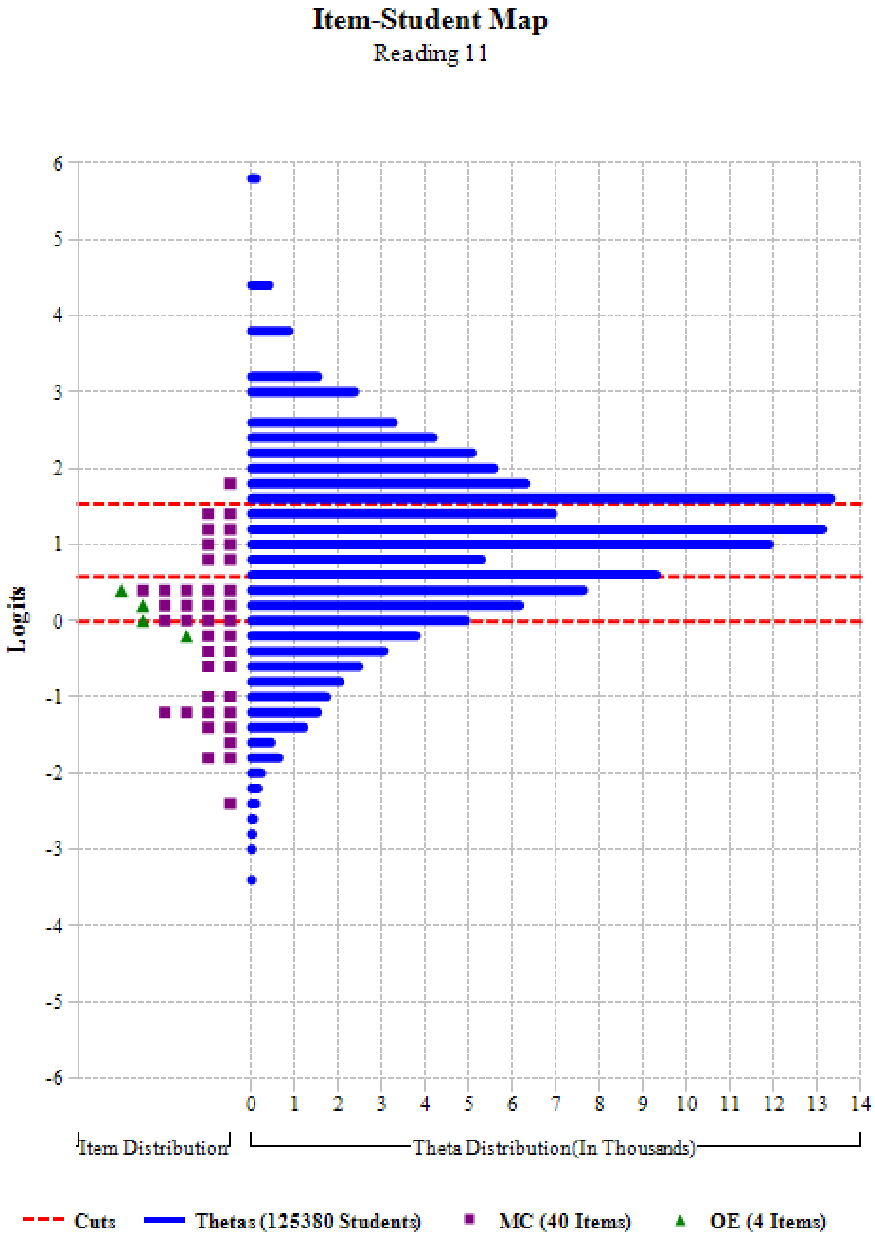
Mathematics 8

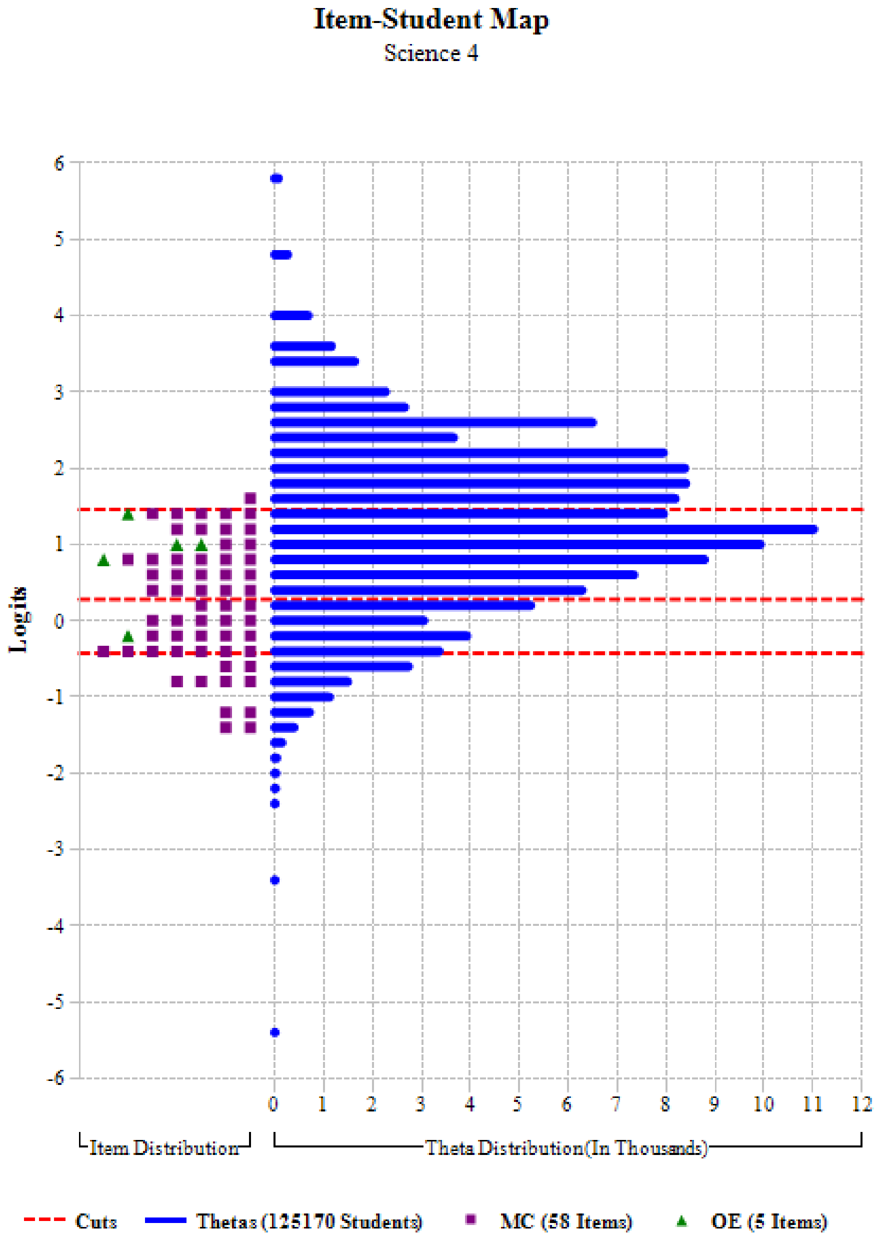


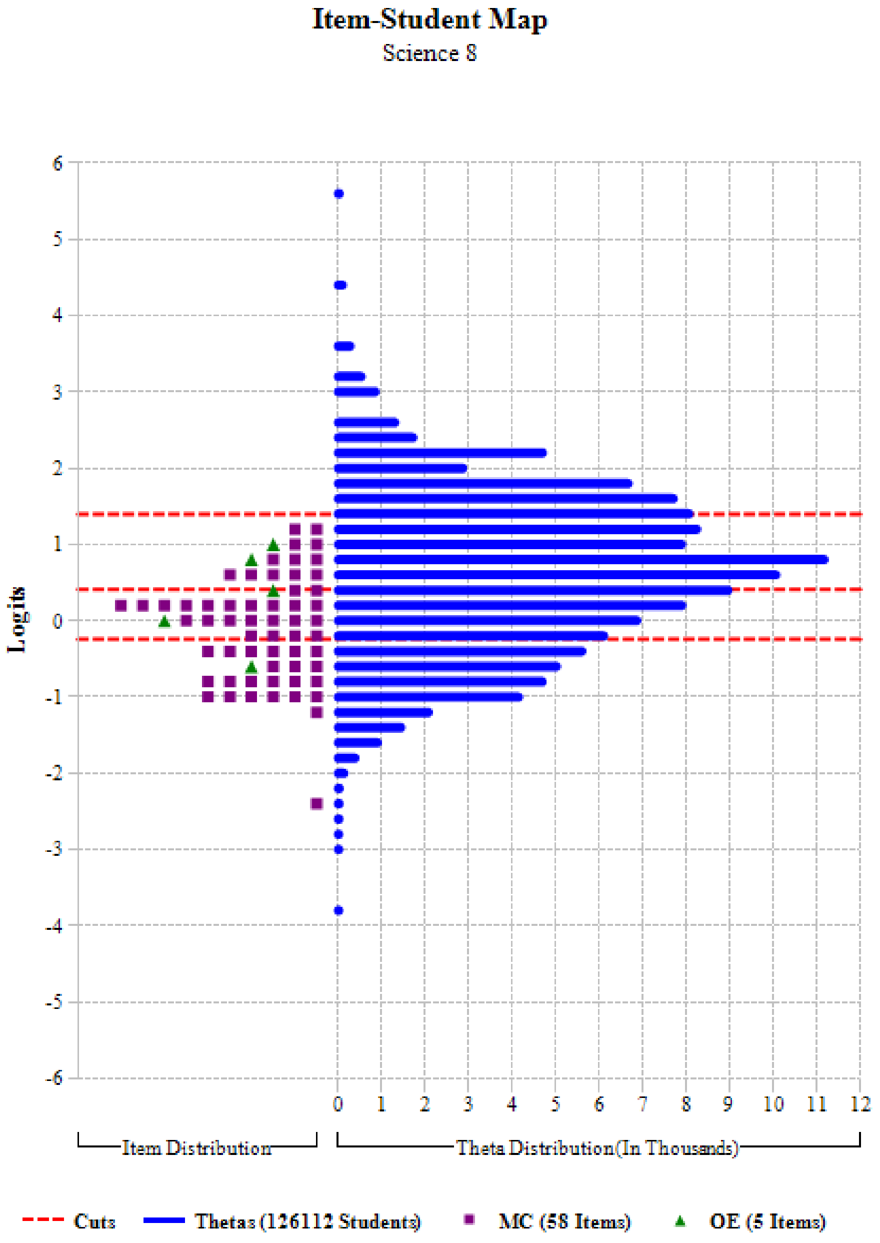
Item-Student Map

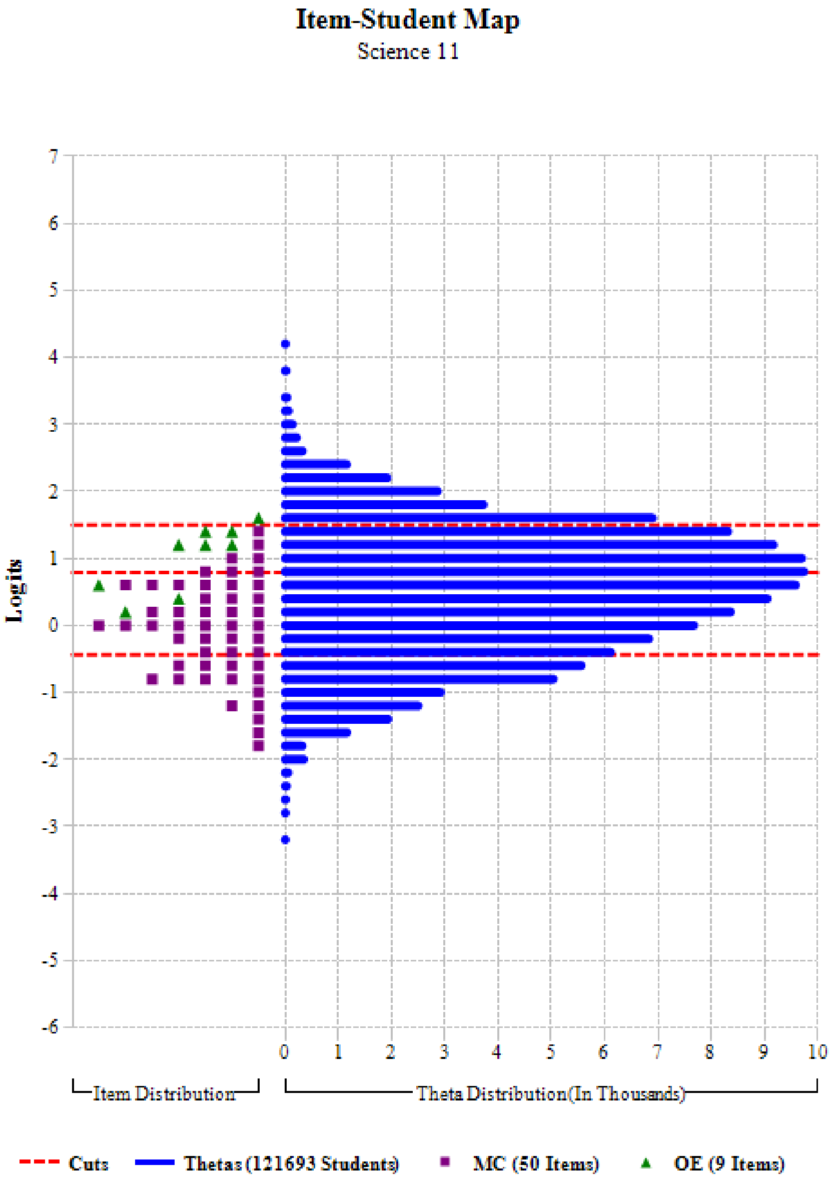
Reading 8


Item-Student Map
Mathematics 11
Logits
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0
1
2
3
4
5
6
7
8
9
Item Distribution
Theta Distribution(In Thousands)
Cuts
Thetas (125113 Students)
MC (60 Items)
OE (3 Items)


Item-Student Map
Reading 11
Logits
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Item Distribution
Theta Distribution(In Thousands)
Cuts
Thetas (125380 Students)
MC (40 Items)
OE (4 Items)


Item-Student Map
Science 4
Logits
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0
1
2
3
4
5
6
7
8
9
10
11
12
Item Distribution
Theta Distribution(In Thousands)
Cuts
Thetas (125170 Students)
MC (58 Items)
OE (5 Items)


Item-Student Map
Science 8
Logits
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0
1
2
3
4
5
6
7
8
9
10
11
12
Item Distribution
Theta Distribution(In Thousands)
Cuts
Thetas (126112 Students)
MC (58 Items)
OE (5 Items)


Item-Student Map
Science 11
Logits
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
0
1
2
3
4
5
6
7
8
9
10
Item Distribution
Theta Distribution(In Thousands)
Cuts
Thetas (121693 Students)
MC (50 Items)
OE (9 Items)

Chapter Thirteen: Performance Level Setting

No performance level setting events occurred this year. A history (dates and methodology) of prior performance level setting or validation events are provided in Table 13–1. Validation events utilized starting values; more details about this are provided in the table note. The resulting cut scores from those events are provided in Tables 13–2 and 13–3. For additional details about any given event, refer to the technical report for the year that the event occurred (Data Recognition Corporation, 2005, 2007a, 2007b, 2008a, 2008b).

Table 13–1. Performance Level Setting/Validation Event Dates and Methodology

Subject	Grade	Methodology	Validation?	Event Date
Reading	5, 8, 11	Bookmark	Yes[1]	Summer 2005
Mathematics	5, 8, 11	Bookmark	Yes[1]	Summer 2005
Writing	5, 8, 11	Body of Work	Yes[2]	Summer 2006
Reading	4, 6, 7	Bookmark	Yes[2]	Summer 2006
Mathematics	4, 6, 7	Bookmark	Yes[2]	Summer 2006
Reading	3	Bookmark	Yes[3]	Summer 2007
Mathematics	3	Bookmark	Yes[3]	Summer 2007
Science	4, 8, 11	Bookmark	No	Summer 2008

Note. 1. Starting values exponentially smoothed using post-equated 2005 results for Grades 5, 8, and 11.
2. Starting values exponentially smoothed using post-equated 2006 results for Grades 4, 6, and 7.
3. Starting values were determined using post-equated 2007 results for Grades 4.

PSSA CUT SCORES

Appendix L provides the Rasch ability and scaled-score cuts for each PSSA test. For reader convenience, these are documented next in a different format. Table 13–2 documents the Rasch ability (theta) cut scores for each grade and subject area test. Table 13–3 documents the same but provides the cut scores on the scaled-score metric. PSSA scaling procedures are discussed further in Chapter Fourteen.

Table 13–2. PSSA Theta (θ) Metric Cut Scores by Grade and Subject Area

		θ Cuts		
Subject	**Grade**	**BB/B**	**B/P**	**P/A**
Mathematics	3	0.6192	1.6750	3.1501
	4	-0.1376	0.3124	1.3074
	5	0.1259	0.9373	1.8383
	6	-0.1377	0.4823	1.3723
	7	-0.2114	0.3636	1.2336
	8	-0.0637	0.5729	1.4854
	11	-0.1749	0.4888	1.4819
Reading	3	-0.3207	0.2205	1.8926
	4	-0.2215	0.4935	1.5635
	5	0.2133	0.9074	2.0241
	6	-0.2398	0.5452	1.4352
	7	-0.3170	0.4230	1.3780
	8	0.1376	0.7082	1.5301
	11	-0.0130	0.5777	1.5351
Science	4	-0.4280	0.2792	1.4560
	8	-0.2435	0.4091	1.3958
	11	-0.4390	0.7888	1.4960
Writing	5	-3.2644	1.6456	8.3756
	8	-2.0984	1.1216	6.2416
	11	-2.9230	-0.0830	5.6170

Note. BB = Below Basic; B = Basic; P = Proficient; and A = Advanced.

Table 13–3. PSSA Scaled-Score Metric Cut Scores by Grade and Subject Area

		Scaled-Score Cuts		
Subject	**Grade**	**BB/B**	**B/P**	**P/A**
Mathematics	**3**	1044	1180	1370
	4	1156	1246	1445
	5	1158	1312	1483
	6	1174	1298	1476
	7	1183	1298	1472
	8	1171	1284	1446
	11	1167	1304	1509
Reading	**3**	1168	1235	1442
	4	1112	1255	1469
	5	1137	1275	1497
	6	1121	1278	1456
	7	1131	1279	1470
	8	1146	1280	1473
	11	1112	1257	1492
Science	**4**	1150	1275	1483
	8	1150	1275	1464
	11	1150	1275	1347
Writing	**5**	745	1236	1909
	8	914	1236	1748
	11	952	1236	1806

Note. BB = Below Basic; B = Basic; P = Proficient; and A = Advanced.

Chapter Fourteen: Scaling

The purpose of a scaling analysis is to create a score scale. Scaling is used to transform test score values onto a scale more easily interpreted by users. For the PSSA, the resulting scale scores will be used for score reporting and performance level classification. The PSSA classifies students into four achievement levels: Below Basic, Basic, Proficient, and Advanced.

HISTORICAL INFORMATION

Prior to 2000, when the PSSA design was heavily matrix sampling, estimating school-level scaled scores presented some statistical and psychometric challenges. The statistically correct method to compute the school-level scaled score often gave an answer different from what would be obtained by averaging student ability estimates. To avoid this source of misunderstanding, the school-level scores were made to equal the average of the appropriate students. The matrix sampling component of the design, together with items from the common section, was used at the academic standard category level to estimate relative strengths and weaknesses for schools.

The adoption of the Pennsylvania Academic Standards in 1999 brought structural changes to the PSSA that were implemented in 2000. Beginning with the new reporting design in 2000, subject area total scores for students and schools were based exclusively on the common sections. Thus, greater emphasis was placed on ensuring that the common sections possessed optimal balance at the content standard level and yielded reliable estimates of student-level abilities, as indicated by the standard errors. It was then possible to aggregate all scaled scores at the school, district, and state levels without resorting to any complex algorithms, making the results more understandable.

Since the original design of the PSSA was intended to produce school-level estimates only, the reporting metric was defined at the school level. For the 1996 base year, the mean of all schools in the norming sample was set at 1300 and the standard deviation at 100. The distribution to which these parameters applied was the subject area scaled score with all schools weighted equally. Consequently, the expectation in the base year was for the state-level means to be near 1300 and for standard deviations to be near 100. The state mean of student-level scaled scores was, in general, somewhat different. This difference occurred because the mean of the school-level scores counted schools equally, regardless of size, while the mean of the student-level scores counted students equally.

Although it affected very few students, many administrators believed that their schools were being penalized by the presence of extremely low-scoring special-needs students who took the PSSA. A change was made to reduce the impact of these students on the overall school score. Namely, a minimum scaled score of 700 was implemented for all PSSA mathematics, reading, and writing tests beginning in 2002. The Grade 3 mathematics and Grade 3 reading tests as well as all grade levels of science were added after 2002. The minimum of 700 was not applied to these other tests in order to preserve other scale characteristics (e.g., the percentages in performance level categories recommended by standard setting participants and preventing students from achieving Proficient level through random response). Table 14–1 documents the minimum possible scaled scores for all PSSA tests. (There is no prescribed maximum scaled score or upper bound for the PSSA.)

Beginning with the design changes implemented for the 2000 PSSA, student-level scores were based on the common items only. This ensured that any decision made about students was done in the most equitable manner. School-level scaled scores for the subject areas were based on the mean of the student-level scaled scores. This ensured that the scaled scores used for school accountability directly reflected the student-level results. Thus, it is a simple matter to aggregate up to the school, district, and state levels.

As noted earlier, the PSSA scaled-score metric was originally anchored to the mean school-level scaled score for a base year and arbitrarily labeled as 1300. In the base year, the standard deviation of the school-level scaled scores was set to a value of 100. If school scores are approximately normally distributed, a scaled score of 1400, one standard deviation above the base year mean, means the school did better than about five-sixths of the schools in the base year. About two-thirds of the schools will have scaled scores between 1200 and 1400. About 16 percent of the schools will be below 1200. Scaled scores of 1000 and 1600 are three standard deviations from the mean, so scores more extreme than this are very rare.

These labels of 1300, 1200, etc., are completely arbitrary; they could have been called zero and one, or 100 and 110, or any other ordered pair without affecting any of the relationships among schools, years, students, or items. Changing the scale would simply be changing the labels on the axis of a graph without moving any of the points.

Setting the mean at 1300 and the standard deviation at 100 was originally chosen to avoid producing negative scores and so that scores on the PSSA would not be confused with the results from any other testing program. Users would acquire greater knowledge of the PSSA scales with experience.

SCALED SCORES

Individual student scores are reported as scaled scores. However, they are initially estimated as Rasch abilities (more information on the Rasch model is given in Chapter Twelve). Generally, scaled scores are preferred over Rasch ability values for reporting purposes. One issue is that Rasch ability values are on a scale that includes negative and decimal values. By transforming the Rasch ability values to scaled scores, all reported values can become positive integers. Scaled scores are usually obtained through some linear transformation of the Rasch ability values. The linear transformations used for the PSSA produce numeric values with three or four digits that are unit-interval scaled scores. Each grade and subject has its own unique PSSA scaled score. Positive scores with no decimals make more sense to parents and students. Since Rasch ability values are comparative after linking to the base year, the transformed scaled scores have a common scale across years, even though the corresponding raw scores may differ. (Linking is discussed further in Chapter Fifteen.)

Essentially, PSSA scaled scores are derived through a two-step process. First, there is a nonlinear transformation that converts number correct scores to Rasch ability logits. Second, a linear transformation is used to convert logits to scaled scores. These and some additional considerations (e.g., rounding rules), are discussed further below.

Definition of Scoreability

Answer documents are considered scorable if they meet the criteria for inclusion in the data files (see Chapter Nine). For MC items, all omit (no response) and multiple marks (more than one response selected without machine-discernable erasures) were scored as zeroes. For OE items, all blank, foreign language, off-task, or unreadable responses were scored as zeroes.

WINSTEPS Scaling

Parameter estimates are derived using the WINSTEPS 3.54 computer program (Linacre & Wright, 2003), which employs unconditional (UCON), joint-maximum-likelihood estimation (JMLE). WINSTEPS provides a conversion table that maps raw scores to logits (Rasch ability estimates). The logits are transformed to scaled scores as discussed below. Every year each test is scaled separately and then linked (see Chapter Fifteen).

ZERO AND PERFECT SCORES

WINSTEPS does not provide a direct ability estimate for zero (no points earned) or perfect (all points earned) raw scores. However, WINSTEPS has a default procedure for estimating such extreme scores, and this was used for the PSSA. Essentially, a fractional raw score (a value less than one) is added to zero scores and subtracted from perfect scores to determine the corresponding logit values for these extreme scores.

Linear Transformation Formulas

PSSA scaled scores are obtained through a linear transformation of the Rasch ability estimates ($\hat{\theta}$). Specifically,

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

where *m* is the slope and *b* is the intercept. The slopes and intercepts for deriving PSSA scaled scores are provided in Table 14–2. For reference purposes, the PSSA theta cut scores have been reproduced in this table as well.

Rounding

The linearly transformed scaled scores are generally 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. However, at each performance level cut point, scores are rounded up (even if less than 0.50) if this action would put the rounded score into a higher performance level. As an example, the Grade 3 reading proficient cut score (in scaled score units) is 1235. If there had been a raw score that converted to an unrounded scaled score of 1234.20, this scaled score would have been rounded up to 1235 for reporting purposes.

Lowest Obtainable Scaled Scores

Most PSSA mathematics, reading, and writing tests have a lowest obtainable scaled score (LOSS) of 700. The exception is Grade 3 mathematics and reading, which have LOSS values of 750 and 1000, respectively. For PSSA science, the LOSS values have been set to 1050 at Grades 4 and 11, and 925 for Grade 8. These LOSS values are documented in Table 14–1. See tables in Appendix N for LOSS *n*-counts.

Highest Obtainable Scaled Scores

A highest obtainable scaled score (HOSS) is not set for the PSSA. Thus, the maximum possible scaled score value is allowed to float for each subject and grade. The upper bound varies from year to year, depending on the difficulty of the test form. Table 14–1 shows the maximum possible observed score for the current year's test. (Note: It may be that no student actually earned the maximum possible.) See tables in Appendix N for HOSS *n*-counts.

RAW-SCORE-TO-SCALED-SCORE TABLES

Raw-to-scaled-score tables can be found in Appendix N.

Table 14–1. PSSA Scaled-Score Cuts for Each Performance Level by Grade and Subject Area

			Scaled Score Cuts[1]			
Subject	**Grade**	**Min**	**BB/B**	**B/P**	**P/A**	**Max[2]**
Mathematics	**3**	750	1044	1180	1370	1843
	4	700	1156	1246	1445	2482
	5	700	1158	1312	1483	2455
	6	700	1174	1298	1476	2580
	7	700	1183	1298	1472	2548
	8	700	1171	1284	1446	2301
	11	700	1167	1304	1509	2587
Reading	**3**	1000	1168	1235	1442	1929
	4	700	1112	1255	1469	2249
	5	700	1137	1275	1497	2293
	6	700	1121	1278	1456	2319
	7	700	1131	1279	1470	2394
	8	700	1146	1280	1473	2626
	11	700	1112	1257	1492	2520
Science	**4**	1050	1150	1275	1483	2285
	8	925	1150	1275	1464	2276
	11	1050	1150	1275	1347	1814
Writing	**5**	700	745	1236	1909	2314
	8	700	914	1236	1748	2341
	11	700	952	1236	1806	2418

Notes. 1. BB = Below Basic; B = Basic; P = Proficient; and A = Advanced.
2. Scaled-score maximum values are unique for the current year's test.

Table 14–2. PSSA Cut Scores (on θ metric), Intercept, and Slope by Grade and Subject Area

		θ Cuts				
Subject	**Grade**	**BB/B**	**B/P**	**P/A**	**Intercept**	**Slope**
Mathematics	**3**	0.6192	1.6750	3.1501	964.24	128.81
	4	-0.1376	0.3124	1.3074	1183.52	200.00
	5	0.1259	0.9373	1.8383	1134.10	189.80
	6	-0.1377	0.4823	1.3723	1201.54	200.00
	7	-0.2114	0.3636	1.2336	1225.28	200.00
	8	-0.0637	0.5729	1.4854	1182.30	177.53
	11	-0.1749	0.4888	1.4819	1203.10	206.42
Reading	**3**	-0.3207	0.2205	1.8926	1207.70	123.80
	4	-0.2215	0.4935	1.5635	1156.30	200.00
	5	0.2133	0.9074	2.0241	1094.60	198.80
	6	-0.2398	0.5452	1.4352	1168.96	200.00
	7	-0.3170	0.4230	1.3780	1194.40	200.00
	8	0.1376	0.7082	1.5301	1113.70	234.82
	11	-0.0130	0.5777	1.5351	1115.20	245.45
Science	**4**	-0.4280	0.2792	1.4560	1225.65	176.75
	8	-0.2435	0.4091	1.3958	1196.64	191.54
	11	-0.4390	0.7888	1.4960	1194.69	101.81
Writing	**5**	-3.2644	1.6456	8.3756	1071.44	100.00
	8	-2.0984	1.1216	6.2416	1123.84	100.00
	11	-2.9230	-0.0830	5.6170	1244.30	100.00

Notes. Linear transformation intercepts and slopes are used to derive the scaled scores.
BB = Below Basic; B = Basic; P = Proficient; and A = Advanced

STRAND (REPORTING CATEGORY) SCORE STRENGTH PROFILE

Strength profiles for strand (reporting category) scores have been provided since 2009. The following process was followed to derive the profile:

- The items for each strand were identified.
- WINSTEPS runs anchored the logit values for each strand's items to get the raw-to-logit score table for each strand. This is sometimes referred to as fixed item parameter scaling.
- The appropriate linear transformations (based on content and grade from Table 14–2) were applied to the logit values to derive strand scaled scores.

The strand scaled scores were categorized as follows: L = Low (equivalent to Below Basic and Basic); M = Medium (equivalent to Proficient); H = High (equivalent to Advanced). The maximum possible strand scaled score was converted to H in cases where no strand scaled score equaled or exceeded the Advanced scaled score cut. See Chapter Sixteen for more information on strand scores and how they are used in score reports.

Chapter Fifteen: Linking

In large-scale testing programs it is a common practice to have different item sets appear in test forms within and/or across years. Linking operational scores from the different test forms ensures that all forms for a given grade and subject area provide comparable scores. Consequently, students are not given an unfair advantage or disadvantage because the particular test form they took is easier or harder than a test form taken by other students.

When multiple forms are administered, students who have the same ability could obtain different raw (number-correct) scores over the different test forms. As discussed further in Chapter Sixteen, raw scores can only be interpreted relative to the particular set of items used. This is because item difficulty distributions are nearly always different across different item sets.

Just like raw scores are not necessarily interchangeable across forms, Item Response Theory (IRT) item parameters and ability estimates are not necessarily interchangeable across separate calibration runs. Application of an IRT scale linking methodology is usually required to place the item parameters and student ability estimates on the same scale as other forms. (As cautioned earlier, the success of these methods depends on how well the IRT assumptions are met.) The IRT model used for the PSSA is the Rasch Partial Credit Model (RPCM; Masters, 1982). Further descriptions of the RPCM are given in Chapter Twelve.

A chained linking design is used for the PSSA operational scores in mathematics, reading, and science. Here, scores from the new test form are linked to the scale of previous test forms. The chain originates from each test's base form, which is used as the reference for calibrating all items in the item pool. The base form is usually the form upon which the cut scores were established (see Chapter Thirteen). When the item parameters from the new test are placed on the bank's scale, the resulting scaled scores for the new test form will be the same as the scaled scores of the base form. In order to compare students' PSSA scaled scores across different years, the new operational items need to be placed on the bank scale via scale linking. Without linking, the Rasch item calibrations for the new test items will be unique to the new test administration.

This chapter begins with a brief summary of the entire PSSA linking procedure. This is followed by a more detailed explanation of selected design elements and processes. Some summary results are also provided. Procedures for mathematics, reading, and science are reviewed first. Writing is addressed at the end of the chapter.

BRIEF SUMMARY OF THE PSSA LINKING PROCEDURE

The following steps outline the linking procedure. It should be noted that the first two steps are actually item calibration, which is referred to as within-year linking in this chapter.

1. Calibrate selected multiple-choice (MC) items in an unanchored run:
   - **a.** Include all MC items in the core operational section (OP MC).
   - **b.** Include all equating block (EB) items.
   - **c.** Do not include any field test (FT) items.

2. Calibrate selected open-ended (OE) items in an anchored run by putting them on the MC item scale from Step 1:
    - **a.** Include all OE items in the Core section (OP OE).
    - **b.** Do not include any FT items.
    - **c.** Fix all MC items from Step 1.
3. Compute the rater-effect constant for each OE linking item:
    - **a.** Pull sample responses from the previous year (N ~ 1,000 students)[13] and create a data file including the selected students' MC and OE response scores (from the previous year's raters).
    - **b.** Have the current year's raters score the selected OE responses.
    - **c.** Calibrate the difficulty parameters for OE items based on the current year's scores. (This is done separately for each OE item.)
        - Calibrate all MC items (from the previous year's test) in an unanchored run using the data file from Step 3.a.
        - Calibrate each OE item separately using an anchored run for each item.
    - **d.** Compute the rater-effect constant for each OE linking item based on OE parameters from Step 3.c.ii.
        - Use current and previous year's rater raw score means as the true/expected raw scores.
        - Using expected score = f(theta) for the previous year's rater scores, determine the two theta values that map to the two expected raw scores (i.e., the current and previous year's rater score means).
        - The rater-effect constant is the difference between the two thetas.
4. For each OE linking item, adjust the item parameter estimate obtained in Step 2 by the Step 3 Value—remove the rater effect:
    - **a.** Each OE linking item (LK OE) has a specific rater-effect adjustment value.
5. Evaluate the stability of the linking items using Robust *Z*:
    - **a.** Include all core linking (LK) items—LK MC and LK OE.
    - **b.** Include all EB items.
    - **c.** LK OE item parameters should be obtained from Step 4.
    - **d.** Calculate Robust *Z* for each item in the linking.

---

[13] This sample is generally stratified on the previous year's total test scores; however, a minimum of 100 responses are selected for each possible score point.

Once the above calculations were made, the following guidelines were used in determining possible sets of linking items used for the equating:

e. Items with an absolute value of Robust *Z* exceeding 1.645 may be considered for exclusion.

f. No more than 20 percent of the pool of linking items may be considered for exclusion.

g. The ratio of the standard deviations of previous year and current Rasch difficulties should be in the 90 to 110 percent range.

h. The correlation of previous-year and current-year Rasch difficulties is greater than 0.95.

Final decisions about the linking items were made in the national technical advisory committee (TAC) meeting in collaboration with PDE and DRC staff following these rules:

i. Drop items that DRC identified as having a large Robust *Z* and were out of sequence because they were pulled from a separate FT form.

j. If an item has been changed in any way from the previous year, it may no longer be used for linking.

Scatterplots of the linking item difficulties (logits) were constructed (i.e., the current year values were plotted against those from the prior year). Ideally, these plots should have a strong linear trend. Items straying from the trend line did not perform in the same way in both years. As noted above, items that departed significantly from this were further evaluated. The scatterplots with final LK/EB item sets are shown in Figure 15–1.

6. Calculate the mean shift over MC and OE linking items using global item difficulties (weighted by number of score points) for OE items:

a. Include all core linking (LK) items—LK MC and LK OE.

b. Include all EB items.

c. Weight LK OE items by maximum possible score.

7. Apply the mean shift to the item parameters calibrated in Steps 1 and 2:

a. All OP items (OP MC + OP OE)

b. All EB items

8. Scale the operational test by fixing all operational (OP) items obtained in Step 7:

a. The result from this step is a Raw-to-Logit (Rasch Ability) table.

9. Apply the appropriate linear transformation to the logit values to derive the scaled scores and SEMs:

a. The result from this step is a Raw-to-Scaled-Score table.

PSSA MATHEMATICS, READING, AND SCIENCE

The test designs for the operational PSSA mathematics, reading, and science assessments used multiple test forms that shared several common elements. The operational items are the same on all forms and for all students. Student total raw scores and scaled scores, as well as AYP reporting, are based exclusively on the operational items. In addition, each test form has a different set of nonoperational items (i.e., items that are not part of student scores). One such example is the embedded field test items that are tested for possible inclusion in the PSSA item pool. An extra block of items (EBs) was included to bolster the linking design (discussed further below). The forms containing the nonoperational items were spiraled to ensure the items would have randomly equivalent samples of students responding to them. In summary, each test form for 2012 mathematics, reading, and science was composed of core operational, EB, and FT sections.

Data Collection Design

The item status codes used in the IDEAS item banking system are given in Table 15–1. For brevity, these codes are used for the remainder of this chapter.

The link between years was based on the core linking (LK) and equating block (EB) items. These items had been used in previous administrations (most often from the prior year). The LK and EB items were used in approximately the same context. The same context in this situation means the items were not altered in any way, they appeared in about the same position in the booklet, and they were administered at about the same time of year.

The equivalence of student samples across years cannot be assumed. Further, the same item can have different properties in different years because of changes in the item's position or changes in the students' experiences. Consequently, between-year linking requires more scrutiny than within-year linking. This chapter focuses more on the linking between years.

The linking design employed for PSSA is often referred to as a common-item nonequivalent groups (CINEG) design. Test forms contained a set of common items, called core linking (LK) items or equating block (EB) items, which served as anchors for comparison of test forms across years. LK items were internal anchor items (i.e., they contribute to student test scores) and EB items were external anchor items (i.e., they did not contribute to student test scores).

Since LK items were in the tests' operational sections, they were common across all test forms within a year. All LK items were also common between years as well since all came from the prior year's administration. The forms containing EB items were spiraled and thus randomly distributed across the student population. Reading used two EB item sets across forms. All EB items in the 2012 PSSA tests were pulled from the 2011 tests.

The proportion of the LK/EB items was different depending on the subject and grade. These are summarized in Table 15–2. Specifically, there were 13 to 24 LK multiple-choice items and 1 to 2 LK open-ended items for all mathematics, reading, and science grade levels. There were two sets of EB items in reading. Each set had eight MC items. Forms 1 through 3 contained one set, while Forms 4 through 5 contained the second set.[14] In mathematics and science, each form had two EB MC items. There were 40 core MC items in reading and 60 core MC items in mathematics. Science had 58 MC items in Grades 4 and 8 and 50 in Grade 11. There were four core OE items

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[14] In other words, Forms 1, 2, and 3 had the same set of EB MC items, while Forms 4 and 5 shared a different set of EB MC items.

in reading with the exception of Grade 3, which had two. There were three core OE items in mathematics. Science had five OE items at Grades 4 and 8 and nine at Grade 11.

Table 15–1. Item Status Codes in IDEAS

Item	Comments	Code in IDEAS
Core	Include core linking (i.e., anchor) items and unique core items	OP
Core Linking	Linking items in the core section which include MC and OE items	LK
Equating Block	All items in the EB are MC linking items	EB
Field Test	Items in the embedded FT section	FT

Table 15–2. 2012 PSSA Linking Designs: Mathematics, Reading, and Science Mathematics Grades 3–8 and 11

	Core		Core Links		Form Blocks				
N_i	MCs (1 pt)	OEs (4 pts)	MC(1)	OE(4)	EB1	EB2	EB3	EB4	EB5
N_1	36	1	24	2	2				
N_2	36	1	24	2		2			
N_3	36	1	24	2			2		
N_4	36	1	24	2				2	
N_5	36	1	24	2					2

Notes. Table 15–2 presents the 2012 PSSA linking designs. Each test form contains the core operational, core linking, and EB sections (FT sections are not illustrated as they are not used for linking). The core operational section includes MC and OE items, but the EB section only has MC items. The operational section contains unique operational items and core-to-core linking items.

Grades:	3–8 and 11
Form Blocks:	5
Core MC Links:	24
Core OE Links:	2 (4pts)
EB MC Links:	2 (per form)
Total Core MC:	60
Total Core OE:	3 (4pts)

Table 15–2 (continued). 2012 PSSA Linking Designs: Mathematics, Reading, and Science

Reading Grade 3

	Core		Core Links		Form Passage-EBs				
N_i	MCs (1 pt)	OEs (3 pts)	MC(1)	OE(3)	EB1	EB2	EB3	EB4	EB5
N_1	23	1	17	1	P1-8				
N_2	23	1	17	1		P1-8			
N_3	23	1	17	1			P1-8		
N_4	23	1	17	1				P2-8	
N_5	23	1	17	1					P2-8

Grade:	3
Form Blocks:	5 (two passage sets)
Core MC Links:	17
Core OE Links:	1 (3pts)
EB MC Links:	8 (per passage set)
Total Core MC:	40
Total Core OE:	2 (3pts)

Reading Grades 4–8 and 11

	Core		Core Links		Form Passage-EBs				
N_i	MCs (1 pt)	OEs (3 pts)	MC(1)	OE(3)	EB1	EB2	EB3	EB4	EB5
N_1	24–27	2	13–16	2	P1-8				
N_2	24−27	2	13–16	2		P1-8			
N_3	24−27	2	13–16	2			P1-8		
N_4	24−27	2	13–16	2				P2-8	
N_5	24−27	2	13–16	2					P2-8

Grades:	4–8 and 11
Form Blocks:	5 (two passage sets)
Core MC Links:	13−16
Core OE Links:	2 (3pts)
EB MC Links:	8 (per passage set)
Total Core MC:	40
Total Core OE:	4 (3pts)

Table 15–2 (continued). 2012 PSSA Linking Designs: Mathematics, Reading, and Science Grade 4

	Core		Core Links		Form Blocks											
N_i	MCs (1 pt)	OEs (2 pts)	MC(1)	OE(2)	EB1	EB2	EB3	EB4	EB5	EB6	EB7	EB8	EB9	EB10	EB11	EB12
N_1	42	3	16	2	2											
N_2	42	3	16	2		2										
N_3	42	3	16	2			2									
N_4	42	3	16	2				2								
N_5	42	3	16	2					2							
N_6	42	3	16	2						2						
N_7	42	3	16	2							2					
N_8	42	3	16	2								2				
N_9	42	3	16	2									2			
N_{10}	42	3	16	2										2		
N_{11}	42	3	16	2											2	
N_{12}	42	3	16	2												2

Grade:	4
Form Blocks:	12
Core MC Links:	16
Core OE Links:	2 (2pts)
EB MC Links:	2 (per form)
Total Core MC:	58
Total Core OE:	5 (2pts)

Table 15–2 (continued). 2012 PSSA Linking Designs: Mathematics, Reading, and Science
Science Grade 8

	Core		Core Links		Form Blocks											
N_i	MCs (1 pt)	OEs (2 pts)	MC(1)	OE(2)	EB1	EB2	EB3	EB4	EB5	EB6	EB7	EB8	EB9	EB10	EB11	EB12
N_1	42	3	16	2	2											
N_2	42	3	16	2		2										
N_3	42	3	16	2			2									
N_4	42	3	16	2				2								
N_5	42	3	16	2					2							
N_6	42	3	16	2						2						
N_7	42	3	16	2							2					
N_8	42	3	16	2								2				
N_9	42	3	16	2									2			
N_{10}	42	3	16	2										2		
N_{11}	42	3	16	2											2	
N_{12}	42	3	16	2												2

Grade:	8
Form Blocks:	12
Core MC Links:	16
Core OE Links:	2 (2pts)
EB MC Links:	2 (per form)
Total Core MC:	58
Total Core OE:	5 (2pts)

Science Grade 11

	Core		Core Links		Form Blocks							
N_i	MCs (1 pt)	OEs (2/4 pts)	MC(1)	OE(3)	EB1	EB2	EB3	EB4	EB5	EB6	EB7	EB8
N_1	34	4/3	16	2	2							
N_2	34	4/3	16	2		2						
N_3	34	4/3	16	2			2					
N_4	34	4/3	16	2				2				
N_5	34	4/3	16	2					2			
N_6	34	4/3	16	2						2		
N_7	34	4/3	16	2							2	
N_8	34	4/3	16	2								2

Grade:	11
Form Blocks:	8
Core MC Links:	16
Core OE Links:	2 (2pts)
EB MC Links:	2 (per form)
Total Core MC:	50
Total Core OE:	6 (2pts) + 3(4pts)

LINKING METHOD FOR PSSA MATHEMATICS, READING, AND SCIENCE

The overall linking procedure was summarized at the start of this chapter. In review, the first step was to conduct a within-year linking to place all 2012 item parameters on the same scale. This was accomplished by first concurrently calibrating all OP (including LK) and EB MC items. Next, the resulting MC item parameters were anchored in WINSTEPS while all OE items in the operational section (including OP LKs) were calibrated.[15] At this point all OP and EB item parameters were on a unique scale for 2012. Between-year linking was required to place these items on the bank scale.

Between-year linking utilized the 2012 LK and EB item parameters and their banked counterparts. The scale transformation methodology used for PSSA is known as the mean-shift procedure. This has been the procedure employed by the PSSA program for some time. After evaluating the robustness of the link by identifying items that did not maintain their relative difficulty across years, the difference between the 2012 and banked parameters was then determined. The mean of the differences was then used to statistically adjust the 2012 parameters to the bank scale. The final (linking) item parameters were then used to estimate student abilities, which were, in turn, transformed to scaled scores. (Transformation formulas are provided in Chapter Fourteen.)

Rater Drift

Before the final mean-shift value was determined, a rater-effect adjustment was applied to the OE LK items. All OE linking items were in the Core section (LK OE). Students' responses from the previous administration (n = 1,000 per item) for the OE linking items were selected for the rater drift study (DRC jointly stratified by point value and on ability). The selected responses were scored by 2012 raters. Thus, the selected students' responses had scores from previous year and 2012 raters and the difference between them was used to adjust for the rater effect. See Tables 18–11 through 18–13 for the correlations between the old and new scores for these OE LK items.

RESULTS SUMMARY

Table 15–3 shows the number of linking items and the shift parameters associated with those over the two years, and the correlation of item difficulties across years for each grade/content area. Two LK/EB items were dropped overall. At first glance, some of the mean shift values may appear large. However, the shift constants are being applied to parameter estimates from Step 1 in the equating process (where the mean of the unanchored MC items is fixed at zero). The adjustment needed to place the Step 1 estimates on the current scale can be large in magnitude as it must take into account multiple factors (e.g., weighting in the case of the writing test, rater drift, changes in student ability since the base-year administration, and differences in difficulty).

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[15] No field test items were included in any of these calibrations. FT items were calibrated after the operational linking by anchoring all OP and EB items. This placed all FT items on the bank scale.

Table 15–3. Summary Data for Linking Items

Subject	Grade	Final Counts MC	Final Counts OE	2011 Shift	2012 Shift	2012 Correlation
Mathematics	3	34	2	0.2789	0.5028	0.9912
	4	34	2	0.3193	0.3120	0.9741
	5	34	2	0.6555	0.5907	0.9805
	6	34	2	0.1780	0.1774	0.9863
	7	34	2	0.2459	0.1735	0.9830
	8	34	2	0.1558	0.1935	0.9843
	11*	33	2	-0.3212	-0.2195	0.9893
Reading	3	33	1	-0.1369	-0.0399	0.9886
	4	31	2	0.0765	0.0520	0.9887
	5	31	2	0.0742	0.0481	0.9954
	6	32	2	-0.1098	-0.1380	0.9795
	7	29	2	0.0858	-0.1367	0.9868
	8	31	2	0.5796	0.6410	0.9951
	11	31	2	-0.1082	-0.1308	0.9919
Science	4	40	2	0.1541	0.2776	0.9729
	8*	39	2	-0.0432	-0.0200	0.9637
	11	32	2	0.0462	0.0782	0.9825
Writing	5	34	2	1.8419	1.8791	0.9478
	8	34	2	1.8139	1.8122	0.9669
	11	34	2	1.2122	1.5222	0.9875

*One MC item was dropped from the final shift calculation. See Appendix J for individual item statistics for final item set.

Appendix J provides the statistics for the linking items used. The previous and current values for item sequence, *p*-values, and logits are also provided. Appendix M provides the mean raw and scaled-score points across years. Together, these appendices provide a summary of how the items and tests changed across years.

VISUALIZATION SUPPLEMENT

As noted earlier, between-year linking requires considerable scrutiny. This is partly because student samples are not equivalent across years. Additionally, identical items can have different properties in different years because of changes in any given item's context or changes in the students' experiences. Since the linking process forces the logit difficulties for the linking items to have the same mean in the new year as they did in the old year, the current-year logit item difficulties will be displaced from the estimates they would have received from an independent calibration. The size of the displacements reflects the difference, if any, in the origins. The variation among the displacements corresponds to the approximate size of the standard errors for the items. The graphs in Figure 15–1 should help visualize this information. The calibration data file described in Chapter Nine was used to construct these plots.

Graphs

This technical report uses figures to help one visualize the across-year differences in linking items for mathematics, reading, and science at each grade. This section presents four types of figures, three of which illustrate the stability between the old (banked) and new (2012) item data:

1. Scatterplot of new-year *p*-values (2012) on old-year *p*-values (2011 generally)
2. Scatterplot of new-year logits (2012) on old-year logits (2011 generally)
3. Scatterplot of old and new *p*-values on new logits
4. Test Characteristic Curves (TCCs) for the linked score distribution

All four plots are presented for each grade and subject-area test. It should be noted that some of the linking items were not used to determine the final linking adjustments. These items are not included in the following scatterplots. As a consequence, some graphs will have fewer MC and/or OE items than expected. Each plot is described further below and Grade 3 mathematics results are considered as an example of each.

NEW-YEAR *P*-VALUES ON OLD-YEAR *P*-VALUES

The top left-hand plot in Figure 15–1 describes the relationship between the item *p*-values for the two years. The data points in these plots should have a clear trend where the vertical axis values rise as the horizontal axis values increases (i.e., as one moves from left to right). If the *p*-values for both years were correlated at 1.0, the relationship would be expected to fall on a straight line. Generally, linking items are not perfectly stable across years, so some scatter is expected. As an example, the plot for Grade 3 mathematics shows excellent across-year stability. The extent to which the trend does not pass through the origin indicates a change in student performance.

Many test score users are familiar with the *p*-value metric, which is why these charts are provided. However, the logit charts discussed below have advantages for visualizing this trend data.

NEW-YEAR LOGITS ON OLD-YEAR LOGITS

The top right-hand plot in Figure 15–1 focuses on the logit difficulties. It shows more clearly the relationship between new- and old-year item difficulties. Logit plots often provide more defined trends, but still can present varying degrees of scatter and in some instances reveal outlier data points. As with the associated *p*-value plot, this figure for Grade 3 mathematics suggests excellent across-year stability (with a very strong but not perfect relationship).

OLD- AND NEW-YEAR *P*-VALUES ON NEW-YEAR LOGITS

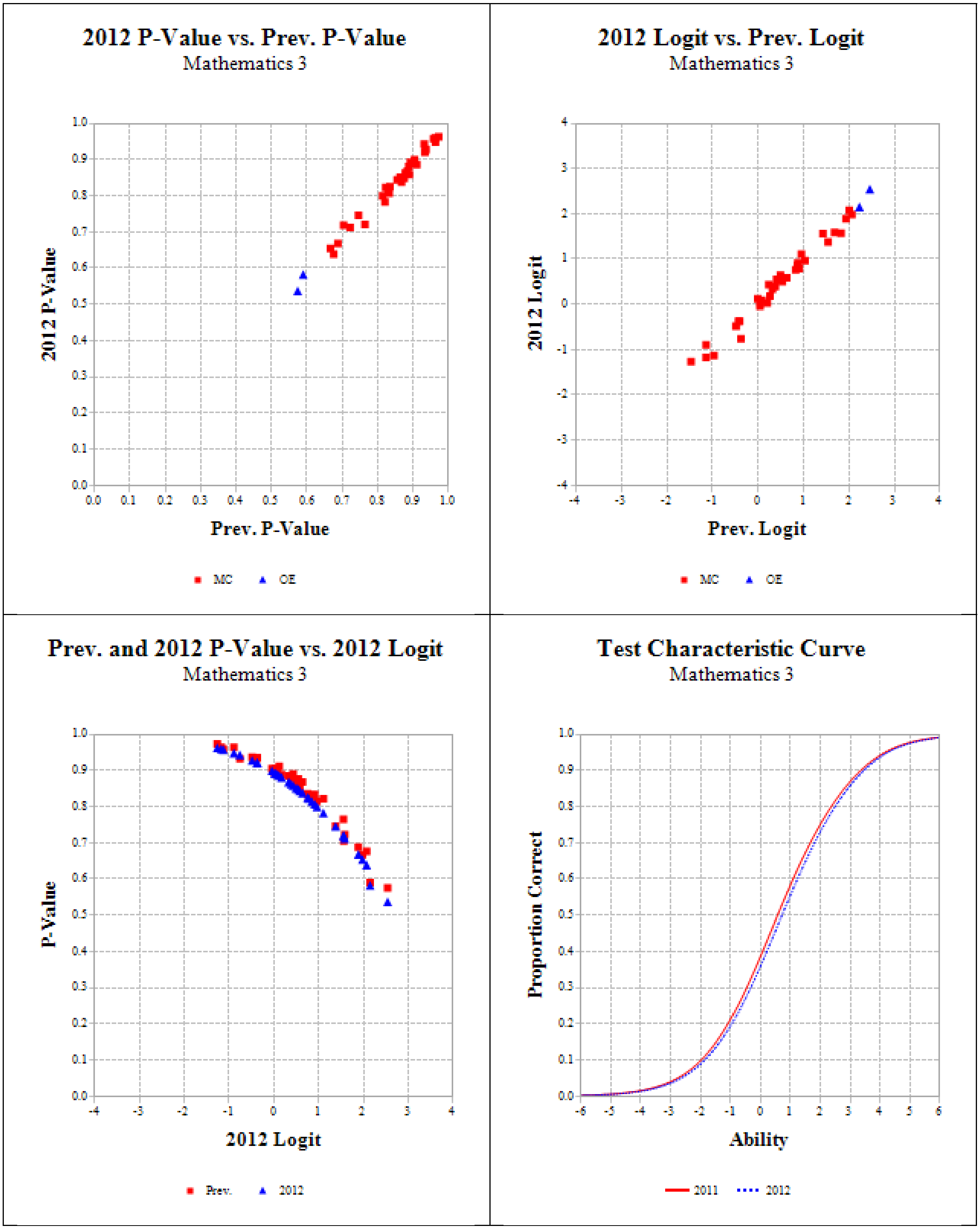
Plotting *p*-values against logit difficulties across years is not as reliable as it is within a year. When using spiraled forms within a year, a given *p*-value will translate to a given logit regardless of the form on which it is used, within the limits of statistical precision. Within a year, the *p*-values-on-logit plot should be a single curved line. The corresponding between-year plots could have separate lines for each year. The difference between the two lines is a reflection of the adjustment (positive or negative) that is required to link the two item sets.

To bolster the number of linking items, different sets of EB linking items were included on different forms. Because the forms were spiraled within classrooms, the samples generated are randomly equivalent and the same *p*-values would be expected to translate into roughly the same logit, with some random variation expected. This is the case with the Grade 3 mathematics data as the relative smoothness of this curve indicates very good agreement among the forms.

TEST CHARACTERISTIC CURVES

The old- and new-year Test Characteristic Curves (TCCs) by grade and subject are shown in the bottom right-hand plot figures. The TCCs show the similarity between the new- and old-year tests in terms of difficulty in the logit metric (new-year results are for the final, linked values). Assuming equal numbers of items for the two years, curves that are close to being coincident will translate into similar raw-score cut points. With extreme differences in test difficulties, some loss of precision and reliability may result. However, this is generally not evidenced in the figures, which display a close match across years. For Grade 3 mathematics the TCCs were essentially coincident.

Figure 15–1. Item Stability Plots and Test Characteristic Curves



2012 P-Value vs. Prev. P-Value
Mathematics 3

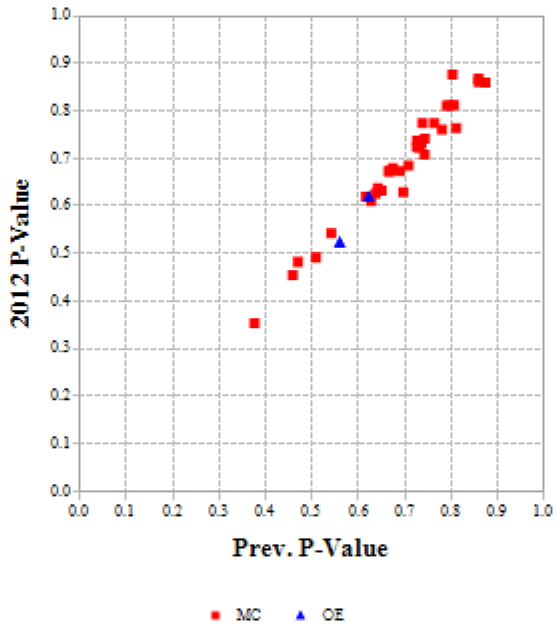
2012 Logit vs. Prev. Logit
Mathematics 3

Prev. and 2012 P-Value vs. 2012 Logit
Mathematics 3

Test Characteristic Curve
Mathematics 3

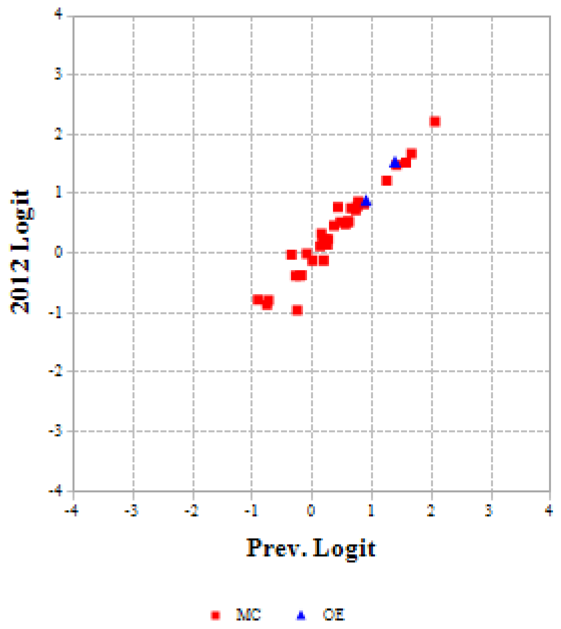
2012 P-Value vs. Prev. P-Value

Mathematics 4



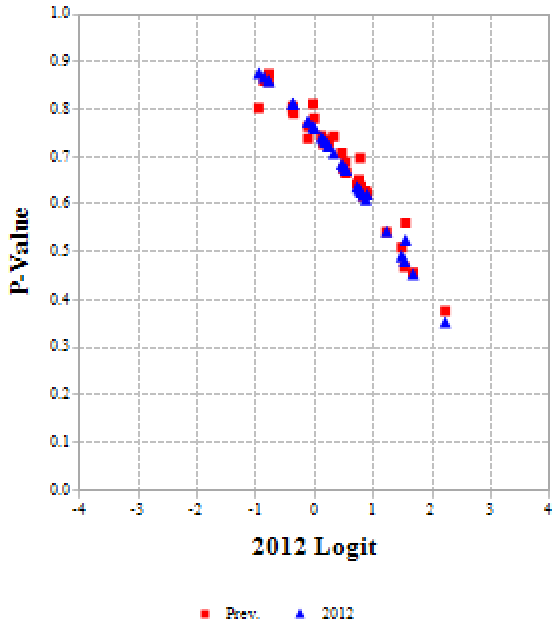
2012 Logit vs. Prev. Logit

Mathematics 4



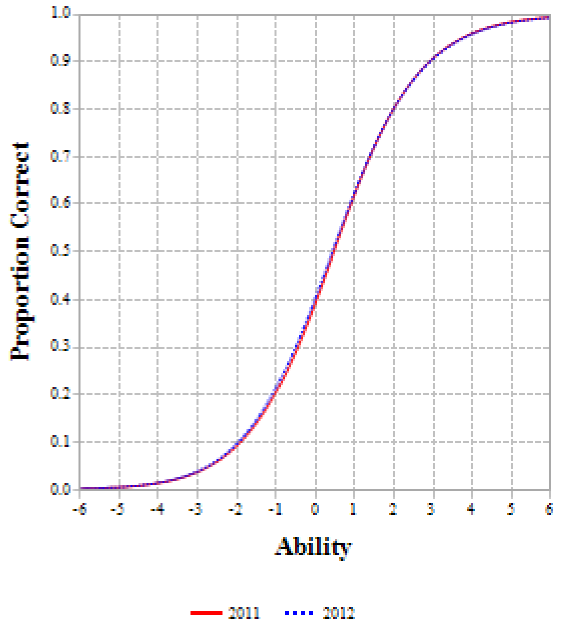
Prev. and 2012 P-Value vs. 2012 Logit

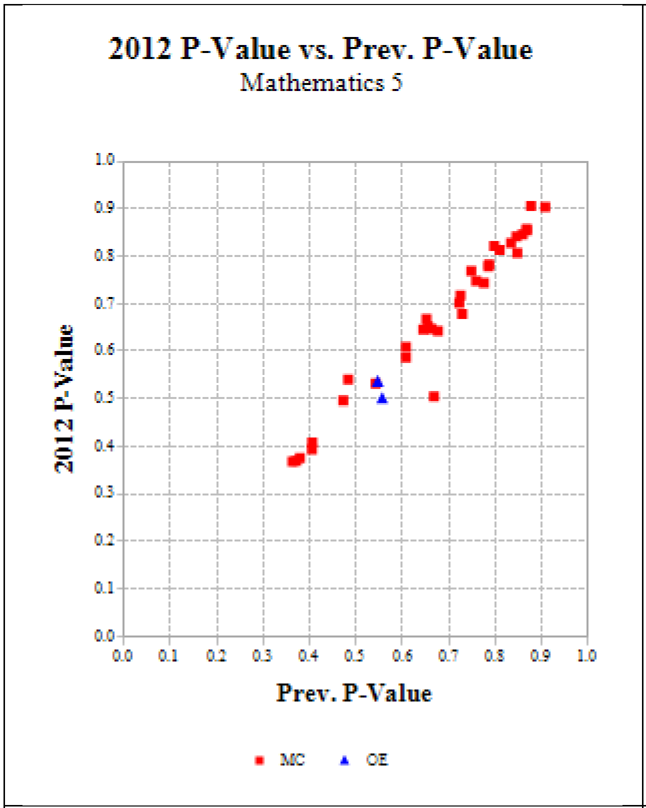
Mathematics 4



Test Characteristic Curve

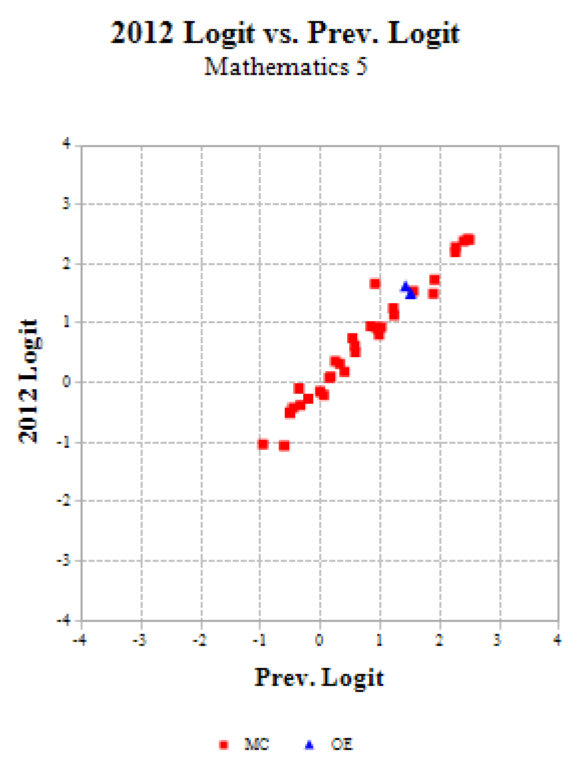
Mathematics 4





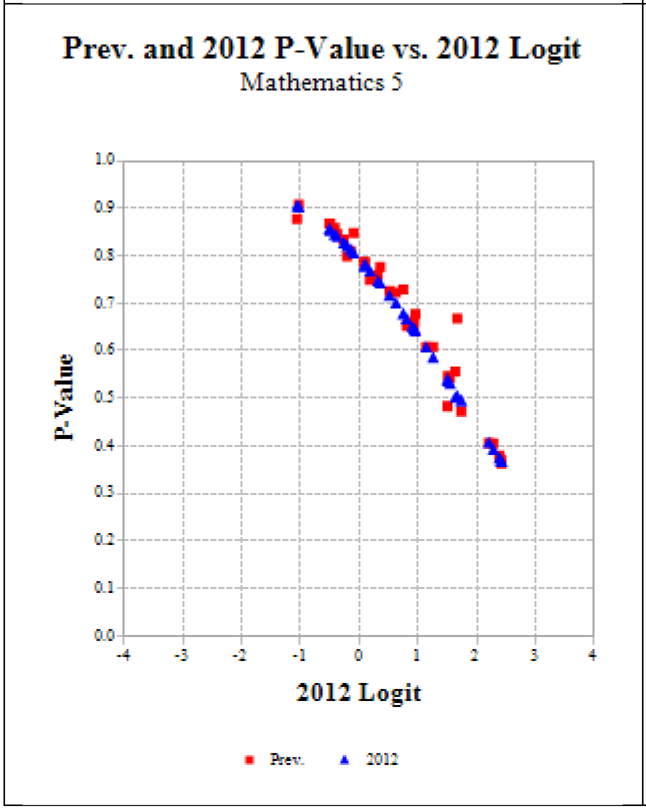
2012 P-Value vs. Prev. P-Value

Mathematics 5



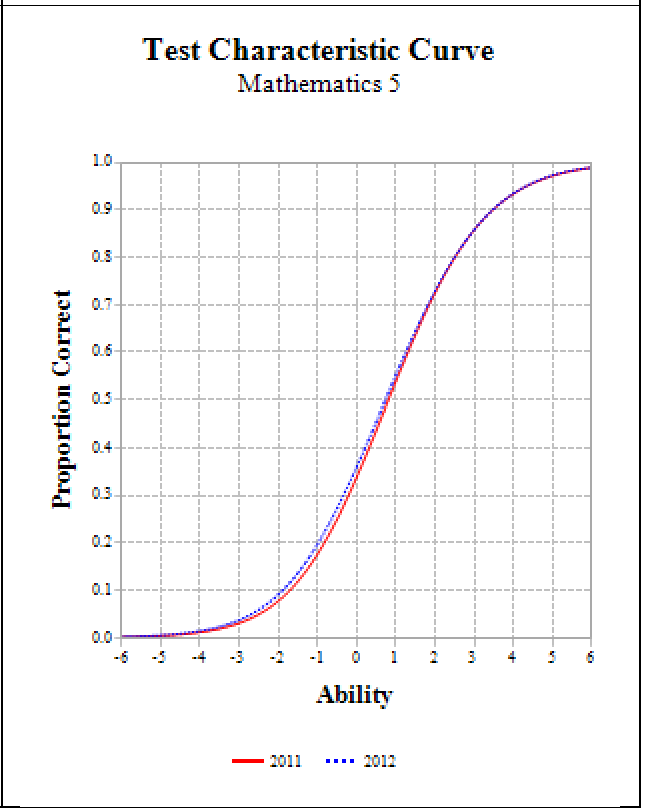
2012 Logit vs. Prev. Logit

Mathematics 5



Prev. and 2012 P-Value vs. 2012 Logit

Mathematics 5

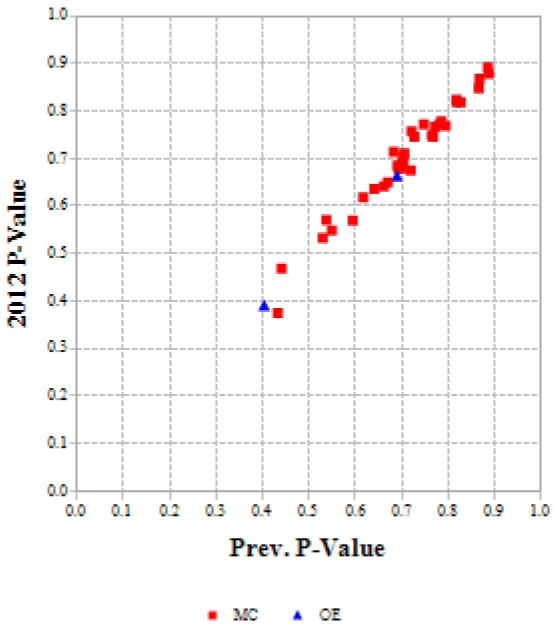


Test Characteristic Curve

Mathematics 5

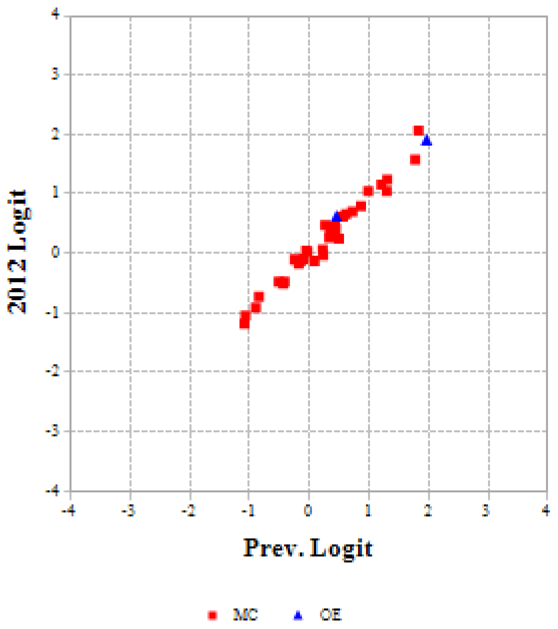
2012 P-Value vs. Prev. P-Value

Mathematics 6



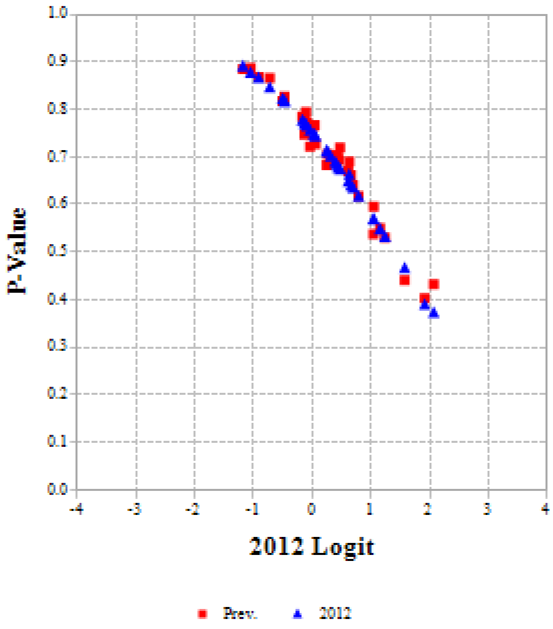
2012 Logit vs. Prev. Logit

Mathematics 6



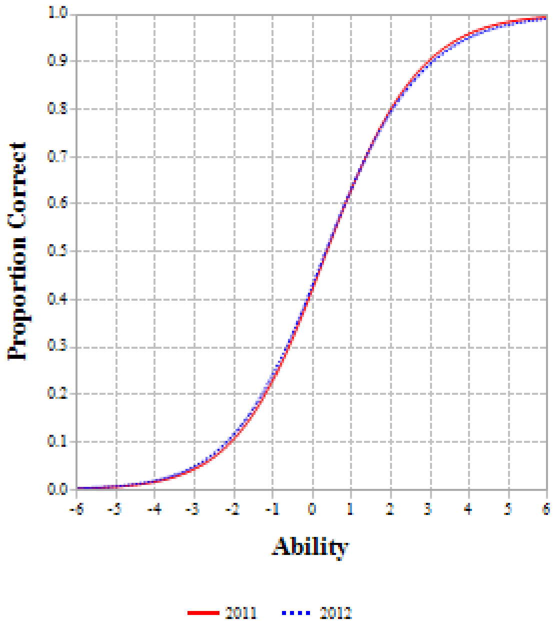
Prev. and 2012 P-Value vs. 2012 Logit

Mathematics 6



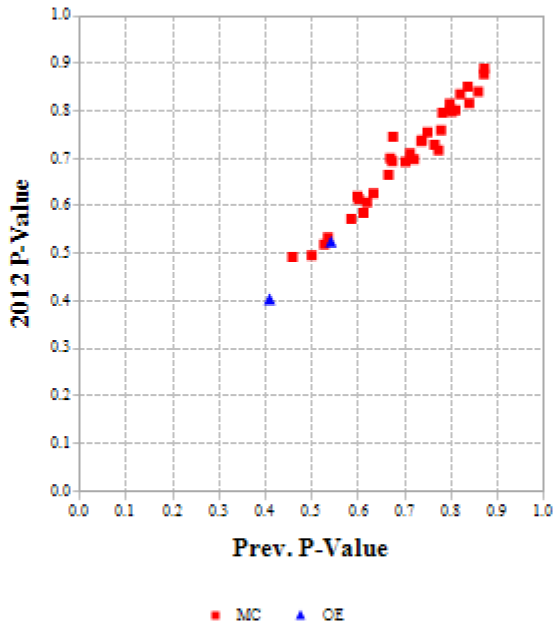
Test Characteristic Curve

Mathematics 6



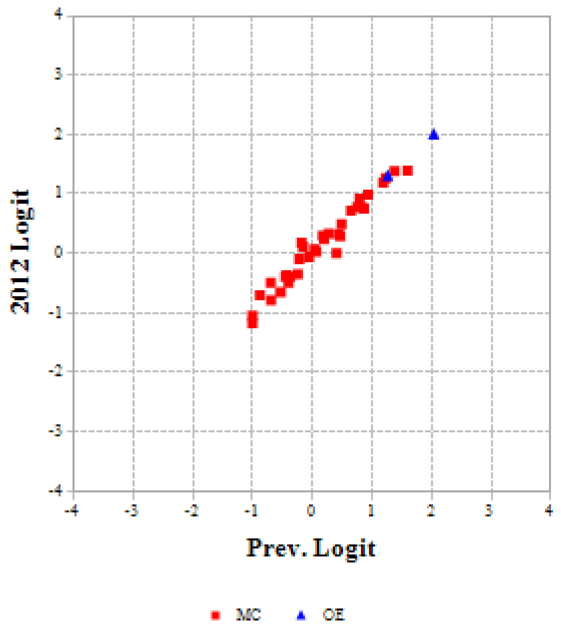
2012 P-Value vs. Prev. P-Value

Mathematics 7



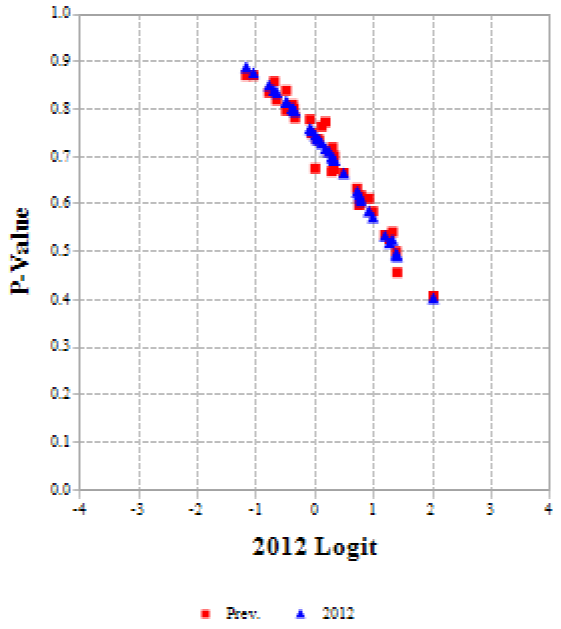
2012 Logit vs. Prev. Logit

Mathematics 7



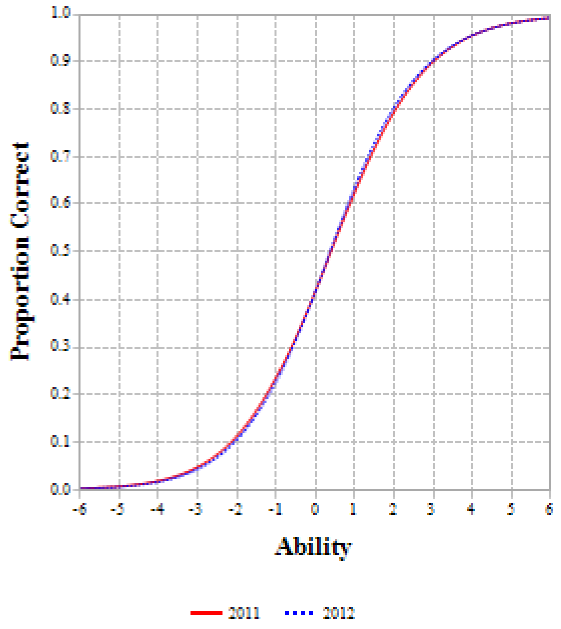
Prev. and 2012 P-Value vs. 2012 Logit

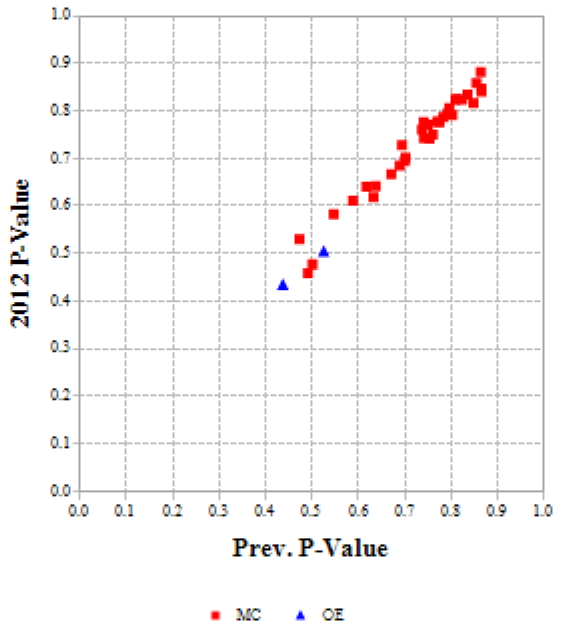
Mathematics 7



Test Characteristic Curve

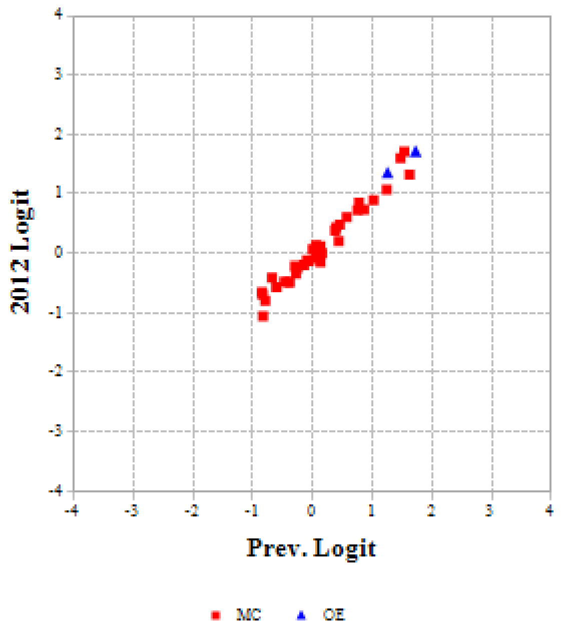
Mathematics 7





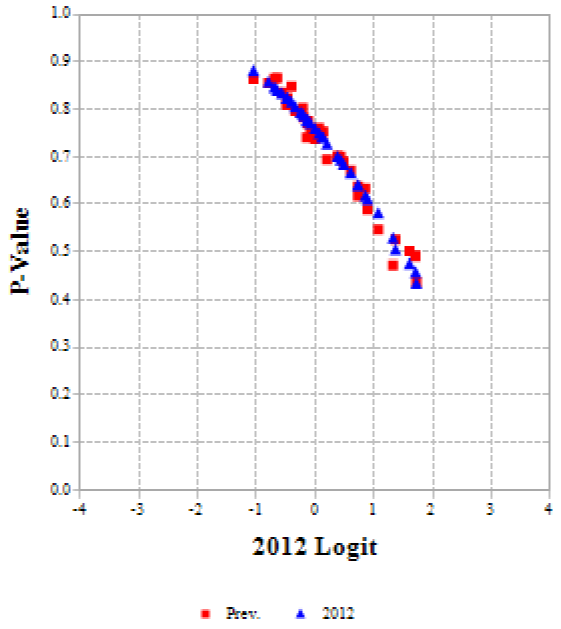
2012 P-Value vs. Prev. P-Value

Mathematics 8



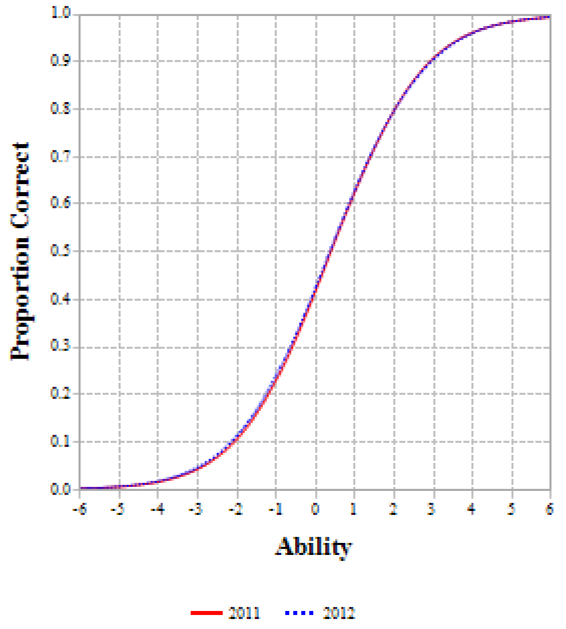
2012 Logit vs. Prev. Logit

Mathematics 8



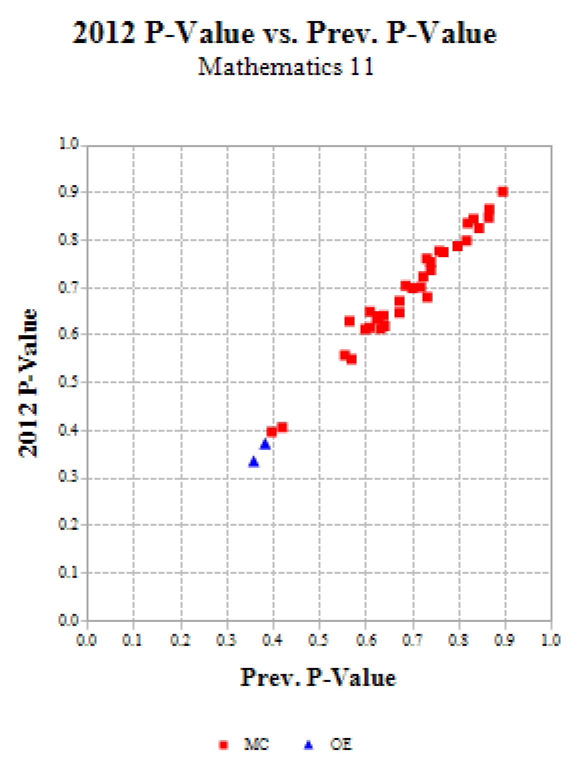
Prev. and 2012 P-Value vs. 2012 Logit

Mathematics 8

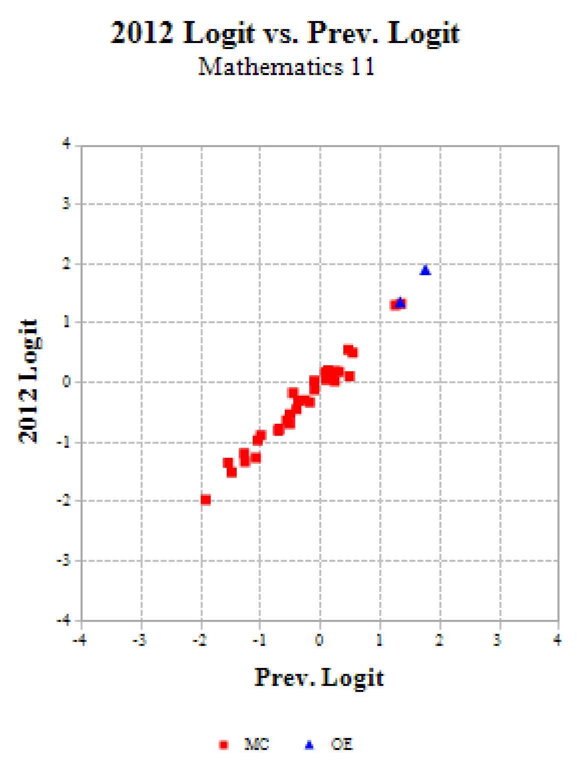


Test Characteristic Curve

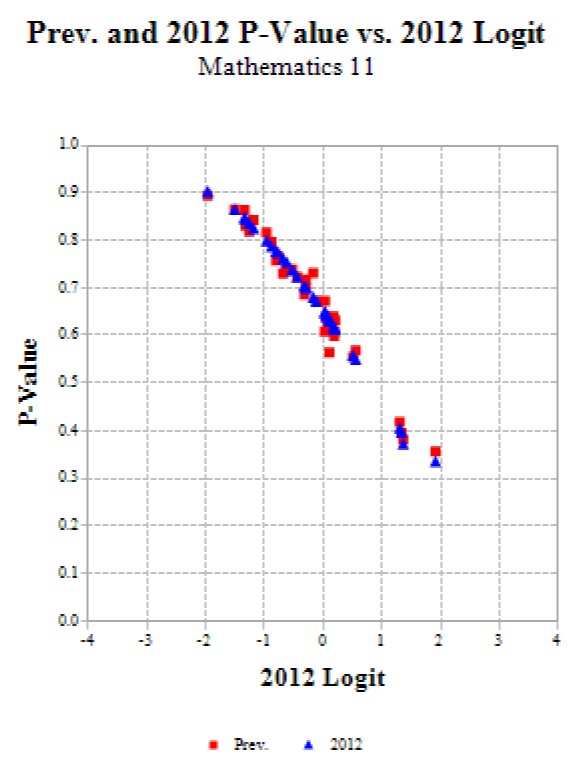
Mathematics 8


2012 P-Value vs. Prev. P-Value

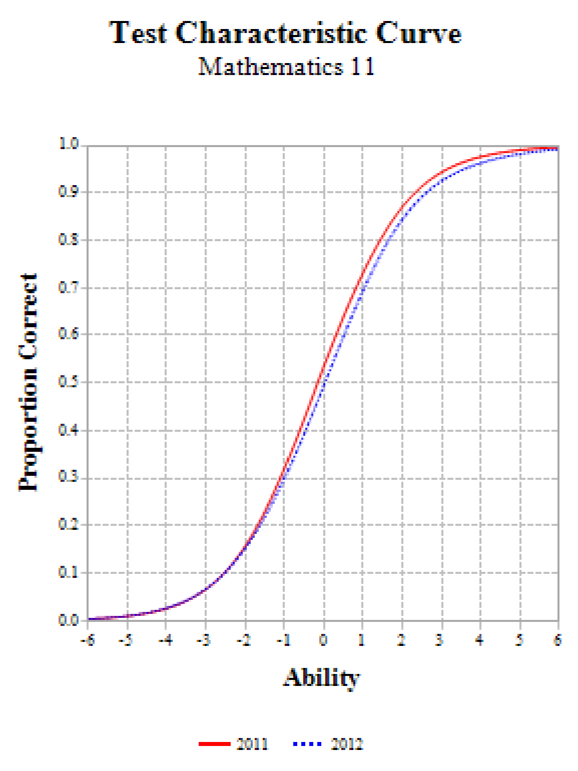
Mathematics 11


2012 Logit vs. Prev. Logit

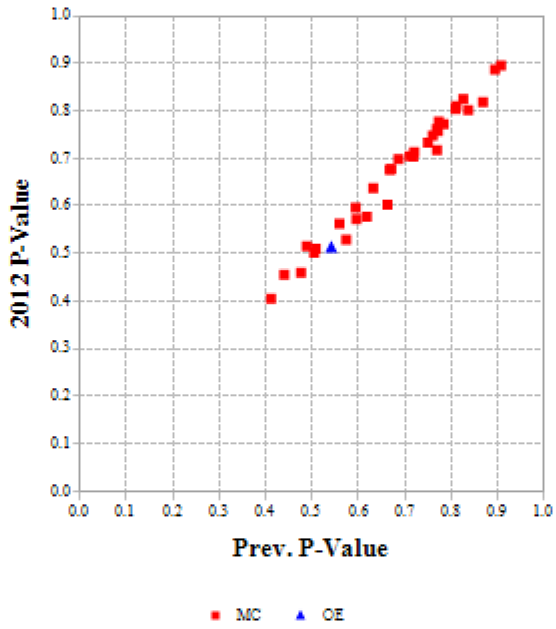
Mathematics 11


Prev. and 2012 P-Value vs. 2012 Logit

Mathematics 11

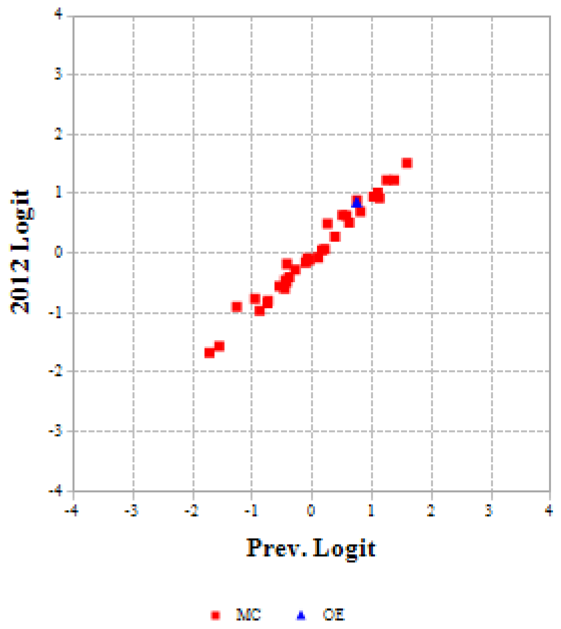

Test Characteristic Curve

Mathematics 11



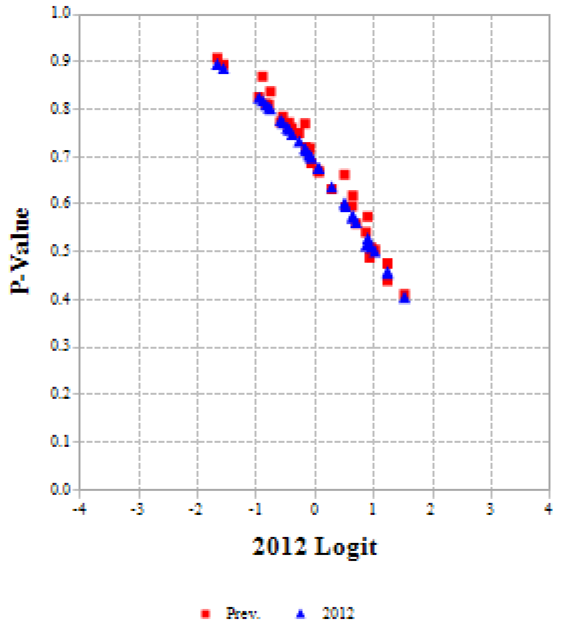
2012 P-Value vs. Prev. P-Value

Reading 3



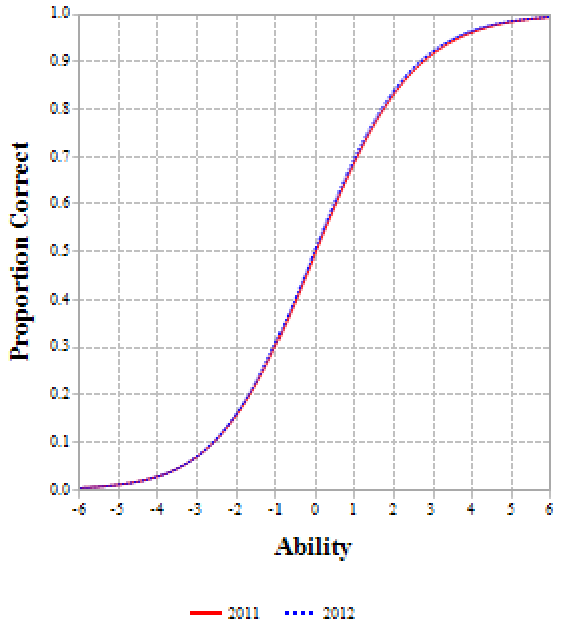
2012 Logit vs. Prev. Logit

Reading 3



Prev. and 2012 P-Value vs. 2012 Logit

Reading 3

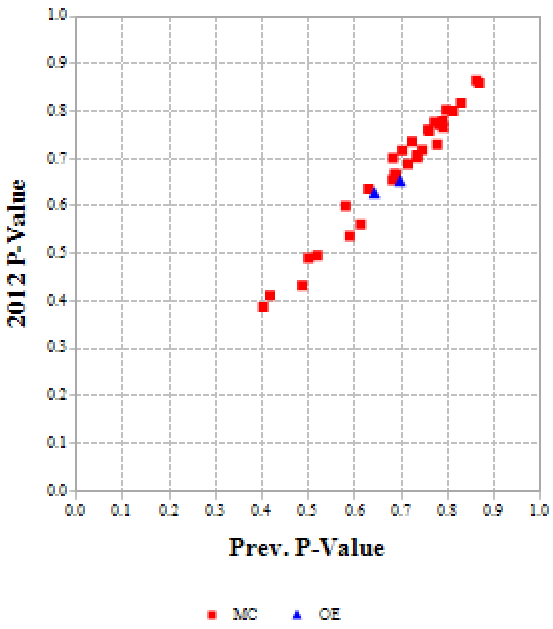


Test Characteristic Curve

Reading 3

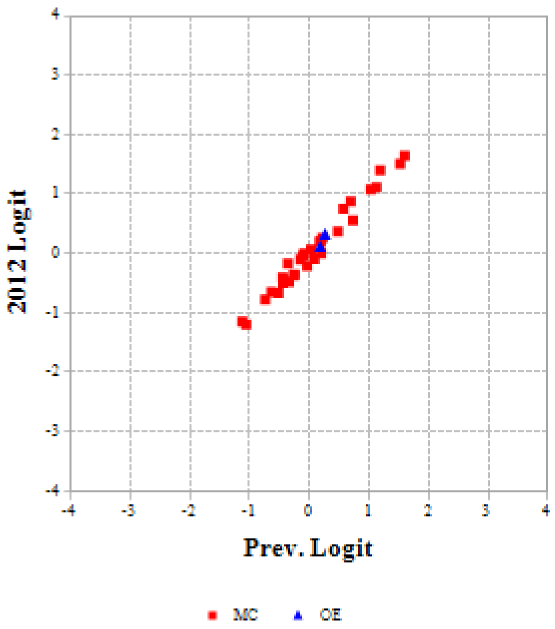
2012 P-Value vs. Prev. P-Value

Reading 4



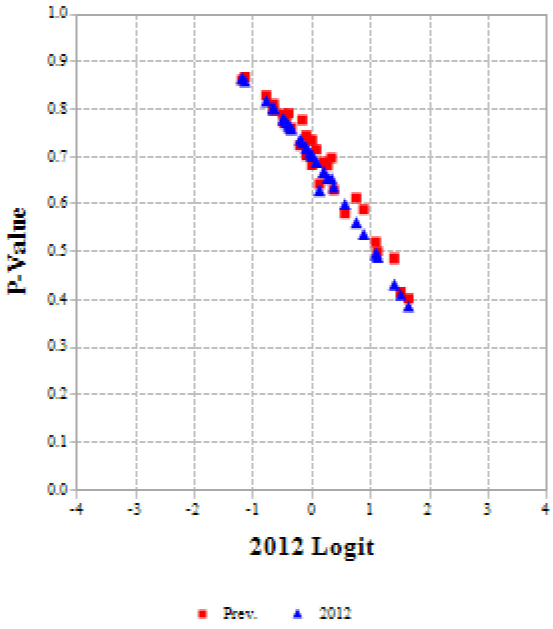
2012 Logit vs. Prev. Logit

Reading 4



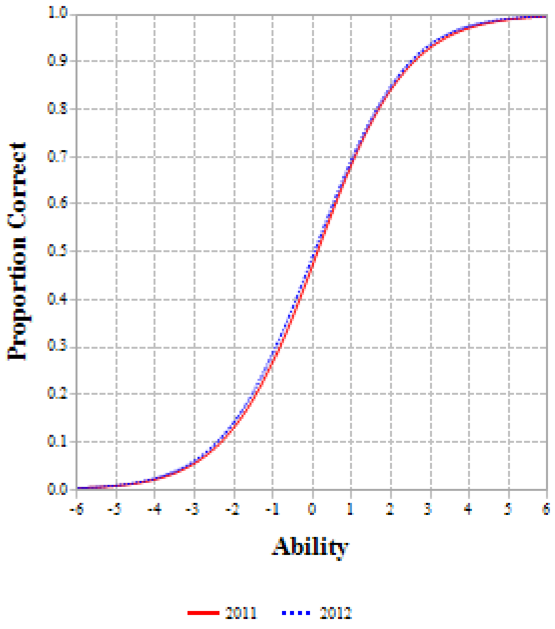
Prev. and 2012 P-Value vs. 2012 Logit

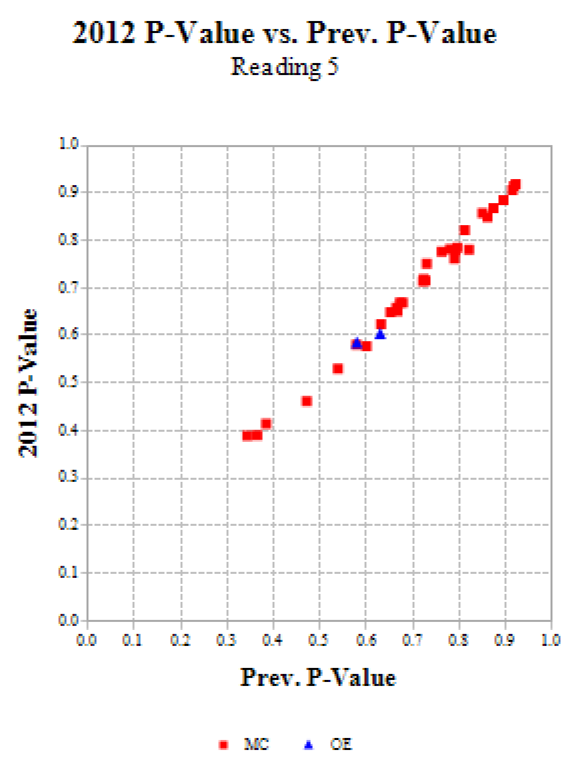
Reading 4



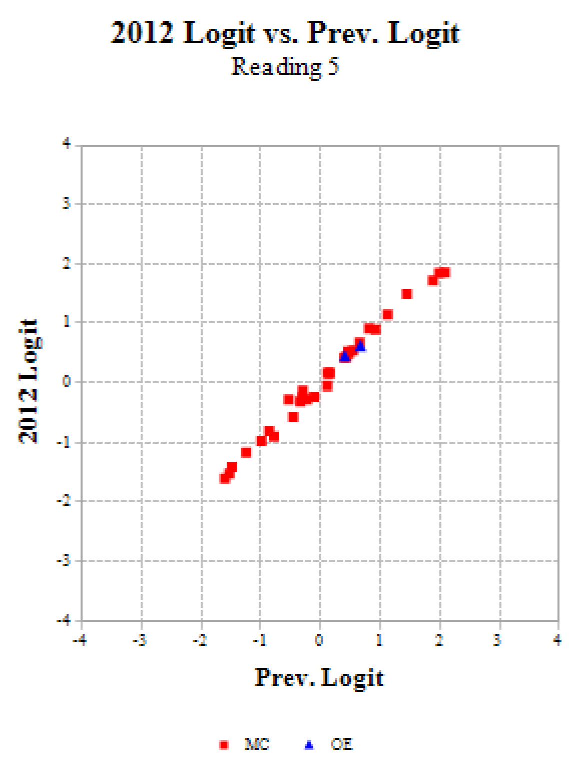
Test Characteristic Curve

Reading 4

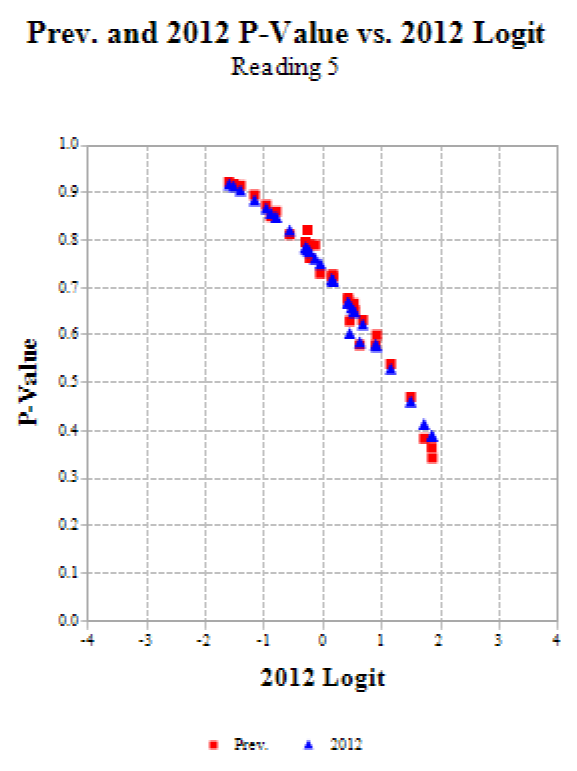




2012 P-Value vs. Prev. P-Value
Reading 5



2012 Logit vs. Prev. Logit
Reading 5



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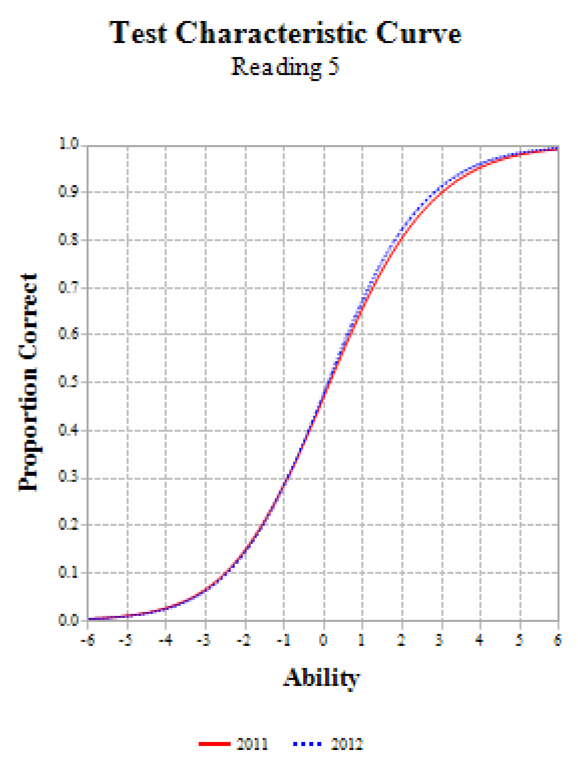
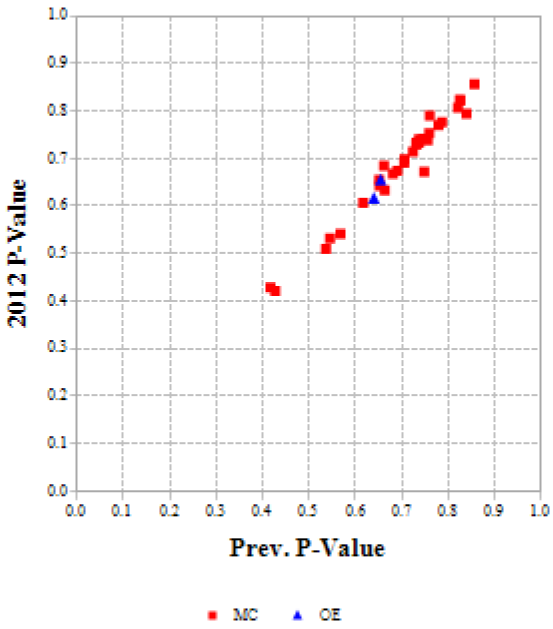
Reading 5

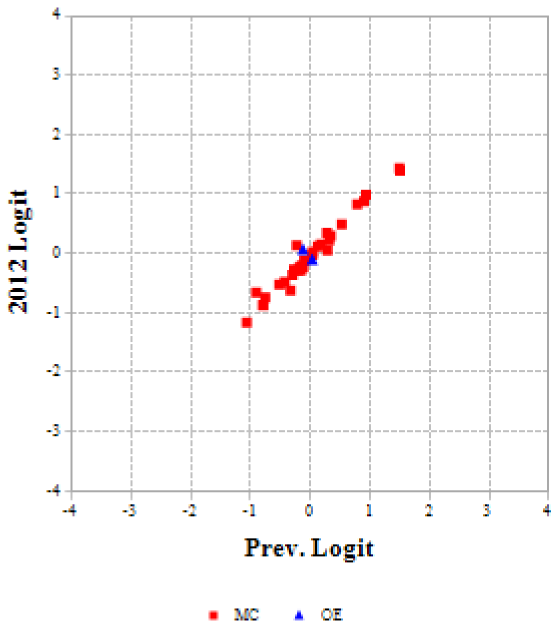


Test Characteristic Curve
Reading 5



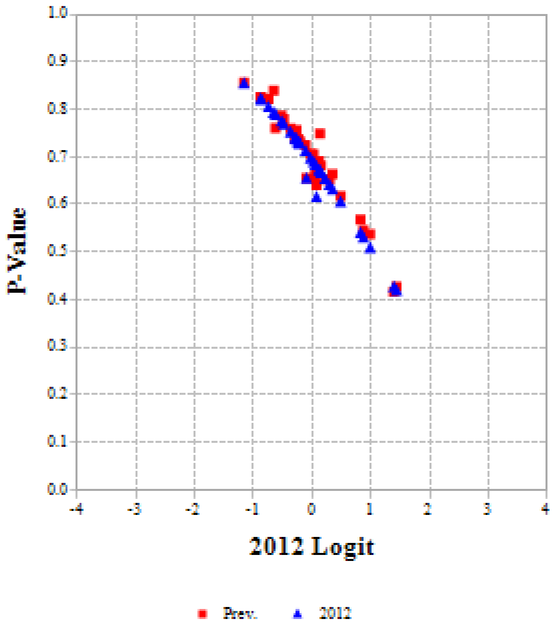
2012 P-Value vs. Prev. P-Value

Reading 6



2012 Logit vs. Prev. Logit

Reading 6



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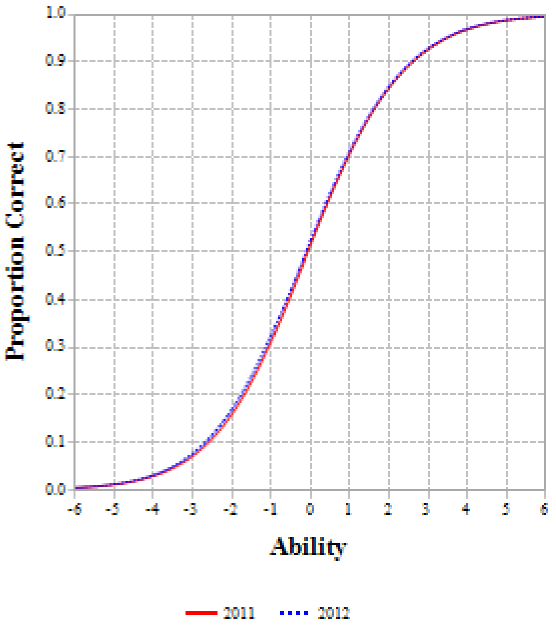
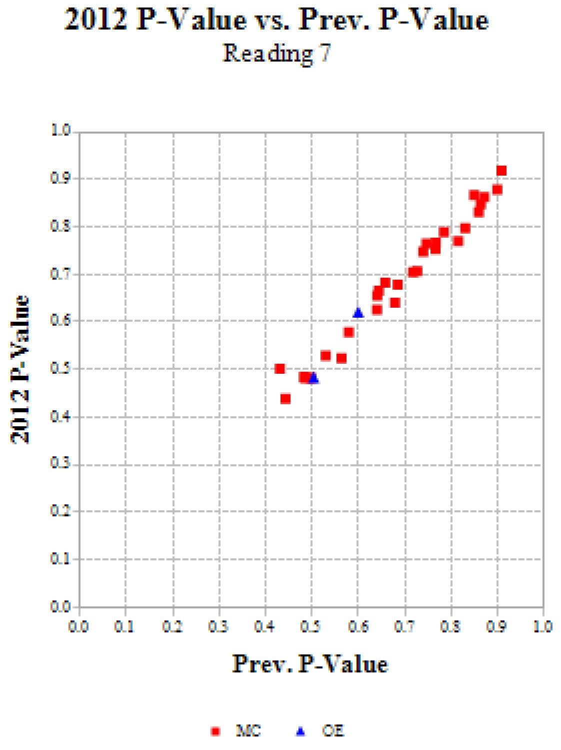
Reading 6



Test Characteristic Curve

Reading 6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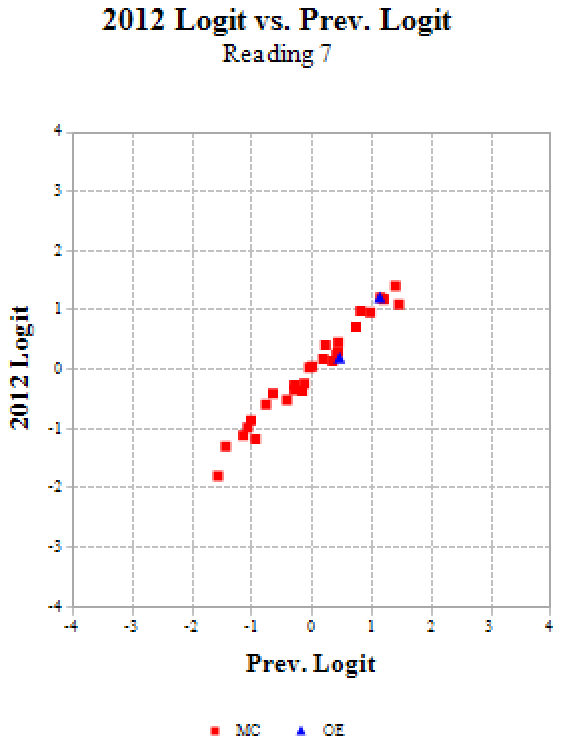
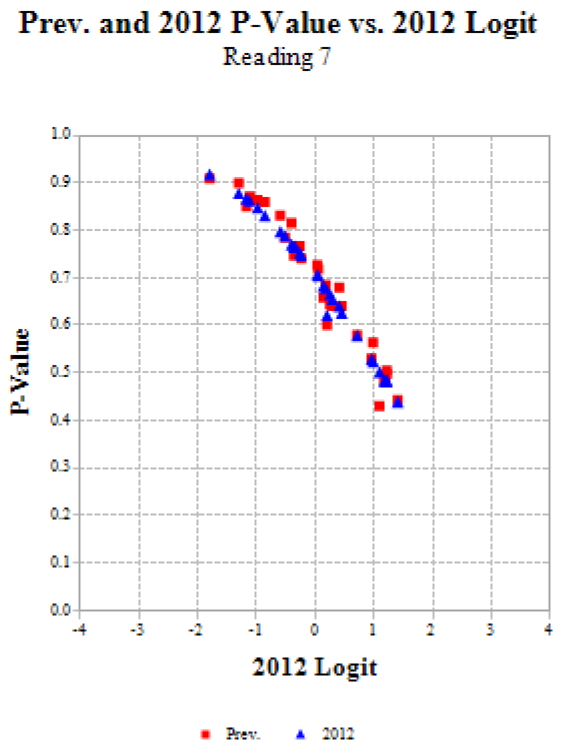
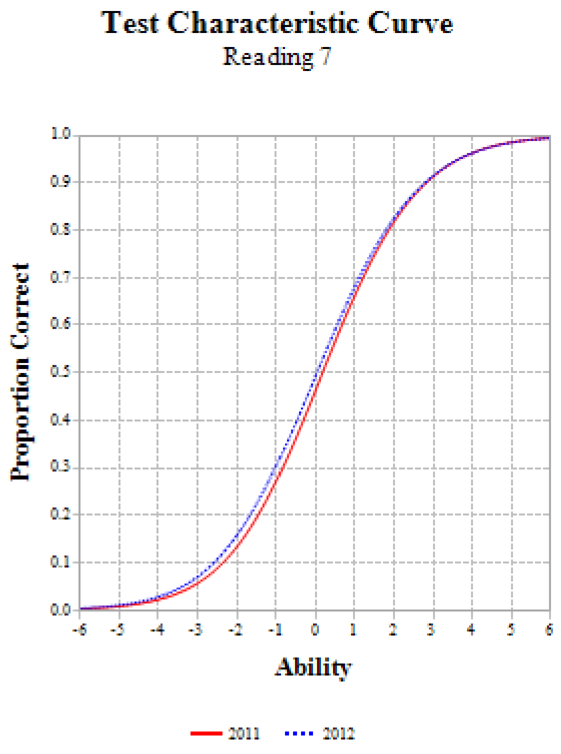
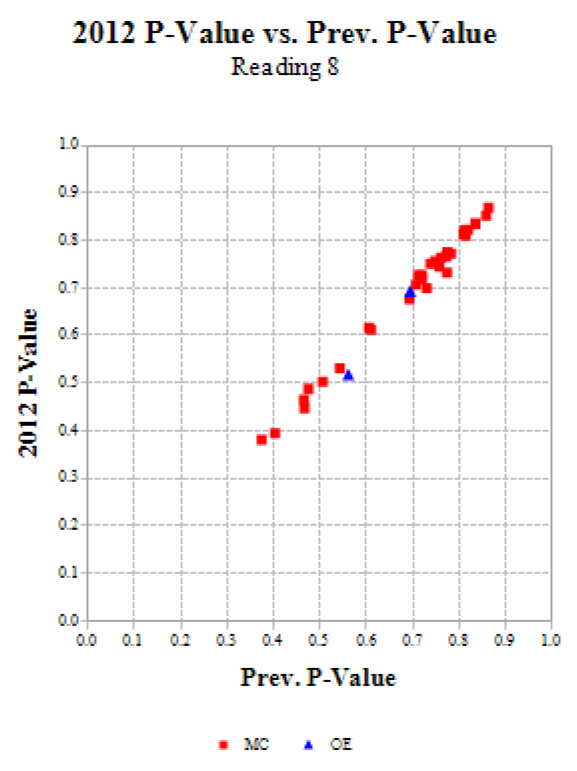
Reading 7

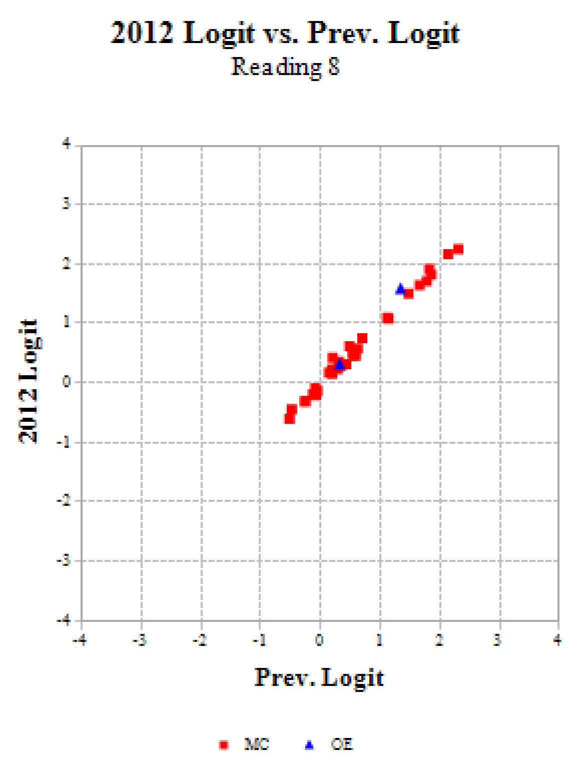

2012 Logit vs. Prev. Logit
Reading 7


Prev. and 2012 P-Value vs. 2012 Logit
Reading 7

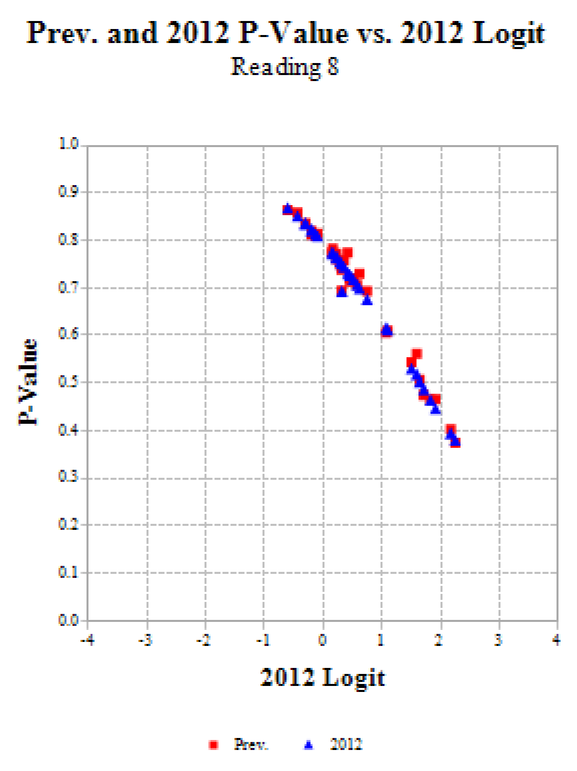

Test Characteristic Curve
Reading 7


2012 P-Value vs. Prev. P-Value

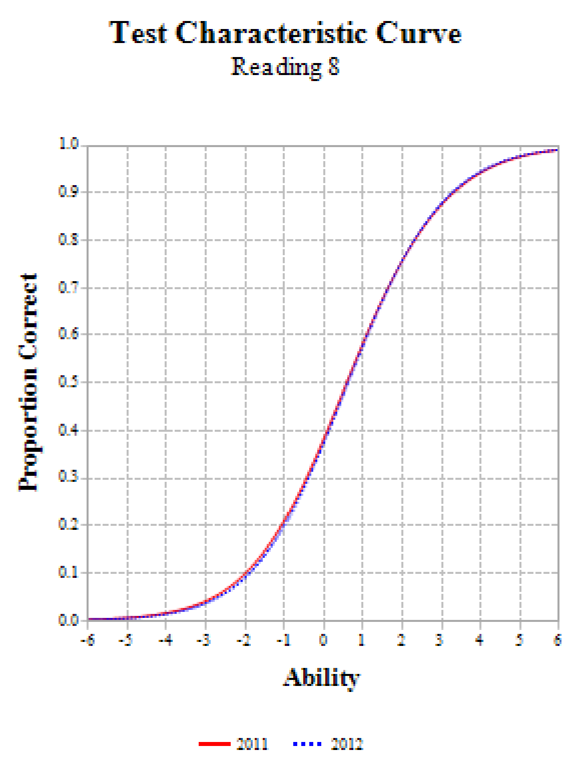
Reading 8


2012 Logit vs. Prev. Logit

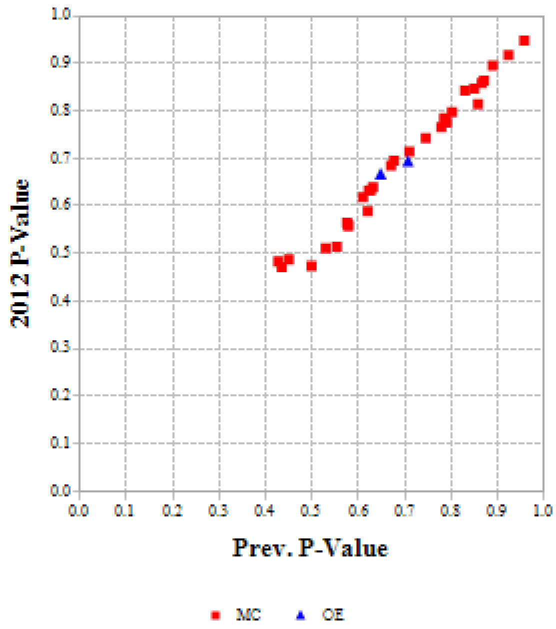
Reading 8


Prev. and 2012 P-Value vs. 2012 Logit

Reading 8

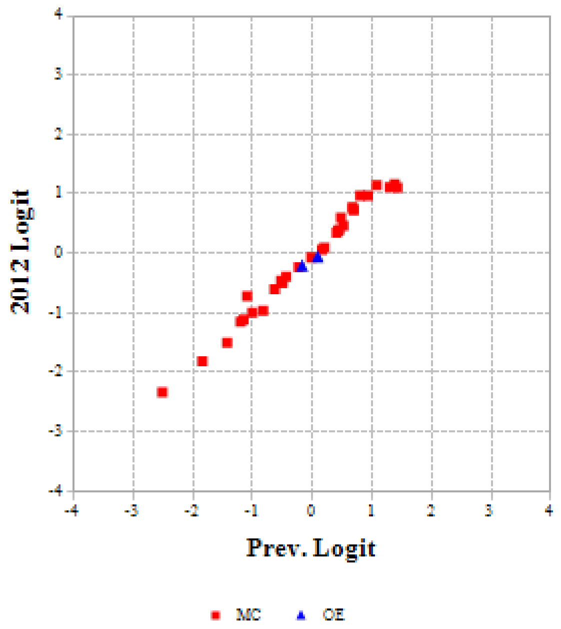

Test Characteristic Curve

Reading 8



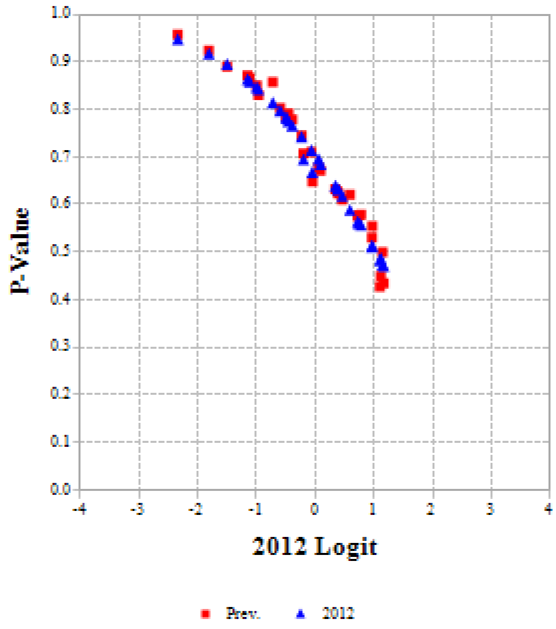
2012 P-Value vs. Prev. P-Value

Reading 11



2012 Logit vs. Prev. Logit

Reading 11



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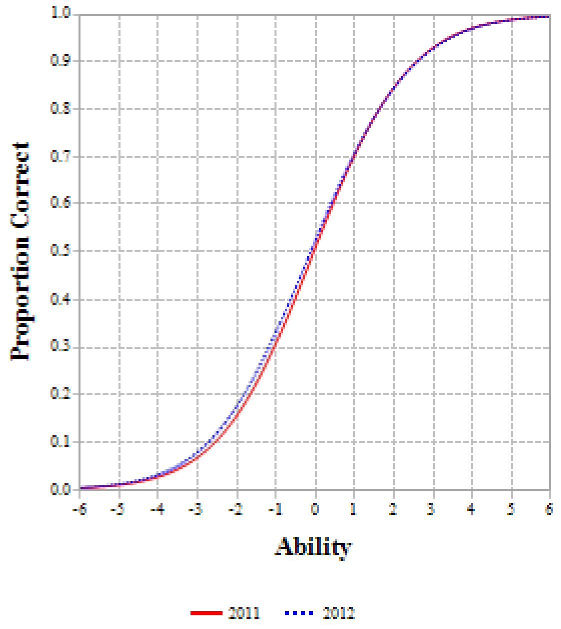
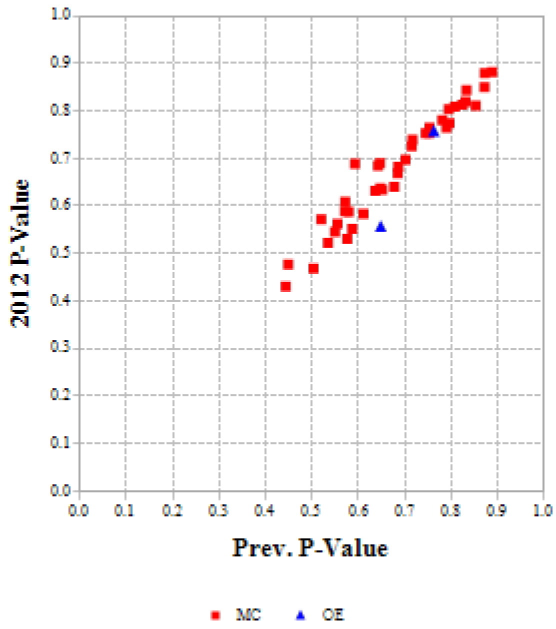
Reading 11

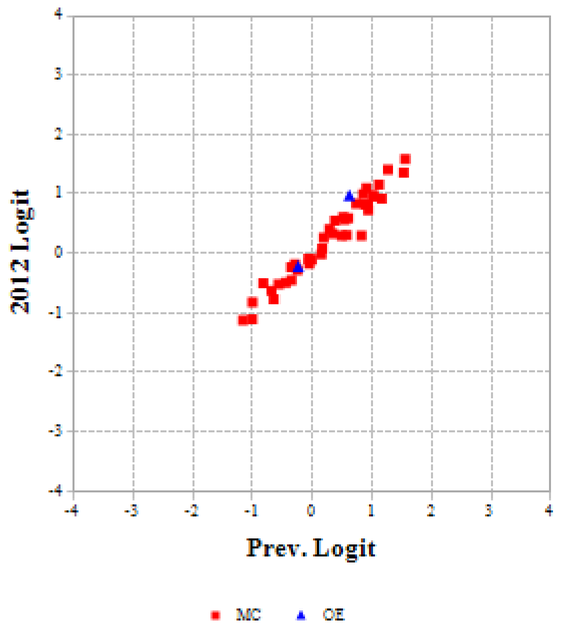


Test Characteristic Curve

Reading 11



2012 P-Value vs. Prev. P-Value
Science 4



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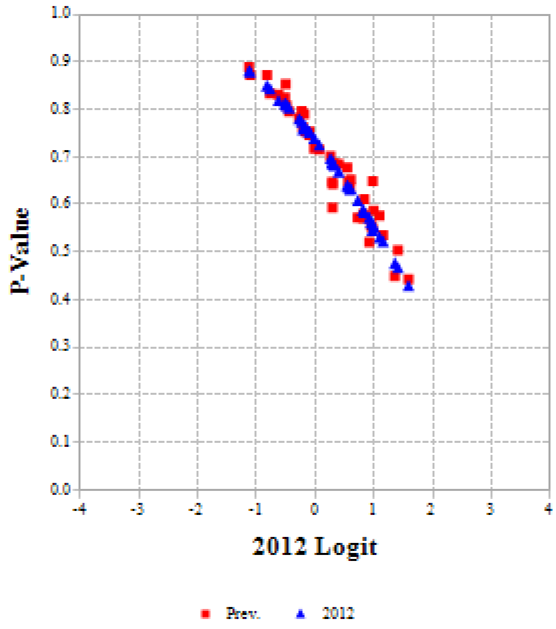
Science 4



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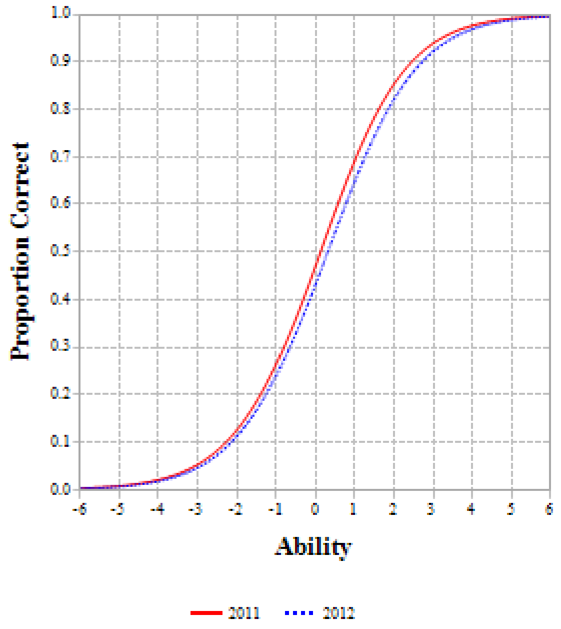
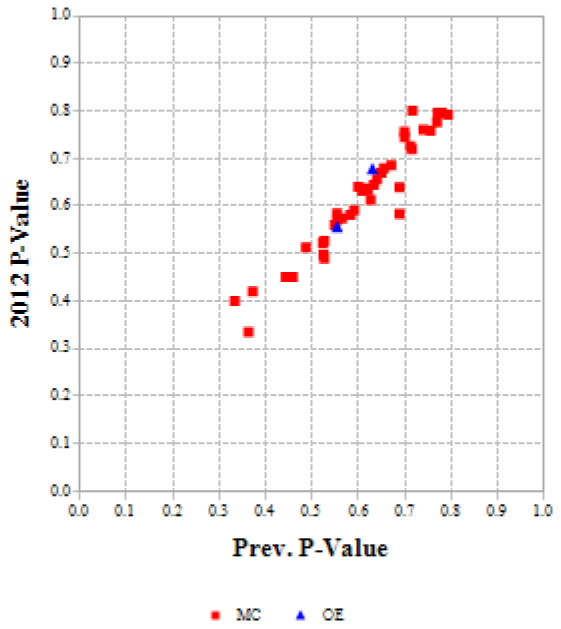
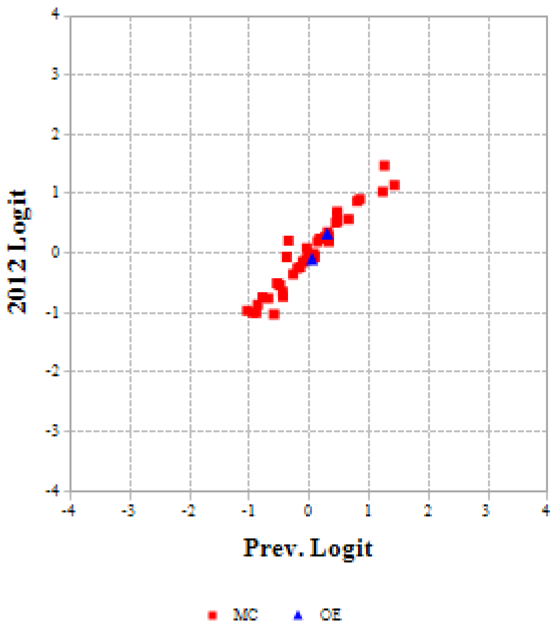


Test Characteristic Curve
Science 4



2012 P-Value vs. Prev. P-Value

Science 8



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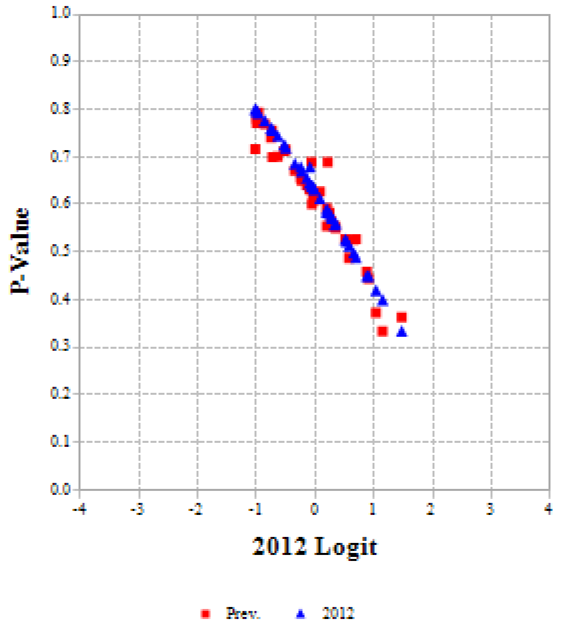

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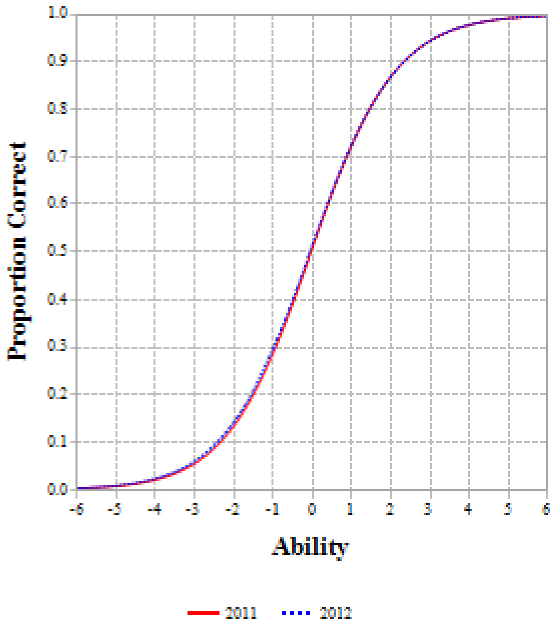
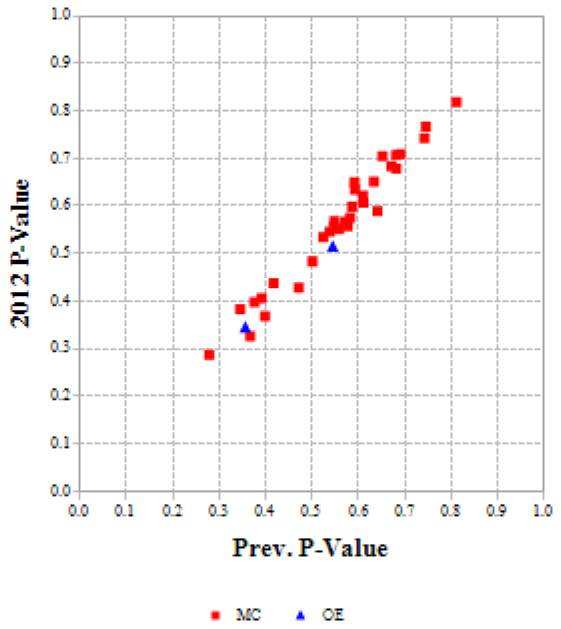


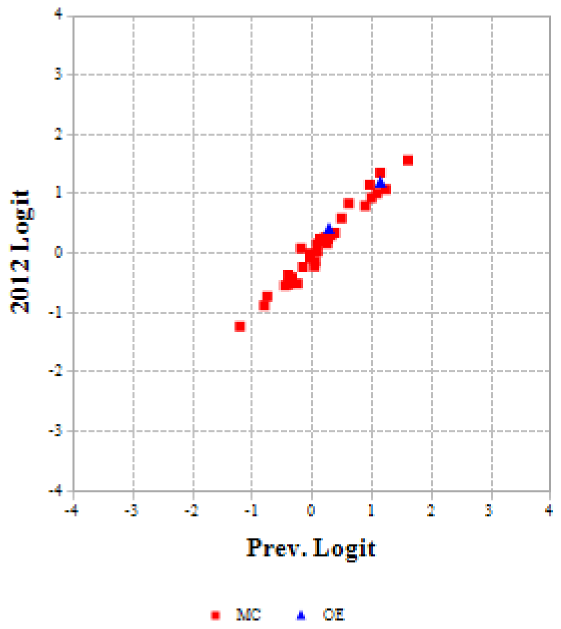
Test Characteristic Curve

Science 8



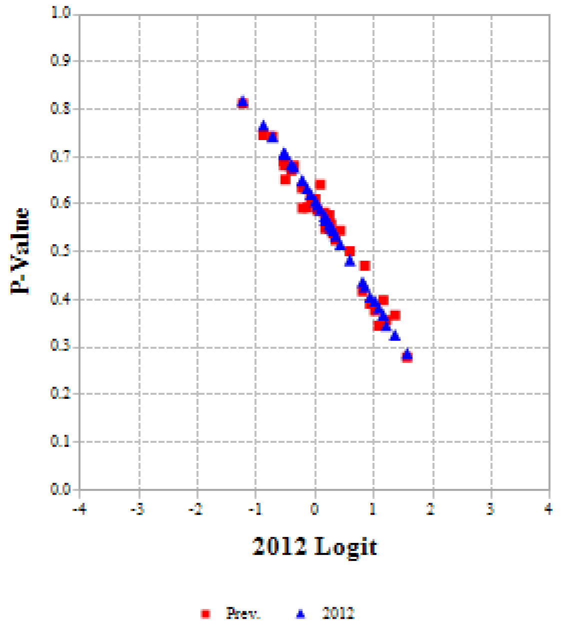
2012 P-Value vs. Prev. P-Value

Science 11



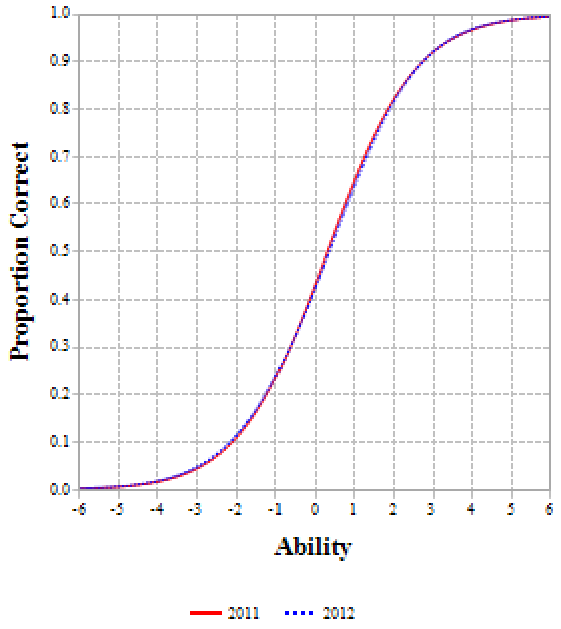
2012 Logit vs. Prev. Logit

Science 11



Prev. and 2012 P-Value vs. 2012 Logit

Science 11



Test Characteristic Curve

Science 11

WRITING

The writing exams were comprised of six forms at each grade. Each form contained 12 core operational revising and editing (R&E) MC items and 8 field test R&E MC items (the MC items were associated with stimulus-based writing samples). Each test form also included two core operational writing prompts (WP). In addition, one WP item was included in the FT section. As with other PSSA programs, student scores were based solely on the core operational MC and core operational WP items. Table 15–4 summarizes the 2012 PSSA writing equating design.

Raw-to-scaled-score tables for the writing tests were derived somewhat differently from the other subject areas. Essentially, all operational items were treated as core linking items, and there were no EB items.[16] However, the actual linking procedure is essentially the same as described at the beginning of this chapter (i.e., prompt scores get a rater effect adjustment; prompt scores are weighted accordingly when computing the mean shift; and the mean shift is applied to all item parameter estimates before scoring tables are derived in a fully anchored WINSTEPS run).

Table 15–4. 2012 Writing Test Design

Grade	Core			FT		Total # (MC/WP)	Total # Core Points	Forms
	Unique Core MC	Core Linking MC	Core Linking WP	MC	WP			
5	0	12	2	8	1	20/3	100	6
8	0	12	2	8	1	20/3	100	6
11	0	12	2	8	1	20/3	100	6

Note: Each WP is worth four points for conventions and four points for mode. However, the mode score is weighted by 10 to get the total possible points of 100.

Graphs

Graphs, similar to those presented for other subject areas, are provided for writing in Figure 15–2. The TCCs for writing are less parallel and more irregular than those for the other subjects. This is likely due to the weighting that was used to score the writing test. Recall that the raw scores on mode are weighted by 10 to get a total possible score of 100 points.

Overall, the plots suggest that the writing results are less stable than the other content areas. The nature of the construct (with MC and weighted WP items contributing to the student scores) may have partial responsibility for this.

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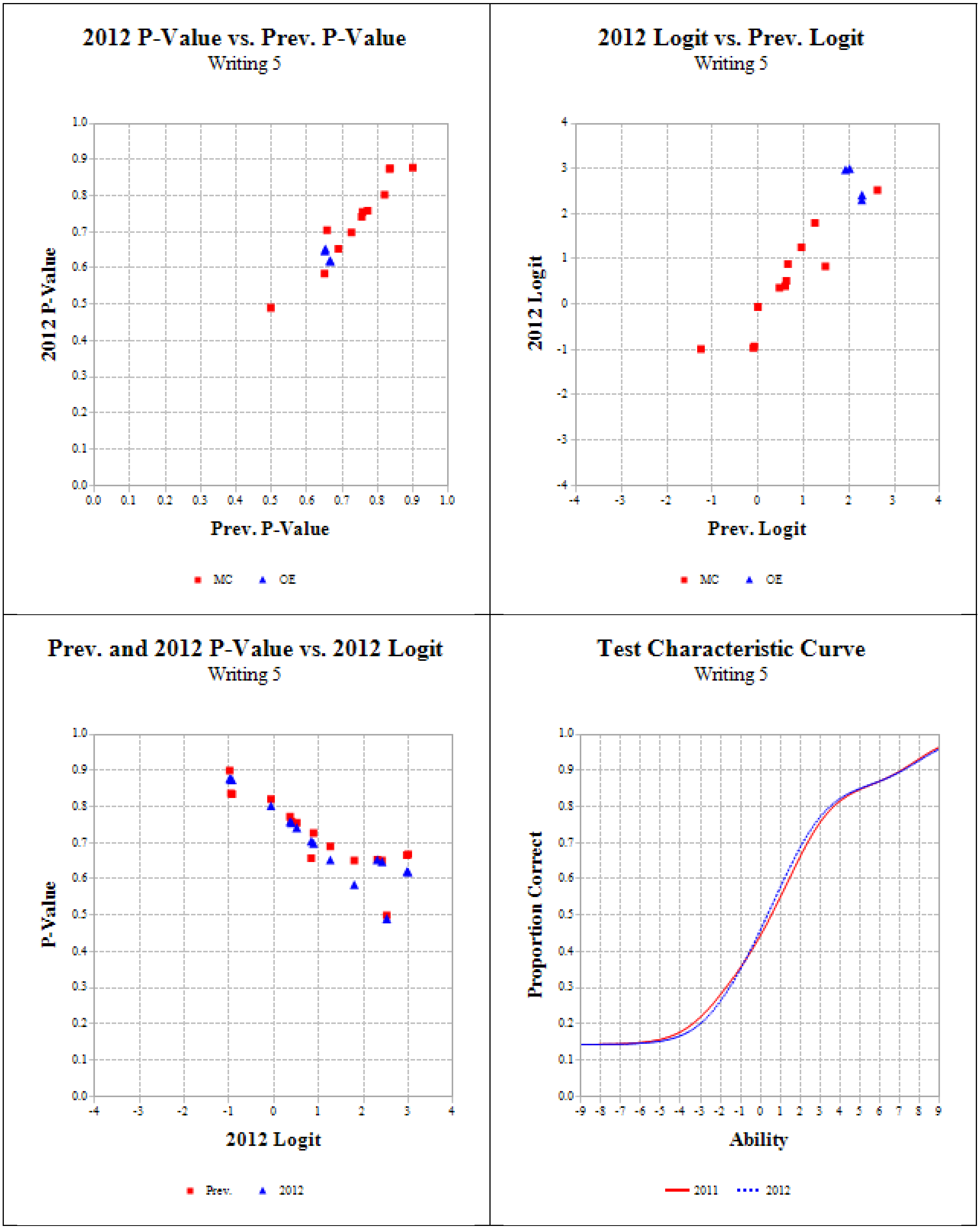
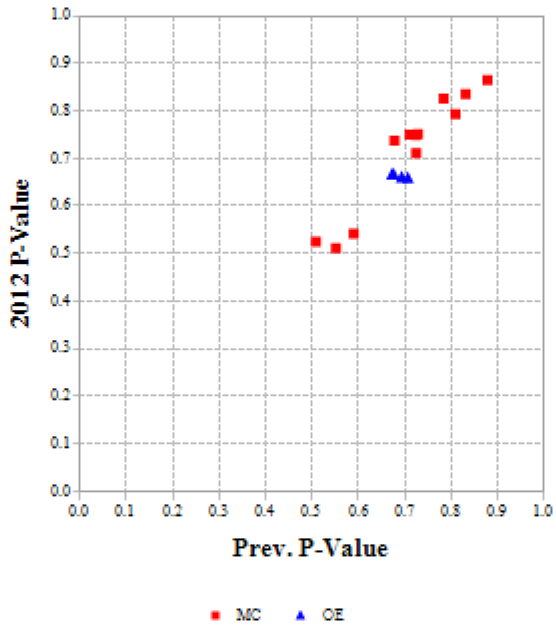
[16] In other subjects only a subset of operational items are treated as core linking items, and there were EB linking items as well.

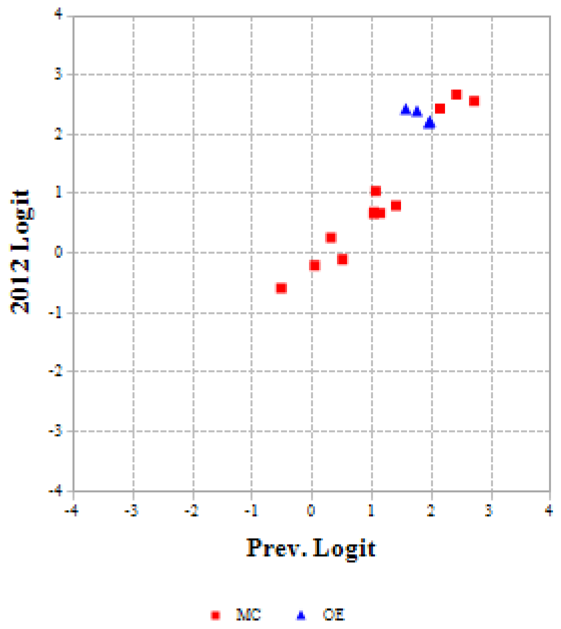
Figure 15–2. Item Stability Plots and Test Characteristic Curves for Writing



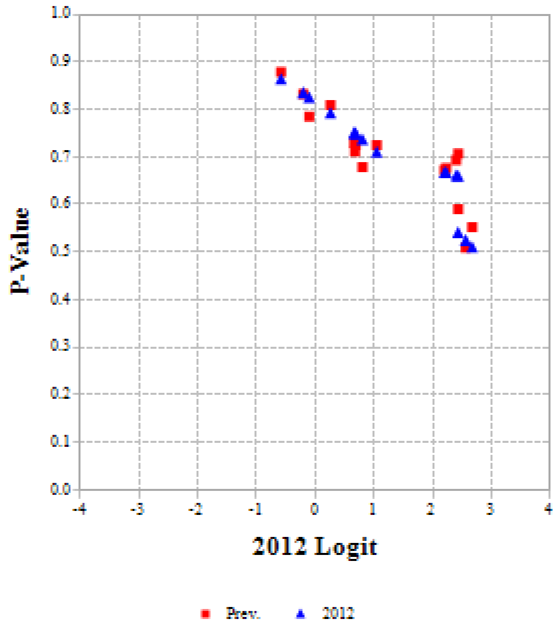
2012 P-Value vs. Prev. P-Value
Writing 8



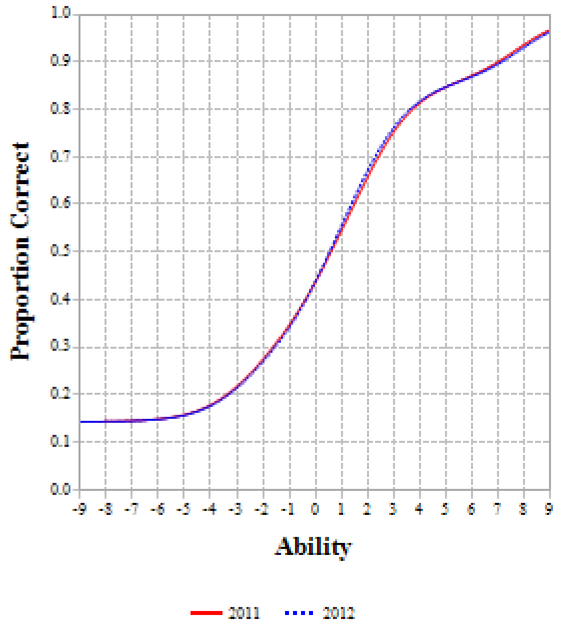
2012 Logit vs. Prev. Logit
Writing 8



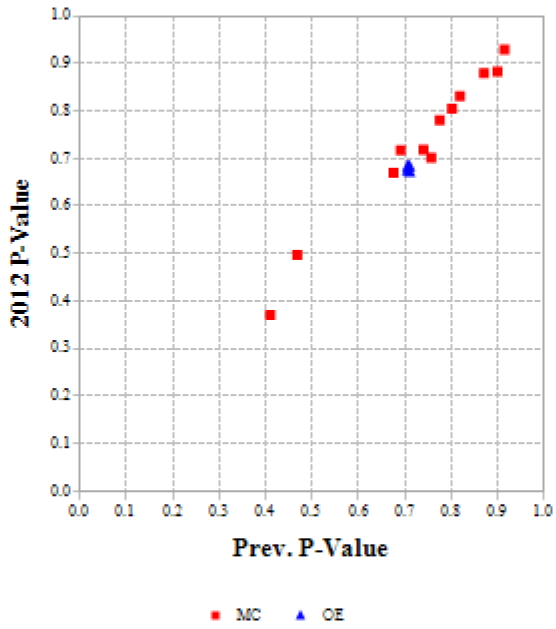
Prev. and 2012 P-Value vs. 2012 Logit
Writing 8



Test Characteristic Curve
Writing 8



2012 P-Value vs. Prev. P-Value
Writing 11



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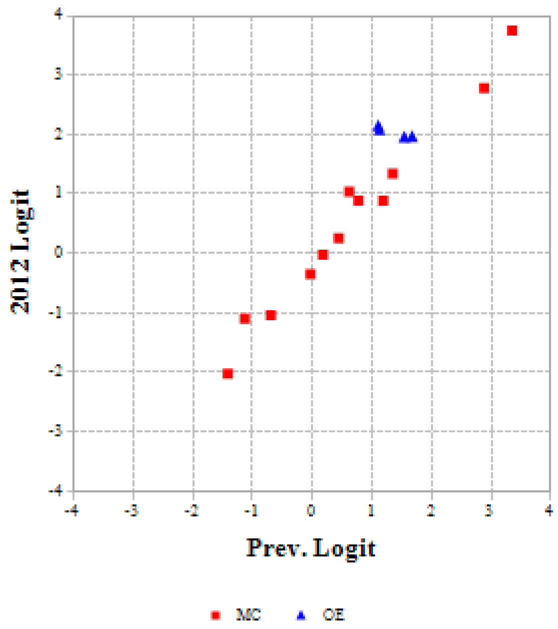
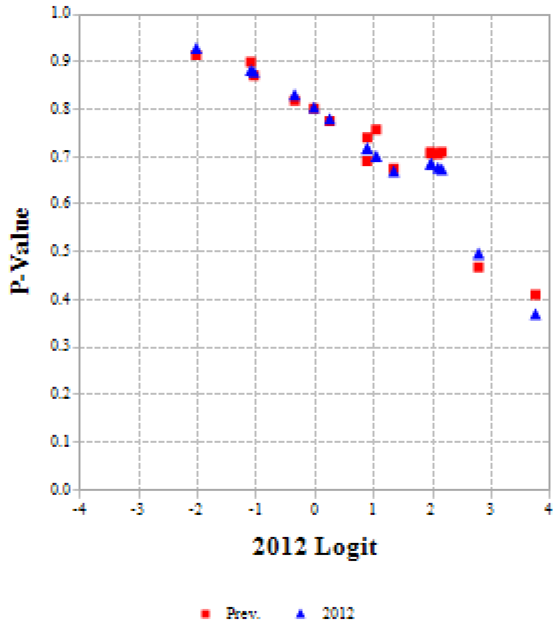
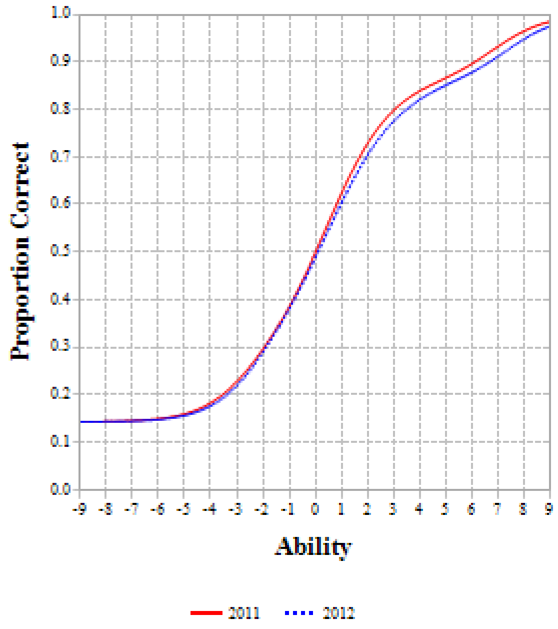


Prev. and 2012 P-Value vs. 2012 Logit
Writing 11



Test Characteristic Curve
Writing 11



Chapter Sixteen: Scores and Score Reports

This chapter provides information about the scores provided for the PSSA (e.g., scaled scores, performance levels, and strand scores), how they are presented on score reports, and appropriate and inappropriate uses of the scores.

SCORING THE PSSA

PSSA items are composed of multiple-choice (MC) and open-ended (OE) items. Each correct response to an MC item receives a score of 1. Incorrect responses receive a score of zero. Scores on OE items range from zero to four, depending on the grade and subject area. Table 16–1 summarizes the types of items used on each subject-area test. More detailed information about the various item types is provided in Chapter Three.

Table 16–1. Item Types Used by Subject Area

	Subject			
Item Type	**Mathematics**	**Reading**	**Science**	**Writing**
Multiple-Choice (1 point)	■	■	■	■
Open-Ended (2 point)			■	
Open-Ended (3 point)		■		
Open-Ended (4 point)	■		■	
Prompt (4 point)				■

Note. Science uses 4-point OEs at Grade 11 only.

DESCRIPTION OF TOTAL TEST SCORES

Different types of scores have been developed for PSSA reporting. Since the underlying properties of these scores are not necessarily the same, the particular scores used depend on the purposes for which the test has been given. The following types of scores are provided for reporting a student's overall performance on each PSSA subject-area test:

- Raw scores
- Scaled scores
- Performance levels

Raw Scores

A raw score is the number of points a student earned over the operational MC and OE items. By itself, the raw score has very limited utility. One limitation is that it can only be interpreted with reference to the total number of items on a subject-area test (e.g., a raw score of 15 on a 20-item test is different than a raw score of 15 on a 30-item test). In addition, raw scores depend on the difficulty of test items across test forms (e.g., a raw score of 15 on a test with 20 easy items is different than a raw score of 15 on a test with 20 difficult items). Because the difficulty of the items on a test can change from year to year, raw scores should not be compared across tests or administrations.

Scaled Scores

Scaled scores are introduced in Chapter Fourteen, and additional information is provided there, including historical information about the development of the PSSA scaled-score system. In the simplest sense, a scaled score is a transformed number-correct score. The specifics of the transformation processes for the PSSA are also discussed in Chapter Fourteen. When all students take the same items, as with the operational items on the PSSA, the more points the student earns, the higher the associated scaled score will be.

The value of switching to the more abstract scaled-score metric is that it produces more general, interpretable, and equitable results. As noted above, a raw score of 30 is meaningless unless the maximum raw score is known. The difficulty of the test items was also mentioned as an additional challenge with interpreting raw scores. Number-correct scores are transformed to scaled scores to remove the effects of test length and item difficulty. (Strictly speaking, transformation of number-correct scores to percent-correct scores would also remove the effect of test length, but it would do nothing to adjust for the difficulty of the items.)

Another advantage of scaled scores is that they lend themselves to interpretations of what is referred to as an interval level, while raw scores do not. Interval-level scales allow an interpretation of a scaled-score difference of 5 points to be the same whether the scores are 1295 vs. 1300 or 1445 vs. 1450. Raw-score differences, in this context, cannot be interpreted in this manner and are thus neither generalizable nor equitable.

When test scores are properly linked across years, a scaled score of 1300—or any other value for a particular grade and content area test, such as Grade 4 reading—should have the same absolute meaning in the current year as it had in previous years. For example, a school with a scaled score above 1300 in Grade 4 reading in 2012 performed better than the average school in the base year in Grade 4 reading.

More importantly, an increase in the scaled score for Grade 4 reading from last year to the current year means that student performance improved;[17] it does not say anything about whether this year's test is easier or harder than last year's test. To make these interpretations requires no information about the length or the difficulty of the test in either year, although these variables are essential for the process of deriving the scaled scores.

There is considerable auxiliary information presented in this report that might aid the reader in further contextualizing PSSA scaled scores. The reader is specifically referred to the following information:

- Chapter Fourteen provides information on the development of the PSSA scaled-score system, including historical information, transformation formulas, rounding rules, and general scale characteristics (e.g., minimum values).
- Chapter Seventeen provides total test score statistics. In particular, Table 17–2 lists the scaled score means and standard deviations for this year's test results.

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[17] This example is not an endorsement of conducting a trend analysis with only two years of results. Further, small differences may not be statistically or practically significant.

Performance Levels

PSSA results are also reported using four performance levels: Below Basic, Basic, Proficient, and Advanced. The cut scores on the scaled-score metric (i.e., the lowest possible scaled score to enter the Basic, Proficient, and Advanced levels) were presented earlier in this report. However, the information is repeated below (Table 16–2) for convenience.

Table 16–2. PSSA Scaled Score Cuts for Each Performance Level by Grade and Subject Area

			Scaled-Score Cuts[1]			
Subject	**Grade**	**Min**	**BB/B**	**B/P**	**P/A**	**Max[2]**
Mathematics	**3**	750	1044	1180	1370	1843
	4	700	1156	1246	1445	2482
	5	700	1158	1312	1483	2455
	6	700	1174	1298	1476	2580
	7	700	1183	1298	1472	2548
	8	700	1171	1284	1446	2301
	11	700	1167	1304	1509	2587
Reading	**3**	1000	1168	1235	1442	1929
	4	700	1112	1255	1469	2249
	5	700	1137	1275	1497	2293
	6	700	1121	1278	1456	2319
	7	700	1131	1279	1470	2394
	8	700	1146	1280	1473	2626
	11	700	1112	1257	1492	2520
Science	**4**	1050	1150	1275	1483	2285
	8	925	1150	1275	1464	2276
	11	1050	1150	1275	1347	1814
Writing	**5**	700	745	1236	1909	2314
	8	700	914	1236	1748	2341
	11	700	952	1236	1806	2418

Notes. [1] BB = Below Basic; B = Basic; P = Proficient; and A = Advanced.
[2] Scaled Score Maximum Values are unique for the current year's test.

Performance levels descriptors (PLDs) are another way to attach meaning to the scaled score metric. PLDs associate precise quantitative ranges of scaled scores with verbal, qualitative descriptions of student status. While much less precise, the qualitative description of the levels is one way for parents and teachers to interpret the student scores. They are also useful in assessing the status of the school. The Pennsylvania General Performance Level Descriptors, as developed by PDE and teacher panels, are given below. These are also included on student score reports.

- Advanced: The Advanced Level reflects superior academic performance. Advanced work indicates an in-depth understanding and exemplary display of the skills included in the Pennsylvania Academic Content Standards.
- Proficient: The Proficient Level reflects satisfactory academic performance. Proficient work indicates a solid understanding and adequate display of the skills included in the Pennsylvania Academic Content Standards.
- Basic: The Basic Level reflects marginal academic performance. Basic work indicates a partial understanding and limited display of the skills included in the Pennsylvania Academic Content Standards. This work is approaching satisfactory performance, but has not yet reached it. There is a need for additional instructional opportunities and/or increased student academic commitment to achieve the Proficient Level.
- Below Basic: The Below Basic Level reflects inadequate academic performance. Below Basic work indicates little understanding and minimal display of the skills included in the Pennsylvania Academic Content Standards. There is a major need for additional instructional opportunities and/or increased student academic commitment to achieve the Proficient Level.

DESCRIPTION OF STRAND (REPORTING CATEGORY) SCORES

The following types of scores are provided for PSSA strand scores:

- Strand (Reporting Category) scores
- Strength profile

Strand (Reporting Category) Scores

A strand (reporting category) score describes performance of a student, school, or district on a particular strand (content standard defined in the test). For the PSSA, strand scores are raw scores, indicating the points a student or a school/district earned for that strand. (Attributes of raw scores are described earlier in this chapter.)

Strand scores cannot be compared across years because they are neither statistically linked nor are they interval scores. Also, it is not advisable to compare strand raw scores even within the same form because some strands may contain items that are easier or more difficult than other strands (the strength profile, discussed below, mitigates this problem to some degree). A greater concern is the low reliability of many of these scores, especially for strand scores based on a small number of possible points. Chapter Eighteen provides more information about strand-score reliability.

When compared to other results from the same year, strand scores can be somewhat helpful in identifying a group's strengths and weaknesses as measured by the test. For example, it can be informative to compare average strand scores of a school against the scores of another reference group (e.g., the state average). Hence, strand scores can suggest group strengths and weaknesses relative to another reference group. (Challenges pertaining to interpreting results for individual students are discussed below.)

Strength Profile

The strength profile provides another indication of a student's performance within each of the strands. This profile can be used to identify areas in which a student needs to improve and areas in which a student has performed more successfully. Unlike strand scores that are reported as raw scores, strength profile scores categorize students into one of three levels: Low, Medium, and High. These categories take into account the difficulty of the items and are based on the same scaling techniques used to derive the PSSA scaled scores. (Details regarding the creation of the strength profile are provided in Chapter Fourteen. These scaled scores are not printed on score reports. They only exist to determine whether performance in the strands was Low, Medium, or High.) A Low score on the strength profile indicates performance that is below Proficient on the overall PSSA scale. A Medium score on the strength profile indicates performance that is comparable to Proficient on the PSSA. A High score on the strength profile indicates performance that is comparable to Advanced.

APPROPRIATE SCORE USES

Individual Students

Scaled scores on the PSSA indicate a student's achievement of the PSSA Assessment Anchors and Eligible Content. Scaled scores are primarily used to determine student performance level classifications (i.e., a criterion-referenced inference). Scaled scores that are based on Item Response Theory (IRT) models are typically assumed to be of the interval type; so comparisons may be made on differences in scaled scores. If this assumption holds, then it would be safe to infer for Grade 4 reading that the ability difference between 1110 and 1120 represents the same ability difference that separates 1250 and 1260. Scaled scores can also be used to compare the performance of an individual student to the performance of a similar demographic or subgroup at a school or district. Test score standard errors (discussed in Chapter Eighteen) should be considered.

Groups of Students

Test results can be used to evaluate performance over time. Mean scaled scores can be compared across administrations within the same grade and subject area to indicate whether student performance is improving across years. Generally, such trend analyses benefit from using mean results from as many test administration years as possible. Different cohorts of students are used (i.e., the same student or students are not tracked across grade levels). All scores can be analyzed within the same subject and grade for any single administration to determine which demographic or program group had, for example, the highest average performance or the highest percentage of students at or above the Proficient standard.

Strand scores can help evaluate academic areas for relative strengths or weaknesses. These category scores provide information to identify areas where further diagnosis is warranted. Generalizations from test results may be made to the specific content domain represented by the academic standards measured in the PSSA. However, all instruction and program evaluations should include as much information from other sources as possible to provide a more complete picture of performance.

CAUTIONS FOR SCORE USES

Extreme Error for Extreme Scores

Student scores toward the minimum or maximum ends of the score range will have very large standard errors of measurement, and therefore, such scores should be viewed very cautiously. The maximum scaled score only provides a very rough estimate of a student's ability. For instance, if the maximum score for the PSSA Grade 6 mathematics test were 2500 and a student achieved this score, it could not be determined whether the student could have achieved an even higher scaled score[18]. If the test were 10 items longer, a different estimate might have been obtained. Similarly, if the items in a new test were more difficult than the items on a previous administration, the maximum scaled score would likely be higher on the new test because it would take a greater level of achievement to answer the items correctly. In this manner, extreme scaled scores may vary from one administration to the next even if the number of test items does not change. The fluctuation of extreme scaled scores complicates the comparisons of students with scaled scores at the extreme ends of the score distribution. To minimize confusion and potential misinterpretation, the minimum scaled scores possible on the PSSA tests have been fixed (see Table 16–2) so they do not change between administrations. However, the maximum scaled-score values have not been fixed. Therefore, caution must be taken when comparing scores at the maximum end of the scale.

Each Test Has a Unique Scale

Scaling was conducted for each grade and subject-area test separately. Therefore, PSSA scale scores should be interpreted only within each content area. PSSA scaled scores are not status indicators in the same sense as percentile ranks (or scales that are essentially transformations of percentile ranks) and, therefore, cannot be used to profile relative strengths and weaknesses across subject areas. As an example, student scaled scores of 1450 in Grade 4 reading and 1400 in Grade 4 mathematics do not necessarily imply that the student performed better in reading than in mathematics. Neither do the PSSA scaled scores represent a developmental or vertical scale. This means that no across-grade comparisons or growth statements for a student are appropriate. For example, a 1400 in Grade 4 reading and a 1400 in Grade 5 reading does not indicate a student had no achievement growth in reading from Grade 4 to Grade 5.

Strength Profile Caveats

The category labels of Low, Medium, and High are deliberately used instead of the PSSA performance level names—Below Basic, Basic, Proficient, and Advanced—to acknowledge that the PSSA cut scores were established on the basis of the total test score. Therefore, the categories should not be interpreted in the same way as PSSA performance levels because they likely do not carry the same meaning.

While the strength profile might facilitate comparisons of a student's strengths and weaknesses across strands in some cases, several factors merit caution. As noted earlier, many of the strand scores are very unreliable. The scaling underlying the strength profile does not mitigate this problem.

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[18] It is not, at least for this year.

Additionally, the categories reflect more absolute comparisons. Relative comparisons are more difficult to make. As an example, if one scored High in both strand A and B, we know the student did very well in both strands compared to overall performance in the state (i.e., absolute status). However, we do not know whether the student's performance in strand A was better or worse relative to the student's performance in strand B (relative status).

Finally, some seemingly unusual results might occur that may be difficult for users to understand. As one example, it may be possible for a student to earn Medium in all strands but have an Advanced performance level. This can happen because the strand scores are correlated, meaning the distributional properties of the total score depends not only on the variances of the strand scores, but also on the covariances among the strand scores. (An analogy would be when a school track team places first overall in a competition although they did not win a single event.)

Using PSSA Results for Other Purposes

Should PSSA results be used for placement decisions such as eligibility for gifted/talented programs or for other special programs or services? Frequently asked questions about the PSSA pertain to the maximum possible PSSA scaled scores for various subjects or which PSSA score represents the 90th percentile. The motivation behind many of these questions may be associated with special program eligibility.

Other uses or inferences based on PSSA results may or may not be valid as the validity evidence and arguments provided in Chapter Nineteen may not necessarily support other score uses and interpretations. According to the AERA/APA/NCME *Standards* (1999) (i.e., Standard 1.4), if a test is used in a way that has not been validated, it is incumbent on the user to justify the new use, collecting new evidence if necessary. Finally, a universal caveat for any test's result is that it not be used for placement and educational planning alone. Instead, other information about the student (e.g., other test performance data) should be considered.

REPORTS

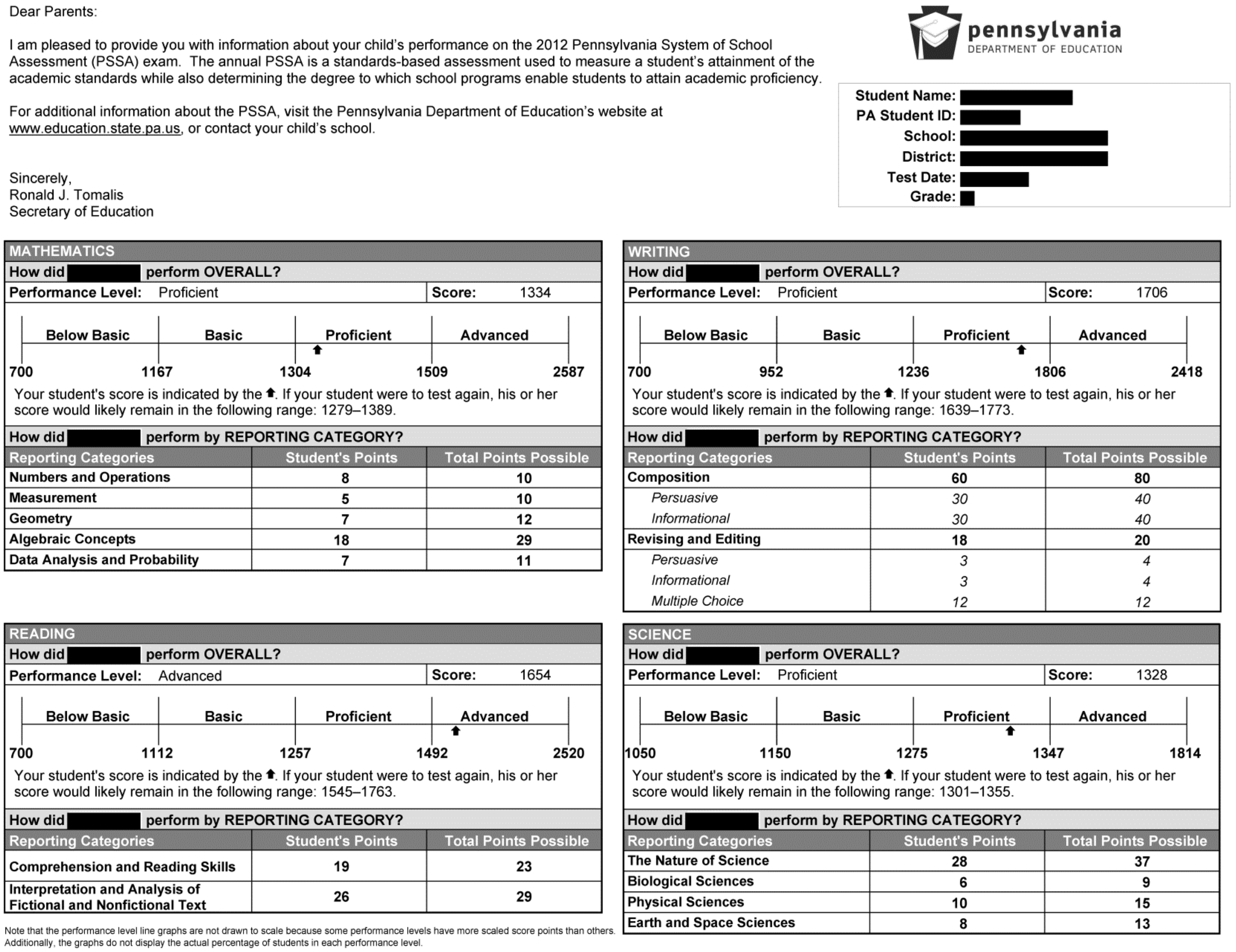
The following score reports are provided to students, parents, schools, and districts for the PSSA tests in mathematics, reading, science, and writing:

- Parent Letter
- Individual Student Report
- School Summary Report
- District Summary Report
- Interpretive Guide

Parent Letter

Parent letters were delivered to Pennsylvania districts on June 10, 2012. This score report provided parents and students with their first glimpse of performance on the spring 2012 PSSA tests. This report provides results at the student level. A sample of the report is provided in Figure 16–1.

Figure 16–1. Parent Memo



Dear Parents:

I am pleased to provide you with information about your child's performance on the 2012 Pennsylvania System of School Assessment (PSSA) exam. The annual PSSA is a standards-based assessment used to measure a student's attainment of the academic standards while also determining the degree to which school programs enable students to attain academic proficiency.

For additional information about the PSSA, visit the Pennsylvania Department of Education's website at www.education.state.pa.us, or contact your child's school.

Sincerely,
Ronald J. Tomalis
Secretary of Education

pennsylvania
DEPARTMENT OF EDUCATION

Student Name: [redacted]
PA Student ID: [redacted]
School: [redacted]
District: [redacted]
Test Date: [redacted]
Grade: [redacted]

MATHEMATICS

How did [redacted] perform OVERALL?

Performance Level: Proficient **Score:** 1334

Below Basic	Basic	Proficient	Advanced

700 1167 1304 1509 2587

Your student's score is indicated by the 🡅. If your student were to test again, his or her score would likely remain in the following range: 1279–1389.

How did [redacted] perform by REPORTING CATEGORY?

Reporting Categories	Student's Points	Total Points Possible
Numbers and Operations	**8**	**10**
Measurement	**5**	**10**
Geometry	**7**	**12**
Algebraic Concepts	**18**	**29**
Data Analysis and Probability	**7**	**11**

WRITING

How did [redacted] perform OVERALL?

Performance Level: Proficient **Score:** 1706

Below Basic	Basic	Proficient	Advanced

700 952 1236 1806 2418

Your student's score is indicated by the 🡅. If your student were to test again, his or her score would likely remain in the following range: 1639–1773.

How did [redacted] perform by REPORTING CATEGORY?

Reporting Categories	Student's Points	Total Points Possible
Composition	**60**	**80**
Persuasive	*30*	*40*
Informational	*30*	*40*
Revising and Editing	**18**	**20**
Persuasive	*3*	*4*
Informational	*3*	*4*
Multiple Choice	*12*	*12*

READING

How did [redacted] perform OVERALL?

Performance Level: Advanced **Score:** 1654

Below Basic	Basic	Proficient	Advanced

700 1112 1257 1492 2520

Your student's score is indicated by the 🡅. If your student were to test again, his or her score would likely remain in the following range: 1545–1763.

How did [redacted] perform by REPORTING CATEGORY?

Reporting Categories	Student's Points	Total Points Possible
Comprehension and Reading Skills	**19**	**23**
Interpretation and Analysis of Fictional and Nonfictional Text	**26**	**29**

Note that the performance level line graphs are not drawn to scale because some performance levels have more scaled score points than others. Additionally, the graphs do not display the actual percentage of students in each performance level.

SCIENCE

How did [redacted] perform OVERALL?

Performance Level: Proficient **Score:** 1328

Below Basic	Basic	Proficient	Advanced

1050 1150 1275 1347 1814

Your student's score is indicated by the 🡅. If your student were to test again, his or her score would likely remain in the following range: 1301–1355.

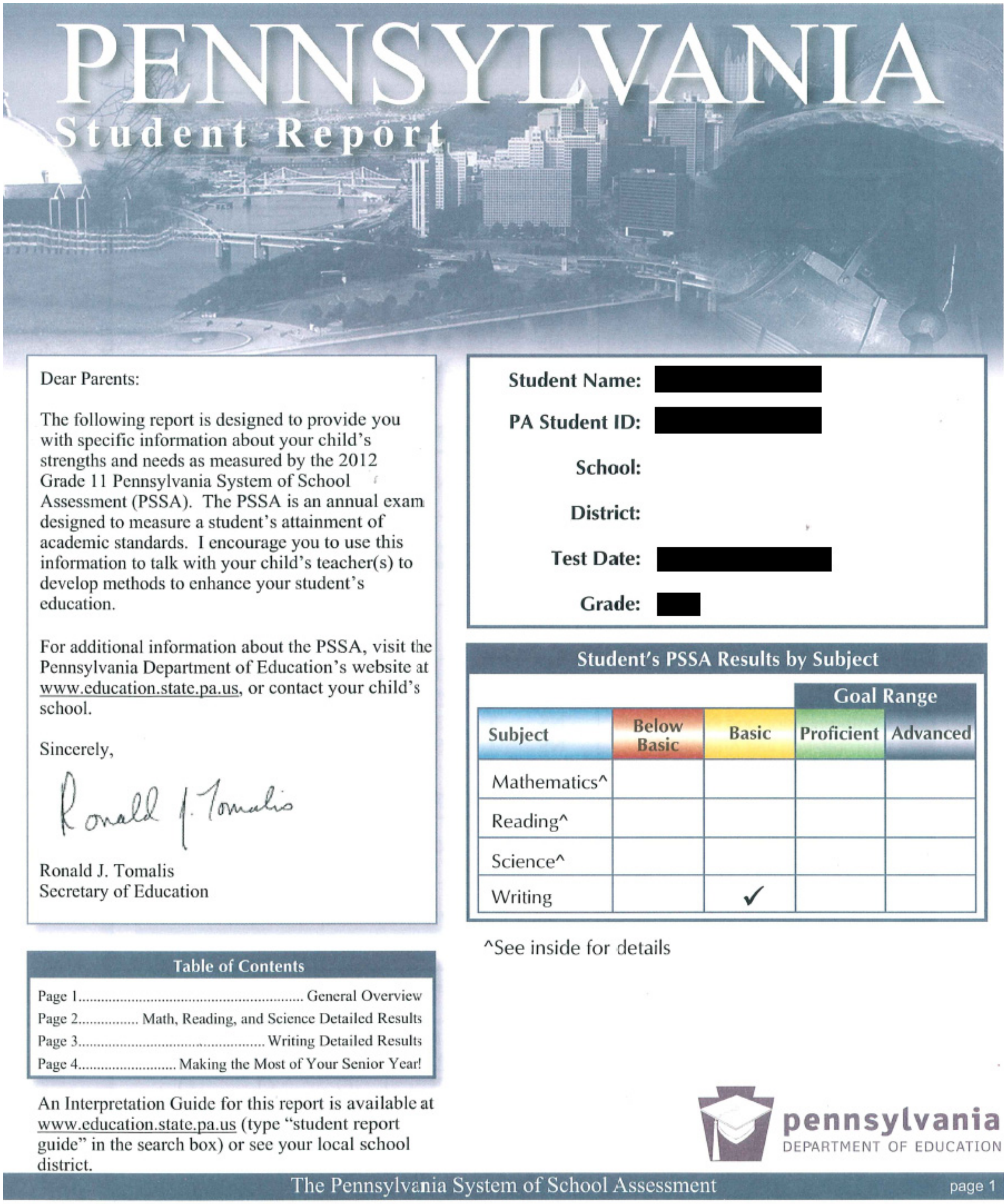
How did [redacted] perform by REPORTING CATEGORY?

Reporting Categories	Student's Points	Total Points Possible
The Nature of Science	**28**	**37**
Biological Sciences	**6**	**9**
Physical Sciences	**10**	**15**
Earth and Space Sciences	**8**	**13**

Individual Student Report

An individual student report is provided for all students who took the PSSA. This report was delivered to Pennsylvania school districts in September 2012. Districts are responsible for sending the reports home to individual students. This report is a four-page color document that provides the types of scores explained earlier in this chapter. Screen shots of the four pages from a sample individual student report are provided in Figures 16–2 through 16–5.

Figure 16–2. Page 1 of the Individual Student Report



PENNSYLVANIA

Student Report

Dear Parents:

The following report is designed to provide you with specific information about your child's strengths and needs as measured by the 2012 Grade 11 Pennsylvania System of School Assessment (PSSA). The PSSA is an annual exam designed to measure a student's attainment of academic standards. I encourage you to use this information to talk with your child's teacher(s) to develop methods to enhance your student's education.

For additional information about the PSSA, visit the Pennsylvania Department of Education's website at www.education.state.pa.us, or contact your child's school.

Sincerely,

Ronald J. Tomalis

Ronald J. Tomalis
Secretary of Education

Student Name:	[redacted]
PA Student ID:	[redacted]
School:	
District:	
Test Date:	[redacted]
Grade:	[redacted]

Student's PSSA Results by Subject

			Goal Range	
Subject	Below Basic	Basic	Proficient	Advanced
Mathematics^				
Reading^				
Science^				
Writing		✓		

^See inside for details

Table of Contents

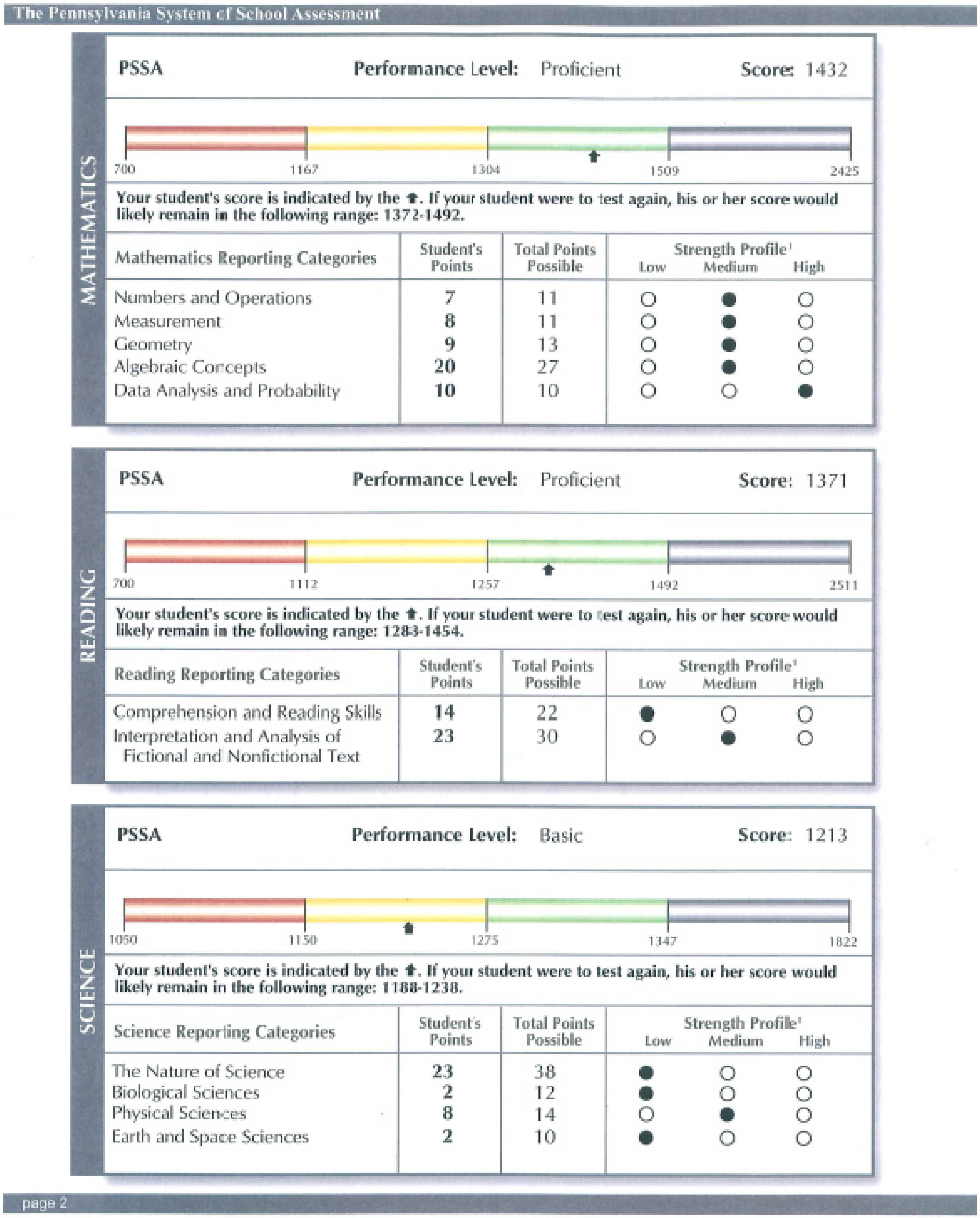
An Interpretation Guide for this report is available at www.education.state.pa.us (type "student report guide" in the search box) or see your local school district.

pennsylvania
DEPARTMENT OF EDUCATION

The Pennsylvania System of School Assessment page 1

www.education.state.pa.us

Figure 16–3. Page 2 of the Individual Student Report



The Pennsylvania System of School Assessment

MATHEMATICS

PSSA **Performance Level:** Proficient **Score:** 1432

700
1167
1304
1509
2425

Your student's score is indicated by the ↑. If your student were to test again, his or her score would likely remain in the following range: 1372-1492.

Mathematics Reporting Categories	Student's Points	Total Points Possible	Strength Profile[1] Low	Medium	High
Numbers and Operations	7	11	○	●	○
Measurement	8	11	○	●	○
Geometry	9	13	○	●	○
Algebraic Concepts	20	27	○	●	○
Data Analysis and Probability	10	10	○	○	●

READING

PSSA **Performance Level:** Proficient **Score:** 1371

Your student's score is indicated by the ↑. If your student were to test again, his or her score would likely remain in the following range: 1283-1454.

Reading Reporting Categories	Student's Points	Total Points Possible	Strength Profile[1] Low	Medium	High
Comprehension and Reading Skills	14	22	●	○	○
Interpretation and Analysis of Fictional and Nonfictional Text	23	30	○	●	○

SCIENCE

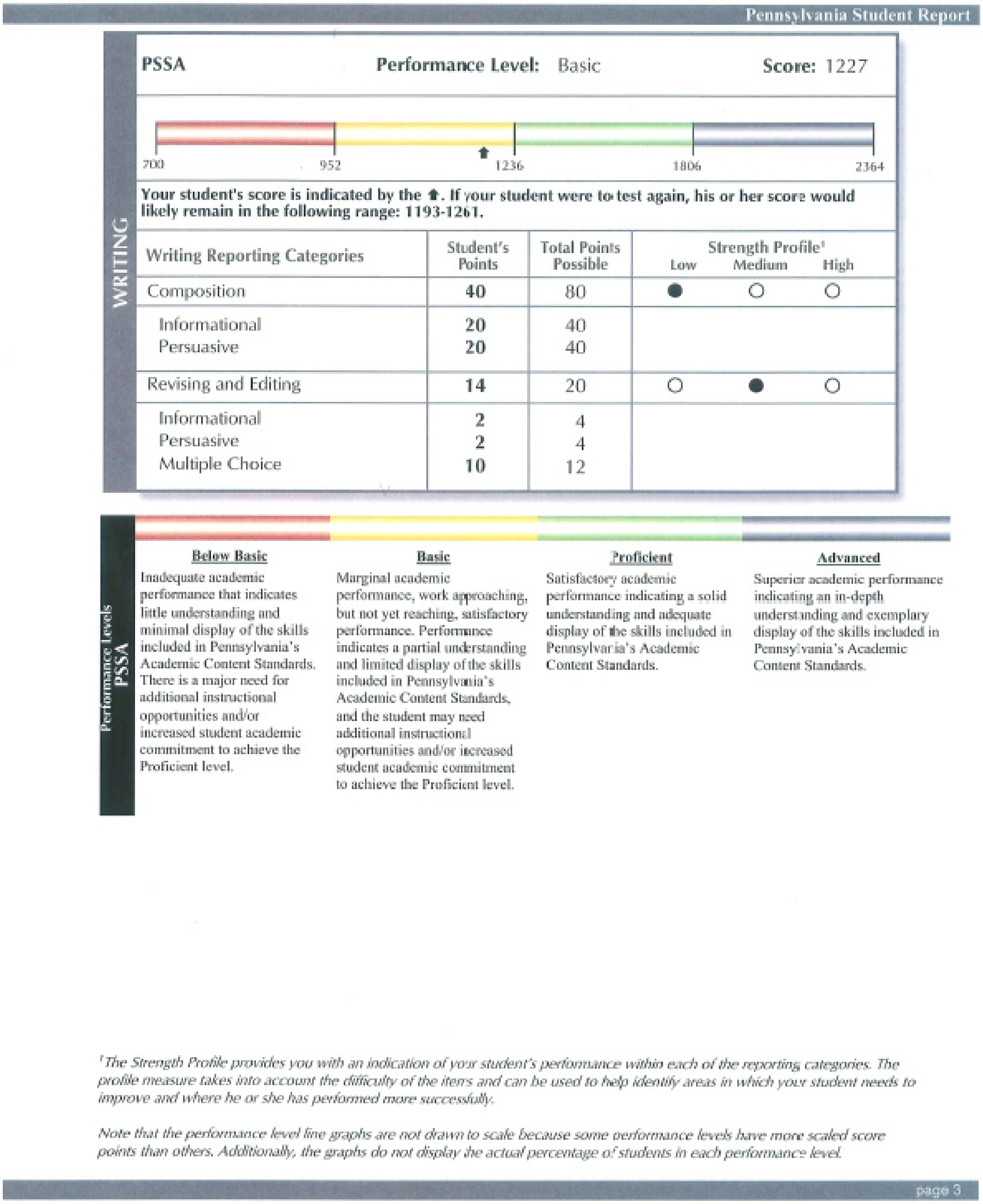
PSSA **Performance Level:** Basic **Score:** 1213

Your student's score is indicated by the ↑. If your student were to test again, his or her score would likely remain in the following range: 1188-1238.

Science Reporting Categories	Student's Points	Total Points Possible	Strength Profile[1] Low	Medium	High
The Nature of Science	23	38	●	○	○
Biological Sciences	2	12	●	○	○
Physical Sciences	8	14	○	●	○
Earth and Space Sciences	2	10	●	○	○

page 2

Figure 16–4. Page 3 of the Individual Student Report



Pennsylvania Student Report

WRITING

PSSA **Performance Level:** Basic **Score:** 1227

700 952 1236 1806 2364

Your student's score is indicated by the ⬆. If your student were to test again, his or her score would likely remain in the following range: 1193-1261.

Writing Reporting Categories	Student's Points	Total Points Possible	Strength Profile[1]		
			Low	Medium	High
Composition	**40**	80	●	○	○
Informational	**20**	40			
Persuasive	**20**	40			
Revising and Editing	**14**	20	○	●	○
Informational	**2**	4			
Persuasive	**2**	4			
Multiple Choice	**10**	12			

PSSA Performance Levels

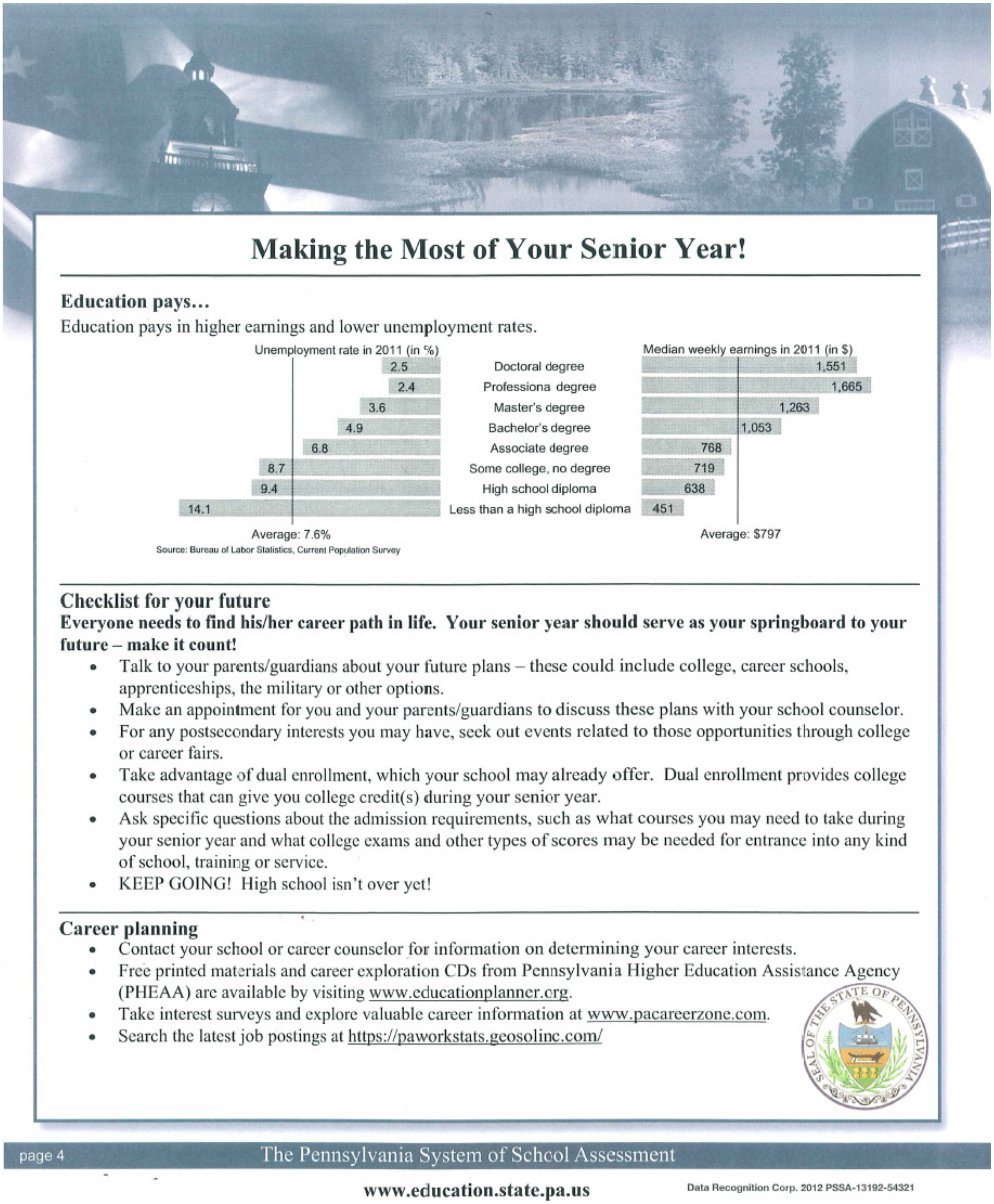
Below Basic	**Basic**	**Proficient**	**Advanced**
Inadequate academic performance that indicates little understanding and minimal display of the skills included in Pennsylvania's Academic Content Standards. There is a major need for additional instructional opportunities and/or increased student academic commitment to achieve the Proficient level.	Marginal academic performance, work approaching, but not yet reaching, satisfactory performance. Performance indicates a partial understanding and limited display of the skills included in Pennsylvania's Academic Content Standards, and the student may need additional instructional opportunities and/or increased student academic commitment to achieve the Proficient level.	Satisfactory academic performance indicating a solid understanding and adequate display of the skills included in Pennsylvania's Academic Content Standards.	Superior academic performance indicating an in-depth understanding and exemplary display of the skills included in Pennsylvania's Academic Content Standards.

[1] The Strength Profile provides you with an indication of your student's performance within each of the reporting categories. The profile measure takes into account the difficulty of the items and can be used to help identify areas in which your student needs to improve and where he or she has performed more successfully.

Note that the performance level line graphs are not drawn to scale because some performance levels have more scaled score points than others. Additionally, the graphs do not display the actual percentage of students in each performance level.

page 3

Figure 16–5. Page 4 of the Individual Student Report



Making the Most of Your Senior Year!

Education pays…

Education pays in higher earnings and lower unemployment rates.

Unemployment rate in 2011 (in %)		Median weekly earnings in 2011 (in $)
2.5	Doctoral degree	1,551
2.4	Professiona degree	1,665
3.6	Master's degree	1,263
4.9	Bachelor's degree	1,053
6.8	Associate degree	768
8.7	Some college, no degree	719
9.4	High school diploma	638
14.1	Less than a high school diploma	451
Average: 7.6%		Average: $797

Source: Bureau of Labor Statistics, Current Population Survey

Checklist for your future

Everyone needs to find his/her career path in life. Your senior year should serve as your springboard to your future – make it count!

- Talk to your parents/guardians about your future plans – these could include college, career schools, apprenticeships, the military or other options.
- Make an appointment for you and your parents/guardians to discuss these plans with your school counselor.
- For any postsecondary interests you may have, seek out events related to those opportunities through college or career fairs.
- Take advantage of dual enrollment, which your school may already offer. Dual enrollment provides college courses that can give you college credit(s) during your senior year.
- Ask specific questions about the admission requirements, such as what courses you may need to take during your senior year and what college exams and other types of scores may be needed for entrance into any kind of school, training or service.
- KEEP GOING! High school isn't over yet!

Career planning

- Contact your school or career counselor for information on determining your career interests.
- Free printed materials and career exploration CDs from Pennsylvania Higher Education Assistance Agency (PHEAA) are available by visiting www.educationplanner.org.
- Take interest surveys and explore valuable career information at www.pacareerzone.com.
- Search the latest job postings at https://paworkstats.geosolinc.com/

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www.education.state.pa.us

Data Recognition Corp. 2012 PSSA-13192-54321

School and District Summary Reports

Summary reports are provided at the school and district level. These reports contain summary information about the percentage of students in each of the four performance levels. Raw scores are also provided by assessment anchor to allow schools or districts to identify strengths or weaknesses at the content strand level.

Interpretative Guide

An interpretative guide is provided to help parents and other PSSA stakeholders better understand test result information presented in the individual student report. The interpretative guide can be found on the PDE website.

Chapter Seventeen: Operational Test Statistics

This chapter presents various summary statistics for the PSSA total test scores based on the final data file described in Chapter Nine. Related information covered elsewhere in this report includes the item-level statistics presented in Chapter Eleven (classical item statistics) and Chapter Twelve (Rasch item statistics). These chapters provide additional consideration as item difficulty distributions can affect total score distributions.

PERFORMANCE LEVEL STATISTICS

Table 17–1 presents performance-level percentages by grade and content. Appendix M provides performance level percentages for prior years.

Table 17–1. Performance-Level Percentages for 2012 PSSA

		Percentage in Each Performance Level			
Subject	**Grade**	**Below Basic**	**Basic**	**Proficient**	**Advanced**
Mathematics	**3**	6.6	13.3	36.4	43.6
Reading		15.9	10.0	46.9	27.2
Mathematics	**4**	8.7	8.6	29.2	53.4
Reading		13.5	14.4	41.3	30.8
Science		6.1	11.6	37.8	44.5
Mathematics	**5**	9.5	17.3	27.5	45.8
Reading		17.0	18.0	36.7	28.3
Writing		1.8	34.0	62.5	1.7
Mathematics	**6**	9.0	13.8	26.7	50.5
Reading		14.2	17.3	31.1	37.4
Mathematics	**7**	9.2	10.8	24.7	55.4
Reading		10.7	13.2	34.7	41.3
Mathematics	**8**	11.4	12.2	25.0	51.4
Reading		9.0	11.3	24.1	55.7
Science		20.9	19.5	35.4	24.3
Writing		3.2	24.1	62.2	10.5
Mathematics	**11**	23.2	16.8	29.6	30.4
Reading		15.7	16.5	33.6	34.2
Science		16.3	41.8	27.6	14.2
Writing		2.5	14.6	69.3	13.6

SCALED SCORES

Summary Statistics

Table 17–2 provides the scaled-score means and standard deviations. See the section Every Test has a Unique Scale in Chapter Sixteen for caveats regarding interpretation of scale scores.

Table 17–2. Means and Standard Deviations for the 2012 PSSA Scaled Scores

	Mathematics		Reading		Science		Writing	
Grade	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
3	1330.2	185.0	1332.8	150.7				
4	1475.7	237.7	1367.6	221.4	1447.8	183.8		
5	1462.5	235.2	1353.5	226.4			1331.0	275.7
6	1485.9	240.2	1377.0	238.4				
7	1499.9	239.8	1412.8	221.2				
8	1446.1	223.0	1505.5	265.7	1319.6	191.9	1406.6	276.8
11	1375.8	267.0	1370.0	258.6	1245.9	93.5	1523.3	293.9

Scaled Score Distributions

Scaled scores are based on a linear transformation of the Rasch ability estimates. Distributions of the Rasch abilities are provided at the end of Chapter Twelve.

RAW SCORES

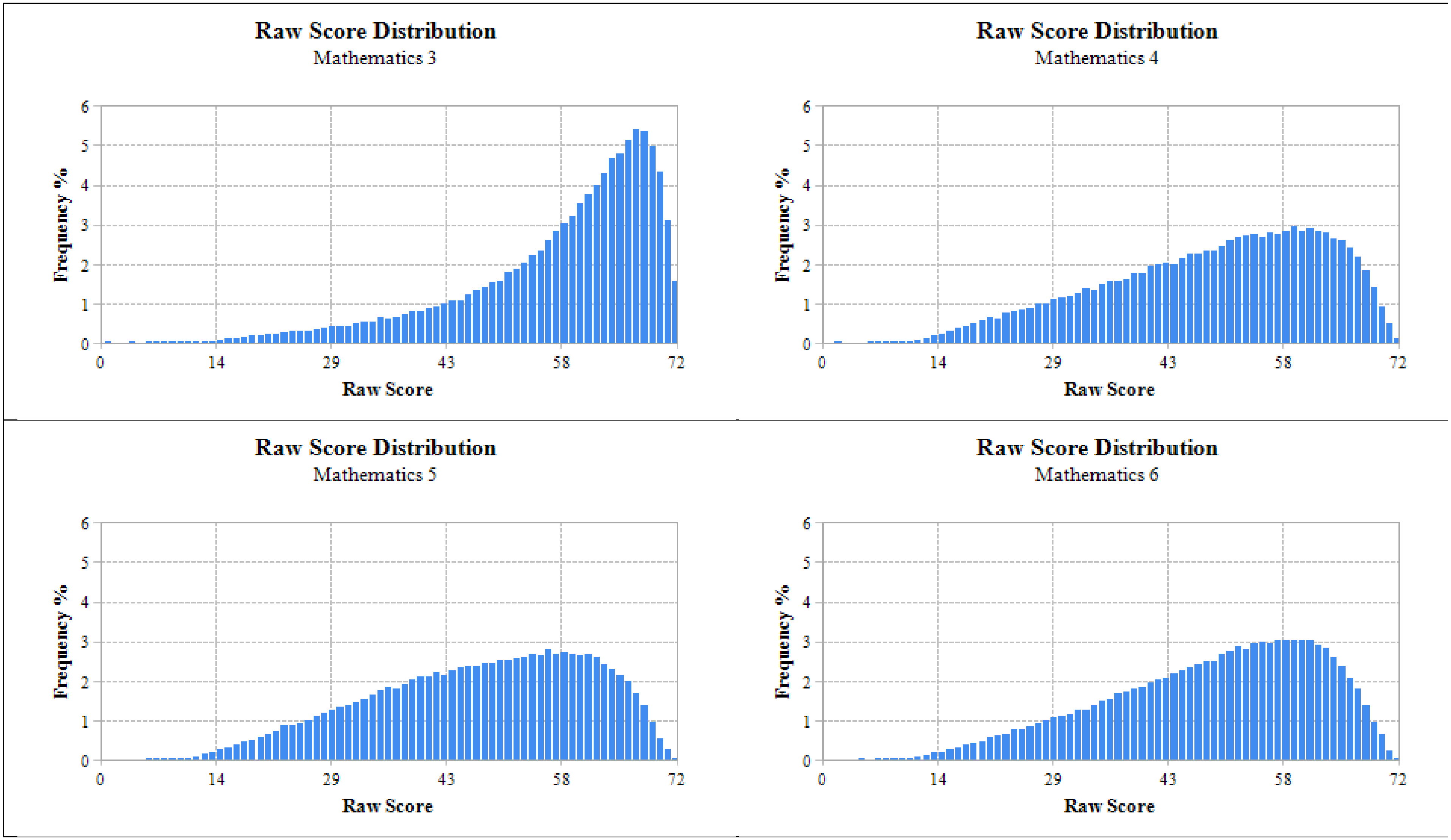
Summary Statistics

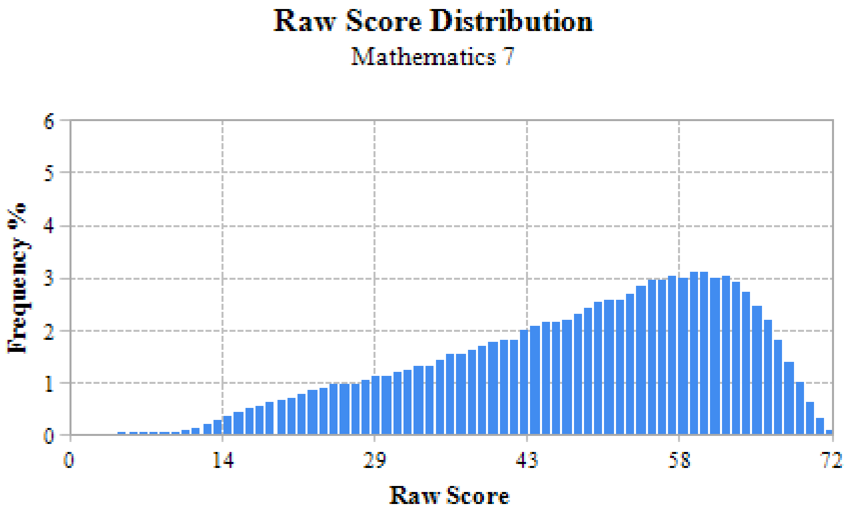
Appendix K provides summary statistics for the operational raw scores. The statistics reported include the number of points possible (Pts.), number of items (Len.), number of students tested (N), mean number of score points received (Mean), standard deviation of test scores (SD), reliability (r), traditional standard error of measurement (SEM), and item types (Items) used to determine each score. These statistics are based on the total test using both multiple-choice (MC) and open-ended (OE) items for the operational sections of each form. (For information disaggregated by item type, Chapter Eleven provides breakout statistics for MC and OE items.)

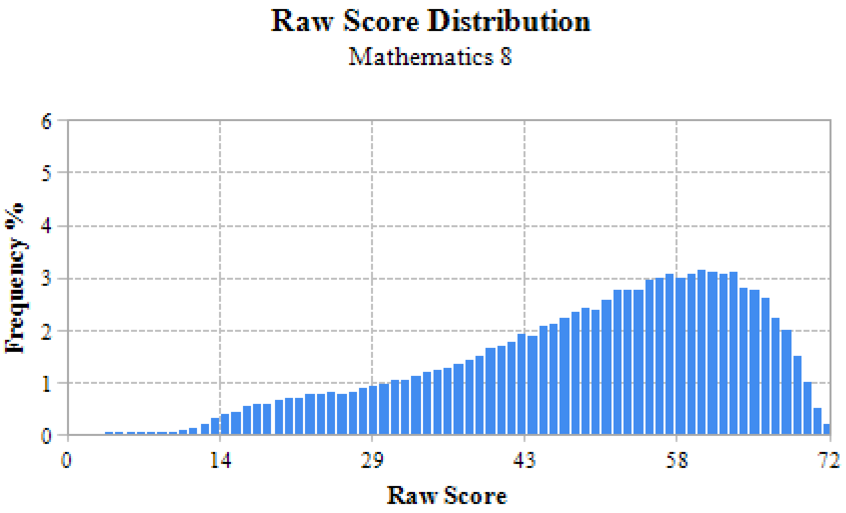
Score Distributions

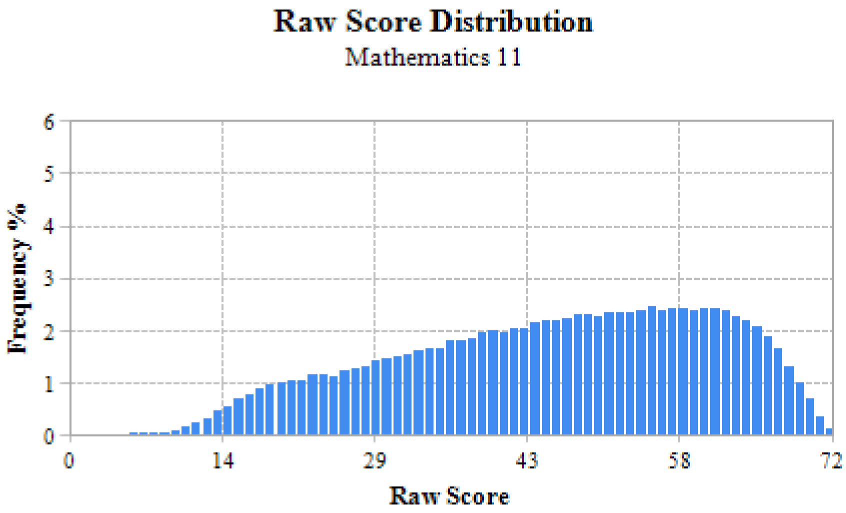
Raw-score relative-frequency (rf) distributions are provided in Figure 17–1. Most distributions are negatively skewed and unimodal. Grade 11 science is more symmetric than other distributions. Writing has one major mode and several minor modes (because of the differential weighting given to the writing prompt scores).

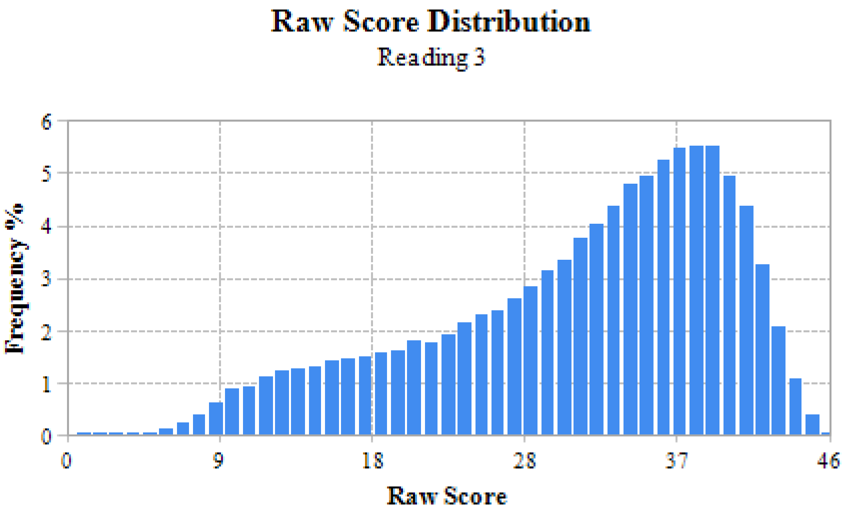
Figure 17–1. 2012 PSSA Raw Score Distributions

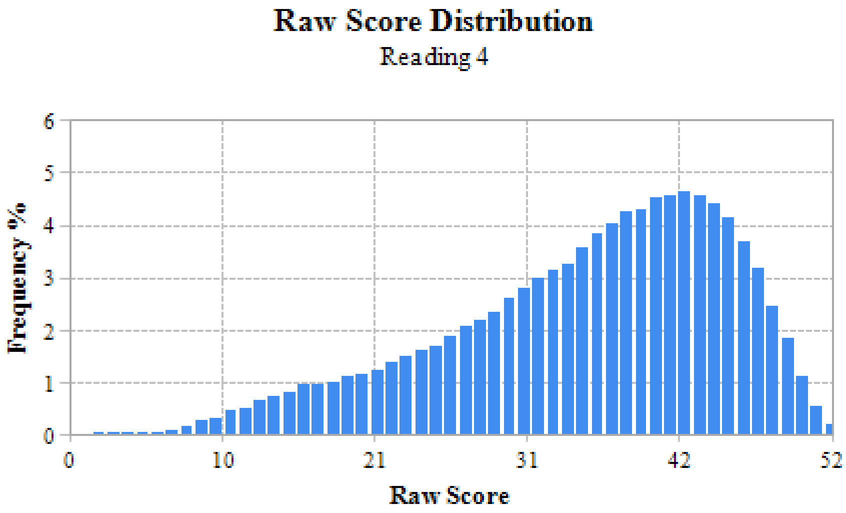


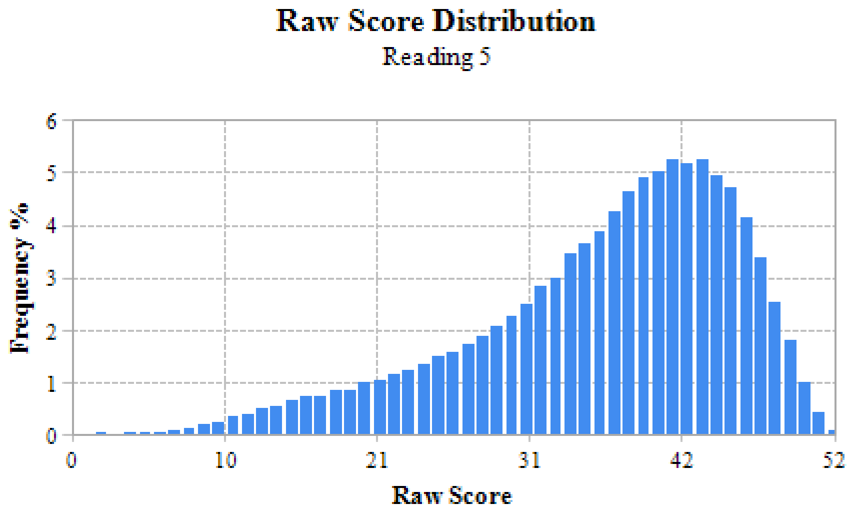

Raw Score Distribution
Mathematics 7

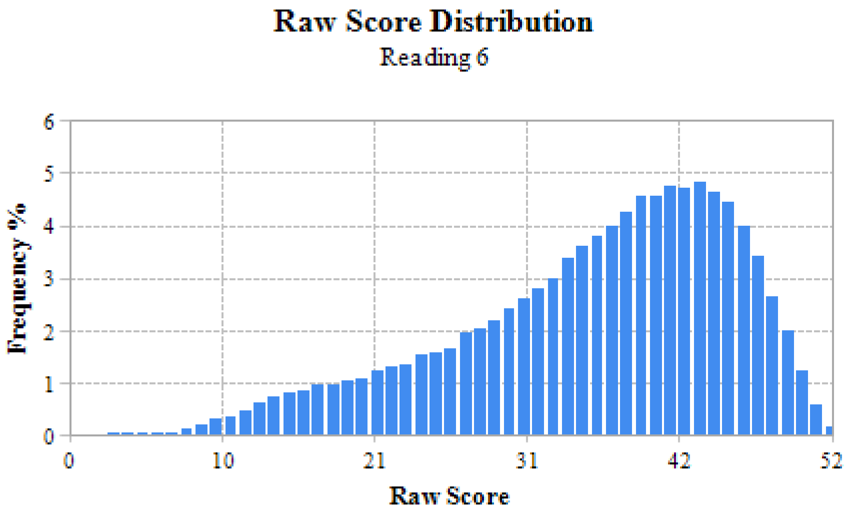

Raw Score Distribution
Mathematics 8

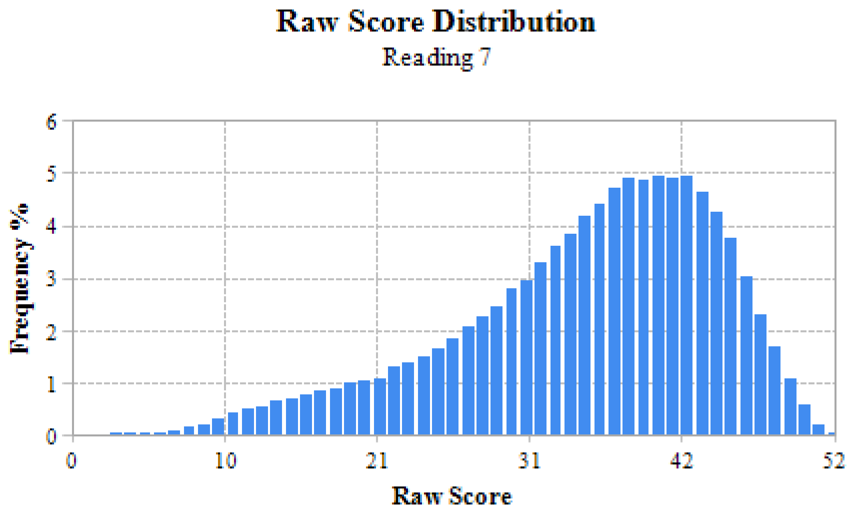

Raw Score Distribution
Mathematics 11

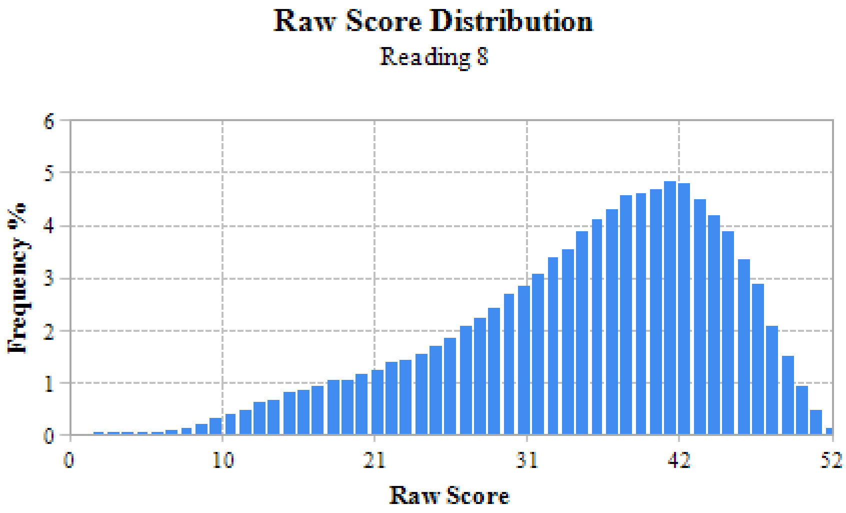

Raw Score Distribution
Reading 3

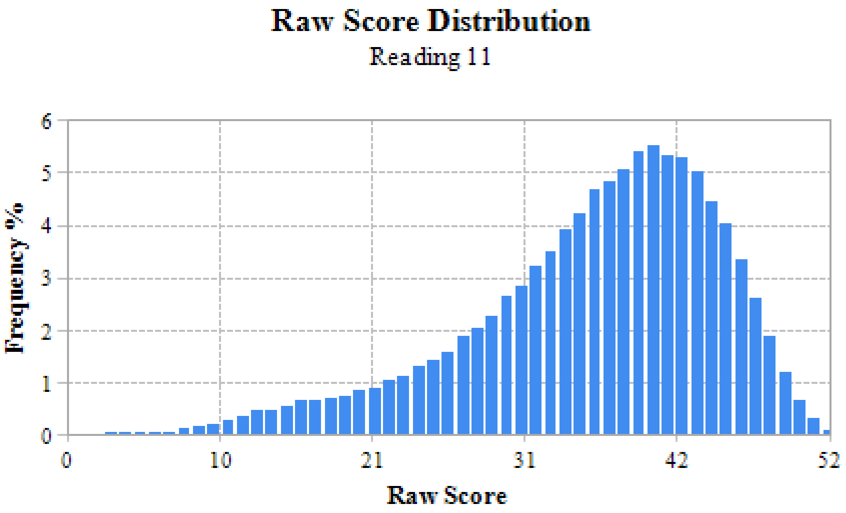

Raw Score Distribution
Reading 4
Frequency %
0
1
2
3
4
5
6
0
10
21
31
42
52
Raw Score

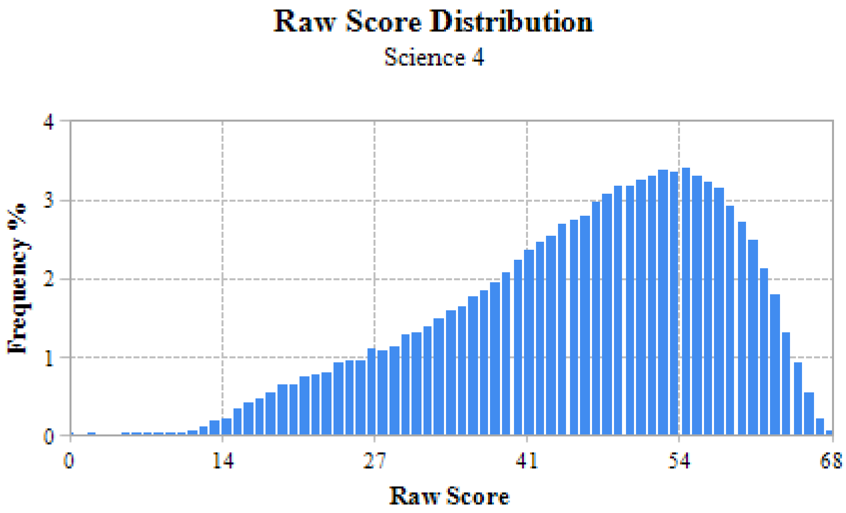

Raw Score Distribution
Reading 5
Frequency %
0
1
2
3
4
5
6
0
10
21
31
42
52
Raw Score

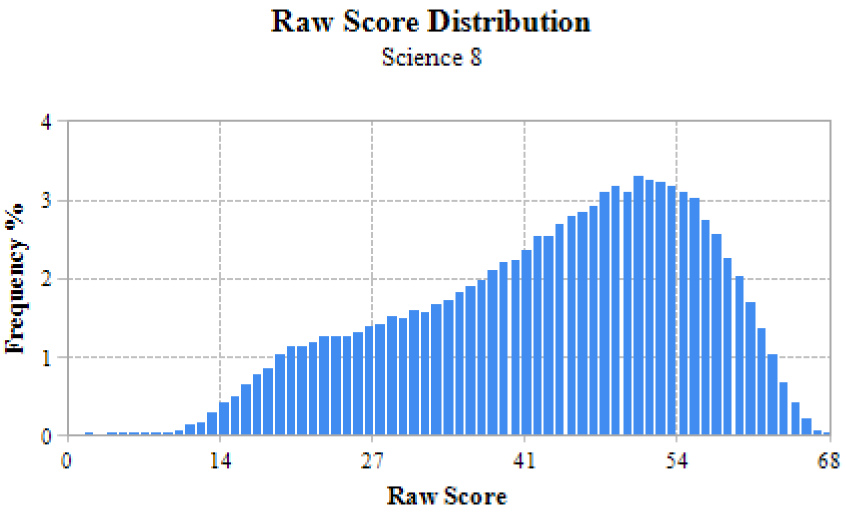

Raw Score Distribution
Reading 6
Frequency %
0
1
2
3
4
5
6
0
10
21
31
42
52
Raw Score

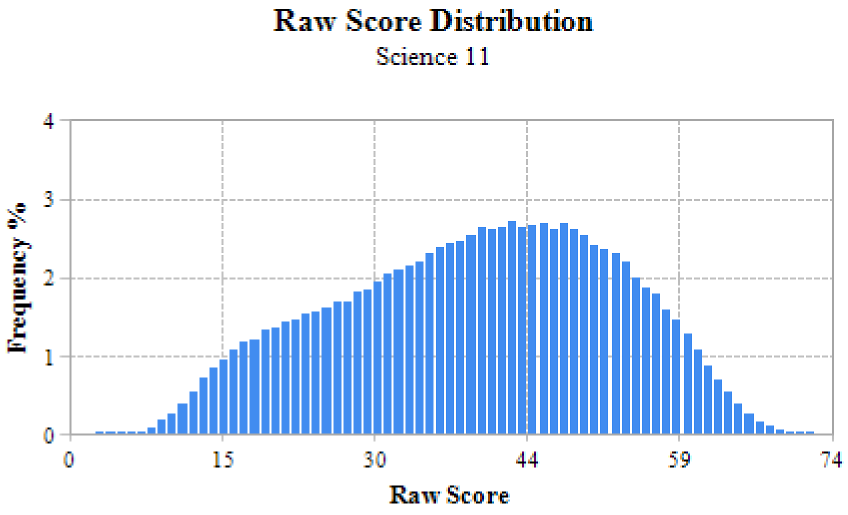

Raw Score Distribution
Reading 7
Frequency %
0
1
2
3
4
5
6
0
10
21
31
42
52
Raw Score

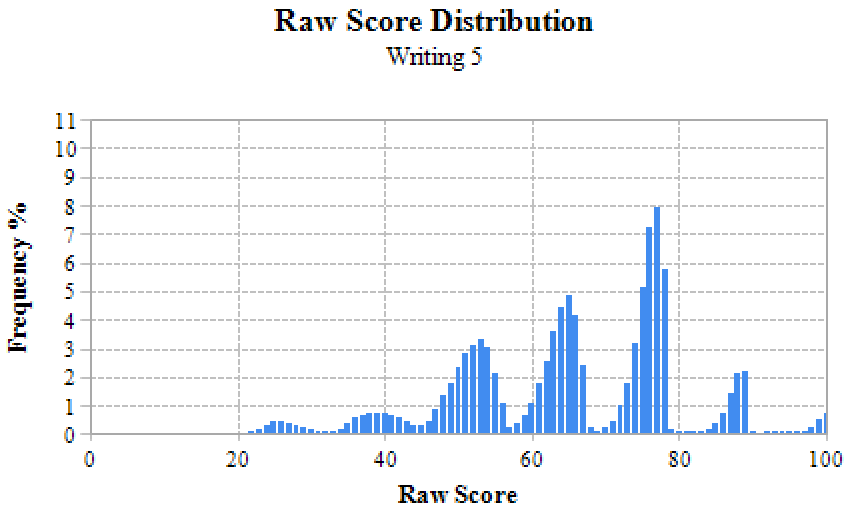

Raw Score Distribution
Reading 8
Frequency %
0
1
2
3
4
5
6
0
10
21
31
42
52
Raw Score

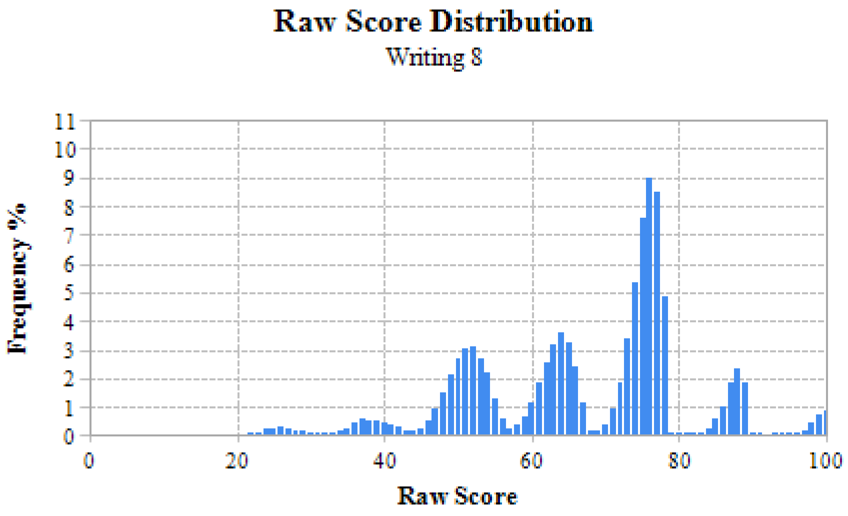

Raw Score Distribution
Reading 11
Frequency %
0
1
2
3
4
5
6
0
10
21
31
42
52
Raw Score

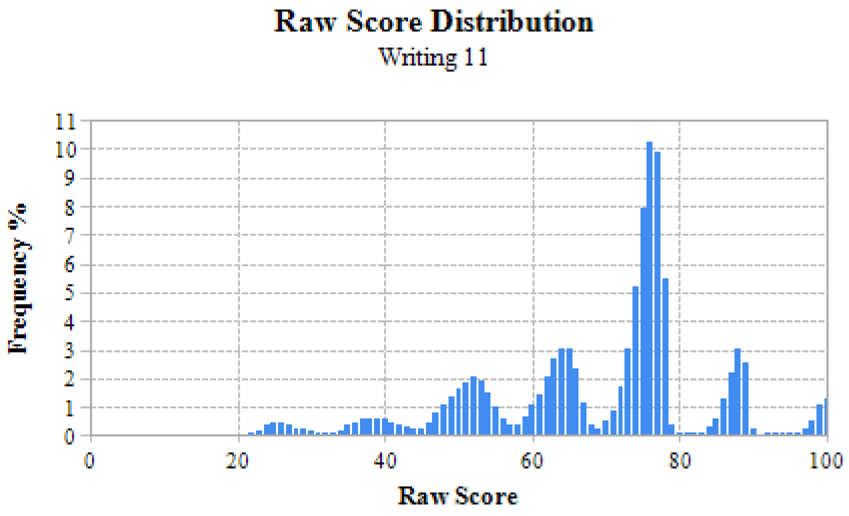

Raw Score Distribution
Science 4
Frequency %
0
1
2
3
4
0
14
27
41
54
68
Raw Score


Raw Score Distribution
Science 8
Frequency %
0
1
2
3
4
0
14
27
41
54
68
Raw Score


Raw Score Distribution
Science 11


Raw Score Distribution
Writing 5


Raw Score Distribution
Writing 8


Raw Score Distribution
Writing 11

Chapter Eighteen: Reliability

This chapter[19] addresses the reliability of PSSA 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 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 is 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 *Standard's* 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 Nineteen.

Another noteworthy issue is that multiple sources of error exist (e.g., the day of testing, the items used, the raters who score the items). 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 important, 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 respective to their test performances are 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 cuts cores are used), then absolute error is too. Generally, there is more error variance when considering the absolute scores of examinees, which in turn suggests lower reliability.

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[19] Please note that some of the material in this chapter is technical in nature.

As suggested, 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
- Rater agreement

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) the variance in true scores, and 2) the variance due to the imperfections in the measurement process. Put differently, total variance equals true score variance plus error variance.[20]

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

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 variances were true, the index would equal 1.0. The index will be 0.0 if none of the test score variances were true. Such scores would be pure random noise (i.e., all measurement error). If the index achieved 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 because 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, for example, variations due to random errors associated with the linking process, day-to-day variations (student health, testing environment, etc.), and rater inconsistency.

COEFFICIENT ALPHA

Although a number of reliability indices exist, perhaps the one most frequently reported for achievement tests is Coefficient Alpha. Consequently, this index is the one reported for the PSSA. Alpha indicates the internal consistency over the responses to a set of items measuring an underlying trait–in this case, academic achievement in subject areas such as mathematics, reading, and science. (The approach taken for writing is slightly different and is described later in this chapter.)

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

Alpha 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 achievement 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 18–1. 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 and the correlation between the scores could be obtained, then that result 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 Coefficient Alpha index for those test scores was high, then this would suggest that Test Two would provide a very similar rank ordering of the students if they had taken it instead. If Coefficient Alpha was low, dissimilar rank orderings would likely be observed—again, relative-error variance is reflected in Alpha. (It should also be noted that Coefficient Alpha is algebraically identical to a *Person* × *Item* design under Generalizability Theory when relative error variance is assumed.)

Formula

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

Table 18–2. Person × Item Score (X_{pi}) Infinite (Population-Universe) Matrix

	Item			
Person	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*

Notes. Adapted from Cronbach and Shavelson (2004).

Then, a general computational formula for Coefficient 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.

FURTHER INTERPRETATIONS

Rules of Thumb

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. Another approach is to research the reliabilities from similar testing instruments to see what values are commonly observed. For the PSSA, comparisons to tests of similar lengths that were administered to similar student populations from other large-scale assessment programs would be relevant. For many other state assessment programs, reliabilities in the low 0.90s are usually the highest ever 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 above, 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 suggest that there is as much error variance as true-score variance in the scores.

Is Alpha a Lower Limit to Reliability?

According to Brennan (1998), “the conventional wisdom that Coefficient Alpha is a lower limit to reliability is based largely on a misunderstanding.” In reflecting on the 50th anniversary of his seminal 1951 article, Cronbach—in Cronbach and Shavelson (2004)—expressed similar misgivings about this conventional wisdom:

> one could argue that alpha was almost an unbiased estimate of the desired reliability ….the almost in the preceding sentence refers to a small mathematical detail that causes the alpha coefficient to run a trifle lower than the desired value. This detail is of no consequence and does not support the statement made frequently in textbooks or in articles that alpha is a lower value to the reliability coefficient. That statement is justified by reasoning that starts with the definition of the desired coefficient as the expected consistency among measurements that had a higher degree of parallelism than the random parallel concept implied.

The assumptions for three common parallelism models are presented in Table 18–3. Alpha’s assumptions come from the Essentially Tau-Equivalent model, which does not require equal means or equal variances across test parts. Based on this, Brennan (1998) asserts that the lower-limit issue, as conceptualized by many, provides an answer to a question that is of minimal importance. Reframed differently, the goal of selecting a reliability coefficient is not to find the one that provides the highest coefficient, but the one that most accurately reflects the test data under study.

It is important to note that there are factors encountered in practice that may legitimately make Coefficient Alpha an underestimate of reliability. However, there are also factors that might make Coefficient Alpha an overestimate of reliability. Both possibilities are discussed further below and generally arise when the Essentially Tau-Equivalent assumptions are strained.

Table 18–3. Summary of Expectations/Observable Relationships for Different Parallelism Models

	Degree of Measurement Parallelism*		
Relationship	Classically Parallel	Essentially Tau-Equivalent	Congeneric
Content Similarity	Yes	Yes	Yes
Equal Means across Parts	Yes	No	No
Equal Variances across Parts	Yes	No	No
Equal Covariances across Parts	Yes	Yes	No
Equal Covariances with Other Variables	Yes	Yes	No

*Other models exist, but are not considered here due to their limited application in practice.

Biases That Might Make Alpha an Underestimate of Reliability

There are factors that might negatively bias Coefficent Alpha, making the apparent reliability lower than it may actually be. Two situations frequently encountered in practice that might cause this include tests that are composed of mixed item types (e.g., multiple-choice (MC), open-ended (OE) items) and tests that include a planned stratification of the test items according to topics or subdomains.

Although both situations strictly violate the assumptions on which Coefficient Alpha is derived (i.e., the tests are not based on equal part lengths in the former case and are not randomly parallel in the latter case), neither situation necessarily guarantees that the reliability will be markedly lower. In the latter case, reliability will be underestimated only when strand items are homogeneous enough for the average covariance within strata to exceed the average covariance between strata. Although both are potential influences for the PSSAs, most of the total test score reliabilities reported in Appendix K are all close to or above 0.90, indicating highly consistent test scores for these instruments. Writing is an exception discussed further below.

Biases That Might Make Alpha an Overestimate of Reliability

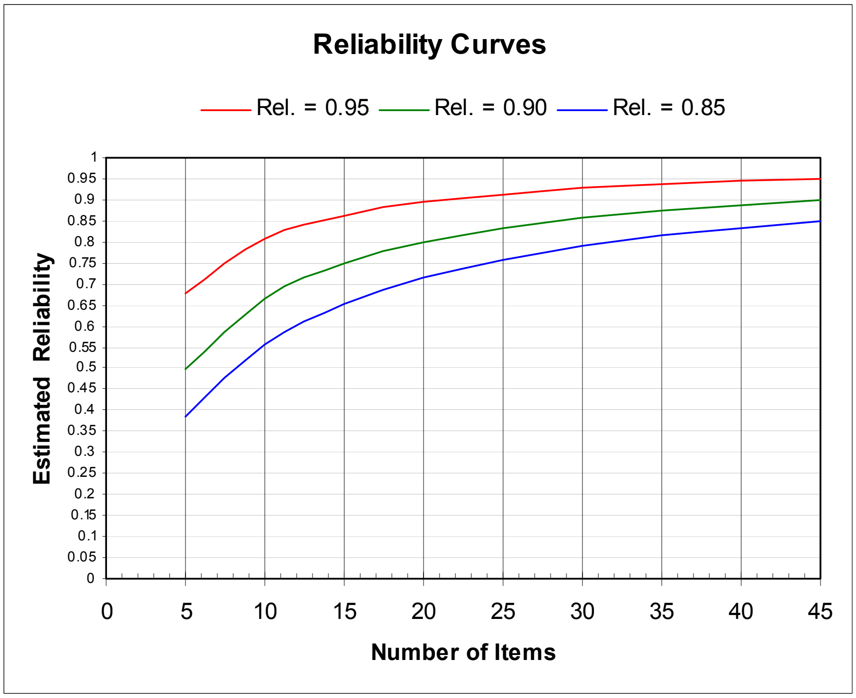
As emphasized in earlier sections, Coefficient Alpha only takes into account measurement error that arises from the selection of items used on a particular test form. There are other sources of random inaccuracy. One is due to the occasion of testing. Other various random conditions that might affect students on particular testing occasions include illness, fatigue, and anxiety. Also, when a test includes OE items, as the PSSA does, another source that can cause random fluctuation is the OE item scorers. In a sense, Alpha may be positively biased because it does not take into account these other important sources of random error. Any internal consistency reliability index could understate the overall problem of measurement error because it ignores such sources or random error.

Another positive bias can occur when items are associated (clustered) with a common stimulus. Item bundles and testlets are other frequently used terms for this situation. One concrete example is when multiple reading-comprehension items are associated with a common passage selection. Again, such a situation does not guarantee that the reliability estimate will be markedly affected, but the potential exists.

Strand Scores

As noted in the introduction, reliabilities tend to go up in value as test length increases and go down in value as test length decreases. Figure 18–1 illustrates this relationship for a hypothetical 45-point 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 strand would be expected to have a score reliability of just over 0.65. The use of the Spearman-Brown prophecy formula assumes all items are exchangeable, which in practice they may not be. While such a chart may not perfectly model actual strand correlations, the intent is only to illustrate the substantial impact that limited numbers of strand items can have on strand-score reliability. One should not be surprised that strand scores with more points tend to show higher reliability coefficients, and those with fewer points tend to show lower reliability coefficients. Further, what is most important for PSSA users to note is that some strand score reliabilities may be too low to warrant interpretation at the individual student level.

Figure 18–1. Example of the Relationship between Test Length and Reliability



Note. Tabled values derived using the Spearman-Brown formula.

Individual-Level versus Group-Level Scores

The results presented in this chapter pertain to the reliability of individual scores. Group results (e.g., state and district levels) are also provided on PSSA score reports, but the reliability of those scores is not specifically calculated here. However, as a general rule, the reliabilities of group mean scores are almost always higher (sometimes substantially) than the corresponding reliabilities for individual scores. This is especially important to remember for strand scores because those scores can be quite reliable at the group level, even though their individual reliabilities may be too low. Because the reliability of group mean scores (e.g., school means, district means) tends to be higher than that of individual scores, the interpretation of strand scores at these aggregate levels is likely very reasonable in most instances. Even though the reliability for means scores based on only a few items might be adequate, the validity of those same scores might be suspect because use of only a few items may not adequately cover the construct of interest. Validity is further discussed in Chapter Nineteen.

RELIABILITY OF WRITING SCORES

An extension of Coefficient Alpha that was derived to specifically fit stratified parallel tests (sometimes called stratified alpha) was used to compute the PSSA writing score reliabilities (Cronbach, Schonemann, & McKie, 1965). This approach is often used when it is believed that Alpha may be yielding a lower coefficient than it should for the reasons noted above. Although originally developed for content-stratified tests, Qualls (1995) demonstrated its utility for mixed-format tests as well when the stratification is based on item type. It may be computed as

$${}_{strat\alpha}\rho_{xx'} = 1 - \frac{\Sigma\sigma^2_{x_h}(1 - {}_{\alpha}\rho_{x_h x_{h'}})}{\sigma^2_x},$$

where *h* indexes the individual strata.

The reliability of writing assessments (and many other performance-based tests) tends to be lower than reliabilities for other tests. Part of the reason for this is that there tends to be large student-by-task interactions on such assessments. For writing, this means individual student performance fluctuates significantly across different writing prompts; a student may score high on one prompt but much lower on another. In principle, adding more prompts can improve reliability to a more acceptable level. However, this is challenging in practice because of costs, testing time, and student fatigue. In sum, the large student-by-task interaction combined with the limited number of tasks often results in a relatively low reliability for writing assessments.

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 for the scores obtained by individual examinees. This is particularly so for Conditional SEMs (CSEM) which are 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,[21] 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 and the sampling of test items. The standard error is defined as the standard deviation[22] 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.

The SEM formula is provided below:

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

This formula 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. Consider that an SEM of 3 on a 10-point test would be very different than an SEM of 3 on a 100-point test.

Traditional Standard Error of Measurement 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 test 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.[23] For +/−2 SEM confidence intervals, this increases to about 95 percent.

Further Interpretations

ONE STANDARD ERROR OF MEASUREMENT 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 a student's score. Consequently, care should be taken using the SEM for students with extreme scores. (In the next sections, an alternate approach is described that conditions the SEM on a student's score estimate.)

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[21] True score is the score the person would receive if the measurement process were perfect.

[22] 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.

[23] 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.

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.

RAW SCORE METRIC

The SEM approach is calculated using raw scores, and as such, the resulting confidence interval bands are on the raw score metric. Error bands on the scaled-score metric are considered in the next section.

TYPE OF ERROR REFLECTED

The interpretation of the SEM should be driven by the type of score reliability that underpins it. So, the PSSA 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 is that a confidence interval represents the possible score range 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 or may be sick or did not get 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 PSSAs. 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 (if an infinite number of tests with equivalent content were taken, the student's true score will lie within the constructed confidence intervals 68 percent of the time). As an example, if the PSSA score was 1750 and the SEM band was 1700 to 1800, then a student would be likely to receive a score somewhere between 1700 and 1800 if a different version of the test had been taken.

RESULTS AND OBSERVATIONS

Coefficient Alpha results and associated (traditional) SEMs for various PSSA scores are documented in Table 18–4 and Appendix K. Values were derived using the PSSA final data file (see Chapter Nine). The results are organized by subject area and grade. Each table in Appendix K also breaks out the various reporting strands and groups of interest (i.e., the total student population, gender and ethnic groups, English language learners (ELL), students with individualized education plan (IEP), and the economically disadvantaged (ED)). The statistics reported in Appendix K include the number of points possible (Pts.), number of items (Len.), number of students tested (N), mean number of score points received (Mean), standard deviation of test scores (SD), reliability (r), traditional standard error of measurement (SEM), and item types (Items) used to determine each score.

Table 18–4. Reliabilities and Standard Errors of Measurement

	Grade	r	*SEM*		Grade	r	*SEM*
Mathematics	3	0.93	3.1	**Reading**	3	0.91	2.7
	4	0.93	3.6		4	0.90	3.0
	5	0.93	3.5		5	0.90	2.9
	6	0.93	3.5		6	0.91	2.9
	7	0.93	3.6		7	0.89	2.9
	8	0.94	3.6		8	0.90	2.9
	11	0.94	3.7		11	0.88	2.9
Science	4	0.92	3.5	**Writing**	5	0.79	6.9
	8	0.92	3.6		8	0.82	6.1
	11	0.92	3.8		11	0.83	6.4

Note that these tables in Appendix K report the standard deviations of observed scores. Assuming normally distributed scores, one would expect about two-thirds of the observations to be within one standard deviation of the mean. An estimate of the standard deviation of the true scores can be computed as

$$\hat{\sigma}_T = \sqrt{\hat{\sigma}_X^2 - \hat{\sigma}_X^2(1-\hat{\rho}_{XX})}\ .$$

The results are historically consistent with past PSSA reliability results. The overall test score reliability values are excellent, with many in the low 0.90s, for mathematics, reading, and science. Writing reliabilities are lower, as they have been historically. (Possible reasons for this were discussed earlier.) It was also noted that reliabilities tend to go up in value with an increase in test length and population heterogeneity and go down in value with a decrease in test length and more homogeneous populations. Across the grades and subjects tabled in Appendix K, reliabilities for the sub-strands tended to follow these same trends. That is, strands with more items tended to show higher reliability coefficients. Also, groups exhibiting more variability in test scores tended to have higher reliability coefficients. Perhaps the most significant result pertains to an earlier caution (i.e., that some strand score reliabilities may be too low to warrant interpretation at the individual student level). Once again, there is no firm guideline regarding how low is too low. The lower a given reliability coefficient, the greater the potential for over-interpretation. As a point of reference, a reliability coefficient of 0.50 would suggest that there is as much error variance as true-score variance in the scores. It should be noted that the reliability of group mean scores (e.g., school means, district means) tends to be higher than that of individual scores, suggesting interpretation of strand scores at these aggregate levels is likely reasonable.

RASCH CONDITIONAL STANDARD ERROR OF MEASUREMENT

The CSEM also indicates the degree of measurement error, but does so in scaled-score units and varies as a function of a student’s actual scaled 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:

$$CSEM(\hat{\theta}) = \frac{1}{\sqrt{I(\hat{\theta})}},$$

where $CSEM(\hat{\theta})$ is the conditional standard error of measurement and $I(\hat{\theta})$ is the 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 (θ) metric. The conditional standard error on the scaled-score (SS) metric is determined by simply multiplying the $CSEM(\hat{\theta})$ by the slope (multiplicative constant, *m*) of the linear transformation equation used to convert the Rasch ability estimates to scaled scores:

$$\text{CSEM(SS)} = CSEM\left(\hat{\theta}\right) * m.$$

Chapter Fourteen provides the linear transformation formulas for each PSSA test.

Rasch Conditional Standard Error of Measurement Confidence Intervals

CSEMs also allow statements regarding the precision of individual tests scores. And like SEMs, they help place reasonable limits around observed scaled 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 CONDITIONAL STANDARD ERROR OF MEASUREMENT FOR DIFFERENT TEST SCORES

The CSEM approach provides different numerical estimates for constructing the confidence intervals for examinees depending on their specific score level. The magnitude of the CSEM values is U-shaped with larger CSEM values associated with lower and higher scores.

GROUP SPECIFIC

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

SCALED SCORE METRIC

The CSEM and associated confidence interval bands are on the scaled score metric.

TYPE OF ERROR REFLECTED

The SEMs documented on the PSSA score reports are the Rasch-based CSEMs described above. These are provided by the WINSTEPS scaling program described in Chapter Twelve. As noted earlier, these CSEMs are based on the concept of statistical information. For the purpose of providing a simpler explanation of SEMs to test score users, the earlier description of SEMs framed using the idea of internal consistency reliability was provided in the PSSA score report interpretive documents.[24] Score report content is considered in greater detail in Chapter Sixteen.

RESULTS AND OBSERVATIONS

Figure 18–2 shows the Rasch CSEMs associated with each scaled score level. (This information is also provided in tabular form in Appendix N.) Values were derived using the calibration data file described in Chapter Nine. The values are fairly consistent across a noticeably large range of the scaled scores, as demonstrated by the relatively flat bottoms of most plots. The values increase at both extremes (i.e., at smaller and larger scaled scores), giving these figures their typical U-shaped pattern. (Only the SEMs for scores greater than the lowest observable scaled scores [LOSS] are shown in the figures; consequently, the complete U-shape does not appear in most plots.) The three red-dashed lines represent the Basic, Proficient, and Advanced scaled-score cuts, respectively, moving from lower to higher scaled-score values. SEM values at the cut score lines were generally associated with smaller SEM values, indicating that more precise measurement occurs at these cuts. The plots for writing are somewhat irregular in shape, which is likely due to the differential weighting that occurs for portions of these tests.

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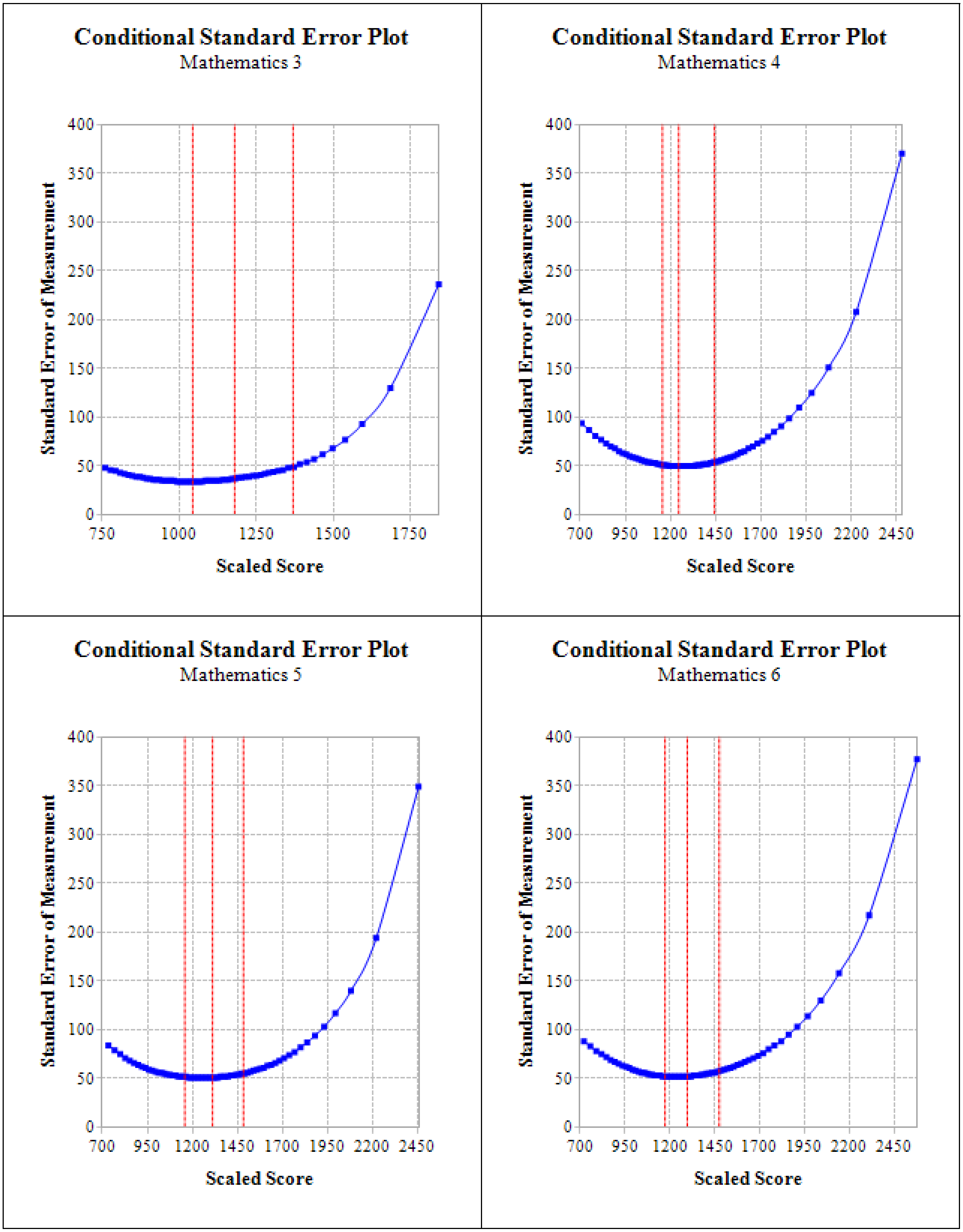
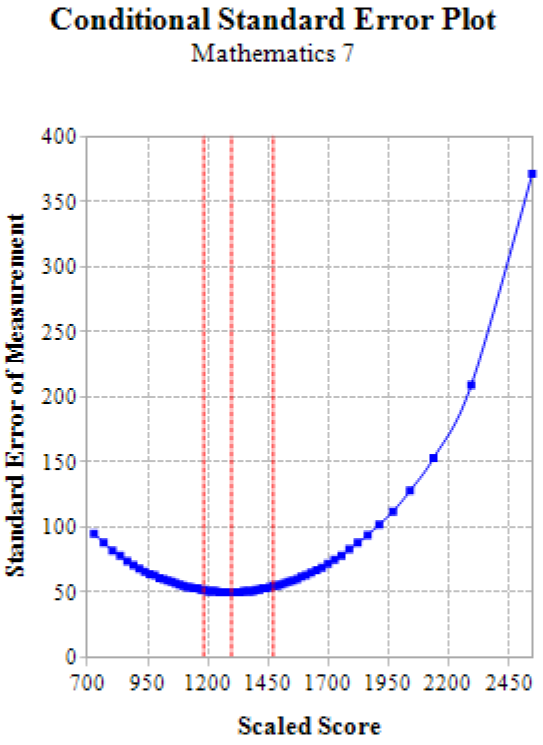
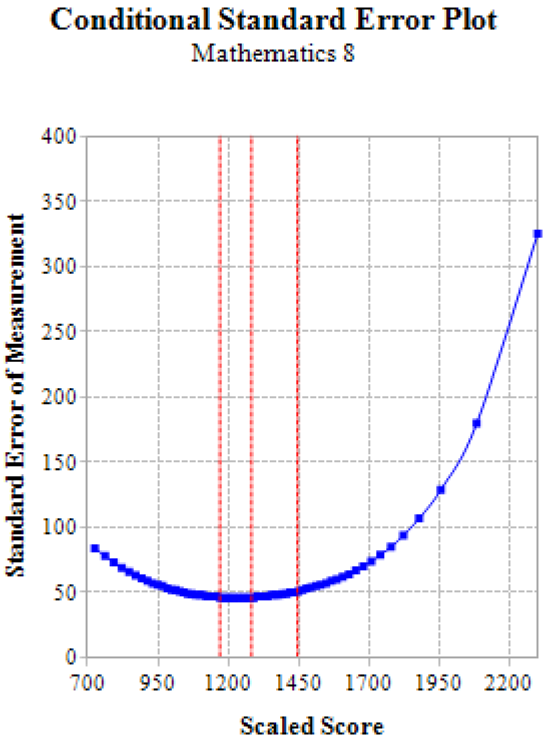
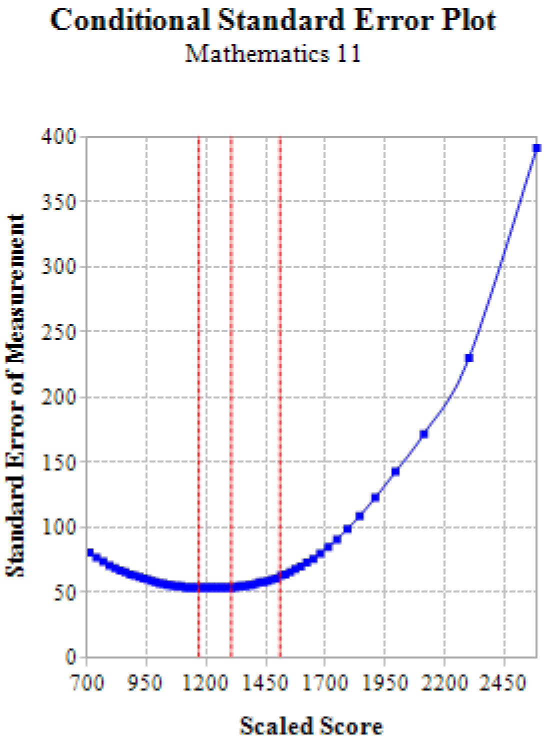
[24] Because IRT CSEMs are based on statistical information, it is questionable whether they account for error variance due to items. However, it seems difficult to construct a simple explanation of IRT CSEMs for the general public.

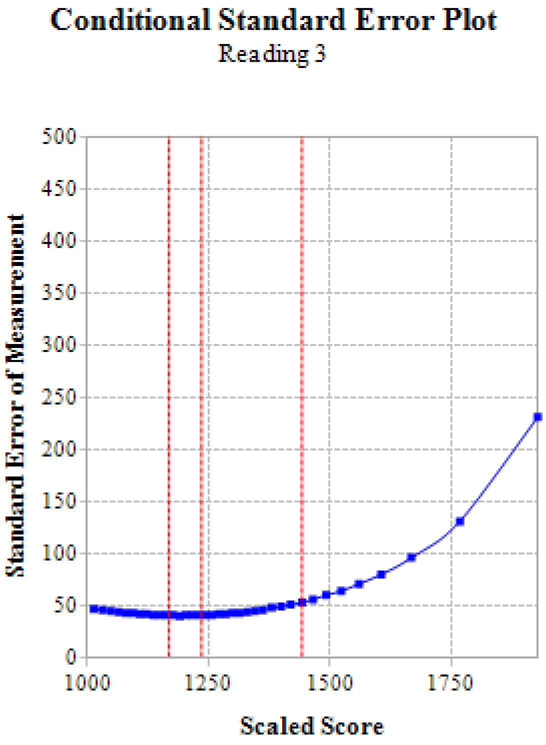
Figure 18–2. Conditional Standard Error Plots for Each Grade and Subject

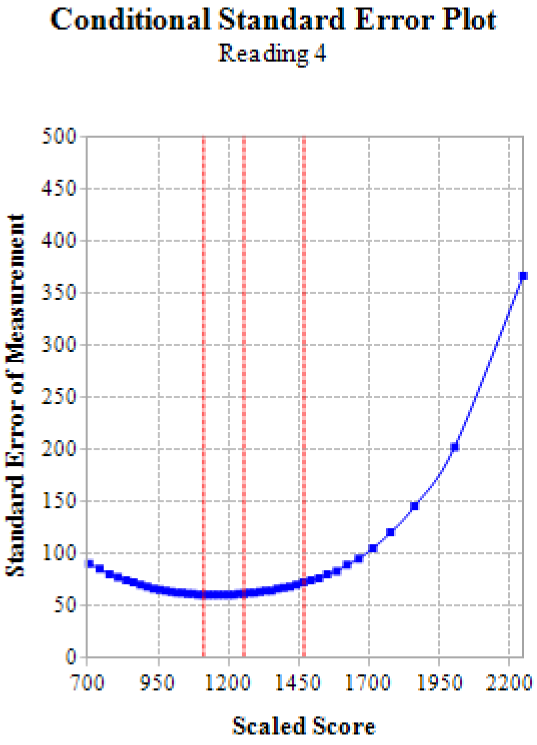


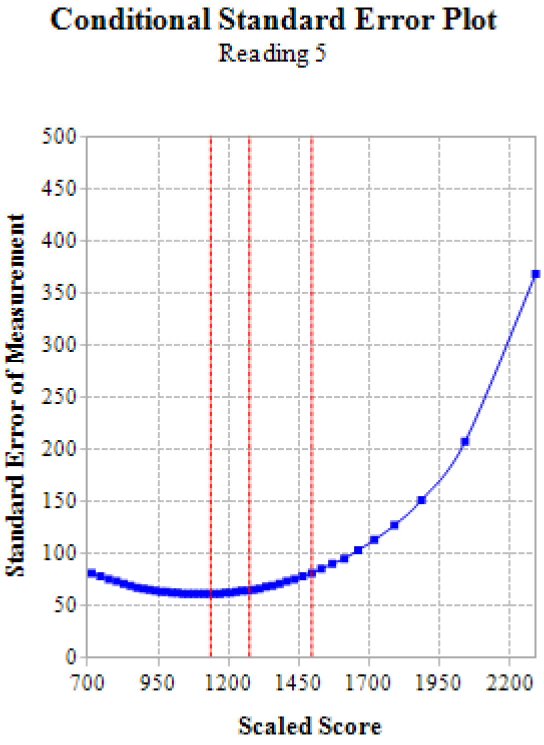

Conditional Standard Error Plot
Mathematics 7


Conditional Standard Error Plot
Mathematics 8


Conditional Standard Error Plot
Mathematics 11


Conditional Standard Error Plot
Reading 3


Conditional Standard Error Plot
Reading 4
Standard Error of Measurement
500
450
400
350
300
250
200
150
100
50
0
700
950
1200
1450
1700
1950
2200
Scaled Score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Standard Error of Measurement
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50
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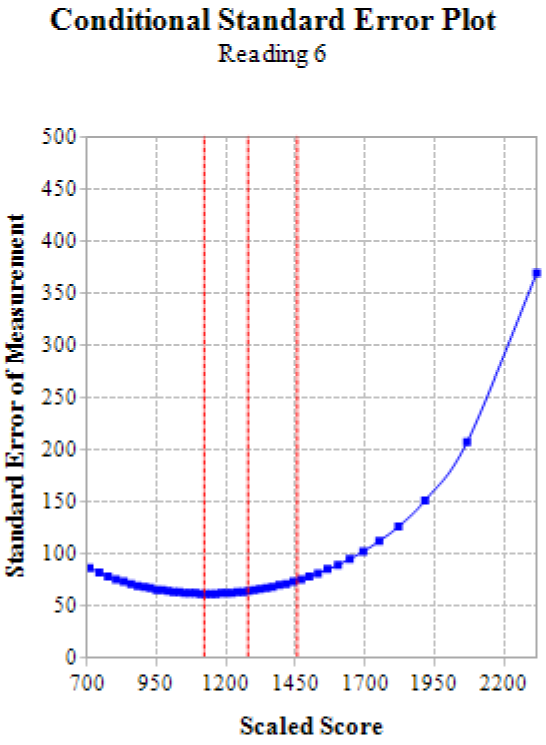
1450
1700
1950
2200
Scaled Score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Reading 6
Standard Error of Measurement
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450
400
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300
250
200
150
100
50
0
700
950
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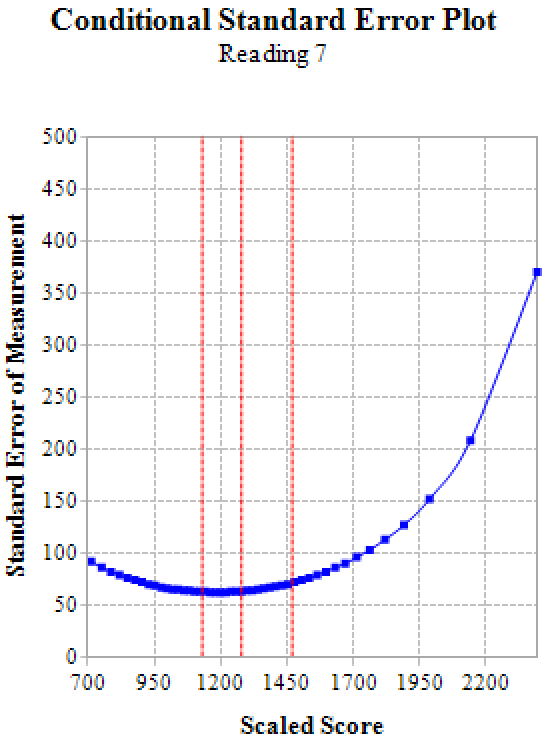
1450
1700
1950
2200
Scaled Score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Reading 7
Standard Error of Measurement
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450
400
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300
250
200
150
100
50
0
700
950
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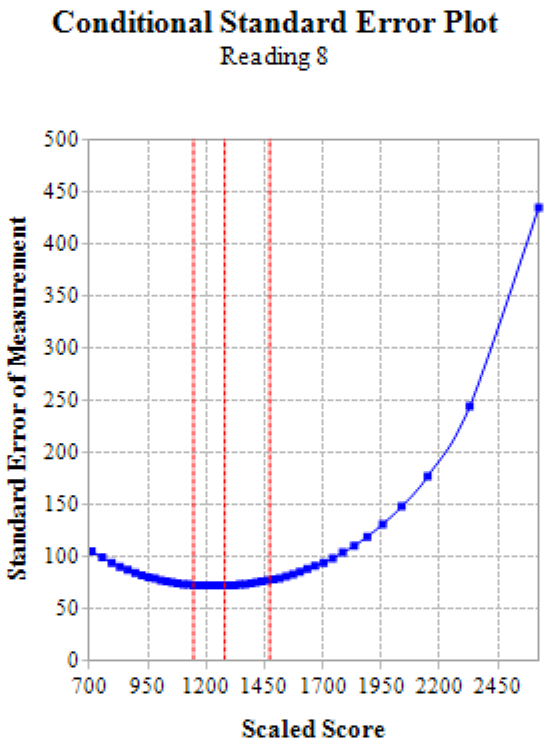
1450
1700
1950
2200
Scaled Score


Conditional Standard Error Plot
Reading 8
Standard Error of Measurement
500
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300
250
200
150
100
50
0
700
950
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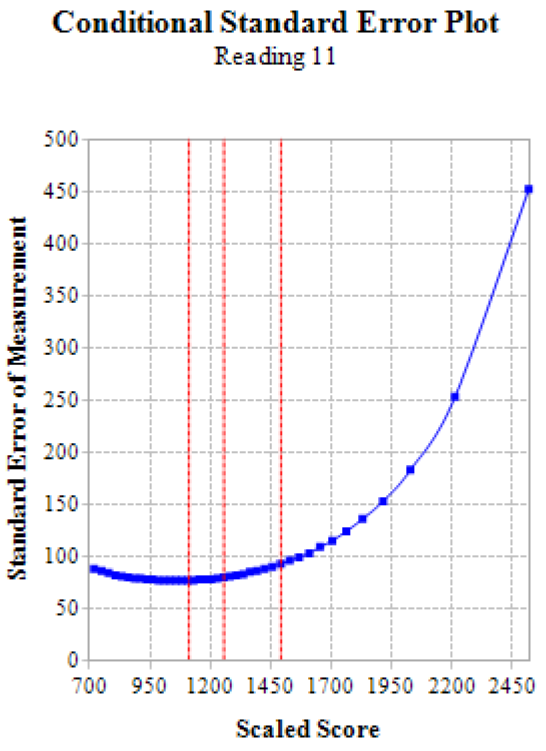
1700
1950
2200
2450
Scaled Score


Conditional Standard Error Plot
Reading 11
Standard Error of Measurement
500
450
400
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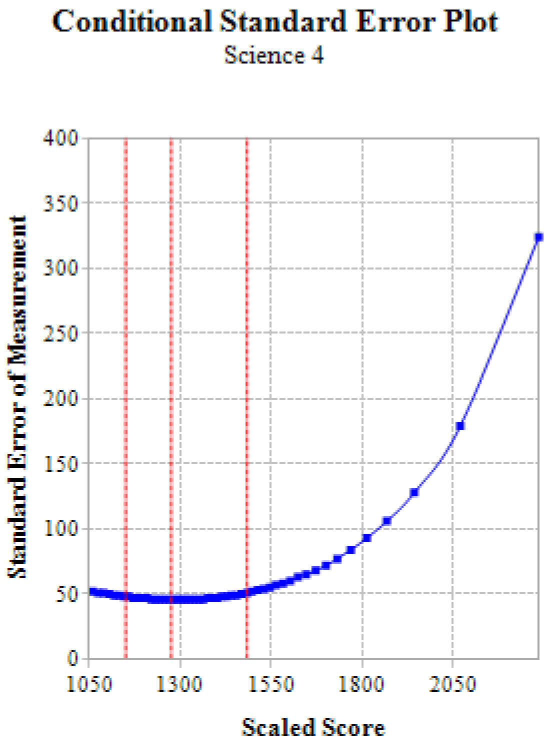
300
250
200
150
100
50
0
700
950
1200
1450
1700
1950
2200
2450
Scaled Score


Conditional Standard Error Plot
Science 4
Standard Error of Measurement
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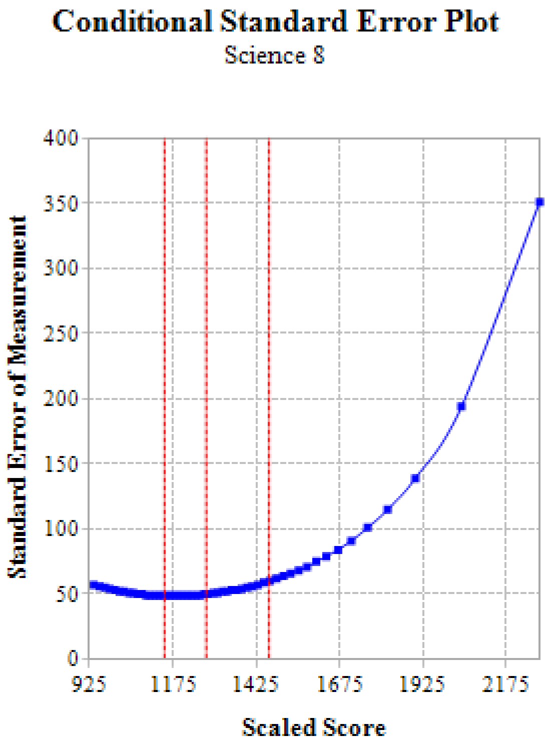
350
300
250
200
150
100
50
0
1050
1300
1550
1800
2050
Scaled Score


Conditional Standard Error Plot
Science 8
Standard Error of Measurement
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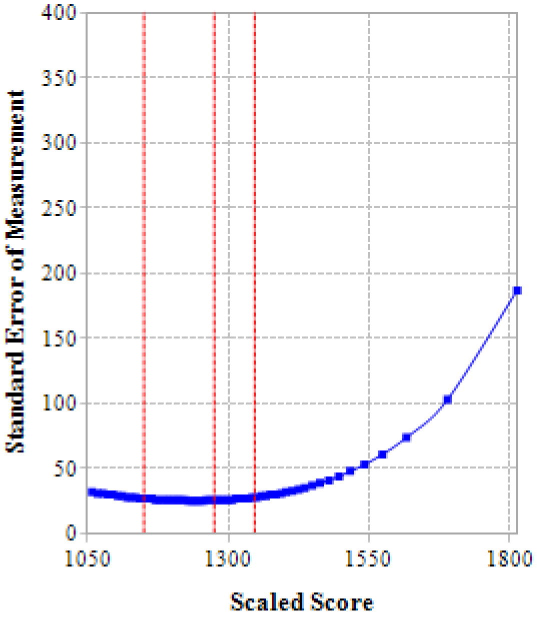
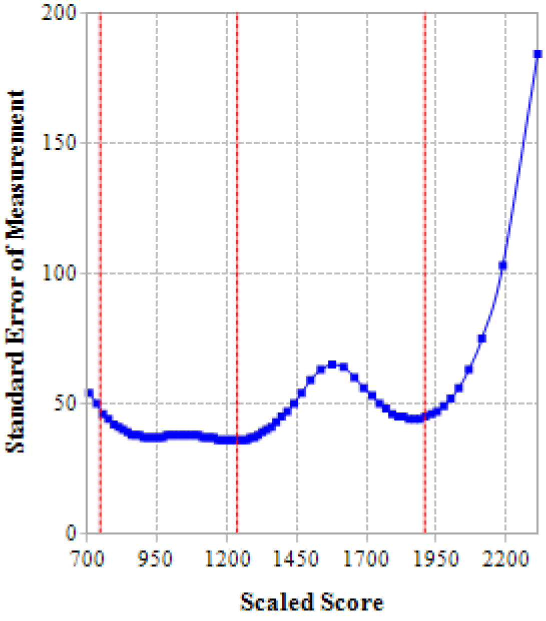
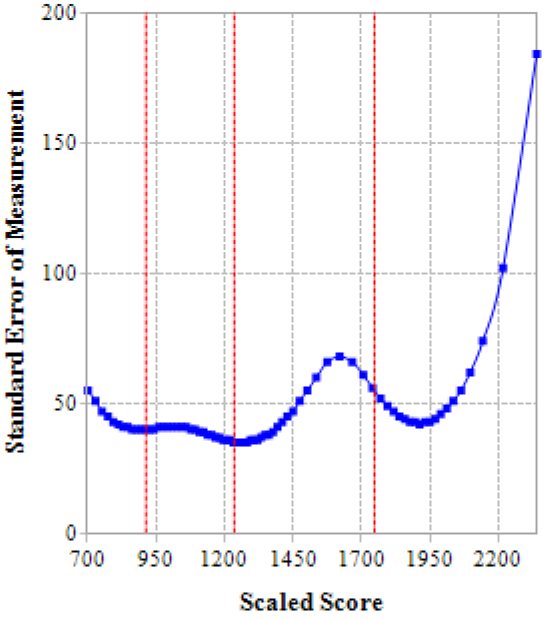
300
250
200
150
100
50
0
925
1175
1425
1675
1925
2175
Scaled Score



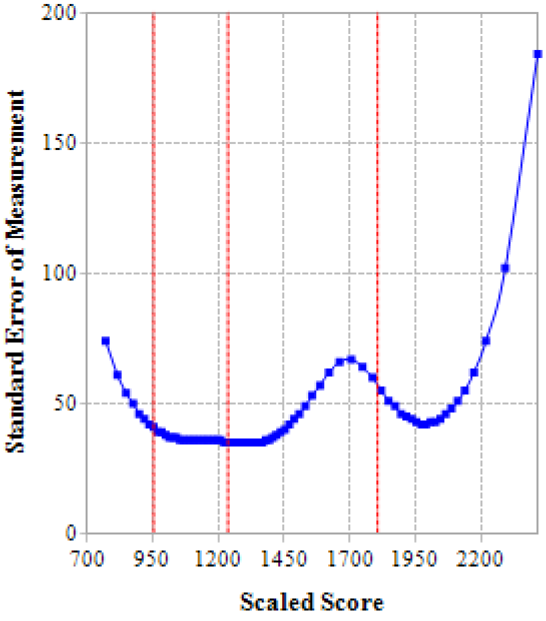
Conditional Standard Error Plot
Science 11



Conditional Standard Error Plot
Writing 5



Conditional Standard Error Plot
Writing 8



Conditional Standard Error Plot
Writing 11

DECISION CONSISTENCY AND ACCURACY

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

Classification consistency refers to the degree to which the achievement level for each student can be replicated upon retesting using an equivalent form (Huynh, 1976). Decision consistency answers the following 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, the consistency of the measure would be reflected by the extent that the classification decisions made from the first set of test scores matched the decisions based on the second set of test scores. Consider Tables 18–5 and 18–6 below:

Table 18–5. Pseudo-Decision Table for Two Hypothetical Categories

		Test One		
		Level I	**Level II**	**Marginal**
Test Two	**Level I**	φ11	φ12	φ1●
	Level II	φ21	φ22	φ2●
	Marginal	φ●1	φ●2	1

Table 18–6. Pseudo-Decision Table for Four Hypothetical Categories

		Test One				
		Level I	**Level II**	**Level III**	**Level IV**	**Marginal**
Test Two	**Level I**	φ11	φ12	φ13	φ14	φ1●
	Level II	φ21	φ22	φ23	φ24	φ2●
	Level III	φ31	φ32	φ33	φ34	φ3●
	Level IV	φ41	φ42	φ43	φ44	φ4●
	Marginal	φ●1	φ●2	φ●3	φ●4	1

If a student is classified as being in one category based on Test One's score, how probable would it be that the student would be reclassified as being 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 two and four categories are computed by the following two formulas, respectively:

$$\varphi = \varphi_{11} + \varphi_{22}$$

$$\varphi = \varphi_{11} + \varphi_{22} + \varphi_{33} + \varphi_{44}$$

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

Classification accuracy refers to the agreement of the observed classifications of students with the classifications made on the basis of their true scores. An observed score contains measurement error while a true score is free of measurement error. A student's observed score can be formulated by the sum of his or her true score plus measurement error, or $Observed = True + Error$. Decision accuracy is an index to determine the extent to which measurement error causes a classification different than expected from the true score.

Since true scores are unobserved and since it is not feasible to repeat PSSA testing 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 to estimate the true scores and to project the consistency and accuracy of classifications solely using data from the available administration (Hambleton & Novick, 1973). Although a number of procedures are available, one well-known method was developed by Livingston and Lewis (1995), which utilizes a specific True Score Model. This approach is fairly complex, and the cited source contains details regarding the statistical model used to calculate decision consistency and accuracy from the single PSSA administration.

Further Interpretations

Several factors might affect decision consistency and accuracy. One important factor is the reliability of the scores. All other things being equal, more reliable test scores tend to result in more similar reclassifications and less measurement error. Another factor is the location of the cut score in the score distribution. More consistent and accurate classifications are observed when the cut scores are located away from the mass of the score distribution. For example, when scores are close to being normally distributed, the mass is concentrated in the middle of the distribution, and thus classifications tend to become more consistent when cut scores go up from 70 percent to 80 percent to 90 percent or, alternatively, go down from 30 percent to 20 percent to 10 percent. The number of performance levels is also a consideration. Consistency and accuracy indices for four performance levels should be lower than those based on two categories. This is not surprising since classification and accuracy using four levels would allow more opportunity to change achievement levels. Hence, there would be more classification errors and less accuracy with four achievement levels, resulting in lower consistency indices.

RESULTS AND OBSERVATIONS

The results for the overall consistency across all four performance levels as well as for the dichotomies created by the three cut scores are presented in Table 18–7. The tabled values were derived using the program *BB-Class* (Brennan, 2004) and the Livingston and Lewis method. Across all subject areas, the overall decision consistency ranged from the low 0.60s to the high 0.70s while the decision accuracy ranged from the low 0.70s to the mid 0.80s. The overall consistency and accuracy in reading was slightly lower than the other subject areas on average. It should be noted that consistency and accuracy indices for the four performance levels should be lower than those based on two categories (discussed above).

Dichotomous decisions using the Basic cuts generally have the highest consistency and accuracy values, and exceeded 0.90 in all cases. The next highest values, on average, are associated with the Proficient and Advanced cuts for mathematics and reading, respectively. In writing, the latter two are reversed, while in science the results are about even.

Table 18–7. Decision Consistency and Accuracy Results

	Grade	Statistic	Overall	BBas/Bas	Bas/Prof	Prof/Adv
Mathematics	**3**	Consist.	0.77	0.97	0.93	0.87
		Accuracy	0.84	0.98	0.95	0.91
	4	Consist.	0.78	0.95	0.93	0.89
		Accuracy	0.84	0.97	0.95	0.92
	5	Consist.	0.76	0.95	0.91	0.89
		Accuracy	0.83	0.96	0.94	0.92
	6	Consist.	0.77	0.95	0.92	0.89
		Accuracy	0.83	0.97	0.94	0.92
	7	Consist.	0.78	0.95	0.93	0.90
		Accuracy	0.84	0.97	0.95	0.93
	8	Consist.	0.77	0.95	0.92	0.89
		Accuracy	0.84	0.96	0.95	0.92
	11	Consist.	0.74	0.92	0.90	0.90
		Accuracy	0.81	0.94	0.93	0.93
Reading	**3**	Consist.	0.70	0.93	0.91	0.84
		Accuracy	0.78	0.95	0.94	0.88
	4	Consist.	0.69	0.93	0.89	0.86
		Accuracy	0.78	0.95	0.92	0.90
	5	Consist.	0.65	0.92	0.88	0.84
		Accuracy	0.75	0.95	0.91	0.89
	6	Consist.	0.69	0.93	0.89	0.86
		Accuracy	0.78	0.95	0.92	0.90
	7	Consist.	0.70	0.94	0.90	0.85
		Accuracy	0.78	0.96	0.93	0.89
	8	Consist.	0.74	0.95	0.91	0.87
		Accuracy	0.81	0.96	0.94	0.91
	11	Consist.	0.64	0.92	0.88	0.83
		Accuracy	0.73	0.95	0.91	0.88
Science	**4**	Consist.	0.77	0.96	0.93	0.88
		Accuracy	0.84	0.97	0.95	0.91
	8	Consist.	0.70	0.92	0.89	0.88
		Accuracy	0.79	0.94	0.92	0.92
	11	Consist.	0.72	0.92	0.88	0.91
		Accuracy	0.80	0.95	0.92	0.94

Table 18–7 (continued). Decision Consistency and Accuracy Results

	Grade	Statistic	Overall	BBas/Bas	Bas/Prof	Prof/Adv
Writing	**5**	Consist.	0.84	0.76	0.98	0.80
		Accuracy	0.78	0.83	0.99	0.86
	8	Consist.	0.78	0.70	0.97	0.84
		Accuracy	0.70	0.79	0.98	0.89
	11	Consist.	0.81	0.72	0.98	0.90
		Accuracy	0.72	0.81	0.98	0.93

Note. Results derived using PSSA final data file (see Chapter Nine).

RATER AGREEMENT

Because open-ended items are included on the PSSAs, another source of random error is related to the scorers of those items. Frisbie (2005) noted that "test score reliability differs from scorer reliability" and that "the need for one kind of estimate cannot be satisfied by the other." Additionally, the data most easily obtainable that captures this information comes from the "10 percent read behinds" collected during the scoring process (see Chapter Eight for a description). Partly because of the way that this data is obtained and reported (i.e., it is not a ratio of true score variance over observed score variance), the term rater agreement is used here, not rater reliability or inter-rater reliability, as these terms are somewhat misleading (as explained above).

Further Interpretations

For the PSSAs, both within-year and across-year rater consistency are available. As noted earlier, the linking process adjusts for across-year changes (see Chapter Sixteen). As part of the data collected for that process, additional across-year rater consistency data is available for consideration.

RESULTS AND OBSERVATIONS

Within-year rater agreement information is provided in Chapter Eight. This information is reformatted in Tables 18–8 through 18–11 for PSSA mathematics, reading, science, and writing OE items, respectively. In addition, the percentages awarded to each score point are also presented in these tables. As seen from these tables, the inter-rater agreement percentages range from 83 percent to 96 percent for mathematics, 75 percent to 88 percent for reading, 75 percent to 93 percent for science, and 73 percent to 81 percent for writing. Mathematics had validity ranging from 81 percent to 97 percent; reading had validity ranging from 70 percent to 93 percent; and science had validity ranging from 83 percent to 99 percent. (Validity is discussed further in Chapter Eighteen.) The ranges above are similar to prior results for the PSSA.

Across-year data are presented in Tables 18–12 through 18–14 for mathematics, reading, and science. Note that for these subjects, data are only available for the designated OE core anchor items. The number of responses (N), the old score and new score means, and the Pearson correlations are tabled. Mathematics correlations range from the high 0.80s to high 0.90s. Reading correlations range from the low 0.70s to mid 0.80s. Science correlations range from the mid 0.60s to low 0.90s. Correlations for the writing prompt scores are reported in Table 18–15 and range from the mid 0.60s to low 0.70s. The correlation ranges above are similar to prior results for the PSSAs.

Table 18–8. Inter-Rater Agreement and Percentage Awarded for Each Score Point for OE Items—Mathematics

		Inter-Rater Agreement %			Percentage Awarded for Each Score Point %					
Grade	**Item**	**Exact**	**Adjacent**	**Validity**	**0**	**1**	**2**	**3**	**4**	**B/NS**
3	1	94	6	96	10	28	18	24	19	0
	2	87	13	91	5	20	35	18	22	1
	3	96	4	97	1	7	20	24	47	0
4	1	94	6	97	6	12	23	42	15	1
	2	93	7	92	13	15	19	41	8	4
	3	93	7	91	4	9	33	25	28	1
5	1	94	6	97	4	11	56	22	6	1
	2	93	6	97	7	26	26	24	11	5
	3	95	5	97	8	29	26	24	11	1
6	1	94	6	97	4	11	14	54	16	2
	2	85	15	92	9	31	28	24	3	6
	3	87	13	87	13	41	28	11	6	1
7	1	88	12	93	14	32	33	16	3	2
	2	88	12	90	14	11	23	27	17	7
	3	88	11	92	14	9	31	35	9	2
8	1	92	8	95	9	22	13	37	17	2
	2	87	13	95	11	34	25	15	11	5
	3	83	17	81	10	27	26	21	14	2
11	1	90	10	96	31	25	14	13	14	3
	2	93	6	90	15	30	10	35	3	7
	3	93	7	96	22	36	22	14	3	4

Note. B = blank; NS = non-scorable.

Table 18–9. Inter-Rater Agreement and Percentage Awarded for Each Score Point for OE Items—Reading

		Inter-Rater Agreement %			Percentage Awarded for Each Score Point %				
Grade	**Item**	**Exact**	**Adjacent**	**Validity**	**0**	**1**	**2**	**3**	**B/NS**
3	1	82	18	78	6	47	33	3	1
	2	78	22	77	6	41	45	7	1
4	1	86	13	85	5	13	43	37	2
	2	84	15	81	11	21	25	41	2
	3	88	12	82	6	55	17	20	2
	4	84	16	92	4	29	40	25	2
5	1	81	19	78	3	21	55	18	2
	2	83	17	93	2	26	56	13	2
	3	81	19	89	3	22	46	27	2
	4	80	20	87	4	32	44	17	2
6	1	81	19	70	5	42	38	12	3
	2	80	20	79	2	17	60	19	2
	3	81	19	79	3	30	43	22	2
	4	77	23	79	7	24	46	21	2
7	1	75	25	75	3	27	48	20	2
	2	76	24	77	6	21	54	17	2
	3	75	24	71	7	30	44	17	2
	4	78	21	77	11	38	39	9	2
8	1	79	21	87	2	15	55	27	2
	2	80	20	89	3	14	31	49	2
	3	79	21	81	3	16	54	25	2
	4	76	24	82	9	35	45	9	3
11	1	79	21	79	3	21	46	27	3
	2	81	19	86	3	21	56	15	4
	3	81	19	80	4	21	50	21	3
	4	81	19	74	2	15	52	28	3

Note. B = blank; NS = non-scorable.

Table 18–10. Inter-Rater Agreement and Percentage Awarded for Each Score Point for OE Items—Science

		Inter-Rater Agreement %			Percentage Awarded for Each Score Point %			
Grade	**Item**	**Exact**	**Adjacent**	**Validity**	**0**	**1**	**2**	**B/NS**
4	1	89	11	95	21	50	28	1
	2	87	12	95	30	44	24	2
	3	87	13	95	24	26	48	2
	4	93	7	97	7	33	59	1
	5	93	7	94	26	34	39	1
8	1	87	13	96	20	46	32	1
	2	86	14	92	17	63	17	4
	3	86	14	97	33	41	22	3
	4	91	9	97	12	19	67	2
	5	93	7	99	21	17	58	3
11	1	77	23	84	14	44	31	10
	2a	79	18	85	63	16	13	8
	2b	75	25	89	23	45	24	8
	3a	82	18	98	45	32	13	9
	3b	90	9	94	39	35	16	9
	4	90	10	97	31	51	8	10
	5	89	11	95	29	35	28	8
	6	80	20	89	42	29	20	8
	7a	87	13	89	43	36	11	9
	7b	86	14	94	59	24	8	9
	8	78	22	83	40	34	16	10
	9	87	13	95	19	37	31	13

Note. B = blank; NS = non-scorable. For more information regarding validity, see the section on Handscoring Validity Process in Chapter Eight.

Table 18–11. Inter-Rater Agreement and Percentage Awarded for Each Score Point for OE Items—Writing

		Inter-Rater Agreement %		Percentage Awarded for Each Score Point %				
Grade	**Promp**	**Exact**	**Adjacent**	**1**	**2**	**3**	**4**	**NT/NS**
5	1 (Com)	75	25	6	34	52	7	1
	1 (R&E)	73	27	7	34	50	7	1
	2 (Com)	80	20	7	42	45	4	1
	2 (R&E)	79	21	7	42	45	4	1
8	1 (Com)	81	19	4	33	56	6	1
	1 (R&E)	80	20	4	32	56	6	1
	2 (Com)	81	19	5	33	55	6	1
	2 (R&E)	80	20	5	33	54	6	1
11	1 (Com)	81	19	5	24	59	8	3
	1 (R&E)	79	21	6	24	58	9	3
	2 (Com)	81	19	6	27	55	8	4
	2 (R&E)	78	22	6	26	56	9	4

Note. NT = not taken; NS = non-scorable.

Table 18–12. Mathematics Mean Scores and Correlations

Grade	Item ID	N	Prev. Mean	2012 Mean	Corr.
3	1	1000	2.25	2.27	0.96
	2	1000	2.23	2.29	0.91
4	1	1000	2.40	2.39	0.96
	2	999	2.29	2.25	0.94
5	1	1000	2.08	2.08	0.95
	2	1000	2.15	2.14	0.97
6	1	1000	2.59	2.64	0.95
	2	999	1.72	1.71	0.91
7	1	1000	1.81	1.78	0.90
	2	1000	2.24	2.22	0.93
8	1	998	1.79	1.86	0.92
	2	1000	2.08	2.07	0.87
11	1	998	1.55	1.54	0.95
	2	998	1.59	1.55	0.95

Table 18–13. Reading Mean Scores and Correlations

Grade	Item ID	N	Prev. Mean	2012 Mean	Corr.
3	1	1000	1.54	1.52	0.71
4	1	1000	2.10	2.11	0.86
	2	997	1.81	1.87	0.79
5	1	999	1.74	1.74	0.72
	2	999	1.64	1.65	0.78
6	1	1000	1.82	1.90	0.72
	2	999	1.76	1.79	0.77
7	1	998	1.69	1.84	0.73
	2	1000	1.52	1.48	0.72
8	1	998	1.93	1.99	0.78
	2	1000	1.63	1.54	0.73
11	1	999	1.82	1.93	0.76
	2	999	2.00	1.96	0.74

Table 18–14. Science Mean Scores and Correlations

Grade	Item ID	N	Prev. Mean	2012 Mean	Corr.
4	1	1000	1.48	1.46	0.90
	2	1000	1.30	1.33	0.88
8	1	1000	1.11	1.17	0.80
	2	999	1.28	1.31	0.88
11	1	998	0.76	0.72	0.64
	2	999	1.19	1.19	0.82

Table 18–15. Writing Mean Scores and Correlations

Grade	Item ID	N	Prev. Mean	2012 Mean	Corr.
5	1-A	1000	2.61	2.61	0.67
	1-B	1000	2.60	2.59	0.69
	2-A	998	2.65	2.44	0.68
	2-B	998	2.66	2.43	0.66
8	1-A	998	2.69	2.70	0.69
	1-B	998	2.71	2.70	0.68
	2-A	998	2.76	2.63	0.70
	2-B	998	2.82	2.63	0.66
11	1-A	999	2.83	2.78	0.70
	1-B	999	2.85	2.77	0.68
	2-A	1000	2.85	2.67	0.70
	2-B	1000	2.84	2.69	0.67

Chapter Nineteen: 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 Item Response Theory (IRT) 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. This entire technical report describes the technical aspects of the PSSA tests 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, linking, score reporting, and reliability. This chapter summarizes and synthesizes the evidence based on the *Standards'* framework. The purposes and intended uses of PSSA test scores are reviewed first, then each type of validity evidence is addressed in turn.

PURPOSES AND INTENDED USES OF THE PSSA

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 PSSA will be reviewed first. As stated in Chapter One, the three main purposes of the PSSA are the following:

1. Measuring how well students acquire the knowledge and skills described in the *Pennsylvania Assessment Anchor Content Standards* (Assessment Anchors) as defined by the Eligible Content for mathematics, reading, and science and the Academic Content Standards for writing
2. Providing information on school and district accountability
3. Improving curricular and instructional practices in order to help students reach proficiency in the Academic Standards

EVIDENCE BASED ON TEST CONTENT

Test content validity evidence for the PSSA rests greatly on establishing a link between each piece of the assessment (i.e., the items) and what the students should know and be able to do as required by the Assessment Anchors, Eligible Content, and/or the Academic Content Standards. The PSSA tests are intended to measure students' knowledge and skills described in the Assessment Anchors as defined by the Eligible Content for mathematics, reading, and science and the Academic Content Standards for writing. Thus the evidence should be provided supporting the alignment among the PSSA tasks, the Assessment Anchors as defined by the Eligible Content, and the Academic Content Standards.

Lane (1999) suggests taking the following steps to support the content validity of the PSSA:

- Evaluate the degree to which the PSSA test specifications represent and align with the knowledge and skills described in the Assessment Anchors as defined by the Eligible Content for mathematics, reading, and science and the Academic Content Standards for writing in terms of both content and cognitive processes.
- Evaluate the alignment between the PSSA items and test specifications to ensure representativeness.
- Evaluate the extent to which the curriculum aligns with the Assessment Anchors. If some contents are not included in the curriculum, then low scores on the PSSA should not be interpreted as meaning that instruction was ineffective.
- Conduct content reviews of the PSSA items using a panel of content experts to see whether the 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, time limit for the assessment, and training of raters.
- Submit operational tests to third-party, independent reviews (i.e., Achieve.org).

Chapters Two through Eight of this report present a considerable amount of evidence related to test content. As described in these chapters, all the PSSA items were developed and aligned with the PSSA Assessment Anchors and Eligible Content for mathematics, reading, and science and the Academic Content Standards for writing following well-established procedures. After the items were developed, they underwent multiple rounds of content and bias reviews. After they were field tested, they were reviewed with respect to their statistical properties. Items selected for the operational assessment had to pass content, psychometric, and PDE reviews. Tests were administered according to standardized procedures with allowable accommodations.

Some efforts made to ensure content validity are summarized below:

- DRC used Webb's (1999) Depth of Knowledge (DOK) model to ensure the PSSA items aligned with the Assessment Anchors as defined by the 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 and levels of cognitive complexity and difficulty.
- DRC and WestEd selected qualified item writers and provided training to help ensure they wrote high-quality items.
- Each newly-developed item was first reviewed by content specialists and editors at DRC and/or WestEd to make sure that all items measured the intended Assessment Anchors, as defined by the Eligible Content for mathematics, reading, and science and the Academic Content Standards for writing. Appropriateness for the intended grade was also considered, as well as DOK, graphics, grammar/punctuation, language demand, and distractor reasonableness.

- Before 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
    - DOK
    - 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 the above-mentioned hurdles were tried out in a 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. DIF results might be better considered as internal structure validity evidence.
- The PSSA tests were administered according to standardized procedures with allowable accommodations. Students were given ample time to complete the tests (i.e., there were no speededness issues).
- As shown in Chapter Eight, the raters for open-ended (OE) items were carefully recruited and well trained. Their scoring was monitored throughout the scoring session to ensure that an acceptable level of scoring accuracy was maintained.

EVIDENCE BASED ON RESPONSE PROCESSES

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 developers' 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. In addition, when an assessment includes OE items, an examination of the extent to which the raters interpret and apply the scoring criteria accurately when assigning scores to students' responses on OE items also indicates the validity of the response-process evidence.

For the PSSA science tests, DRC conducted a science cognitive lab study to gather relevant information about the thinking processes students used to solve science scenario items. The use of the cognitive lab helped ensure that the intended response processes were employed by students. (No cognitive lab studies have been conducted for the PSSA mathematics, reading, or writing assessments because these assessments do not have scenarios.)

For all the PSSA tests, well-organized scorer training and subsequent monitoring of rating accuracy helped ensure that raters strictly followed the scoring criteria and that nothing unrelated to the rubric significantly affected their scoring.

EVIDENCE BASED ON INTERNAL STRUCTURE

As described in the *Standards* (1999), internal-structure evidence refers to the degree to which the relationships between test items and test components conform to the construct on which the proposed test interpretations are based. For each PSSA test, one total test score as well as strand scores are reported. See Chapter Sixteen for more information about PSSA 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 reviewed in Chapter Eleven. All values are positive and of acceptable magnitude.

Item Response Theory Dimensionality

Results from principle components analyses are presented in Chapter Twelve. The PSSA mathematics, reading and science tests were essentially unidimensional, providing evidence supporting interpretations based on the total scores for the respective PSSA tests. (Writing was not studied for reasons discussed in Chapter Twelve. However, one might expect some dimensionality issues because the writing MC items and prompt tasks are so different.)

Strand Correlations

Correlations and disattenuated correlations between strand scores within each subject area are presented below. Values were derived from the PSSA final data file (see Chapter Nine). This data can also provide information on score dimensionality that is part of internal-structure evidence. As noted in Chapter Three, the PSSA mathematics tests have five strands (denoted by M.A, M.B, M.C, M.D, and M.E), the PSSA reading tests have two strands (denoted by R.A and R.B), the PSSA science tests have four strands (denoted by S.A, S.B, S.C, and S.D), and the PSSA writing tests have two strands (denoted by W.A and W.B).

For each grade, Pearson’s correlation coefficients between these strands are reported in Tables 19–1a through 19–1g. The intercorrelations between the strands within the content areas are positive and generally range from moderate to high in value.

Table 19–1a. Correlations between Mathematics and Reading Strands for Grade 3

	M.A	M.B	M.C	M.D	M.E	R.A	R.B
M.A							
M.B	0.74						
M.C	0.63	0.53					
M.D	0.78	0.64	0.55				
M.E	0.77	0.64	0.57	0.69			
R.A	0.73	0.62	0.53	0.65	0.63		
R.B	0.68	0.58	0.50	0.60	0.59	0.81	

Table 19–1b. Correlations between Mathematics, Reading, and Science Strands for Grade 4

	M.A	M.B	M.C	M.D	M.E	R.A	R.B	S.A	S.B	S.C	S.D
M.A											
M.B	0.71										
M.C	0.66	0.55									
M.D	0.76	0.61	0.60								
M.E	0.73	0.60	0.58	0.65							
R.A	0.73	0.60	0.61	0.65	0.69						
R.B	0.67	0.54	0.58	0.61	0.63	0.79					
S.A	0.75	0.63	0.62	0.65	0.70	0.79	0.71				
S.B	0.61	0.52	0.52	0.52	0.57	0.69	0.61	0.76			
S.C	0.62	0.52	0.52	0.53	0.57	0.65	0.58	0.73	0.66		
S.D	0.59	0.51	0.51	0.50	0.54	0.64	0.57	0.72	0.65	0.63	

Table 19–1c. Correlations between Mathematics, Reading, and Writing Strands for Grade 5

	M.A	M.B	M.C	M.D	M.E	R.A	R.B	W.A	W.B
M.A									
M.B	0.74								
M.C	0.68	0.61							
M.D	0.79	0.68	0.62						
M.E	0.71	0.60	0.56	0.64					
R.A	0.71	0.61	0.58	0.66	0.60				
R.B	0.68	0.58	0.56	0.64	0.58	0.81			
W.A	0.49	0.42	0.38	0.45	0.43	0.56	0.54		
W.B	0.67	0.57	0.54	0.63	0.58	0.75	0.71	0.75	

Table 19–1d. Correlations between Mathematics and Reading Strands for Grade 6

	M.A	M.B	M.C	M.D	M.E	R.A	R.B
M.A							
M.B	0.67						
M.C	0.72	0.66					
M.D	0.73	0.63	0.68				
M.E	0.75	0.66	0.72	0.71			
R.A	0.66	0.58	0.64	0.67	0.69		
R.B	0.68	0.58	0.64	0.68	0.69	0.83	

Table 19–1e. Correlations between Mathematics and Reading Strands for Grade 7

	M.A	M.B	M.C	M.D	M.E	R.A	R.B
M.A							
M.B	0.77						
M.C	0.71	0.72					
M.D	0.78	0.79	0.73				
M.E	0.69	0.70	0.65	0.71			
R.A	0.66	0.67	0.63	0.69	0.61		
R.B	0.66	0.68	0.62	0.69	0.62	0.81	

Table 19–1f. Correlations between Mathematics, Reading, Science, and Writing Strands for Grade 8

	M.A	M.B	M.C	M.D	M.E	R.A	R.B	S.A	S.B	S.C	S.D	W.A	W.B
M.A													
M.B	0.70												
M.C	0.67	0.70											
M.D	0.76	0.75	0.73										
M.E	0.72	0.70	0.70	0.76									
R.A	0.65	0.63	0.59	0.69	0.68								
R.B	0.64	0.63	0.58	0.69	0.68	0.81							
S.A	0.66	0.63	0.62	0.68	0.68	0.73	0.71						
S.B	0.60	0.59	0.57	0.63	0.62	0.69	0.68	0.78					
S.C	0.56	0.53	0.54	0.57	0.58	0.61	0.59	0.73	0.66				
S.D	0.58	0.55	0.55	0.59	0.59	0.64	0.62	0.76	0.72	0.66			
W.A	0.49	0.48	0.45	0.53	0.53	0.57	0.62	0.51	0.50	0.43	0.45		
W.B	0.61	0.59	0.57	0.66	0.65	0.72	0.73	0.68	0.65	0.56	0.60	0.76	

Table 19–1g. Correlations between Mathematics, Reading, Science, and Writing Strands for Grade 11

	M.A	M.B	M.C	M.D	M.E	R.A	R.B	S.A	S.B	S.C	S.D	W.A	W.B
M.A													
M.B	0.70												
M.C	0.71	0.74											
M.D	0.77	0.77	0.80										
M.E	0.66	0.68	0.69	0.73									
R.A	0.58	0.60	0.61	0.65	0.59								
R.B	0.61	0.63	0.64	0.69	0.61	0.77							
S.A	0.62	0.65	0.67	0.70	0.61	0.71	0.70						
S.B	0.48	0.51	0.52	0.54	0.47	0.59	0.55	0.71					
S.C	0.57	0.61	0.63	0.65	0.56	0.62	0.61	0.78	0.65				
S.D	0.48	0.52	0.53	0.54	0.48	0.58	0.55	0.72	0.62	0.66			
W.A	0.47	0.48	0.49	0.54	0.46	0.52	0.64	0.55	0.40	0.48	0.42		
W.B	0.60	0.60	0.62	0.67	0.58	0.68	0.75	0.71	0.55	0.61	0.55	0.77	

The correlations in Tables 19–1a through 19–1g are based on the observed strand scores. These observed-score correlations are weakened by existing measurement error contained within each strand. As a result, disattenuating the observed correlations can provide an estimate of the relationships between strands if there is no measurement error. (An important caveat is provided below.) The disattenuated correlation coefficients (R_{xy}) can be computed by using the formula (Spearman, 1904, 1910) below:

$$R_{xy} = \frac{r_{xy}}{\sqrt{r_{xx} r_{yy}}}$$

where r_{xy} is the observed correlation, and r_{xx} and r_{yy} are the reliabilities for strand X and strand Y. Disattenuated correlations very near 1.00 might suggest that the same or very similar constructs are being measured. Values somewhat less than 1.00 might suggest that different strands are measuring slightly different aspects of the same construct. Values markedly less than 1.00 might suggest the strands reflect different constructs.

Tables 19–2a through 19–2g show the corresponding disattenuated correlations for the 2012 PSSA tests for each grade. Given that none of these strands has perfect reliabilities (see Chapter Eighteen), the disattenuated strand correlations are higher than their observed score counterparts.

Some within-subject correlations are very high (e.g., above 0.95), suggesting that the within-subject strands might be measuring essentially the same construct. This, in turn, suggests that some strand scores might not provide unique information about the strengths or weaknesses of students.

On the other hand, some within-subject strand correlations are somewhat lower than 1.00. For such strands, partial evidence is provided regarding the multidimensional structure of some tests and further supporting the validity of those specific strand scores.

On a fairly consistent basis, the correlations between the strands within each subject area were higher than the correlations between strands across different subject areas. In general, within-subject strand correlations were mostly greater than 0.90, while across-subject strand correlations generally ranged from 0.70 to 0.90. As a specific example, Grade 3 correlations for the M.A, M.B, M.C, M.D, and M.E strands ranged from 0.72 to 1.02, and the correlation between R.A and R.B was 1.00. In contrast, the correlations between the two reading strands with the five mathematics strands only ranged from 0.72 to 0.85. Such a pattern is expected since the two subject-area tests were designed to measure different constructs. Similar patterns were also observed at other grade levels.

Table 19–2a. Disattenuated Strand Correlations for Mathematics and Reading: Grade 3

	M.A	M.B	M.C	M.D	M.E	R.A	R.B
M.A	-						
M.B	1.02	-					
M.C	0.85	0.86	-				
M.D	0.99	0.97	0.82	-			
M.E	1.02	1.01	0.88	1.02	-		
R.A	0.83	0.85	0.72	0.82	0.83	-	
R.B	0.83	0.85	0.73	0.82	0.84	1.00	-

Table 19–2b. Disattenuated Strand Correlations for Mathematics, Reading, and Science: Grade 4

	M.A	M.B	M.C	M.D	M.E	R.A	R.B	S.A	S.B	S.C	S.D
M.A	-										
M.B	0.92	-									
M.C	0.94	0.88	-								
M.D	0.97	0.86	0.93	-							
M.E	0.98	0.89	0.95	0.95	-						
R.A	0.85	0.78	0.87	0.83	0.92	-					
R.B	0.85	0.77	0.90	0.85	0.93	1.00	-				
S.A	0.87	0.81	0.87	0.82	0.93	0.92	0.90	-			
S.B	0.79	0.75	0.83	0.75	0.85	0.90	0.87	0.99	-		
S.C	0.84	0.80	0.88	0.79	0.89	0.89	0.87	1.00	1.01	-	
S.D	0.82	0.78	0.85	0.76	0.86	0.88	0.86	0.99	1.01	1.03	-

Table 19–2c. Disattenuated Strand Correlations for Mathematics, Reading, and Writing: Grade 5

	M.A	M.B	M.C	M.D	M.E	R.A	R.B	W.A	W.B
M.A	-								
M.B	0.96	-							
M.C	0.90	0.92	-						
M.D	1.00	0.97	0.92	-					
M.E	0.98	0.92	0.90	0.99	-				
R.A	0.82	0.79	0.78	0.85	0.83	-			
R.B	0.84	0.81	0.81	0.88	0.87	1.01	-		
W.A	0.63	0.61	0.56	0.65	0.66	0.73	0.74	-	
W.B	0.80	0.77	0.75	0.83	0.83	0.90	0.92	1.01	-

Table 19–2d. Disattenuated Strand Correlations for Mathematics and Reading: Grade 6

	M.A	M.B	M.C	M.D	M.E	R.A	R.B
M.A	-						
M.B	0.97	-					
M.C	0.93	0.98	-				
M.D	1.01	1.01	0.96	-			
M.E	0.95	0.97	0.93	0.99	-		
R.A	0.81	0.82	0.81	0.90	0.85	-	
R.B	0.84	0.83	0.82	0.93	0.86	0.99	-

Table19–2e. Disattenuated Strand Correlations for Mathematics and Reading: Grade 7

	M.A	M.B	M.C	M.D	M.E	R.A	R.B
M.A	-						
M.B	1.05	-					
M.C	0.96	0.96	-				
M.D	1.04	1.04	0.95	-			
M.E	0.99	0.99	0.90	0.98	-		
R.A	0.86	0.86	0.80	0.86	0.82	-	
R.B	0.88	0.89	0.80	0.88	0.85	1.01	-

Table 19–2f. Disattenuated Strand Correlations for Mathematics, Reading, Science, and Writing: Grade 8

	M.A	M.B	M.C	M.D	M.E	R.A	R.B	S.A	S.B	S.C	S.D	W.A	W.B
M.A	-												
M.B	0.97	-											
M.C	0.90	0.96	-										
M.D	0.97	0.99	0.93	-									
M.E	1.01	1.01	0.96	1.00	-								
R.A	0.84	0.83	0.75	0.84	0.90	-							
R.B	0.83	0.83	0.74	0.84	0.90	0.99	-						
S.A	0.85	0.82	0.79	0.82	0.89	0.88	0.86	-					
S.B	0.81	0.81	0.75	0.80	0.86	0.88	0.87	0.99	-				
S.C	0.82	0.79	0.77	0.78	0.85	0.83	0.80	1.00	0.95	-			
S.D	0.81	0.79	0.76	0.78	0.84	0.85	0.83	1.00	0.99	0.99	-		
W.A	0.66	0.67	0.60	0.68	0.73	0.73	0.80	0.65	0.67	0.62	0.63	-	
W.B	0.81	0.80	0.74	0.83	0.87	0.90	0.92	0.84	0.85	0.79	0.81	0.99	-

Table 19–2g. Disattenuated Strand Correlations for Mathematics, Reading, Science, and Writing: Grade 11

	M.A	M.B	M.C	M.D	M.E	R.A	R.B	S.A	S.B	S.C	S.D	W.A	W.B
M.A	-												
M.B	1.03	-											
M.C	1.02	1.08	-										
M.D	1.00	1.02	1.02	-									
M.E	0.96	1.01	1.00	0.96	-								
R.A	0.80	0.85	0.84	0.80	0.82	-							
R.B	0.81	0.84	0.84	0.82	0.82	0.97	-						
S.A	0.81	0.86	0.86	0.82	0.80	0.88	0.84	-					
S.B	0.73	0.79	0.79	0.74	0.73	0.86	0.77	0.98	-				
S.C	0.82	0.88	0.88	0.83	0.80	0.85	0.79	1.00	0.97	-			
S.D	0.74	0.81	0.80	0.74	0.74	0.85	0.77	1.00	1.01	1.00	-		
W.A	0.66	0.67	0.68	0.67	0.64	0.69	0.81	0.68	0.59	0.65	0.62	-	
W.B	0.79	0.81	0.81	0.80	0.78	0.87	0.91	0.85	0.77	0.80	0.77	0.98	-

Some caution is needed in interpreting the disattenuated results because the reliabilities used to calculate the disattenuated correlations are subject to both upward and downward biases. (These are discussed in some detail in Chapter Eighteen.) Consequently, some of the values tabled above may be higher or lower than they should be, depending on which bias prevails for any given pair of strand scores. When the reliabilities are lower than they should be, the disattenuated correlations will be inflated (and in some instances can appear larger than the theoretical correlation maximum value of 1.00).

Exploratory Factor Analysis

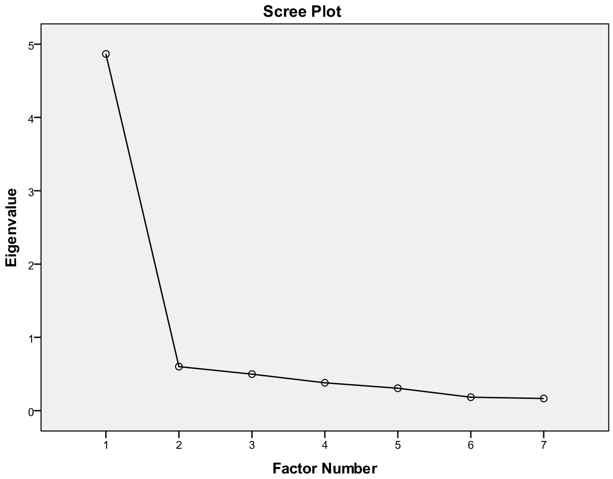
In order to further explore the internal structure of the PSSA tests, an exploratory factor analysis (EFA) of the strand scores across all the PSSA subject areas was conducted. The PSSA final data file (see Chapter Nine) was used to create the observed correlation matrices shown in Tables 19–1a through 19–1g, which in turn were used in the EFAs. In SPSS, Principle Axis Factor extraction was utilized with an oblique rotation (Promax) of the initial factor solution to improve interpretability. Oblique rotations allow for correlated factors, which seemed more appropriate for the PSSA tests because of a priori expectations that academic achievement across subject areas should be correlated.

Table 19–3 presents the eigenvalues and the explained variance for the extracted factors for the Grade 3 PSSA tests. The Scree Plot graphing the eigenvalues against the factor number is shown in Figure 19–1. The first factor accounted for about 70 percent of the total variance, while the second factor explained about 9 percent of the total variance. Only the first factor had an eigenvalue greater than 1.0, typically suggesting a one-factor solution using the Kaiser criterion. However, the one-factor solution resulted in many large fitted residual values in the reproduced correlation matrix (i.e., 16 of 21 residuals were greater than 0.05 with one as large as 0.09). Based on this finding and the prior belief that there should be two distinct factors at Grade 3 (one for mathematics and another for reading), a two-factor solution was further explored.

Table 19–3. Eigenvalues and Explained Variance for Grade 3

Factor	Eigenvalue	%
1	4.87	69.52
2	0.60	8.59
3	0.50	7.12
4	0.38	5.44
5	0.31	4.36
6	0.18	2.62
7	0.17	2.36

Figure 19–1. Scree Plot for Grade 3



The Pattern loadings resulting from the two-factor solution are presented in Table 19–4a. The Pattern loadings have simple structure, which shows that the five mathematics strands clearly loaded on the first factor while the two reading strands clearly loaded on the second factor. The respective factor loadings are quite high. The factor correlation matrix shows that the correlation between the two latent factors is 0.77, which is the same as the observed correlation between mathematics and reading (0.77 as seen Table 19–5) but just lower than the disattenuated correlation.

Table 19–4a. Pattern Matrix and Factor Correlation for Grade 3

	Factor	
Domain	**1**	**2**
Mathematics		
M.A	*0.89*	0.06
M.B	*0.70*	0.11
M.C	*0.60*	0.09
M.D	*0.76*	0.08
M.E	*0.81*	0.03
Reading		
R.A	0.10	*0.84*
R.B	0.04	*0.86*
Correlation (F1, F2) = 0.77		

Other grades have similar results. The eigenvalue scree plots consistently indicate a one-factor solution. This possibly resulted because of the high correlations between the PSSA subjects. (The eigenvalues and explained variances are not shown for the other grades due to space considerations.) The pattern matrices and the factor correlations are reported in Tables 19–4b through 19–4g for the remaining six grades, respectively. The Pattern loadings clearly suggested that the PSSA tests measured different but correlated constructs.

Table 19–4b. Pattern Matrix and Factor Correlations for Grade 4

	Factor		
Domain	**1**	**2**	**3**
Mathematics			
M.A	*0.92*	0.05	-0.03
M.B	*0.70*	0.15	-0.07
M.C	*0.53*	0.12	0.13
M.D	*0.80*	-0.08	0.11
M.E	*0.56*	0.10	0.19
Reading			
R.A	0.09	0.20	*0.68*
R.B	0.10	0.04	*0.75*
Science			
S.A	0.17	*0.69*	0.11
S.B	-0.04	*0.79*	0.09
S.C	0.10	*0.73*	-0.02
S.D	0.04	*0.78*	-0.02

Correlation (F1, F2) = 0.76 Correlation (F1, F3) = 0.79
Correlation (F2, F3) = 0.80

Table 19–4c. Pattern Matrix and Factor Correlations for Grade 5

	Factor		
Domain	**1**	**2**	**3**
Mathematics			
M.A	*0.91*	0.02	0.01
M.B	*0.81*	0.01	-0.02
M.C	*0.70*	-0.03	0.08
M.D	*0.79*	0.01	0.06
M.E	*0.67*	0.06	0.05
Reading			
R.A	0.09	0.06	*0.79*
R.B	0.08	0.03	*0.80*
Writing			
W.A	-0.04	*0.88*	-0.05
W.B	0.10	*0.77*	0.12

Correlation (F1, F2) = 0.67 Correlation (F1, F3) = 0.79
Correlation (F2, F3) = 0.76

Table 19–4d. Pattern Matrix and Factor Correlation for Grade 6

	Factor	
Domain	**1**	**2**
Mathematics		
M.A	*0.81*	0.07
M.B	*0.77*	0.01
M.C	*0.79*	0.06
M.D	*0.65*	0.22
M.E	*0.72*	0.17
Reading		
R.A	0.06	*0.85*
R.B	0.06	*0.86*
Correlation (F1, F2) = 0.80		

Table 19–4e. Pattern Matrix and Factor Correlation for Grade 7

	Factor	
Domain	**1**	**2**
Mathematics		
M.A	*0.82*	0.06
M.B	*0.81*	0.08
M.C	*0.74*	0.08
M.D	*0.82*	0.10
M.E	*0.72*	0.09
Reading		
R.A	0.08	*0.84*
R.B	0.08	*0.84*
Correlation (F1, F2) = 0.79		

Table 19–4f. Pattern Matrix and Factor Correlations for Grade 8

	Factor			
Domain	**1**	**2**	**3**	**4**
Mathematics				
M.A	*0.73*	0.08	-0.01	0.06
M.B	*0.81*	0.01	0.01	0.01
M.C	*0.84*	0.10	0.01	-0.14
M.D	*0.84*	-0.03	0.04	0.07
M.E	*0.70*	0.06	0.05	0.09
Reading				
R.A	0.07	0.15	0.02	*0.71*
R.B	0.05	0.05	0.14	*0.71*
Science				
S.A	0.09	*0.82*	0.00	0.03
S.B	0.02	*0.72*	0.04	0.11
S.C	0.09	*0.78*	-0.01	-0.06
S.D	0.02	*0.82*	0.00	-0.01
Writing				
W.A	0.01	-0.06	*0.87*	-0.01
W.B	0.04	0.13	*0.78*	0.02

Correlation (F1, F2) = 0.77 Correlation (F1, F3) = 0.70
Correlation (F1, F4) = 0.77

Correlation (F2, F3) = 0.69 Correlation (F2, F4) = 0.79

Correlation (F3, F4) = 0.78

Table19–4g. Pattern Matrix and Factor Correlations for Grade 11

Domain	Factor 1	 2	 3	 4
Mathematics				
M.A	*0.82*	-0.02	0.02	0.00
M.B	*0.82*	0.07	-0.03	0.00
M.C	*0.83*	0.07	0.00	-0.03
M.D	*0.89*	0.01	0.05	-0.02
M.E	*0.75*	-0.01	-0.02	0.09
Reading				
R.A	0.03	0.14	-0.07	*0.81*
R.B	0.14	0.00	0.25	*0.56*
Science				
S.A	0.09	*0.77*	0.08	0.03
S.B	-0.03	*0.77*	-0.05	0.08
S.C	0.17	*0.75*	0.03	-0.08
S.D	-0.03	*0.82*	-0.01	0.01
Writing				
W.A	-0.02	-0.04	*0.98*	-0.10
W.B	0.06	0.11	*0.71*	0.10

Correlation (F1, F2) = 0.75 Correlation (F1, F3) = 0.70
Correlation (F1, F4) = 0.75
Correlation (F2, F3) = 0.68 Correlation (F2, F4) = 0.76
Correlation (F3, F4) = 0.76

Taken as a whole, all the internal-structure evidence presented above generally indicates that related elements of each of the PSSA tests correlate in the intended manner. Different PSSA subject area tests seem to measure different constructs. Additionally, the strands within each subject area have stronger relationships than those across subject strands. This further supports using a total score to report student performance in the different subject areas.

The strand scores present more of a mixed message. Since the strands in each subject area were designed to measure distinct components of the subject area, it is reasonable to expect that the intersubject strand correlations should be positive and strong, but ideally, not extremely high. However, the disattenuated correlations imply that some strands are essentially measuring the same constructs. Consequently, there may be less support for providing results for some strand scores beyond the total score. While there is content rationale underlying the creation of the strand scores, the empirical correlations illustrate that caution is required when using the strand scores as a way to identify individual students' strengths and weaknesses. Certainly, instructional programs should not be based on strand score information alone but in conjunction with other sources of evidence available (e.g., teacher observations, other exam performance).

EVIDENCE BASED ON RELATIONSHIPS WITH OTHER VARIABLES

As described in the *Standards* (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 is classified in three types—convergent, discriminant, and criterion-related evidence. Convergent evidence is provided by relationships between students' performances on different assessments intended to measure a similar construct. Discriminant evidence is provided by relationships between 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).

External evidence for the PSSA tests has been examined by HumRRO in a series of independent studies using 2001–2003 PSSA data (Koger, Thacker, & Dickinson, 2004; Sinclair, & Thacker, 2005; Thacker, Dickinson, & Koger, 2004). In their studies, the correlations of PSSA scores with a variety of measures including SAT, CTB, and other commonly administered assessments were investigated to provide the convergent and discriminant evidence. The criterion-related evidence was evaluated by the relationships between the PSSA and criterion variables such as grade point average (GPA), course grades, university proficiency exams, and students' GPA in their first college course.

The results from their studies provided strong external evidence in support of the PSSA as a valid measure of student achievement. Same-subject correlations were highest for mathematics, typically ranging from about 0.70 to about 0.90. For reading, correlations were also quite high, although slightly weaker than for mathematics and ranging from about 0.60 to about 0.80 (Thacker, Dickinson, & Koger, 2004). For example, the correlations between the PSSA and SAT were high (r = 0.78 for reading and r = 0.87 for mathematics in 2003). They also found that PSSA scores positively correlated with students' course grades and GPAs, although not as highly as with SATs (r = 0.46 to r = 0.55) (Koger, Thacker, & Dickinson, 2004). Regarding the predictive evidence, they found that the university proficiency tests were moderately to highly correlated with the PSSA. Students' course GPAs in their first college English and mathematics classes generally showed positive relationships with both the PSSA and the university proficiency exams, but these correlations were not as strong as the correlations between the PSSA and the proficiency exams (Sinclair, & Thacker, 2005). Moreover, the different assessments measuring the same subject were found to be more highly related to each other than to the assessments measuring different subjects, providing some discriminant evidence. All these results suggest that PSSA subject-area tests measure the intended constructs.

In addition, Thacker and his colleagues also examined the relationship between the PSSA and some irrelevant characteristics to determine whether the PSSA exhibited any differential impact based on gender, ethnicity, English proficiency, or socioeconomic status. None of these characteristics appeared to influence the PSSA scores more than would be expected based on observed differences for SAT scores and other comparison tests. In other words, PSSA items are not injecting any unexpected gender, racial/ethnic, socioeconomic status, or limited English proficiency bias.

For the 2012 PSSA dataset, the correlations between students' test scores on different PSSA tests, including mathematics, reading, science, and writing, are shown in Table 19–5 in order to provide some discriminant validity evidence. In this table, both the observed and disattenuated correlations are reported.

Table 19–5. Correlations among Students' Performances on All PSSA Tests

	Mathematics/ Reading	**Mathematics/ Science**	**Mathematics/ Writing**	**Reading/ Science**	**Reading/ Writing**	**Science/ Writing**
G3	.77 (.83)	-	-	-	-	-
G4	.80 (.87)	.80 (.86)	-	.82 (.90)	-	-
G5	.77 (.84)	-	.58 (.68)	-	.65 (.77)	-
G6	.79 (.86)	-	-	-	-	-
G7	.78 (.86)	-	-	-	-	-
G8	.77 (.84)	.77 (.83)	.63 (.71)	.79 (.86)	.69 (.80)	.60 (.69)
G11	.75 (.83)	.76 (.82)	.62 (.70)	.76 (.84)	.68 (.80)	.61 (.70)

Note. Numbers in parentheses are disattenuated correlations. The PSSA final data file was used for these calculations (see Chapter Nine). Case-wise elimination of missing data was used.

Each PSSA assessment measures a different construct, so the correlations between them were not expected to be extremely high. The values in this table are consistent with this expectation. As can be seen, the correlations between the PSSA tests range from 0.58 to 0.82. The correlations between the mathematics, reading, and science tests were relatively higher, while the correlations between writing and other subjects were relatively lower. In addition, the correlations are very stable across different grade levels. For example, the correlation between mathematics and reading tests was around 0.78 for all grades. (Factor correlations between the latent variables are presented in Tables 19–4a through 19–4g.)

EVIDENCE BASED ON CONSEQUENCES OF TESTING

Based on the *Standards* (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. It is important to note that the consequences of the assessment program themselves do not serve as indicators of validity. That is, the investigation and evaluation of the consequences provide a richer context for establishing the validity of an assessment program.

Given that the evaluation of consequential validity is broadly defined, it is difficult to specifically measure aspects of consequential validity. Test data only provide one small insight into this type of validation evidence. Chapter Sixteen includes several different types of scores and score reports used for the PSSA. This chapter also provides accurate and clear test score and report information to help users avoid unintended uses and interpretations of the PSSA results. The extent to which various groups of users (e.g., students, teachers, and parents) interpret these scores and reports appropriately affects the validity of subsequent uses of these results. PDE continues to gather evidence to improve or guide decisions pertaining to all aspects of intended and unintended consequences of the PSSA program.

EVIDENCE RELATED TO THE USE OF THE RASCH MODEL

Since the Rasch model is the basis of all calibration, scaling, and linking analyses associated with the PSSA, 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 test data. As discussed at length in Chapter Twelve, the underlying assumptions of Rasch models were essentially met for all the PSSA data, indicating the appropriateness of using the Rasch models to analyze the PSSA data.

In addition, the Rasch model was also used to link different operational PSSA tests across years. The accuracy of the linking also affects the accuracy of student scores and the validity of score uses. As described in Chapter Fifteen, DRC Psychometric Services staffers follow linking procedures previously vetted by the Pennsylvania National TAC. Moreover, DRC internal and the third-party (HumRRO) checks ensured the accuracy of the linking results.

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 PSSA item and its associated eligible content. Details regarding how the PSSA operational assessments were assembled to reflect the state content standards and detailed information regarding educator reviews (including content, bias, and sensitivity reviews) are presented in Chapter Three.

Strand score intercorrelations are also presented in this chapter. In general, within-subject-area strands (e.g., mathematics) correlate more highly with themselves than they do with other subject-area strands (e.g., reading). Consequently, this provides some favorable evidence regarding the internal and external relationships between the tests' components.

PDE's commitment to validity is also evidenced by the fact that the Pennsylvania State Board of Education commissioned an independent study of an earlier version of the PSSA. That study, conducted by HumRRO, included an extensive evaluation of the items (Thacker, & Dickinson, 2004) and statistical relationships of the PSSA, including convergent and discriminant validity (Thacker, Dickinson, & Koger, 2004).

Validity of score inferences is bolstered when test scores are consistent. Here, the reliabilities of the total test scores (see Chapter Eighteen) are very good, with many being in the low 0.90s.

Additionally, as reported in Chapter Five, 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.

References

Achieve, Inc. (2005). Measuring up 2005: A report on assessment anchors and tests in reading and mathematics for Pennsylvania. Washington, DC: Achieve, Inc.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education [AERA, APA, NCME]. (1999). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.

Allman, C. (2004). *Test access: Making tests accessible for students with visual impairments – A guide for test publishers, test developers, and state assessment personnel* (2nd ed.). Louisville, KY: American Printing House for the Blind. Available from http://www.aph.org.

Horn, J. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika, 32*, 179–185.

Brennan, R. L. (1998). Misconceptions at the intersection of measurement theory and practice. *Educational Measurement: Issues and Practice, 17*(1), 5–9.

Brennan, R. (2004). BB-Class (Version 1.0). [Computer Software] Iowa City, IA: University of Iowa, Center for Advanced Studies in Measurement & Assessment. CASMA: education.uiowa.edu/casma.

Chen, W., & Thissen, D. (1997). Local dependence indexes for item pairs using item response theory. *Journal of Educational and Behavioral Statistics, 22*(3), 265–289.

Cook, L. L., & Eignor, D. R. (1991). NCME instructional module: IRT equating methods. *Educational Measurement: Issues and Practice, 17*(1), 5–9.

Cronbach, L. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, *16*, 297–334.

Cronbach, L. J. (1971). Test validation. In R. L. Thorndike (Ed.), *Educational Measurement* (2nd ed., pp. 443–507). Washington, DC: American Council on Education. Educational Measurement: Issues and Practice, 10, 37–45.

Cronbach, L., & Shavelson R. L. (2004). My current thoughts on coefficient alpha and successor procedures. *Educational and Psychological Measurement*, *64*(3), 391–418.

Data Recognition Corporation. (2000). *Item viewer and authoring network (IVAN): informational guide*. Maple Grove, MN: DRC.

Data Recognition Corporation. (2003–2007). *Fairness in testing: Training manual for issues of bias, fairness, and sensitivity*. Maple Grove, MN: DRC.

Data Recognition Corporation. (2004–2007). *Pennsylvania System of School Assessment (PSSA) style guide.* Maple Grove, MN: DRC.

Data Recognition Corporation. (2005, December). *Technical report for the PSSA 2005 reading and mathematics*. Maple Grove, MN: DRC.

Data Recognition Corporation. (2007, May). *Technical report for the PSSA 2006 reading and mathematics: Grades 4, 6, and 7*. Maple Grove, MN: DRC.

Data Recognition Corporation. (2007, May). *Technical report for the PSSA 2006 writing: Grades 5, 8, and 11*. Maple Grove, MN: DRC.

Data Recognition Corporation. (2007, July). *PSSA writing test score reliability: some available approaches and possible alternatives.* (PSSA TAC Document 071907_5). Maple Grove, MN: Bishop, N.

Data Recognition Corporation. (2007). *Preliminary technical report for 2008 PSSA science*. Maple Grove, MN: DRC.

Data Recognition Corporation. (2008, February). *Technical report for the PSSA 2007 writing: Grades 5, 8, and 11*. Maple Grove, MN: DRC.

Data Recognition Corporation. (2008, February). *Technical report for the PSSA 2007 reading and mathematics: Grades 3, 4, 5, 6, 7, 8, and 11*. Maple Grove, MN: DRC.

Data Recognition Corporation. (2008, February). *Preliminary technical report for 2008 PSSA science.* Maple Grove, MN: DRC.

Data Recognition Corporation. (2009, June). *Rater effect study results.* (PSSA TAC Document 06.03.09 E). Maple Grove, MN: Stearns, M.

Data Recognition Corporation. (2010, February). *2009 PSSA technical report*. Maple Grove, MN: DRC.

Data Recognition Corporation. (2012). *Technical report for the 2012 modified PSSA*. Maple Grove, MN: DRC.

Dorans, N., Schmitt, Al, & Bleistein, C. (1992). The standardization approach to assessing comprehensive differential item functioning. *Journal of Educational Measurement*, *29*, 309–319.

Feldt, L. S., & Brennan, R. L. (1989). Reliability. In R. L. Linn (Ed.), *Educational Measurement*, (3rd ed., pp. 105–146). New York, NY: ACE/Macmillan.

Frisbie, D. A. (2005). Measurement 101: Some fundamentals revisited. *Educational Measurement: Issues and Practice, 24*(3), 21–28.

Gulliksen, H. (1950). *Theory of mental tests.* New York: John Wiley and Sons.

Haertel, E. H. (2006). Reliability. In Brennan, R. L. (Ed.). *Educational Measurement* (4th ed., pp. 65–110). Westport, CT: Praeger.

Hambleton, R., Swaminathan, H., and Rogers, J. (1991). *Fundamentals of item response theory*. Newbury Park, CA: Sage.

Hambleton, R. & Novick, M. (1973). Toward an integration of theory and method for criterion-referenced tests. *Journal of Educational Measurement*, *10*, 159–170.

Hambleton, R. & Rogers, H. (1986). Evaluation of the plot method for identifying potentially biased test items. In S. H. Irvine, S. Newstead, & P. Dann (Eds.), *Computer-based human assessment*, Boston, MA: Kluwer Academic Publishers.

Hanson, B. A., & Brennan, R. L. (1990). An investigation of classification consistency indexes estimated under alternative strong true score theory models. *Journal of Educational Measurement, 27*(4)*,* 345–359.

Harvill, L. M. (1991). Standard error of measurement. *Educational Measurement: Issues and Practices, 10*(2), 33–41.

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika*, 30, 179-185.

Huynh, H. (1976). On the reliability of decisions in domain-referenced testing. *Journal of Educational Measurement*, *13*, 253–264.

Koger, M. E., Thacker, A. A., & Dickinson, E. R. (2004). *Relationships among the Pennsylvania System of School Assessment (PSSA) scores, SAT scores, and self-reported high school grades for the classes of 2002 and 2003* (HumRRO Report FR-04-26). Louisville, KY: Human Resources Research Organization.

Lane, S. (1999). *Validity evidence for assessments.* Paper presented at the 1999 Edward F. Reidy Interactive Lecture Series, Providence, RI.

Lane, S., & Stone, C. A. (2002). Strategies for examining the consequences of assessment and accountability programs. *Educational Measurement: Issues and Practice, 21*(1), 23–30.

Lewis, D. M., Mitzel, H. C., & Green, D. R. (1996). *Standard setting: A bookmark approach*. Symposium presented at the Council of Chief State School Officers National Conference on Large-Scale Assessment, Phoenix, AZ.

Linacre, J. M. (2009). *A user's guide to WINSTEPS MININSTEP Rasch-model computer programs*. Chicago, IL: Winsteps.

Linacre, J. M., & Wright, B. D. (2003). *WINSTEPS 3.54: Multiple-choice, rating scale, and partial credit Rasch analysis* [Computer software]. Chicago: MESA Press.

Livingston, S. & Lewis, C. (1995). Estimating the consistency and accuracy of classifications based on test scores. *Journal of Educational Measurement 32*, 179–197.

Mantel, N., & Haenszel, W. (1959). Statistical aspects of the analysis of data from retrospective studies of disease. *Journal of the National Cancer Institute*, *22*, 719–748.

Marais, I., & Andrich, D. (2008). Formalizing dimension and response violations of local independence in the unidimensional Rasch model. *Journal of Applied Measurement, 9*(3), 200–215.

McDonald, R. P. (1979). The structural analysis of multivariate data: A sketch of general theory. *Multivariate Behavioral Research, 14,* 21–38.

Messick, S. (1989). Validity. In R. L. (Ed.), *Educational Measurement* (3rd ed., pp.3–104). New York: American Council on Education.

No Child Left Behind Act of 2001, Pub. L. No. 107–110, 115 Stat. 1425 (2002).

Pennsylvania State Board of Education. (1999, January). *Chapter 4. Academic standards and assessment*. Harrisburg, PA: Pennsylvania State Board of Education. Retrieved November 8, 2004, from http://www.education.state.pa.us. Also available from http://www.pacode.com/secure/data/022/Chapter4/s4.51.html.

Pennsylvania Department of Education. (2004). *Mathematics item and scoring sampler*. Retrieved December 13, 2004, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2004). *Reading item and scoring sampler*. Retrieved December 13, 2004, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2004, April). *Assessment anchors and eligible content*. Retrieved December 13, 2004, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2004, November). *Mathematics assessment handbook*. Retrieved December 13, 2004, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2004, November). *Reading assessment handbook*. Retrieved December 13, 2004, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2005, December). *2005–2006 Mathematics assessment handbook*. Retrieved January 30, 2006, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2005, December). *2005–2006 Reading assessment handbook*. Retrieved January 30, 2006, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2005). *2005–2006 Mathematics item and scoring sampler*. Retrieved January 30, 2006, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2005). *2005–2006 Reading item and scoring sampler*. Retrieved January 30, 2006, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2005, December). *2005–2006 Writing assessment handbook*. Retrieved January 30, 2006, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2005). *2005–2006 Writing item and scoring sampler*. Retrieved September 14, 2005, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2006). *2006–2007 Mathematics item and scoring sampler*. Retrieved January 30, 2007, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2006). *2006–2007 Reading item and scoring sampler*. Retrieved January 30, 2007, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2006). *2006–2007 Writing item and scoring sampler*. Retrieved January 30, 2007, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2006, December). *2006–2007 Writing assessment handbook*. Retrieved January 30, 2006, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2006). *2006–2007 Science item and scoring sampler*. Retrieved March 15, 2007, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2006, November). *Science assessment handbook*. Retrieved March 15, 2007, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2007, January). *2006–2007 Mathematics assessment handbook*. Retrieved January 30, 2007, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2007, January). *2006–2007 Reading assessment handbook*. Retrieved January 30, 2007, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2007, January). *2007 Accommodations guidelines for students with IEPs, students with 504 plans, English language learners, and all students*. Retrieved January 30, 2007, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2007). *Assessment anchors and eligible content*. Retrieved May 27, 2010 from http://www.pdesas.org/standard/AnchorsDownloads

Pennsylvania Department of Education. (2007). *PSSA 2007 Handbook for assessment coordinators and administrators: Grades 3–8 and 11 reading and mathematics*. Retrieved January 30, 2007, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2007, March). *PSSA reading and mathematics directions for administration manual*. Retrieved April 2, 2007, from http://www.education.state.pa.us.us

Pennsylvania Department of Education. (2007). *2008 PSSA Accommodations guidelines for students with IEPs and students with 504 plans.* Retrieved March 4, 2008, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2008). *2008–2009 Mathematics item and scoring sampler*. Retrieved February 10, 2009, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2008). *2008–2009 Reading item and scoring sampler*. Retrieved February 10, 2009, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2008). *2008–2009 Science item and scoring sampler*. Retrieved February 10, 2009, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2008). *2008–2009 Writing item and scoring sampler*. Retrieved February 10, 2009, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2008). *PSSA 2008 Handbook for assessment coordinators and administrators: Grades 3–8 and 11 reading and mathematics*. Retrieved March 4, 2008, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2009). *PSSA accommodations guidelines for students with IEPs and students with 504 plans.* Retrieved February 10, 2009, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2009). *2009–2010 Mathematics item and scoring sampler supplement*. Retrieved February 10, 2009 from http://www.education.state.pa.us

Pennsylvania Department of Education. (2009). *2009–2010 Reading item and scoring sampler supplement*, Harrisburg, PA: PDE. Posted separately by grade level. Retrieved February 10, 2009 from http://www.education.state.pa.us

Pennsylvania Department of Education. (2009). *2009–2010 Science item and scoring sampler supplement,* Harrisburg, PA: PDE. Posted separately by grade level. Retrieved February 10, 2009 from http://www.education.state.pa.us

Pennsylvania Department of Education. (2009). *2009–2010 Writing item and scoring sampler supplement*. Harrisburg, PA: PDE. Posted separately by grade level. Retrieved February 10, 2009 from http://www.education.state.pa.us

Pennsylvania Department of Education. (2009). *2008–2009 Assessment handbook*. Retrieved February 10, 2009, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2009). The *2008–2009 PSSA handbook for assessment coordinators: Writing, reading and mathematics, science*. Retrieved February 10, 2009, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2010). *PSSA and PSSA-M Accommodations guidelines for students with IEPs and students with 504 plans, revised 1-11-2010.* Retrieved February 24, 2010, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2010). *2009–2010 Assessment handbook.* Retrieved February 24, 2010 from http://www.education.state.pa.us

Pennsylvania Department of Education. (2010). The *2009–2010 PSSA handbook for assessment coordinators: Writing, reading and mathematics, science*. Retrieved February 24, 2010, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2011). *PSSA, PSSA-M, Keystone (paper/pencil) accommodations guidelines for students with IEPs and students with 504 plans, revised 1-12-2011*. Retrieved February 25, 2011 from http://www.education.state.pa.us

Pennsylvania Department of Education. (2011). *2010–2011 PSSA handbook for assessment coordinators: Reading and mathematics, writing, science*. Retrieved February 25, 2011, from http://www.education.state.pa.us

Pennsylvania Department of Education. (2012). *PSSA, PSSA-M, Keystone (paper/pencil) accommodations guidelines for students with IEPs and students with 504 plans, revised 1-23-2012*. Retrieved February 24, 2012 from http://www.education.state.pa.us

Pennsylvania Department of Education. (2012). *2011–2012 PSSA handbook for assessment coordinators: Reading and mathematics, writing, science*. Retrieved January 27, 2012, from http://www.education.state.pa.us

Qualls, A. L. (1995). Estimating the reliability of a test containing multiple item formats. *Applied Measurement in Education*, *8*(2), 111–120.

Raîche, G. (2005). Critical eigenvalue sizes in standardized residual principal components analysis. *Rasch Measurement Transactions, 19:1,* 1012.

Rasch, G. (1960). *Probabilistic models for some intelligence and attainment tests*. Copenhagen: Danish Institute for Educational Research.

Reckase, M.D. (1979). Unifactor latent trait models applied to multifactor tests: Results and implications. *Journal of Educational Statistics, 4,* 207–230.

Sinclair, A. L., & Thacker, A. A. (2005). *Relationships among Pennsylvania System of School Assessment (PSSA) scores, university proficiency exam scores, and college course grades in English and math* (HumRRO Report FR-05-55). Louisville, KY: Human Resources Research Organization.

Smith, R. & Miao, C. (1994). Assessing unidimensionality for Rasch measurement. Chapter 18 in M. Wilson (Ed.) Objective Measurement: Theory into Practice. Vol. 2. Norwood NJ: Ablex.

Spearman C. (1904). The proof and measurement of association between two things. *American Journal of Psychology*, *15*, 72–101.

Spearman C. (1910). Correlation calculated from faulty data. *British Journal of Psychology*, *3*, 271–295.

Stearns, M., & Smith R. M. (2007). *Estimation of classification consistency indices for complex assessments: Model based approaches*. Paper presented at the 2007 Annual Convention of the American Educational Research Association, Chicago, IL.

Thacker, A. A., & Dickinson, E. R. (2004). *Item content and difficulty mapping by form and item type for the 2001–2003 Pennsylvania System of School Assessment (PSSA)*. Alexandria, VA: Human Resources Research Organization.

Thacker, A. A., Dickinson, E. R., & Koger, M. E. (2004). *Relationships among the Pennsylvania System of School Assessment (PSSA) and other commonly administered assessments* (HumRRO Report FR-04-33). Louisville, KY: Human Resources Research Organization.

Thompson, S., Johnstone, C. J., & Thurlow, M. L. (2002). *Universal design applied to large scale assessments* (Synthesis Report 44). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes.

Traub, R. E. (1994). *Reliability for the social sciences: Theory and application*. Thousand Oaks: Sage.

Webb, N. L. (1997). *Criteria for alignment of expectations and tests in mathematics and science education* (NISE Research Monograph No. 6). Madison: University of Wisconsin–Madison, National Institute for Science Education. Washington, DC: Council of Chief State School Officers.

Webb, N. L. (1999). *Alignment of science and mathematics standards and assessments in four states* (NISE Research Monograph No. 18). Madison, WI: University of Wisconsin–Madison, National Institute for Science Education.

Webb, N.L. (2002). *Alignment study in language arts, mathematics, science, and social studies of state standards and tests for four states: State collaborative on test and state standards (SCASS)*. Madison, WI: University of Wisconsin–Madison, Wisconsin Center for Education Research.

WINSTEPS (2000). *WINSTEPS® Rasch measurement.* Copyright John M. Linacre.

Wright, B., & Masters, G. (1982). *Rating scale analysis*. Chicago, IL: MESA Press.

Yen, W. M. (1993). Scaling performance assessments: strategies for managing local item dependence. *Journal of Educational Measurement, 30*(3), 187–213.

Appendix A:

Assessment Anchor Explanations

PENNSYLVANIA DEPARTMENT OF EDUCATION

About the Mathematics Assessment Anchors

Introduction

This is a brief introduction to the Mathematics Assessment Anchors. For more information on the Assessment Anchors and how they were developed, please read the *General Introduction* provided on the website and the *Frequently Asked Questions*.

How the Assessment Anchors Connect to the Standards

The PA Academic Standards for Mathematics are:

2.1 Numbers, Number Systems and Number Relationships
2.2 Computation and Estimation
2.3 Measurement and Estimation
2.4 Mathematical Reasoning and Connections
2.5 Mathematical Problem Solving and Communication
2.6 Statistics and Data Analysis
2.7 Probability and Predictions
2.8 Algebra and Functions
2.9 Geometry
2.10 Trigonometry
2.11 Concepts of Calculus

All of the Mathematics Standards categories are still included on the PSSA but the Assessment Anchors tighten the focus of what is assessed. The Assessment Anchors also clarify what is expected from grade level to grade level. There is a clear vertical alignment in the Assessment Anchors that did not exist in the standards. Teachers will be able to see how concepts build on one another from year to year. In addition, the Assessment Anchors have fewer Reporting Categories to help create more valid scores (there are more items per reporting category). Rather than report student results in all 11 standards, the reports will be organized into five major categories.

How the Assessment Anchors are Organized

These categories are similar to the five NCTM (National Council of Teachers of Mathematics) Standards and the five NAEP (National Assessment of Educational Progress) Reporting Categories. Each PA Standard Category was examined and then placed in the appropriate Reporting Category. Some of the specific Standards Statements cut across different Reporting Categories (e.g., 2.11- Concepts of Calculus, which occurs in different categories rather than being a separate category). The following is a general summary of where the bulk of the PA Mathematics Standards can be found in the Reporting Categories:

Reporting Category	Standard
A. Numbers & Operations	2.1 (Numbers) & 2.2 (Computation)
B. Measurement	2.3 (Measurement)
C. Geometry	2.9 (Geometry) & 2.10 (Trigonometry)
D. Algebraic Concepts	2.8 (Algebra)
E. Data Analysis & Probability	2.6 (Statistics & Data) & 2.7 (Probability)

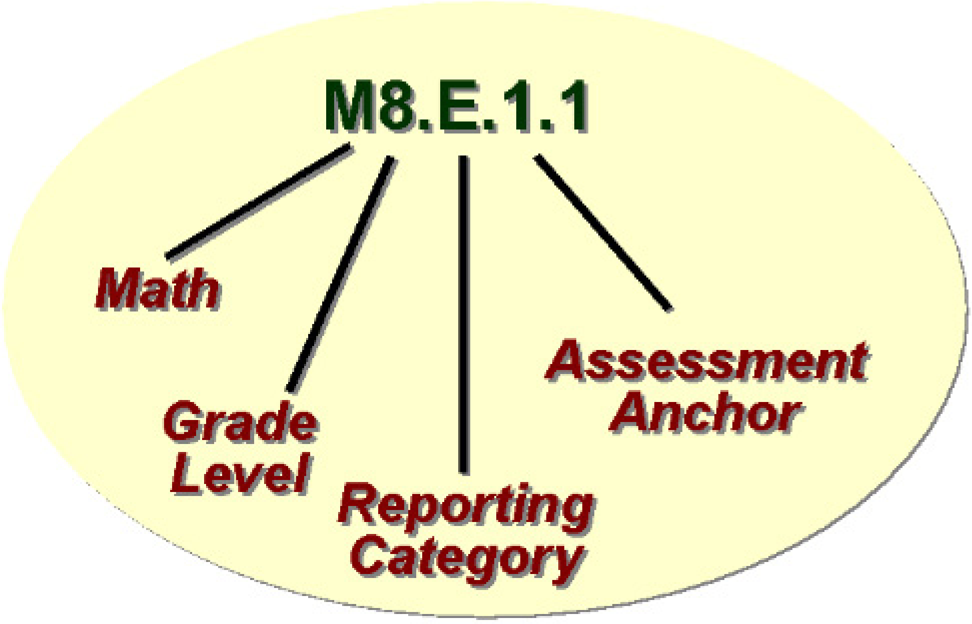
Important Patterns

The PA Mathematics Standards 2.4 (Reasoning) and 2.5 (Problem Solving) are not listed in the chart above. These two standards are not included because the above Reporting Categories focus on content (not process) and both Reasoning and Problem Solving are processes. However, knowing how to perform these processes is a very important part of the PSSA. Most of the multiple-choice items and all of the open-ended items will require students to know how to reason and solve problems, in addition to being knowledgeable about the content area being assessed. Even though Problem Solving is not one of the five content Reporting Categories, the PSSA will still show a separate score for the open-ended items on the school report, reflecting students' problem solving performance.

How to Read the Assessment Anchors

The Mathematics Assessment Anchors begin with an "M" to distinguish them from the Reading Assessment Anchors "R". The number after the "M" in the label is the grade level (e.g., M8 would be Mathematics at eighth grade). The second letter in the labeling system is the Reporting Category (A through E). The same reporting categories continue across all Grade levels, 3 through 8 and 11. The final number in the label is the actual Assessment Anchor. (e.g., 1.1, 1.2, 1.3, etc.) Essentially, you read the Assessment Anchors like an outline, with the Assessment Anchor shaded across the top of the page and more specific details underneath.

For example, M8.E.1.1 is a Mathematics Assessment Anchor (M stands for Math) at 8th Grade (8). The E indicates that this Anchor is in the Data Analysis and Probability Reporting Category and the 1.1 means that it is the first Assessment Anchor in the Data Analysis and Probability Reporting Category (1.1). (*See below*)



NOTE: Below each specific descriptor of the Assessment Anchor is a reference in italics. This reference relates to the Pennsylvania Academic Standards and helps you cross-walk the Anchors to the Standards.

Eligible Content and Sample Items

Two other important features* appear in this document:

Eligible Content. The column on the right-hand side of the page underneath each Assessment Anchor is the Eligible Content. This is often known as the "assessment limits" and helps teachers identify how the anchor will be assessed. Not all of the Eligible Content is assessed on the PSSA, but it shows the range of knowledge drawn upon to design the test.

Sample Items. The sample items appear on the bottom half of the page. These are examples of how the Assessment Anchor might appear on the PSSA. Some of the pages may not have any sample items because we only created three per Assessment Anchor. We will be continually adding to the sample items. For other sample items teachers should consult the released items on the state website.

*NOTE: These features are found in the Assessment Anchors document for each grade, which are located on the PDE website: www.education.state.pa.us from the left-hand column, select "Programs", "Programs O-R", "Pennsylvania System of School Assessment (PSSA)", and then "Assessment Anchors".

PENNSYLVANIA DEPARTMENT OF EDUCATION
Overview of Mathematics Assessment Anchors

*Note that on this overview document, the grade level does not appear because these anchors occur at all Grade levels 3 through 8 and 11.

MA. Numbers and Operations

MA.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.

MA.2 Understand the meanings of operations, use operations and understand how they relate to each other.

MA.3 Compute accurately and fluently and make reasonable estimates.

MB. Measurement

MB.1 Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement (not assessed at Grade 11).

MB.2 Apply appropriate techniques, tools and formulas to determine measurements.

MC. Geometry

MC.1 Analyze characteristics and properties of two- and three- dimensional geometric shapes and demonstrate understanding of geometric relationships.

MC.2 Identify and/or apply concepts of transformations or symmetry (not assessed at Grades 6, 7 or 11).

MC.3 Locate points or describe relationships using the coordinate plane (not assessed at Grade 3).

MD. Algebraic Concepts

MD.1 Demonstrate an understanding of patterns, relations and functions.

MD.2 Represent and/or analyze mathematical situations using numbers, symbols, words, tables and/or graphs.

MD.3 Analyze change in various contexts (not assessed at Grades 3, 4 or 8).

MD.4 Describe or use models to represent quantitative relationships (not assessed at Grade 3, 4, 5, 6 or 7).

ME. Data Analysis and Probability

ME.1 Formulate or answer questions that can be addressed with data and/or organize, display, interpret or analyze data.

ME.2 Select and/or use appropriate statistical methods to analyze data (not assessed at Grade 3).

ME.3 Understand and/or apply basic concepts of probability or outcomes.

ME.4 Develop and/or evaluate inferences and predictions or draw conclusions based on data or data displays (not assessed at Grades 3, 4, 5 or 6).

PENNSYLVANIA DEPARTMENT OF EDUCATION
About the Reading Assessment Anchors

Introduction

This is a brief introduction to the Reading Assessment Anchors. For more information on the Assessment Anchors and how they were developed, please read the *General Introduction* provided on the website and the *Frequently Asked Questions.*

How the Assessment Anchors Connect to the Standards

The PA Academic Standards for Reading, Writing, Speaking and Listening are:

1.1 Learning to Read Independently
1.2 Reading Critically in All Content Areas
1.3 Reading, Analyzing and Interpreting Literature
1.4 Types of Writing
1.5 Quality of Writing
1.6 Speaking and Listening
1.7 Characteristics and Function of the English Language
1.8 Research

In the past, the Reading PSSA assessed standards 1.1, 1.2, 1.3, 1.7 and 1.8 in Grades 5, 8 and 11. The Writing PSSA assessed standards 1.4 and 1.5. Speaking and Listening have always been assessed through local assessments. *Because of the shift to create a clearer and more focused test using the Assessment Anchors, the 2005 PSSA will only assess the first three reading standards.* Learning to read independently and critically and the ability to analyze and interpret are at the heart of what students must be able to do to be good readers in today's society. Standards 1.7 and 1.8 are not specific to reading and for the most part these standards are better assessed at the district level.

How the Assessment Anchors Are Organized

Instead of having five reporting categories, the Assessment Anchors will have two:

Reporting Category	Standard
A. Comprehension and Reading Skills	1.1 (Learning to Read Independently) and 1.2 (Reading Critically in All Content Areas)
B. Interpretation and Analysis of Fiction and Nonfiction Text	1.1 (Learning to Read Independently) and 1.2 (Reading Critically in All Content Areas) and 1.3 Reading, Analyzing and Interpreting Literature)

Important Patterns

There are additional patterns within each Reporting Category. Each Reporting Category includes some basic elements that are consistent across all of the grade levels.

A. Comprehension and Reading Skills

Comprehension and Reading Skills have two basic elements:

A.1 Fiction
A.2 Nonfiction

B. Interpretation and Analysis of Fiction and Nonfiction Text

Interpretation and Analysis of Fiction and Nonfiction Text has three basic elements:

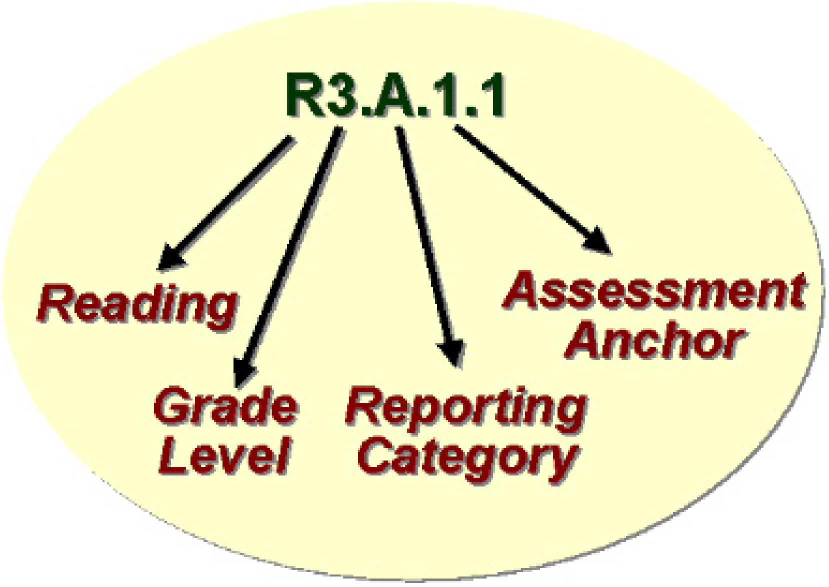
B.1 Components within text **or** components within and across texts
B.2 Literary Devices
B.3 Concepts and Organization of Nonfiction Text

The Anchors generally target the same comprehension skills from Grades 3 through 8 and 11, although the depth of knowledge required to comprehend the text grows in complexity over the years. In addition, the expectation is that the level of texts themselves will grow in complexity.

How to Read the Assessment Anchors

The Reading Assessment Anchors begin with "R" to distinguish them from the Mathematics Assessment Anchors, which begin with "M". The number after the "R" in the label is the grade level (e.g., R3 would be Reading at third grade). The second letter in the labeling system is the Reporting Category (A or B). The same reporting categories continue across all Grades 3 through 8 and 11. The final number in the label is the actual Assessment Anchor (e.g., 1.1, 1.2, 1.3, etc.). Essentially, you read the Assessment Anchors like an outline, with the Assessment Anchor shaded across the top of the page and more specific details underneath.

For example, R3.A.1.1 is a Reading Assessment Anchor (R stands for Reading) at 3rd grade (3). The A indicates that this Anchor is in the Comprehension and Reading Skills Reporting Category and the 1.1 means that it is the first Assessment Anchor in that Reporting Category. (*See below*)



NOTE: Below each specific descriptor of the Assessment Anchor is a reference in italics. This reference relates to the Pennsylvania Academic Standards and helps you crosswalk the Anchors to the Standards.

Eligible Content and Sample Items
Two other important features* appear in this document:

Eligible Content. The column on the right-hand side of the page underneath each Assessment Anchor is the Eligible Content. This is often known as the “assessment limits” and helps teachers identify how deeply they need to cover an Anchor and/or the range of the content they should teach to best prepare their students for the PSSA. Not all of the Eligible Content is assessed on the PSSA, but it shows the range of knowledge drawn upon to design the test.

Sample Items. For sample items please see the Item Bank currently on the web page and the Item Samplers, soon to be on the web page and distributed to districts via CD.

*NOTE: These features are found in the Assessment Anchors document for each grade, which are located on the PDE website: www.education.state.pa.us from the left-hand column, select “Programs”, “Programs O-R”, “Pennsylvania System of School Assessment (PSSA)”, and then “Assessment Anchors”.

PENNSYLVANIA DEPARTMENT OF EDUCATION

Overview of Reading Assessment Anchors

GRADE 3

R3.A. Comprehension and Reading Skills

- R3.A.1 Understand Fiction Appropriate to Grade level
- R3.A.2 Understand Nonfiction Appropriate to Grade Level

R3.B. Interpretation and Analysis of Fictional and Nonfictional Text

- R3.B.1 Understand Components Within and Between Texts
- R3.B.2 Understand Literary Devices in Fictional and Nonfictional Text
- R3.B.3 Understand Concepts and Organization of Nonfictional Text

GRADE 4

R4.A. Comprehension and Reading Skills

- R4.A.1 Understand Fiction Appropriate to Grade level
- R4.A.2 Understand Nonfiction Appropriate to Grade Level

R4.B. Interpretation and Analysis of Fictional and Nonfictional Text

- R4.B.1 Understand Components Within and Between Texts
- R4.B.2 Understand Literary Devices in Fictional and Nonfictional Text
- R4.B.3 Understand Concepts and Organization of Nonfictional Text

GRADE 5

R5.A. Comprehension and Reading Skills

- R5.A.1 Understand Fiction Appropriate to Grade level
- R5.A.2 Understand Nonfiction Appropriate to Grade Level

R5.B. Interpretation and Analysis of Fictional and Nonfictional Text

- R5.B.1 Understand Components Within and Between Texts
- R5.B.2 Understand Literary Devices in Fictional and Nonfictional Text
- R5.B.3 Understand Concepts and Organization of Nonfictional Text

GRADE 6

R6.A. Comprehension and Reading Skills

- R6.A.1 Understand Fiction Appropriate to Grade level
- R6.A.2 Understand Nonfiction Appropriate to Grade Level

R6.B. Interpretation and Analysis of Fictional and Nonfictional Text

- R6.B.1 Understand Components Within and Between Texts
- R6.B.2 Understand Literary Devices in Fictional and Nonfictional Text
- R6.B.3 Understand Concepts and Organization of Nonfictional Text

GRADE 7

R7.A. Comprehension and Reading Skills

R7.A.1	Understand Fiction Appropriate to Grade level
R7.A.2	Understand Nonfiction Appropriate to Grade Level

R7.B. Interpretation and Analysis of Fictional and Nonfictional Text

R7.B.1	Understand Components Within and Between Texts
R7.B.2	Understand Literary Devices in Fictional and Nonfictional Text
R7.B.3	Understand Concepts and Organization of Nonfictional Text

GRADE 8

R8.A. Comprehension and Reading Skills

R8.A.1	Understand Fiction Appropriate to Grade level
R8.A.2	Understand Nonfiction Appropriate to Grade Level

R8.B. Interpretation and Analysis of Fictional and Nonfictional Text

R8.B.1	Understand Components Within and Between Texts
R8.B.2	Understand Literary Devices in Fictional and Nonfictional Text
R8.B.3	Understand Concepts and Organization of Nonfictional Text

GRADE 11

R11.A. Comprehension and Reading Skills

R11.A.1	Understand Fiction Appropriate to Grade level
R11.A.2	Understand Nonfiction Appropriate to Grade Level

R11.B. Interpretation and Analysis of Fictional and Nonfictional Text

R11.B.1	Understand Components Within and Between Texts
R11.B.2	Understand Literary Devices in Fictional and Nonfictional Text
R11.B.3	Understand Concepts and Organization of Nonfictional Text

Pennsylvania Science

About the Science Assessment Anchors

Introduction

The Pennsylvania Science Assessment is based on the Academic Standards adopted by the State Board of Education in January of 2002. The standards are comprised of two documents: Science and Technology Standards and Environment and Ecology Standards. These documents contain seventeen important categories that describe what students need to know. The purpose of the Assessment Anchors is to articulate essential and assessable elements, and to provide clarity for instruction and for the focus of the state assessment in grades 4, 8, and 11.

How the Assessment Anchors Connect to the Standards

The Pennsylvania Academic Standards for Science are:

3.1 Unifying Themes
3.2 Inquiry and Design
3.3 Biological Sciences
3.4 Physical Science, Chemistry, and Physics
3.5 Earth Sciences
3.6 Technology Education
3.7 Technological Devises
3.8 Science, Technology and Human Endeavors

4.1 Watersheds and Wetlands
4.2 Renewable and Nonrenewable Resources
4.3 Environmental Health
4.4 Agriculture and Society
4.5 Integrated Pest Management
4.6 Ecosystems and their Interactions
4.7 Threatened, Endangered and Extinct Species
4.8 Humans and the Environment
4.9 Environmental Laws and Regulations

All of the Science Standards categories are included in the Assessment Anchors, but the anchors tighten the focus of what is assessed. The Assessment Anchors clarify what is expected from grade span to grade span (K-4, 5-7, and 8-10). In addition, the Assessment Anchors have fewer Reporting Categories to help create more reliable scores (meaning that there are more items per reporting category making interpretations about what students actually know more reliable). Rather than reporting student results in all 17 standards, the reports will be organized into four reporting categories.

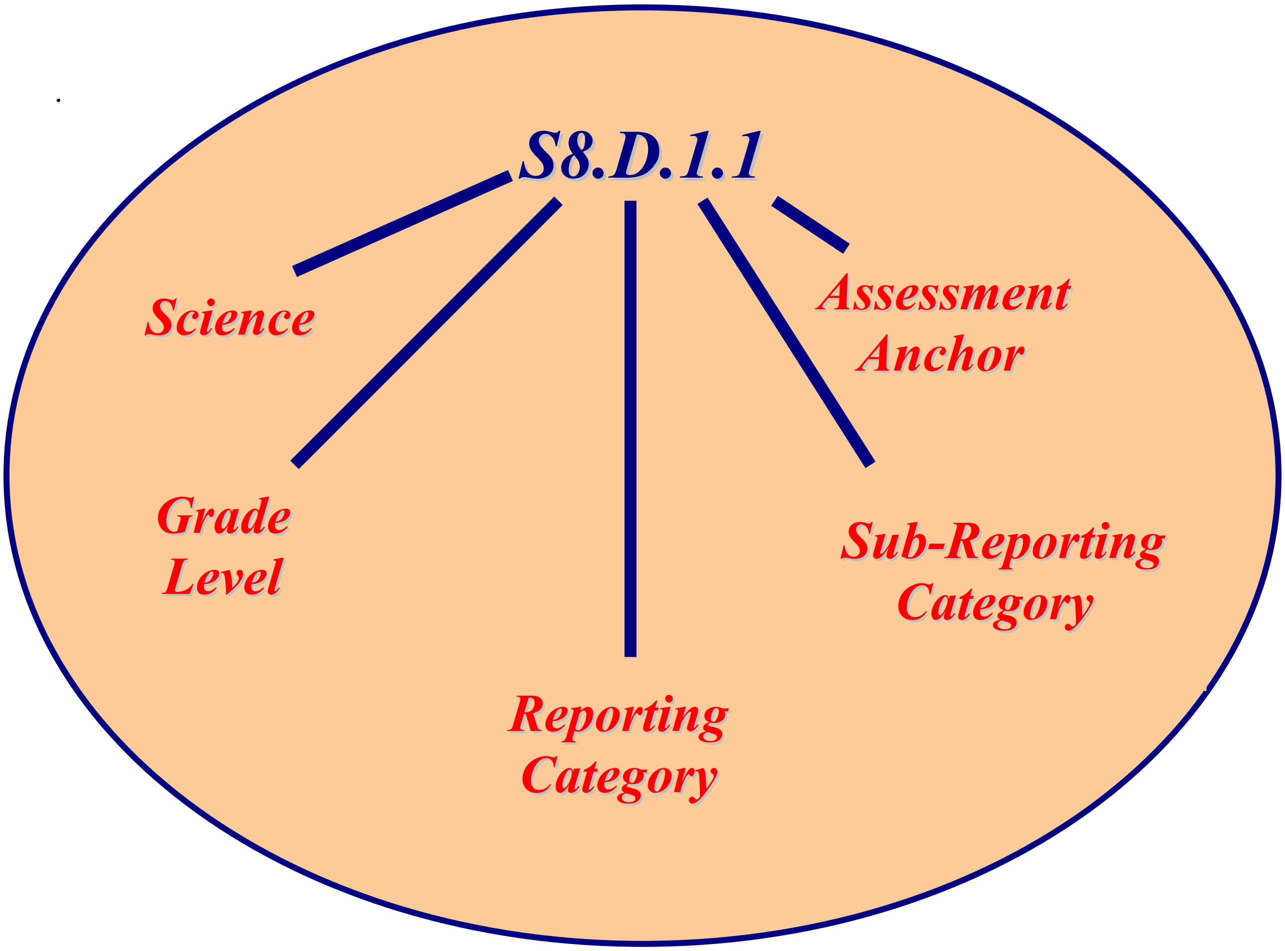
How the Assessment Anchors are Organized

The four reporting categories are similar to those used by the National Assessment of Educational Progress (NEAP) and The Third International Mathematics and Science Study (TIMSS). The four categories for the assessment anchors are included in these major assessments, but are organized differently. In the following table are the four student reporting categories for the assessment anchors for the Pennsylvania System of School Assessment (PSSA) in Science and the related standards.

Reporting Categories	Connections to the Standards
A. The Nature of Science	**3.1** Unifying Themes of Science **3.2** Inquiry and Design **3.6** Technology Education **3.7** Technological Devices **3.8** Science, Technology, and Human Endeavors **4.4** Agriculture and Society **4.6** Ecosystems and their Interactions **4.7** Threatened, Endangered, and Extinct Species **4.8** Humans and the Environment
B. Biological Sciences	**3.1** Unifying Themes of Science **3.3** Biological Sciences **4.2** Renewable and Nonrenewable Resources **4.3** Environmental Health **4.6** Ecosystems and Their Interactions **4.7** Threatened, Endangered, and Extinct Species
C. Physical Sciences	**3.2** Inquiry and Design **3.4** Physical Science, Chemistry, and Physics **3.6** Earth Sciences
D. Earth and Space Sciences	**3.2** Inquiry and Design **3.4** Physical Science, Chemistry, and Physics **3.5** Earth Sciences **3.7** Technological Devices **4.1** Watersheds and Wetlands **4.2** Renewable and Nonrenewable Resources **4.8** Humans and the Environment

How to Read the Assessment Anchors

All of the Science Assessment Anchors begin with an “S” to indicate science. The number after the “S” in the label is the grade level (e.g., S8 would be Science at eighth grade). The second letter in the labeling system is the Reporting Category (A through D) followed by the sub-reporting category number. The same reporting categories continue across all Grade levels, 4, 8, and 11. The final number in the label is the actual Assessment Anchor number (e.g., 1.1, 1.2, 1.3, etc.). Essentially, you read the Assessment Anchors like an outline, with the Assessment Anchor shaded across the top of the page and more specific details underneath. (*See example below.*)



For example, **S8.D.1.1** is the code for the first science (S) assessment anchor for Grade 8 in the reporting category of (D) Earth and Space Sciences, and the sub-category of Earth Features and Processes That Change Earth and Its Resources.

Other Important Features* that Appear in the Assessment Anchors

Eligible Content

The column on the right-hand side of the page underneath each Assessment Anchor is the Eligible Content. This is often known as the "assessment limit" and helps teachers identify how the anchor will be assessed. Not all of the Eligible Content is assessed on the PSSA each year, but it shows the range of knowledge drawn upon to design the test.

The use of "e.g." and " i.e."

Some assessment anchors contain additional information in parentheses. If there is a list inside with an "e.g.," preceding it, that means the examples included are meant to be just that, examples. This is not an exhaustive list for assessment purposes. However, if the list is preceded by an "i.e.," the list is to be considered limited to those specific examples, and those items are the only items that are "fair game" for assessment.

The use of "and" and "or"

All of the concepts and skills identified at a given grade level are "fair game" for large-scale assessment purposes. However, conjunctions used throughout this document have specific meaning. The use of the conjunction "or" means that a student can be assessed on all or just some of the elements in a given year. The use of "and" between elements means that the *intent* is to assess each element of the assessment anchor every year. In some situations, "or" is used when students have choices about how they will provide supporting evidence for their responses.

Sample Items

The sample items appear on the bottom half of the page. These are examples of how the Assessment Anchor might appear on the PSSA. Some of the pages may not have any sample items because the development committee only created three examples per Assessment Anchor. We will be continually adding to the sample items as time goes on. For other sample items, teachers should consult the item sampler on the state website.

*NOTE: These features are found in the Assessment Anchors document for each grade, which are located on the PDE website: www.education.state.pa.us from the left-hand column, select "Programs", "Programs O-R", "Pennsylvania System of School Assessment (PSSA)", and then "Assessment Anchors".

Overview of Science Assessment Anchors

**Note that on this overview document, the grade level does not appear in the reporting categories because these occur at all grade levels (4, 8, and 11). However, Grade 4 is used as an example for the Anchors and Benchmark References.*

S.A The Nature of Science	
S.A.1. Reasoning and Analysis	
S4.A.1.1 **Identify and explain the pros and cons of applying scientific, environmental, or technological knowledge to possible solutions to problems.**	**(3.2.4.A)** **(3.2.4.C)** **(3.8.4.C)**
S4.A.1.2 **Recognize and describe change in natural or human-made systems and the possible effects of those changes.**	**(3.1.4.C)** **(3.1.4.E)** **(4.7.4.B)** **(4.8.4.A)** **(4.8.4.C)**
S.A.2. Processes, Procedures, and Tools of Scientific Investigations	
S4.A.2.1. **Apply skills necessary to conduct an experiment or design a solution to solve a problem.**	**(3.2.4.C)**
S4.A.2.2 **Identify appropriate instruments for a specific task and describe the information the instrument can provide.**	**(3.7.4.A)** **(3.7.4.B)**
S.A.3. Systems, Models, and Patterns	
S4.A.3.1 **Identify systems and describe relationships among parts of a familiar system (e.g., digestive system, simple machines, water cycle).**	**(3.1.4.A)** **(3.6.4.A)** **(3.6.4.B)** **(3.6.4.C)** **(4.4.4.C)** **(4.6.4.A)** **(4.6.4.B)**
S4.A.3.2 **Use models to illustrate simple concepts and compare the models to what they represent.**	**(3.1.4.B)** **(4.3.4.C)**
S4.A.3.3 **Identify and make observations about patterns that regularly occur and reoccur in nature.**	**(3.1.4.C)** **(3.2.4.B)**

S.B Biological Sciences	
S.B.1. Structure and Function of Organisms	
S4.B.1.1 **Identify and describe similarities and differences between living things and their life processes.**	**(3.3.4.A)** **(3.3.4.B)** **(4.3.4.A)** **(4.3.4.C)** **(4.6.4.A)**
S.B.2. Continuity of Life	
S4.B.2.1 **Identify and explain how adaptations help organisms to survive.**	**(4.7.4.B)**
S4.B.2.2 **Identify that characteristics are inherited and, thus, offspring closely resemble their parents.**	**(3.3.4.C)** **(4.7.4.A)** **(4.7.4.C)**
S.B.3. Ecological Behavior and Systems	
S4.B.3.1 **Identify and describe living and nonliving things in the environment or their interaction.**	**(4.6.4.A)**
S4.B.3.2 **Describe, explain, and predict change in natural or human-made systems and the possible effects of those changes on the environment.**	**(4.2.4.C)** **(4.3.4.C)** **(4.6.4.C)** **(3.1.4.E)**
S4.B.3.3 **Identify or describe human reliance on the environment at the individual or the community level.**	**(3.8.4.C)** **(4.3.4.B)** **(4.4.4.B)** **(4.5.4.C)**

S.C Physical Sciences	
S.C.1. Structure, Properties and Interactions of Matter and Energy	
S4.C.1.1 **Describe observable physical properties of matter.**	**(3.2.4.B)** **(3.4.4.A)**
S.C.2 Forms, Sources, Conversions, and Transfer of Energy	
S4.C.2.1 **Recognize basic energy types and sources, or describe how energy can be changed from one form to another.**	**(3.4.4.B)** **(3.4.4.C)**
S.C.3 Principles of Force and Motion	
S4.C.3.1 **Identify and describe different types of force and motion, or the effect of the interaction between force and motion.**	**(3.2.4.B)** **(3.4.4.C)** **(3.6.4.C)**

S.D Earth and Space Sciences	
S.D.1 Earth Features and Processes that Change Earth and Its Resources	
S4.D.1.1 **Describe basic landforms in Pennsylvania.**	**(3.5.4.A)**
S4.D.1.2 **Identify the types and uses of Earth's resources.**	**(3.5.4.B)** **(3.5.4.D)** **(4.2.4.B)** **(4.8.4.D)**
S4.D.l.3 **Describe Earth's different sources of water or describe changes in the form of water.**	**(3.5.4.D)** **(4.1.4.A)** **(4.1.4.D)** **(4.1.4.E)**
S.D.2 Weather, Climate, and Atmospheric Processes	
S4.D.2.1 **Identify basic weather conditions and how they are measured.**	**(3.5.4.C)** **(3.7.4.B)** **(3.2.4.B)**
S.D.3 Composition and Structure of the Universe	
S4.D.3.1 **Describe Earth's relationship to the sun and the moon.**	**(3.4.4.D)**

Appendix B:

PSSA General Scoring Guidelines

PENNSYLVANIA DEPARTMENT OF EDUCATION

PSSA

General Description of Mathematics Scoring Guidelines

4 – The response demonstrates a *thorough* understanding of the mathematical concepts and procedures required by the task.

The response provides correct answer(s) with clear and complete mathematical procedures shown and a correct explanation, as required by the task. Response may contain a minor "blemish" (e.g., missing $) or omission in work or explanation that does not detract from demonstrating a *thorough* understanding.

3 – The response demonstrates a *general* understanding of the mathematical concepts and procedures required by the task.

The response and explanation (as required by the task) are mostly complete and correct. The response may have minor errors or omissions that do not detract from demonstrating a *general* understanding.

2 – The response demonstrates a *partial* understanding of the mathematical concepts and procedures required by the task.

The response is somewhat correct with *partial* understanding of the required mathematical concepts and/or procedures demonstrated and/or explained. The response may contain some work that is incomplete or unclear.

1 – The response demonstrates a *minimal* understanding of the mathematical concepts and procedures required by the task.

0 – The response has no correct answer and *insufficient* evidence to demonstrate any understanding of the mathematical concepts and procedures required by the task for that grade level.

Response may show only information copied from the question.

Special Categories within zero reported separately:
BLK (blank)...Blank, entirely erased, or written refusal to respond
OT ....Off task
IL....................Illegible
LOE................Response in a language other than English

The Scoring Guideline documents are available on the PDE website.

PENNSYLVANIA DEPARTMENT OF EDUCATION

PSSA

General Scoring Guidelines for Open-Ended Reading Items

3 Points

- The response provides a complete answer to the task (e.g., a statement that offers a correct answer as well as text-based support).
- The response provides specific, appropriate and accurate details (e.g., naming, describing, explaining, or comparing) or examples.

2 Points

- The response provides a partial answer to the task (e.g., indicates some awareness of the task and at least one text-based detail).
- The response attempts to provide sufficient, appropriate details (e.g., naming, describing, explaining, or comparing) or examples; may contain minor inaccuracies.

1 Point

- The response provides an incomplete answer to the task (e.g., indicating either a misunderstanding of the task or no text-based details).
- The response provides insufficient or inappropriate details or examples that have a major effect on accuracy.
- The response consists entirely of relevant copied text.

0 Points

- The response provides insufficient material for scoring.
- The response is inaccurate in all aspects.

Categories within zero reported separately:

- BLK (blank) = no response or written refusal to respond or too brief to determine response.
- OT = off task/topic.
- LOE = response in a language other than English.
- IL = illegible.

DESCRIPTION OF SCIENCE SCORING GUIDELINES FOR 2-POINT OPEN-ENDED ITEMS:

General Description of Science Scoring Guidelines:

2 – The response demonstrates a *thorough* understanding of the scientific content, concepts, and procedures required by the task/s.

The response provides a clear, complete, and correct response as required by the task/s. Response may contain a minor blemish (e.g., misspelled words) or omission in work or explanation that does not detract from demonstrating a thorough understanding.

1 – The response demonstrates a *partial* understanding of the scientific content, concepts, and procedures required by the task/s.

The response is somewhat correct with partial understanding of the required scientific content, concepts, and/or procedures demonstrated and/or explained. The response may contain some work that is incomplete or unclear.

0 – The response provides *insufficient* evidence to demonstrate any understanding of the scientific content, concepts, and procedures as required by the task/s for that grade level.

Response may show only information copied or rephrased from the question or insufficient correct information to receive a score of 1.

Special Categories within zero reported separately:
BLK – Blank, entirely erased or written refusal to respond
OT – Off Task
IL – Illegible
LOE – Response in a language other than English

DESCRIPTION OF SCIENCE SCORING GUIDELINES FOR 4-POINT OPEN-ENDED ITEMS:

General Description of Science Scoring Guidelines:

4 – The response demonstrates a *thorough* understanding of the scientific content, concepts, and procedures required by the task/s.

The response provides a clear, complete, and correct response as required by the task/s. Response may contain a minor blemish (e.g., misspelled words) or omission in work or explanation that does not detract from demonstrating a thorough understanding.

3 – The response demonstrates a *general* understanding of the scientific content, concepts, and procedures required by the task/s.

The responses, as required by the task, are mostly complete and correct. The response may have minor errors or omissions that do not detract from demonstrating a general understanding.

2 – The response demonstrates a *partial* understanding of the scientific content, concepts, and procedures required by the task/s.

The response is somewhat correct with partial understanding of the required scientific content, concepts, and/or procedures demonstrated and/or explained. The response may contain some work that is incomplete or unclear.

1 – The response demonstrates a *minimal* understanding of the scientific content, concepts, and procedures as required by the task/s.

0 – The response provides *insufficient* evidence to demonstrate any understanding of the scientific content, concepts, and procedures as required by the task/s for that grade level.

Response may show only information copied or rephrased from the question or insufficient correct information to receive a score of 1.

Special Categories within zero reported separately:
BLK – Blank, entirely erased or written refusal to respond
OT – Off Task
IL – Illegible
LOE – Response in a language other than English

PSSA CONVENTIONS SCORING GUIDELINE FOR WRITING

4

- Thorough control of sentence formation.
- Few errors, if any, are present in grammar, usage, spelling, and punctuation, but the errors that are present do not interfere with meaning.

3

- Adequate control of sentence formation.
- Some errors may be present in grammar, usage, spelling, and punctuation, but few, if any, of the errors that are present may interfere with meaning.

2

- Limited and/or inconsistent control of sentence formation. Some sentences may be awkward or fragmented
- Many errors may be present in grammar, usage, spelling, and punctuation, and some of those errors may interfere with meaning.

1

- Minimal control of sentence formation. Many sentences are awkward and fragmented.
- Many errors may be present in grammar, usage, spelling, and punctuation, and many of those errors may interfere with meaning.

PSSA INFORMATIONAL SCORING GUIDELINE FOR WRITING

4	FOCUS	*Sharp, distinct controlling point made about a single topic with evident awareness of task and audience.*
	CONTENT DEVELOPMENT	*Substantial, relevant, and illustrative content that demonstrates a clear understanding of the purpose. Thorough elaboration with effectively presented information consistently supported with well-chosen details.*
	ORGANIZATION	Effective organizational strategies and structures, such as logical order and transitions, which develop a controlling idea.
	STYLE	Precise control of language, stylistic techniques, and sentence structures that creates a consistent and effective tone.
3	FOCUS	Clear controlling point made about a single topic with general awareness of task and audience.
	CONTENT DEVELOPMENT	Adequate, specific, and/or illustrative content that demonstrates an understanding of the purpose. Sufficient elaboration with clearly presented information supported with well-chosen details.
	ORGANIZATION	Organizational strategies and structures, such as logical order and transitions, which develop a controlling idea.
	STYLE	Appropriate control of language, stylistic techniques, and sentence structures that creates a consistent tone.
2	FOCUS	Vague evidence of a controlling point made about a single topic with an inconsistent awareness of task and audience.
	CONTENT DEVELOPMENT	Inadequate, vague content that demonstrates a weak understanding of the purpose. Underdeveloped and/or repetitive elaboration with inconsistently supported information. May be an extended list.
	ORGANIZATION	Inconsistent organizational strategies and structures, such as logical order and transitions, which ineffectively develop a controlling idea.
	STYLE	Limited control of language and sentence structures that creates interference with tone.
1	FOCUS	Little or no evidence of a controlling point made about a single topic with a minimal awareness of task and audience.
	CONTENT DEVELOPMENT	Minimal evidence of content that demonstrates a lack of understanding of the purpose. Superficial, undeveloped writing with little or no support. May be a bare list.
	ORGANIZATION	Little or no evidence of organizational strategies and structures, such as logical order and transitions, which inadequately develop a controlling idea.
	STYLE	Minimal control of language and sentence structures that creates an inconsistent tone.

PSSA Narrative Scoring Guideline for Writing

4	Focus	Sharp, distinct controlling point or theme with evident awareness of the narrative.
	Content Development	Strong story line with illustrative details that addresses a complex idea or examines a complex experience. Thoroughly elaborated narrative sequence that employs narrative elements as appropriate.
	Organization	Skillful narrative pattern with clear and consistent sequencing of events, employing a beginning, a middle, and an end. Minor interruptions to the sequence may occur.
	Style	Precise control of language, literary devices, and sentence structures that creates a consistent and effective point of view and tone.
3	Focus	Clear controlling point or theme with general awareness of the narrative.
	Content Development	Story line with details that addresses an idea or examines an experience. Sufficiently elaborated narrative sequence that employs narrative elements as appropriate.
	Organization	Narrative pattern with generally consistent sequencing of events, employing a beginning, a middle, and an end. Interruptions to the sequence may occur.
	Style	Appropriate control of language, literary devices, and sentence structures that creates a consistent point of view and tone.
2	Focus	Vague evidence of a controlling point or theme with inconsistent awareness of the narrative.
	Content Development	Inconsistent story line that inadequately addresses an idea or examines an experience. Insufficiently elaborated narrative sequence that may employ narrative elements.
	Organization	Narrative pattern with generally inconsistent sequencing of events that may employ a beginning, a middle, and an end. Interruptions to the sequence may interfere with meaning.
	Style	Limited control of language and sentence structures that creates interference with point of view and tone.
1	Focus	Little or no evidence of a controlling point or theme with minimal awareness of the narrative.
	Content Development	Insufficient story line that minimally addresses an idea or examines an experience. Unelaborated narrative that may employ narrative elements.
	Organization	Narrative pattern with little or no sequencing of events. Interruptions to the sequence interfere with meaning.
	Style	Minimal control of language and sentence structures that creates an inconsistent point of view and tone.

PSSA PERSUASIVE SCORING GUIDELINE FOR WRITING

4	Focus	Sharp, distinct controlling point presented as a position and made convincing through a clear, thoughtful, and substantiated argument with evident awareness of task and audience.
	Content Development	Substantial, relevant, and illustrative content that demonstrates a clear understanding of the purpose. Thoroughly elaborated argument that includes a clear position consistently supported with precise and relevant evidence. Rhetorical (persuasive) strategies are evident.
	Organization	Effective organizational strategies and structures, such as logical order and transitions, to develop a position supported with a purposeful presentation of content.
	Style	Precise control of language, stylistic techniques, and sentence structures that creates a consistent and effective tone.
3	Focus	Clear controlling point presented as a position and made convincing through a credible and substantiated argument with general awareness of task and audience.
	Content Development	Adequate, specific and/or illustrative content that demonstrates an understanding of the purpose. Sufficiently elaborated argument that includes a clear position supported with some relevant evidence. Rhetorical (persuasive) strategies may be evident.
	Organization	Organizational strategies and structures, such as logical order and transitions, to develop a position supported with sufficient presentation of content.
	Style	Appropriate control of language, stylistic techniques, and sentence structures that creates a consistent tone.
2	Focus	Vague evidence of a controlling point presented as a position that may lack a credible and/or substantiated argument with an inconsistent awareness of task and audience.
	Content Development	Inadequate, vague content that demonstrates a weak understanding of the purpose. Insufficiently elaborated argument that includes an underdeveloped position supported with little evidence.
	Organization	Inconsistent organizational strategies and structures, such as logical order and transitions, to develop a position with inadequate presentation of content.
	Style	Limited control of language and sentence structures that creates interference with tone.
1	Focus	Little or no evidence of a controlling point presented as a position that lacks a credible and/or substantiated argument with minimal awareness of task and audience.
	Content Development	Minimal evidence of content that demonstrates a lack of understanding of the purpose. Unelaborated argument that includes an undeveloped position supported with minimal or no evidence.
	Organization	Little or no evidence of organizational strategies and structures, such as logical order and transitions, to develop a position with insufficient presentation of content.
	Style	Minimal control of language and sentence structures that creates an inconsistent tone.

Appendix C:

2012 PSSA Tally Sheets

Grade 03 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Numbers and Operations	1			Understand relationships and representations of numbers and number systems		4				4	4		1				1	1
	1	1	1	Match word to number	1		1		2		2	1		1		2		2
	1	1	2	Differentiate between even & odd	2				2		2	2				2		2
	1	1	3	Compare two whole numbers	1				1		1	1				1		1
	1	1	4	Order a set of whole numbers	2		1		3		3	2		1		3		3
	1	1	5	Match symbolic representation	1				1		1	1				1		1
	1	2	1	Write fraction that corresponds to drawing	2		1		3		3	2		1		3		3
	1	2	2	Draw representation of a fraction	2				2		2	2				2		2
	1	3	1	Count a collection of bills & coins	1				1		1	1				1		1
	1	3	2	Compare total values of combinations of coins	1				1		1	1				1		1
	1	3	3	Make change up to $5.00	1				1		1	1				1		1
	Total For Assessment Anchor A.1 Understand relationships among and representations of numbers and number systems				14	4	3		17	4	21	14	1	3		17	1	18
	2			Understand meanings, uses and relations of operations														
	2	1	1	Represent multiplication as repeated addition	2				2		2	2				2		2
	2	1	2	Demonstrate inverse relationships	2		1		3		3	2		1		3		3
	2	1	3	Identify correct operation(s)	3				3		3	3				3		3
	Total For Assessment Anchor A.2 Understand meanings, uses of operations and how they relate to each other				7		1		8		8	7		1		8		8
	3			Compute accurately/fluently and make reasonable estimates														
	3	1	1	Solve single- & double-digit addition & subtraction problems	2				2		2	2				2		2
	3	1	2	Solve multiplication problems	2		1		3		3	2		1		3		3
	3	1	3	Solve triple digit addition & subtraction problems	1				1		1	1				1		1
	3	2	1	Estimate sums and differences	3				3		3	3				3		3
	Total For Assessment Anchor A.3 Compute accurately and fluently and make reasonable estimates				8		1		9		9	8		1		9		9
Total For Reporting Category A					29	4	5		34	4	38	29	1	5		34	1	35

Grade 03 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Measurement	1			Understand measurable attributes and units, systems, processes of measurement		4				4	4		1				1	1
	1	1	1	Tell/show analog time to the minute	1				1		1	1				1		1
	1	1	2	Find elapsed time			1		1		1			1		1		1
	1	1	3	Identify times as AM or PM	1				1		1	1				1		1
	1	2	1	Select appropriate unit for measurement														
	1	2	2	Compare and/or order objects by length, area, or weight	1				1		1	1				1		1
	Total For Assessment Anchor B.1 Understand measurable attributes and units, systems, processes of measurement				3	4	1		4	4	8	3	1	1		4	1	5
	2			Apply techniques, tools & formulas to determine measurements														
	2	1	1	Use a ruler to nearest 1/2 inch	2				2		2	2				2		2
	2	2	1	Match object with measurement	1				1		1	1				1		1
	Total For Assessment Anchor B.2 Apply appropriate techniques, tools and formulas to determine measurements				3				3		3	3				3		3
Total For Reporting Category B					6	4	1		7	4	11	6	1	1		7	1	8

Grade 03 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
C: Geometry	1			Analyze characteristics & properties of 2-D & 3-D shapes														
	1	1	1	Name/identify/describe 2-D shapes	3		1		4		4	3		1		4		4
	1	1	2	Name/identify 3-D shapes	2				2		2	2				2		2
	Total For Assessment Anchor C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes				5		1		6		6	5		1		6		6
	2			Identify and/or apply concepts of transformations or symmetry														
	2	1	1	Identify/draw line of symmetry	2				2		2	2				2		2
	2	1	2	Identify symmetrical 2-D shapes	2		1		3		3	2		1		3		3
	Total For Assessment Anchor C.2 Identify and/or apply concepts of transformations or symmetry				4		1		5		5	4		1		5		5
Total For Reporting Category C					9		2		11		11	9		2		11		11

Grade 03 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
D: Algebraic Concepts	1			Understand patterns, relations and functions														
	1	1	1	Extend or find a missing element in a pattern	2				2		2	2				2		2
	1	1	2	Identify/describe rule for a pattern	2				2		2	2				2		2
	Total For Assessment Anchor D.1 Understand patterns, relations and functions				4				4		4	4				4		4
	2			Represent/analyze mathematical situations														
	2	1	1	Create or match a story	2				2		2	2				2		2
	2	1	2	Match number sentence to story	1				1		1	1				1		1
	2	2	1	Find a missing number	1		1		2		2	1		1		2		2
	2	2	2	Identify the missing symbol	2				2		2	2				2		2
	Total For Assessment Anchor D.2 Represent/analyze mathematical situations using numbers, symbols, words, tables and/or graphs				6		1		7		7	6		1		7		7
Total For Reporting Category D					10		1		11		11	10		1		11		11

Grade 03 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
E: Data Analysis and Probability	1			Formulate/answer questions; organize, display, interpret or analyze data		4				4	4		1				1	1
	1	1	1	Analyze data shown on tables, charts, or bar graphs	2				2		2	2				2		2
	1	1	2	Describe, interpret and/or answer questions based on data	2		1		3		3	2		1		3		3
	1	2	1	Graph data	1				1		1	1				1		1
	1	2	2	Translate information from one type of display to another	1				1		1	1				1		1
	Total For Assessment Anchor E.1 Formulate or answer questions about data and/or organize, display, interpret or analyze data				6	4	1		7	4	11	6	1	1		7	1	8
Total For Reporting Category E					6	4	1		7	4	11	6	1	1		7	1	8

Grade 04 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Numbers and Operations	1			Understand relationships and representations of numbers and number systems														
	1	1	1	Match drawing to fraction, decimal, mixed number	1		1		2		2	1		1		2		2
	1	1	2	Create a drawing or set to represent a fraction	3				3		3	3				3		3
	1	1	3	Match standard form to word form (decimals)	2				2		2	2				2		2
	1	1	4	Write in expanded, standard or word form (whole numbers)	2				2		2	2				2		2
	1	2	1	Locate/identify fractions or decimals on number line	1				1		1	1				1		1
	1	2	2	Compare/order whole numbers	1				1		1	1				1		1
	1	3	1	Find/identify/list factors	2				2		2	2				2		2
	1	3	2	Find/identify/list multiples	3		1		4		4	3		1		4		4
	Total For Assessment Anchor A.1 Understand relationships among and representations of numbers and number systems				15		2		17		17	15		2		17		17
	2			Understand meanings, uses and relations of operations		4				4	4		1				1	1
	2	1	1	Solve problems involving all operations (whole numbers)	3		1		4		4	3		1		4		4
	2	1	2	Solve problems with decimals	1				1		1	1				1		1
	Total For Assessment Anchor A.2 Understand meanings, uses of operations and how they relate to each other				4	4	1		5	4	9	4	1	1		5	1	6
	3			Compute accurately/fluently and make reasonable estimates														
	3	1	1	Round whole numbers	1		1		2		2	1		1		2		2
	3	1	2	Round to nearest dollar	3		1		4		4	3		1		4		4
	3	1	3	Estimate answers with whole numbers	2				2		2	2				2		2
	3	2	1	Solve addition/subtraction problems involving decimals	1				1		1	1				1		1
	3	2	2	Solve addition/subtraction problems involving fractions	1				1		1	1				1		1
	Total For Assessment Anchor A.3 Compute accurately and fluently and make reasonable estimates				8		2		10		10	8		2		10		10
Total For Reporting Category A					27	4	5		32	4	36	27	1	5		32	1	33

Grade 04 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points: Student Scores (Core Points) MC	Points: Student Scores (Core Points) OE	Points: Equating Block (EB) MC	Points: Equating Block (EB) OE	Points: Total Points (Core & EB) MC	Points: Total Points (Core & EB) OE	Points: Total Points (Core & EB) Total	Items: Number of Items Core MC	Items: Number of Items Core OE	Items: Number of Items EB MC	Items: Number of Items EB OE	Items: Total Number of Items (Core & EB) MC	Items: Total Number of Items (Core & EB) OE	Items: Total Number of Items (Core & EB) Total
B: Measurement	1			Understand measurable attributes and units, systems, processes of measurement														
	1	1	1	Match analog time to digital time	1				1		1	1				1		1
	1	1	2	Identify time	3				3		3	3				3		3
	1	1	3	Calculate elapsed time	1		1		2		2	1		1		2		2
	1	1	4	Determine beginning or ending time	1				1		1	1				1		1
	Total For Assessment Anchor B.1 Understand measurable attributes and units, systems, processes of measurement				6		1		7		7	6		1		7		7
	2			Apply techniques, tools & formulas to determine measurements														
	2	1	1	Use/read ruler to nearest 1/4 inch	2				2		2	2				2		2
	2	2	1	Make reasonable estimates of measurement	2				2		2	2				2		2
	Total For Assessment Anchor B.2 Apply appropriate techniques, tools and formulas to determine measurements				4				4		4	4				4		4
Total For Reporting Category B					10		1		11		11	10		1		11		11

Grade 04 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
C: Geometry	1			Analyze characteristics & properties of 2-D & 3-D shapes														
	1	1	1	Identify/classify/compare 2-D figures	2				2		2	2				2		2
	1	1	2	Classify 3-D figures, identify characteristics	1				1		1	1				1		1
	1	2	1	Identify points/lines/segments/rays	2		1		3		3	2		1		3		3
	1	2	2	Identify parallel/perpendicular lines	1				1		1	1				1		1
	Total For Assessment Anchor C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes				6		1		7		7	6		1		7		7
	2			Identify and/or apply concepts of transformations and symmetry														
	2	1	1	Identify/draw figures having one, two, or no lines of symmetry			1		1		1			1		1		1
	Total For Assessment Anchor C.2 Identify and/or apply concepts of transformations and symmetry						1		1		1			1		1		1
	3			Locate points/describe relationships using the coordinate plane		4				4	4		1				1	1
	3	1	1	Match or plot ordered pair														
	Total For Assessment Anchor C.3 Locate points or describe relationships using the coordinate plane					4				4	4		1				1	1
Total For Reporting Category C					6	4	2		8	4	12	6	1	2		8	1	9

Grade 04 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
D: Algebraic Concepts	1			Understand patterns, relations and functions														
	1	1	1	Extend or find a missing element in a numerical or geometric pattern	2				2		2	2				2		2
	1	1	2	Identify/describe rule for numerical or geometric pattern	1				1		1	1				1		1
	1	1	3	Create or replicate numerical or geometric pattern	1				1		1	1				1		1
	1	2	1	Determine missing elements in function table given the rule	1				1		1	1				1		1
	1	2	2	Determine rule given a table	2		1		3		3	2		1		3		3
	Total For Assessment Anchor D.1 Understand patterns, relations and functions				7		1		8		8	7		1		8		8
	2			Represent/analyze mathematical situations														
	2	1	1	Correlate story with expression or equation	2				2		2	2				2		2
	2	2	1	Solve for missing number in equation														
	2	2	2	Identify the missing symbol	1				1		1	1				1		1
	Total For Assessment Anchor D.2 Represent/analyze mathematical situations using numbers, symbols, words, tables and/or graphs				3				3		3	3				3		3
Total For Reporting Category D					10		1		11		11	10		1		11		11

Grade 04 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
E: Data Analysis and Probability	1			Formulate questions; organize, display, interpret or analyze data														
	1	1	1	Describe/interpret/answer questions based on data shown	2		1		3		3	2		1		3		3
	1	2	1	Graph data or complete a graph	2				2		2	2				2		2
	1	2	2	Translate data from one type of display to another														
	Total For Assessment Anchor E.1 Formulate or answer questions about data and/or organize, display, interpret or analyze data				4		1		5		5	4		1		5		5
	3			Understand and apply basic concepts of probability		4				4	4		1				1	1
	3	1	1	Make a prediction based on data or chance	3				3		3	3				3		3
	Total For Assessment Anchor E.3 Understand and apply basic concepts of probability				3	4			3	4	7	3	1			3	1	4
Total For Reporting Category E					7	4	1		8	4	12	7	1	1		8	1	9

Grade 05 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Numbers and Operations	1			Understand relationships and representations of numbers and number systems														
	1	1	1	Use expanded notation	1		1		2		2	1		1		2		2
	1	2	1	Read/write decimals	1				1		1	1				1		1
	1	2	2	Identify number with place value	1				1		1	1				1		1
	1	3	1	Compare whole numbers	1				1		1	1				1		1
	1	3	2	Compare and/or order decimals	2				2		2	2				2		2
	1	3	3	Compare proper fractions	2		1		3		3	2		1		3		3
	1	4	1	Identify negative numbers on number line	1				1		1	1				1		1
	1	4	2	Identify negative numbers on thermometer	1		1		2		2	1		1		2		2
	1	5	1	Model fractions/mixed numbers	2				2		2	2				2		2
	1	6	1	Name/identify prime and composite numbers	1		1		2		2	1		1		2		2
	1	6	2	List/identify factors, multiples	1				1		1	1				1		1
	Total For Assessment Anchor A.1 Understand relationships among and representations of numbers and number systems				14		4		18		18	14		4		18		18
	2			Understand meanings, uses and relations of operations		4				4	4		1				1	1
	2	1	1	Solve problems involving all operations (whole numbers & decimals)	2		1		3		3	2		1		3		3
	2	1	2	Solve problems involving addition/subtraction (fractions)	2				2		2	2				2		2
	2	1	3	Choose correct operation	2				2		2	2				2		2
	Total For Assessment Anchor A.2 Understand meanings, uses of operations and how they relate to each other				6	4	1		7	4	11	6	1	1		7	1	8
	3			Compute accurately/fluently and make reasonable estimates														
	3	1	1	Round whole numbers & decimals	4				4		4	4				4		4
	3	1	2	Estimate to solve	2				2		2	2				2		2
	3	2	1	Compute without calculator	1				1		1	1				1		1
	Total For Assessment Anchor A.3 Compute accurately and fluently and make reasonable estimates				7				7		7	7				7		7
Total For Reporting Category A					27	4	5		32	4	36	27	1	5		32	1	33

Grade 05 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Measurement	1			Understand measurable attributes and units, systems, processes of measurement														
	1	1	1	Select appropriate unit														
	1	2	1	Convert measurements	1		1		2		2	1		1		2		2
	1	2	2	Add/subtract measurements	1				1		1	1				1		1
	1	3	1	Estimate polygon perimeter/area	1				1		1	1				1		1
	1	3	2	Estimate area of irregular figure	1				1		1	1				1		1
	Total For Assessment Anchor B.1 Understand measurable attributes and units, systems, processes of measurement				4		1		5		5	4		1		5		5
	2			Apply techniques, tools & formulas to determine measurements														
	2	1	1	Use a ruler to nearest 1/8 in. or cm	1				1		1	1				1		1
	2	2	1	Find perimeter of square or rectangle or labeled figure	2				2		2	2				2		2
	2	2	2	Find area of square or rectangle	2				2		2	2				2		2
	2	2	3	Solve measurement problems	1				1		1	1				1		1
	Total For Assessment Anchor B.2 Apply appropriate techniques, tools and formulas to determine measurements				6				6		6	6				6		6
Total For Reporting Category B					10		1		11		11	10		1		11		11

Grade 05 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
C: Geometry	1			Analyze characteristics & properties of 2-D & 3-D shapes														
	1	1	1	Identify/classify/compare 3-D figures	1		1		2		2	1		1		2		2
	1	1	2	Identify/classify/compare quadrilaterals	2				2		2	2				2		2
	1	2	1	Identify/draw/label points, lines, segments, rays, planes	2				2		2	2				2		2
	Total For Assessment Anchor C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes				5		1		6		6	5		1		6		6
	2			Identify and/or apply concepts of transformations or symmetry														
	2	1	1	Draw or identify translation, reflection, rotation	1				1		1	1				1		1
	2	1	2	Draw/identify lines of symmetry	3				3		3	3				3		3
	Total For Assessment Anchor C.2 Identify and/or apply concepts of transformations or symmetry				4				4		4	4				4		4
Total For Reporting Category C					9		1		10		10	9		1		10		10

Grade 05 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
D: Algebraic Concepts	1			Understand patterns, relations and functions		4				4	4		1				1	1
	1	1	1	Extend or find a missing element in a numerical or geometric pattern	2				2		2	2				2		2
	1	1	2	Create numerical or geometric pattern	1				1		1	1				1		1
	1	2	1	Form/illustrate pattern rule	2		1		3		3	2		1		3		3
	Total For Assessment Anchor D.1 Understand patterns, relations and functions				5	4	1		6	4	10	5	1	1		6	1	7
	2			Represent/analyze mathematical situations														
	2	1	1	Solve for missing number	1				1		1	1				1		1
	2	1	2	Match number sentence to story	1		1		2		2	1		1		2		2
	Total For Assessment Anchor D.2 Represent/analyze mathematical situations using numbers, symbols, words, tables and/or graphs				2		1		3		3	2		1		3		3
Total For Reporting Category D					7	4	2		9	4	13	7	1	2		9	1	10

Grade 05 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
E: Data Analysis and Probability	1			Formulate/answer questions; organize, display, interpret or analyze data														
	1	1	1	Interpret/display data	1				1		1	1				1		1
	Total For Assessment Anchor E.1 Formulate or answer questions about data and/or organize, display, interpret or analyze data				1				1		1	1				1		1
	2			Select and/or use appropriate statistical methods to analyze data		4				4	4		1				1	1
	2	1	1	Determine the mean, median, range	1				1		1	1				1		1
	2	1	2	Identify the mode in set of data	2				2		2	2				2		2
	Total For Assessment Anchor E.2 Select and/or use appropriate statistical methods to analyze data				3	4			3	4	7	3	1			3	1	4
	3			Understand/apply basic concepts of probability or outcomes														
	3	1	1	Predict/determine likelihood of outcomes	1		1		2		2	1		1		2		2
	3	1	2	Determine probability of outcome	2				2		2	2				2		2
	Total For Assessment Anchor E.3 Understand and/or apply basic concepts of probability or outcomes				3		1		4		4	3		1		4		4
Total For Reporting Category E					7	4	1		8	4	12	7	1	1		8	1	9

Grade 06 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Numbers and Operations	1			Understand relationships and representations of numbers and number systems														
	1	1	1	Represent percents as fractions and/or decimals	1				1		1	1				1		1
	1	1	2	Convert between fractions and decimals/differentiate between terminating & repeating decimals	2				2		2	2				2		2
	1	1	3	Represent number in exponential form	1				1		1	1				1		1
	1	1	4	Represent mixed number as an improper fraction	1				1		1	1				1		1
	1	2	1	Compare/order rational numbers except integers	1		1		2		2	1		1		2		2
	1	3	1	Find GCF of two numbers	2		1		3		3	2		1		3		3
	1	3	2	Find LCM of two numbers	2				2		2	2				2		2
	1	3	3	Use divisibility rules for 2, 3, 5 & 10 to solve problems														
	1	4	1	Model percents	1		1		2		2	1		1		2		2
	Total For Assessment Anchor A.1 Understand relationships among and representations of numbers and number systems				11		3		14		14	11		3		14		14
	2			Understand meanings, uses and relations of operations		4				4	4		1				1	1
	2	1	1	Complete equations by using properties: associative, commutative, distributive, Identity	2				2		2	2				2		2
	Total For Assessment Anchor A.2 Select /use operations to solve problems				2	4			2	4	6	2	1			2	1	3
	3			Compute accurately/fluently and make reasonable estimates														
	3	1	1	Estimate to solve	2				2		2	2				2		2
	3	2	1	Solve problems involving operations	2				2		2	2				2		2
	Total For Assessment Anchor A.3 Compute accurately and fluently and make reasonable estimates				4				4		4	4				4		4
Total For Reporting Category A					17	4	3		20	4	24	17	1	3		20	1	21

Grade 06 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Measurement	1			Understand measurable attributes and units, systems, processes of measurement														
	1	1	1	Determine/compare elapsed time	2				2		2	2				2		2
	Total For Assessment Anchor B.1 Understand measurable attributes and units, systems, processes of measurement				2				2		2	2				2		2
	2			Apply techniques, tools & formulas to determine measurements		4				4	4		1				1	1
	2	1	1	Use ruler to nearest 1/16 in. or mm	1		1		2		2	1		1		2		2
	2	1	2	Choose precise measurement														
	2	1	3	Measure angles using protractor	2				2		2	2				2		2
	2	2	1	Find perimeter of any polygon														
	2	3	1	Define/label/identify angles	1				1		1	1				1		1
	Total For Assessment Anchor B.2 Apply appropriate techniques, tools and formulas to determine measurements				4	4	1		5	4	9	4	1	1		5	1	6
Total For Reporting Category B					6	4	1		7	4	11	6	1	1		7	1	8

Grade 06 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
C: Geometry	1			Analyze characteristics & properties of 2-D & 3-D shapes														
	1	1	1	Identify, classify, and compare types of polygons	2				2		2	2				2		2
	1	1	2	Identify properties of all types of triangles	2				2		2	2				2		2
	1	1	3	Solve radius/diameter problems	2		1		3		3	2		1		3		3
	1	1	4	Identify/use polygon/circle degrees	2				2		2	2				2		2
	1	2	1	Identify/describe/label parallel, perpendicular, and intersecting lines	2		1		3		3	2		1		3		3
	1	2	2	Identify points, planes, lines, line segments, rays, angles, and vertices	2				2		2	2				2		2
	Total For Assessment Anchor C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes				12		2		14		14	12		2		14		14
	3			Locate points/describe relationships using the coordinate plane														
	3	1	1	Plot points in Quadrant I & on axes	2				2		2	2				2		2
	Total For Assessment Anchor C.3 Locate points or describe relationships using the coordinate plane				2				2		2	2				2		2
Total For Reporting Category C					14		2		16		16	14		2		16		16

Grade 06 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
D: Algebraic Concepts	1			Understand patterns, relations and functions														
	1	1	1	Create/extend/complete pattern	3				3		3	3				3		3
	1	2	1	Determine or illustrate pattern rule	3		1		4		4	3		1		4		4
	Total For Assessment Anchor D.1 Understand patterns, relations and functions				6		1		7		7	6		1		7		7
	2			Represent/analyze mathematical situations		4				4	4		1				1	1
	2	1	1	Identify inverse operation to solve one step equation	2				2		2	2				2		2
	2	1	2	Solve one-step equation			1		1		1			1		1		1
	2	2	1	Match one variable, one-step equation/expression to situation	1				1		1	1				1		1
	Total For Assessment Anchor D.2 Represent/analyze mathematical situations using numbers, symbols, words, tables and/or graphs				3	4	1		4	4	8	3	1	1		4	1	5
Total For Reporting Category D					9	4	2		11	4	15	9	1	2		11	1	12

Grade 06 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
E: Data Analysis and Probability	1			Formulate/answer questions; organize, display, interpret or analyze data														
	1	1	1	Analyze data	2		1		3		3	2		1		3		3
	1	1	2	Choose appropriate data representation	2				2		2	2				2		2
	1	1	3	Display data in graphs, etc.	2				2		2	2				2		2
	Total For Assessment Anchor E.1 Formulate or answer questions about data and/or organize, display, interpret or analyze data				6		1		7		7	6		1		7		7
	2			Select/use appropriate statistical methods to analyze data														
	2	1	1	Determine/calculate mean, median, mode, range	3				3		3	3				3		3
	Total For Assessment Anchor E.2 Select and/or use appropriate statistical methods to analyze data				3				3		3	3				3		3
	3			Understand/apply basic concepts of probability or outcomes														
	3	1	1	Define/find probability	2				2		2	2				2		2
	3	1	2	Determine/show combinations	3		1		4		4	3		1		4		4
	Total For Assessment Anchor E.3 Understand and/or apply basic concepts of probability or outcomes				5		1		6		6	5		1		6		6
Total For Reporting Category E					14		2		16		16	14		2		16		16

Grade 07 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Numbers and Operations	1			Understand relationships and representations of numbers and number systems														
	1	1	1	Convert between fractions, decimals, percents	1				1		1	1				1		1
	1	2	1	Compare/order rational numbers	1				1		1	1				1		1
	1	2	2	Locate and identify rational numbers on a number line	1				1		1	1				1		1
	Total For Assessment Anchor A.1 Understand relationships among and representations of numbers and number systems				3				3		3	3				3		3
	2			Understand meanings, uses and relations of operations		4				4	4		1				1	1
	2	1	1	Use order of operations			1		1		1			1		1		1
	2	2	1	Write ratios to compare quantities	1				1		1	1				1		1
	2	2	2	Solve for a variable in proportions														
	2	2	3	Use proportions to test equivalency	1				1		1	1				1		1
	2	2	4	Calculate/apply unit rates or unit prices			1		1		1			1		1		1
	2	2	5	Select and use ratios/proportions to solve problems	1				1		1	1				1		1
	2	2	6	Use proportions to find missing lengths in similar figures	1				1		1	1				1		1
	Total For Assessment Anchor A.2 Understand meanings, uses of operations and how they relate to each other				4	4	2		6	4	10	4	1	2		6	1	7
	3			Compute accurately/fluently and make reasonable estimates														
	3	1	1	Estimate answers involving operations with whole numbers, decimals, fractions and mixed numbers	2				2		2	2				2		2
	3	2	1	Solve problems involving operations with whole numbers, decimals, fractions and mixed numbers	2				2		2	2				2		2
	3	2	2	Solve problems involving addition/subtraction of integers	1				1		1	1				1		1
	Total For Assessment Anchor A.3 Compute accurately and fluently and make reasonable estimates				5				5		5	5				5		5
Total For Reporting Category A					12	4	2		14	4	18	12	1	2		14	1	15

Grade 07 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Measurement	1			Understand measurable attributes and units, systems, processes of measurement		4				4	4		1				1	1
	1	1	1	Add/subtract/convert measurements	1				1		1	1				1		1
	Total For Assessment Anchor B.1 Understand measurable attributes and units, systems, processes of measurement				1	4			1	4	5	1	1			1	1	2
	2			Apply techniques, tools & formulas to determine measurements														
	2	1	1	Find perimeter and/or area of compound figures														
	2	1	2	Find circumference/area of circles	2				2		2	2				2		2
	2	1	3	Find area of triangles, parallelograms, trapezoids	1		1		2		2	1		1		2		2
	2	2	1	Interpret and apply scale drawings	2				2		2	2				2		2
	2	2	2	Determine appropriate scale for reduction and enlargement	1				1		1	1				1		1
	Total For Assessment Anchor B.2 Apply appropriate techniques, tools and formulas to determine measurements				6		1		7		7	6		1		7		7
Total For Reporting Category B					7	4	1		8	4	12	7	1	1		8	1	9

Grade 07 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
C: Geometry	1			Analyze characteristics & properties of 2-D & 3-D shapes														
	1	1	1	Identify diameter, radius, chord, circumference in circles	2				2		2	2				2		2
	1	1	2	Solve problems using radius/diameter relationship	2		1		3		3	2		1		3		3
	1	1	3	Identify parallel, perpendicular, and skew lines in a 3-dimensional figure	1				1		1	1				1		1
	1	2	1	Identify similar/congruent polygons	2				2		2	2				2		2
	1	2	2	Identify corresponding sides/angles	2				2		2	2				2		2
	Total For Assessment Anchor C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes				9		1		10		10	9		1		10		10
	3			Locate points/describe relationships using the coordinate plane														
	3	1	1	Plot/identify ordered pairs	2		1		3		3	2		1		3		3
	3	1	2	Identify Quadrants I, II, III, IV, x- and y- axes, and the origin on the coordinate plane	3				3		3	3				3		3
	Total For Assessment Anchor C.3 Locate points or describe relationships using the coordinate plane				5		1		6		6	5		1		6		6
Total For Reporting Category C					14		2		16		16	14		2		16		16

Grade 07 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
D: Algebraic Concepts	1			Understand patterns, relations and functions														
	1	1	1	Describe/extend/complete pattern	3		1		4		4	3		1		4		4
	Total For Assessment Anchor D.1 Understand patterns, relations and functions				3		1		4		4	3		1		4		4
	2			Represent/analyze mathematical situations		4				4	4		1				1	1
	2	1	1	Solve one-step equations	3				3		3	3				3		3
	2	1	2	Use substitution of variables to simplify expression	2		1		3		3	2		1		3		3
	2	2	1	Identify mathematical models	1				1		1	1				1		1
	Total For Assessment Anchor D.2 Represent/analyze mathematical situations using numbers, symbols, words, tables and/or graphs				6	4	1		7	4	11	6	1	1		7	1	8
	3			Analyze change in various contexts														
	3	1	1	Solve problems w/ constant rate of change	3		1		4		4	3		1		4		4
	3	1	2	Describe or use a rate of change shown on a graph	3				3		3	3				3		3
	Total For Assessment Anchor D.3 Analyze change in various contexts				6		1		7		7	6		1		7		7
Total For Reporting Category D					15	4	3		18	4	22	15	1	3		18	1	19

Grade 07 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
E: Data Analysis and Probability	1			Formulate/answer questions; organize, display, interpret or analyze data														
	1	1	1	Analyze data	3				3		3	3				3		3
	Total For Assessment Anchor E.1 Formulate or answer questions about data and/or organize, display, interpret or analyze data				3				3		3	3				3		3
	2			Select and/or use appropriate statistical methods to analyze data														
	2	1	1	Identify/calculate mean, median, mode, range for a set of data	2		1		3		3	2		1		3		3
	2	1	2	Choose appropriate measure of central tendency for a situation	1				1		1	1				1		1
	Total For Assessment Anchor E.2 Select and/or use appropriate statistical methods to analyze data				3		1		4		4	3		1		4		4
	3			Understand/apply basic concepts of probability or outcomes														
	3	1	1	Find theoretical probability of event	1				1		1	1				1		1
	3	1	2	Find theoretical probability of event not occurring	1		1		2		2	1		1		2		2
	3	1	3	Find experimental probability	2				2		2	2				2		2
	Total For Assessment Anchor E.3 Understand and/or apply basic concepts of probability or outcomes				4		1		5		5	4		1		5		5
	4			Develop/evaluate inferences and predictions based on data displays														
	4	1	1	Predict/draw conclusions from displays or probability	2				2		2	2				2		2
	Total For Assessment Anchor E.4 Develop/evaluate inferences and predictions based on data displays				2				2		2	2				2		2
Total For Reporting Category E					12		2		14		14	12		2		14		14

Grade 08 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Numbers and Operations	1			Understand relationships and representations of numbers and number systems														
	1	1	1	Use scientific notation or exponential forms	2		1		3		3	2		1		3		3
	1	1	2	Find the square/cube/square root	1				1		1	1				1		1
	Total For Assessment Anchor A.1 Understand relationships among and representations of numbers and number systems				3		1		4		4	3		1		4		4
	2			Understand meanings, uses and relations of operations														
	2	1	1	Use order of operations to simplify	1				1		1	1				1		1
	2	2	1	Use ratios, proportions, percents to solve problems	2				2		2	2				2		2
	2	2	2	Represent or solve rate problems	2				2		2	2				2		2
	Total For Assessment Anchor A.2 Understand meanings, uses of operations and how they relate to each other				5				5		5	5				5		5
	3			Compute accurately/fluently and make reasonable estimates														
	3	1	1	Explain when to round up or down	2		1		3		3	2		1		3		3
	3	1	2	Explain when to estimate	2				2		2	2				2		2
	3	2	1	Estimate percent problems	2				2		2	2				2		2
	3	3	1	Compute with/without calculator	1				1		1	1				1		1
	Total For Assessment Anchor A.3 Compute accurately and fluently and make reasonable estimates				7		1		8		8	7		1		8		8
Total For Reporting Category A					15		2		17		17	15		2		17		17

Grade 08 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Measurement	1			Understand measurable attributes and units, systems, processes of measurement														
	1	1	1	Convert metric measurements	1				1		1	1				1		1
	1	1	2	Convert customary measurements	2				2		2	2				2		2
	1	1	3	Convert time			1		1		1			1		1		1
	1	1	4	Convert temperature	1				1		1	1				1		1
	Total For Assessment Anchor B.1 Understand measurable attributes and units, systems, processes of measurement				4		1		5		5	4		1		5		5
	2			Apply techniques, tools & formulas to determine measurements		4				4	4		1				1	1
	2	1	1	Determine total degrees of interior angles														
	2	1	2	Determine the measurement of 1 interior angle of a polygon														
	2	1	3	Determine the number of sides of a polygon given total degrees of interior angles	1				1		1	1				1		1
	2	2	1	Calculate surface area of cubes and rectangular prisms	1				1		1	1				1		1
	2	2	2	Calculate volume of cubes and rectangular prisms	1				1		1	1				1		1
	2	2	3	Determine appropriate type of measurement for a given situation														
	Total For Assessment Anchor B.2 Apply appropriate techniques, tools and formulas to determine measurements				3	4			3	4	7	3	1			3	1	4
Total For Reporting Category B					7	4	1		8	4	12	7	1	1		8	1	9

Grade 08 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
C: Geometry	1			Analyze characteristics & properties of 2-D & 3-D shapes														
	1	1	1	Match the 3-dimensional figure w/ its net	2				2		2	2				2		2
	1	1	2	Define, identify, and use properties of angles formed by intersecting lines	2				2		2	2				2		2
	1	1	3	Define, identify, and use properties of angles formed when parallel lines are cut by a transversal	3				3		3	3				3		3
	1	2	1	Use the Pythagorean Theorem	3		1		4		4	3		1		4		4
	Total For Assessment Anchor C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes				10		1		11		11	10		1		11		11
	3			Locate points/describe relationships using the coordinate plane														
	3	1	1	Plot/locate/identify ordered pairs	3		1		4		4	3		1		4		4
	Total For Assessment Anchor C.3 Locate points or describe relationships using the coordinate plane				3		1		4		4	3		1		4		4
Total For Reporting Category C					13		2		15		15	13		2		15		15

Grade 08 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
D: Algebraic Concepts	1			Understand patterns, relations and functions		4				4	4		1				1	1
	1	1	1	Continue numeric/algebraic pattern	1				1		1	1				1		1
	1	1	2	Find missing element in pattern			1		1		1			1		1		1
	1	1	3	Write/state rule of function	1				1		1	1				1		1
	Total For Assessment Anchor D.1 Understand patterns, relations and functions				2	4	1		3	4	7	2	1	1		3	1	4
	2			Represent/analyze mathematical situations														
	2	1	1	Solve equations/inequalities	2		1		3		3	2		1		3		3
	2	1	2	Use substitution to check solution	1				1		1	1				1		1
	2	1	3	Simplify/substitute for expression	2				2		2	2				2		2
	2	2	1	Match written situation to expression, equation, or inequality	1				1		1	1				1		1
	2	2	2	Write/solve equation for a situation	2				2		2	2				2		2
	Total For Assessment Anchor D.2 Represent/analyze mathematical situations using numbers, symbols, words, tables and/or graphs				8		1		9		9	8		1		9		9
	4			Describe/use models to represent quantitative relationships														
	4	1	1	Graph linear function from x/y table	2				2		2	2				2		2
	4	1	2	Match linear graph to x/y table	1				1		1	1				1		1
	4	1	3	Match linear equation to x/y table	2		1		3		3	2		1		3		3
	Total For Assessment Anchor D.4 Describe/use models to represent quantitative relationships				5		1		6		6	5		1		6		6
Total For Reporting Category D					15	4	3		18	4	22	15	1	3		18	1	19

Grade 08 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
E: Data Analysis and Probability	1			Formulate/answer questions; organize, display, interpret or analyze data														
	1	1	1	Choose correct data representation	2				2		2	2				2		2
	1	1	2	Display and/or interpret data	1				1		1	1				1		1
	1	1	3	Interpret stem-and-leaf, box-and-whisker plots	2		1		3		3	2		1		3		3
	Total For Assessment Anchor E.1 Formulate or answer questions about data and/or organize, display, interpret or analyze data				5		1		6		6	5		1		6		6
	3			Understand/apply basic concepts of probability or outcomes		4				4	4		1				1	1
	3	1	1	Find probability	1				1		1	1				1		1
	3	2	1	Calculate show number of permutations/combinations	2				2		2	2				2		2
	Total For Assessment Anchor E.3 Understand and/or apply basic concepts of probability or outcomes				3	4			3	4	7	3	1			3	1	4
	4			Develop/evaluate inferences & predictions based on data														
	4	1	1	Fit line to scatter plot; describe correlation	1				1		1	1				1		1
	4	1	2	Make predictions based on data	1		1		2		2	1		1		2		2
	Total For Assessment Anchor E.4 Develop/evaluate inferences & predictions or draw conclusions based on data or data displays				2		1		3		3	2		1		3		3
Total For Reporting Category E					10	4	2		12	4	16	10	1	2		12	1	13

Grade 11 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Numbers and Operations	1			Understand relationships and representations of numbers and number systems														
	1	1	1	Find square root of an integer	1				1		1	1				1		1
	1	1	2	Use scientific notation	1				1		1	1				1		1
	1	1	3	Simplify square roots														
	1	2	1	Find/use GCF (monomial)														
	1	3	1	Identify irrational numbers on a number line	1		1		2		2	1		1		2		2
	1	3	2	Compare and/or order real numbers	1				1		1	1				1		1
	Total For Assessment Anchor A.1 Understand relationships among and representations of numbers and number systems				4		1		5		5	4		1		5		5
	2			Understand meanings, uses and relations of operations														
	2	1	1	Solve problems using operations with rational numbers	1				1		1	1				1		1
	2	1	2	Solve problems using direct and inverse proportions														
	2	1	3	Identify/use proportional relationships														
	2	2	1	Simplify expressions with exponents/roots/absolute value	2				2		2	2				2		2
	2	2	2	Simplify expressions involving operations of powers														
	Total For Assessment Anchor A.2 Understand meanings, uses of operations and how they relate to each other				3				3		3	3				3		3
	3			Compute accurately/fluently and make reasonable estimates														
	3	1	1	Use order of operations to simplify	2				2		2	2				2		2
	3	2	1	Use estimation to solve problems	1				1		1	1				1		1
	Total For Assessment Anchor A.3 Compute accurately and fluently and make reasonable estimates				3				3		3	3				3		3
Total For Reporting Category A					10		1		11		11	10		1		11		11

Grade 11 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Measurement	2			Apply techniques, tools & formulas to determine measurements		4				4	4		1				1	1
	2	1	1	Measure and/or compare angles	2				2		2	2				2		2
	2	2	1	Calculate surface area of prisms, cylinders, cones, pyramids, and/or spheres	1				1		1	1				1		1
	2	2	2	Calculate volume of prisms, cylinders, cones, pyramids, and/or spheres														
	2	2	3	Estimate area, perimeter, or circumference of irregular figure														
	2	2	4	Find missing length measurement	2		1		3		3	2		1		3		3
	2	3	1	Describe effect of linear dimension change	1				1		1	1				1		1
	Total For Assessment Anchor B.2 Apply appropriate techniques, tools and formulas to determine measurements				6	4	1		7	4	11	6	1	1		7	1	8
Total For Reporting Category B					6	4	1		7	4	11	6	1	1		7	1	8

Grade 11 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
C: Geometry	1			Analyze characteristics & properties of 2-D & 3-D shapes														
	1	1	1	Recognize/use properties of circles	1				1		1	1				1		1
	1	1	2	Recognize or use properties of arcs, angles, semicircles	1				1		1	1				1		1
	1	2	1	Identify/use triangle properties	1				1		1	1				1		1
	1	2	2	Recognize/use quadrilateral properties														
	1	2	3	Identify and/or use properties of isosceles and equilateral triangles	1				1		1	1				1		1
	1	3	1	Recognize/use properties of congruent & similar polygons/solids														
	1	4	1	Use the Pythagorean Theorem	1		1		2		2	1		1		2		2
	Total For Assessment Anchor C.1 Analyze characteristics and properties of two- and three-dimensional geometric shapes				5		1		6		6	5		1		6		6
	3			Locate points/describe relationships using the coordinate plane		4				4	4		1				1	1
	3	1	1	Find distance and/or midpoint	2				2		2	2				2		2
	3	1	2	Relate slope to perpendicularity and/or parallelism	1		1		2		2	1		1		2		2
	Total For Assessment Anchor C.3 Locate points or describe relationships using the coordinate plane				3	4	1		4	4	8	3	1	1		4	1	5
Total For Reporting Category C					8	4	2		10	4	14	8	1	2		10	1	11

Grade 11 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
D: Algebraic Concepts	1			Understand patterns, relations and functions														
	1	1	1	Analyze data for pattern; represent pattern algebraically/graphically	2		1		3		3	2		1		3		3
	1	1	2	Determine if relation is a function	1				1		1	1				1		1
	1	1	3	Identify domain, range, and inverse of a relation	1				1		1	1				1		1
	Total For Assessment Anchor D.1 Understand patterns, relations and functions				4		1		5		5	4		1		5		5
	2			Represent/analyze mathematical situations		4				4	4		1				1	1
	2	1	1	Solve compound inequalities and/or graph solution sets on number line	1				1		1	1				1		1
	2	1	2	Identify or graph linear inequalities on coordinate plane	2				2		2	2				2		2
	2	1	3	Write and/or solve linear equation	2		1		3		3	2		1		3		3
	2	1	4	Solve systems of equations	2				2		2	2				2		2
	2	1	5	Solve quadratic equations using factoring	2				2		2	2				2		2
	2	2	1	Add/subtract/multiply polynomials	2				2		2	2				2		2
	2	2	2	Factor algebraic expressions	2		1		3		3	2		1		3		3
	2	2	3	Simplify algebraic fractions														
	Total For Assessment Anchor D.2 Represent/analyze mathematical situations using numbers, symbols, words, tables and/or graphs				13	4	2		15	4	19	13	1	2		15	1	16
	3			Analyze change in various contexts														
	3	1	1	Identify/describe rates of change	2		1		3		3	2		1		3		3
	3	1	2	Determine relations in variable changes	1				1		1	1				1		1
	3	2	1	Apply formula for slope of line	1				1		1	1				1		1
	3	2	2	Write/identify linear equation	1				1		1	1				1		1
	3	2	3	Compute slope and/or y-intercept	1				1		1	1				1		1
	Total For Assessment Anchor D.3 Analyze change in various contexts				6		1		7		7	6		1		7		7
	4			Describe/use models to represent quantitative relationships														
	4	1	1	Match graph to table/equation	2				2		2	2				2		2
	Total For Assessment Anchor D.4 Describe or use models to represent quantitative relationships				2				2		2	2				2		2
Total For Reporting Category D					25	4	4		29	4	33	25	1	4		29	1	30

Grade 11 **Mathematics**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
E: Data Analysis and Probability	1			Formulate/answer questions; organize, display, interpret or analyze data														
	1	1	1	Create and/or use appropriate graphical representations	2				2		2	2				2		2
	1	1	2	Answer questions based on displayed data														
	Total For Assessment Anchor E.1 Formulate or answer questions about data and/or organize, display, interpret or analyze data				2				2		2	2				2		2
	2			Select and/or use appropriate statistical methods to analyze data														
	2	1	1	Find or select appropriate measure of central tendency	2				2		2	2				2		2
	2	1	2	Calculate and/or interpret range, quartiles, interquartile range	1				1		1	1				1		1
	2	1	3	Describe influence of outliers	1				1		1	1				1		1
	Total For Assessment Anchor E.2 Select and/or use appropriate statistical methods to analyze data				4				4		4	4				4		4
	3			Understand/apply basic concepts of probability or outcomes														
	3	1	1	Determine probabilities														
	3	1	2	Determine, convert and/or compare probability and/or odds														
	3	2	1	Determine number of permutations and/or combinations	1		1		2		2	1		1		2		2
	Total For Assessment Anchor E.3 Understand and/or apply basic concepts of probability or outcomes				1		1		2		2	1		1		2		2
	4			Develop/evaluate inferences, predictions or draw conclusions based on data														
	4	1	1	Estimate or calculate predictions based on circle, line, bar graphs	1		1		2		2	1		1		2		2
	4	1	2	Use probability to predict outcomes	1				1		1	1				1		1
	4	2	1	Draw/write equation for best-fit line														
	4	2	2	Predict using equations of best-fit lines	2				2		2	2				2		2
	Total For Assessment Anchor E.4 Develop and/or evaluate inferences and predictions or draw conclusions based on data or data displays				4		1		5		5	4		1		5		5
Total For Reporting Category E					11		2		13		13	11		2		13		13

Grade 03 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Comprehension and Reading Skills	1	1	1	Identify meaning of multiple-meaning words	2		1		3		3	2		1		3		3
	1	1	2	Identify synonym/antonym	2				2		2	2				2		2
	1	2	1	Identify meaning of word with an affix/how meaning changes														
	1	2	2	Define words from context clues	2				2		2	2				2		2
	1	3	1	Make inferences/draw conclusions	9		1		10		10	9		1		10		10
	1	4	1	Identify main ideas/relevant details	1	3	3		4	3	7	1	1	3		4	1	5
	1	5	1	Summarize key details and events of a text as a whole	1				1		1	1				1		1
	1	6	1	Identify author's purpose for writing text	1		1		2		2	1		1		2		2
	Total For Assessment Anchor A.1 Understand fiction appropriate to grade level.				18	3	6		24	3	27	18	1	6		24	1	25
	2	1	1	Identify meaning of multiple-meaning words														
	2	1	2	Identify meaning of content-specific words														
	2	2	1	Identify meaning of word with an affix/how meaning changes														
	2	2	2	Define words from context clues	3				3		3	3				3		3
	2	3	1	Make inferences/draw conclusions	4		2		6		6	4		2		6		6
	2	4	1	Identify main ideas/relevant details	4		2		6		6	4		2		6		6
	2	5	1	Summarize major points/processes/events of a text as a whole														
	2	6	1	Identify author's purpose for writing text			1		1		1			1		1		1
	Total For Assessment Anchor A.2 Understand nonfiction appropriate to grade level.				11		5		16		16	11		5		16		16
Total For Reporting Category A					29	3	11		40	3	43	29	1	11		40	1	41

Grade 03 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Interpretation and Analysis of Fictional and Nonfictional Text	1	1	1	Identify in fiction and literary nonfiction character (narrator/ speaker/subject of a biography), setting, plot	8	3	2		10	3	13	8	1	2		10	1	11
	1	2	1	Connections between texts														
	Total For Assessment Anchor B.1 Understand components within and between texts.				8	3	2		10	3	13	8	1	2		10	1	11
	2	1	1	Identify examples of personification														
	Total For Assessment Anchor B.2 Understand literary devices in fictional and nonfictional text.																	
	3	1	1	Identify fact/opinion	2		1		3		3	2		1		3		3
	3	2	1	Identify exaggeration (bias)														
	3	3	1	Identify text organization (sequence, question/answer, comparison/contrast, cause/effect, problem/solution)														
	3	3	2	Use headings to locate information or identify content that fits into a specific section	1				1		1	1				1		1
	3	3	3	Interpret and make connections between graphics/charts/texts														
	3	3	4	Sequence of steps in a list of directions			2		2		2			2		2		2
	Total For Assessment Anchor B.3 Understand concepts and organization of nonfictional text.				3		3		6		6	3		3		6		6
Total For Reporting Category B					11	3	5		16	3	19	11	1	5		16	1	17

Grade 04 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Comprehension and Reading Skills	1	1	1	Identify meaning of multiple-meaning words														
	1	1	2	Identify synonym/antonym	2				2		2	2				2		2
	1	2	1	Identify meaning of word with an affix/how meaning changes	1				1		1	1				1		1
	1	2	2	Define words from context clues	1				1		1	1				1		1
	1	3	1	Make inferences/draw conclusions	6	3	4		10	3	13	6	1	4		10	1	11
	1	4	1	Identify main ideas/relevant details	3		1		4		4	3		1		4		4
	1	5	1	Summarize key details and events of a text as a whole														
	1	6	1	Identify author's purpose for writing text	1				1		1	1				1		1
	Total For Assessment Anchor A.1 Understand fiction appropriate to grade level.				14	3	5		19	3	22	14	1	5		19	1	20
	2	1	1	Identify meaning of multiple-meaning words														
	2	1	2	Identify meaning of content-specific words														
	2	2	1	Identify meaning of word with an affix/how meaning changes	2				2		2	2				2		2
	2	2	2	Define words from context clues	1		1		2		2	1		1		2		2
	2	3	1	Make inferences/draw conclusions	6	3	4		10	3	13	6	1	4		10	1	11
	2	4	1	Identify main ideas/relevant details	3		1		4		4	3		1		4		4
	2	5	1	Summarize major points/processes/events of a text as a whole	1				1		1	1				1		1
	2	6	1	Identify author's purpose for writing text	2				2		2	2				2		2
	Total For Assessment Anchor A.2 Understand nonfiction appropriate to grade level.				15	3	6		21	3	24	15	1	6		21	1	22
Total For Reporting Category A					29	6	11		40	6	46	29	2	11		40	2	42

Grade 04 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points: Student Scores (Core Points)		Points: Equating Block (EB)		Points: Total Points (Core & EB)			Items: Number of Items: Core		Items: Number of Items: EB		Items: Total Number of Items (Core & EB)		
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Interpretation and Analysis of Fictional and Nonfictional Text	1	1	1	Identify in fiction and literary nonfiction character (narrator/ speaker/subject of a biography), setting, plot	5	3	3		8	3	11	5	1	3		8	1	9
	1	2	1	Connections between texts	1	3			1	3	4	1	1			1	1	2
	Total For Assessment Anchor B.1 Understand components within and between texts.				6	6	3		9	6	15	6	2	3		9	2	11
	2	1	1	Identify examples of personification	2				2		2	2				2		2
	2	1	2	Identify examples of similes														
	2	1	3	Identify examples of alliteration	1				1		1	1				1		1
	Total For Assessment Anchor B.2 Understand literary devices in fictional and nonfictional text.				3				3		3	3				3		3
	3	1	1	Identify fact/opinion			1		1		1			1		1		1
	3	2	1	Identify exaggeration (bias)														
	3	3	1	Identify text organization (sequence, question/answer, comparison/contrast, cause/effect, problem/solution)			1		1		1			1		1		1
	3	3	2	Use headings to locate information or identify content that fits into a specific section														
	3	3	3	Interpret and make connections between graphics/charts/texts	2				2		2	2				2		2
	3	3	4	Sequence of steps in a list of directions														
	Total For Assessment Anchor B.3 Understand concepts and organization of nonfictional text.				2		2		4		4	2		2		4		4
Total For Reporting Category B					11	6	5		16	6	22	11	2	5		16	2	18

Grade 05 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Comprehension and Reading Skills	1	1	1	Identify meaning of multiple-meaning words			1		1		1			1		1		1
	1	1	2	Identify synonym/antonym	2				2		2	2				2		2
	1	2	1	Identify meaning of word with an affix/how meaning changes			1		1		1			1		1		1
	1	2	2	Define words from context clues			1		1		1			1		1		1
	1	3	1	Make inferences/draw conclusions	6				6		6	6				6		6
	1	3	2	Cite evidence from text to support generalizations														
	1	4	1	Identify and/or interpret main ideas/relevant details	5		2		7		7	5		2		7		7
	1	5	1	Summarize key details and events of a text as a whole	1	3			1	3	4	1	1			1	1	2
	1	6	1	Identify author's purpose for writing text	2				2		2	2				2		2
	1	6	2	Identify text that supports the author's intended purpose														
	Total For Assessment Anchor A.1 Understand fiction appropriate to grade level.				16	3	5		21	3	24	16	1	5		21	1	22
	2	1	1	Identify meaning of multiple-meaning words														
	2	1	2	Identify meaning of content-specific words	1				1		1	1				1		1
	2	2	1	Identify meaning of word with an affix/how meaning changes														
	2	2	2	Define words from context clues			1		1		1			1		1		1
	2	3	1	Make inferences/draw conclusions	1	6	2		3	6	9	1	2	2		3	2	5
	2	3	2	Cite evidence from text to support generalizations														
	2	4	1	Identify and/or interpret main ideas/relevant details	9		2		11		11	9		2		11		11
	2	5	1	Summarize major points/processes/events of a text as a whole														
	2	6	1	Identify author's purpose for writing text			1		1		1			1		1		1
	2	6	2	Identify text that supports the author's intended purpose														
	Total For Assessment Anchor A.2 Understand nonfiction appropriate to grade level.				11	6	6		17	6	23	11	2	6		17	2	19
Total For Reporting Category A					27	9	11		38	9	47	27	3	11		38	3	41

Grade 05 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Interpretation and Analysis of Fictional and Nonfictional Text	1	1	1	Identify in fiction and literary nonfiction character (narrator/ speaker/subject of a biography), setting, plot, theme	4	3	1		5	3	8	4	1	1		5	1	6
	1	2	1	Connections between texts	1				1		1	1				1		1
	Total For Assessment Anchor B.1 Understand components within and between texts.				5	3	1		6	3	9	5	1	1		6	1	7
	2	1	1	Identify examples of personification			1		1		1			1		1		1
	2	1	2	Identify examples of similes	1				1		1	1				1		1
	2	1	3	Identify/interpret examples of alliteration	1				1		1	1				1		1
	2	1	4	Identify/interpret examples of metaphors	1				1		1	1				1		1
	2	2	1	Identify point of view of the narrator as first or third person	1		1		2		2	1		1		2		2
	2	2	2	Describe the effectiveness of the point of view used by the author														
	Total For Assessment Anchor B.2 Understand literary devices in fictional and nonfictional text.				4		2		6		6	4		2		6		6
	3	1	1	Identify fact/opinion	2				2		2	2				2		2
	3	2	1	Identify exaggeration (bias)														
	3	3	1	Identify text organization (sequence, question/answer, comparison/contrast, cause/effect, problem/solution)	2				2		2	2				2		2
	3	3	2	Use headings to locate information or identify content that fits into a specific section														
	3	3	3	Interpret and make connections between graphics/charts/texts			1		1		1			1		1		1
	3	3	4	Sequence of steps in a list of directions			1		1		1			1		1		1
	Total For Assessment Anchor B.3 Understand concepts and organization of nonfictional text.				4		2		6		6	4		2		6		6
Total For Reporting Category B					13	3	5		18	3	21	13	1	5		18	1	19

Grade 06 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Comprehension and Reading Skills	1	1	1	Apply meaning of multiple-meaning words in text	1				1		1	1				1		1
	1	1	2	Identify synonym/antonym	2				2		2	2				2		2
	1	2	1	Identify meaning of word with an affix/how meaning changes														
	1	2	2	Define words from context clues														
	1	3	1	Make inferences/draw conclusions	5		1		6		6	5		1		6		6
	1	3	2	Cite evidence from text to support generalizations														
	1	4	1	Identify and/or interpret main ideas/relevant details	1		2		3		3	1		2		3		3
	1	5	1	Summarize key details and events of a text as a whole			1		1		1			1		1		1
	1	6	1	Identify author's purpose for writing text	1		1		2		2	1		1		2		2
	1	6	2	Identify text that supports the author's intended purpose	1				1		1	1				1		1
	Total For Assessment Anchor A.1 Understand fiction appropriate to grade level.				11		5		16		16	11		5		16		16
	2	1	1	Apply meaning of multiple-meaning words in text														
	2	1	2	Identify meaning of content-specific words														
	2	2	1	Identify meaning of word with an affix/how meaning changes	3				3		3	3				3		3
	2	2	2	Define words from context clues														
	2	3	1	Make inferences/draw conclusions	4	3	2		6	3	9	4	1	2		6	1	7
	2	3	2	Cite evidence from text to support generalizations	1				1		1	1				1		1
	2	4	1	Identify and/or interpret main ideas/relevant details	5		1		6		6	5		1		6		6
	2	5	1	Summarize major points/processes/events of a text as a whole														
	2	6	1	Identify author's purpose for writing text														
	2	6	2	Identify text that supports the author's intended purpose														
	Total For Assessment Anchor A.2 Understand nonfiction appropriate to grade level.				13	3	3		16	3	19	13	1	3		16	1	17
Total For Reporting Category A					24	3	8		32	3	35	24	1	8		32	1	33

Grade 06 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Interpretation and Analysis of Fictional and Nonfictional Text	1	1	1	Identify in fiction and literary nonfiction character (narrator/ speaker/subject of a biography), setting, plot, theme	4	6	2		6	6	12	4	2	2		6	2	8
	1	2	1	Connections between texts	2	3	1		3	3	6	2	1	1		3	1	4
	Total For Assessment Anchor B.1 Understand components within and between texts.				6	9	3		9	9	18	6	3	3		9	3	12
	2	1	1	Identify examples of personification														
	2	1	2	Identify examples of similes	1		2		3		3	1		2		3		3
	2	1	3	Identify/interpret examples of alliteration			1		1		1			1		1		1
	2	1	4	Identify/interpret examples of metaphors	1				1		1	1				1		1
	2	2	1	Identify point of view of the narrator as first or third person	1		1		2		2	1		1		2		2
	2	2	2	Describe the effectiveness of the point of view used by the author														
	Total For Assessment Anchor B.2 Understand literary devices in fictional and nonfictional text.				3		4		7		7	3		4		7		7
	3	1	1	Identify fact/opinion	2				2		2	2				2		2
	3	2	1	Identify exaggeration (bias)	1				1		1	1				1		1
	3	3	1	Identify text organization (sequence, question/answer, comparison/contrast, cause/effect, problem/solution)	1		1		2		2	1		1		2		2
	3	3	2	Use headings to locate information or identify content that fits into a specific section														
	3	3	3	Interpret and make connections between graphics/charts/texts	3				3		3	3				3		3
	3	3	4	Sequence of steps in a list of directions														
	Total For Assessment Anchor B.3 Understand concepts and organization of nonfictional text.				7		1		8		8	7		1		8		8
Total For Reporting Category B					16	9	8		24	9	33	16	3	8		24	3	27

Grade 07 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Comprehension and Reading Skills	1	1	1	Apply meaning of multiple-meaning words in text														
	1	1	2	Identify synonym/antonym	2				2		2	2				2		2
	1	2	1	Identify meaning of word with an affix/how meaning changes														
	1	2	2	Define words from context clues														
	1	3	1	Make inferences/draw conclusions	4		2		6		6	4		2		6		6
	1	3	2	Cite evidence from text to support generalizations														
	1	4	1	Identify and/or interpret main ideas/relevant details	2		1		3		3	2		1		3		3
	1	5	1	Summarize key details and events of a text as a whole														
	1	6	1	Identify author's purpose for writing text	1				1		1	1				1		1
	1	6	2	Identify text that supports the author's intended purpose			1		1		1			1		1		1
	Total For Assessment Anchor A.1 Understand fiction appropriate to grade level.				9		4		13		13	9		4		13		13
	2	1	1	Apply meaning of multiple-meaning words in text			1		1		1			1		1		1
	2	1	2	Identify meaning of content-specific words														
	2	2	1	Identify meaning of word with an affix/how meaning changes	1				1		1	1				1		1
	2	2	2	Define words from context clues	1		1		2		2	1		1		2		2
	2	3	1	Make inferences/draw conclusions	6	6	1		7	6	13	6	2	1		7	2	9
	2	3	2	Cite evidence from text to support generalizations			1		1		1			1		1		1
	2	4	1	Identify and/or interpret main ideas/relevant details	4		2		6		6	4		2		6		6
	2	5	1	Summarize major points/processes/events of a text as a whole														
	2	6	1	Identify author's purpose for writing text			1		1		1			1		1		1
	2	6	2	Identify text that supports the author's intended purpose	1				1		1	1				1		1
	Total For Assessment Anchor A.2 Understand nonfiction appropriate to grade level.				13	6	7		20	6	26	13	2	7		20	2	22
Total For Reporting Category A					22	6	11		33	6	39	22	2	11		33	2	35

Grade 07 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Interpretation and Analysis of Fictional and Nonfictional Text	1	1	1	Identify in fiction and literary nonfiction character (narrator/ speaker/subject of a biography), setting, plot, theme	5	3	1		6	3	9	5	1	1		6	1	7
	1	2	1	Connections between texts	2	3			2	3	5	2	1			2	1	3
	Total For Assessment Anchor B.1 Understand components within and between texts.				7	6	1		8	6	14	7	2	1		8	2	10
	2	1	1	Interpret/analyze examples of personification, simile, alliteration, metaphor, hyperbole, and imagery	2		2		4		4	2		2		4		4
	2	1	2	Identify author's purpose/effectiveness of figurative language	1				1		1	1				1		1
	2	2	1	Identify point of view of the narrator as first or third person	1				1		1	1				1		1
	2	2	2	Describe the effectiveness of the point of view used by the author														
	Total For Assessment Anchor B.2 Understand literary devices in fictional and nonfictional text.				4		2		6		6	4		2		6		6
	3	1	1	Use of facts and opinions to make a point/construct an argument	2		1		3		3	2		1		3		3
	3	2	1	Identify bias/propaganda techniques	2				2		2	2				2		2
	3	3	1	Analyze text organization (sequence, question/answer, comparison/contrast, cause/effect, problem/solution)	1				1		1	1				1		1
	3	3	2	Identify content that fits into a specific section	1				1		1	1				1		1
	3	3	3	Interpret and make connections between graphics/charts/texts	1		1		2		2	1		1		2		2
	3	3	4	Sequence of steps in a list of directions														
	Total For Assessment Anchor B.3 Understand concepts and organization of nonfictional text.				7		2		9		9	7		2		9		9
Total For Reporting Category B					18	6	5		23	6	29	18	2	5		23	2	25

Grade 08 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Comprehension and Reading Skills	1	1	1	Apply meaning of multiple-meaning words in text	1				1		1	1				1		1
	1	1	2	Identify synonym/antonym														
	1	2	1	Identify meaning of word with an affix/how meaning changes														
	1	2	2	Define words from context clues	2				2		2	2				2		2
	1	3	1	Make inferences/draw conclusions	2		2		4		4	2		2		4		4
	1	3	2	Cite evidence from text to support generalizations	1				1		1	1				1		1
	1	4	1	Identify and/or interpret main ideas/relevant details	3		2		5		5	3		2		5		5
	1	5	1	Summarize key details and events of a text as a whole														
	1	6	1	Identify author's purpose for writing text			1		1		1			1		1		1
	1	6	2	Identify text that supports the author's intended purpose	1				1		1	1				1		1
	Total For Assessment Anchor A.1 Understand fiction appropriate to grade level.				10		5		15		15	10		5		15		15
	2	1	1	Apply meaning of multiple-meaning words in text	1				1		1	1				1		1
	2	1	2	Identify meaning of content-specific words														
	2	2	1	Identify meaning of word with an affix/how meaning changes	1				1		1	1				1		1
	2	2	2	Define words from context clues														
	2	3	1	Make inferences/draw conclusions	5		1		6		6	5		1		6		6
	2	3	2	Cite evidence from text to support generalizations														
	2	4	1	Identify and/or interpret main ideas/relevant details	7		2		9		9	7		2		9		9
	2	5	1	Summarize major points/processes/events of a text as a whole			1		1		1			1		1		1
	2	6	1	Identify author's purpose for writing text	1				1		1	1				1		1
	2	6	2	Identify text that supports the author's intended purpose														
	Total For Assessment Anchor A.2 Understand nonfiction appropriate to grade level.				15		4		19		19	15		4		19		19
Total For Reporting Category A					25		9		34		34	25		9		34		34

Grade 08 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Interpretation and Analysis of Fictional and Nonfictional Text	1	1	1	Identify in fiction and literary nonfiction character (narrator/ speaker/subject of a biography), setting, plot, theme	6	6	2		8	6	14	6	2	2		8	2	10
	1	2	1	Connections between texts	2	6	1		3	6	9	2	2	1		3	2	5
	Total For Assessment Anchor B.1 Understand components within and between texts.				8	12	3		11	12	23	8	4	3		11	4	15
	2	1	1	Interpret/analyze examples of personification, simile, metaphor, hyperbole, and imagery	3				3		3	3				3		3
	2	1	2	Identify author's purpose/effectiveness of figurative language														
	2	2	1	Identify point of view of the narrator as first or third person	1				1		1	1				1		1
	2	2	2	Analyze the effectiveness of the point of view used by the author														
	Total For Assessment Anchor B.2 Understand literary devices in fictional and nonfictional text.				4				4		4	4				4		4
	3	1	1	Use of facts and opinions to make a point/construct an argument	2		1		3		3	2		1		3		3
	3	2	1	Identify bias/propaganda techniques														
	3	3	1	Analyze text organization (sequence, question/answer, comparison/contrast, cause/effect, problem/solution)	1				1		1	1				1		1
	3	3	2	Identify content that fits into a specific section			1		1		1			1		1		1
	3	3	3	Interpret and make connections between graphics/charts/texts			1		1		1			1		1		1
	3	3	4	Sequence of steps in a list of directions			1		1		1			1		1		1
	Total For Assessment Anchor B.3 Understand concepts and organization of nonfictional text.				3		4		7		7	3		4		7		7
Total For Reporting Category B					15	12	7		22	12	34	15	4	7		22	4	26

Grade 11 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Comprehension and Reading Skills	1	1	1	Apply meaning of multiple-meaning words in text														
	1	1	2	Identify synonym/antonym														
	1	2	1	Identify meaning of word with an affix/how meaning changes			1		1		1			1		1		1
	1	2	2	Define words from context clues			1		1		1			1		1		1
	1	3	1	Make inferences/draw conclusions	4		2		6		6	4		2		6		6
	1	3	2	Cite evidence from text to support generalizations														
	1	4	1	Identify and/or interpret main ideas/relevant details	1				1		1	1				1		1
	1	5	1	Summarize key details and events of a text as a whole														
	1	6	1	Identify author's purpose for writing text														
	1	6	2	Identify text that supports the author's intended purpose														
	Total For Assessment Anchor A.1 Understand fiction appropriate to grade level.				5		4		9		9	5		4		9		9
	2	1	1	Apply meaning of multiple-meaning words in text														
	2	1	2	Identify meaning of content-specific words	1		1		2		2	1		1		2		2
	2	2	1	Identify meaning of word with an affix/how meaning changes	1		1		2		2	1		1		2		2
	2	2	2	Define words from context clues	2				2		2	2				2		2
	2	3	1	Make inferences/draw conclusions	6		1		7		7	6		1		7		7
	2	3	2	Cite evidence from text to support generalizations	1				1		1	1				1		1
	2	4	1	Identify and/or interpret main ideas/relevant details	5				5		5	5				5		5
	2	5	1	Summarize major points/processes/events of a text as a whole														
	2	6	1	Identify author's purpose for writing text			1		1		1			1		1		1
	2	6	2	Identify text that supports the author's intended purpose	2				2		2	2				2		2
	Total For Assessment Anchor A.2 Understand nonfiction appropriate to grade level.				18		4		22		22	18		4		22		22
Total For Reporting Category A					23		8		31		31	23		8		31		31

Grade 11 **Reading**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Interpretation and Analysis of Fictional and Nonfictional Text	1	1	1	Identify in fiction and literary nonfiction character (narrator/ speaker/subject of a biography), setting, plot, theme, tone, style, mood, symbolism	3	3	1		4	3	7	3	1	1		4	1	5
	1	2	1	Connections between texts	3	6			3	6	9	3	2			3	2	5
	Total For Assessment Anchor B.1 Understand components within and between texts.				6	9	1		7	9	16	6	3	1		7	3	10
	2	1	1	Analyze examples of personification, simile, metaphor, hyperbole, satire, imagery, foreshadowing, flashbacks, and irony	2		2		4		4	2		2		4		4
	2	1	2	Identify author's purpose/effectiveness of figurative language														
	2	2	1	Identify point of view of the narrator as first or third person	1		1		2		2	1		1		2		2
	2	2	2	Analyze the effectiveness of the point of view used by the author														
	Total For Assessment Anchor B.2 Understand literary devices in fictional and nonfictional text.				3		3		6		6	3		3		6		6
	3	1	1	Use of facts and opinions to make a point/construct an argument		3	1		1	3	4		1	1		1	1	2
	3	2	1	Identify bias/propaganda techniques	2				2		2	2				2		2
	3	2	2	Analyze the effectiveness of bias/propaganda techniques														
	3	3	1	Analyze the effect of text organization including use of headers			1		1		1			1		1		1
	3	3	2	Analyze author's purpose for text organization and content	6		1		7		7	6		1		7		7
	3	3	3	Analyze and make connections between graphics/charts/texts			1		1		1			1		1		1
	3	3	4	Sequence of steps in a list of directions														
	Total For Assessment Anchor B.3 Understand concepts and organization of nonfictional text.				8	3	4		12	3	15	8	1	4		12	1	13
Total For Reporting Category B					17	12	8		25	12	37	17	4	8		25	4	29

Grade 04 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
	1	1	1	Distinguish between a scientific fact and an opinion, providing clear explanations that connect observations and results (e.g., a scientific fact can be supported by making observations).	1	2			1	2	3	1	1			1	1	2
	1	1	2	Identify and describe examples of common technological changes past to present in the community (e.g., energy production, transportation, communications, agriculture, packaging materials) that have either positive or negative impacts on society or the environment.	2		1		3		3	2		1		3		3
	1	3	1	Observe and record change by using time and measurement.	1	2	1		2	2	4	1	1	1		2	1	3
	1	3	2	Describe relative size, distance, or motion.	1		1		2		2	1		1		2		2
	1	3	3	Observe and describe the change to objects caused by temperature change or light.	1		1		2		2	1		1		2		2
	1	3	4	Explain what happens to a living organism when its food supply, access to water, shelter, or space is changed (e.g., it might die, migrate, change behavior, eat something else).	1		1		2		2	1		1		2		2
	1	3	5	Provide examples, predict, or describe how everyday human activities (e.g., solid waste production, food production and consumption, transportation, water consumption, energy production and use) may change the environment.	1		1		2		2	1		1		2		2
	Total For Assessment Anchor A.1 Reasoning and Analysis				8	4	6		14	4	18	8	2	6		14	2	16
	2	1	1	Generate questions about objects, organisms, or events that can be answered through scientific investigations.	1		1		2		2	1		1		2		2
	2	1	2	Design and describe an investigation (a fair test) to test one variable.	2		1		3		3	2		1		3		3

A: Nature of Science	2	1	3	Observe a natural phenomenon (e.g., weather changes, length of daylight/night, movement of shadows, animal migrations, growth of plants), record observations, and then make a prediction based on those observations.	2		1		3		3	2		1		3		3
	2	1	4	State a conclusion that is consistent with the information/data.	1				1		1	1				1		1
	2	2	1	Identify appropriate tools or instruments for specific tasks and describe the information they can provide (e.g., measuring: length - ruler, mass - balance scale, volume - beaker, temperature - thermometer; making observations: hand lens, binoculars, telescope).	1		1		2		2	1		1		2		2
	Total For Assessment Anchor A.2 Processes, Procedures, and Tools of Scientific Investigations				7		4		11		11	7		4		11		11
	3	1	1	Categorize systems as either natural or human-made (e.g., ballpoint pens, simple electrical circuits, plant anatomy, water cycle).	2				2		2	2				2		2
	3	1	2	Explain a relationship between the living and nonliving components in a system (e.g., food web, terrarium).	1	2			1	2	3	1	1			1	1	2
	3	1	3	Categorize the parts of an ecosystem as either living or nonliving and describe their roles in the system.	1				1		1	1				1		1
	3	1	4	Identify the parts of the food and fiber systems as they relate to agricultural products from the source to the consumer.	2		1		3		3	2		1		3		3
	3	2	1	Identify what different models represent (e.g., maps show physical features, directions, distances; globes represent Earth; drawings of watersheds depict terrain; dioramas show ecosystems; concept maps show relationships of ideas).Identify what different models represent	3				3		3	3				3		3
	3	2	2	Use models to make observations to explain how systems work (e.g., water cycle, Sun-Earth-Moon system).														

	3	2	3	Use appropriate, simple modeling tools and techniques to describe or illustrate a system (e.g., two cans and string to model a communications system, terrarium to model an ecosystem).	1		1		2		2	1		1		2		2
	3	3	1	Identify and describe observable patterns (e.g., growth patterns in plants, weather, water cycle).	2				2		2	2				2		2
	3	3	2	Predict future conditions/events based on observable patterns (e.g., day/night, seasons, sunrise/sunset, lunar phases).	2				2		2	2				2		2
	Total For Assessment Anchor A.3 Systems, Models, and Patterns				14	2	2		16	2	18	14	1	2		16	1	17
Total For Reporting Category A					29	6	12		41	6	47	29	3	12		41	3	44

Grade 04 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
	1	1	1	Identify life processes of living things (e.g., growth, digestion, respiration).	1		1		2		2	1		1		2		2
	1	1	2	Compare similar functions of external characteristics of organisms (e.g., anatomical characteristics: appendages, type of covering, body segments).	1				1		1	1				1		1
	1	1	3	Describe basic needs of plants and animals (e.g., air, water, food).														
	1	1	4	Describe how different parts of a living thing work together to provide what the organism needs (e.g., parts of plants: roots, stems, leaves).	1	2			1	2	3	1	1			1	1	2
	1	1	5	Describe the life cycles of different organisms (e.g., moth, grasshopper, frog, seed-producing plant).														
	Total For Assessment Anchor B.1 Structures and Functions of Organisms				3	2	1		4	2	6	3	1	1		4	1	5
	2	1	1	Identify characteristics for plant and animal survival in different environments (e.g., wetland, tundra, desert, prairie, deep ocean, forest).														
	2	1	2	Explain how specific adaptations can help a living organism survive (e.g., protective coloration, mimicry, leaf sizes and shapes, ability to catch or retain water).	2				2		2	2				2		2
	2	2	1	Identify physical characteristics (e.g., height, hair color, eye color, attached earlobes, ability to roll tongue) that appear in both parents and could be passed on to offspring	1				1		1	1				1		1
	Total For Assessment Anchor B.2 Continuity of Life				3				3		3	3				3		3

B: Biological Sciences	3	1	1	Describe the living and nonliving components of a local ecosystem (e.g., lentic and lotic systems, forest, cornfield, grasslands, city park, playground).			1		1		1			1		1		1
	3	1	2	Describe interactions between living and nonliving components (e.g. plants – water, soil, sunlight, carbon dioxide, temperature; animals – food, water, shelter, oxygen, temperature) of a local ecosystem.	1				1		1	1				1		1
	3	2	1	Describe what happens to a living thing when its habitat is changed.			1		1		1			1		1		1
	3	2	2	Describe and predict how changes in the environment (e.g., fire, pollution, flood, building dams) can affect systems.														
	3	2	3	Explain and predict how changes in seasons affect plants, animals, or daily human life (e.g., food availability, shelter, mobility).			1		1		1			1		1		1
	3	3	1	Identify everyday human activities (e.g., driving, washing, eating, manufacturing, farming) within a community that depend on the natural environment.	1				1		1	1				1		1
	3	3	2	Describe the human dependence on the food and fiber systems from production to consumption (e.g., food, clothing, shelter, products).														
	3	3	3	Identify biological pests (e.g., fungi – molds, plants – foxtail, purple loosestrife, Eurasian water milfoil; animals – aphides, ticks, zebra mussels, starlings, mice) that compete with humans for resources.	1				1		1	1				1		1
	3	3	4	Identify major land uses in the urban, suburban and rural communities (e.g., housing, commercial, recreation).														
	3	3	5	Describe the effects of pollution (e.g., litter) in the community.	1				1		1	1				1		1
	Total For Assessment Anchor B.3 Ecological Behavior and Systems				4		3		7		7	4		3		7		7
Total For Reporting Category B					10	2	4		14	2	16	10	1	4		14	1	15

Grade 04 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
C: Physical Sciences	1	1	1	Use physical properties [e.g., mass, shape, size, volume, color, texture, magnetism, state to describe matter.														
	1	1	2	Categorize/group objects using physical characteristics.	1				1		1	1				1		1
	Total For Assessment Anchor C.1 Structures, Properties, and Interaction of Matter and Energy				1				1		1	1				1		1
	2	1	1	Identify energy forms, energy transfer, and energy examples (e.g., light, heat, electrical).		2				2	2		1				1	1
	2	1	2	Describe the flow of energy through an object or system (e.g., feeling radiant heat from a light bulb, eating food to get energy, using a battery to light a bulb or run a fan)	1				1		1	1				1		1
	2	1	3	Recognize or illustrate simple direct current series and parallel circuits composed of batteries, light bulbs (or other common loads), wire, and on/off switches.	2				2		2	2				2		2
	2	1	4	Identify characteristics of sound (e.g., pitch, loudness, reflection).	1		1		2		2	1		1		2		2
	Total For Assessment Anchor C.2 Forms, Sources, Conversions, and Transer of Energy				4	2	1		5	2	7	4	1	1		5	1	6
	3	1	1	Describe changes in motion caused by forces (e.g., magnetic, pushes or pulls, gravity, friction).	1		1		2		2	1		1		2		2
	3	1	2	Compare the relative movement of objects or describe types of motion that are evident (e.g., bouncing ball, moving in a straight line, back and forth, merry-go-round).	2		1		3		3	2		1		3		3
	3	1	3	Describe the position of an object by locating it relative to another object or a stationary background (e.g., geographic direction, left, up).	1		1		2		2	1		1		2		2
	Total For Assessment Anchor C.3 Principles of Motion and Force				4		3		7		7	4		3		7		7
Total For Reporting Category C					9	2	4		13	2	15	9	1	4		13	1	14

Grade 04 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
D: Earth and Space Sciences	1	1	1	Describe how prominent Earth features in Pennsylvania (e.g., mountains, valleys, caves, sinkholes, lakes, rivers) were formed.														
	1	1	2	Identify various Earth structures (e.g., mountains, watersheds, peninsulas, lakes, rivers, valleys) through the use of models.	2				2		2	2				2		2
	1	1	3	Describe the composition of soil as weathered rock and decomposed organic remains.	1				1		1	1				1		1
	1	2	1	Identify products and by-products of plants and animals for human use (e.g., food, clothing, building materials, paper products).	1				1		1	1				1		1
	1	2	2	Identify the types and uses of Earth materials for renewable, nonrenewable, and reusable products (e.g., human-made products: concrete, paper, plastics, fabrics)	1		1		2		2	1		1		2		2
	1	2	3	Recognize ways that humans benefit from the use of water resources (e.g., agriculture, energy, recreation).	1				1		1	1				1		1
	1	3	1	Describe types of freshwater and saltwater bodies (e.g., lakes, rivers, wetlands, oceans).	1				1		1	1				1		1
	1	3	2	Explain how water goes through phase changes (i.e., evaporation, condensation, freezing, and melting).														
	1	3	3	Describe or compare lentic systems (i.e., ponds, lakes, and bays) and lotic systems (i.e., streams, creeks, and rivers).														
	1	3	4	Explain the role and relationship of a watershed or a wetland on water sources (e.g., water storage, groundwater recharge, water filtration, water source, water cycle)														
	Total For Assessment Anchor D.1 Earth Features and Processes that Change Earth and its Resources				7		1		8		8	7		1		8		8

	2	1	1	Identify basic cloud types (i.e., cirrus, cumulus, stratus, and cumulonimbus) and make connections to basic elements of weather (e.g., changes in temperature, precipitation).														
	2	1	2	Identify weather patterns from data charts or graphs of the data (e.g., temperature, wind direction, wind speed, cloud types, precipitation).			1		1		1			1		1		1
	2	1	3	Identify appropriate instruments (i.e., thermometer, rain gauge, weather vane, anemometer, and barometer) to study weather and what they measure.	1		1		2		2	1		1		2		2
	Total For Assessment Anchor D.2 Weather, Climate, and Atmospheric Processes				1		2		3		3	1		2		3		3
	3	1	1	Describe motions of the Sun - Earth - Moon system.	1				1		1	1				1		1
	3	1	2	Explain how the motion of the Sun - Earth - Moon system relates to time (e.g., days, months, years).	1				1		1	1				1		1
	3	1	3	Describe the causes of seasonal change as they relate to the revolution of Earth and the tilt of Earth's axis.			1		1		1			1		1		1
	Total For Assessment Anchor D.3 Composition and Structure of the Universe				2		1		3		3	2		1		3		3
Total For Reporting Category D					10		4		14		14	10		4		14		14

Grade 08 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points: Student Scores (Core Points)		Points: Equating Block (EB)		Points: Total Points (Core & EB)			Items: Number of Items: Core		Items: Number of Items: EB		Items: Total Number of Items (Core & EB)		
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
	1	1	1	Distinguish between a scientific theory and an opinion, explaining how a theory is supported with evidence, or how new data/information may change existing theories and practices	1				1		1	1				1		1
	1	1	2	Explain how certain questions can be answered through scientific inquiry and/or technological design.	1				1		1	1				1		1
	1	1	3	Use evidence, such as observations or experimental results, to support inferences about a relationship.	1		1		2		2	1		1		2		2
	1	1	4	Develop descriptions, explanations, predictions, and models using evidence.	2				2		2	2				2		2
	1	2	1	Describe the positive and negative, intended and unintended, effects of specific scientific results or technological developments (e.g., air/space travel, genetic engineering, nuclear fission/fusion, artificial intelligence, lasers, organ transplants).	2				2		2	2				2		2
	1	2	2	Identify environmental issues and explain their potential long-term health effects (e.g., pollution, pest controls, vaccinations).	1		1		2		2	1		1		2		2
	1	2	3	Describe fundamental scientific or technological concepts that could solve practical problems (e.g., Newton's laws of motion, Mendelian genetics).	2		1		3		3	2		1		3		3
	1	2	4	Explain society's standard of living in terms of technological advancements and how these advancements impact on agriculture (e.g., transportation, processing, production, storage).			1		1		1			1		1		1
	1	3	1	Use ratio to describe change (e.g., percents, parts per million, grams per cubic centimeter, mechanical advantage).														

A: Nature of Science	1	3	2	Use evidence, observations, or explanations to make inferences about change in systems over time (e.g., carrying capacity, succession, population dynamics, loss of mass in chemical reactions, indicator fossils in geologic time scale) and the variables affecting these changes.	2				2		2	2				2		2
	1	3	3	Examine systems changing over time, identifying the possible variables causing this change, and drawing inferences about how these variables affect this change.														
	1	3	4	Given a scenario, explain how a dynamically changing environment provides for the sustainability of living systems.	1	2			1	2	3	1	1			1	1	2
	Total For Assessment Anchor A.1 Reasoning and Analysis				13	2	4		17	2	19	13	1	4		17	1	18
	2	1	1	Use evidence, observations, or a variety of scales (e.g., mass, distance, volume, temperature) to describe relationships.	2				2		2	2				2		2
	2	1	2	Use space/time relationships, define concepts operationally, raise testable questions, or formulate hypotheses.			1		1		1			1		1		1
	2	1	3	Design a controlled experiment by specifying how the independent variables will be manipulated, how the dependent variable will be measured, and which variables will be held constant.	1				1		1	1				1		1
	2	1	4	Interpret data/observations; develop relationships among variables based on data/observations to design models as solutions.			1		1		1			1		1		1
	2	1	5	Use evidence from investigations to clearly communicate and support conclusions.	1		1		2		2	1		1		2		2
	2	1	6	Identify a design flaw in a simple technological system and devise possible working solutions.			1		1		1			1		1		1
	2	2	1	Describe the appropriate use of instruments and scales to accurately and safely measure time, mass, distance, volume, or temperature under a variety of conditions.	2				2		2	2				2		2

2	2	2	Apply appropriate measurement systems (e.g., time, mass, distance, volume, temperature) to record and interpret observations under varying conditions.	1				1		1	1				1		1
2	2	3	Describe ways technology (e.g., microscope, telescope, micrometer, hydraulics, barometer) extends and enhances human abilities for specific purposes.	2				2		2	2				2		2
Total For Assessment Anchor A.2 Processes, Procedures, and Tools of Scientific Investigations				9		4		13		13	9		4		13		13
3	1	1	Describe a system (e.g., watershed, circulatory system, heating system, agricultural system) as a group of related parts with specific roles that work together to achieve an observed result.	1				1		1	1				1		1
3	1	2	Explain the concept of order in a system [e.g., (first to last: manufacturing steps, trophic levels); (simple to complex: cell, tissue, organ, organ system)].	2				2		2	2				2		2
3	1	3	Distinguish between system inputs, system processes, system outputs, and feedback (e.g., physical, ecological, biological, informational).														
3	1	4	Distinguish between open loop (e.g., energy flow, food web) and closed loop (e.g., materials in the nitrogen and carbon cycles, closed-switch) systems.			1		1		1			1		1		1
3	1	5	Explain how components of natural and human-made systems play different roles in a working system.														
3	2	1	Describe how scientists use models to explore relationships in natural systems (e.g., an ecosystem, river system, the solar system).		2	1		1	2	3		1	1		1	1	2
3	2	2	Describe how engineers use models to develop new and improved technologies to solve problems.			1		1		1			1		1		1
3	2	3	Given a model showing simple cause- and-effect relationships in a natural system, predict results that can be used to test the assumptions in the model (e.g., photosynthesis, water cycle, diffusion, infiltration).	1				1		1	1				1		1

	3	3	1	Identify and describe patterns as repeated processes or recurring elements in human-made systems (e.g., trusses, hub-and-spoke system in communications and transportation systems, feedback controls in regulated systems).	1				1		1	1				1		1
	3	3	2	Describe repeating structure patterns in nature(e.g., veins in a leaf, tree rings, crystals, water waves) or periodic patterns (e.g., daily, monthly, annually).	1		1		2		2	1		1		2		2
	Total For Assessment Anchor A.3 Systems, Models, and Patterns				6	2	4		10	2	12	6	1	4		10	1	11
Total For Reporting Category A					28	4	12		40	4	44	28	2	12		40	2	42

Grade 08 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
	1	1	1	Describe the structures of living things that help them function effectively in specific ways (e.g., adaptations, characteristics).			1		1		1			1		1		1
	1	1	2	Compare similarities and differences in internal structures of organisms (e.g., invertebrate/vertebrate, vascular/nonvascular, single-celled/multi-celled) and external structures (e.g., appendages, body segments, type of covering, size, shape)														
	1	1	3	Apply knowledge of characteristic structures to identify or categorize organisms (i.e., plants, animals, fungi, bacteria, and protista).	1				1		1	1				1		1
	1	1	4	Identify the levels of organization from cell to organism and describe how specific structures (parts), which underlie larger systems, enable the system to function as a whole.			1		1		1			1		1		1
	Total For Assessment Anchor B.1 Structures and Functions of Organisms				1		2		3		3	1		2		3		3
	2	1	1	Explain how inherited structures or behaviors help organisms survive and reproduce in different environments.	1				1		1	1				1		1
	2	1	2	Explain how different adaptations in individuals of the same species may affect survivability or reproduction success.														
	2	1	3	Explain that mutations can alter a gene and are the original source of new variations.	1				1		1	1				1		1
	2	1	4	Describe how selective breeding or biotechnology can change the genetic makeup of organisms.														
	2	1	5	Explain that adaptations are developed over long periods of time and are passed from one generation to another			1		1		1			1		1		1

B: Biological Sciences	2	2	1	Identify and explain differences between inherited and acquired traits.	1	2			1	2	3	1	1			1	1	2
	2	2	2	Recognize that the gene is the basic unit of inheritance, that there are dominant and recessive genes, and that traits are inherited.	1				1		1	1				1		1
	Total For Assessment Anchor B.2 Continuity of Life				4	2	1		5	2	7	4	1	1		5	1	6
	3	1	1	Explain the flow of energy through an ecosystem (e.g., food chains, food webs).	1				1		1	1				1		1
	3	1	2	Identify major biomes and describe abiotic and biotic components (e.g., abiotic: different soil types, air, water sunlight; biotic: soil microbes, decomposers).	1				1		1	1				1		1
	3	1	3	Explain relationships among organisms (e.g., producers/consumers, predator/prey) in an ecosystem.	1		1		2		2	1		1		2		2
	3	2	1	Use evidence to explain factors that affect changes in populations (e.g., deforestation, disease, land use, natural disaster, invasive species).														
	3	2	2	Use evidence to explain how diversity affects the ecological integrity of natural systems														
	3	2	3	Describe the response of organisms to environmental changes (e.g., changes in climate, hibernation, migration, coloration) and how those changes affect survival														
	3	3	1	Explain how human activities may affect local, regional, and global environments.														
	3	3	2	Explain how renewable and nonrenewable resources provide for human needs (i.e., energy, food, water, clothing, and shelter).														
	3	3	3	Describe how waste management affects the environment (e.g., recycling, composting, landfills, incineration, sewage treatment).	1				1		1	1				1		1

	3	3	4	Explain the long-term effects of using integrated pest management (e.g., herbicides, natural predators, biogenetics) on the environment.	1				1		1	1				1		1
	Total For Assessment Anchor B.3 Ecological Behavior and Systems				5		1		6		6	5		1		6		6
Total For Reporting Category B					10	2	4		14	2	16	10	1	4		14	1	15

Grade 08 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
C: Physical Sciences	1	1	1	Explain the differences among elements, compounds, and mixtures.	2		1		3		3	2		1		3		3
	1	1	2	Use characteristic physical or chemical properties to distinguish one substance from another (e.g., density, thermal expansion/contraction, freezing/melting points, streak test)	1				1		1	1				1		1
	1	1	3	Identify and describe reactants and products of simple chemical reactions.														
	Total For Assessment Anchor C.1 Structures, Properties, and Interaction of Matter and Energy				3		1		4		4	3		1		4		4
	2	1	1	Distinguish among forms of energy (e.g., electrical, mechanical, chemical, light, sound, nuclear) and sources of energy (i.e., renewable and nonrenewable energy)			1		1		1			1		1		1
	2	1	2	Explain how energy is transferred from one place to another through convection, conduction, or radiation.	1				1		1	1				1		1
	2	1	3	Describe how one form of energy (e.g., electrical, mechanical, chemical, light, sound, nuclear) can be converted into a different form of energy.														
	2	2	1	Describe the Sun as the major source of energy that impacts the environment.	1		1		2		2	1		1		2		2
	2	2	2	Compare the time span of renewability for fossil fuels and the time span of renewability for alternative fuels.	1				1		1	1				1		1
	2	2	3	Describe the waste (i.e., kind and quantity) derived from the use of renewable and nonrenewable resources and their potential impact on the environment.	2				2		2	2				2		2
	Total For Assessment Anchor C.2 Forms, Sources, Conversions, and Transer of Energy				5		2		7		7	5		2		7		7
	3	1	1	Describe forces acting on objects (e.g., friction, gravity, balanced versus unbalanced).		2				2	2		1				1	1
	3	1	2	Distinguish between kinetic and potential energy.	1		1		2		2	1		1		2		2

	3	1	3	Explain that mechanical advantage helps to do work (physics) by either changing a force or changing the direction of the applied force (e.g., simple machines, hydraulic systems).	1				1		1	1				1		1
	Total For Assessment Anchor C.3 Principles of Motion and Force				2	2	1		3	2	5	2	1	1		3	1	4
Total For Reporting Category C					10	2	4		14	2	16	10	1	4		14	1	15

Grade 08 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
	1	1	1	Explain the rock cycle as changes in the solid earth and rock types found in Pennsylvania (igneous – granite, basalt, pumice; sedimentary – limestone, sandstone, shale, coal; and metamorphic – slate, quartzite, marble, gneiss).	1				1		1	1				1		1
	1	1	2	Describe natural processes that change Earth's surface (e.g., landslides, volcanic eruptions, earthquakes, mountain building, new land being formed, weathering, erosion, sedimentation, soil formation).														
	1	1	3	Identify soil types (i.e., humus, topsoil, subsoil, loam, loess, and parent material) and their characteristics (i.e., particle size, porosity, and permeability) found in different biomes and in Pennsylvania, and explain how they formed	1				1		1	1				1		1
	1	1	4	Explain how fossils provide evidence about plants and animals that once lived throughout Pennsylvania's history (e.g., fossils provide evidence of different environments).			1		1		1			1		1		1
	1	2	1	Describe a product's transformation process from production to consumption (e.g., prospecting, propagating, growing, maintaining, adapting, treating, converting, distributing, disposing) and explain the process's potential impact on Earth's resources.														
	1	2	2	Describe potential impacts of human-made processes (e.g., manufacturing, agriculture, transportation, mining) on Earth's resources, both nonliving (i.e., air, water, or earth materials) and living (i.e., plants and animals).														

D: Earth and Space Sciences	1	3	1	Describe the water cycle and the physical processes on which it depends (i.e., evaporation, condensation, precipitation, transpiration, runoff, infiltration, energy inputs, and phase changes)	2				2		2	2				2		2
	1	3	2	Compare and contrast characteristics of freshwater and saltwater systems on the basis of their physical characteristics (i.e., composition, density, and electrical conductivity) and their use as natural resources.	2				2		2	2				2		2
	1	3	3	Distinguish among different water systems (e.g., wetland systems, ocean systems, river systems, watersheds) and describe their relationships to each other as well as to landforms.	1		1		2		2	1		1		2		2
	1	3	4	Identify the physical characteristics of a stream and how these characteristics determine the types of organisms found within the stream environment (e.g., biological diversity, water quality, flow rate, tributaries, surrounding watershed)	1				1		1	1				1		1
	Total For Assessment Anchor D.1 Earth Features and Processes that Change Earth and its Resources				8		2		10		10	8		2		10		10
	2	1	1	Explain the impact of water systems on the local weather or the climate of a region (e.g., lake effect snow, land/ocean breezes).			1		1		1			1		1		1
	2	1	2	Identify how global patterns of atmospheric movement influence regional weather and climate.	1				1		1	1				1		1
	2	1	3	Identify how cloud types, wind directions, and barometric pressure changes are associated with weather patterns in different regions of the country.														
	Total For Assessment Anchor D.2 Weather, Climate, and Atmospheric Processes				1		1		2		2	1		1		2		2
	3	1	1	Describe patterns of Earth's movements (i.e., rotation and revolution) and the Moon's movements (i.e., phases, eclipses, and tides) in relation to the Sun.	1				1		1	1				1		1
	3	1	2	Describe the role of gravity as the force that governs the movement of the solar system and universe.														

	3	1	3	Compare and contrast characteristics of celestial bodies found in the solar system (e.g., moons, asteroids, comets, meteors, inner and outer planets).		2	1		1	2	3		1	1		1	1	2
	Total For Assessment Anchor D.3 Composition and Structure of the Universe				1	2	1		2	2	4	1	1	1		2	1	3
Total For Reporting Category D					9	2	3		12	2	14	9	1	3		12	1	13

Grade 11 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
	1	1	1	Compare and contrast scientific theories, scientific laws, and beliefs (e.g., the universal law of gravitation, how light travels, formation of moons, stages of ecological succession).	1				1		1	1				1		1
	1	1	2	Analyze and explain the accuracy of scientific facts, principles, theories, and laws.	2				2		2	2				2		2
	1	1	3	Evaluate the appropriateness of research questions (e.g., testable vs. not-testable).	1				1		1	1				1		1
	1	1	4	Explain how specific scientific knowledge or technological design concepts solve practical problems (e.g., momentum, Newton's universal law of gravitation, tectonics, conservation of mass and energy, cell theory, theory of evolution, atomic theory, theory of relativity, Pasteur's germ theory, relativity, heliocentric theory, ideal gas laws).		2				2	2		1				1	1
	1	1	5	Analyze or compare the use of both direct and indirect observation as means to study the world and the universe (e.g., behavior of atoms, functions of cells, birth of stars).														
	1	2	1	Explain and apply scientific concepts to societal issues using case studies (e.g., spread of HIV, deforestation, environmental health, energy).	2				2		2	2				2		2
	1	2	2	Use case studies (e.g., Wright brothers' flying machine, Tacoma Narrows Bridge, Henry Petroski's Design Paradigms) to propose possible solutions and analyze economic and environmental implications of solutions for real-world problems.	1				1		1	1				1		1
	1	3	1	Use appropriate quantitative data to describe or interpret change in systems (e.g., biological indices, electrical circuit data, automobile diagnostic systems data).	2				2		2	2				2		2

A: Nature of Science	1	3	2	Describe or interpret dynamic changes to stable systems (e.g., chemical reactions, human body, food webs, tectonics, homeostasis).	1	2	1		2	2	4	1	1	1		2	1	3
	1	3	3	Describe how changes in physical and biological indicators (e.g., soil, plants, animals) of water systems reflect changes in these systems (e.g. changes in bloodworm populations reflect changes in pollution levels in streams).														
	1	3	4	Compare the rate of use of natural resources and their impact on sustainability.		4				4	4		1				1	1
	Total For Assessment Anchor A.1 Reasoning and Analysis				10	8	1		11	8	19	10	3	1		11	3	14
	2	1	1	Critique the elements of an experimental design (e.g., raising questions, formulating hypotheses, developing procedures, identifying variables, manipulating variables, interpreting data, and drawing conclusions) applicable to a specific experimental design.	2	4			2	4	6	2	1			2	1	3
	2	1	2	Critique the elements of the design process (e.g. identify the problem, understand criteria, create solutions, select solution, test/evaluate, communicate results) applicable to a specific technological design.														
	2	1	3	Use data to make inferences and predictions, or to draw conclusions, demonstrating understanding of experimental limits.	3				3		3	3				3		3
	2	1	4	Critique the results and conclusions of scientific inquiry for consistency and logic.	1		1		2		2	1		1		2		2
	2	1	5	Communicate results of investigations using multiple representations.			1		1		1			1		1		1
	2	2	1	Evaluate appropriate methods, instruments, and scale for precise quantitative and qualitative observations (e.g., to compare properties of materials, water quality).	3				3		3	3				3		3
	2	2	2	Explain how technology (e.g., GPS, spectroscope, scanning electron microscope, pH meter, probe, interface, imaging technology, telescope) is used to extend human abilities and precision.	2				2		2	2				2		2

Total For Assessment Anchor A.2 Processes, Procedures, and Tools of Scientific Investigations				11	4	2		13	4	17	11	1	2		13	1	14
3	1	1	Apply systems analysis, showing relationships (e.g., flowcharts, concept maps), input and output, and measurements to explain a system and its parts.	1				1		1	1				1		1
3	1	2	Analyze and predict the effect of making a change in one part of a system on the system as a whole.		4				4	4		1				1	1
3	1	3	Use appropriate quantitative data to describe or interpret a system (e.g., biological indices, electrical circuit data, automobile diagnostic systems data).	2		1		3		3	2		1		3		3
3	1	4	Apply the universal systems model of inputs, processes, outputs, and feedback to a working system (e.g., heating, motor, food production) and identify the resources necessary for operation of the system.			1		1		1			1		1		1
3	2	1	Compare the accuracy of predictions represented in a model to actual observations and behavior.		2				2	2		1				1	1
3	2	2	Describe advantages and disadvantages of using models to simulate processes and outcomes.														
3	2	3	Describe how relationships represented in models are used to explain scientific or technological concepts (e.g., dimensions of objects within the solar system, life spans, size of atomic particles, topographic maps).			1		1		1			1		1		1
3	3	1	Describe or interpret recurring patterns that form the basis of biological classification, chemical periodicity, geological order, or astronomical order.	1				1		1	1				1		1
3	3	2	Compare stationary physical patterns (e.g., crystals, layers of rocks, skeletal systems, tree rings, atomic structure) to the object's properties.			1		1		1			1		1		1
3	3	3	Analyze physical patterns of motion to make predictions or draw conclusions (e.g., solar system, tectonic plates, weather systems, atomic motion, waves).			1		1		1			1		1		1

	Total For Assessment Anchor A.3 Systems, Models, and Patterns	4	6	5		9	6	15	4	2	5		9	2	11
Total For Reporting Category A		25	18	8		33	18	51	25	6	8		33	6	39

Grade 11 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
	1	1	1	Explain how structure determines function at multiple levels of organization (e.g., chemical, cellular, anatomical).	1				1		1	1				1		1
	1	1	2	Compare and contrast the structural and functional similarities and differences among living things (e.g., classify organisms into classification groups, compare systems).			1		1		1			1		1		1
	1	1	3	Compare and contrast cellular processes (e.g., photosynthesis and respiration, meiosis and mitosis, protein synthesis and DNA replication).														
	Total For Assessment Anchor B.1 Structures and Functions of Organisms				1		1		2		2	1		1		2		2
	2	1	1	Explain the theory of evolution by interpreting data from fossil records, similarities in anatomy and physiology, or DNA studies that are relevant to the theory of evolution.		4				4	4		1				1	1
	2	1	2	Explain the role of mutations, differential reproduction, and gene recombination in changing the genetic makeup of a population.														
	2	1	3	Explain the role of selective breeding and biotechnology in changing the genetic makeup of a population.														
	2	1	4	Explain why natural selection can act only on inherited traits.	1				1		1	1				1		1
	2	2	1	Describe how genetic information is expressed (i.e., DNA, genes, chromosomes, transcription, translation, and replication).			1		1		1			1		1		1
	2	2	2	Compare and contrast mitosis and meiosis in passing on genetic information.														
	2	2	3	Explain how different patterns of inheritance affect population variability (i.e., multiple alleles, co-dominance, dominance, recessiveness, sex-influenced traits, and sex-linked traits).	1				1		1	1				1		1
	Total For Assessment Anchor B.2 Continuity of Life				2	4	1		3	4	7	2	1	1		3	1	4

B: Biological Sciences	3	1	1	Explain the significance of diversity in ecosystems.	1				1		1	1				1		1
	3	1	2	Explain the biotic (i.e., plant, animal, and microbial communities) and abiotic (i.e., soil, air, temperature, and water) components of an ecosystem and their interaction.	1	4			1	4	5	1	1			1	1	2
	3	1	3	Describe how living organisms affect the survival of one another.														
	3	1	4	Compare the similarities and differences in the major biomes (e.g., desert, tropical rain forest, temperate forest, coniferous forest, tundra) and the communities that inhabit them.														
	3	1	5	Predict how limiting factors (e.g., physical, biological, chemical) can affect organisms.														
	3	2	1	Use evidence to explain how cyclical patterns in population dynamics affect natural systems.														
	3	2	2	Explain biological diversity as an indicator of a healthy environment.	1				1		1	1				1		1
	3	2	3	Explain how natural processes (e.g., seasonal change, catastrophic events, habitat alterations) impact the environment over time.														
	3	3	1	Describe different human-made systems and how they use renewable and nonrenewable natural resources (i.e., energy, transportation, distribution, management, and processing).														
	3	3	2	Compare the impact of management practices (e.g., production, processing, research, development, marketing, distribution, consumption, by-products) in meeting the need for commodities locally and globally.	2				2		2	2				2		2
	3	3	3	Explain the environmental benefits and risks associated with human-made systems (e.g., integrated pest management, genetically engineered organisms, organic food production).	1				1		1	1				1		1
	Total For Assessment Anchor B.3 Ecological Behavior and Systems				6	4			6	4	10	6	1			6	1	7

Total For Reporting Category B	9	8	2		11	8	19	9	2	2		11	2	13

Grade 11 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
ciences	1	1	1	Explain that matter is made of particles called atoms and that atoms are composed of even smaller particles (e.g., protons, neutrons, electrons).	2				2		2	2				2		2
	1	1	2	Explain the relationship between the physical properties of a substance and its molecular or atomic structure.	1				1		1	1				1		1
	1	1	3	Explain the formation of compounds (ionic and covalent) and their resulting properties using bonding theories.														
	1	1	4	Explain how the relationships of chemical properties of elements are represented in the repeating patterns within the periodic table.			1		1		1			1		1		1
	1	1	5	Predict the behavior of gases though the application of laws (e.g., Boyle's law, Charles' law, or ideal gas law).		2				2	2		1				1	1
	1	1	6	Describe factors that influence the frequency of collisions during chemical reactions that might affect the reaction rates (e.g., surface area, concentration, catalyst, temperature).surface area, concentration, catalyst, temperature).		2				2	2		1				1	1
	Total For Assessment Anchor C.1 Structures, Properties, and Interaction of Matter and Energy				3	4	1		4	4	8	3	2	1		4	2	6
	2	1	1	Compare or analyze waves in the electromagnetic spectrum (e.g., ultraviolet, infrared, visible light, X-rays, microwaves) as well as their properties, energy levels, and motion.		4				4	4		1				1	1
	2	1	2	Describe energy changes in chemical reactions.														
	2	1	3	Apply the knowledge of conservation of energy to explain common systems (e.g., refrigeration, rocket propulsion, heat pump).														
	2	1	4	Use Ohm's Law to explain relative resistances, currents, and voltage.			1		1		1			1		1		1

C: Physical S	2	2	1	Explain the environmental impacts of energy use by various economic sectors (e.g., mining, logging, transportation) on environmental systems.	1				1		1	1				1		1
	2	2	2	Explain the practical use of alternative sources of energy (i.e., wind, solar, and biomass) to address environmental problems (e.g., air quality, erosion, resource depletion)	1				1		1	1				1		1
	2	2	3	Give examples of renewable energy resources (e.g., wind, solar, biomass) and nonrenewable resources (e.g., coal, oil, natural gas) and explain the environmental and economic advantages and disadvantages of their use														
	Total For Assessment Anchor C.2 Forms, Sources, Conversions, and Transer of Energy				2	4	1		3	4	7	2	1	1		3	1	4
	3	1	1	Explain common phenomena (e.g., a rock in a landslide, an astronaut during a space walk, a car hitting a patch of ice on the road) using an understanding of conservation of momentum.	1				1		1	1				1		1
	3	1	2	Design or evaluate simple technological or natural systems that incorporate the principles of force and motion (e.g., simple machines, compound machines).		4	1		1	4	5		1	1		1	1	2
	3	1	3	Describe the motion of an object using variables (i.e., acceleration, velocity, displacement).														
	3	1	4	Explain how electricity induces magnetism and how magnetism induces electricity as two aspects of a single electromagnetic force.														
	3	1	5	Calculate the mechanical advantage for moving an object by using a simple machine.	1				1		1	1				1		1
	3	1	6	Identify elements of simple machines in compound machines.														
	Total For Assessment Anchor C.3 Principles of Motion and Force				2	4	1		3	4	7	2	1	1		3	1	4
Total For Reporting Category C					7	12	3		10	12	22	7	4	3		10	4	14

Grade 11 **Science**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
	1	1	1	Classify and describe major types of rocks (i.e., igneous – granite, basalt, obsidian, pumice; sedimentary – limestone, sandstone, shale, coal; and metamorphic – slate, quartzite, marble, gneiss) and minerals (e.g., quartz, calcite, dolomite, clay, feldspar, mica, halite, pyrite) by their origin and formation.	1				1		1	1				1		1
	1	1	2	Explain the processes that take place at plate boundaries and how these processes continue to shape Earth (e.g., volcanic activity, earthquakes, mountain building, mid-ocean ridges, deep-sea trenches, new land being formed).	3				3		3	3				3		3
	1	1	3	Analyze features caused by the interaction of processes that change Earth's surface (e.g., wind and moving water help break down rock into soil; plate movement, earthquakes, and volcanic activity help cause mountains and valleys to form; flowing water and deposition of material help form deltas).			1		1		1			1		1		1
	1	2	1	Evaluate factors affecting availability, location, extraction, and use of natural resources.														
	1	2	2	Explain the impact of obtaining and using natural resources for the production of energy and materials (e.g., resource renewal, amount of pollution, deforestation).	1	2			1	2	3	1	1			1	1	2
	1	3	1	Explain the multiple functions of different water systems in relation to landforms (e.g., buffer zones, nurseries, food production areas, habitat, water quality control, biological indicators).	1				1		1	1				1		1

D: Earth and Space Sciences	1	3	2	Explain relationships among physical characteristics, vegetation, topography, and flow as it relates to water systems.	2				2		2	2				2		2
	1	3	3	Explain factors (e.g., nutrient loading, turbidity, rate of flow, rate of deposition, biological diversity) that affect water quality and flow through a water system.														
				Total For Assessment Anchor D.1 Earth Features and Processes that Change Earth and its Resources	8	2	1		9	2	11	8	1	1		9	1	10
	2	1	1	Describe how changes in concentration of minor components (e.g., O2, CO2, dust, pollution) in Earth's atmosphere may be linked to climate change.		4				4	4		1				1	1
	2	1	2	Compare the transmission, reflection, absorption, and radiation of solar energy to and by Earth's surface under different environmental conditions (e.g., major volcanic eruptions, greenhouse effect, reduction of ozone layer, increased global cloud cover)			1		1		1			1		1		1
	2	1	3	Explain weather patterns and seasonal changes using the concepts of heat and density.														
	2	1	4	Analyze weather maps and weather data (e.g., air masses, fronts, temperature, air pressure, wind speed, wind direction, precipitation) to predict regional or global weather events.	1				1		1	1				1		1
				Total For Assessment Anchor D.2 Weather, Climate, and Atmospheric Processes	1	4	1		2	4	6	1	1	1		2	1	3
	3	1	1	Describe planetary motion and the physical laws that explain planetary motion.			1		1		1			1		1		1
	3	1	2	Describe the structure, formation, and life cycle of stars.		4				4	4		1				1	1
	3	1	3	Explain the current scientific theories of the origin of the solar system and universe (e.g., big bang theory, solar nebular theory, stellar evolution).														
				Total For Assessment Anchor D.3 Composition and Structure of the Universe		4	1		1	4	5		1	1		1	1	2
Total For Reporting Category D					9	10	3		12	10	22	9	3	3		12	3	15

Grade 05 **Writing**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Composition	1			Narrative		4				4	4		1				1	1
	Total For Assessment Anchor A.1 A.S. 1.4 -- Types of Writing					4				4	4		1				1	1
	2			Informational														
	Total For Assessment Anchor A.2 A.S. 1.4 -- Types of Writing																	
	3			Persuasive		4				4	4		1				1	1
	Total For Assessment Anchor A.3 A.S. 1.4 -- Types of Writing					4				4	4		1				1	1
Total For Reporting Category A						8				8	8		2				2	2

Grade 05 **Writing**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Revising and Edit	5			Editing	6				6		6	6				6		6
	Total For Assessment Anchor B.5 A.S. 1.5 -- Quality of Writing				6				6		6	6				6		6
	6			Revising	6	8		8	6	16	22	6	2		2	6	4	10
	Total For Assessment Anchor B.6 A.S. 1.5 -- Quality of Writing				6	8		8	6	16	22	6	2		2	6	4	10
Total For Reporting Category B					12	8		8	12	16	28	12	2		2	12	4	16

Grade 08 **Writing**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Composition	1			Narrative														
	Total For Assessment Anchor A.1 A.S. 1.4 -- Types of Writing																	
	2			Informational		4				4	4		1				1	1
	Total For Assessment Anchor A.2 A.S. 1.4 -- Types of Writing					4				4	4		1				1	1
	3			Persuasive		4				4	4		1				1	1
	Total For Assessment Anchor A.3 A.S. 1.4 -- Types of Writing					4				4	4		1				1	1
Total For Reporting Category A						8				8	8		2				2	2

Grade 08 **Writing**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Revising and Edi	5			Editing	6				6		6	6				6		6
	Total For Assessment Anchor B.5 A.S. 1.5 -- Quality of Writing				6				6		6	6				6		6
	6			Revising	6	8		8	6	16	22	6	2		2	6	4	10
	Total For Assessment Anchor B.6 A.S. 1.5 -- Quality of Writing				6	8		8	6	16	22	6	2		2	6	4	10
Total For Reporting Category B					12	8		8	12	16	28	12	2		2	12	4	16

Grade 11 **Writing**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
A: Composition	1			Narrative														
	Total For Assessment Anchor A.1 A.S. 1.4 -- Types of Writing																	
	2			Informational		4				4	4		1				1	1
	Total For Assessment Anchor A.2 A.S. 1.4 -- Types of Writing					4				4	4		1				1	1
	3			Persuasive		4				4	4		1				1	1
	Total For Assessment Anchor A.3 A.S. 1.4 -- Types of Writing					4				4	4		1				1	1
Total For Reporting Category A						8				8	8		2				2	2

Grade 11 **Writing**

Reporting Category	Assessment Anchor	Descriptor (Sub-anchor)	Eligible Content	Focus	Points							Items						
					Student Scores (Core Points)		Equating Block (EB)		Total Points (Core & EB)			Number of Items				Total Number of Items (Core & EB)		
												Core		EB				
					MC	OE	MC	OE	MC	OE	Total	MC	OE	MC	OE	MC	OE	Total
B: Revising and Edi	5			Editing	6				6		6	6				6		6
	Total For Assessment Anchor B.5 A.S. 1.5 -- Quality of Writing				6				6		6	6				6		6
	6			Revising	6	8		8	6	16	22	6	2		2	6	4	10
	Total For Assessment Anchor B.6 A.S. 1.5 -- Quality of Writing				6	8		8	6	16	22	6	2		2	6	4	10
Total For Reporting Category B					12	8		8	12	16	28	12	2		2	12	4	16

Appendix D:

Item and Test Development Process

Item and Test Development Process for the PSSA

Step	Description
1. Review Guiding Documentation	Each year item and test development specialists meet internally to review all guiding documentation related to the PSSA. Documentation reviewed includes the test design blueprints, the Pennsylvania Assessment Anchors and Eligible Content [or in the case of Writing, the Pennsylvania Academic Standards], the test item specifications, the test style specifications (style guide), and all test content descriptions.
2. Meet with PDE to Confirm Understanding of Program	The goal of the meeting each year is to ensure that item and test development teams have a clear understanding of PDE's vision for test development. A successful development cycle requires a clear understanding of Pennsylvania's content-area test specifications and of any unique interpretations of the Pennsylvania Assessment Anchors (if any).
3. Create Preliminary Test Item Development Plan	Item and test development specialists generate a preliminary development plan which includes an overview of the program, the internal and external (PDE) review and approval processes, a projected schedule for development of test items—including the number of test items to be developed for review by PDE and subsequent review by the committees of Pennsylvania educators. Item and test development specialists also generate strategies for securing passages and developing writing prompts, science scenarios, and passage-based items, etc.
4. Meet with PDE to Finalize Test Item Development Plan	Over the course of the meeting, item and test development specialists verify all steps in the development process including timelines and schedules for test item/test development.
5. Analyze Item Bank	Existing test items in the current PSSA Item Bank are reviewed for technical psychometric quality as well as for their match to the Assessment Anchors. During this phase, test development specialists also make a tally of the test items by Assessment Anchor—including test development specialists' best thinking regarding the number of usable test items in the existing item bank. A tally is also made of the number of usable passages, as well as other stimulus prompts in the bank, including science scenarios.
6. Refine Test Item Development Plan to Include Writers and Subcontractors	Item and test development specialists identify the writers who will write the test items (test development specialists or other professional item writers, subcontractors, etc.), the estimated number of writers needed, the qualifications of writers, and the approximate number of test items to be submitted by each source.
7. Train Item Writers	Item and test development specialists train item writers, as needed. Item writers who have written for the PSSA in the past receive updated information, as needed.

Item and Test Development Process for the PSSA

Step	Description
8. Write and Review Items	Test items are written by item writers after training is complete, and feedback is provided by the item and test development specialists to item writers on a regular basis. As test items are written, they are reviewed and edited in a series of internal reviews. Item and test development specialists review and edit items to include, but not limited to, the following: match to Assessment Anchor/Eligible Content, relevance to purpose, accuracy of content, item difficulty, interest level, grade appropriateness, depth of knowledge and cognitive complexity, adherence to the principles of Universal Design, and freedom from issues of bias/fairness/sensitivity. At the same time, the process of procuring permissions also begins, including securing permissions for passages, art, prompts, etc.
9. Enter Test Items into Database	Upon acceptance from item writers, test items are entered into the item management system, IDEAS (*Item Development and Educational Assessment System*). Item data stored in the system database includes, but is not limited to, the following: readability, cognitive level, estimated level of difficulty, alignment to assessment anchors, and correlation to stimulus prompts and passages.
10. Prepare Item Set for Sample Item Review by PDE	Item and test development specialists prepare a subset of the items for review by PDE.
11. PDE Conducts Sample Item Review	After a subset of the items is submitted to PDE for review, PDE reviews the items and provides feedback to item and test development teams via a conference call. Items are revised per PDE feedback.
12. Continue to Write and Review Items	The remaining items are written, and feedback is provided by the item and test development specialists to item writers on a regular basis. Items are entered into the item management system, IDEAS (*Item Development and Educational Assessment System*) (See step 8 and step 9).
13. Review Items Prior to Test Item Review and Validation Sessions	Prior to New Item Content Review, all items are submitted to PDE for review. Item and test development specialists incorporate all PDE feedback, and PDE-requested edits to items are made.
14. Prepare for Test Item Review Sessions (the New Item Content Review and the Bias, Fairness, and Sensitivity Review)	Item and test development specialists prepare all items and stimulus passages for review by the New Item Content Review Committee (consisting of Pennsylvania educators) and by the separate Bias, Fairness, and Sensitivity Committee (consisting of a panel of experts). Item and test development specialists also prepare training materials needed for training committee members to review items for content or for bias, fairness, and sensitivity issues. All training materials and other ancillary materials (e.g. agendas, presentations, etc.) are also developed and then submitted to PDE for review and approval. Invitations are also sent to Pennsylvania educators and national experts from PDE-approved committee lists.

Item and Test Development Process for the PSSA

Step	Description
15. Conduct Test Item Review Sessions (the New Item Content Review and the Bias, Fairness, and Sensitivity Review)	Committees of Pennsylvania educators and national experts review items in two meetings: one addressing item content and quality, the other addressing bias, fairness, and sensitivity. PDE, with support from item and test development specialists, presents training on how to review new test items for content considerations or bias/fairness/sensitivity issues. At the New Item Content Review, suggested edits to test items are made and/or replacement test items are written during the actual item review so that both the committee and the PDE are able to observe changes to the test items and approve the test items during the committee review process. At the Bias, Fairness, and Sensitivity Review, experts in bias, fairness, and sensitivity review all test items and passages and come to a consensus about any issues that are noted. At both meetings the results are carefully documented.
16. Conduct Item Review Resolution and Cleanup	Following the conclusion of the New Item Content Review Committee meetings, PDE re-examines the consensus changes suggested by the committee members during the New Item Content Review Committee meetings. DRC item and test development specialists then record all of PDE's follow-up decisions and changes. During this cleanup process, PDE either accepts the changes as requested by the committee, or PDE rejects the decision of the committee. If a committee decision is rejected, PDE provides an alternate decision for DRC to implement. During this cleanup process, PDE also interprets the report from the Bias, Fairness, and Sensitivity Committee meetings and subsequently applies changes to test items and passages. DRC item and test development specialists then apply the changes to the test items and passages per PDE's decisions.
17. Submit Field Test Items for Final Sign-Off	PDE-approved changes are applied to the items, scenarios, non-permissioned passages, prompts, etc. (Changes reflect PDE's arbitration of the committee decisions.) Once all revisions to the items, non-permissioned passage text, and/or the art used by test items and passages are completed, the test items are submitted to PDE for final review and sign-off. (Changes requested to permissioned passages are sought from the publisher of record, and, if approved by the copyright holders, changes are implemented.) [PDE's approval process for field test items generally occurs simultaneously with PDE's approval of the core test forms. See step 25.]
*To follow the path for new field test items, skip to **step 22**.* *OR* *To follow the chronological test development path, continue with **step 18**.*	

Item and Test Development Process for the PSSA

Step	Description
18. Review Results of the Field Test	Following the administration of a field test form and the subsequent rangefinding and field test scoring processes for field test items, performance data for all field test items are analyzed by DRC psychometricians and test development specialists. Test item performance data that meet certain triggering criteria are flagged for additional reviews by test development specialists. Flagged field-test items with extreme performance data are considered psychometrically unusable and are removed from future operational consideration. Field-test items with marginal performance data are prepared for the Field Test Item Data Review meeting.
19. Prepare for Field Test Item Data Review	Test development specialists prepare all items and stimulus passages for review by the Field Test Item Data Review Committee (which consists of Pennsylvania educators). Psychometricians also prepare training materials needed for training committee members to review items for their performance. All training materials and other ancillary materials (e.g. agendas, presentations, etc.) are submitted to PDE for review and approval. Invitations are also sent to Pennsylvania educators from PDE-approved committee lists.
20. Conduct Field Test Item Data Review	Committees of Pennsylvania educators review the performance data of flagged field-test items. Psychometrians present training on how to review field-test items based on their performance data. At the Item Data Review, committee members examine the performance of the items and determine whether the field-test item is technically sound and appropriate for use on an operational PSSA test. Since test items cannot be modified at the Field Test Item Data Review, the committee can either accept an item as is or the committee can reject the item.
21. Conduct Field Test Item Data Review Reconciliation	Following the conclusion of the Field Test Item Data Review Committee meetings, PDE re-examines the consensus decisions (accept or reject) suggested by the committee members during the Field Test Item Data Review Committee meetings. Test development specialists record all of PDE’s follow-up decisions and changes. During this cleanup process, PDE either accepts the decisions of the data review committee, or PDE rejects the decisions of the data review committee. If a committee decision is not accepted, PDE provides an alternate decision for test development specialists to implement. All PDE-approved changes to the test items status (accepted or rejected) are incorporated into the *Item Development and Educational Assessment System*, IDEAS.
22. Select Items to Fill Core, Field Test, and Equating Block Positions in Core and Field Test Forms	After the PDE-approved changes to the new field-test items is completed AND the results of the prior field test have been finalized following data review, test development specialists collaborate with psychometricians to follow the Test Design Blueprints and build requirements to make the initial selection of items for core, field-test, and equating block positions for all test forms.

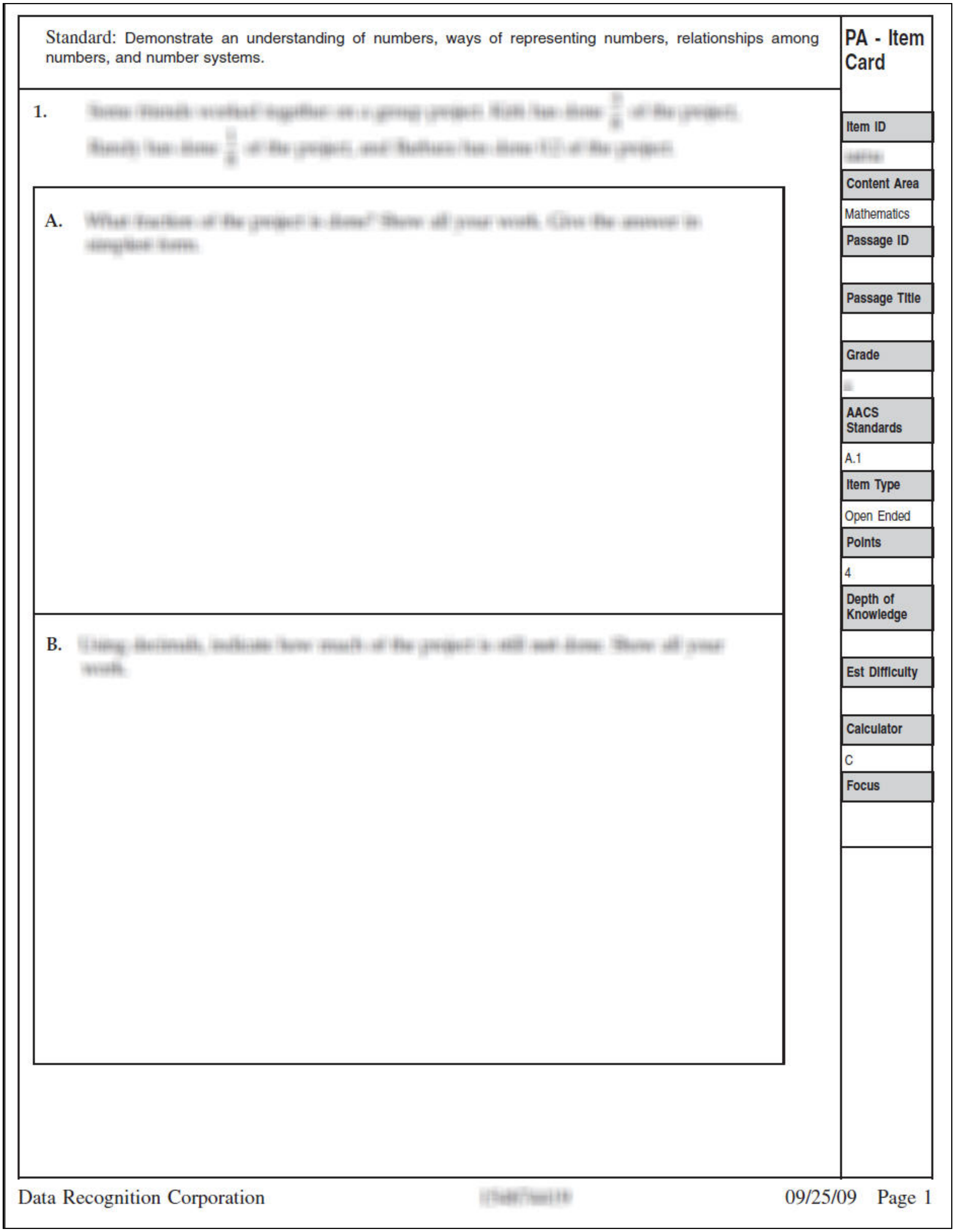
Item and Test Development Process for the PSSA

Step	Description
23. Review Core and Equating Block Selections	After test content and psychometric requirements have been achieved for core and equating block positions, the core and equating block items are provided to PDE for review and approval. Any changes to the content of the core or equating block requested by PDE are balanced with psychometric requirements until all core and equating block positions are approved by PDE, test development specialists, and psychometricians.
24. Construct Test Forms	Items, passages, and test components are assembled into forms using the form construction and typesetting function of DRC's *Item Development and Educational Assessment System*, IDEAS. Forms are reviewed internally for style and formatting requirements.
25. Review Typeset Forms	After forms are constructed in IDEAS, draft hard copies of the forms are produced and presented to PDE for review and approval. Any changes to the content of the core or equating block requested by PDE are balanced with psychometric requirements until all core and equating block positions are approved by PDE, test development specialists, and psychometricians. PDE also re-reviews all field-test items appearing in the test forms. DRC applies changes to the field-test items as required.
26. Print Test Forms	Following PDE's approval of the test forms, DRC completes a series of final proofing of all test forms. Final forms (along with ancillary materials) are then approved for printing.
27. Assemble Documentation of Test Materials	Metadata for each test item and form is documented and proofed, including: grade, form, session/section, item sequence, reporting category, Assessment Anchor, descriptor (sub-anchor), Eligible Content, number of points, item type, number of answer options, item usage, stimulus ID, etc.
*To follow the path for new field test items, return to **step 18**.*	

NOTE: As discussed in Chapter 3, the development for PSSA field test items in 2008 did not include reading and mathematics items or writing multiple-choice items. The items for the 2009 field test were selected from the item bank and had been developed prior to the 2008 development cycle.

Appendix E:

PSSA Item Review Cards



Standard: Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers, and number systems.

PA - Item Card

1. [redacted]

A. [redacted]

B. [redacted]

Item ID	[redacted]
Content Area	Mathematics
Passage ID	
Passage Title	
Grade	[redacted]
AACS Standards	A.1
Item Type	Open Ended
Points	4
Depth of Knowledge	
Est Difficulty	
Calculator	C
Focus	

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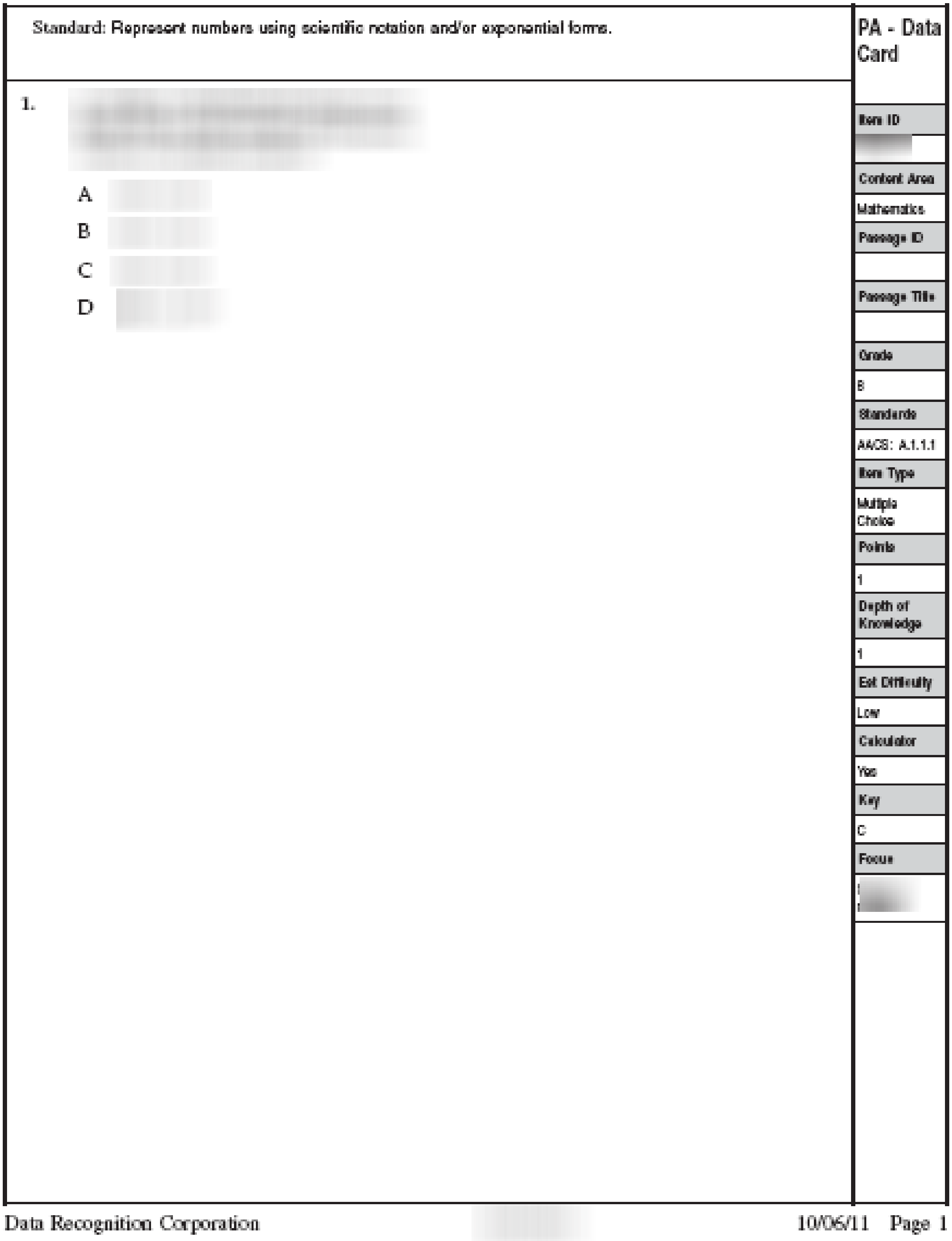

Standard: Represent numbers using scientific notation and/or exponential forms.

1. [redacted]

A [redacted]

B [redacted]

C [redacted]

D [redacted]

PA - Data Card

Item ID	[redacted]
Content Area	Mathematics
Passage ID	
Passage Title	
Grade	8
Standards	AACS: A.1.1.1
Item Type	Multiple Choice
Points	1
Depth of Knowledge	1
Est Difficulty	Low
Calculator	Yes
Key	C
Focus	[redacted]

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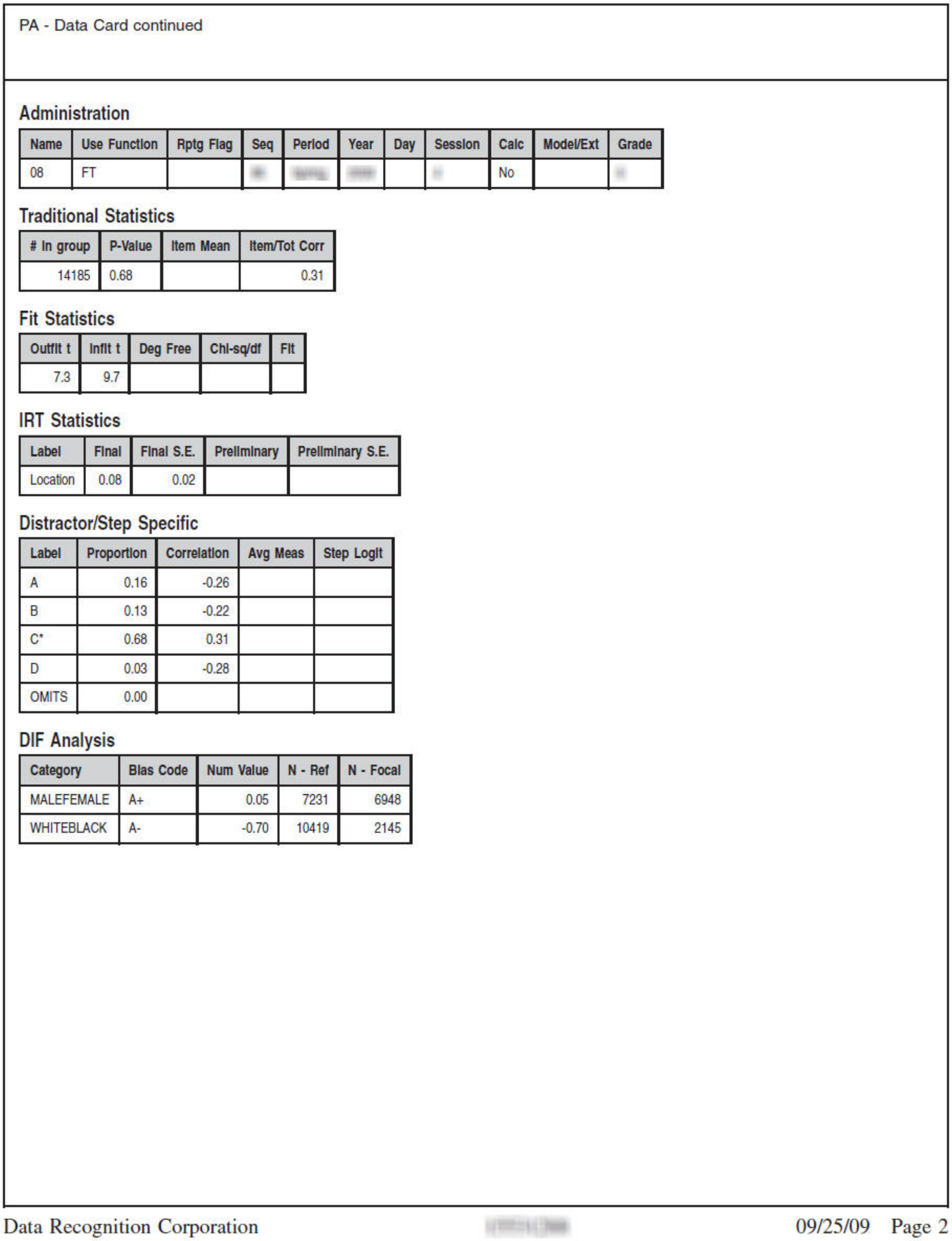

PA - Data Card continued

Administration

Name	Use Function	Rptg Flag	Seq	Period	Year	Day	Session	Calc	Model/Ext	Grade
08	FT		[redacted]	[redacted]	[redacted]		[redacted]	No		[redacted]

Traditional Statistics

# In group	P-Value	Item Mean	Item/Tot Corr
14185	0.68		0.31

Fit Statistics

Outfit t	Infit t	Deg Free	Chi-sq/df	Fit
7.3	9.7			

IRT Statistics

Label	Final	Final S.E.	Preliminary	Preliminary S.E.
Location	0.08	0.02		

Distractor/Step Specific

Label	Proportion	Correlation	Avg Meas	Step Logit
A	0.16	-0.26		
B	0.13	-0.22		
C*	0.68	0.31		
D	0.03	-0.28		
OMITS	0.00			

DIF Analysis

Category	Bias Code	Num Value	N - Ref	N - Focal
MALEFEMALE	A+	0.05	7231	6948
WHITEBLACK	A-	-0.70	10419	2145

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Appendix F:

Item Rating Sheet and Item Review Criteria Guidelines

Item Rating Sheet

Reviewer Signature: ____________________

Content Area: ____________ **Grade:** ____________

	Content Alignment	Rigor Level Alignment				Technical Design			Universal Design		STATUS
	Standards	Grade	Difficulty	Depth of Knowledge	Source of Challenge	Correct Answer	Distractors	Graphics	Language Demand	Bias	Acceptance Status
Unique ID number	—Higher —Lower —None	—Above —At —Below	—Hard —Medium —Easy	—Recall —Application —Strategic Thinking	—Yes —No	—Yes —No	—Yes —No	—Yes —No	—Yes —No	—Yes —No	— Approved as is — Accepted with suggested revisions — Dissenting View

Item Review Criteria Guidelines

The purpose of this form is to provide guidelines to the item review process in terms of item characteristics that are essential in building a fair and balanced assessment. Use these guidelines in conjunction with the Item Rating Sheet when recording your feedback on individual items.

Content Alignment		Options
Standards, Anchors, Eligible Content	Does the content of the item align with the Standard/Anchor/Eligible Content? Each item was written to assess a particular Standard/Anchor/ Eligible Content statement which is indicated on the individual Item Card. Consider the degree to which the item is, in fact, aligned with the indicated eligible content. In making this judgment, it is important to consider whether the **content** is aligned (e.g., do the eligible content and the item both deal with fractions) and whether the required **performance** is aligned (e.g., if the eligible content calls for a comparison to be made, is this reflected in the item).	**HIGHER**—Aligns to the higher level of the EC **LOWER**—Aligns to the lower level of the EC **NONE**—No alignment with EC

Rigor Level Alignment		Options
Grade	Is the item grade-level appropriate? Is the content consistent with the experiences of a student at the grade level assessed? Is the challenge level appropriate for the grade?	**ABOVE** Grade Level **AT** Grade Level **BELOW** Grade Level
Difficulty	Do you agree with the item's difficulty rating? Item Difficulty is indicated as Easy, Medium, and Hard. Is your rating in agreement with the difficulty rating on the Item Form?	**HARD** **MEDIUM** **EASY**
Depth of Knowledge	Depth of Knowledge is based on the alignment work of Norman Webb. Rate each item based on the cognitive demand, using the following levels: 1. Recall – ***Recall*** of a fact, information, or procedure. 2. Basic Application of Skill or Concept – ***Use*** of information, conceptual knowledge, procedures, two or more steps, etc. 3. Strategic Thinking – Requires reasoning, developing a plan or sequence of steps; has some complexity; more than one possible answer. 4. Extended Thinking – Requires an investigation, time to think and process multiple conditions of the problem or task, and more than 10 minutes to do non-routine manipulations. (This level is generally not assessed in on-demand assessments.)	**4** = Extended Thinking **3** = Strategic Thinking **2** = Basic Application **1** = Recall

Source of Challenge	Is the source of challenge appropriately targeted to the content? The hardest part of the item (i.e., source of challenge) should be the content that is targeted. For example, in mathematics, the mathematics should be the major source of challenge rather than the wording or graphic. Students should not give an incorrect answer to a mathematics item because the reading level is too high or a graphic is flawed. Conversely, students should not give correct answers for reasons such as prior knowledge that make the answer to the question obvious (e.g., if the question asks which country has the largest population and students are to read a graph that includes China, there is no need to read the graph to answer the question).	**Y** = Yes **N** = No

Technical Design		**Options**
Correct Answer	Is there one clear, correct answer? There should be no other answer that “could” be correct. CAUTION: This does not mean that “good” distractors are unfair.	**Y** = Yes **N** = No
Distractors	Are distractors fair and appropriate? Distractors that are appropriate offer students reasonable choices that can be arrived at by making common errors. There should be no distractors that make no sense at all. It should be possible to examine each option and to reason how a student with some deficiency in knowledge or skill could choose it. The distractors should be formatted according to acceptable standards of test construction (e.g., a phrase that is common to each distractor should be placed in the stem).	**Y** = Yes **N** = No
Graphics	Are the graphics clear and accurate?	**Y** = Yes **N** = No

Universal Design		**Options**
Language Demand	Is language clear, well-formatted, and precise? Does the item use correct terminology for the content area? In order for all students to enter into the questions of the assessment, they must be able to understand them. If the items are formatted poorly, use unnecessarily complex words or phrases, or use figures or layouts that are difficult to understand, some students will give incorrect answers due to these factors rather than the content that is being assessed.	**Y** = Yes **N** = No
Bias	Is the item free of bias? All students will not be able to enter into the assessment if bias considerations are not resolved. Does the item contain clear bias problems? *A thorough, independent bias review* (separate from this meeting) *will be completed for all items.*	**Y** = Yes **N** = No

Status		**Options**
Acceptance Status	This is an overall judgment about the item. Based on the consensus of the committee, indicate whether the item was approved without revision to the content of the item or whether the item was accepted by the committee after revision of the content of the item. If there is a dissenting view (opposed to the committee consensus), record a brief explanation of the dissenting view on the back of the Item Rating Sheet.	**—Approved** as is **—Accepted** with suggested revisions **—Dissenting View**

NOTES:

- ☐ If you leave a box blank on the Item Rating Sheet, it will be recorded to indicate that you did not have any specific feedback for that item or issue.
- ☐ If you object to the consensus of the committee, please note this on the item rating sheet and then record a brief explanation of the dissenting view on the back of the Item Rating Sheet.
- ☐ **Do NOT remove any items from the item binder at any time.**
- ☐ You must sign your Item Rating Sheet.

Appendix G:

2012 Test Book Section Layout Plans

Mathematics and Reading Test/Answer Book Section Layout for Grades 4, 5, 6, 7, 8, and 11

Mathematics Core

Core/common MC items	60 (16 core linking)
3 core 4 pt OE items	12 (8 core linking)
Total	72 points

Reading Core

Core/common MC items	40 (16 core linking)
4 core 3 pt OE items	12 (6 core linking)
Total	52 points

The estimated testing time for mathematics is approximately 130—185 minutes. The estimated testing time for reading is approximately 160—215 minutes (including equating block items and embedded field test items). [Timing assumes 5 to 10 min per OE, 1½ to 2 min per MC, and 7 min per reading passage set.]

Section	Content	Number of MC	MC Item Breakdown	Number of OE	OE Item Breakdown	Estimated Number of Passages	Section Time (in minutes)
1	Mathematics	24	23–common (core) items (includes 4 non–calc) 1–non–calc field test item	2	2–common (core) items	N/A	55—65
2	Reading	19—24	19–24–common (core) items	2	2–common (core) items	3	55—85
3	Mathematics	24	13–common (core) items 2–equating block items 9–field test items	1	1–field test	N/A	50—60
4	Reading	18	8–equating block items 10–field test items	1	1–field test	2	50—60
5	Mathematics	24	24–common (core) items	1	1–common (core) item	N/A	50—60
6	Reading	16—21	16–21–common (core) items	2	2–common (core) items	2 or 3	50—80

Notes: 1) There will be 5 forms. 2) The ruler items may fall in Section 1, 3, or 5. 3) Sections 2 and 6 must equal a combined total of 40 MC items. 4) Section 2 cannot be more than 24 MC items. Section 6 cannot be less than 16 MC items.

Mathematics and Reading Test/Answer Book Section Layout for Grade 3

Mathematics Core

Core/common MC items	60 (16 core linking)
3 core 4 pt OE items	12 (8 core linking)
Total	72 points

Reading Core

Core/common MC items	40 (16 core linking)
2 core 3 pt OE items	6 (3 core linking)
Total	46 points

The estimated testing time for mathematics is approximately 130—185 minutes. The estimated testing time for reading is approximately 160—215 minutes (including equating block items and embedded field test items). [Timing assumes 5 to 10 min per OE, 1½ to 2 min per MC, and 7 min per reading passage set.]

Section	Content	Number of MC	MC Item Breakdown	Number of OE	OE Item Breakdown	Estimated Number of Passages	Section Time (in minutes)
1	Mathematics	24	24–common (core) items	2	2–common (core) item	N/A	55—65
2	Reading	19—24	19-24–common (core) items	1	1–common (core) item	3	55—80
3	Mathematics	24	12–common (core) items 2–equating block items 10–field test items	1	1–field test	N/A	50—60
4	Reading	18	8–equating block items 10–field test items	1	1–field test	2	50—60
5	Mathematics	24	24–common (core) items	1	1–common (core) item	N/A	50—60
6	Reading	16—21	16-21–common (core) items	1	1–common (core) item	2	45—65

Notes: 1) There will be five forms. 2) The ruler items may fall in Section 1, 3, or 5. 3) Sections 2 and 6 must equal a combined total of 40 MC items. 4) Section 2 cannot be more than 24 MC items. Section 6 cannot be less than 16 MC items.

Science Test/Answer Book Section Layout

General Information (see grade level page for specifics)

- Timing Key: MC = 1 to 1½ min; 2 pt OE = 5 min; 4 pt OE = 10 min; G8 Scenario stimulus = 3 min; G11 Scenario stimulus = 6 min
- There are 12 forms per grade.
- Within a section at grade 4, MC *most likely* will precede OE items.
- Within a section at grades 8 & 11, non-scenario MC items *most likely* will precede scenario-based MC items which will precede OE items.
- Grade 4 and 8 will have both Test Booklets and scannable Answer Booklets; G11 will have one consumable science booklet.
- *Generally*, core items will precede equating block items, which will precede field test items.

Science: Grade 4

Core/common MC items	58 (16 core linking)
5 core 2 pt OE items	10 (2 core linking)
Total	68 points

The estimated grade 4 testing time for science is approximately 95—100 minutes or 110—115 minutes administration time (including equating block items and embedded field test items). [Timing assumes 5 min per 2 pt OE and 1 min per MC.]

Grade	Section	Number of MC	Estimated MC Item Breakdown	Number of OE	Estimated OE Item Breakdown	Testing Time
4	1	34	29-common (core) items 1-equating block item 4-embedded field test item	3	3-common (core) items	45—55
4	2	34	29-common (core) items 1-equating block item 4- embedded field test items	3	2-common (core) items 1-embedded field test item	45—55

Science: Grade 8

Core/common MC items	58 (16 core linking)
5 core 2 pt OE items	10 (2 core linking)
Total	68 points

The estimated grade 8 testing time is 105—110 minutes per grade for science or 120—125 minutes administration time (including equating block items and embedded field test items). [Timing assumes 5 min per 2 pt OE, 1 min per MC, and 3 min per grade 8 scenario.]

Grade	Section	Number of MC	Estimated MC Item Breakdown	Number of OE	Estimated OE Item Breakdown	Testing Time
8	1	35	27-common (core) items 4-embedded field test scenario-based items 1-equating block item 3-embedded field test item	3	3-common (core) items	50—60
8	2	35	27-common (core) items 4-common (core) scenario-based items 1-equating block item 3-embedded field test item	3	2-common (core) items 1-embedded field test item	50—60

Science: Grade 11

Core/common MC items	50 (16 core linking)
6 core 2 pt Stand-alone OE items	12 (6 core linking)
3 core 4 pt Scenario-based OE items	12 (no core linking)
Total	74 points

The estimated grade 11 testing time is 160—165 minutes for science or 175—180 minutes administration time (including equating block items and embedded field test items). [Timing assumes 5 min per 2 pt OE, 10 min per 4 pt OE, 1 min per MC, and 6 min per grade 11 scenario.]

Grade	Section	Number of MC	Estimated MC Item Breakdown	Number of OE	Estimated OE Item Breakdown	Testing Time
11	1	22	14-common (core) standalone items 8-common (core) scenario-based items	3	1-common (core) standalone items 2-common (core) scenario-based items	55—65
11	2	20	12-common (core) standalone items 4-common (core) scenario-based items 1-equating block item 3-embedded field test standalone items	4	3-common (core) standalone items 1-common (core) scenario-based items	45—55
11	3	20	12-common (core) standalone items 4-embedded field test scenario-based items 1-equating block item 3-embedded field test standalone items	4	2-common (core) standalone items 1-embedded field test scenario-based item 1-embedded field test standalone item	45—55

Writing Book Section Layout

General Information

- There are 6 forms per grade.
- All grades will have one consumable writing booklet.
- Writing assessments fall within two categories:
    - Composition – Academic Standard 1.4, Types of Writing
    - Revising and Editing – Academic Standard 1.5, Quality of Writing

Writing: All Grades

Core/common MC items	12 (weighted x1)
2 core 4 pt (Mode) WP items	80 (weighted x10)
2 core 4 pt (Conv.) WP items	8 (weighted x1)
Total	100 points

Section	Contents	Core Points Distribution by Academic Standards	Core/FT Item Breakdown	Testing Time
1	20 Multiple-choice	12 points within 1.5.E & 1.5.F	12-common (core) MC items 8-embedded field test MC items	45—55
2	1 Writing Prompt	8 points within 1.5.E & 1.5.F 80 points within 1.4.A, 1.4.B, & 1.4.C	2-common (core) WP items 1-embedded field test WP item	55—65
3	1 Writing Prompt			55—65
4	1 Writing Prompt			55—65

Appendix H:

Mean Raw Scores by Form

Column Heading	**Definition**
Form	Form
N	N students
L	Length
Pts	Points possible
Min	Minimum
Max	Maximum
Mean	Mean
Med	Median
SD	Standard deviation

Appendix H: Mean Raw Scores by Form

	Form	N	L	Pts	Min	Max	Mean	Med	*SD*		Form	N	L	Pts	Min	Max	Mean	Med	*SD*
Mathematics 3	0	126139	63	72	1	72	57.3	61.0	12.11	**Mathematics 4**	0	122526	63	72	2	72	48.8	51.0	13.67
	1	25440	63	72	4	72	57.1	61.0	12.24		1	24717	63	72	6	72	48.6	51.0	13.80
	2	25214	63	72	6	72	57.3	61.0	12.20		2	24474	63	72	2	72	48.8	51.0	13.65
	3	25212	63	72	9	72	57.4	61.0	12.04		3	24421	63	72	6	72	48.9	51.0	13.63
	4	25174	63	72	7	72	57.4	61.0	12.07		4	24454	63	72	7	72	48.8	51.0	13.63
	5	25099	63	72	1	72	57.4	61.0	12.00		5	24460	63	72	8	72	48.8	51.0	13.63
Mathematics 5	0	124973	63	72	6	72	47.3	49.0	13.52	**Mathematics 6**	0	126661	63	72	5	72	48.7	51.0	13.11
	1	25261	63	72	6	72	47.0	49.0	13.70		1	25622	63	72	8	72	48.5	51.0	13.28
	2	25039	63	72	7	72	47.3	49.0	13.42		2	25304	63	72	7	72	48.6	51.0	13.03
	3	24914	63	72	7	72	47.4	49.0	13.48		3	25219	63	72	5	72	48.7	51.0	13.14
	4	24903	63	72	7	72	47.3	49.0	13.55		4	25277	63	72	7	72	48.7	51.0	13.02
	5	24856	63	72	7	72	47.4	49.0	13.46		5	25239	63	72	8	72	48.7	51.0	13.07
Mathematics 7	0	127152	63	72	5	72	48.2	51.0	13.84	**Mathematics 8**	0	126204	63	72	4	72	49.3	52.0	13.99
	1	25672	63	72	6	72	47.9	50.0	13.99		1	25497	63	72	7	72	49.2	52.0	14.11
	2	25500	63	72	5	72	48.4	51.0	13.82		2	25210	63	72	5	72	49.2	52.0	13.99
	3	25353	63	72	6	72	48.3	51.0	13.78		3	25169	63	72	6	72	49.3	52.0	14.02
	4	25341	63	72	8	72	48.2	51.0	13.85		4	25166	63	72	4	72	49.4	52.0	13.94
	5	25286	63	72	5	72	48.2	51.0	13.78		5	25162	63	72	6	72	49.5	52.0	13.88
Mathematics 11	0	125113	63	72	6	72	45.6	47.0	14.73										
	1	25295	63	72	6	72	45.3	47.0	14.87										
	2	25025	63	72	6	72	45.4	47.0	14.75										
	3	24920	63	72	6	72	45.7	47.0	14.59										
	4	24947	63	72	6	72	45.6	47.0	14.80										
	5	24926	63	72	8	72	45.8	47.0	14.62										

	Form	N	L	Pts	Min	Max	Mean	Med	*SD*		Form	N	L	Pts	Min	Max	Mean	Med	*SD*
Reading 3	0	126062	42	46	1	46	30.8	33.0	8.98	**Reading 4**	0	121479	44	52	2	52	35.3	37.0	9.59
	1	25415	42	46	2	46	30.6	33.0	9.14		1	24507	44	52	3	52	35.2	37.0	9.70
	2	25199	42	46	2	46	30.8	33.0	9.01		2	24255	44	52	2	52	35.3	37.0	9.55
	3	25199	42	46	3	46	30.8	33.0	8.89		3	24212	44	52	4	52	35.4	37.0	9.57
	4	25166	42	46	2	46	30.9	33.0	8.99		4	24267	44	52	4	52	35.3	37.0	9.56
	5	25083	42	46	1	46	30.9	33.0	8.89		5	24238	44	52	3	52	35.3	37.0	9.59
Reading 5	0	124007	44	52	2	52	36.3	38.0	9.07	**Reading 6**	0	126146	44	52	3	52	35.8	38.0	9.47
	1	25001	44	52	4	52	36.1	38.0	9.19		1	25488	44	52	4	52	35.6	38.0	9.60
	2	24878	44	52	2	52	36.3	38.0	9.00		2	25179	44	52	4	52	35.9	38.0	9.43
	3	24732	44	52	4	52	36.3	38.0	9.04		3	25131	44	52	3	52	35.8	38.0	9.50
	4	24693	44	52	4	52	36.4	38.0	9.04		4	25201	44	52	3	52	35.8	38.0	9.47
	5	24703	44	52	4	52	36.3	38.0	9.06		5	25147	44	52	4	52	35.9	38.0	9.34
Reading 7	0	126765	44	52	3	52	35.1	37.0	8.96	**Reading 8**	0	126250	44	52	2	52	35.2	37.0	9.30
	1	25587	44	52	4	52	34.8	36.0	9.08		1	25454	44	52	4	52	35.1	37.0	9.36
	2	25404	44	52	4	52	35.0	37.0	8.94		2	25233	44	52	3	52	35.2	37.0	9.29
	3	25310	44	52	3	52	35.0	37.0	8.90		3	25196	44	52	4	52	35.1	37.0	9.35
	4	25258	44	52	4	52	35.2	37.0	8.92		4	25198	44	52	3	52	35.2	37.0	9.24
	5	25206	44	52	4	52	35.2	37.0	8.97		5	25169	44	52	2	52	35.3	37.0	9.26
Reading 11	0	125380	44	52	3	52	36.0	38.0	8.49										
	1	25319	44	52	3	52	35.8	37.0	8.68										
	2	25108	44	52	3	52	36.0	37.0	8.44										
	3	24978	44	52	3	52	35.9	37.0	8.44										
	4	24993	44	52	4	52	36.1	38.0	8.50										
	5	24982	44	52	4	52	36.1	38.0	8.41										

	Form	N	L	Pts	Min	Max	Mean	Med	*SD*		Form	N	L	Pts	Min	Max	Mean	Med	*SD*
Science 4	0	125170	63	68	0	68	45.7	48.0	12.28	**Science 8**	0	126112	63	68	2	68	43.1	45.0	12.75
	1	10770	63	68	5	68	45.0	47.0	12.67		1	10877	63	68	2	67	42.7	45.0	13.02
	2	10439	63	68	8	68	45.7	48.0	12.12		2	10480	63	68	6	68	43.1	45.0	12.68
	3	10402	63	68	5	68	45.8	48.0	12.25		3	10455	63	68	7	67	43.1	45.0	12.76
	4	10446	63	68	8	68	45.7	48.0	12.21		4	10467	63	68	2	68	43.2	45.0	12.76
	5	10411	63	68	9	68	46.0	48.0	12.27		5	10505	63	68	4	67	43.2	45.0	12.63
	6	10400	63	68	0	68	45.6	48.0	12.28		6	10491	63	68	4	68	42.9	45.0	12.77
	7	10384	63	68	8	68	45.7	48.0	12.40		7	10474	63	68	8	68	42.9	45.0	12.78
	8	10383	63	68	6	68	45.8	48.0	12.37		8	10450	63	68	6	68	43.2	45.0	12.67
	9	10365	63	68	7	68	46.0	48.0	12.16		9	10446	63	68	5	68	43.4	46.0	12.68
	10	10385	63	68	2	68	45.8	48.0	12.24		10	10476	63	68	8	68	43.2	45.0	12.76
	11	10413	63	68	7	68	45.7	48.0	12.20		11	10472	63	68	7	68	43.1	45.0	12.70
	12	10372	63	68	6	68	45.9	48.0	12.14		12	10519	63	68	6	67	43.2	45.0	12.72
Science 11	0	121693	59	74	3	72	39.5	40.0	13.38										
	1	15563	59	74	4	71	39.1	40.0	13.57										
	2	15125	59	74	5	72	39.7	41.0	13.30										
	3	15192	59	74	5	71	39.5	41.0	13.36										
	4	15148	59	74	4	72	39.6	41.0	13.42										
	5	15185	59	74	4	71	39.5	40.0	13.31										
	6	15162	59	74	3	71	39.5	40.0	13.37										
	7	15206	59	74	6	70	39.4	40.0	13.33										
	8	15112	59	74	5	72	39.4	40.0	13.36										

	Form	N	L	Pts	Min	Max	Mean	Med	*SD*		Form	N	L	Pts	Min	Max	Mean	Med	*SD*
Writing 5	0	127549	16	100	22	100	64.8	65.0	14.91	**Writing 8**	0	129035	16	100	22	100	67.1	72.0	14.41
	1	21382	16	100	22	100	64.6	65.0	14.90		1	21580	16	100	22	100	66.9	72.0	14.49
	2	21201	16	100	22	100	64.6	65.0	14.91		2	21524	16	100	22	100	67.0	72.0	14.44
	3	21319	16	100	22	100	64.9	65.0	14.89		3	21502	16	100	22	100	67.1	72.0	14.34
	4	21260	16	100	22	100	64.9	65.0	14.97		4	21511	16	100	22	100	66.9	72.0	14.43
	5	21200	16	100	22	100	65.1	65.0	14.95		5	21458	16	100	22	100	67.2	72.0	14.31
	6	21187	16	100	22	100	65.0	65.0	14.86		6	21460	16	100	22	100	67.2	72.0	14.42
Writing 11	0	125095	16	100	22	100	68.6	74.0	15.27										
	1	20970	16	100	22	100	68.5	74.0	15.29										
	2	20872	16	100	22	100	68.4	74.0	15.37										
	3	20813	16	100	22	100	68.9	74.0	15.15										
	4	20878	16	100	22	100	68.6	74.0	15.27										
	5	20765	16	100	22	100	69.0	74.0	15.13										
	6	20797	16	100	22	100	68.5	74.0	15.38										

Appendix I:

Item Statistics

Column Heading	Definition
PubID	Public ID
Form	Form
Std	Standard
DOK	Depth of knowledge
N	N
PVal	P-Value
P( )	Proportion selecting given response (-=blank)
PtBis	Point biserial
PT( )	Point biserial of repsonse
Meas	Rasch item measure
MeasSE	Rasch item measure standard error
t	t fit statistic
MS	Mean square fit statistic
M/F	Male/female DIF statistic
W/B	White/black DIF statistic

Appendix I: Item Statistics Multiple Choice

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Math	3	2469	0	E.1.2.2	2	126097	0.88	0.03	0.04	0.05	0.88	0.00	0.49	-0.14	-0.29	-0.36	0.49	0.1743	0.0096	-9.9	0.9	-9.9	0.8			
Math	3	5703	0	C.2.1.2	1	126097	0.96	0.01	0.03	0.01	0.96	0.00	0.27	-0.15	-0.17	-0.15	0.27	-1.1262	0.0147	1.9	1.0	5.9	1.2			
Math	3	1392	0	A.3.1.1	2	126097	0.91	0.02	0.05	0.91	0.02	0.00	0.38	-0.24	-0.21	0.38	-0.20	-0.1915	0.0107	-0.4	1.0	9.2	1.2			
Math	3	3335	0	D.1.1.1	2	126097	0.87	0.00	0.08	0.87	0.04	0.00	0.48	-0.11	-0.34	0.48	-0.31	0.3156	0.0093	-9.9	0.9	-9.9	0.8			
Math	3	3618	0	A.1.2.1	1	126097	0.85	0.85	0.08	0.06	0.01	0.00	0.38	0.38	-0.14	-0.34	-0.16	0.5532	0.0088	9.9	1.1	7.4	1.1			
Math	3	205	0	D.2.1.1	2	126097	0.86	0.03	0.07	0.86	0.03	0.00	0.52	-0.31	-0.30	0.52	-0.27	0.3853	0.0091	-9.9	0.9	-9.9	0.7			
Math	3	3484	0	C.1.1.1	1	126097	0.82	0.16	0.82	0.01	0.01	0.00	0.38	-0.32	0.38	-0.17	-0.14	0.8123	0.0083	9.9	1.1	5.5	1.1			
Math	3	2418	0	A.1.1.2	2	126097	0.75	0.08	0.75	0.14	0.03	0.00	0.52	-0.37	0.52	-0.24	-0.23	1.3784	0.0074	-9.9	0.9	-9.9	0.8			
Math	3	9268	0	A.3.2.1	2	126097	0.45	0.45	0.12	0.13	0.29	0.00	0.40	0.40	-0.13	-0.13	-0.24	3.1270	0.0066	3.0	1.0	9.9	1.2			
Math	3	3856	0	D.1.1.2	2	126097	0.82	0.04	0.82	0.09	0.04	0.01	0.35	-0.21	0.35	-0.14	-0.27	0.7571	0.0084	9.9	1.1	9.9	1.3			
Math	3	387	0	C.1.1.1	1	126097	0.60	0.00	0.60	0.07	0.32	0.00	0.42	-0.15	0.42	-0.17	-0.32	2.2904	0.0067	9.9	1.1	9.9	1.1			
Math	3	195	0	A.1.1.3	1	126097	0.83	0.07	0.04	0.83	0.06	0.00	0.48	-0.28	-0.23	0.48	-0.26	0.6685	0.0085	-6.7	1.0	-9.9	0.9			
Math	3	3171	0	A.2.1.2	1	126097	0.86	0.07	0.86	0.04	0.03	0.00	0.44	-0.26	0.44	-0.23	-0.23	0.4551	0.0090	-1.1	1.0	-9.9	0.9			
Math	3	9365	0	A.3.1.3	2	126097	0.85	0.03	0.05	0.05	0.85	0.01	0.43	-0.27	-0.19	-0.24	0.43	0.5030	0.0089	2.9	1.0	-1.1	1.0			
Math	3	2684	0	B.1.1.1	1	126097	0.65	0.10	0.65	0.04	0.20	0.01	0.44	-0.09	0.44	-0.28	-0.30	1.9785	0.0069	9.9	1.1	9.9	1.1			
Math	3	1156	0	D.2.2.1	1	126097	0.81	0.81	0.12	0.03	0.03	0.00	0.46	0.46	-0.27	-0.25	-0.26	0.8485	0.0082	-1.7	1.0	-9.9	0.9			
Math	3	399	0	E.1.1.2	2	126097	0.84	0.02	0.84	0.05	0.08	0.00	0.61	-0.11	0.61	-0.34	-0.47	0.5794	0.0087	-9.9	0.8	-9.9	0.7			
Math	3	9417	0	A.1.3.1	1	126097	0.91	0.04	0.03	0.91	0.01	0.00	0.33	-0.17	-0.18	0.33	-0.23	-0.2239	0.0108	5.7	1.0	9.9	1.3			
Math	3	910	0	C.1.1.2	1	126097	0.95	0.02	0.02	0.01	0.95	0.00	0.34	-0.20	-0.20	-0.17	0.34	-0.9139	0.0136	-2.4	1.0	-6.3	0.8			
Math	3	2999	0	A.2.1.3	1	126097	0.64	0.10	0.08	0.64	0.18	0.00	0.53	-0.30	-0.14	0.53	-0.32	2.0766	0.0068	-9.9	0.9	-9.9	0.9			
Math	3	6764	0	D.2.1.2	2	126097	0.92	0.02	0.01	0.04	0.92	0.01	0.39	-0.27	-0.20	-0.23	0.39	-0.3711	0.0113	-4.8	1.0	2.7	1.1			
Math	3	5310	0	A.1.1.4	1	126097	0.91	0.91	0.04	0.02	0.02	0.00	0.47	0.47	-0.33	-0.21	-0.22	-0.2584	0.0109	-9.9	0.9	-9.9	0.8			
Math	3	4942	0	B.2.1.1	1	126097	0.84	0.05	0.84	0.06	0.04	0.01	0.41	-0.31	0.41	-0.15	-0.22	0.5895	0.0087	6.7	1.0	1.7	1.0			
Math	3	570	0	E.1.2.1	2	126097	0.89	0.05	0.02	0.03	0.89	0.00	0.48	-0.35	-0.25	-0.19	0.48	0.0295	0.0100	-9.9	0.9	-8.8	0.9			
Math	3	2877	0	E.1.1.1	2	126097	0.95	0.01	0.95	0.01	0.04	0.00	0.32	-0.15	0.32	-0.09	-0.27	-0.8973	0.0135	-3.7	1.0	8.5	1.3			
Math	3	929	0	A.3.2.1	1	126097	0.83	0.11	0.83	0.04	0.02	0.00	0.41	-0.27	0.41	-0.21	-0.21	0.7151	0.0084	9.2	1.1	9.9	1.1			
Math	3	2740	0	A.2.1.1	1	126097	0.80	0.80	0.08	0.06	0.06	0.01	0.49	0.49	-0.21	-0.14	-0.46	0.9652	0.0080	-9.7	1.0	-5.6	0.9			
Math	3	9970	0	A.2.1.3	2	126097	0.80	0.06	0.10	0.04	0.80	0.00	0.42	-0.27	-0.17	-0.28	0.42	0.9356	0.0080	9.0	1.0	9.9	1.2			
Math	3	6441	0	C.2.1.1	1	126097	0.95	0.00	0.04	0.00	0.95	0.00	0.27	-0.12	-0.24	-0.08	0.27	-0.9314	0.0137	2.8	1.0	9.5	1.3			
Math	3	3644	0	A.1.3.2	1	126097	0.81	0.02	0.81	0.06	0.12	0.00	0.45	-0.12	0.45	-0.43	-0.20	0.9134	0.0081	0.5	1.0	9.9	1.2			
Math	3	8029	0	A.1.1.1	1	126097	0.89	0.04	0.89	0.02	0.05	0.00	0.41	-0.31	0.41	-0.16	-0.21	0.1210	0.0098	-1.9	1.0	2.6	1.0			
Math	3	1595	0	B.2.2.1	2	126097	0.81	0.81	0.04	0.05	0.08	0.01	0.34	0.34	-0.23	-0.16	-0.16	0.8763	0.0081	9.9	1.2	9.9	1.3			
Math	3	1669	0	A.1.2.2	1	126097	0.73	0.09	0.73	0.05	0.14	0.00	0.40	-0.31	0.40	-0.10	-0.20	1.4963	0.0073	9.9	1.1	9.9	1.1			
Math	3	1123	0	D.2.2.2	1	126097	0.64	0.18	0.64	0.06	0.12	0.00	0.40	-0.31	0.40	-0.13	-0.12	2.0703	0.0068	9.9	1.1	9.9	1.2			
Math	3	3938	0	C.1.1.2	1	126097	0.92	0.01	0.01	0.07	0.92	0.00	0.32	-0.16	-0.13	-0.25	0.32	-0.3686	0.0113	5.7	1.1	9.9	1.3			
Math	3	5559	0	B.1.1.3	2	126097	0.77	0.04	0.77	0.05	0.13	0.01	0.35	-0.23	0.35	-0.17	-0.17	1.2034	0.0076	9.9	1.2	9.9	1.2			
Math	3	2123	0	A.2.1.2	1	126097	0.89	0.89	0.03	0.05	0.03	0.00	0.37	0.37	-0.19	-0.22	-0.21	0.0824	0.0099	6.2	1.0	1.7	1.0			
Math	3	7545	0	A.1.1.2	1	126097	0.89	0.89	0.04	0.04	0.03	0.00	0.43	0.43	-0.22	-0.24	-0.26	0.0176	0.0101	-3.6	1.0	-9.9	0.8			
Math	3	3347	0	C.2.1.2	1	126097	0.85	0.06	0.85	0.08	0.01	0.00	0.42	-0.28	0.42	-0.23	-0.18	0.5512	0.0088	5.7	1.0	1.6	1.0			
Math	3	2591	0	B.2.1.1	1	126097	0.69	0.03	0.16	0.12	0.69	0.00	0.44	-0.29	-0.23	-0.20	0.44	1.7588	0.0070	9.9	1.1	9.9	1.1			
Math	3	2190	0	D.2.2.2	1	126097	0.90	0.04	0.05	0.90	0.01	0.00	0.34	-0.19	-0.22	0.34	-0.18	-0.0646	0.0103	7.0	1.1	9.9	1.3			
Math	3	8574	0	A.2.1.1	1	126097	0.89	0.07	0.89	0.03	0.01	0.00	0.52	-0.40	0.52	-0.23	-0.20	0.0992	0.0099	-9.9	0.9	-9.9	0.7			
Math	3	3289	0	E.1.1.2	2	126097	0.86	0.04	0.86	0.01	0.09	0.00	0.59	-0.17	0.59	-0.15	-0.54	0.4568	0.0090	-9.9	0.8	-9.9	0.8			
Math	3	4137	0	A.1.2.2	1	126097	0.92	0.01	0.92	0.06	0.02	0.00	0.35	-0.08	0.35	-0.26	-0.20	-0.3690	0.0113	0.6	1.0	9.9	1.4			
Math	3	860	0	D.1.1.2	2	126097	0.76	0.08	0.12	0.76	0.03	0.00	0.47	-0.24	-0.27	0.47	-0.26	1.2416	0.0076	-1.0	1.0	-9.5	0.9			
Math	3	3223	0	A.3.1.1	1	126097	0.78	0.78	0.14	0.05	0.02	0.01	0.46	0.46	-0.32	-0.23	-0.19	1.1172	0.0078	2.4	1.0	2.3	1.0			
Math	3	6804	0	A.1.3.3	2	126097	0.67	0.08	0.15	0.10	0.67	0.00	0.50	-0.12	-0.27	-0.35	0.50	1.8879	0.0069	-9.9	1.0	-9.9	0.9			
Math	3	3367	0	A.2.1.3	2	126097	0.64	0.03	0.02	0.31	0.64	0.00	0.42	-0.34	-0.26	-0.22	0.42	2.0725	0.0068	9.9	1.1	9.9	1.1			
Math	3	6112	0	C.1.1.1	1	126097	0.84	0.10	0.05	0.84	0.01	0.00	0.30	-0.17	-0.19	0.30	-0.14	0.6407	0.0086	9.9	1.2	9.9	1.3			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Math	3	2142	0	A.1.1.5	1	126097	0.96	0.01	0.01	0.96	0.02	0.00	0.42	-0.24	-0.19	0.42	-0.29	-1.0696	0.0144	-9.9	0.9	-9.9	0.6			
Math	3	6093	0	D.1.1.1	2	126097	0.90	0.03	0.02	0.04	0.90	0.00	0.39	-0.23	-0.21	-0.22	0.39	-0.0407	0.0102	2.1	1.0	-5.3	0.9			
Math	3	8212	0	A.3.1.2	2	126097	0.76	0.17	0.03	0.76	0.03	0.01	0.59	-0.49	-0.19	0.59	-0.19	1.2469	0.0076	-9.9	0.8	-9.9	0.7			
Math	3	5729	0	A.3.2.1	2	126097	0.72	0.12	0.72	0.12	0.04	0.00	0.51	-0.35	0.51	-0.18	-0.29	1.5652	0.0072	-9.9	1.0	-9.9	0.9			
Math	3	7159	0	A.1.1.4	1	126097	0.93	0.93	0.02	0.01	0.03	0.01	0.46	0.46	-0.23	-0.22	-0.33	-0.4464	0.0116	-9.9	0.9	-9.9	0.7			
Math	3	760	0	A.3.1.2	2	126097	0.86	0.11	0.86	0.02	0.01	0.00	0.58	-0.49	0.58	-0.17	-0.22	0.4334	0.0090	-9.9	0.8	-9.9	0.6			
Math	3	821	0	B.1.2.2	2	126097	0.86	0.04	0.03	0.86	0.07	0.01	0.48	-0.29	-0.21	0.48	-0.29	0.4627	0.0090	-9.8	1.0	-9.9	0.8			
Math	3	2932	0	A.1.2.1	1	126097	0.85	0.85	0.04	0.08	0.03	0.00	0.45	0.45	-0.18	-0.29	-0.28	0.4985	0.0089	-4.0	1.0	-5.9	0.9			
Math	3	3236	0	E.1.1.1	2	126097	0.96	0.01	0.96	0.02	0.01	0.00	0.30	-0.22	0.30	-0.16	-0.12	-1.2605	0.0155	-2.4	1.0	-2.2	0.9			
Math	3	7327	0	D.2.1.1	2	126097	0.88	0.88	0.07	0.03	0.02	0.00	0.43	0.43	-0.25	-0.25	-0.23	0.1409	0.0097	-3.4	1.0	-9.0	0.9			
Math	3	2555	0	C.2.1.1	1	126097	0.93	0.01	0.06	0.00	0.93	0.00	0.34	-0.12	-0.30	-0.10	0.34	-0.4837	0.0118	2.7	1.0	2.0	1.0			
Math	3	9297	1	A.1.3.3	2	25429	0.66	0.20	0.07	0.06	0.66	0.00	0.49	-0.29	-0.23	-0.23	0.49	1.8740	0.0154	-4.9	1.0	-7.2	0.9	A-	A-	A+
Math	3	7415	1	A.2.1.2	1	25429	0.81	0.09	0.81	0.04	0.06	0.00	0.46	-0.26	0.46	-0.22	-0.26	0.8254	0.0182	-0.2	1.0	-7.1	0.8	A+	A-	A-
Math	3	6743	1	B.1.1.2	2	25429	0.71	0.06	0.17	0.71	0.06	0.01	0.48	-0.30	-0.21	0.48	-0.28	1.5839	0.0160	-0.8	1.0	-1.3	1.0			
Math	3	2166	1	A.1.2.1	1	25429	0.71	0.20	0.71	0.04	0.04	0.01	0.46	-0.24	0.46	-0.30	-0.25	1.5860	0.0160	3.5	1.0	1.9	1.0	A+	B-	A-
Math	3	1575	1	C.2.1.1	1	25429	0.93	0.01	0.01	0.93	0.04	0.00	0.28	-0.17	-0.12	0.28	-0.19	-0.5917	0.0269	3.0	1.1	3.0	1.2	A+	A-	A+
Math	3	7696	1	A.1.1.5	1	25429	0.95	0.02	0.95	0.01	0.01	0.00	0.42	-0.23	0.42	-0.23	-0.25	-0.9197	0.0301	-5.7	0.9	-5.5	0.7	A-	A-	A-
Math	3	1560	1	A.3.1.1	2	25429	0.90	0.04	0.90	0.03	0.03	0.00	0.41	-0.16	0.41	-0.21	-0.32	-0.0538	0.0227	-2.3	1.0	2.3	1.1	A-	A-	A-
Math	3	7218	1	D.2.2.2	1	25429	0.90	0.06	0.02	0.90	0.01	0.01	0.35	-0.23	-0.23	0.35	-0.15	-0.0164	0.0225	3.2	1.1	3.6	1.1	A-	A-	A-
Math	3	4840	1	E.1.1.2	2	25429	0.90	0.90	0.01	0.05	0.03	0.00	0.40	0.40	-0.14	-0.33	-0.15	-0.0814	0.0229	-1.2	1.0	-0.6	1.0	A-	B-	A-
Math	3	7294	1	A.1.1.4	1	25429	0.89	0.02	0.04	0.05	0.89	0.00	0.50	-0.27	-0.27	-0.30	0.50	0.0232	0.0222	-9.0	0.9	-6.8	0.8			
Math	3	3364	1	C.1.1.2	1	25429	0.93	0.02	0.01	0.93	0.03	0.01	0.33	-0.21	-0.18	0.33	-0.20	-0.5309	0.0263	0.2	1.0	3.3	1.2	A-	B-	B-
Math	3	9652	1	B.2.1.1	1	25429	0.73	0.22	0.73	0.03	0.02	0.00	0.34	-0.26	0.34	-0.09	-0.21	1.4704	0.0162	9.9	1.2	9.9	1.3	A-	B-	A-
Math	3	3119	2	A.1.1.5	1	25206	0.95	0.01	0.01	0.02	0.95	0.00	0.39	-0.24	-0.22	-0.22	0.39	-0.8941	0.0303	-3.9	0.9	-3.2	0.8	A-	A-	A-
Math	3	6368	2	D.2.2.1	1	25206	0.87	0.04	0.06	0.87	0.02	0.00	0.43	-0.23	-0.28	0.43	-0.19	0.3311	0.0207	-0.6	1.0	-2.0	0.9			
Math	3	7281	2	A.1.2.1	1	25206	0.91	0.91	0.07	0.00	0.01	0.01	0.35	0.35	-0.30	-0.12	-0.14	-0.2094	0.0241	1.4	1.0	3.1	1.1	A+	A-	A+
Math	3	6265	2	E.1.1.1	1	25206	0.96	0.00	0.01	0.96	0.02	0.00	0.33	-0.13	-0.08	0.33	-0.32	-1.0712	0.0323	-2.8	0.9	3.5	1.3	A+	B-	B-
Math	3	9521	2	B.2.1.1	1	25206	0.78	0.04	0.78	0.11	0.07	0.00	0.31	-0.17	0.31	-0.11	-0.23	1.1315	0.0174	9.9	1.2	9.9	1.4	A-	A-	A-
Math	3	9653	2	B.1.1.1	1	25206	0.82	0.12	0.01	0.82	0.04	0.00	0.43	-0.22	-0.17	0.43	-0.36	0.7774	0.0186	2.5	1.0	5.1	1.1	A-	A-	A-
Math	3	4124	2	C.1.1.1	1	25206	0.83	0.10	0.06	0.83	0.02	0.00	0.34	-0.18	-0.22	0.34	-0.19	0.6893	0.0190	9.9	1.2	7.2	1.2	A-	A-	A+
Math	3	9373	2	A.2.1.2	1	25206	0.78	0.10	0.78	0.07	0.04	0.00	0.48	-0.27	0.48	-0.29	-0.20	1.1093	0.0174	-1.1	1.0	-7.0	0.9			
Math	3	3858	2	A.1.3.3	2	25206	0.66	0.08	0.66	0.12	0.14	0.00	0.50	-0.21	0.50	-0.31	-0.22	1.9167	0.0154	-5.8	1.0	-6.0	0.9	A-	A-	A-
Math	3	4298	2	D.1.1.2	2	25206	0.85	0.02	0.06	0.85	0.06	0.00	0.50	-0.30	-0.29	0.50	-0.26	0.5054	0.0199	-6.4	0.9	-6.6	0.8	A-	A-	A-
Math	3	7551	2	A.3.1.3	2	25206	0.87	0.87	0.04	0.03	0.03	0.02	0.48	0.48	-0.24	-0.29	-0.30	0.3166	0.0208	-5.0	0.9	-7.0	0.8	A+	A-	A-
Math	3	9817	2	E.1.2.1	2	25206	0.97	0.97	0.01	0.01	0.01	0.00	0.31	0.31	-0.17	-0.19	-0.17	-1.6047	0.0397	-2.4	0.9	-1.2	0.9	A+	B-	A-
Math	3	4509	3	D.1.1.1	2	25203	0.96	0.02	0.01	0.96	0.01	0.00	0.27	-0.21	-0.10	0.27	-0.13	-1.1459	0.0333	0.2	1.0	1.3	1.1	B+	A-	A+
Math	3	363	3	E.1.1.1	1	25203	0.98	0.01	0.00	0.98	0.00	0.00	0.17	-0.12	-0.08	0.17	-0.09	-2.1996	0.0514	-0.4	1.0	5.0	1.7	A+	C-	A-
Math	3	3116	3	A.3.1.1	2	25203	0.90	0.01	0.02	0.06	0.90	0.01	0.41	-0.15	-0.25	-0.29	0.41	-0.0296	0.0229	-1.2	1.0	-3.0	0.9	A+	B-	A-
Math	3	2626	3	A.2.1.1	1	25203	0.86	0.05	0.03	0.05	0.86	0.00	0.54	-0.43	-0.19	-0.24	0.54	0.4535	0.0201	-9.9	0.9	-9.9	0.7	A-	A-	A-
Math	3	8886	3	C.2.1.1	1	25203	0.96	0.96	0.01	0.02	0.01	0.00	0.23	0.23	-0.11	-0.13	-0.15	-1.2799	0.0351	0.8	1.0	5.3	1.4	A+	A-	A+
Math	3	218	3	E.1.2.1	2	25203	0.96	0.02	0.01	0.96	0.01	0.00	0.37	-0.27	-0.19	0.37	-0.15	-1.0591	0.0322	-4.4	0.9	-0.7	1.0	A+	B-	A-
Math	3	791	3	A.1.1.1	1	25203	0.95	0.95	0.01	0.02	0.01	0.00	0.39	0.39	-0.22	-0.22	-0.23	-0.8900	0.0303	-4.4	0.9	-3.8	0.8			
Math	3	2913	3	B.1.1.3	1	25203	0.77	0.11	0.77	0.07	0.05	0.00	0.40	-0.25	0.40	-0.19	-0.20	1.2016	0.0171	9.0	1.1	5.1	1.1	A+	A-	A-
Math	3	2892	3	B.2.2.1	1	25203	0.94	0.94	0.03	0.01	0.01	0.00	0.36	0.36	-0.24	-0.17	-0.22	-0.7263	0.0286	-1.8	1.0	-2.2	0.9	A+	B-	B-
Math	3	1159	3	A.1.1.3	1	25203	0.93	0.05	0.01	0.93	0.01	0.00	0.40	-0.28	-0.22	0.40	-0.18	-0.5334	0.0268	-3.5	0.9	-3.0	0.9	A-	A-	A-
Math	3	6546	3	C.1.1.1	1	25203	0.72	0.00	0.24	0.72	0.03	0.01	0.43	-0.12	-0.37	0.43	-0.14	1.5565	0.0161	7.7	1.1	4.1	1.1			
Math	3	1971	3	A.1.3.2	2	25203	0.68	0.09	0.12	0.11	0.68	0.00	0.44	-0.21	-0.34	-0.10	0.44	1.8050	0.0156	6.0	1.1	9.0	1.1	A-	A-	A-
Math	3	5527	4	A.2.1.3	1	25167	0.44	0.28	0.05	0.44	0.24	0.00	0.38	-0.33	-0.28	0.38	0.06	3.1849	0.0148	6.8	1.0	9.9	1.3	A-	A-	A-
Math	3	5243	4	C.2.1.2	1	25167	0.92	0.06	0.92	0.01	0.01	0.00	0.39	-0.29	0.39	-0.17	-0.18	-0.3993	0.0256	-2.3	1.0	-0.5	1.0	A+	B-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Math	3	6149	4	A.1.2.2	1	25167	0.80	0.80	0.06	0.10	0.04	0.00	0.46	0.46	-0.12	-0.33	-0.26	0.9991	0.0178	1.5	1.0	-4.5	0.9	A+	A-	A-
Math	3	1272	4	A.3.2.1	2	25167	0.81	0.04	0.11	0.81	0.03	0.00	0.55	-0.28	-0.34	0.55	-0.27	0.8939	0.0182	-9.9	0.9	-9.9	0.8	A+	A-	A-
Math	3	4847	4	D.1.1.2	2	25167	0.90	0.05	0.90	0.02	0.02	0.01	0.53	-0.36	0.53	-0.25	-0.30	-0.1126	0.0235	-9.9	0.8	-9.9	0.6	A+	A-	A-
Math	3	2729	4	E.1.1.2	2	25167	0.96	0.01	0.01	0.96	0.02	0.00	0.36	-0.20	-0.22	0.36	-0.20	-1.1693	0.0336	-2.8	0.9	-4.8	0.7			
Math	3	8560	4	A.1.1.2	1	25167	0.76	0.76	0.03	0.03	0.18	0.00	0.49	0.49	-0.27	-0.23	-0.31	1.2918	0.0169	-1.6	1.0	-9.1	0.8	A-	A-	A-
Math	3	1556	4	D.2.1.2	2	25167	0.61	0.04	0.61	0.03	0.31	0.01	0.44	-0.15	0.44	-0.23	-0.30	2.2480	0.0150	2.4	1.0	3.4	1.0	A-	A-	A-
Math	3	4039	4	A.1.3.1	1	25167	0.93	0.01	0.04	0.93	0.02	0.00	0.45	-0.26	-0.27	0.45	-0.25	-0.5297	0.0267	-6.4	0.9	-5.9	0.7	A-	A-	A-
Math	3	4392	4	A.3.1.2	2	25167	0.82	0.02	0.13	0.03	0.82	0.00	0.55	-0.20	-0.45	-0.19	0.55	0.7819	0.0186	-9.9	0.9	-9.9	0.7			
Math	3	3540	4	B.1.2.1	1	25167	0.70	0.21	0.06	0.01	0.70	0.01	0.37	-0.28	-0.08	-0.23	0.37	1.6635	0.0160	9.9	1.2	9.9	1.2	A+	A-	A-
Math	3	6667	4	E.1.2.2	2	25167	0.96	0.96	0.01	0.01	0.01	0.00	0.41	0.41	-0.18	-0.29	-0.22	-1.2173	0.0342	-5.2	0.9	-7.5	0.6	A+	C-	A-
Math	3	7674	5	D.2.1.1	2	25092	0.74	0.14	0.74	0.08	0.04	0.00	0.36	-0.11	0.36	-0.25	-0.25	1.4475	0.0165	9.9	1.2	9.9	1.3	A+	A-	A-
Math	3	8431	5	A.1.3.1	1	25092	0.94	0.01	0.03	0.94	0.02	0.00	0.45	-0.21	-0.30	0.45	-0.27	-0.6005	0.0275	-6.9	0.9	-8.3	0.6	A-	A-	A-
Math	3	304	5	A.1.1.2	1	25092	0.77	0.11	0.77	0.06	0.05	0.01	0.55	-0.35	0.55	-0.23	-0.29	1.1951	0.0172	-9.9	0.9	-9.9	0.8	A-	A-	A-
Math	3	5439	5	B.1.1.2	2	25092	0.56	0.56	0.12	0.18	0.12	0.02	0.46	0.46	-0.18	-0.27	-0.18	2.5332	0.0148	-4.7	1.0	2.2	1.0	B-	A-	A-
Math	3	9191	5	A.1.2.1	1	25092	0.85	0.00	0.85	0.03	0.11	0.00	0.45	-0.13	0.45	-0.12	-0.41	0.5489	0.0197	-0.8	1.0	-3.9	0.9			
Math	3	2348	5	C.1.1.1	1	25092	0.62	0.07	0.15	0.16	0.62	0.00	0.45	-0.29	-0.24	-0.14	0.45	2.1898	0.0151	5.2	1.0	1.9	1.0	A+	A+	A-
Math	3	5708	5	A.2.1.3	2	25092	0.54	0.06	0.54	0.23	0.15	0.01	0.35	-0.15	0.35	-0.29	-0.04	2.6298	0.0147	9.9	1.1	9.9	1.3	A+	A+	A-
Math	3	3186	5	C.2.1.2	2	25092	0.94	0.03	0.01	0.02	0.94	0.00	0.33	-0.23	-0.12	-0.19	0.33	-0.7547	0.0290	0.0	1.0	-1.9	0.9			
Math	3	1197	5	D.1.1.1	2	25092	0.95	0.01	0.95	0.02	0.01	0.00	0.35	-0.15	0.35	-0.25	-0.18	-1.0137	0.0319	-2.0	1.0	-3.9	0.8	A+	A-	A+
Math	3	4101	5	A.3.1.3	2	25092	0.94	0.02	0.94	0.02	0.02	0.00	0.42	-0.27	0.42	-0.20	-0.25	-0.6346	0.0278	-5.2	0.9	-8.6	0.6	A+	A-	A-
Math	3	2213	5	A.1.1.3	1	25092	0.84	0.84	0.06	0.04	0.05	0.01	0.47	0.47	-0.28	-0.24	-0.25	0.6320	0.0193	-2.9	1.0	-7.9	0.8	A-	A-	A-
Math	3	8407	5	E.1.2.2	2	25092	0.98	0.01	0.98	0.00	0.01	0.00	0.27	-0.21	0.27	-0.13	-0.12	-1.9463	0.0464	-1.9	0.9	-0.8	0.9	A+	B-	A-
Math	4	8860	0	A.3.2.2	1	122489	0.81	0.02	0.15	0.81	0.02	0.00	0.28	-0.08	-0.23	0.28	-0.12	-0.3698	0.0079	9.9	1.1	9.9	1.3			
Math	4	1259	0	A.3.2.1	1	122489	0.90	0.06	0.90	0.02	0.02	0.00	0.25	-0.19	0.25	-0.10	-0.12	-1.1711	0.0099	3.8	1.0	9.9	1.3			
Math	4	227	0	A.3.1.3	2	122489	0.76	0.10	0.09	0.76	0.05	0.00	0.40	-0.34	-0.11	0.40	-0.17	0.0206	0.0073	-2.8	1.0	3.4	1.0			
Math	4	5208	0	A.3.1.3	2	122489	0.67	0.15	0.67	0.06	0.12	0.00	0.40	-0.09	0.40	-0.18	-0.35	0.5401	0.0067	5.2	1.0	9.9	1.1			
Math	4	735	0	B.2.1.1	1	122489	0.65	0.17	0.02	0.65	0.16	0.00	0.43	-0.21	-0.18	0.43	-0.27	0.6429	0.0067	-2.3	1.0	-9.9	0.9			
Math	4	4294	0	A.1.1.4	1	122489	0.87	0.01	0.09	0.87	0.04	0.00	0.44	-0.16	-0.32	0.44	-0.22	-0.8554	0.0090	-9.9	0.9	-9.9	0.7			
Math	4	236	0	C.1.2.1	1	122489	0.48	0.06	0.48	0.38	0.08	0.00	0.35	0.06	0.35	-0.31	-0.13	1.5307	0.0064	9.9	1.1	9.9	1.2			
Math	4	4126	0	A.1.3.2	1	122489	0.62	0.12	0.62	0.05	0.20	0.00	0.50	-0.19	0.50	-0.16	-0.36	0.8231	0.0066	-9.9	0.9	-9.9	0.9			
Math	4	8880	0	D.1.1.1	2	122489	0.67	0.11	0.07	0.67	0.14	0.00	0.50	-0.25	-0.22	0.50	-0.27	0.5268	0.0067	-9.9	0.9	-9.9	0.8			
Math	4	2586	0	A.2.1.1	2	122489	0.68	0.68	0.07	0.13	0.12	0.00	0.49	0.49	-0.20	-0.13	-0.41	0.4621	0.0068	-9.9	0.9	-9.9	0.9			
Math	4	9451	0	A.3.1.2	1	122489	0.59	0.21	0.59	0.07	0.12	0.00	0.41	-0.20	0.41	-0.14	-0.25	0.9639	0.0065	8.0	1.0	5.1	1.0			
Math	4	4821	0	D.1.2.2	2	122489	0.74	0.09	0.07	0.10	0.74	0.00	0.46	-0.16	-0.27	-0.29	0.46	0.1452	0.0071	-9.9	0.9	-9.9	0.9			
Math	4	1256	0	A.1.1.3	1	122489	0.73	0.18	0.73	0.05	0.03	0.00	0.35	-0.22	0.35	-0.15	-0.20	0.1584	0.0071	9.9	1.1	5.8	1.0			
Math	4	4310	0	E.3.1.1	2	122489	0.87	0.10	0.02	0.01	0.87	0.00	0.29	-0.21	-0.13	-0.15	0.29	-0.8619	0.0090	3.1	1.0	9.9	1.2			
Math	4	470	0	D.1.1.3	2	122489	0.64	0.05	0.19	0.12	0.64	0.00	0.54	-0.18	-0.45	-0.13	0.54	0.7219	0.0066	-9.9	0.9	-9.9	0.8			
Math	4	5971	0	A.1.2.2	1	122489	0.68	0.68	0.14	0.07	0.11	0.00	0.41	0.41	-0.31	-0.23	-0.08	0.4912	0.0068	2.0	1.0	9.9	1.1			
Math	4	9575	0	C.1.2.2	1	122489	0.49	0.49	0.17	0.21	0.13	0.00	0.33	0.33	-0.06	-0.24	-0.13	1.4952	0.0064	9.9	1.1	9.9	1.2			
Math	4	5959	0	A.1.1.2	1	122489	0.63	0.06	0.08	0.23	0.63	0.00	0.49	-0.20	-0.23	-0.30	0.49	0.7862	0.0066	-9.9	0.9	-9.9	0.9			
Math	4	5170	0	B.1.1.2	1	122489	0.67	0.04	0.67	0.14	0.14	0.00	0.39	-0.14	0.39	-0.21	-0.23	0.5265	0.0067	9.9	1.0	-6.0	1.0			
Math	4	2543	0	E.1.1.1	2	122489	0.79	0.04	0.79	0.10	0.06	0.00	0.47	-0.25	0.47	-0.25	-0.26	-0.2284	0.0076	-9.9	0.9	-9.9	0.8			
Math	4	2360	0	B.2.2.1	1	122489	0.72	0.04	0.17	0.72	0.07	0.00	0.29	-0.19	-0.14	0.29	-0.15	0.2333	0.0070	9.9	1.1	9.9	1.4			
Math	4	2609	0	B.1.1.3	1	122489	0.45	0.14	0.45	0.07	0.33	0.00	0.37	-0.33	0.37	-0.21	-0.03	1.6758	0.0065	9.9	1.1	9.9	1.1			
Math	4	7453	0	E.1.2.1	2	122489	0.71	0.05	0.71	0.03	0.21	0.00	0.45	-0.24	0.45	-0.17	-0.30	0.3258	0.0069	-9.9	1.0	-9.9	0.9			
Math	4	9622	0	B.1.1.1	1	122489	0.86	0.06	0.01	0.86	0.06	0.00	0.38	-0.20	-0.15	0.38	-0.26	-0.7560	0.0087	-9.5	1.0	-1.7	1.0			
Math	4	3576	0	D.2.1.1	2	122489	0.78	0.78	0.07	0.09	0.06	0.00	0.36	0.36	-0.25	-0.20	-0.12	-0.1325	0.0075	4.8	1.0	0.8	1.0			
Math	4	2340	0	A.2.1.1	2	122489	0.67	0.01	0.06	0.67	0.26	0.00	0.36	-0.15	-0.34	0.36	-0.17	0.5612	0.0067	9.9	1.1	9.9	1.1			
Math	4	4046	0	A.1.2.1	1	122489	0.74	0.05	0.05	0.74	0.16	0.00	0.40	-0.21	-0.22	0.40	-0.22	0.1136	0.0072	-0.7	1.0	-0.5	1.0			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Math	4	2047	0	A.1.1.1	1	122489	0.73	0.02	0.20	0.05	0.73	0.00	0.25	-0.13	-0.17	-0.11	0.25	0.1745	0.0071	9.9	1.2	9.9	1.3			
Math	4	9058	0	A.1.3.2	2	122489	0.75	0.12	0.09	0.75	0.04	0.00	0.46	-0.32	-0.20	0.46	-0.19	0.0531	0.0072	-9.9	0.9	-9.9	0.9			
Math	4	6439	0	C.1.1.1	1	122489	0.61	0.61	0.06	0.25	0.08	0.00	0.45	0.45	-0.16	-0.29	-0.20	0.8939	0.0065	-7.0	1.0	-9.2	1.0			
Math	4	9582	0	B.2.2.1	1	122489	0.76	0.05	0.76	0.09	0.09	0.00	0.36	-0.20	0.36	-0.18	-0.20	-0.0305	0.0074	7.6	1.0	9.9	1.1			
Math	4	9699	0	D.1.2.1	2	122489	0.72	0.13	0.72	0.08	0.07	0.00	0.43	-0.23	0.43	-0.22	-0.22	0.2733	0.0070	-9.3	1.0	-5.0	1.0			
Math	4	296	0	B.1.1.2	1	122489	0.69	0.08	0.04	0.19	0.69	0.00	0.45	-0.18	-0.15	-0.33	0.45	0.4434	0.0068	-9.9	1.0	-9.9	0.9			
Math	4	3811	0	A.1.1.2	2	122489	0.44	0.52	0.44	0.03	0.02	0.00	0.41	-0.35	0.41	-0.09	-0.11	1.7750	0.0065	-0.5	1.0	9.5	1.0			
Math	4	9183	0	E.3.1.1	2	122489	0.87	0.01	0.08	0.87	0.03	0.00	0.28	-0.16	-0.20	0.28	-0.11	-0.9251	0.0091	1.6	1.0	9.9	1.2			
Math	4	2804	0	A.3.1.2	1	122489	0.55	0.05	0.55	0.12	0.28	0.00	0.38	-0.18	0.38	-0.18	-0.20	1.2017	0.0064	9.9	1.0	9.9	1.1			
Math	4	2372	0	C.1.1.1		122489	0.88	0.10	0.88	0.02	0.00	0.00	0.36	-0.31	0.36	-0.14	-0.08	-0.9449	0.0092	-7.2	1.0	-9.9	0.9			
Math	4	3479	0	B.1.1.2	1	122489	0.76	0.06	0.15	0.03	0.76	0.00	0.43	-0.23	-0.30	-0.12	0.43	0.0061	0.0073	-8.5	1.0	-9.9	0.9			
Math	4	3547	0	D.1.2.2		122489	0.65	0.05	0.03	0.27	0.65	0.00	0.31	-0.23	-0.20	-0.13	0.31	0.6585	0.0067	9.9	1.1	9.9	1.2			
Math	4	9550	0	A.1.1.2	1	122489	0.49	0.06	0.49	0.08	0.37	0.00	0.44	-0.11	0.44	-0.11	-0.33	1.4822	0.0064	-6.1	1.0	-5.3	1.0			
Math	4	7081	0	A.3.1.1	1	122489	0.61	0.05	0.61	0.26	0.08	0.00	0.45	-0.15	0.45	-0.26	-0.26	0.8713	0.0065	-7.9	1.0	-5.8	1.0			
Math	4	2852	0	D.2.1.1	2	122489	0.62	0.30	0.62	0.04	0.03	0.00	0.54	-0.43	0.54	-0.20	-0.11	0.7904	0.0066	-9.9	0.9	-9.9	0.8			
Math	4	3665	0	A.3.1.2	1	122489	0.54	0.15	0.54	0.13	0.17	0.00	0.41	-0.20	0.41	-0.22	-0.14	1.2249	0.0064	5.5	1.0	5.1	1.0			
Math	4	4369	0	D.1.1.2	2	122489	0.81	0.81	0.05	0.04	0.10	0.00	0.31	0.31	-0.20	-0.21	-0.12	-0.3702	0.0079	9.9	1.0	9.9	1.2			
Math	4	1092	0	C.1.2.1	1	122489	0.56	0.19	0.56	0.07	0.18	0.00	0.25	-0.23	0.25	-0.12	-0.01	1.1568	0.0064	9.9	1.2	9.9	1.3			
Math	4	1398	0	E.1.1.1	2	122489	0.76	0.08	0.07	0.09	0.76	0.00	0.50	-0.26	-0.18	-0.34	0.50	-0.0051	0.0073	-9.9	0.9	-9.9	0.8			
Math	4	2716	0	B.1.1.4	2	122489	0.63	0.23	0.63	0.07	0.06	0.00	0.42	-0.17	0.42	-0.30	-0.22	0.7558	0.0066	0.5	1.0	2.7	1.0			
Math	4	5226	0	A.2.1.1	2	122489	0.58	0.28	0.08	0.58	0.07	0.00	0.55	-0.46	-0.12	0.55	-0.12	1.0505	0.0065	-9.9	0.9	-9.9	0.8			
Math	4	4525	0	A.1.1.4	1	122489	0.76	0.07	0.76	0.08	0.09	0.00	0.42	-0.23	0.42	-0.16	-0.28	-0.0270	0.0073	-9.3	1.0	-7.5	0.9			
Math	4	6254	0	A.1.3.1		122489	0.61	0.10	0.19	0.10	0.61	0.00	0.45	-0.23	-0.23	-0.20	0.45	0.8703	0.0065	-8.7	1.0	-9.9	0.9			
Math	4	602	0	C.1.1.2	1	122489	0.75	0.15	0.07	0.75	0.02	0.00	0.38	-0.24	-0.18	0.38	-0.18	0.0792	0.0072	6.3	1.0	2.5	1.0			
Math	4	6499	0	A.1.3.2	2	122489	0.71	0.12	0.09	0.08	0.71	0.00	0.47	-0.29	-0.22	-0.21	0.47	0.2996	0.0070	-9.9	0.9	-9.9	0.9			
Math	4	8650	0	A.2.1.2	2	122489	0.86	0.86	0.05	0.03	0.06	0.00	0.44	0.44	-0.17	-0.20	-0.34	-0.7761	0.0088	-9.9	0.9	-9.9	0.8			
Math	4	2774	0	E.3.1.1	1	122489	0.88	0.07	0.02	0.88	0.03	0.00	0.31	-0.22	-0.17	0.31	-0.14	-0.9479	0.0092	-1.4	1.0	5.4	1.1			
Math	4	7164	0	E.1.2.1	2	122489	0.83	0.03	0.04	0.10	0.83	0.00	0.47	-0.19	-0.21	-0.34	0.47	-0.5233	0.0082	-9.9	0.9	-9.9	0.8			
Math	4	3380	0	A.1.1.3	1	122489	0.77	0.18	0.77	0.04	0.01	0.00	0.39	-0.25	0.39	-0.25	-0.17	-0.0405	0.0074	-1.4	1.0	-6.0	1.0			
Math	4	4672	0	D.2.2.2	1	122489	0.81	0.04	0.08	0.81	0.07	0.00	0.39	-0.16	-0.19	0.39	-0.26	-0.3726	0.0079	-5.9	1.0	-2.1	1.0			
Math	4	6659	0	D.1.1.1		122489	0.35	0.30	0.25	0.09	0.35	0.00	0.35	-0.21	-0.06	-0.16	0.35	2.2215	0.0067	5.4	1.0	9.9	1.2			
Math	4	1785	0	A.1.3.1		122489	0.67	0.06	0.67	0.21	0.06	0.00	0.47	-0.22	0.47	-0.29	-0.20	0.5397	0.0067	-9.9	1.0	-9.9	0.9			
Math	4	4834	0	B.2.1.1	1	122489	0.66	0.03	0.04	0.66	0.26	0.01	0.35	-0.13	-0.15	0.35	-0.26	0.5878	0.0067	9.9	1.1	9.9	1.1			
Math	4	3527	1	A.3.1.3	2	24711	0.79	0.10	0.79	0.04	0.08	0.00	0.31	-0.20	0.31	-0.19	-0.10	-0.1946	0.0169	7.8	1.1	9.9	1.3	A+	A-	A-
Math	4	3011	1	E.1.2.1	2	24711	0.81	0.05	0.81	0.05	0.10	0.00	0.51	-0.22	0.51	-0.25	-0.34	-0.3513	0.0174	-9.9	0.9	-9.9	0.7	A+	A-	A-
Math	4	5239	1	A.3.1.1	1	24711	0.80	0.80	0.14	0.02	0.03	0.00	0.43	0.43	-0.29	-0.20	-0.22	-0.3257	0.0173	-6.2	0.9	-8.4	0.8	A-	A-	A-
Math	4	4014	1	C.2.1.1	2	24711	0.77	0.06	0.77	0.09	0.08	0.00	0.35	-0.17	0.35	-0.14	-0.25	-0.1141	0.0166	3.5	1.0	4.0	1.1			
Math	4	6658	1	D.1.2.1	2	24711	0.87	0.03	0.07	0.87	0.03	0.00	0.38	-0.23	-0.20	0.38	-0.21	-0.9205	0.0202	-4.8	0.9	-6.7	0.8	A-	A-	A-
Math	4	6787	1	A.2.1.1	2	24711	0.77	0.06	0.09	0.77	0.08	0.00	0.47	-0.24	-0.26	0.47	-0.25	-0.1131	0.0166	-9.9	0.9	-9.0	0.8			
Math	4	6770	1	A.1.1.1	1	24711	0.77	0.16	0.03	0.77	0.04	0.00	0.44	-0.37	-0.10	0.44	-0.16	-0.0810	0.0165	-5.8	1.0	-7.5	0.9	A+	A-	A-
Math	4	3586	1	B.2.2.1	2	24711	0.91	0.04	0.91	0.03	0.02	0.00	0.31	-0.19	0.31	-0.16	-0.18	-1.3425	0.0231	-2.9	1.0	-1.4	1.0	A+	B-	B-
Math	4	1691	1	A.1.3.2	1	24711	0.69	0.04	0.12	0.69	0.15	0.00	0.47	-0.18	-0.36	0.47	-0.19	0.3973	0.0153	-8.5	0.9	-9.9	0.9	A-	A-	A-
Math	4	8996	1	B.1.1.4	2	24711	0.82	0.82	0.07	0.05	0.05	0.00	0.40	0.40	-0.28	-0.22	-0.15	-0.4461	0.0178	-5.4	1.0	0.8	1.0	A-	A-	A-
Math	4	2810	1	C.1.2.2	1	24711	0.81	0.02	0.14	0.81	0.02	0.00	0.40	-0.21	-0.26	0.40	-0.20	-0.3748	0.0175	-3.0	1.0	-4.9	0.9	A+	A-	A-
Math	4	5528	1	C.3.1.1	1	24711	0.84	0.01	0.13	0.01	0.84	0.01	0.32	-0.14	-0.25	-0.13	0.32	-0.6460	0.0187	2.3	1.0	3.2	1.1	A+	A-	A+
Math	4	4378	2	A.3.2.1	2	24468	0.80	0.05	0.80	0.08	0.07	0.00	0.44	-0.18	0.44	-0.27	-0.25	-0.3074	0.0174	-7.8	0.9	-4.7	0.9	A+	A-	A-
Math	4	2984	2	E.1.1.1	2	24468	0.80	0.07	0.80	0.05	0.07	0.00	0.43	-0.20	0.43	-0.09	-0.37	-0.2928	0.0174	-7.3	0.9	1.0	1.0	A+	A-	A-
Math	4	8530	2	A.1.1.3	1	24468	0.89	0.89	0.05	0.04	0.02	0.00	0.34	0.34	-0.14	-0.25	-0.19	-1.1186	0.0217	-3.7	1.0	-2.6	0.9	A+	A-	A-
Math	4	2177	2	B.1.1.2	1	24468	0.64	0.04	0.08	0.64	0.23	0.00	0.40	-0.16	-0.20	0.40	-0.24	0.6893	0.0149	3.9	1.0	1.1	1.0	A+	A-	B-

Item Information						Classical														Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Math	4	9624	2	A.1.2.2	1	24468	0.81	0.11	0.06	0.02	0.81	0.00	0.31	-0.15	-0.19	-0.20	0.31	-0.3603	0.0176	3.8	1.0	9.9	1.3	A+	A-	A-
Math	4	8820	2	A.3.1.1	1	24468	0.63	0.11	0.63	0.09	0.17	0.00	0.57	-0.25	0.57	-0.26	-0.33	0.7775	0.0147	-9.9	0.8	-9.9	0.8			
Math	4	7522	2	A.2.1.2	2	24468	0.81	0.81	0.07	0.07	0.04	0.00	0.43	0.43	-0.21	-0.22	-0.29	-0.3506	0.0176	-7.7	0.9	-6.2	0.9	A+	A-	A-
Math	4	2803	2	C.2.1.1	2	24468	0.57	0.57	0.11	0.10	0.22	0.00	0.43	0.43	-0.12	-0.19	-0.28	1.1023	0.0145	1.3	1.0	1.8	1.0	A+	B-	A-
Math	4	3203	2	A.1.3.1	1	24468	0.63	0.63	0.14	0.09	0.13	0.00	0.52	0.52	-0.15	-0.23	-0.39	0.7542	0.0148	-9.9	0.9	-9.9	0.9	A+	A+	A+
Math	4	8980	2	D.2.2.2	1	24468	0.41	0.21	0.12	0.26	0.41	0.00	0.41	-0.23	-0.13	-0.15	0.41	1.8951	0.0146	-0.5	1.0	5.4	1.1	A-	A+	A-
Math	4	3200	2	E.3.1.1	2	24468	0.94	0.94	0.04	0.01	0.01	0.00	0.27	0.27	-0.19	-0.14	-0.13	-1.7361	0.0270	-1.4	1.0	-0.9	1.0	A+	B-	A-
Math	4	1645	2	D.1.2.2	2	24468	0.67	0.10	0.11	0.11	0.67	0.01	0.46	-0.19	-0.24	-0.27	0.46	0.5298	0.0151	-7.1	1.0	-6.9	0.9			
Math	4	2018	3	A.3.2.1	2	24413	0.64	0.05	0.64	0.21	0.10	0.00	0.50	-0.18	0.50	-0.34	-0.20	0.7320	0.0148	-9.9	0.9	-9.9	0.9	A+	A-	A-
Math	4	9423	3	D.2.1.1	2	24413	0.70	0.10	0.03	0.70	0.17	0.00	0.36	-0.42	-0.17	0.36	-0.02	0.3875	0.0154	7.9	1.1	9.9	1.2	A-	A-	A-
Math	4	7700	3	B.1.1.3	2	24413	0.52	0.11	0.52	0.31	0.06	0.00	0.33	-0.31	0.33	-0.06	-0.18	1.3223	0.0144	9.9	1.1	9.9	1.2	A-	A-	A+
Math	4	6819	3	D.1.1.3	2	24413	0.82	0.04	0.05	0.82	0.09	0.00	0.54	-0.21	-0.24	0.54	-0.40	-0.3991	0.0179	-9.9	0.8	-9.9	0.6	A+	A-	A-
Math	4	1762	3	A.1.1.3	1	24413	0.85	0.07	0.85	0.06	0.03	0.00	0.37	-0.19	0.37	-0.22	-0.20	-0.6392	0.0190	-3.2	1.0	-2.3	0.9	A+	A-	A-
Math	4	4716	3	A.1.2.1	1	24413	0.80	0.10	0.05	0.80	0.05	0.00	0.33	-0.10	-0.25	0.33	-0.22	-0.2806	0.0174	2.2	1.0	9.9	1.2	A+	A-	A-
Math	4	5905	3	A.1.3.1	1	24413	0.78	0.78	0.09	0.07	0.05	0.00	0.48	0.48	-0.23	-0.25	-0.29	-0.1328	0.0168	-9.9	0.9	-9.2	0.8	A+	A-	A-
Math	4	9324	3	A.2.1.2	2	24413	0.86	0.08	0.04	0.86	0.02	0.00	0.28	-0.11	-0.22	0.28	-0.18	-0.7507	0.0195	3.0	1.0	6.9	1.2	A+	A-	A-
Math	4	653	3	A.3.1.2	1	24413	0.73	0.17	0.08	0.73	0.02	0.00	0.45	-0.29	-0.23	0.45	-0.20	0.1948	0.0159	-6.7	1.0	-6.8	0.9			
Math	4	9130	3	C.1.2.1	1	24413	0.70	0.08	0.18	0.04	0.70	0.00	0.40	-0.17	-0.26	-0.18	0.40	0.3863	0.0154	1.7	1.0	-2.1	1.0	A-	A-	A-
Math	4	9535	3	E.3.1.1	2	24413	0.88	0.04	0.88	0.07	0.02	0.00	0.32	-0.13	0.32	-0.25	-0.15	-0.9878	0.0210	-2.3	1.0	2.5	1.1	A+	B-	B-
Math	4	7384	3	E.1.1.1	2	24413	0.86	0.86	0.04	0.02	0.08	0.01	0.49	0.49	-0.17	-0.15	-0.44	-0.7819	0.0197	-9.9	0.8	-9.9	0.7			
Math	4	6058	4	A.3.1.3	2	24445	0.55	0.14	0.09	0.55	0.23	0.00	0.45	-0.28	-0.16	0.45	-0.20	1.1928	0.0144	-3.6	1.0	-0.9	1.0	A+	A-	A-
Math	4	8438	4	D.2.2.1	1	24445	0.96	0.96	0.02	0.01	0.01	0.00	0.22	0.22	-0.11	-0.12	-0.15	-2.3514	0.0346	-1.1	1.0	-2.6	0.8	A+	A-	A-
Math	4	7754	4	A.1.3.2	1	24445	0.81	0.08	0.81	0.06	0.05	0.00	0.42	-0.28	0.42	-0.20	-0.20	-0.3596	0.0176	-5.9	0.9	-9.4	0.8			
Math	4	2667	4	C.1.2.1	1	24445	0.74	0.15	0.09	0.74	0.02	0.00	0.34	-0.24	-0.16	0.34	-0.10	0.1194	0.0160	8.7	1.1	3.2	1.1			
Math	4	1545	4	A.1.1.2	2	24445	0.84	0.04	0.05	0.84	0.06	0.00	0.44	-0.24	-0.22	0.44	-0.27	-0.6259	0.0188	-9.4	0.9	-9.9	0.8	A+	A-	A-
Math	4	1606	4	A.2.1.1	2	24445	0.79	0.79	0.13	0.05	0.02	0.00	0.52	0.52	-0.36	-0.28	-0.18	-0.2275	0.0171	-9.9	0.9	-9.9	0.7	A-	A-	A-
Math	4	3689	4	B.1.1.1	1	24445	0.91	0.02	0.04	0.02	0.91	0.00	0.35	-0.21	-0.21	-0.17	0.35	-1.3199	0.0232	-4.6	0.9	-4.8	0.8	A-	A-	A+
Math	4	3121	4	A.1.2.1	1	24445	0.65	0.12	0.65	0.16	0.06	0.00	0.42	-0.14	0.42	-0.25	-0.26	0.6663	0.0149	0.4	1.0	1.0	1.0	A-	A-	A-
Math	4	8174	4	C.1.1.2	1	24445	0.76	0.10	0.76	0.12	0.02	0.00	0.40	-0.26	0.40	-0.21	-0.18	-0.0210	0.0164	-1.4	1.0	-1.9	1.0	A-	A-	A-
Math	4	2786	4	E.1.1.1	1	24445	0.95	0.01	0.03	0.01	0.95	0.00	0.28	-0.12	-0.24	-0.08	0.28	-2.1289	0.0315	-3.1	0.9	-1.1	0.9	A+	B-	B-
Math	4	396	4	D.1.1.1	2	24445	0.94	0.02	0.01	0.02	0.94	0.00	0.33	-0.16	-0.17	-0.23	0.33	-1.8097	0.0278	-3.8	0.9	-8.5	0.6	A+	B-	A-
Math	4	6142	4	A.3.1.2	1	24445	0.67	0.16	0.10	0.67	0.06	0.01	0.45	-0.25	-0.23	0.45	-0.20	0.5178	0.0151	-5.5	1.0	-6.9	0.9	A-	A-	A-
Math	4	2161	5	A.3.2.2	1	24452	0.73	0.02	0.11	0.14	0.73	0.00	0.27	-0.12	-0.07	-0.23	0.27	0.1951	0.0158	9.9	1.1	9.9	1.3	A+	A-	A+
Math	4	6013	5	E.1.2.2	2	24452	0.91	0.04	0.02	0.91	0.02	0.00	0.41	-0.26	-0.21	0.41	-0.22	-1.3559	0.0236	-8.1	0.9	-9.9	0.7	A+	B-	A-
Math	4	3653	5	A.2.1.1	2	24452	0.87	0.87	0.04	0.05	0.04	0.00	0.42	0.42	-0.14	-0.27	-0.28	-0.8647	0.0202	-8.2	0.9	-7.9	0.8	A+	B-	A-
Math	4	724	5	C.3.1.1	1	24452	0.87	0.87	0.01	0.12	0.00	0.00	0.31	0.31	-0.14	-0.25	-0.12	-0.8127	0.0198	0.5	1.0	0.9	1.0	A+	A-	A+
Math	4	9808	5	A.1.2.2	1	24452	0.91	0.05	0.02	0.91	0.02	0.00	0.27	-0.12	-0.17	0.27	-0.21	-1.3876	0.0239	-2.2	1.0	5.3	1.2	A+	A-	A-
Math	4	6258	5	D.1.1.2	2	24452	0.81	0.04	0.81	0.13	0.02	0.00	0.37	-0.20	0.37	-0.26	-0.16	-0.3686	0.0177	-1.8	1.0	-3.8	0.9	A-	A-	A-
Math	4	8356	5	B.2.1.1	1	24452	0.71	0.04	0.10	0.71	0.15	0.00	0.41	-0.10	-0.28	0.41	-0.22	0.3005	0.0155	-1.2	1.0	-1.8	1.0	A-	B-	A-
Math	4	2368	5	A.3.1.2	1	24452	0.77	0.05	0.77	0.16	0.01	0.00	0.35	-0.17	0.35	-0.22	-0.21	-0.0679	0.0165	2.7	1.0	9.5	1.2	A-	A-	A-
Math	4	5620	5	A.1.1.4	1	24452	0.91	0.91	0.02	0.03	0.04	0.00	0.36	0.36	-0.17	-0.22	-0.21	-1.3694	0.0237	-5.1	0.9	-6.4	0.8	A-	A-	B-
Math	4	4768	5	B.1.1.3	2	24452	0.67	0.03	0.05	0.67	0.24	0.00	0.46	-0.21	-0.25	0.46	-0.28	0.5348	0.0150	-7.1	1.0	-8.6	0.9			
Math	4	7346	5	A.1.1.1	1	24452	0.72	0.21	0.03	0.72	0.04	0.00	0.30	-0.18	-0.20	0.30	-0.14	0.2364	0.0157	9.9	1.1	9.3	1.2			
Math	4	5886	5	C.1.1.1	1	24452	0.61	0.61	0.19	0.19	0.01	0.00	0.27	0.27	-0.22	-0.09	-0.11	0.8843	0.0146	9.9	1.2	9.9	1.2	A+	A+	A-
Math	5	7233	0	A.3.2.1	1	124911	0.73	0.73	0.11	0.14	0.02	0.00	0.43	0.43	-0.20	-0.30	-0.17	0.4544	0.0070	-3.4	1.0	-7.7	1.0			
Math	5	8093	0	A.2.1.2	1	124911	0.77	0.05	0.06	0.77	0.11	0.00	0.37	-0.19	-0.13	0.37	-0.25	0.1639	0.0074	9.9	1.0	2.3	1.0			
Math	5	5275	0	A.3.1.2	2	124911	0.81	0.12	0.81	0.06	0.01	0.00	0.39	-0.35	0.39	-0.12	-0.10	-0.1427	0.0079	-3.9	1.0	-4.9	1.0			
Math	5	3724	0	A.3.1.2	2	124911	0.68	0.18	0.68	0.07	0.06	0.00	0.39	-0.19	0.39	-0.19	-0.25	0.7163	0.0068	9.9	1.0	9.9	1.1			
Math	5	3853	0	A.1.2.2	1	124911	0.84	0.84	0.03	0.04	0.09	0.00	0.32	0.32	-0.11	-0.24	-0.18	-0.3706	0.0083	8.7	1.0	3.3	1.0			

Item Information						Classical														Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Math	5	8994	0	C.2.1.2	1	124911	0.50	0.03	0.39	0.50	0.09	0.00	0.35	-0.07	-0.19	0.35	-0.25	1.7382	0.0064	9.9	1.1	9.9	1.2			
Math	5	4793	0	E.3.1.2	2	124911	0.86	0.09	0.04	0.86	0.02	0.00	0.31	-0.15	-0.24	0.31	-0.15	-0.5142	0.0087	1.5	1.0	9.9	1.3			
Math	5	3565	0	A.1.5.1	1	124911	0.85	0.05	0.07	0.04	0.85	0.00	0.46	-0.24	-0.31	-0.19	0.46	-0.4143	0.0084	-9.9	0.9	-9.9	0.7			
Math	5	9767	0	D.1.2.1	1	124911	0.37	0.03	0.53	0.07	0.37	0.00	0.51	-0.17	-0.38	-0.11	0.51	2.4148	0.0066	-9.9	0.9	-9.9	0.9			
Math	5	135	0	E.2.1.2	1	124911	0.89	0.89	0.02	0.03	0.07	0.00	0.30	0.30	-0.11	-0.09	-0.26	-0.8142	0.0095	2.3	1.0	4.2	1.1			
Math	5	1657	0	B.2.2.1	2	124911	0.40	0.03	0.35	0.22	0.40	0.00	0.42	-0.21	-0.31	-0.06	0.42	2.2556	0.0066	1.4	1.0	9.9	1.1			
Math	5	7373	0	A.2.1.1	2	124911	0.89	0.05	0.89	0.04	0.02	0.00	0.34	-0.27	0.34	-0.15	-0.14	-0.8476	0.0096	-7.2	1.0	3.2	1.1			
Math	5	9510	0	B.2.2.3	2	124911	0.53	0.08	0.53	0.19	0.20	0.00	0.49	-0.15	0.49	-0.42	-0.09	1.5355	0.0064	-9.9	1.0	-9.9	0.9			
Math	5	8523	0	A.1.4.2	1	124911	0.71	0.02	0.01	0.71	0.27	0.00	0.39	-0.14	-0.12	0.39	-0.34	0.5733	0.0069	9.4	1.0	9.9	1.1			
Math	5	2863	0	B.1.3.1	2	124911	0.45	0.49	0.03	0.03	0.45	0.00	0.26	-0.17	-0.11	-0.12	0.26	1.9727	0.0064	9.9	1.2	9.9	1.4			
Math	5	9232	0	A.3.1.1	1	124911	0.70	0.04	0.70	0.17	0.09	0.00	0.33	-0.20	0.33	-0.19	-0.13	0.6142	0.0069	9.9	1.1	9.9	1.2			
Math	5	9027	0	C.1.1.2	1	124911	0.63	0.63	0.11	0.08	0.17	0.00	0.46	0.46	-0.23	-0.22	-0.23	1.0307	0.0066	-6.0	1.0	-9.7	1.0			
Math	5	1558	0	C.2.1.1	1	124911	0.90	0.03	0.90	0.01	0.06	0.00	0.28	-0.18	0.28	-0.14	-0.16	-1.0072	0.0100	1.4	1.0	4.4	1.1			
Math	5	2337	0	A.1.3.2	2	124911	0.51	0.27	0.08	0.14	0.51	0.00	0.52	-0.20	-0.25	-0.30	0.52	1.6651	0.0064	-9.9	0.9	-9.9	0.9			
Math	5	9600	0	D.2.1.2	2	124911	0.87	0.87	0.05	0.06	0.02	0.00	0.40	0.40	-0.20	-0.29	-0.15	-0.6091	0.0089	-9.9	0.9	-9.9	0.9			
Math	5	8702	0	D.1.1.2	2	124911	0.53	0.31	0.11	0.53	0.04	0.00	0.60	-0.46	-0.20	0.60	-0.11	1.5434	0.0064	-9.9	0.8	-9.9	0.8			
Math	5	2252	0	E.2.1.1	1	124911	0.75	0.05	0.75	0.08	0.13	0.00	0.51	-0.18	0.51	-0.20	-0.38	0.3186	0.0072	-9.9	0.9	-9.9	0.8			
Math	5	8600	0	A.1.3.3	1	124911	0.69	0.08	0.69	0.13	0.11	0.00	0.53	-0.29	0.53	-0.32	-0.19	0.7075	0.0068	-9.9	0.9	-9.9	0.8			
Math	5	1178	0	D.1.1.1	2	124911	0.75	0.08	0.14	0.03	0.75	0.00	0.50	-0.26	-0.34	-0.16	0.50	0.3336	0.0072	-9.9	0.9	-9.9	0.8			
Math	5	5016	0	E.3.1.1	1	124911	0.90	0.03	0.03	0.90	0.04	0.00	0.31	-0.17	-0.19	0.31	-0.16	-1.0259	0.0101	-2.3	1.0	-3.9	0.9			
Math	5	437	0	A.1.4.1	1	124911	0.85	0.85	0.12	0.02	0.01	0.00	0.40	0.40	-0.31	-0.22	-0.13	-0.4918	0.0086	-9.9	0.9	-9.9	0.8			
Math	5	3670	0	D.2.1.1	1	124911	0.94	0.94	0.01	0.01	0.03	0.00	0.32	0.32	-0.16	-0.18	-0.20	-1.6503	0.0126	-7.7	0.9	-9.9	0.8			
Math	5	407	0	A.2.1.3	2	124911	0.70	0.07	0.02	0.21	0.70	0.00	0.46	-0.19	-0.17	-0.33	0.46	0.6212	0.0069	-9.6	1.0	-9.9	0.9			
Math	5	6781	0	A.3.1.1	1	124911	0.65	0.14	0.10	0.11	0.65	0.00	0.50	-0.18	-0.20	-0.37	0.50	0.8995	0.0067	-9.9	0.9	-9.9	0.9			
Math	5	6673	0	B.2.2.2	1	124911	0.41	0.07	0.50	0.02	0.41	0.00	0.42	-0.26	-0.24	-0.14	0.42	2.1804	0.0065	5.7	1.0	9.9	1.1			
Math	5	4372	0	A.1.3.3	2	124911	0.53	0.53	0.14	0.23	0.10	0.00	0.48	0.48	-0.16	-0.34	-0.13	1.5468	0.0064	-9.9	1.0	-9.9	0.9			
Math	5	5596	0	C.2.1.2	1	124911	0.79	0.02	0.18	0.01	0.79	0.00	0.32	-0.19	-0.24	-0.10	0.32	0.0595	0.0076	9.9	1.1	9.9	1.2			
Math	5	3499	0	A.3.1.1	1	124911	0.71	0.17	0.09	0.71	0.03	0.00	0.44	-0.25	-0.25	0.44	-0.20	0.5396	0.0070	-6.5	1.0	-9.1	0.9			
Math	5	2898	0	A.2.1.2	2	124911	0.67	0.67	0.12	0.07	0.14	0.00	0.38	0.38	-0.23	-0.20	-0.16	0.8055	0.0067	9.9	1.1	9.9	1.1			
Math	5	9061	0	C.1.2.1	1	124911	0.65	0.08	0.65	0.25	0.02	0.00	0.44	-0.20	0.44	-0.31	-0.15	0.8942	0.0067	-1.7	1.0	-5.5	1.0			
Math	5	6542	0	B.1.2.1	2	124911	0.69	0.69	0.07	0.17	0.07	0.00	0.54	0.54	-0.21	-0.43	-0.15	0.6800	0.0068	-9.9	0.9	-9.9	0.8			
Math	5	7147	0	A.1.2.1	1	124911	0.72	0.06	0.17	0.05	0.72	0.00	0.49	-0.34	-0.33	-0.08	0.49	0.4829	0.0070	-9.9	0.9	-9.9	0.9			
Math	5	9688	0	E.2.1.2	1	124911	0.91	0.91	0.05	0.03	0.02	0.00	0.30	0.30	-0.23	-0.10	-0.15	-1.0553	0.0102	-1.3	1.0	1.6	1.0			
Math	5	8595	0	A.1.3.1	1	124911	0.87	0.87	0.01	0.08	0.03	0.00	0.36	0.36	-0.16	-0.24	-0.20	-0.6658	0.0090	-6.5	1.0	0.4	1.0			
Math	5	5632	0	C.1.1.1	1	124911	0.41	0.27	0.18	0.14	0.41	0.00	0.35	-0.19	-0.19	-0.04	0.35	2.2037	0.0065	9.9	1.1	9.9	1.2			
Math	5	3886	0	D.1.1.1	2	124911	0.87	0.07	0.03	0.03	0.87	0.00	0.40	-0.25	-0.22	-0.19	0.40	-0.6560	0.0090	-9.9	0.9	-9.9	0.8			
Math	5	588	0	A.3.1.1	1	124911	0.74	0.03	0.07	0.74	0.16	0.00	0.40	-0.18	-0.27	0.40	-0.21	0.3619	0.0072	3.9	1.0	6.1	1.1			
Math	5	8150	0	A.1.6.2	1	124911	0.77	0.77	0.14	0.06	0.03	0.00	0.45	0.45	-0.28	-0.24	-0.19	0.1868	0.0074	-9.9	1.0	-9.9	0.8			
Math	5	8885	0	B.1.3.2	2	124911	0.38	0.29	0.23	0.38	0.10	0.00	0.26	-0.20	-0.02	0.26	-0.09	2.3841	0.0066	9.9	1.2	9.9	1.4			
Math	5	8846	0	A.2.1.3	1	124911	0.86	0.08	0.05	0.02	0.86	0.00	0.44	-0.25	-0.30	-0.18	0.44	-0.5433	0.0087	-9.9	0.9	-9.9	0.7			
Math	5	3844	0	D.1.2.1	2	124911	0.54	0.19	0.22	0.05	0.54	0.00	0.45	-0.47	0.00	-0.17	0.45	1.4958	0.0064	2.8	1.0	9.0	1.0			
Math	5	2757	0	B.2.2.2	1	124911	0.67	0.67	0.07	0.04	0.23	0.00	0.47	0.47	-0.29	-0.14	-0.28	0.8092	0.0067	-9.9	1.0	-9.9	0.9			
Math	5	5535	0	E.3.1.2	2	124911	0.64	0.29	0.03	0.64	0.03	0.00	0.43	-0.31	-0.22	0.43	-0.16	0.9572	0.0066	2.7	1.0	-6.4	1.0			
Math	5	8319	0	A.1.3.2	1	124911	0.61	0.61	0.25	0.13	0.01	0.00	0.48	0.48	-0.26	-0.34	-0.13	1.1425	0.0065	-9.9	1.0	-9.9	0.9			
Math	5	4328	0	A.2.1.1	2	124911	0.69	0.07	0.69	0.21	0.04	0.00	0.52	-0.19	0.52	-0.36	-0.24	0.7045	0.0068	-9.9	0.9	-9.9	0.9			
Math	5	2534	0	B.2.2.1	2	124911	0.59	0.30	0.59	0.07	0.04	0.00	0.44	-0.33	0.44	-0.13	-0.15	1.2583	0.0065	2.5	1.0	-0.7	1.0			
Math	5	7633	0	C.1.1.2	1	124911	0.81	0.81	0.07	0.08	0.04	0.00	0.36	0.36	-0.17	-0.21	-0.22	-0.0907	0.0078	5.0	1.0	2.0	1.0			
Math	5	9390	0	A.1.5.1	2	124911	0.57	0.17	0.19	0.08	0.57	0.00	0.41	-0.40	-0.03	-0.15	0.41	1.3726	0.0065	9.9	1.0	9.9	1.1			
Math	5	7370	0	C.2.1.2	2	124911	0.82	0.82	0.04	0.08	0.06	0.00	0.26	0.26	-0.17	-0.08	-0.18	-0.2074	0.0080	9.9	1.1	9.9	1.4			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Math	5	6674	0	A.1.1.1	1	124911	0.83	0.83	0.03	0.11	0.03	0.00	0.40	0.40	-0.18	-0.26	-0.21	-0.2592	0.0081	-8.0	1.0	-6.9	0.9			
Math	5	2878	0	A.1.6.1	1	124911	0.39	0.28	0.16	0.16	0.39	0.00	0.37	-0.11	-0.24	-0.12	0.37	2.2825	0.0066	9.9	1.1	9.9	1.2			
Math	5	981	0	C.1.2.1	1	124911	0.68	0.10	0.08	0.14	0.68	0.00	0.47	-0.25	-0.18	-0.27	0.47	0.7491	0.0068	-9.9	1.0	-9.9	0.9			
Math	5	7816	0	B.2.1.1	1	124911	0.54	0.01	0.05	0.54	0.40	0.00	0.34	-0.14	-0.23	0.34	-0.21	1.5021	0.0064	9.9	1.1	9.9	1.2			
Math	5	9776	0	B.1.2.2	2	124911	0.52	0.52	0.15	0.26	0.07	0.00	0.42	0.42	-0.16	-0.19	-0.27	1.6156	0.0064	9.9	1.0	9.9	1.1			
Math	5	3128	0	E.1.1.1	1	124911	0.65	0.13	0.14	0.65	0.09	0.00	0.46	-0.29	-0.21	0.46	-0.17	0.9357	0.0066	-7.6	1.0	-5.0	1.0			
Math	5	9359	1	A.3.1.2	2	25248	0.75	0.08	0.75	0.08	0.09	0.00	0.50	-0.20	0.50	-0.21	-0.37	0.2822	0.0161	-9.9	0.9	-9.9	0.8	A-	A-	A-
Math	5	3354	1	E.1.1.1	2	25248	0.56	0.56	0.21	0.04	0.19	0.00	0.41	0.41	-0.31	-0.08	-0.15	1.3805	0.0143	8.6	1.1	8.6	1.1	A-	A+	A-
Math	5	4984	1	A.1.3.1	1	25248	0.81	0.06	0.81	0.04	0.08	0.00	0.42	-0.29	0.42	-0.20	-0.20	-0.1617	0.0176	-5.8	0.9	-5.7	0.9	A-	A-	A-
Math	5	3001	1	D.1.1.2	2	25248	0.75	0.08	0.75	0.11	0.05	0.00	0.51	-0.24	0.51	-0.34	-0.21	0.2598	0.0161	-9.9	0.9	-9.9	0.8	A-	A-	A-
Math	5	3913	1	B.1.1.1	2	25248	0.87	0.87	0.04	0.07	0.03	0.00	0.38	0.38	-0.22	-0.24	-0.16	-0.6692	0.0200	-4.0	1.0	-4.4	0.9	A-	C-	B-
Math	5	5024	1	A.1.1.1	1	25248	0.86	0.86	0.05	0.06	0.03	0.00	0.41	0.41	-0.27	-0.22	-0.19	-0.5495	0.0194	-6.2	0.9	-8.6	0.8	A-	A-	A-
Math	5	9964	1	C.1.2.1	1	25248	0.42	0.22	0.42	0.14	0.21	0.00	0.28	-0.18	0.28	-0.22	0.04	2.0972	0.0144	9.9	1.2	9.9	1.3	A-	A-	A-
Math	5	171	1	D.2.1.2	2	25248	0.38	0.38	0.31	0.22	0.10	0.00	0.20	0.20	0.04	-0.14	-0.19	2.3180	0.0146	9.9	1.3	9.9	1.5	A+	A-	A-
Math	5	2484	1	A.2.1.1	2	25248	0.39	0.39	0.15	0.37	0.09	0.00	0.32	0.32	-0.19	-0.05	-0.22	2.2677	0.0146	9.9	1.1	9.9	1.3	A-	A-	A-
Math	5	4410	1	A.1.6.1	1	25248	0.78	0.08	0.06	0.78	0.08	0.00	0.49	-0.28	-0.26	0.49	-0.24	0.0854	0.0167	-9.9	0.9	-9.7	0.8			
Math	5	2648	1	B.1.2.1	2	25248	0.50	0.29	0.14	0.06	0.50	0.00	0.34	0.08	-0.43	-0.25	0.34	1.6685	0.0143	9.9	1.1	9.9	1.2			
Math	5	1005	1	C.2.1.1	2	25248	0.83	0.03	0.09	0.83	0.04	0.00	0.38	-0.23	-0.26	0.38	-0.14	-0.2822	0.0181	-2.3	1.0	-0.9	1.0	A+	B-	A-
Math	5	8366	2	A.3.1.2	2	25025	0.47	0.20	0.10	0.47	0.22	0.00	0.32	0.05	-0.16	0.32	-0.30	1.8447	0.0143	9.9	1.2	9.9	1.2	A-	A-	A-
Math	5	8012	2	A.1.2.1	1	25025	0.73	0.03	0.19	0.05	0.73	0.00	0.51	-0.24	-0.41	-0.10	0.51	0.4390	0.0157	-9.9	0.9	-9.9	0.8	A-	A-	A-
Math	5	2695	2	D.1.2.1	2	25025	0.82	0.12	0.03	0.03	0.82	0.00	0.31	-0.14	-0.21	-0.23	0.31	-0.2048	0.0179	4.4	1.1	9.9	1.3			
Math	5	3987	2	A.1.3.2	2	25025	0.66	0.13	0.66	0.14	0.06	0.00	0.48	-0.20	0.48	-0.29	-0.22	0.8378	0.0149	-7.8	1.0	-9.9	0.9	A-	A+	A-
Math	5	2331	2	C.1.2.1	1	25025	0.70	0.02	0.21	0.07	0.70	0.00	0.40	-0.08	-0.30	-0.19	0.40	0.6006	0.0154	4.0	1.0	0.1	1.0	A-	A-	A-
Math	5	1172	2	C.2.1.2	2	25025	0.87	0.87	0.05	0.04	0.04	0.00	0.37	0.37	-0.19	-0.15	-0.26	-0.6203	0.0199	-4.2	1.0	-2.1	0.9	A+	B-	A-
Math	5	7679	2	E.2.1.1	1	25025	0.77	0.09	0.08	0.77	0.06	0.00	0.48	-0.26	-0.30	0.48	-0.20	0.1567	0.0165	-9.9	0.9	-9.9	0.8	A+	A-	A+
Math	5	8134	2	A.1.4.2	1	25025	0.74	0.03	0.02	0.74	0.21	0.00	0.38	-0.10	-0.10	0.38	-0.33	0.3612	0.0159	3.8	1.0	3.9	1.1			
Math	5	2088	2	B.2.2.2	1	25025	0.78	0.06	0.14	0.02	0.78	0.00	0.50	-0.30	-0.33	-0.15	0.50	0.0803	0.0168	-9.9	0.9	-9.9	0.7	A+	A+	A+
Math	5	2453	2	D.2.1.1	1	25025	0.65	0.31	0.02	0.02	0.65	0.00	0.35	-0.24	-0.19	-0.21	0.35	0.9316	0.0148	9.9	1.1	8.8	1.1	A-	A+	A+
Math	5	4138	2	A.1.5.1	2	25025	0.33	0.33	0.06	0.05	0.57	0.00	0.55	0.55	-0.20	-0.04	-0.41	2.6440	0.0152	-9.9	0.8	-9.9	0.8	A+	A-	A-
Math	5	6739	2	B.1.3.1	2	25025	0.77	0.01	0.77	0.02	0.19	0.00	0.10	-0.12	0.10	-0.08	-0.04	0.1541	0.0166	9.9	1.3	9.9	1.8	A-	A-	A-
Math	5	6128	3	A.3.2.1	2	24901	0.71	0.09	0.11	0.09	0.71	0.00	0.44	-0.27	-0.23	-0.18	0.44	0.5894	0.0155	-3.1	1.0	-3.2	1.0	B+	A-	A-
Math	5	6224	3	C.1.1.2	1	24901	0.78	0.03	0.04	0.78	0.15	0.00	0.40	-0.21	-0.24	0.40	-0.23	0.1289	0.0167	-0.9	1.0	0.9	1.0	A-	A-	A-
Math	5	6182	3	A.1.6.1	1	24901	0.59	0.14	0.59	0.17	0.10	0.00	0.45	-0.28	0.45	-0.19	-0.17	1.2554	0.0145	-0.5	1.0	-2.7	1.0	A+	A+	A+
Math	5	5561	3	D.2.1.2	1	24901	0.74	0.19	0.02	0.74	0.05	0.00	0.37	-0.17	-0.18	0.37	-0.32	0.4111	0.0159	5.4	1.0	2.3	1.0	A-	A-	A-
Math	5	9331	3	A.1.4.1	1	24901	0.90	0.01	0.05	0.90	0.04	0.00	0.36	-0.16	-0.21	0.36	-0.22	-0.9693	0.0223	-4.4	0.9	-5.7	0.8	A-	A-	A-
Math	5	9912	3	A.1.2.2	1	24901	0.81	0.81	0.05	0.07	0.07	0.00	0.47	0.47	-0.21	-0.23	-0.32	-0.1078	0.0176	-9.9	0.9	-9.9	0.8	A-	A-	A-
Math	5	5466	3	B.2.2.1	2	24901	0.62	0.18	0.04	0.62	0.17	0.00	0.28	-0.28	-0.09	0.28	-0.03	1.0952	0.0147	9.9	1.2	9.9	1.3	A-	A-	A-
Math	5	8921	3	E.3.1.1	2	24901	0.70	0.13	0.06	0.11	0.70	0.00	0.39	-0.21	-0.21	-0.18	0.39	0.6258	0.0154	6.0	1.0	4.3	1.1			
Math	5	4526	3	E.2.1.2	1	24901	0.92	0.03	0.92	0.04	0.02	0.00	0.30	-0.13	0.30	-0.20	-0.18	-1.1654	0.0238	-2.0	1.0	-0.4	1.0	A+	A-	A-
Math	5	7234	3	A.1.3.3	1	24901	0.39	0.33	0.19	0.39	0.08	0.00	0.43	-0.30	-0.16	0.43	-0.02	2.2840	0.0147	-3.0	1.0	5.8	1.1	A-	A+	A+
Math	5	3165	3	A.2.1.1	2	24901	0.65	0.65	0.06	0.13	0.17	0.00	0.46	0.46	-0.22	-0.22	-0.25	0.9389	0.0149	-3.6	1.0	0.1	1.0			
Math	5	5883	3	D.1.1.2	2	24901	0.87	0.06	0.87	0.03	0.04	0.00	0.31	-0.21	0.31	-0.16	-0.14	-0.5851	0.0198	0.7	1.0	5.9	1.2	A+	A-	A-
Math	5	8819	4	A.2.1.2	1	24896	0.53	0.12	0.53	0.25	0.09	0.00	0.57	-0.15	0.57	-0.39	-0.22	1.5627	0.0144	-9.9	0.9	-9.9	0.8	A+	A-	A-
Math	5	2793	4	A.2.1.3	2	24896	0.74	0.09	0.05	0.74	0.12	0.00	0.46	-0.32	-0.22	0.46	-0.19	0.3851	0.0160	-6.0	1.0	-8.5	0.9	A+	A-	A-
Math	5	5364	4	A.1.3.3	1	24896	0.72	0.72	0.20	0.07	0.01	0.00	0.50	0.50	-0.40	-0.19	-0.13	0.5152	0.0156	-9.9	0.9	-9.9	0.8			
Math	5	5835	4	C.2.1.1	2	24896	0.58	0.58	0.12	0.25	0.04	0.00	0.22	0.22	-0.14	-0.08	-0.14	1.2658	0.0145	9.9	1.3	9.9	1.4	A-	A-	A-
Math	5	9917	4	D.1.2.1	2	24896	0.75	0.11	0.09	0.75	0.05	0.00	0.50	-0.30	-0.29	0.50	-0.19	0.3228	0.0161	-9.9	0.9	-9.9	0.8	A-	A+	A-
Math	5	9885	4	D.2.1.1	1	24896	0.64	0.06	0.28	0.64	0.02	0.00	0.41	-0.16	-0.32	0.41	-0.12	0.9559	0.0148	5.3	1.0	0.0	1.0	A+	A+	A+
Math	5	6627	4	B.1.3.2	2	24896	0.66	0.19	0.66	0.11	0.04	0.00	0.34	-0.19	0.34	-0.19	-0.13	0.8745	0.0150	9.9	1.1	9.9	1.2	A+	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Math	5	6320	4	A.1.4.2	1	24896	0.83	0.10	0.02	0.06	0.83	0.00	0.38	-0.33	-0.17	-0.10	0.38	-0.2557	0.0182	-2.8	1.0	-0.3	1.0	B-	A-	A-
Math	5	9004	4	C.1.1.1	1	24896	0.37	0.34	0.12	0.37	0.18	0.00	0.32	-0.10	-0.21	0.32	-0.11	2.4220	0.0149	9.9	1.1	9.9	1.3			
Math	5	8662	4	A.1.2.2	1	24896	0.87	0.05	0.04	0.04	0.87	0.00	0.43	-0.25	-0.26	-0.21	0.43	-0.6635	0.0202	-9.0	0.9	-9.2	0.8	A-	B-	A-
Math	5	183	4	E.3.1.1	2	24896	0.84	0.03	0.03	0.84	0.09	0.00	0.35	-0.21	-0.21	0.35	-0.18	-0.3868	0.0188	-1.1	1.0	3.8	1.1	A+	B-	B-
Math	5	6994	4	B.2.1.1	1	24896	0.87	0.01	0.04	0.87	0.08	0.00	0.29	-0.12	-0.08	0.29	-0.27	-0.6124	0.0200	1.9	1.0	7.6	1.2	A-	B-	A-
Math	5	8604	5	A.3.1.2	2	24841	0.53	0.07	0.30	0.53	0.10	0.00	0.39	-0.21	-0.14	0.39	-0.24	1.5778	0.0144	9.9	1.1	9.9	1.1	A+	A-	A-
Math	5	5448	5	D.1.1.1	2	24841	0.68	0.15	0.06	0.68	0.11	0.00	0.54	-0.21	-0.20	0.54	-0.41	0.7394	0.0153	-9.9	0.9	-9.9	0.8	A-	A-	A-
Math	5	8577	5	B.1.2.2	2	24841	0.78	0.06	0.04	0.78	0.12	0.00	0.35	-0.28	-0.22	0.35	-0.10	0.1132	0.0168	4.8	1.0	5.6	1.1	A-	A-	A-
Math	5	7270	5	E.3.1.2	2	24841	0.82	0.12	0.82	0.03	0.03	0.00	0.44	-0.30	0.44	-0.23	-0.18	-0.1579	0.0179	-7.2	0.9	-5.8	0.9	A+	B-	A-
Math	5	900	5	C.2.1.2	1	24841	0.91	0.05	0.02	0.02	0.91	0.00	0.33	-0.26	-0.15	-0.12	0.33	-1.0516	0.0229	-2.8	1.0	-5.0	0.8	A+	A-	A-
Math	5	846	5	A.3.1.1	1	24841	0.85	0.06	0.07	0.85	0.02	0.00	0.40	-0.21	-0.26	0.40	-0.20	-0.4569	0.0192	-5.6	0.9	-5.2	0.9	A-	A-	A-
Math	5	6261	5	A.1.5.1	2	24841	0.85	0.07	0.85	0.05	0.04	0.00	0.33	-0.19	0.33	-0.16	-0.19	-0.4303	0.0191	-0.1	1.0	7.3	1.2	A+	A-	A-
Math	5	7708	5	A.1.4.1	1	24841	0.93	0.01	0.02	0.05	0.93	0.00	0.31	-0.15	-0.14	-0.22	0.31	-1.3693	0.0256	-3.0	0.9	-2.9	0.9	A-	B-	A-
Math	5	8895	5	D.2.1.2	2	24841	0.86	0.08	0.86	0.03	0.03	0.00	0.43	-0.30	0.43	-0.23	-0.17	-0.5074	0.0195	-8.7	0.9	-9.9	0.7			
Math	5	3739	5	A.1.1.1	1	24841	0.78	0.10	0.05	0.06	0.78	0.00	0.47	-0.36	-0.16	-0.20	0.47	0.1004	0.0169	-9.9	0.9	-7.3	0.9			
Math	5	3988	5	E.1.1.1	2	24841	0.32	0.15	0.09	0.32	0.45	0.00	0.26	-0.28	-0.25	0.26	0.10	2.7201	0.0154	9.9	1.2	9.9	1.5	B-	A-	A-
Math	5	6923	5	A.1.6.2	1	24841	0.78	0.12	0.06	0.78	0.04	0.00	0.48	-0.33	-0.23	0.48	-0.19	0.1118	0.0169	-9.9	0.9	-9.9	0.8	A-	A+	B-
Math	6	2736	0	A.3.2.1	1	126610	0.69	0.14	0.14	0.69	0.03	0.00	0.55	-0.25	-0.38	0.55	-0.17	0.4128	0.0067	-9.9	0.9	-9.9	0.8			
Math	6	5538	0	A.3.2.1	1	126610	0.62	0.13	0.62	0.16	0.08	0.00	0.35	-0.21	0.35	-0.19	-0.10	0.7651	0.0065	9.9	1.1	9.9	1.1			
Math	6	4149	0	A.3.1.1	1	126610	0.81	0.03	0.10	0.81	0.05	0.00	0.37	-0.18	-0.21	0.37	-0.22	-0.4269	0.0078	0.2	1.0	0.4	1.0			
Math	6	3839	0	A.3.1.1	2	126610	0.64	0.03	0.64	0.07	0.26	0.00	0.38	-0.17	0.38	-0.14	-0.27	0.6955	0.0065	9.9	1.1	9.9	1.1			
Math	6	778	0	C.1.2.1	1	126610	0.77	0.77	0.02	0.01	0.20	0.00	0.26	0.26	-0.14	-0.12	-0.20	-0.1241	0.0073	9.9	1.1	9.9	1.3			
Math	6	9530	0	A.1.3.2	1	126610	0.61	0.31	0.04	0.61	0.04	0.00	0.35	-0.27	-0.17	0.35	-0.07	0.8527	0.0064	9.9	1.1	9.9	1.1			
Math	6	8103	0	C.1.1.4	2	126610	0.84	0.84	0.10	0.03	0.03	0.00	0.44	0.44	-0.35	-0.23	-0.09	-0.6159	0.0082	-9.9	0.9	-9.9	0.8			
Math	6	7399	0	D.1.1.1	2	126610	0.78	0.13	0.08	0.78	0.02	0.00	0.36	-0.17	-0.27	0.36	-0.16	-0.1662	0.0074	9.9	1.0	-8.3	0.9			
Math	6	2352	0	A.1.1.2	1	126610	0.73	0.10	0.73	0.11	0.06	0.00	0.48	-0.17	0.48	-0.36	-0.21	0.1545	0.0070	-9.9	0.9	-9.9	0.9			
Math	6	4886	0	C.3.1.1	1	126610	0.88	0.01	0.10	0.01	0.88	0.00	0.36	-0.09	-0.33	-0.08	0.36	-1.0771	0.0093	-6.5	1.0	-8.9	0.9			
Math	6	2769	0	E.1.1.3	2	126610	0.77	0.77	0.18	0.02	0.02	0.00	0.34	0.34	-0.27	-0.07	-0.17	-0.1341	0.0073	9.9	1.1	4.0	1.0			
Math	6	6253	0	D.2.1.1	1	126610	0.83	0.09	0.04	0.03	0.83	0.00	0.46	-0.29	-0.23	-0.22	0.46	-0.5620	0.0081	-9.9	0.9	-9.9	0.8			
Math	6	2536	0	E.1.1.1	2	126610	0.68	0.08	0.06	0.68	0.18	0.00	0.44	-0.22	-0.22	0.44	-0.24	0.4640	0.0067	-5.6	1.0	-9.9	0.9			
Math	6	4252	0	E.3.1.1	1	126610	0.64	0.16	0.07	0.64	0.13	0.00	0.53	-0.33	-0.20	0.53	-0.23	0.6621	0.0065	-9.9	0.9	-9.9	0.9			
Math	6	111	0	B.2.1.3		126610	0.72	0.01	0.72	0.23	0.04	0.00	0.39	-0.13	0.39	-0.32	-0.13	0.2310	0.0069	8.5	1.0	8.6	1.1			
Math	6	7124	0	D.1.2.1	1	126610	0.87	0.87	0.03	0.04	0.06	0.00	0.42	0.42	-0.20	-0.30	-0.20	-0.9096	0.0089	-9.9	0.9	-9.9	0.8			
Math	6	7562	0	C.1.2.2	1	126610	0.65	0.12	0.65	0.09	0.15	0.00	0.42	-0.28	0.42	-0.16	-0.17	0.6409	0.0066	5.3	1.0	2.1	1.0			
Math	6	5999	0	E.3.1.2	2	126610	0.62	0.09	0.06	0.23	0.62	0.00	0.52	-0.35	-0.16	-0.27	0.52	0.7897	0.0065	-9.9	0.9	-9.9	0.9			
Math	6	8566	0	B.1.1.1	2	126610	0.45	0.10	0.12	0.45	0.32	0.00	0.39	-0.27	-0.12	0.39	-0.15	1.6849	0.0064	9.9	1.0	9.9	1.1			
Math	6	3846	0	A.1.3.1	1	126610	0.77	0.05	0.15	0.77	0.03	0.00	0.36	-0.21	-0.20	0.36	-0.21	-0.1354	0.0073	8.0	1.0	9.9	1.1			
Math	6	1307	0	C.1.1.1	1	126610	0.63	0.63	0.04	0.20	0.13	0.00	0.49	0.49	-0.26	-0.24	-0.27	0.7069	0.0065	-9.9	0.9	-9.9	0.9			
Math	6	18	0	A.2.1.1	1	126610	0.53	0.53	0.18	0.18	0.11	0.00	0.39	0.39	-0.12	-0.22	-0.20	1.2370	0.0063	9.9	1.1	9.9	1.0			
Math	6	344	0	E.2.1.1	2	126610	0.57	0.09	0.57	0.09	0.25	0.00	0.41	-0.31	0.41	-0.06	-0.23	1.0440	0.0064	9.2	1.0	7.6	1.0			
Math	6	2319	0	E.1.1.2	2	126610	0.93	0.02	0.05	0.01	0.93	0.00	0.25	-0.15	-0.16	-0.15	0.25	-1.6111	0.0111	-1.6	1.0	9.9	1.3			
Math	6	7224	0	A.1.4.1	2	126610	0.57	0.04	0.33	0.06	0.57	0.00	0.52	-0.14	-0.42	-0.13	0.52	1.0496	0.0064	-9.9	0.9	-9.9	0.9			
Math	6	9923	0	C.1.1.2	1	126610	0.53	0.09	0.11	0.53	0.27	0.00	0.39	-0.24	-0.10	0.39	-0.22	1.2393	0.0063	9.9	1.0	9.9	1.1			
Math	6	9053	0	A.1.1.2	1	126610	0.76	0.12	0.76	0.05	0.08	0.00	0.47	-0.29	0.47	-0.08	-0.33	-0.0346	0.0072	-9.9	0.9	-9.9	0.8			
Math	6	1376	0	E.2.1.1	2	126610	0.58	0.12	0.15	0.58	0.15	0.00	0.51	-0.21	-0.38	0.51	-0.14	0.9929	0.0064	-9.9	0.9	-9.9	0.9			
Math	6	8912	0	D.1.2.1	2	126610	0.90	0.90	0.06	0.02	0.02	0.00	0.33	0.33	-0.18	-0.22	-0.18	-1.2684	0.0099	-6.4	1.0	-5.6	0.9			
Math	6	4837	0	E.1.1.1	2	126610	0.77	0.04	0.06	0.13	0.77	0.00	0.33	-0.12	-0.21	-0.19	0.33	-0.0880	0.0073	9.9	1.1	9.9	1.2			
Math	6	7149	0	B.2.1.3	1	126610	0.71	0.09	0.03	0.71	0.17	0.00	0.36	-0.17	-0.19	0.36	-0.22	0.2636	0.0069	9.9	1.1	8.7	1.1			
Math	6	1089	0	A.2.1.1	1	126610	0.75	0.06	0.75	0.06	0.13	0.00	0.17	-0.23	0.17	-0.13	0.04	-0.0050	0.0072	9.9	1.2	9.9	1.9			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Math	6	2171	0	D.1.1.1	2	126610	0.87	0.02	0.08	0.87	0.03	0.00	0.31	-0.15	-0.20	0.31	-0.16	-0.9204	0.0089	3.1	1.0	-0.4	1.0			
Math	6	5164	0	A.1.1.4	1	126610	0.88	0.05	0.88	0.06	0.02	0.00	0.48	-0.27	0.48	-0.35	-0.16	-0.9967	0.0091	-9.9	0.9	-9.9	0.6			
Math	6	7884	0	C.1.2.2	1	126610	0.82	0.10	0.01	0.82	0.06	0.00	0.31	-0.22	-0.14	0.31	-0.14	-0.4691	0.0079	9.9	1.1	9.9	1.1			
Math	6	652	0	E.3.1.2	2	126610	0.80	0.06	0.10	0.04	0.80	0.00	0.50	-0.30	-0.34	-0.14	0.50	-0.3304	0.0076	-9.9	0.9	-9.9	0.7			
Math	6	8891	0	E.1.1.3	2	126610	0.75	0.09	0.75	0.09	0.07	0.00	0.37	-0.21	0.37	-0.19	-0.18	0.0268	0.0071	9.9	1.0	3.2	1.0			
Math	6	8085	0	A.1.1.3	1	126610	0.93	0.03	0.01	0.93	0.03	0.00	0.32	-0.23	-0.13	0.32	-0.17	-1.6863	0.0114	-5.6	1.0	-9.9	0.8			
Math	6	6251	0	B.1.1.1	1	126610	0.63	0.06	0.63	0.19	0.12	0.00	0.47	-0.14	0.47	-0.27	-0.28	0.7080	0.0065	-9.9	1.0	-9.9	0.9			
Math	6	562	0	E.3.1.1	2	126610	0.77	0.11	0.04	0.77	0.08	0.00	0.44	-0.23	-0.21	0.44	-0.27	-0.1056	0.0073	-9.9	0.9	-8.1	0.9			
Math	6	5807	0	E.3.1.2	2	126610	0.62	0.24	0.62	0.07	0.07	0.00	0.43	-0.39	0.43	-0.10	-0.05	0.7545	0.0065	0.0	1.0	-7.7	1.0			
Math	6	1017	0	C.1.1.3	1	126610	0.77	0.77	0.05	0.15	0.03	0.00	0.45	0.45	-0.27	-0.28	-0.19	-0.1408	0.0073	-9.9	0.9	-9.9	0.8			
Math	6	8364	0	B.2.3.1	1	126610	0.92	0.92	0.04	0.02	0.01	0.00	0.38	0.38	-0.27	-0.20	-0.16	-1.6189	0.0112	-9.9	0.9	-9.9	0.6			
Math	6	6593	0	A.1.3.1	2	126610	0.47	0.09	0.47	0.13	0.31	0.00	0.34	-0.16	0.34	-0.17	-0.15	1.5755	0.0064	9.9	1.1	9.9	1.2			
Math	6	7822	0	A.1.1.1	1	126610	0.77	0.02	0.77	0.12	0.08	0.00	0.41	-0.12	0.41	-0.23	-0.28	-0.1290	0.0073	-3.1	1.0	-9.9	0.9			
Math	6	1771	0	C.3.1.1	2	126610	0.89	0.09	0.89	0.01	0.00	0.00	0.35	-0.32	0.35	-0.10	-0.10	-1.1762	0.0096	-6.4	1.0	-9.9	0.9			
Math	6	6177	0	C.1.2.1	1	126610	0.55	0.19	0.10	0.55	0.16	0.00	0.38	-0.20	-0.30	0.38	-0.05	1.1306	0.0064	9.9	1.1	9.9	1.1			
Math	6	7988	0	B.2.1.1	1	126610	0.79	0.08	0.79	0.09	0.04	0.00	0.39	-0.24	0.39	-0.22	-0.15	-0.2187	0.0075	-0.2	1.0	-8.4	0.9			
Math	6	1233	0	E.2.1.1	2	126610	0.65	0.08	0.19	0.09	0.65	0.00	0.50	-0.22	-0.37	-0.13	0.50	0.5972	0.0066	-9.9	0.9	-9.9	0.9			
Math	6	1428	0	C.1.1.2	2	126610	0.67	0.12	0.04	0.67	0.16	0.00	0.35	-0.19	-0.22	0.35	-0.16	0.4888	0.0067	9.9	1.1	9.9	1.1			
Math	6	5520	0	E.1.1.2	2	126610	0.82	0.82	0.01	0.14	0.02	0.00	0.30	0.30	-0.14	-0.19	-0.21	-0.5033	0.0079	9.9	1.1	9.9	1.2			
Math	6	3805	0	D.2.2.1	2	126610	0.77	0.77	0.16	0.05	0.02	0.00	0.46	0.46	-0.27	-0.29	-0.19	-0.1031	0.0073	-9.9	0.9	-9.9	0.9			
Math	6	6583	0	C.1.1.4	1	126610	0.52	0.10	0.22	0.16	0.52	0.00	0.47	-0.24	-0.27	-0.13	0.47	1.3221	0.0063	-9.9	1.0	-9.9	1.0			
Math	6	4444	0	D.1.1.1	2	126610	0.42	0.42	0.11	0.37	0.10	0.00	0.27	0.27	-0.15	-0.05	-0.20	1.8306	0.0064	9.9	1.2	9.9	1.3			
Math	6	7211	0	D.2.1.1	1	126610	0.65	0.04	0.65	0.28	0.04	0.00	0.41	-0.22	0.41	-0.29	-0.12	0.6158	0.0066	5.9	1.0	-2.9	1.0			
Math	6	8480	0	A.1.3.2	1	126610	0.59	0.22	0.07	0.59	0.11	0.00	0.38	-0.15	-0.26	0.38	-0.18	0.9293	0.0064	9.9	1.1	9.9	1.1			
Math	6	174	0	C.1.1.1	2	126610	0.75	0.06	0.15	0.04	0.75	0.00	0.47	-0.28	-0.26	-0.21	0.47	0.0455	0.0071	-9.9	0.9	-9.9	0.9			
Math	6	2428	0	C.1.1.3	1	126610	0.68	0.23	0.06	0.68	0.03	0.00	0.45	-0.27	-0.27	0.45	-0.19	0.4514	0.0067	-9.2	1.0	-9.9	0.9			
Math	6	5832	0	A.1.2.1	1	126610	0.70	0.70	0.16	0.04	0.09	0.00	0.52	0.52	-0.45	-0.17	-0.14	0.3131	0.0068	-9.9	0.9	-9.9	0.8			
Math	6	1393	0	D.1.2.1	2	126610	0.67	0.12	0.06	0.67	0.14	0.00	0.42	-0.26	-0.21	0.42	-0.17	0.4749	0.0067	2.0	1.0	-7.0	1.0			
Math	6	7698	1	A.1.1.1	1	25608	0.73	0.02	0.21	0.73	0.04	0.00	0.30	-0.07	-0.19	0.30	-0.23	0.1117	0.0156	9.9	1.1	5.4	1.1	A-	A-	A-
Math	6	7103	1	D.1.1.1	2	25608	0.49	0.49	0.29	0.06	0.17	0.00	0.26	0.26	-0.06	-0.12	-0.20	1.4361	0.0141	9.9	1.2	9.9	1.3	A-	A-	A-
Math	6	9021	1	C.1.2.2	1	25608	0.82	0.09	0.82	0.07	0.02	0.00	0.39	-0.17	0.39	-0.29	-0.18	-0.4726	0.0175	-2.9	1.0	-0.5	1.0	A+	A-	B-
Math	6	7714	1	E.1.1.2	2	25608	0.91	0.05	0.91	0.03	0.01	0.00	0.32	-0.26	0.32	-0.11	-0.15	-1.4602	0.0233	-2.6	1.0	-1.4	1.0	A+	A-	A-
Math	6	1960	1	A.1.3.1	2	25608	0.56	0.14	0.56	0.15	0.14	0.00	0.29	-0.12	0.29	-0.11	-0.18	1.0569	0.0142	9.9	1.2	9.9	1.2	A+	A+	A+
Math	6	5347	1	A.1.4.1	2	25608	0.68	0.05	0.03	0.68	0.23	0.00	0.49	-0.12	-0.17	0.49	-0.40	0.4406	0.0149	-9.9	0.9	-9.1	0.9			
Math	6	9675	1	D.2.1.2	1	25608	0.88	0.88	0.04	0.03	0.05	0.00	0.47	0.47	-0.25	-0.27	-0.26	-1.0444	0.0204	-9.9	0.9	-9.9	0.6			
Math	6	5761	1	B.2.1.3	1	25608	0.75	0.08	0.03	0.75	0.14	0.00	0.45	-0.21	-0.17	0.45	-0.31	0.0145	0.0158	-5.6	1.0	-7.2	0.9	A-	A-	A-
Math	6	5055	1	B.1.1.1	2	25608	0.61	0.12	0.61	0.18	0.08	0.00	0.48	-0.15	0.48	-0.31	-0.23	0.7980	0.0144	-8.7	1.0	-6.6	0.9	B-	A-	A-
Math	6	9455	1	C.1.1.3	1	25608	0.67	0.25	0.05	0.67	0.03	0.00	0.48	-0.31	-0.29	0.48	-0.16	0.5171	0.0148	-9.5	0.9	-9.7	0.9	A-	A+	A-
Math	6	4536	1	E.2.1.1	2	25608	0.48	0.11	0.12	0.48	0.29	0.00	0.34	-0.24	-0.15	0.34	-0.10	1.4927	0.0141	9.9	1.1	9.9	1.2	A+	A-	A-
Math	6	6238	1	A.1.1.2	1	25608	0.81	0.04	0.11	0.03	0.81	0.00	0.48	-0.18	-0.35	-0.22	0.48	-0.4377	0.0174	-9.9	0.9	-9.9	0.7	A+	A+	A+
Math	6	5725	2	A.1.3.3	1	25293	0.70	0.06	0.09	0.70	0.14	0.00	0.50	-0.28	-0.33	0.50	-0.20	0.2964	0.0153	-9.9	0.9	-9.9	0.8	A+	A-	A-
Math	6	3472	2	D.2.1.1	1	25293	0.69	0.05	0.06	0.20	0.69	0.00	0.46	-0.23	-0.16	-0.31	0.46	0.3592	0.0152	-6.0	1.0	-5.8	0.9	A+	A+	A-
Math	6	9402	2	A.1.4.1	2	25293	0.52	0.05	0.17	0.52	0.26	0.00	0.50	-0.11	-0.22	0.50	-0.33	1.2760	0.0142	-9.9	0.9	-9.9	0.9	A-	A-	A-
Math	6	8152	2	E.1.1.1	2	25293	0.82	0.07	0.10	0.82	0.02	0.00	0.33	-0.10	-0.29	0.33	-0.14	-0.4677	0.0176	2.7	1.0	7.3	1.2			
Math	6	2876	2	C.3.1.1	1	25293	0.87	0.10	0.02	0.02	0.87	0.00	0.40	-0.29	-0.21	-0.16	0.40	-0.9051	0.0198	-5.4	0.9	-5.4	0.9	A+	A-	A-
Math	6	3387	2	B.2.1.3	1	25293	0.68	0.17	0.11	0.68	0.04	0.00	0.38	-0.12	-0.32	0.38	-0.17	0.4674	0.0150	6.8	1.1	4.0	1.1	A-	A-	A-
Math	6	556	2	A.1.1.2	1	25293	0.79	0.04	0.79	0.03	0.13	0.00	0.47	-0.17	0.47	-0.10	-0.40	-0.2722	0.0169	-9.9	0.9	-9.9	0.8	A+	A+	A+
Math	6	3603	2	D.2.2.1	2	25293	0.64	0.07	0.03	0.64	0.25	0.00	0.40	-0.32	-0.21	0.40	-0.16	0.6520	0.0147	5.5	1.0	0.6	1.0	A-	A-	A-
Math	6	5720	2	E.1.1.2	2	25293	0.88	0.88	0.06	0.01	0.05	0.00	0.34	0.34	-0.18	-0.15	-0.24	-1.0422	0.0206	-2.1	1.0	-1.6	1.0	A-	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Math	6	5569	2	C.1.1.2	2	25293	0.50	0.24	0.50	0.13	0.12	0.00	0.50	-0.37	0.50	-0.09	-0.19	1.3764	0.0142	-9.9	0.9	-9.9	0.9	A-	A-	A-
Math	6	8365	2	C.1.1.3	2	25293	0.37	0.09	0.46	0.08	0.37	0.00	0.45	-0.25	-0.26	-0.06	0.45	2.0689	0.0147	-9.9	0.9	1.7	1.0			
Math	6	8581	2	E.3.1.1	1	25293	0.61	0.23	0.11	0.05	0.61	0.00	0.57	-0.48	-0.13	-0.16	0.57	0.8488	0.0144	-9.9	0.8	-9.9	0.8	A+	A-	B-
Math	6	3441	3	A.3.2.1	2	25210	0.69	0.08	0.69	0.14	0.09	0.00	0.47	-0.26	0.47	-0.19	-0.28	0.4112	0.0151	-8.1	1.0	-7.3	0.9	A-	A-	A-
Math	6	410	3	D.2.2.1	2	25210	0.59	0.25	0.59	0.11	0.05	0.00	0.48	-0.22	0.48	-0.31	-0.20	0.9148	0.0144	-8.2	1.0	-9.0	0.9	A-	A-	A-
Math	6	7910	3	A.1.2.1	1	25210	0.55	0.55	0.19	0.06	0.20	0.00	0.54	0.54	-0.45	-0.14	-0.15	1.1544	0.0143	-9.9	0.9	-9.9	0.9			
Math	6	3823	3	E.3.1.1	2	25210	0.68	0.14	0.15	0.68	0.03	0.00	0.59	-0.36	-0.35	0.59	-0.13	0.4518	0.0150	-9.9	0.8	-9.9	0.7	A-	A-	A-
Math	6	4730	3	C.1.2.1	2	25210	0.85	0.06	0.04	0.05	0.85	0.00	0.41	-0.20	-0.22	-0.24	0.41	-0.7213	0.0188	-5.2	0.9	-6.6	0.8			
Math	6	4414	3	A.1.1.3	1	25210	0.93	0.02	0.93	0.04	0.01	0.00	0.31	-0.19	0.31	-0.18	-0.15	-1.7066	0.0258	-2.7	1.0	-3.3	0.9	A+	A+	A-
Math	6	3676	3	D.2.1.2	1	25210	0.94	0.03	0.94	0.02	0.01	0.00	0.28	-0.15	0.28	-0.19	-0.15	-1.9475	0.0282	-2.3	1.0	-2.9	0.9	A+	A-	A-
Math	6	665	3	C.1.1.4	2	25210	0.71	0.71	0.06	0.15	0.08	0.00	0.44	0.44	-0.17	-0.27	-0.23	0.2971	0.0153	-3.6	1.0	-4.6	0.9	A+	A-	A-
Math	6	9489	3	E.1.1.3	2	25210	0.85	0.07	0.85	0.04	0.04	0.00	0.43	-0.26	0.43	-0.24	-0.21	-0.7725	0.0191	-8.0	0.9	-9.9	0.7	A+	A-	A+
Math	6	7127	3	A.2.1.1	1	25210	0.85	0.07	0.85	0.05	0.03	0.00	0.36	-0.13	0.36	-0.26	-0.22	-0.7636	0.0191	-1.8	1.0	1.4	1.0	A+	A+	A+
Math	6	108	3	D.1.1.1	2	25210	0.71	0.08	0.71	0.07	0.13	0.00	0.32	-0.20	0.32	-0.22	-0.09	0.2749	0.0154	9.9	1.1	9.9	1.2	A+	A+	A+
Math	6	9810	3	B.2.1.1	2	25210	0.48	0.12	0.23	0.48	0.16	0.00	0.36	-0.35	-0.19	0.36	0.06	1.5025	0.0142	9.9	1.1	9.9	1.2	A-	A-	A-
Math	6	8680	4	A.3.1.1	2	25267	0.68	0.10	0.68	0.17	0.05	0.00	0.35	-0.27	0.35	-0.13	-0.14	0.4469	0.0149	9.9	1.1	5.5	1.1	A-	A-	A-
Math	6	5471	4	C.3.1.1	1	25267	0.74	0.74	0.04	0.02	0.19	0.00	0.15	0.15	-0.12	-0.15	-0.05	0.0899	0.0157	9.9	1.3	9.9	1.6	A+	A-	A+
Math	6	6372	4	D.2.1.2	1	25267	0.58	0.34	0.05	0.03	0.58	0.00	0.38	-0.23	-0.23	-0.19	0.38	0.9717	0.0142	7.6	1.0	4.0	1.0	A+	A+	A+
Math	6	6064	4	B.2.1.1	1	25267	0.83	0.10	0.83	0.05	0.02	0.00	0.36	-0.24	0.36	-0.19	-0.15	-0.5553	0.0180	-1.2	1.0	-1.8	1.0	A-	A-	A-
Math	6	345	4	B.2.2.1	1	25267	0.43	0.51	0.04	0.43	0.02	0.00	0.40	-0.32	-0.11	0.40	-0.12	1.7299	0.0142	4.2	1.0	4.6	1.0	A+	B-	A-
Math	6	6476	4	D.1.2.1	2	25267	0.75	0.03	0.16	0.06	0.75	0.00	0.44	-0.22	-0.26	-0.25	0.44	0.0578	0.0158	-7.1	1.0	-8.0	0.9			
Math	6	1485	4	E.1.1.1	2	25267	0.44	0.44	0.07	0.42	0.07	0.00	0.35	0.35	-0.12	-0.17	-0.23	1.6840	0.0142	9.9	1.1	9.9	1.1	A-	A-	A-
Math	6	5008	4	A.1.3.1	2	25267	0.64	0.19	0.64	0.10	0.06	0.00	0.22	-0.07	0.22	-0.06	-0.26	0.6975	0.0145	9.9	1.2	9.9	1.3			
Math	6	772	4	A.2.1.1	1	25267	0.62	0.62	0.16	0.08	0.14	0.00	0.36	0.36	-0.27	-0.22	-0.03	0.7861	0.0144	9.9	1.1	4.0	1.0	A-	A-	A+
Math	6	4275	4	E.3.1.2	2	25267	0.84	0.84	0.04	0.06	0.05	0.00	0.47	0.47	-0.23	-0.27	-0.26	-0.6098	0.0183	-9.9	0.9	-9.9	0.7	B+	A-	A-
Math	6	2956	4	C.1.1.4	2	25267	0.77	0.08	0.08	0.77	0.06	0.00	0.41	-0.23	-0.34	0.41	-0.05	-0.0841	0.0162	-2.9	1.0	-0.7	1.0	A-	A-	A-
Math	6	8005	4	A.1.1.4	1	25267	0.87	0.06	0.03	0.87	0.03	0.00	0.47	-0.34	-0.20	0.47	-0.21	-0.9432	0.0201	-9.9	0.9	-9.9	0.7	A+	A-	A-
Math	6	4094	5	A.3.1.1	2	25232	0.64	0.12	0.12	0.64	0.12	0.00	0.43	-0.24	-0.20	0.43	-0.19	0.6654	0.0147	0.2	1.0	-0.4	1.0	A-	A-	A-
Math	6	1382	5	A.1.2.1	1	25232	0.56	0.56	0.06	0.32	0.06	0.00	0.49	0.49	-0.12	-0.39	-0.15	1.0713	0.0143	-9.9	0.9	-9.7	0.9	A+	A-	A-
Math	6	3452	5	E.3.1.2	2	25232	0.71	0.04	0.14	0.11	0.71	0.00	0.51	-0.17	-0.33	-0.27	0.51	0.2473	0.0154	-9.9	0.9	-9.9	0.8			
Math	6	9348	5	C.1.1.2	2	25232	0.60	0.10	0.23	0.60	0.07	0.00	0.38	-0.28	-0.13	0.38	-0.17	0.8622	0.0144	9.9	1.1	9.9	1.1	A+	A-	A-
Math	6	3378	5	B.2.3.1	1	25232	0.86	0.09	0.86	0.03	0.02	0.00	0.32	-0.17	0.32	-0.20	-0.19	-0.8292	0.0194	0.4	1.0	4.9	1.1	A+	A-	A-
Math	6	1905	5	D.1.2.1	2	25232	0.45	0.21	0.11	0.23	0.45	0.00	0.44	-0.16	-0.22	-0.20	0.44	1.6697	0.0143	-6.1	1.0	-1.5	1.0	A-	A-	A-
Math	6	9264	5	B.2.1.1	1	25232	0.69	0.02	0.69	0.26	0.03	0.00	0.37	-0.17	0.37	-0.27	-0.17	0.3908	0.0151	7.3	1.1	1.8	1.0			
Math	6	7851	5	A.1.1.3	1	25232	0.81	0.02	0.15	0.81	0.01	0.00	0.47	-0.26	-0.36	0.47	-0.14	-0.4359	0.0176	-9.9	0.9	-9.9	0.8	A+	A+	A-
Math	6	1232	5	C.1.1.1	1	25232	0.90	0.01	0.90	0.04	0.05	0.00	0.30	-0.13	0.30	-0.20	-0.17	-1.2016	0.0217	0.7	1.0	-1.7	0.9	A+	A+	A+
Math	6	4725	5	A.1.1.4	1	25232	0.85	0.08	0.03	0.04	0.85	0.00	0.49	-0.34	-0.25	-0.22	0.49	-0.7125	0.0188	-9.9	0.9	-9.9	0.7	A+	A-	A-
Math	6	121	5	D.2.1.1	1	25232	0.75	0.75	0.19	0.03	0.03	0.00	0.44	0.44	-0.31	-0.20	-0.20	0.0538	0.0159	-5.4	1.0	-3.7	0.9	A+	A-	A-
Math	6	2561	5	E.2.1.1	2	25232	0.47	0.20	0.47	0.23	0.10	0.00	0.44	-0.13	0.44	-0.24	-0.21	1.5828	0.0142	-5.3	1.0	-0.9	1.0	A+	A-	A-
Math	7	6236	0	A.1.1.1	2	127086	0.80	0.03	0.10	0.80	0.06	0.00	0.37	-0.12	-0.20	0.37	-0.27	-0.3882	0.0076	2.5	1.0	-5.2	1.0			
Math	7	6344	0	A.3.2.1	1	127086	0.82	0.82	0.03	0.08	0.07	0.00	0.37	0.37	-0.13	-0.19	-0.28	-0.4893	0.0078	-1.1	1.0	0.5	1.0			
Math	7	9294	0	A.3.1.1	2	127086	0.76	0.08	0.13	0.76	0.03	0.00	0.31	-0.09	-0.23	0.31	-0.18	-0.0863	0.0072	9.9	1.1	9.9	1.2			
Math	7	8341	0	A.3.1.1	1	127086	0.85	0.03	0.85	0.06	0.06	0.00	0.42	-0.18	0.42	-0.24	-0.26	-0.7942	0.0084	-9.9	0.9	-9.9	0.8			
Math	7	6376	0	D.1.1.1	2	127086	0.65	0.23	0.06	0.65	0.06	0.00	0.33	-0.12	-0.26	0.33	-0.20	0.5494	0.0066	9.9	1.1	9.9	1.2			
Math	7	745	0	C.1.1.1	1	127086	0.82	0.04	0.05	0.09	0.82	0.00	0.47	-0.19	-0.27	-0.29	0.47	-0.4904	0.0078	-9.9	0.9	-9.9	0.8			
Math	7	1875	0	E.2.1.2		127086	0.56	0.56	0.05	0.27	0.12	0.00	0.31	0.31	-0.18	-0.11	-0.21	1.0275	0.0064	9.9	1.1	9.9	1.2			
Math	7	8132	0	E.4.1.1	2	127086	0.53	0.05	0.53	0.12	0.30	0.00	0.33	-0.22	0.33	-0.27	-0.06	1.1886	0.0063	9.9	1.1	9.9	1.2			
Math	7	9505	0	C.1.1.3	1	127086	0.44	0.07	0.42	0.06	0.44	0.00	0.35	-0.09	-0.28	-0.05	0.35	1.6684	0.0064	9.9	1.1	9.9	1.2			
Math	7	9097	0	A.3.2.1	2	127086	0.61	0.61	0.06	0.27	0.06	0.00	0.47	0.47	-0.21	-0.31	-0.19	0.7685	0.0064	-9.9	1.0	-9.9	0.9			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Math	7	8236	0	E.1.1.1	1	127086	0.57	0.57	0.07	0.09	0.27	0.00	0.32	0.32	-0.18	-0.21	-0.11	0.9866	0.0064	9.9	1.1	9.9	1.2			
Math	7	6963	0	C.1.1.2	1	127086	0.88	0.03	0.88	0.08	0.02	0.00	0.43	-0.18	0.43	-0.32	-0.18	-1.0999	0.0092	-9.9	0.9	-9.9	0.7			
Math	7	1955	0	D.3.1.2	2	127086	0.77	0.77	0.05	0.10	0.08	0.00	0.40	0.40	-0.26	-0.22	-0.17	-0.1486	0.0073	-2.8	1.0	3.0	1.0			
Math	7	5402	0	C.1.2.2	2	127086	0.79	0.09	0.79	0.05	0.07	0.00	0.40	-0.23	0.40	-0.20	-0.20	-0.3043	0.0075	-4.9	1.0	-4.3	1.0			
Math	7	7137	0	E.2.1.1	1	127086	0.89	0.89	0.05	0.04	0.03	0.00	0.30	0.30	-0.23	-0.12	-0.14	-1.1893	0.0095	0.1	1.0	7.5	1.1			
Math	7	9547	0	D.2.1.2	1	127086	0.85	0.02	0.09	0.04	0.85	0.00	0.52	-0.21	-0.35	-0.28	0.52	-0.7833	0.0084	-9.9	0.8	-9.9	0.6			
Math	7	1774	0	C.3.1.1	1	127086	0.84	0.01	0.84	0.01	0.14	0.00	0.33	-0.13	0.33	-0.17	-0.25	-0.6520	0.0081	5.2	1.0	6.5	1.1			
Math	7	6409	0	B.2.1.2	2	127086	0.64	0.16	0.64	0.13	0.07	0.00	0.39	-0.36	0.39	-0.15	-0.01	0.6247	0.0065	9.9	1.0	9.9	1.1			
Math	7	6891	0	A.2.2.3	2	127086	0.56	0.22	0.56	0.12	0.09	0.00	0.46	-0.23	0.46	-0.24	-0.18	1.0313	0.0064	-9.9	1.0	-9.9	0.9			
Math	7	6570	0	E.3.1.2	2	127086	0.59	0.13	0.22	0.06	0.59	0.00	0.51	-0.44	-0.14	-0.19	0.51	0.9166	0.0064	-9.9	0.9	-9.9	0.9			
Math	7	8106	0	B.2.2.1	2	127086	0.80	0.06	0.10	0.80	0.04	0.00	0.47	-0.28	-0.28	0.47	-0.19	-0.3625	0.0076	-9.9	0.9	-9.9	0.8			
Math	7	3675	0	D.2.1.1	1	127086	0.84	0.04	0.11	0.84	0.01	0.00	0.35	-0.20	-0.25	0.35	-0.14	-0.6957	0.0082	0.7	1.0	-5.1	1.0			
Math	7	759	0	C.3.1.2	1	127086	0.70	0.11	0.70	0.12	0.06	0.00	0.29	-0.25	0.29	-0.06	-0.12	0.2850	0.0068	9.9	1.1	9.9	1.4			
Math	7	9415	0	C.3.1.2	1	127086	0.93	0.04	0.02	0.02	0.93	0.00	0.33	-0.20	-0.18	-0.17	0.33	-1.7032	0.0113	-6.8	0.9	-9.8	0.8			
Math	7	7620	0	A.1.2.1	1	127086	0.88	0.88	0.06	0.04	0.03	0.00	0.36	0.36	-0.11	-0.30	-0.20	-1.0487	0.0091	-8.2	1.0	2.5	1.0			
Math	7	5140	0	D.3.1.1	2	127086	0.67	0.04	0.67	0.24	0.04	0.00	0.48	-0.19	0.48	-0.34	-0.20	0.4492	0.0066	-9.9	0.9	-9.9	0.9			
Math	7	1339	0	E.3.1.3	2	127086	0.80	0.08	0.08	0.80	0.03	0.00	0.31	-0.25	-0.12	0.31	-0.13	-0.3829	0.0076	9.9	1.1	9.9	1.2			
Math	7	9147	0	B.2.1.2	1	127086	0.60	0.13	0.20	0.60	0.07	0.00	0.48	-0.31	-0.27	0.48	-0.08	0.8415	0.0064	-9.9	1.0	-9.9	0.9			
Math	7	7783	0	E.1.1.1	2	127086	0.75	0.15	0.75	0.05	0.06	0.00	0.39	-0.18	0.39	-0.21	-0.26	0.0032	0.0071	5.1	1.0	-1.0	1.0			
Math	7	9173	0	D.2.1.2	1	127086	0.75	0.07	0.75	0.16	0.02	0.00	0.52	-0.15	0.52	-0.45	-0.16	0.0031	0.0071	-9.9	0.9	-9.9	0.8			
Math	7	5249	0	D.1.1.1	1	127086	0.55	0.09	0.27	0.10	0.55	0.00	0.46	-0.09	-0.40	-0.08	0.46	1.1284	0.0063	-9.9	1.0	-9.9	1.0			
Math	7	8663	0	D.3.1.2	2	127086	0.73	0.18	0.73	0.05	0.05	0.00	0.47	-0.31	0.47	-0.25	-0.17	0.1125	0.0070	-9.9	0.9	-9.9	0.9			
Math	7	1478	0	C.3.1.1	1	127086	0.84	0.02	0.12	0.02	0.84	0.00	0.39	-0.15	-0.32	-0.13	0.39	-0.6520	0.0081	-8.4	1.0	-6.1	0.9			
Math	7	5934	0	C.1.2.1	2	127086	0.72	0.72	0.09	0.10	0.09	0.00	0.48	0.48	-0.26	-0.25	-0.22	0.1790	0.0069	-9.9	0.9	-9.9	0.8			
Math	7	6579	0	A.2.2.6	2	127086	0.49	0.14	0.26	0.49	0.10	0.00	0.39	-0.21	-0.15	0.39	-0.18	1.3956	0.0063	9.9	1.0	9.9	1.1			
Math	7	7259	0	D.2.1.1	1	127086	0.74	0.19	0.04	0.03	0.74	0.00	0.44	-0.26	-0.26	-0.23	0.44	0.0349	0.0070	-8.9	1.0	-8.8	0.9			
Math	7	4909	0	D.2.1.1	1	127086	0.79	0.79	0.14	0.05	0.02	0.00	0.43	0.43	-0.32	-0.18	-0.18	-0.3286	0.0076	-9.9	1.0	-9.9	0.9			
Math	7	5962	0	A.3.2.2	1	127086	0.75	0.05	0.11	0.75	0.10	0.00	0.22	-0.13	-0.14	0.22	-0.08	0.0120	0.0071	9.9	1.2	9.9	1.4			
Math	7	2034	0	E.2.1.1	1	127086	0.67	0.08	0.12	0.67	0.13	0.00	0.37	-0.14	-0.12	0.37	-0.28	0.4863	0.0066	9.9	1.1	9.9	1.1			
Math	7	3947	0	D.3.1.1	2	127086	0.69	0.06	0.09	0.16	0.69	0.00	0.52	-0.26	-0.23	-0.31	0.52	0.3259	0.0067	-9.9	0.9	-9.9	0.8			
Math	7	251	0	D.3.1.1	2	127086	0.58	0.58	0.22	0.12	0.07	0.00	0.37	0.37	-0.20	-0.16	-0.18	0.9576	0.0064	9.9	1.1	9.9	1.1			
Math	7	5142	0	C.1.2.2	1	127086	0.80	0.04	0.09	0.80	0.07	0.00	0.40	-0.21	-0.20	0.40	-0.24	-0.3430	0.0076	-4.4	1.0	-2.6	1.0			
Math	7	9274	0	E.3.1.1	2	127086	0.66	0.18	0.06	0.66	0.10	0.00	0.53	-0.38	-0.26	0.53	-0.14	0.5392	0.0066	-9.9	0.9	-9.9	0.9			
Math	7	9950	0	D.1.1.1	1	127086	0.50	0.22	0.16	0.12	0.50	0.00	0.45	-0.30	-0.17	-0.11	0.45	1.3791	0.0063	-9.9	1.0	-6.3	1.0			
Math	7	3861	0	C.3.1.2	1	127086	0.81	0.81	0.09	0.07	0.02	0.00	0.41	0.41	-0.21	-0.27	-0.19	-0.4773	0.0078	-9.0	1.0	-5.2	1.0			
Math	7	713	0	B.2.2.1	1	127086	0.80	0.09	0.06	0.05	0.80	0.00	0.54	-0.37	-0.26	-0.22	0.54	-0.4093	0.0077	-9.9	0.8	-9.9	0.7			
Math	7	1685	0	A.2.2.1	2	127086	0.69	0.17	0.69	0.06	0.07	0.00	0.40	-0.09	0.40	-0.27	-0.32	0.3172	0.0068	7.3	1.0	9.9	1.1			
Math	7	2950	0	A.2.2.5	1	127086	0.74	0.09	0.74	0.10	0.07	0.00	0.41	-0.24	0.41	-0.20	-0.21	0.0662	0.0070	-0.2	1.0	-4.8	1.0			
Math	7	3712	0	B.2.1.3	1	127086	0.76	0.11	0.11	0.76	0.03	0.00	0.53	-0.35	-0.30	0.53	-0.16	-0.0803	0.0072	-9.9	0.9	-9.9	0.7			
Math	7	5670	0	E.1.1.1	2	127086	0.58	0.09	0.08	0.25	0.58	0.00	0.38	-0.11	-0.15	-0.27	0.38	0.9694	0.0064	9.9	1.1	9.9	1.1			
Math	7	732	0	C.1.1.2	1	127086	0.76	0.13	0.07	0.04	0.76	0.00	0.54	-0.29	-0.32	-0.25	0.54	-0.0885	0.0072	-9.9	0.9	-9.9	0.7			
Math	7	8129	0	B.2.2.2	2	127086	0.74	0.74	0.09	0.09	0.08	0.00	0.54	0.54	-0.27	-0.35	-0.22	0.0661	0.0070	-9.9	0.9	-9.9	0.8			
Math	7	2668	0	D.2.2.1	2	127086	0.59	0.09	0.18	0.14	0.59	0.00	0.38	-0.23	-0.05	-0.30	0.38	0.8809	0.0064	9.9	1.1	9.9	1.1			
Math	7	8534	0	B.1.1.1	2	127086	0.70	0.06	0.14	0.70	0.09	0.00	0.47	-0.26	-0.34	0.47	-0.11	0.2647	0.0068	-9.9	1.0	-9.9	0.9			
Math	7	1909	0	C.1.2.1	1	127086	0.56	0.56	0.04	0.24	0.16	0.00	0.30	0.30	-0.10	-0.26	-0.05	1.0750	0.0063	9.9	1.2	9.9	1.2			
Math	7	6115	0	E.4.1.1	2	127086	0.51	0.19	0.51	0.18	0.12	0.00	0.32	-0.15	0.32	-0.09	-0.20	1.3132	0.0063	9.9	1.1	9.9	1.2			
Math	7	10	0	A.1.2.2	1	127086	0.57	0.20	0.16	0.57	0.07	0.00	0.46	-0.24	-0.25	0.46	-0.15	0.9942	0.0064	-9.9	1.0	-9.9	0.9			
Math	7	2459	0	E.3.1.3	1	127086	0.76	0.76	0.07	0.13	0.04	0.00	0.29	0.29	-0.12	-0.16	-0.19	-0.0566	0.0072	9.9	1.1	9.9	1.3			
Math	7	512	0	D.3.1.2	2	127086	0.53	0.08	0.08	0.53	0.32	0.00	0.24	-0.29	-0.27	0.24	0.07	1.2318	0.0063	9.9	1.2	9.9	1.4			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Math	7	4208	0	C.1.1.1	1	127086	0.82	0.82	0.08	0.04	0.06	0.00	0.46	0.46	-0.28	-0.21	-0.25	-0.4958	0.0078	-9.9	0.9	-9.9	0.7			
Math	7	452	1	A.3.2.2	1	25658	0.44	0.09	0.30	0.17	0.44	0.00	0.40	-0.20	-0.07	-0.28	0.40	1.6294	0.0142	3.1	1.0	5.5	1.1	A+	A-	A-
Math	7	7790	1	C.1.1.2	1	25658	0.87	0.04	0.87	0.06	0.02	0.00	0.46	-0.26	0.46	-0.29	-0.20	-1.0164	0.0199	-9.8	0.9	-9.9	0.7	A-	A-	A-
Math	7	6706	1	B.2.1.1	2	25658	0.50	0.09	0.50	0.17	0.24	0.00	0.37	-0.22	0.37	0.02	-0.31	1.3409	0.0141	9.9	1.1	9.9	1.1	A+	A-	A-
Math	7	5659	1	D.2.1.2	1	25658	0.79	0.07	0.79	0.09	0.05	0.00	0.49	-0.26	0.49	-0.27	-0.26	-0.3330	0.0167	-9.9	0.9	-9.9	0.8	A+	A-	A-
Math	7	3613	1	E.3.1.2	2	25658	0.61	0.27	0.06	0.06	0.61	0.00	0.50	-0.28	-0.25	-0.26	0.50	0.7795	0.0143	-9.9	0.9	-9.4	0.9			
Math	7	5194	1	E.2.1.2	2	25658	0.27	0.25	0.27	0.31	0.17	0.00	0.22	-0.03	0.22	-0.07	-0.14	2.6086	0.0157	9.9	1.1	9.9	1.6	A-	A-	A-
Math	7	9149	1	D.1.1.1	2	25658	0.56	0.25	0.07	0.56	0.11	0.00	0.37	-0.25	-0.17	0.37	-0.09	1.0335	0.0141	9.9	1.1	9.9	1.1	A+	A-	A-
Math	7	1981	1	B.2.2.2	2	25658	0.61	0.24	0.08	0.61	0.07	0.00	0.51	-0.29	-0.25	0.51	-0.22	0.7809	0.0143	-9.9	0.9	-9.9	0.9	B-	A-	A-
Math	7	608	1	D.3.1.1	2	25658	0.59	0.10	0.19	0.12	0.59	0.00	0.49	-0.29	-0.22	-0.21	0.49	0.8616	0.0142	-9.9	0.9	-9.9	0.9	A-	A-	A-
Math	7	6072	1	A.2.1.1	1	25658	0.74	0.74	0.14	0.07	0.05	0.00	0.30	0.30	-0.16	-0.16	-0.15	0.0294	0.0156	9.9	1.1	9.9	1.3			
Math	7	9728	1	A.2.2.6	2	25658	0.37	0.05	0.05	0.53	0.37	0.00	0.39	-0.20	-0.30	-0.16	0.39	2.0232	0.0146	-4.2	1.0	9.9	1.1	A+	A+	A+
Math	7	507	1	E.4.1.1	2	25658	0.72	0.10	0.72	0.09	0.09	0.00	0.37	-0.13	0.37	-0.21	-0.24	0.1602	0.0153	6.1	1.0	1.9	1.0	A-	A-	A-
Math	7	986	2	A.1.1.1	1	25489	0.91	0.06	0.02	0.91	0.02	0.00	0.33	-0.26	-0.13	0.33	-0.14	-1.3617	0.0225	-1.9	1.0	-6.4	0.8	A-	A-	A-
Math	7	785	2	A.2.2.5	2	25489	0.64	0.04	0.09	0.64	0.23	0.00	0.27	-0.24	-0.22	0.27	-0.05	0.6238	0.0146	9.9	1.2	9.9	1.3	A-	A-	A-
Math	7	5554	2	B.2.1.3	1	25489	0.62	0.10	0.14	0.62	0.14	0.00	0.57	-0.30	-0.39	0.57	-0.15	0.7471	0.0145	-9.9	0.8	-9.9	0.8			
Math	7	6906	2	D.3.1.2	2	25489	0.70	0.21	0.05	0.70	0.04	0.00	0.46	-0.33	-0.19	0.46	-0.19	0.2887	0.0152	-6.7	1.0	-7.3	0.9	A-	A-	A-
Math	7	3454	2	C.1.2.2	2	25489	0.70	0.08	0.70	0.15	0.07	0.00	0.45	-0.16	0.45	-0.29	-0.23	0.3249	0.0151	-4.4	1.0	-5.6	0.9	A-	A-	A-
Math	7	8388	2	B.2.1.2	2	25489	0.59	0.21	0.59	0.13	0.07	0.00	0.39	-0.31	0.39	-0.16	-0.03	0.9304	0.0143	8.4	1.1	4.8	1.1	A+	A+	A+
Math	7	5434	2	D.2.2.1	2	25489	0.48	0.09	0.23	0.20	0.48	0.00	0.44	-0.22	-0.15	-0.23	0.44	1.4983	0.0141	-3.7	1.0	-0.5	1.0	A-	A-	A-
Math	7	2113	2	C.1.1.3	2	25489	0.44	0.44	0.13	0.25	0.17	0.00	0.30	0.30	-0.15	-0.18	-0.05	1.6570	0.0142	9.9	1.2	9.9	1.3	A+	A-	A-
Math	7	8441	2	D.2.1.2	1	25489	0.86	0.03	0.86	0.03	0.08	0.00	0.49	-0.24	0.49	-0.19	-0.36	-0.8893	0.0195	-9.9	0.8	-9.9	0.7	A+	A-	B-
Math	7	7119	2	D.1.1.1	2	25489	0.71	0.21	0.04	0.71	0.05	0.00	0.56	-0.38	-0.23	0.56	-0.27	0.2382	0.0153	-9.9	0.8	-9.9	0.7			
Math	7	5994	2	E.3.1.2	2	25489	0.71	0.23	0.03	0.03	0.71	0.00	0.46	-0.30	-0.25	-0.22	0.46	0.2467	0.0153	-6.8	1.0	-6.4	0.9	A+	A-	A-
Math	7	2943	2	E.1.1.1	2	25489	0.60	0.05	0.09	0.25	0.60	0.00	0.37	-0.15	-0.27	-0.16	0.37	0.8300	0.0144	9.9	1.1	8.1	1.1	A-	B-	A-
Math	7	464	3	A.3.1.1	2	25336	0.43	0.16	0.14	0.28	0.43	0.00	0.45	-0.35	-0.22	-0.05	0.45	1.7351	0.0143	-8.6	1.0	-3.7	1.0	A-	A-	B-
Math	7	7249	3	B.2.1.3	1	25336	0.73	0.07	0.06	0.73	0.14	0.00	0.41	-0.28	-0.24	0.41	-0.14	0.1320	0.0156	0.7	1.0	2.4	1.0	A+	A+	A+
Math	7	2450	3	B.1.1.1	2	25336	0.71	0.71	0.15	0.06	0.08	0.00	0.53	0.53	-0.28	-0.25	-0.29	0.2203	0.0154	-9.9	0.9	-9.9	0.8	A-	A-	A-
Math	7	5450	3	D.2.2.1	2	25336	0.77	0.77	0.06	0.07	0.09	0.00	0.47	0.47	-0.25	-0.27	-0.23	-0.1815	0.0164	-9.1	0.9	-9.9	0.8	A+	A-	A-
Math	7	7826	3	A.1.2.1	1	25336	0.55	0.08	0.11	0.55	0.26	0.00	0.44	-0.25	-0.14	0.44	-0.24	1.1206	0.0142	-2.4	1.0	-1.8	1.0	A-	A+	A-
Math	7	5781	3	A.2.2.4	1	25336	0.63	0.26	0.63	0.05	0.06	0.00	0.40	-0.24	0.40	-0.30	-0.09	0.7135	0.0145	5.5	1.0	0.7	1.0			
Math	7	301	3	C.3.1.2	1	25336	0.63	0.26	0.63	0.04	0.08	0.00	0.32	-0.17	0.32	-0.17	-0.18	0.7046	0.0145	9.9	1.1	9.9	1.2	A+	A-	A-
Math	7	4690	3	E.2.1.1	1	25336	0.89	0.03	0.05	0.89	0.03	0.00	0.33	-0.21	-0.17	0.33	-0.16	-1.1719	0.0212	-1.8	1.0	0.0	1.0			
Math	7	1484	3	D.2.1.1	1	25336	0.92	0.04	0.02	0.92	0.02	0.00	0.32	-0.17	-0.17	0.32	-0.21	-1.5835	0.0243	-3.1	0.9	0.9	1.0	A+	A-	A-
Math	7	3243	3	D.3.1.1	2	25336	0.62	0.08	0.62	0.12	0.18	0.00	0.41	-0.20	0.41	-0.18	-0.23	0.7415	0.0145	2.4	1.0	-2.6	1.0	A-	A-	A-
Math	7	7122	3	E.3.1.3	2	25336	0.62	0.15	0.13	0.10	0.62	0.00	0.42	-0.37	-0.11	-0.12	0.42	0.7358	0.0145	2.2	1.0	1.3	1.0	A-	A-	A-
Math	7	5054	3	C.1.1.1	1	25336	0.72	0.72	0.08	0.11	0.09	0.00	0.52	0.52	-0.20	-0.28	-0.32	0.1759	0.0155	-9.9	0.9	-9.9	0.8	A-	A-	A-
Math	7	7756	4	A.3.1.1	2	25327	0.61	0.08	0.12	0.61	0.20	0.00	0.43	-0.14	-0.19	0.43	-0.28	0.7964	0.0144	0.9	1.0	-1.7	1.0	A-	A-	A-
Math	7	4563	4	D.3.1.1	2	25327	0.52	0.25	0.17	0.52	0.07	0.00	0.35	-0.14	-0.20	0.35	-0.16	1.2658	0.0141	9.9	1.1	9.9	1.1			
Math	7	3688	4	A.1.2.2	1	25327	0.25	0.20	0.25	0.44	0.11	0.00	0.36	-0.30	0.36	-0.13	0.09	2.7390	0.0161	-5.0	1.0	8.2	1.1	A-	A-	A-
Math	7	123	4	E.3.1.3	2	25327	0.63	0.14	0.15	0.63	0.07	0.00	0.45	-0.37	-0.13	0.45	-0.14	0.6851	0.0145	-2.2	1.0	0.7	1.0	A+	A-	A-
Math	7	2057	4	A.2.2.2	1	25327	0.81	0.06	0.81	0.08	0.05	0.00	0.39	-0.19	0.39	-0.26	-0.17	-0.4134	0.0172	-1.5	1.0	-4.3	0.9	A+	A+	A+
Math	7	2940	4	C.1.1.2	1	25327	0.82	0.09	0.82	0.06	0.03	0.00	0.51	-0.33	0.51	-0.27	-0.22	-0.4923	0.0175	-9.9	0.9	-9.9	0.7			
Math	7	8026	4	B.2.1.1	2	25327	0.35	0.28	0.11	0.35	0.26	0.00	0.42	-0.48	0.04	0.42	0.00	2.1186	0.0147	-6.1	1.0	1.3	1.0	A-	A-	A-
Math	7	620	4	E.2.1.1	1	25327	0.75	0.07	0.75	0.16	0.02	0.00	0.42	-0.22	0.42	-0.28	-0.18	-0.0258	0.0159	-2.9	1.0	1.4	1.0	A+	A-	A+
Math	7	5128	4	D.1.1.1	2	25327	0.35	0.18	0.27	0.20	0.35	0.00	0.28	-0.09	-0.03	-0.22	0.28	2.1350	0.0148	9.9	1.1	9.9	1.3	A-	A-	A-
Math	7	9224	4	D.2.1.1	1	25327	0.87	0.87	0.07	0.03	0.04	0.00	0.44	0.44	-0.28	-0.24	-0.21	-0.9509	0.0198	-9.1	0.9	-8.9	0.8	A+	A-	A-
Math	7	6905	4	C.1.2.1	2	25327	0.36	0.06	0.36	0.51	0.06	0.00	0.33	-0.30	0.33	-0.07	-0.20	2.0972	0.0147	6.1	1.0	9.9	1.2	A+	A+	A+
Math	7	3605	4	C.3.1.1	1	25327	0.78	0.78	0.05	0.12	0.05	0.00	0.44	0.44	-0.22	-0.28	-0.19	-0.1940	0.0165	-5.6	1.0	-8.1	0.9	A+	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Math	7	9777	5	A.3.1.1	2	25276	0.62	0.20	0.62	0.11	0.08	0.00	0.49	-0.44	0.49	-0.10	-0.12	0.7401	0.0145	-9.9	0.9	-8.5	0.9	A-	B-	A-
Math	7	4515	5	B.2.1.2	1	25276	0.52	0.13	0.27	0.52	0.08	0.00	0.46	-0.35	-0.20	0.46	-0.07	1.2298	0.0141	-5.7	1.0	-3.1	1.0	A+	A-	A+
Math	7	8339	5	C.1.1.3	2	25276	0.83	0.83	0.06	0.04	0.07	0.00	0.37	0.37	-0.23	-0.22	-0.16	-0.5684	0.0179	-1.6	1.0	-0.7	1.0	A+	A-	A-
Math	7	9349	5	D.3.1.2	2	25276	0.76	0.03	0.10	0.10	0.76	0.00	0.42	-0.21	-0.25	-0.22	0.42	-0.1178	0.0162	-3.1	1.0	-1.4	1.0	A-	A-	A-
Math	7	9586	5	C.1.2.1	2	25276	0.52	0.03	0.13	0.32	0.52	0.00	0.33	-0.17	-0.04	-0.26	0.33	1.2686	0.0141	9.9	1.1	9.9	1.2	A-	A-	A-
Math	7	744	5	D.2.1.2	1	25276	0.70	0.70	0.10	0.02	0.18	0.00	0.26	0.26	-0.26	-0.17	-0.04	0.2963	0.0152	9.9	1.2	9.9	1.3			
Math	7	2715	5	B.2.2.1	2	25276	0.60	0.04	0.08	0.27	0.60	0.00	0.54	-0.25	-0.29	-0.30	0.54	0.8149	0.0144	-9.9	0.9	-9.9	0.8	A-	B-	A-
Math	7	9588	5	E.3.1.1	2	25276	0.13	0.13	0.10	0.74	0.04	0.00	0.24	0.24	-0.07	-0.12	-0.03	3.7013	0.0202	-2.7	1.0	9.9	1.7	A+	A+	A+
Math	7	1900	5	A.2.2.1	2	25276	0.45	0.20	0.25	0.45	0.10	0.00	0.33	-0.22	-0.01	0.33	-0.23	1.5983	0.0142	9.9	1.1	9.9	1.2	A+	A+	A-
Math	7	9531	5	D.2.1.1	1	25276	0.83	0.83	0.06	0.06	0.04	0.00	0.47	0.47	-0.26	-0.27	-0.23	-0.6179	0.0181	-9.9	0.9	-9.9	0.8	A+	A-	A-
Math	7	5158	5	E.1.1.1	2	25276	0.71	0.09	0.11	0.71	0.08	0.00	0.45	-0.23	-0.27	0.45	-0.18	0.1974	0.0154	-5.4	1.0	-7.8	0.9	A+	A-	A-
Math	7	8245	5	C.3.1.1	1	25276	0.85	0.85	0.12	0.02	0.01	0.00	0.39	0.39	-0.30	-0.17	-0.15	-0.7833	0.0189	-3.5	1.0	-4.8	0.9			
Math	8	206	0	A.3.3.1	2	126144	0.79	0.05	0.09	0.06	0.79	0.00	0.37	-0.20	-0.22	-0.17	0.37	-0.2108	0.0076	9.5	1.0	9.7	1.1			
Math	8	6599	0	A.1.1.2	1	126144	0.90	0.90	0.04	0.03	0.04	0.00	0.34	0.34	-0.22	-0.19	-0.15	-1.2079	0.0099	-1.5	1.0	-9.8	0.9			
Math	8	9501	0	A.3.2.1	2	126144	0.62	0.14	0.62	0.18	0.06	0.00	0.25	-0.14	0.25	-0.13	-0.11	0.8738	0.0065	9.9	1.2	9.9	1.3			
Math	8	7541	0	A.3.2.1	2	126144	0.62	0.08	0.11	0.19	0.62	0.00	0.42	-0.19	-0.26	-0.19	0.42	0.8513	0.0066	8.5	1.0	-0.3	1.0			
Math	8	1852	0	B.2.2.2	1	126144	0.92	0.05	0.92	0.02	0.02	0.00	0.40	-0.36	0.40	-0.14	-0.10	-1.5427	0.0110	-9.9	0.9	-9.9	0.7			
Math	8	5382	0	E.1.1.2	2	126144	0.78	0.04	0.14	0.78	0.04	0.00	0.46	-0.25	-0.35	0.46	-0.11	-0.1433	0.0075	-9.9	0.9	-9.5	0.9			
Math	8	632	0	D.4.1.1	1	126144	0.67	0.08	0.07	0.18	0.67	0.00	0.47	-0.15	-0.14	-0.38	0.47	0.5732	0.0067	-8.4	1.0	-9.9	0.9			
Math	8	871	0	A.2.2.2	1	126144	0.69	0.04	0.16	0.11	0.69	0.00	0.34	-0.16	-0.16	-0.21	0.34	0.4231	0.0069	9.9	1.1	9.9	1.2			
Math	8	8424	0	E.1.1.3	1	126144	0.46	0.11	0.06	0.46	0.36	0.00	0.39	-0.16	-0.11	0.39	-0.24	1.6795	0.0064	9.9	1.1	9.9	1.1			
Math	8	8317	0	C.1.1.3	1	126144	0.60	0.09	0.25	0.07	0.60	0.00	0.40	-0.25	-0.17	-0.20	0.40	0.9631	0.0065	9.9	1.1	9.9	1.1			
Math	8	5062	0	E.3.1.1	2	126144	0.70	0.16	0.08	0.70	0.06	0.00	0.47	-0.30	-0.26	0.47	-0.15	0.3793	0.0069	-9.9	1.0	-9.9	0.9			
Math	8	3053	0	C.1.2.1	2	126144	0.47	0.43	0.47	0.03	0.06	0.00	0.44	-0.37	0.44	-0.15	-0.04	1.6225	0.0064	-5.6	1.0	3.1	1.0			
Math	8	4917	0	A.3.1.2	2	126144	0.69	0.05	0.10	0.16	0.69	0.00	0.25	-0.18	-0.17	-0.06	0.25	0.4310	0.0069	9.9	1.2	9.9	1.5			
Math	8	3403	0	C.3.1.1	1	126144	0.81	0.11	0.08	0.81	0.01	0.00	0.42	-0.25	-0.29	0.42	-0.13	-0.3354	0.0078	-5.1	1.0	-3.7	1.0			
Math	8	5335	0	C.1.1.2	1	126144	0.82	0.82	0.08	0.09	0.01	0.00	0.39	0.39	-0.25	-0.22	-0.16	-0.4696	0.0081	1.7	1.0	-7.7	0.9			
Math	8	8024	0	D.2.1.3	1	126144	0.87	0.04	0.06	0.87	0.03	0.00	0.48	-0.30	-0.28	0.48	-0.20	-0.9211	0.0091	-9.9	0.9	-9.9	0.7			
Math	8	5545	0	D.4.1.2	1	126144	0.81	0.06	0.07	0.81	0.06	0.00	0.48	-0.26	-0.29	0.48	-0.23	-0.3386	0.0078	-9.9	0.9	-9.9	0.8			
Math	8	1844	0	C.1.1.1	2	126144	0.87	0.02	0.87	0.08	0.03	0.00	0.27	-0.11	0.27	-0.16	-0.18	-0.9029	0.0090	9.9	1.1	9.9	1.3			
Math	8	7073	0	A.2.2.1	2	126144	0.86	0.05	0.86	0.06	0.03	0.00	0.43	-0.19	0.43	-0.32	-0.20	-0.7935	0.0088	-9.9	0.9	-9.9	0.8			
Math	8	6004	0	D.2.2.1	2	126144	0.47	0.34	0.04	0.47	0.15	0.00	0.38	-0.18	-0.22	0.38	-0.17	1.6557	0.0064	9.9	1.1	9.9	1.1			
Math	8	5786	0	B.1.1.4	1	126144	0.74	0.15	0.74	0.06	0.04	0.00	0.43	-0.25	0.43	-0.26	-0.16	0.1167	0.0072	2.3	1.0	-3.6	1.0			
Math	8	6350	0	A.3.1.1	2	126144	0.70	0.24	0.70	0.03	0.02	0.00	0.45	-0.32	0.45	-0.20	-0.21	0.3624	0.0069	-2.1	1.0	-8.2	1.0			
Math	8	2135	0	E.4.1.2	2	126144	0.83	0.09	0.03	0.83	0.05	0.00	0.30	-0.10	-0.22	0.30	-0.22	-0.5669	0.0083	9.9	1.1	9.9	1.3			
Math	8	2339	0	E.1.1.1	2	126144	0.80	0.80	0.02	0.08	0.11	0.00	0.24	0.24	-0.16	-0.18	-0.09	-0.2482	0.0077	9.9	1.2	9.9	1.4			
Math	8	8483	0	D.2.1.1	1	126144	0.63	0.09	0.10	0.18	0.63	0.00	0.46	-0.18	-0.31	-0.20	0.46	0.7939	0.0066	-2.5	1.0	-2.9	1.0			
Math	8	3025	0	B.1.1.2	2	126144	0.68	0.04	0.15	0.68	0.13	0.00	0.41	-0.18	-0.25	0.41	-0.19	0.4831	0.0068	9.9	1.1	9.9	1.1			
Math	8	2662	0	A.1.1.1	1	126144	0.78	0.78	0.09	0.03	0.10	0.00	0.40	0.40	-0.19	-0.14	-0.29	-0.1808	0.0076	4.0	1.0	4.9	1.0			
Math	8	4157	0	C.1.1.2	1	126144	0.82	0.07	0.82	0.05	0.06	0.00	0.28	-0.16	0.28	-0.17	-0.12	-0.4816	0.0081	9.9	1.1	9.9	1.3			
Math	8	4965	0	C.3.1.1	1	126144	0.70	0.09	0.15	0.70	0.06	0.00	0.54	-0.27	-0.38	0.54	-0.14	0.4016	0.0069	-9.9	0.9	-9.9	0.8			
Math	8	7820	0	A.2.2.1	2	126144	0.78	0.14	0.78	0.06	0.02	0.00	0.56	-0.41	0.56	-0.25	-0.21	-0.1164	0.0075	-9.9	0.8	-9.9	0.7			
Math	8	4021	0	D.4.1.3	1	126144	0.85	0.06	0.03	0.85	0.06	0.00	0.48	-0.26	-0.24	0.48	-0.29	-0.6926	0.0085	-9.9	0.9	-9.9	0.7			
Math	8	5626	0	B.2.1.3	2	126144	0.64	0.64	0.06	0.20	0.10	0.00	0.44	0.44	-0.18	-0.26	-0.21	0.7294	0.0066	3.1	1.0	-5.4	1.0			
Math	8	1683	0	E.3.2.1	2	126144	0.48	0.10	0.05	0.37	0.48	0.00	0.36	-0.38	-0.20	-0.05	0.36	1.5872	0.0064	9.9	1.1	9.9	1.2			
Math	8	8473	0	D.2.2.2	2	126144	0.82	0.82	0.09	0.06	0.03	0.00	0.47	0.47	-0.26	-0.27	-0.25	-0.4254	0.0080	-9.9	0.9	-9.9	0.8			
Math	8	1753	0	C.1.2.1	1	126144	0.61	0.09	0.61	0.27	0.03	0.00	0.54	-0.14	0.54	-0.44	-0.16	0.8933	0.0065	-9.9	0.9	-9.9	0.8			
Math	8	5370	0	C.1.1.3	1	126144	0.48	0.10	0.48	0.18	0.24	0.00	0.32	-0.18	0.32	-0.09	-0.16	1.5918	0.0064	9.9	1.1	9.9	1.2			
Math	8	9145	0	D.4.1.1	1	126144	0.82	0.82	0.10	0.03	0.05	0.00	0.46	0.46	-0.29	-0.20	-0.25	-0.4765	0.0081	-9.9	0.9	-9.9	0.8			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Math	8	3643	0	D.2.1.3	1	126144	0.77	0.08	0.77	0.08	0.07	0.00	0.38	-0.22	0.38	-0.15	-0.22	-0.0784	0.0074	9.9	1.1	7.9	1.1			
Math	8	9914	0	A.3.1.2	1	126144	0.81	0.81	0.05	0.08	0.06	0.00	0.35	0.35	-0.19	-0.24	-0.12	-0.3572	0.0079	9.9	1.1	9.9	1.2			
Math	8	1031	0	E.3.2.1	2	126144	0.86	0.05	0.02	0.06	0.86	0.00	0.43	-0.27	-0.19	-0.24	0.43	-0.8227	0.0088	-9.9	0.9	-9.9	0.8			
Math	8	4524	0	E.1.1.1	2	126144	0.57	0.16	0.12	0.15	0.57	0.00	0.37	-0.25	-0.13	-0.15	0.37	1.1042	0.0065	9.9	1.1	9.9	1.1			
Math	8	7690	0	A.3.1.1	2	126144	0.79	0.08	0.79	0.07	0.06	0.00	0.46	-0.25	0.46	-0.25	-0.24	-0.2470	0.0077	-9.9	0.9	-9.9	0.9			
Math	8	7798	0	E.1.1.3	2	126144	0.72	0.05	0.72	0.12	0.11	0.00	0.48	-0.24	0.48	-0.23	-0.28	0.2680	0.0070	-9.9	1.0	-9.9	0.9			
Math	8	6185	0	C.1.1.1	2	126144	0.37	0.37	0.07	0.42	0.14	0.00	0.27	0.27	-0.12	-0.04	-0.23	2.1717	0.0066	9.9	1.2	9.9	1.4			
Math	8	9394	0	D.4.1.3	2	126144	0.80	0.80	0.10	0.06	0.04	0.00	0.52	0.52	-0.35	-0.25	-0.20	-0.3245	0.0078	-9.9	0.9	-9.9	0.7			
Math	8	3875	0	C.1.1.3	2	126144	0.76	0.04	0.76	0.07	0.13	0.00	0.47	-0.23	0.47	-0.23	-0.29	-0.0026	0.0073	-9.9	1.0	-9.9	0.9			
Math	8	3986	0	C.3.1.1	1	126144	0.75	0.03	0.19	0.04	0.75	0.00	0.36	-0.22	-0.24	-0.14	0.36	0.0680	0.0072	9.9	1.1	9.9	1.2			
Math	8	3313	0	C.1.2.1	1	126144	0.54	0.54	0.10	0.07	0.29	0.00	0.55	0.55	-0.11	-0.14	-0.45	1.2488	0.0064	-9.9	0.9	-9.9	0.8			
Math	8	7942	0	D.1.1.3	2	126144	0.81	0.05	0.06	0.08	0.81	0.00	0.59	-0.32	-0.29	-0.34	0.59	-0.3702	0.0079	-9.9	0.8	-9.9	0.6			
Math	8	4420	0	A.1.1.1	1	126144	0.78	0.12	0.78	0.07	0.03	0.00	0.44	-0.29	0.44	-0.25	-0.13	-0.1298	0.0075	-4.5	1.0	-7.0	0.9			
Math	8	248	0	B.1.1.1	2	126144	0.62	0.07	0.16	0.14	0.62	0.00	0.53	-0.26	-0.35	-0.16	0.53	0.8534	0.0066	-9.9	0.9	-9.9	0.9			
Math	8	7366	0	D.2.2.2	1	126144	0.83	0.09	0.04	0.05	0.83	0.00	0.53	-0.28	-0.32	-0.27	0.53	-0.5015	0.0081	-9.9	0.9	-9.9	0.7			
Math	8	3884	0	A.2.2.2	2	126144	0.46	0.46	0.24	0.15	0.15	0.00	0.29	0.29	-0.13	-0.17	-0.07	1.7081	0.0064	9.9	1.2	9.9	1.3			
Math	8	2053	0	E.4.1.1	1	126144	0.76	0.76	0.06	0.12	0.06	0.00	0.40	0.40	-0.20	-0.22	-0.21	0.0123	0.0073	8.4	1.0	2.5	1.0			
Math	8	9512	0	B.2.2.1	1	126144	0.64	0.13	0.12	0.64	0.11	0.00	0.50	-0.25	-0.38	0.50	-0.10	0.7310	0.0066	-9.9	0.9	-9.9	0.9			
Math	8	6899	0	D.2.1.2	1	126144	0.79	0.09	0.06	0.05	0.79	0.00	0.52	-0.27	-0.29	-0.28	0.52	-0.2353	0.0077	-9.9	0.9	-9.9	0.8			
Math	8	7606	0	B.1.1.2	1	126144	0.80	0.80	0.08	0.06	0.07	0.00	0.58	0.58	-0.33	-0.29	-0.31	-0.2821	0.0077	-9.9	0.8	-9.9	0.6			
Math	8	8208	0	D.1.1.1	2	126144	0.68	0.04	0.68	0.12	0.16	0.00	0.51	-0.12	0.51	-0.24	-0.36	0.4956	0.0068	-9.9	0.9	-9.9	0.9			
Math	8	4267	0	A.2.1.1	1	126144	0.84	0.84	0.06	0.06	0.03	0.00	0.40	0.40	-0.22	-0.26	-0.18	-0.6351	0.0084	-3.0	1.0	-5.7	0.9			
Math	8	3351	0	D.2.1.1	1	126144	0.88	0.03	0.05	0.88	0.04	0.00	0.43	-0.25	-0.21	0.43	-0.26	-1.0495	0.0094	-9.9	0.9	-9.3	0.9			
Math	8	4059	1	A.3.3.1	1	25479	0.72	0.12	0.04	0.12	0.72	0.00	0.37	-0.24	-0.22	-0.14	0.37	0.2484	0.0157	9.9	1.1	6.9	1.1	A-	A-	A-
Math	8	7096	1	E.1.1.1	2	25479	0.74	0.09	0.09	0.74	0.08	0.00	0.37	-0.14	-0.19	0.37	-0.26	0.1104	0.0160	8.5	1.1	9.9	1.2	A+	A-	A-
Math	8	9382	1	C.1.2.1	2	25479	0.73	0.10	0.73	0.10	0.07	0.00	0.41	-0.30	0.41	-0.22	-0.09	0.2007	0.0158	5.6	1.1	-1.3	1.0			
Math	8	9709	1	D.2.2.2	2	25479	0.77	0.03	0.09	0.77	0.11	0.00	0.45	-0.23	-0.26	0.45	-0.23	-0.0714	0.0165	-1.9	1.0	-6.6	0.9	A+	A-	A-
Math	8	6341	1	D.1.1.3	2	25479	0.86	0.04	0.06	0.86	0.05	0.00	0.52	-0.28	-0.30	0.52	-0.28	-0.7872	0.0194	-9.9	0.8	-9.9	0.6	A+	A-	A-
Math	8	7071	1	B.2.2.1	1	25479	0.66	0.05	0.66	0.26	0.03	0.00	0.55	-0.17	0.55	-0.47	-0.11	0.5963	0.0150	-9.9	0.9	-9.9	0.8	A+	A-	A+
Math	8	90	1	A.1.1.1	1	25479	0.92	0.04	0.02	0.02	0.92	0.00	0.31	-0.22	-0.16	-0.13	0.31	-1.5000	0.0239	-2.4	1.0	9.9	1.5	B+	A-	A-
Math	8	1702	1	D.2.1.1	1	25479	0.78	0.78	0.11	0.07	0.04	0.00	0.48	0.48	-0.28	-0.28	-0.19	-0.1411	0.0167	-7.2	0.9	-9.9	0.8			
Math	8	6858	1	B.2.1.2	2	25479	0.46	0.24	0.15	0.15	0.46	0.00	0.52	-0.28	-0.24	-0.15	0.52	1.6894	0.0143	-9.9	0.9	-9.9	0.9	A-	A+	A+
Math	8	6435	1	E.3.1.1	2	25479	0.71	0.08	0.11	0.71	0.11	0.00	0.41	-0.32	-0.20	0.41	-0.13	0.3048	0.0155	5.2	1.0	3.2	1.1	A-	A-	A-
Math	8	1103	1	C.1.1.2	2	25479	0.65	0.06	0.11	0.18	0.65	0.00	0.45	-0.19	-0.29	-0.21	0.45	0.6348	0.0149	0.8	1.0	-3.4	1.0	A-	A-	A-
Math	8	9132	1	C.3.1.1	1	25479	0.77	0.77	0.12	0.07	0.04	0.00	0.48	0.48	-0.28	-0.24	-0.26	-0.1208	0.0167	-7.5	0.9	-6.5	0.9	A-	B-	A-
Math	8	4541	2	A.3.2.1	2	25199	0.58	0.10	0.23	0.58	0.09	0.00	0.32	-0.15	-0.09	0.32	-0.26	1.0464	0.0144	9.9	1.2	9.9	1.2	A-	A-	A-
Math	8	2298	2	D.4.1.3	2	25199	0.84	0.06	0.06	0.84	0.04	0.00	0.56	-0.31	-0.36	0.56	-0.23	-0.6459	0.0188	-9.9	0.8	-9.9	0.6			
Math	8	3631	2	A.3.1.1	2	25199	0.84	0.06	0.84	0.06	0.04	0.00	0.48	-0.21	0.48	-0.31	-0.27	-0.6133	0.0186	-9.9	0.9	-9.9	0.8	A-	B-	A-
Math	8	8787	2	B.2.1.3	2	25199	0.63	0.14	0.63	0.19	0.05	0.00	0.38	-0.14	0.38	-0.22	-0.22	0.8038	0.0146	9.9	1.1	3.5	1.0	A-	A+	A+
Math	8	170	2	D.2.1.1	1	25199	0.72	0.72	0.08	0.07	0.13	0.00	0.43	0.43	-0.17	-0.20	-0.28	0.2349	0.0157	0.1	1.0	-2.0	1.0	A+	A+	A+
Math	8	1652	2	C.1.1.1	2	25199	0.56	0.39	0.02	0.02	0.56	0.00	0.31	-0.23	-0.14	-0.14	0.31	1.1486	0.0143	9.9	1.2	9.9	1.2	A+	A-	A+
Math	8	2638	2	B.1.1.1	1	25199	0.46	0.26	0.20	0.46	0.08	0.00	0.36	-0.18	-0.21	0.36	-0.05	1.6508	0.0143	9.9	1.1	9.9	1.2	A-	A-	A-
Math	8	1051	2	D.2.2.2	2	25199	0.74	0.06	0.74	0.10	0.10	0.00	0.44	-0.27	0.44	-0.27	-0.15	0.1373	0.0159	-2.0	1.0	-3.1	1.0	A+	A-	A-
Math	8	3400	2	C.1.2.1	2	25199	0.56	0.56	0.09	0.21	0.14	0.00	0.39	0.39	-0.21	-0.19	-0.16	1.1523	0.0143	5.9	1.0	3.2	1.0	A+	A-	A-
Math	8	3772	2	E.4.1.1	2	25199	0.59	0.10	0.13	0.18	0.59	0.00	0.19	-0.11	0.04	-0.18	0.19	0.9913	0.0144	9.9	1.3	9.9	1.5	A+	A-	A-
Math	8	8260	2	D.1.1.2	2	25199	0.51	0.07	0.32	0.51	0.10	0.00	0.33	-0.16	-0.18	0.33	-0.13	1.4224	0.0142	9.9	1.1	9.9	1.2	A-	A-	A-
Math	8	6420	2	E.1.1.3	2	25199	0.53	0.53	0.28	0.06	0.13	0.00	0.42	0.42	-0.14	-0.24	-0.26	1.3236	0.0142	4.0	1.0	5.4	1.1			
Math	8	8470	3	A.2.1.1	1	25157	0.58	0.09	0.27	0.06	0.58	0.00	0.49	-0.35	-0.23	-0.19	0.49	1.0490	0.0145	-8.3	1.0	-8.0	0.9	A-	A-	A-
Math	8	1538	3	E.4.1.2	2	25157	0.48	0.06	0.38	0.48	0.08	0.00	0.26	-0.30	-0.06	0.26	-0.11	1.6050	0.0143	9.9	1.2	9.9	1.4			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Math	8	5435	3	D.4.1.3	1	25157	0.79	0.11	0.05	0.05	0.79	0.00	0.54	-0.30	-0.27	-0.29	0.54	-0.2216	0.0171	-9.9	0.9	-9.9	0.7	A+	A+	A+
Math	8	5647	3	E.3.2.1	2	25157	0.76	0.07	0.05	0.11	0.76	0.00	0.45	-0.22	-0.26	-0.25	0.45	-0.0376	0.0165	-3.3	1.0	-5.8	0.9	A+	A-	A-
Math	8	3273	3	B.2.2.2	2	25157	0.80	0.05	0.10	0.05	0.80	0.00	0.58	-0.27	-0.36	-0.30	0.58	-0.3274	0.0175	-9.9	0.8	-9.9	0.6	A+	A-	A-
Math	8	701	3	D.2.2.1	2	25157	0.68	0.09	0.68	0.18	0.05	0.00	0.51	-0.30	0.51	-0.24	-0.27	0.4827	0.0153	-9.9	0.9	-9.9	0.8	A-	A-	A-
Math	8	6802	3	A.3.1.2	2	25157	0.80	0.06	0.08	0.80	0.06	0.00	0.46	-0.24	-0.28	0.46	-0.22	-0.2883	0.0174	-5.9	0.9	-7.3	0.9	A+	B-	C-
Math	8	9685	3	A.1.1.1	1	25157	0.79	0.11	0.06	0.79	0.04	0.00	0.46	-0.27	-0.24	0.46	-0.24	-0.1938	0.0170	-5.2	1.0	-6.4	0.9			
Math	8	7534	3	C.1.1.3	2	25157	0.36	0.09	0.13	0.36	0.43	0.00	0.28	-0.19	-0.31	0.28	0.05	2.2432	0.0148	9.9	1.2	9.9	1.4	A-	A-	A-
Math	8	6915	3	D.1.1.1	2	25157	0.51	0.16	0.26	0.51	0.07	0.00	0.47	-0.35	-0.16	0.47	-0.12	1.4134	0.0143	-4.8	1.0	-1.4	1.0	A-	A+	A-
Math	8	3222	3	C.1.2.1	1	25157	0.61	0.07	0.07	0.61	0.24	0.00	0.52	-0.17	-0.16	0.52	-0.39	0.9039	0.0146	-9.9	0.9	-9.9	0.9	A+	A+	A-
Math	8	9469	3	E.1.1.2	2	25157	0.51	0.15	0.51	0.22	0.11	0.00	0.41	-0.25	0.41	-0.17	-0.13	1.4333	0.0143	8.4	1.1	8.9	1.1	A-	B-	A-
Math	8	2278	4	A.1.1.2	1	25158	0.89	0.07	0.89	0.02	0.02	0.00	0.41	-0.34	0.41	-0.14	-0.14	-1.0752	0.0213	-4.9	0.9	-8.2	0.8	A-	A-	B-
Math	8	3812	4	E.1.1.3	2	25158	0.48	0.37	0.48	0.11	0.04	0.00	0.25	-0.13	0.25	-0.08	-0.18	1.5743	0.0143	9.9	1.2	9.9	1.4	A+	A-	A-
Math	8	6262	4	B.1.1.2	2	25158	0.61	0.11	0.09	0.18	0.61	0.00	0.54	-0.36	-0.26	-0.19	0.54	0.8863	0.0147	-9.9	0.9	-9.9	0.9	A-	A-	A-
Math	8	4752	4	A.2.2.1	2	25158	0.75	0.12	0.75	0.07	0.06	0.00	0.55	-0.38	0.55	-0.23	-0.23	0.0481	0.0163	-9.9	0.9	-9.9	0.7	A-	A-	A-
Math	8	3366	4	A.3.1.1	2	25158	0.74	0.06	0.08	0.12	0.74	0.00	0.49	-0.28	-0.28	-0.22	0.49	0.1381	0.0161	-9.3	0.9	-9.9	0.8			
Math	8	4971	4	E.4.1.2	2	25158	0.76	0.08	0.76	0.09	0.07	0.00	0.51	-0.27	0.51	-0.25	-0.27	-0.0101	0.0165	-9.9	0.9	-9.9	0.8	A-	A-	A-
Math	8	4601	4	D.4.1.1	1	25158	0.83	0.06	0.07	0.04	0.83	0.00	0.48	-0.26	-0.27	-0.25	0.48	-0.4961	0.0182	-9.0	0.9	-9.9	0.8	A+	A-	A-
Math	8	3975	4	D.2.2.2	2	25158	0.65	0.11	0.14	0.10	0.65	0.00	0.43	-0.13	-0.23	-0.28	0.43	0.6998	0.0149	4.5	1.0	2.8	1.0	A+	A-	A-
Math	8	9421	4	D.2.1.2	1	25158	0.63	0.63	0.15	0.15	0.07	0.00	0.49	0.49	-0.29	-0.21	-0.22	0.8104	0.0148	-7.7	1.0	-9.3	0.9	A-	A-	A-
Math	8	4096	4	B.2.1.1	1	25158	0.68	0.10	0.14	0.68	0.08	0.00	0.42	-0.32	-0.19	0.42	-0.12	0.4820	0.0153	5.8	1.0	0.0	1.0	A+	A+	A+
Math	8	1699	4	C.3.1.1	1	25158	0.82	0.10	0.06	0.82	0.02	0.00	0.40	-0.26	-0.21	0.40	-0.16	-0.4012	0.0178	0.1	1.0	-0.4	1.0			
Math	8	8612	4	D.1.1.2	2	25158	0.49	0.20	0.26	0.49	0.04	0.00	0.38	-0.23	-0.15	0.38	-0.17	1.5416	0.0143	9.9	1.1	9.9	1.1	A-	A+	A+
Math	8	3696	5	A.1.1.2	1	25151	0.90	0.07	0.01	0.90	0.01	0.00	0.46	-0.43	-0.17	0.46	-0.05	-1.2901	0.0228	-9.9	0.8	-9.9	0.6	A-	B-	C-
Math	8	5610	5	E.1.1.2	2	25151	0.64	0.04	0.22	0.11	0.64	0.00	0.57	-0.26	-0.43	-0.16	0.57	0.7604	0.0148	-9.9	0.9	-9.9	0.8	B-	B-	B-
Math	8	1449	5	B.1.1.3	2	25151	0.67	0.08	0.19	0.67	0.06	0.00	0.45	-0.27	-0.31	0.45	-0.08	0.6043	0.0151	-1.4	1.0	-2.9	1.0			
Math	8	8542	5	D.2.1.3	1	25151	0.89	0.05	0.02	0.89	0.03	0.00	0.44	-0.33	-0.22	0.44	-0.18	-1.1590	0.0219	-8.8	0.9	-9.6	0.7	A+	A-	A-
Math	8	650	5	C.1.1.1	2	25151	0.95	0.95	0.02	0.01	0.01	0.00	0.32	0.32	-0.20	-0.17	-0.16	-2.1633	0.0311	-2.9	0.9	-9.0	0.6	A+	A-	A-
Math	8	7849	5	D.1.1.2	2	25151	0.58	0.06	0.17	0.19	0.58	0.00	0.46	-0.23	-0.22	-0.23	0.46	1.0725	0.0145	-3.2	1.0	-4.6	1.0			
Math	8	3231	5	C.1.1.3	2	25151	0.76	0.76	0.10	0.06	0.09	0.00	0.51	0.51	-0.23	-0.26	-0.32	0.0299	0.0164	-9.9	0.9	-9.9	0.8	A+	A-	A-
Math	8	5319	5	B.2.2.3	1	25151	0.63	0.63	0.03	0.27	0.07	0.00	0.29	0.29	-0.21	-0.14	-0.16	0.8154	0.0148	9.9	1.2	9.9	1.2	A-	A-	A-
Math	8	788	5	D.4.1.2	1	25151	0.76	0.76	0.12	0.08	0.04	0.00	0.45	0.45	-0.26	-0.25	-0.21	-0.0149	0.0165	-3.9	1.0	-1.2	1.0	A+	A-	A+
Math	8	3423	5	A.2.2.2	2	25151	0.31	0.05	0.36	0.28	0.31	0.00	0.32	-0.17	-0.18	-0.05	0.32	2.5147	0.0153	8.5	1.1	9.9	1.3	A-	A-	A-
Math	8	5859	5	E.3.2.1	2	25151	0.86	0.02	0.08	0.05	0.86	0.00	0.41	-0.21	-0.25	-0.23	0.41	-0.7566	0.0195	-4.1	1.0	-4.4	0.9	A+	B-	B-
Math	8	5056	5	C.3.1.1	1	25151	0.80	0.10	0.05	0.80	0.05	0.00	0.45	-0.29	-0.21	0.45	-0.22	-0.2714	0.0174	-5.9	0.9	-3.4	0.9	A+	A-	A-
Math	11	1252	0	A.3.1.1	1	125116	0.56	0.05	0.56	0.07	0.32	0.00	0.39	-0.21	0.39	-0.23	-0.18	0.5099	0.0064	9.9	1.1	9.9	1.1			
Math	11	3255	0	A.2.2.1	1	125116	0.75	0.04	0.13	0.08	0.75	0.00	0.51	-0.28	-0.36	-0.17	0.51	-0.6361	0.0072	-9.9	0.9	-9.9	0.8			
Math	11	8429	0	A.3.2.1	2	125116	0.85	0.04	0.85	0.09	0.02	0.00	0.36	-0.19	0.36	-0.25	-0.14	-1.3389	0.0084	-2.9	1.0	-4.9	0.9			
Math	11	3168	0	A.1.1.1	1	125116	0.65	0.65	0.20	0.11	0.04	0.00	0.42	0.42	-0.17	-0.29	-0.21	-0.0015	0.0066	5.0	1.0	-2.2	1.0			
Math	11	9968	0	D.2.1.3	1	125116	0.89	0.89	0.07	0.02	0.02	0.00	0.43	0.43	-0.33	-0.21	-0.14	-1.8111	0.0097	-9.9	0.9	-9.9	0.7			
Math	11	1121	0	D.2.2.2	1	125116	0.65	0.10	0.10	0.15	0.65	0.00	0.54	-0.26	-0.22	-0.31	0.54	-0.0218	0.0066	-9.9	0.9	-9.9	0.8			
Math	11	9959	0	E.4.1.1	2	125116	0.54	0.11	0.16	0.19	0.54	0.00	0.37	-0.20	-0.28	-0.05	0.37	0.5774	0.0064	9.9	1.1	9.9	1.1			
Math	11	1997	0	E.2.1.2	2	125116	0.53	0.13	0.13	0.53	0.21	0.00	0.39	-0.22	-0.13	0.39	-0.19	0.6689	0.0064	9.9	1.1	9.9	1.1			
Math	11	3046	0	D.2.1.5	1	125116	0.56	0.06	0.33	0.05	0.56	0.00	0.42	-0.27	-0.20	-0.22	0.42	0.4961	0.0064	9.9	1.0	4.5	1.0			
Math	11	3054	0	E.2.1.1	1	125116	0.77	0.04	0.08	0.77	0.11	0.00	0.33	-0.13	-0.21	0.33	-0.17	-0.7668	0.0074	9.9	1.1	9.9	1.3			
Math	11	7269	0	D.4.1.1	1	125116	0.74	0.09	0.09	0.08	0.74	0.00	0.51	-0.30	-0.27	-0.22	0.51	-0.5254	0.0071	-9.9	0.9	-9.9	0.8			
Math	11	3869	0	E.4.2.2	2	125116	0.87	0.03	0.06	0.87	0.05	0.00	0.24	-0.20	-0.11	0.24	-0.11	-1.5037	0.0088	9.9	1.1	9.9	1.4			
Math	11	7563	0	C.1.2.1	2	125116	0.66	0.09	0.14	0.66	0.10	0.00	0.44	-0.25	-0.30	0.44	-0.10	-0.0536	0.0067	-2.7	1.0	1.9	1.0			
Math	11	1550	0	D.2.2.1	1	125116	0.57	0.10	0.57	0.19	0.14	0.00	0.43	-0.19	0.43	-0.26	-0.15	0.4551	0.0064	4.1	1.0	-0.8	1.0			
Math	11	5980	0	D.3.1.1	2	125116	0.46	0.38	0.11	0.46	0.04	0.00	0.27	-0.02	-0.28	0.27	-0.19	1.0155	0.0064	9.9	1.2	9.9	1.4			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Math	11	4660	0	D.1.1.1	2	125116	0.44	0.08	0.03	0.45	0.44	0.00	0.45	-0.13	-0.15	-0.32	0.45	1.1298	0.0065	1.3	1.0	6.8	1.0			
Math	11	623	0	C.1.1.1	1	125116	0.88	0.03	0.03	0.88	0.05	0.00	0.27	-0.18	-0.22	0.27	-0.06	-1.6472	0.0092	5.0	1.0	9.9	1.4			
Math	11	7004	0	D.3.2.2	1	125116	0.60	0.16	0.17	0.60	0.07	0.00	0.44	-0.20	-0.24	0.44	-0.19	0.2943	0.0065	2.0	1.0	-3.0	1.0			
Math	11	1191	0	B.2.2.4	2	125116	0.89	0.89	0.03	0.03	0.05	0.00	0.37	0.37	-0.23	-0.23	-0.17	-1.7410	0.0095	-7.7	1.0	-9.9	0.8			
Math	11	8235	0	B.2.1.1	1	125116	0.68	0.09	0.68	0.13	0.10	0.00	0.46	-0.10	0.46	-0.30	-0.28	-0.1681	0.0067	-9.6	1.0	-9.1	0.9			
Math	11	8992	0	C.3.1.2	1	125116	0.63	0.19	0.09	0.09	0.63	0.00	0.53	-0.35	-0.17	-0.24	0.53	0.1338	0.0066	-9.9	0.9	-9.9	0.8			
Math	11	6264	0	D.1.1.3	1	125116	0.55	0.04	0.32	0.09	0.55	0.00	0.33	-0.19	-0.15	-0.19	0.33	0.5627	0.0064	9.9	1.1	9.9	1.2			
Math	11	5372	0	D.2.1.2	2	125116	0.63	0.63	0.12	0.15	0.10	0.00	0.46	0.46	-0.27	-0.12	-0.30	0.1235	0.0066	-7.6	1.0	-9.4	1.0			
Math	11	5571	0	E.1.1.1	1	125116	0.89	0.05	0.04	0.02	0.89	0.00	0.31	-0.15	-0.18	-0.20	0.31	-1.7409	0.0095	-2.1	1.0	9.9	1.2			
Math	11	3023	0	D.2.2.2	2	125116	0.84	0.84	0.04	0.11	0.01	0.00	0.47	0.47	-0.25	-0.35	-0.13	-1.2563	0.0083	-9.9	0.9	-9.9	0.7			
Math	11	2838	0	C.3.1.1	1	125116	0.77	0.09	0.77	0.08	0.06	0.00	0.42	-0.18	0.42	-0.28	-0.20	-0.7260	0.0074	-6.4	1.0	-1.0	1.0			
Math	11	8892	0	E.3.2.1	2	125116	0.51	0.06	0.11	0.32	0.51	0.00	0.45	-0.25	-0.33	-0.12	0.45	0.7582	0.0064	4.3	1.0	3.2	1.0			
Math	11	8309	0	E.4.1.2	2	125116	0.71	0.13	0.71	0.07	0.08	0.00	0.42	-0.26	0.42	-0.27	-0.11	-0.3524	0.0069	-0.6	1.0	-3.7	1.0			
Math	11	1131	0	D.2.1.5	2	125116	0.70	0.06	0.11	0.70	0.12	0.00	0.44	-0.23	-0.21	0.44	-0.25	-0.3168	0.0069	-6.4	1.0	-5.1	1.0			
Math	11	9105	0	D.1.1.2	1	125116	0.67	0.67	0.11	0.06	0.16	0.00	0.42	0.42	-0.13	-0.20	-0.31	-0.1288	0.0067	3.1	1.0	0.8	1.0			
Math	11	28	0	D.3.1.1	1	125116	0.75	0.01	0.21	0.02	0.75	0.00	0.37	-0.15	-0.28	-0.20	0.37	-0.6225	0.0072	7.5	1.0	9.9	1.1			
Math	11	8169	0	C.1.4.1	1	125116	0.85	0.06	0.85	0.05	0.04	0.00	0.40	-0.26	0.40	-0.12	-0.26	-1.3214	0.0084	-9.6	1.0	-9.9	0.9			
Math	11	841	0	B.2.2.1	1	125116	0.72	0.11	0.72	0.11	0.05	0.00	0.43	-0.31	0.43	-0.21	-0.12	-0.4409	0.0070	-4.2	1.0	-2.4	1.0			
Math	11	3270	0	A.1.3.1	1	125116	0.76	0.20	0.76	0.02	0.02	0.00	0.51	-0.47	0.51	-0.16	-0.07	-0.6709	0.0073	-9.9	0.9	-9.9	0.8			
Math	11	5443	0	D.2.1.1	1	125116	0.72	0.10	0.10	0.72	0.08	0.00	0.45	-0.25	-0.28	0.45	-0.16	-0.4281	0.0070	-9.9	1.0	-9.9	0.9			
Math	11	3039	0	D.2.1.4	2	125116	0.61	0.22	0.61	0.12	0.05	0.00	0.39	-0.25	0.39	-0.18	-0.13	0.2079	0.0065	9.9	1.1	6.7	1.0			
Math	11	2574	0	E.1.1.1	2	125116	0.63	0.25	0.63	0.07	0.04	0.00	0.29	-0.18	0.29	-0.15	-0.12	0.0981	0.0066	9.9	1.2	9.9	1.3			
Math	11	5650	0	D.1.1.1	2	125116	0.79	0.79	0.06	0.06	0.10	0.00	0.51	0.51	-0.26	-0.31	-0.25	-0.8768	0.0076	-9.9	0.9	-9.9	0.8			
Math	11	5496	0	D.3.2.3	1	125116	0.67	0.12	0.67	0.06	0.15	0.00	0.33	-0.12	0.33	-0.20	-0.20	-0.1126	0.0067	9.9	1.1	9.9	1.1			
Math	11	7596	0	E.4.2.2	2	125116	0.69	0.12	0.17	0.69	0.02	0.00	0.50	-0.34	-0.27	0.50	-0.11	-0.2526	0.0068	-9.9	0.9	-9.9	0.9			
Math	11	580	0	A.2.1.1	2	125116	0.54	0.36	0.04	0.54	0.05	0.00	0.25	-0.04	-0.25	0.25	-0.25	0.5943	0.0064	9.9	1.3	9.9	1.4			
Math	11	9362	0	C.1.1.2	2	125116	0.62	0.12	0.62	0.21	0.04	0.00	0.32	-0.26	0.32	-0.14	-0.06	0.1632	0.0065	9.9	1.1	9.9	1.2			
Math	11	7755	0	A.3.1.1	1	125116	0.62	0.07	0.62	0.27	0.04	0.00	0.37	-0.19	0.37	-0.23	-0.14	0.1775	0.0065	9.9	1.1	9.9	1.1			
Math	11	692	0	B.2.3.1	2	125116	0.41	0.33	0.18	0.08	0.41	0.00	0.48	-0.25	-0.21	-0.12	0.48	1.3056	0.0065	-9.9	0.9	-7.0	1.0			
Math	11	9238	0	D.2.1.3	1	125116	0.90	0.90	0.02	0.05	0.03	0.00	0.45	0.45	-0.19	-0.31	-0.23	-1.9632	0.0102	-9.9	0.9	-9.9	0.6			
Math	11	7443	0	B.2.2.4	2	125116	0.62	0.62	0.14	0.12	0.12	0.00	0.57	0.57	-0.29	-0.27	-0.28	0.1491	0.0065	-9.9	0.9	-9.9	0.8			
Math	11	1198	0	E.2.1.1	2	125116	0.80	0.10	0.08	0.80	0.02	0.00	0.42	-0.33	-0.16	0.42	-0.17	-0.9302	0.0077	-9.9	1.0	3.3	1.0			
Math	11	4432	0	D.4.1.1	2	125116	0.54	0.54	0.14	0.08	0.24	0.00	0.56	0.56	-0.24	-0.20	-0.34	0.5687	0.0064	-9.9	0.9	-9.9	0.8			
Math	11	6835	0	D.3.1.2	2	125116	0.42	0.11	0.08	0.39	0.42	0.00	0.47	-0.26	-0.18	-0.21	0.47	1.2503	0.0065	-9.9	1.0	-7.3	1.0			
Math	11	4304	0	D.3.2.1	2	125116	0.70	0.04	0.20	0.70	0.06	0.00	0.42	-0.21	-0.25	0.42	-0.20	-0.2924	0.0069	2.8	1.0	-2.3	1.0			
Math	11	5710	0	A.2.2.1	1	125116	0.64	0.11	0.16	0.64	0.09	0.00	0.43	-0.26	-0.22	0.43	-0.15	0.0494	0.0066	5.1	1.0	-9.9	0.9			
Math	11	2260	0	E.2.1.3	2	125116	0.76	0.76	0.09	0.07	0.08	0.00	0.44	0.44	-0.24	-0.28	-0.17	-0.6816	0.0073	-9.9	1.0	-8.1	0.9			
Math	11	6991	0	D.2.1.2	1	125116	0.72	0.72	0.10	0.13	0.05	0.00	0.49	0.49	-0.18	-0.33	-0.25	-0.4214	0.0070	-9.9	0.9	-9.9	0.8			
Math	11	3056	0	D.2.2.1	1	125116	0.72	0.04	0.16	0.72	0.08	0.00	0.51	-0.21	-0.33	0.51	-0.23	-0.4175	0.0070	-9.9	0.9	-9.9	0.8			
Math	11	6931	0	D.2.1.4	1	125116	0.69	0.07	0.17	0.08	0.69	0.00	0.41	-0.30	-0.14	-0.23	0.41	-0.2016	0.0068	5.5	1.0	9.9	1.1			
Math	11	4204	0	C.3.1.1	1	125116	0.70	0.10	0.04	0.17	0.70	0.00	0.47	-0.23	-0.25	-0.26	0.47	-0.2890	0.0069	-9.9	1.0	-9.9	0.9			
Math	11	5550	0	A.1.3.2	1	125116	0.82	0.82	0.06	0.07	0.04	0.00	0.47	0.47	-0.28	-0.25	-0.23	-1.1322	0.0080	-9.9	0.9	-9.9	0.8			
Math	11	6935	0	C.1.2.3	2	125116	0.67	0.08	0.67	0.12	0.12	0.00	0.50	-0.25	0.50	-0.23	-0.27	-0.1275	0.0067	-9.9	0.9	-9.9	0.9			
Math	11	9158	0	A.1.1.2	1	125116	0.78	0.78	0.07	0.12	0.03	0.00	0.42	0.42	-0.19	-0.28	-0.20	-0.7990	0.0075	-7.2	1.0	-9.9	0.9			
Math	11	4153	0	B.2.1.1	1	125116	0.71	0.06	0.71	0.07	0.16	0.00	0.48	-0.17	0.48	-0.23	-0.33	-0.3242	0.0069	-9.9	0.9	-9.9	0.9			
Math	11	6137	1	A.2.2.1	1	25295	0.29	0.29	0.12	0.21	0.38	0.00	0.45	0.45	-0.17	-0.29	-0.06	1.9664	0.0157	-9.9	0.9	3.0	1.0	A+	A+	A+
Math	11	4763	1	C.3.1.1	1	25295	0.71	0.06	0.09	0.14	0.71	0.00	0.45	-0.16	-0.23	-0.28	0.45	-0.3906	0.0155	-3.3	1.0	1.7	1.0	A+	A+	A-
Math	11	7844	1	D.1.1.1	2	25295	0.23	0.26	0.15	0.36	0.23	0.00	0.27	-0.20	-0.10	0.02	0.27	2.3565	0.0168	9.9	1.1	9.9	1.5	A-	A+	A+
Math	11	709	1	A.2.1.1	2	25295	0.65	0.08	0.20	0.65	0.07	0.00	0.40	-0.15	-0.23	0.40	-0.21	-0.0168	0.0148	9.3	1.1	2.0	1.0	A-	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Math	11	2710	1	D.3.1.2	2	25295	0.33	0.46	0.07	0.14	0.33	0.00	0.30	-0.06	-0.23	-0.15	0.30	1.7314	0.0152	9.9	1.2	9.9	1.4	A-	A+	A-
Math	11	9217	1	D.2.1.2	1	25295	0.36	0.19	0.21	0.24	0.36	0.00	0.35	-0.20	-0.23	0.01	0.35	1.5389	0.0149	9.9	1.1	9.9	1.2	A+	A+	A+
Math	11	7584	1	B.2.2.4	2	25295	0.59	0.59	0.19	0.14	0.07	0.00	0.57	0.57	-0.29	-0.40	-0.10	0.2975	0.0145	-9.9	0.9	-9.9	0.8	A+	A-	A-
Math	11	4429	1	D.2.1.3	2	25295	0.83	0.83	0.05	0.10	0.02	0.00	0.46	0.46	-0.15	-0.37	-0.20	-1.1822	0.0180	-9.9	0.9	-6.1	0.9			
Math	11	5540	1	E.1.1.2	2	25295	0.31	0.38	0.07	0.31	0.24	0.00	0.14	0.03	-0.17	0.14	-0.08	1.8325	0.0154	9.9	1.3	9.9	1.9	A-	A+	A+
Math	11	8784	1	D.3.2.3	1	25295	0.51	0.07	0.51	0.27	0.15	0.00	0.58	-0.15	0.58	-0.32	-0.31	0.7116	0.0143	-9.9	0.8	-9.9	0.8	A+	A-	A-
Math	11	3495	1	C.1.3.1	2	25295	0.58	0.02	0.04	0.36	0.58	0.00	0.51	-0.17	-0.20	-0.39	0.51	0.3687	0.0144	-9.9	0.9	-9.9	0.9	A-	A-	A-
Math	11	8667	1	E.4.1.1	2	25295	0.61	0.06	0.27	0.61	0.06	0.00	0.45	-0.21	-0.30	0.45	-0.14	0.1898	0.0146	0.9	1.0	0.1	1.0			
Math	11	4792	2	A.3.1.1	1	25025	0.55	0.11	0.18	0.16	0.55	0.00	0.52	-0.17	-0.23	-0.31	0.52	0.5302	0.0143	-9.9	0.9	-9.9	0.9	A-	A-	A-
Math	11	6875	2	D.3.2.1	2	25025	0.47	0.47	0.18	0.24	0.10	0.00	0.43	0.43	-0.21	-0.29	-0.02	0.9194	0.0143	0.4	1.0	3.2	1.0	A-	A-	A-
Math	11	8007	2	E.3.2.1	2	25025	0.40	0.33	0.40	0.08	0.19	0.00	0.28	-0.42	0.28	-0.04	0.18	1.3347	0.0146	9.9	1.2	9.9	1.3			
Math	11	4878	2	A.1.2.1	1	25025	0.60	0.60	0.13	0.13	0.14	0.00	0.52	0.52	-0.25	-0.23	-0.26	0.2598	0.0145	-9.9	0.9	-9.9	0.9	A+	B-	B-
Math	11	3785	2	E.4.2.1	2	25025	0.32	0.25	0.35	0.32	0.07	0.00	0.10	-0.15	0.13	0.10	-0.16	1.7360	0.0152	9.9	1.4	9.9	1.8	A-	A-	A-
Math	11	5395	2	D.1.1.1	2	25025	0.80	0.80	0.05	0.08	0.07	0.00	0.34	0.34	-0.24	-0.17	-0.15	-0.9617	0.0172	3.6	1.0	5.2	1.1			
Math	11	7694	2	C.1.2.2	2	25025	0.41	0.11	0.28	0.19	0.41	0.00	0.39	-0.20	-0.09	-0.21	0.39	1.2546	0.0145	8.6	1.1	9.9	1.1	A+	A-	A+
Math	11	3877	2	D.1.1.2	1	25025	0.52	0.15	0.10	0.23	0.52	0.00	0.39	-0.10	-0.21	-0.21	0.39	0.6792	0.0143	9.9	1.1	8.3	1.1	A+	A+	A-
Math	11	4296	2	C.1.1.2	2	25025	0.34	0.34	0.37	0.26	0.03	0.00	0.17	0.17	-0.03	-0.08	-0.17	1.6046	0.0150	9.9	1.3	9.9	1.6	A-	A-	A-
Math	11	4801	2	D.2.1.4	1	25025	0.73	0.12	0.73	0.10	0.04	0.00	0.44	-0.25	0.44	-0.25	-0.19	-0.4942	0.0157	-4.8	1.0	-6.3	0.9	A+	A-	A+
Math	11	4318	2	E.2.1.3	2	25025	0.48	0.34	0.10	0.48	0.08	0.00	0.19	0.07	-0.24	0.19	-0.20	0.8814	0.0143	9.9	1.3	9.9	1.5	A+	A+	A+
Math	11	5908	2	B.2.2.1	2	25025	0.56	0.13	0.18	0.56	0.12	0.00	0.42	-0.24	-0.20	0.42	-0.14	0.4763	0.0143	4.7	1.0	1.7	1.0	A+	A-	A-
Math	11	3849	3	A.1.1.1	1	24926	0.72	0.09	0.72	0.15	0.04	0.00	0.43	-0.18	0.43	-0.28	-0.21	-0.4075	0.0156	-1.7	1.0	-0.6	1.0	A-	A+	A+
Math	11	213	3	E.3.1.1	2	24926	0.77	0.06	0.02	0.77	0.15	0.00	0.38	-0.24	-0.16	0.38	-0.22	-0.6949	0.0164	0.8	1.0	7.2	1.2	A-	B-	A-
Math	11	8512	3	C.1.2.1	2	24926	0.42	0.10	0.35	0.42	0.12	0.00	0.20	-0.04	-0.14	0.20	-0.07	1.2132	0.0145	9.9	1.3	9.9	1.4	A-	A-	A-
Math	11	8834	3	D.3.1.2	2	24926	0.64	0.17	0.64	0.09	0.10	0.00	0.36	-0.20	0.36	-0.24	-0.11	0.0429	0.0148	9.9	1.1	9.9	1.1	A-	A-	A-
Math	11	7024	3	D.2.2.3	1	24926	0.35	0.35	0.14	0.27	0.23	0.00	0.37	0.37	-0.10	-0.14	-0.18	1.6145	0.0150	5.2	1.0	9.9	1.2	A+	A-	A-
Math	11	8715	3	D.4.1.1	1	24926	0.54	0.54	0.11	0.16	0.19	0.00	0.41	0.41	-0.20	-0.26	-0.12	0.5782	0.0144	7.5	1.0	4.2	1.0	A-	A+	A+
Math	11	293	3	B.2.2.4	2	24926	0.65	0.03	0.65	0.25	0.07	0.00	0.40	-0.14	0.40	-0.27	-0.20	0.0321	0.0148	5.7	1.0	-1.5	1.0			
Math	11	1342	3	B.2.1.1	1	24926	0.71	0.13	0.71	0.11	0.05	0.00	0.44	-0.31	0.44	-0.17	-0.19	-0.3261	0.0154	-4.0	1.0	-3.2	1.0	B-	B-	A-
Math	11	4442	3	D.2.1.3	2	24926	0.67	0.11	0.18	0.67	0.04	0.00	0.46	-0.24	-0.26	0.46	-0.21	-0.0881	0.0150	-5.0	1.0	-8.2	0.9	A-	A-	A-
Math	11	4599	3	D.1.1.2	2	24926	0.53	0.53	0.09	0.19	0.19	0.00	0.37	0.37	-0.12	-0.22	-0.16	0.6629	0.0143	9.9	1.1	9.9	1.1	A-	A-	A-
Math	11	220	3	C.3.1.2	1	24926	0.55	0.16	0.55	0.16	0.12	0.00	0.41	-0.18	0.41	-0.20	-0.19	0.5574	0.0144	7.9	1.1	4.1	1.0			
Math	11	2848	3	B.2.2.2	1	24926	0.63	0.06	0.08	0.63	0.23	0.00	0.33	-0.25	-0.29	0.33	-0.04	0.1336	0.0147	9.9	1.1	9.9	1.2	A+	A-	A-
Math	11	8529	4	A.3.2.1	2	24948	0.40	0.11	0.32	0.40	0.17	0.00	0.27	-0.17	-0.11	0.27	-0.07	1.3385	0.0146	9.9	1.2	9.9	1.4	A+	A-	A-
Math	11	4733	4	B.2.2.3	2	24948	0.63	0.08	0.15	0.63	0.14	0.00	0.42	-0.14	-0.20	0.42	-0.27	0.1168	0.0147	4.5	1.0	5.7	1.1	A-	B-	A-
Math	11	6848	4	D.2.2.2	1	24948	0.79	0.10	0.79	0.06	0.05	0.00	0.51	-0.27	0.51	-0.32	-0.23	-0.8457	0.0169	-9.9	0.9	-9.9	0.7	A+	A+	A-
Math	11	2405	4	D.1.1.3	1	24948	0.54	0.10	0.20	0.16	0.54	0.00	0.26	-0.21	0.05	-0.24	0.26	0.6044	0.0144	9.9	1.3	9.9	1.4	A+	A+	A+
Math	11	8763	4	C.1.4.1	2	24948	0.63	0.15	0.09	0.63	0.13	0.00	0.52	-0.37	-0.23	0.52	-0.15	0.1107	0.0147	-9.9	0.9	-9.3	0.9			
Math	11	6926	4	E.3.1.2	2	24948	0.31	0.31	0.55	0.07	0.07	0.00	0.19	0.19	-0.01	-0.19	-0.12	1.8411	0.0154	9.9	1.3	9.9	1.6	A-	A-	A-
Math	11	8764	4	B.2.2.4	2	24948	0.61	0.10	0.12	0.61	0.16	0.00	0.33	0.00	-0.23	0.33	-0.23	0.1909	0.0146	9.9	1.1	9.9	1.2	A+	A-	A-
Math	11	8323	4	D.3.2.2	2	24948	0.48	0.09	0.23	0.20	0.48	0.00	0.47	-0.14	-0.27	-0.21	0.47	0.8734	0.0144	-3.1	1.0	1.9	1.0	A-	A+	A+
Math	11	8264	4	E.1.1.1	2	24948	0.53	0.10	0.08	0.30	0.53	0.00	0.25	-0.13	-0.19	-0.07	0.25	0.6385	0.0144	9.9	1.3	9.9	1.4	A+	A-	A-
Math	11	55	4	C.3.1.2	1	24948	0.63	0.07	0.63	0.24	0.07	0.00	0.51	-0.24	0.51	-0.35	-0.16	0.1210	0.0147	-9.9	0.9	-9.9	0.9	A-	A+	A+
Math	11	6196	4	B.2.3.1	2	24948	0.79	0.79	0.03	0.07	0.11	0.00	0.32	0.32	-0.20	-0.14	-0.18	-0.9052	0.0171	6.8	1.1	8.0	1.2	A-	A-	A-
Math	11	671	4	D.3.1.1	2	24948	0.62	0.19	0.13	0.62	0.06	0.00	0.50	-0.31	-0.21	0.50	-0.20	0.1926	0.0146	-9.9	0.9	-9.9	0.9			
Math	11	3150	5	A.3.2.1	2	24922	0.39	0.14	0.30	0.39	0.16	0.00	0.20	-0.16	-0.13	0.20	0.06	1.3505	0.0146	9.9	1.3	9.9	1.5	A-	A-	A-
Math	11	3763	5	D.1.1.3	1	24922	0.52	0.06	0.07	0.52	0.35	0.00	0.18	-0.20	-0.22	0.18	0.03	0.7029	0.0142	9.9	1.3	9.9	1.4	A-	A+	A+
Math	11	6459	5	C.1.1.1	1	24922	0.37	0.38	0.14	0.11	0.37	0.00	0.36	-0.09	-0.24	-0.15	0.36	1.4669	0.0147	5.5	1.0	9.9	1.2	A-	A-	A-
Math	11	867	5	D.2.1.1	1	24922	0.39	0.13	0.34	0.39	0.14	0.00	0.28	-0.19	-0.09	0.28	-0.09	1.3555	0.0146	9.9	1.1	9.9	1.3	A-	A-	A-
Math	11	1840	5	E.4.2.2	2	24922	0.54	0.10	0.33	0.54	0.04	0.00	0.26	-0.19	-0.09	0.26	-0.17	0.6227	0.0143	9.9	1.2	9.9	1.3	A-	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Math	11	9961	5	C.1.2.3	2	24922	0.47	0.25	0.21	0.47	0.07	0.00	0.27	-0.01	-0.21	0.27	-0.17	0.9531	0.0143	9.9	1.2	9.9	1.3	A-	A-	A-
Math	11	3216	5	D.2.2.2	1	24922	0.65	0.16	0.65	0.10	0.09	0.00	0.43	-0.15	0.43	-0.29	-0.21	0.0297	0.0148	-0.4	1.0	-3.4	1.0			
Math	11	1936	5	D.1.1.1	2	24922	0.37	0.06	0.52	0.37	0.05	0.00	0.22	-0.18	-0.04	0.22	-0.20	1.5047	0.0148	9.9	1.2	9.9	1.5	A-	A+	A+
Math	11	6859	5	D.3.1.1	2	24922	0.41	0.22	0.18	0.41	0.18	0.00	0.30	-0.27	-0.14	0.30	0.05	1.2492	0.0145	9.9	1.2	9.9	1.3	A-	A-	A-
Math	11	2496	5	A.1.3.1	1	24922	0.64	0.27	0.64	0.06	0.03	0.00	0.49	-0.29	0.49	-0.25	-0.27	0.0844	0.0147	-9.9	0.9	-9.9	0.9			
Math	11	704	5	B.2.2.2	1	24922	0.69	0.06	0.13	0.11	0.69	0.00	0.48	-0.32	-0.18	-0.25	0.48	-0.2324	0.0152	-9.9	0.9	-0.5	1.0	A+	A-	A-
Math	11	8749	5	E.2.1.1	2	24922	0.72	0.72	0.10	0.11	0.06	0.00	0.45	0.45	-0.14	-0.30	-0.27	-0.3949	0.0156	-6.5	1.0	-3.3	1.0	A+	A-	A-
Reading	3	7405	0	B.1.1.1		126020	0.79	0.07	0.04	0.09	0.79	0.00	0.37	-0.24	-0.18	-0.16	0.37	-0.6671	0.0076	9.9	1.1	1.6	1.0			
Reading	3	6825	0	A.1.1.2		126020	0.58	0.34	0.05	0.58	0.03	0.00	0.30	-0.14	-0.21	0.30	-0.20	0.6058	0.0064	9.9	1.2	9.9	1.2			
Reading	3	8491	0	B.1.1.1		126020	0.75	0.16	0.75	0.03	0.06	0.00	0.48	-0.34	0.48	-0.22	-0.19	-0.4240	0.0073	-9.9	0.9	-9.9	0.9			
Reading	3	2152	0	A.1.3.1		126020	0.89	0.05	0.89	0.01	0.04	0.01	0.46	-0.33	0.46	-0.22	-0.20	-1.5497	0.0095	-9.9	0.9	-9.9	0.7			
Reading	3	5815	0	A.1.1.1		126020	0.57	0.23	0.14	0.57	0.06	0.00	0.39	-0.30	-0.08	0.39	-0.15	0.6604	0.0064	9.9	1.1	9.9	1.1			
Reading	3	349	0	B.1.1.1		126020	0.56	0.34	0.03	0.06	0.56	0.01	0.37	-0.16	-0.22	-0.28	0.37	0.6858	0.0064	9.9	1.1	9.9	1.1			
Reading	3	2276	0	A.1.4.1		126020	0.82	0.82	0.10	0.05	0.03	0.00	0.44	0.44	-0.32	-0.18	-0.20	-0.8989	0.0080	-9.9	0.9	-9.9	0.9			
Reading	3	7786	0	B.1.1.1		126020	0.59	0.09	0.05	0.59	0.26	0.00	0.38	-0.26	-0.33	0.38	-0.09	0.5410	0.0065	9.9	1.1	9.9	1.1			
Reading	3	2030	0	A.2.4.1	2	126020	0.60	0.13	0.13	0.60	0.14	0.00	0.46	-0.21	-0.21	0.46	-0.23	0.5189	0.0065	-9.9	1.0	-9.9	0.9			
Reading	3	5256	0	A.2.3.1	2	126020	0.46	0.04	0.46	0.08	0.42	0.00	0.33	-0.25	0.33	-0.18	-0.13	1.2333	0.0064	9.9	1.1	9.9	1.2			
Reading	3	662	0	B.3.1.1	2	126020	0.70	0.70	0.09	0.08	0.13	0.00	0.38	0.38	-0.27	-0.23	-0.09	-0.0665	0.0069	9.9	1.1	9.9	1.1			
Reading	3	5713	0	A.2.4.1	2	126020	0.81	0.81	0.09	0.04	0.06	0.01	0.51	0.51	-0.32	-0.25	-0.24	-0.8351	0.0079	-9.9	0.9	-9.9	0.8			
Reading	3	7029	0	B.3.3.2	2	126020	0.70	0.16	0.06	0.70	0.07	0.01	0.54	-0.26	-0.29	0.54	-0.30	-0.1065	0.0069	-9.9	0.9	-9.9	0.8			
Reading	3	1891	0	A.2.4.1	2	126020	0.41	0.28	0.12	0.19	0.41	0.00	0.29	-0.03	-0.22	-0.14	0.29	1.5189	0.0064	9.9	1.1	9.9	1.3			
Reading	3	6037	0	A.2.2.2	2	126020	0.89	0.03	0.05	0.89	0.03	0.00	0.54	-0.30	-0.33	0.54	-0.28	-1.5593	0.0096	-9.9	0.8	-9.9	0.5			
Reading	3	7392	0	A.2.3.1	2	126020	0.71	0.12	0.08	0.71	0.08	0.00	0.44	-0.16	-0.27	0.44	-0.26	-0.1532	0.0070	-1.6	1.0	-5.6	1.0			
Reading	3	7143	0	A.1.3.1	2	126020	0.80	0.08	0.80	0.10	0.02	0.00	0.42	-0.26	0.42	-0.22	-0.21	-0.7561	0.0078	-5.1	1.0	0.9	1.0			
Reading	3	5525	0	A.1.2.2	2	126020	0.77	0.77	0.06	0.12	0.04	0.00	0.32	0.32	-0.18	-0.16	-0.19	-0.5383	0.0074	9.9	1.1	9.9	1.2			
Reading	3	1949	0	A.1.1.2	2	126020	0.86	0.09	0.86	0.02	0.03	0.00	0.47	-0.30	0.47	-0.20	-0.28	-1.3133	0.0089	-9.9	0.9	-9.9	0.8			
Reading	3	8456	0	A.1.3.1	2	126020	0.81	0.81	0.13	0.03	0.04	0.00	0.34	0.34	-0.10	-0.27	-0.30	-0.8202	0.0079	9.9	1.1	9.9	1.3			
Reading	3	2637	0	A.1.3.1	2	126020	0.72	0.16	0.04	0.08	0.72	0.00	0.47	-0.27	-0.27	-0.21	0.47	-0.2081	0.0070	-9.9	1.0	-9.9	0.9			
Reading	3	6353	0	A.1.6.1	2	126020	0.67	0.10	0.07	0.67	0.16	0.00	0.37	-0.30	-0.27	0.37	-0.04	0.0907	0.0068	9.9	1.1	9.9	1.3			
Reading	3	5565	0	A.1.3.1	2	126020	0.50	0.10	0.06	0.50	0.34	0.00	0.26	-0.27	-0.30	0.26	0.04	1.0004	0.0064	9.9	1.2	9.9	1.3			
Reading	3	6529	0	A.1.3.1	2	126020	0.76	0.06	0.08	0.10	0.76	0.01	0.54	-0.27	-0.26	-0.33	0.54	-0.4323	0.0073	-9.9	0.9	-9.9	0.7			
Reading	3	1985	0	B.1.1.1		126020	0.80	0.09	0.03	0.80	0.07	0.00	0.54	-0.29	-0.25	0.54	-0.33	-0.7875	0.0078	-9.9	0.9	-9.9	0.7			
Reading	3	2601	0	A.1.3.1		126020	0.76	0.04	0.07	0.76	0.13	0.00	0.52	-0.25	-0.24	0.52	-0.33	-0.4761	0.0074	-9.9	0.9	-9.9	0.8			
Reading	3	4637	0	A.1.2.2		126020	0.76	0.76	0.05	0.03	0.16	0.00	0.32	0.32	-0.29	-0.24	-0.10	-0.4455	0.0073	9.9	1.1	9.9	1.2			
Reading	3	912	0	A.1.1.1		126020	0.50	0.28	0.14	0.07	0.50	0.00	0.46	-0.19	-0.24	-0.23	0.46	1.0178	0.0064	-9.9	0.9	-9.7	1.0			
Reading	3	1670	0	A.1.3.1		126020	0.78	0.07	0.78	0.08	0.07	0.00	0.45	-0.24	0.45	-0.22	-0.27	-0.5883	0.0075	-9.8	1.0	-9.9	0.9			
Reading	3	2236	0	B.1.1.1		126020	0.77	0.12	0.05	0.77	0.04	0.01	0.56	-0.38	-0.25	0.56	-0.26	-0.5502	0.0075	-9.9	0.8	-9.9	0.7			
Reading	3	1276	0	A.1.5.1		126020	0.56	0.56	0.12	0.24	0.08	0.00	0.35	0.35	-0.28	-0.06	-0.21	0.6984	0.0064	9.9	1.1	9.9	1.2			
Reading	3	8098	0	B.1.1.1		126020	0.90	0.02	0.02	0.90	0.05	0.01	0.34	-0.28	-0.21	0.34	-0.14	-1.6649	0.0099	-3.7	1.0	2.5	1.0			
Reading	3	5000	0	A.1.3.1		126020	0.68	0.08	0.13	0.11	0.68	0.01	0.55	-0.29	-0.31	-0.22	0.55	0.0648	0.0068	-9.9	0.9	-9.9	0.8			
Reading	3	8434	0	A.2.4.1		126020	0.52	0.06	0.12	0.52	0.28	0.01	0.49	-0.30	-0.37	0.49	-0.11	0.8964	0.0064	-9.9	0.9	-9.9	0.9			
Reading	3	6611	0	A.2.3.1		126020	0.61	0.14	0.08	0.17	0.61	0.01	0.55	-0.31	-0.29	-0.22	0.55	0.4580	0.0065	-9.9	0.9	-9.9	0.8			
Reading	3	2508	0	A.2.2.2		126020	0.71	0.71	0.09	0.06	0.14	0.01	0.23	0.23	-0.05	-0.20	-0.13	-0.1257	0.0070	9.9	1.2	9.9	1.5			
Reading	3	7914	0	A.2.2.2		126020	0.82	0.07	0.82	0.06	0.05	0.01	0.59	-0.34	0.59	-0.35	-0.26	-0.9289	0.0081	-9.9	0.8	-9.9	0.6			
Reading	3	7779	0	A.2.3.1		126020	0.65	0.16	0.07	0.10	0.65	0.02	0.51	-0.20	-0.20	-0.38	0.51	0.2124	0.0067	-9.9	0.9	-9.9	0.9			
Reading	3	8409	0	B.1.1.1		126020	0.72	0.07	0.13	0.72	0.07	0.01	0.50	-0.29	-0.23	0.50	-0.27	-0.2223	0.0071	-9.9	0.9	-9.9	0.9			
Reading	3	8641	0	B.3.1.1		126020	0.49	0.17	0.49	0.24	0.10	0.01	0.35	-0.18	0.35	-0.07	-0.25	1.0904	0.0063	9.9	1.1	9.9	1.1			
Reading	3	7894	1	A.1.4.1	2	25404	0.85	0.08	0.85	0.04	0.03	0.00	0.40	-0.25	0.40	-0.21	-0.20	-1.1653	0.0189	-3.9	1.0	-5.6	0.9	A+	A+	A+
Reading	3	3101	1	A.1.4.1	2	25404	0.47	0.17	0.23	0.13	0.47	0.00	0.41	-0.20	-0.10	-0.26	0.41	1.1479	0.0141	-4.0	1.0	1.3	1.0	A-	A-	A-

Item Information						Classical													Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	3	746	1	A.1.3.1	2	25404	0.78	0.78	0.11	0.04	0.07	0.00	0.45	0.45	-0.22	-0.26	-0.26	-0.6085	0.0167	-6.4	0.9	-9.9	0.8	A+	B-	B-
Reading	3	3837	1	A.1.1.1	2	25404	0.77	0.11	0.05	0.77	0.07	0.00	0.43	-0.22	-0.22	0.43	-0.24	-0.5436	0.0165	-2.8	1.0	-4.7	0.9	A+	A+	A-
Reading	3	9949	1	B.2.1.1	2	25404	0.70	0.16	0.07	0.07	0.70	0.00	0.35	-0.11	-0.22	-0.24	0.35	-0.1033	0.0153	9.9	1.1	6.3	1.1	A+	A-	A-
Reading	3	3924	1	A.1.6.1	2	25404	0.63	0.11	0.63	0.18	0.09	0.00	0.38	-0.27	0.38	-0.10	-0.22	0.3214	0.0146	8.3	1.1	4.7	1.1	A+	A-	A-
Reading	3	5823	1	A.1.3.1	2	25404	0.82	0.82	0.07	0.06	0.04	0.00	0.50	0.50	-0.30	-0.25	-0.26	-0.9414	0.0179	-9.9	0.9	-9.9	0.7	A+	B-	B-
Reading	3	1333	1	A.1.1.1	2	25404	0.68	0.12	0.10	0.68	0.09	0.01	0.41	-0.20	-0.18	0.41	-0.23	0.0280	0.0151	3.5	1.0	1.2	1.0	A-	A+	A+
Reading	3	546	1	A.1.3.1	2	25404	0.32	0.52	0.32	0.08	0.09	0.00	0.09	0.04	0.09	-0.22	-0.02	1.9338	0.0149	9.9	1.3	9.9	1.8	A-	A+	A-
Reading	3	2248	1	B.1.2.1	2	25404	0.67	0.05	0.17	0.67	0.10	0.00	0.35	-0.26	-0.17	0.35	-0.14	0.0830	0.0150	9.9	1.1	9.9	1.1	A+	A-	A-
Reading	3	1260	1	A.2.3.1	3	75785	0.57	0.04	0.24	0.14	0.57	0.01	0.25	-0.24	-0.10	-0.09	0.25	0.6336	0.0083	9.9	1.2	9.9	1.3			
Reading	3	1961	1	A.2.4.1	1	75785	0.51	0.13	0.18	0.17	0.51	0.01	0.42	-0.20	-0.19	-0.18	0.42	0.9307	0.0082	-6.0	1.0	0.3	1.0			
Reading	3	3830	1	B.3.3.4	2	75785	0.51	0.18	0.16	0.51	0.14	0.01	0.38	-0.25	-0.13	0.38	-0.13	0.9540	0.0082	3.4	1.0	9.9	1.1			
Reading	3	7747	1	B.3.3.4	2	75785	0.68	0.68	0.12	0.08	0.11	0.01	0.40	0.40	-0.21	-0.23	-0.17	0.0525	0.0087	7.3	1.0	-3.1	1.0			
Reading	3	7638	1	B.3.1.1	2	75785	0.46	0.24	0.12	0.18	0.46	0.01	0.29	-0.04	-0.31	-0.06	0.29	1.2333	0.0082	9.9	1.1	9.9	1.3			
Reading	3	782	1	A.2.3.1	2	75785	0.64	0.64	0.12	0.08	0.16	0.01	0.46	0.46	-0.27	-0.25	-0.18	0.2816	0.0085	-9.9	1.0	-9.9	0.9			
Reading	3	1118	1	A.2.4.1	2	75785	0.82	0.05	0.05	0.82	0.07	0.01	0.45	-0.26	-0.27	0.45	-0.21	-0.9573	0.0105	-9.9	0.9	-9.9	0.8			
Reading	3	3585	1	A.2.6.1	2	75785	0.75	0.13	0.75	0.05	0.06	0.01	0.46	-0.20	0.46	-0.30	-0.28	-0.3919	0.0093	-9.9	1.0	-9.9	0.9			
Reading	3	8425	2	B.2.1.1	2	25191	0.70	0.05	0.11	0.13	0.70	0.00	0.36	-0.32	-0.16	-0.13	0.36	-0.1023	0.0155	9.2	1.1	9.2	1.1	A+	A-	A-
Reading	3	4436	2	A.1.4.1	2	25191	0.86	0.04	0.04	0.86	0.05	0.00	0.46	-0.24	-0.33	0.46	-0.20	-1.2819	0.0198	-9.9	0.9	-9.9	0.7	A+	A-	A-
Reading	3	8931	2	A.1.1.2	2	25191	0.75	0.06	0.14	0.05	0.75	0.00	0.38	-0.31	-0.10	-0.26	0.38	-0.3816	0.0162	4.5	1.0	3.4	1.1	A+	C-	C-
Reading	3	4099	2	A.1.4.1	1	25191	0.76	0.08	0.11	0.04	0.76	0.00	0.47	-0.04	-0.40	-0.31	0.47	-0.4778	0.0165	-9.3	0.9	-2.2	1.0	A+	A-	A-
Reading	3	8957	2	A.1.6.1	2	25191	0.20	0.20	0.05	0.50	0.25	0.00	0.15	0.15	-0.26	0.08	-0.09	2.7124	0.0170	9.9	1.1	9.9	2.1	A-	A-	A-
Reading	3	532	2	A.1.2.2	2	25191	0.70	0.14	0.70	0.07	0.09	0.00	0.40	-0.23	0.40	-0.21	-0.18	-0.0692	0.0154	3.8	1.0	-0.4	1.0	A+	B-	C-
Reading	3	3017	2	A.1.4.1	2	25191	0.88	0.02	0.06	0.04	0.88	0.00	0.51	-0.23	-0.33	-0.29	0.51	-1.5277	0.0212	-9.9	0.8	-9.9	0.5	A+	B-	A-
Reading	3	4035	2	A.1.3.1	2	25191	0.91	0.04	0.03	0.91	0.02	0.00	0.43	-0.27	-0.25	0.43	-0.20	-1.8342	0.0233	-8.3	0.9	-9.9	0.6	A+	A-	A-
Reading	3	677	2	A.1.3.1	2	25191	0.70	0.06	0.04	0.70	0.20	0.00	0.46	-0.36	-0.25	0.46	-0.18	-0.0514	0.0154	-5.1	1.0	-5.9	0.9	A+	A-	B-
Reading	3	4227	2	B.1.1.1	2	25191	0.71	0.01	0.20	0.08	0.71	0.00	0.33	-0.21	-0.09	-0.34	0.33	-0.1124	0.0155	9.9	1.1	9.9	1.4	A+	A-	A-
Reading	3	1260	2	A.2.3.1	3	75785	0.57	0.04	0.24	0.14	0.57	0.01	0.25	-0.24	-0.10	-0.09	0.25	0.6336	0.0083	9.9	1.2	9.9	1.3			
Reading	3	1961	2	A.2.4.1	1	75785	0.51	0.13	0.18	0.17	0.51	0.01	0.42	-0.20	-0.19	-0.18	0.42	0.9307	0.0082	-6.0	1.0	0.3	1.0			
Reading	3	3830	2	B.3.3.4	2	75785	0.51	0.18	0.16	0.51	0.14	0.01	0.38	-0.25	-0.13	0.38	-0.13	0.9540	0.0082	3.4	1.0	9.9	1.1			
Reading	3	7747	2	B.3.3.4	2	75785	0.68	0.68	0.12	0.08	0.11	0.01	0.40	0.40	-0.21	-0.23	-0.17	0.0525	0.0087	7.3	1.0	-3.1	1.0			
Reading	3	7638	2	B.3.1.1	2	75785	0.46	0.24	0.12	0.18	0.46	0.01	0.29	-0.04	-0.31	-0.06	0.29	1.2333	0.0082	9.9	1.1	9.9	1.3			
Reading	3	782	2	A.2.3.1	2	75785	0.64	0.64	0.12	0.08	0.16	0.01	0.46	0.46	-0.27	-0.25	-0.18	0.2816	0.0085	-9.9	1.0	-9.9	0.9			
Reading	3	1118	2	A.2.4.1	2	75785	0.82	0.05	0.05	0.82	0.07	0.01	0.45	-0.26	-0.27	0.45	-0.21	-0.9573	0.0105	-9.9	0.9	-9.9	0.8			
Reading	3	3585	2	A.2.6.1	2	75785	0.75	0.13	0.75	0.05	0.06	0.01	0.46	-0.20	0.46	-0.30	-0.28	-0.3919	0.0093	-9.9	1.0	-9.9	0.9			
Reading	3	7671	3	A.1.4.1	1	25190	0.72	0.72	0.09	0.08	0.10	0.00	0.53	0.53	-0.28	-0.29	-0.26	-0.2150	0.0157	-9.9	0.9	-9.9	0.8	A+	A-	A-
Reading	3	3428	3	A.1.2.1	2	25190	0.59	0.03	0.59	0.15	0.23	0.00	0.32	-0.25	0.32	0.02	-0.28	0.5544	0.0143	9.9	1.1	9.9	1.2	A+	A-	A-
Reading	3	8147	3	B.1.1.1	2	25190	0.78	0.78	0.05	0.04	0.14	0.00	0.13	0.13	-0.20	-0.21	0.08	-0.5692	0.0167	9.9	1.3	9.9	2.0	A+	A-	A-
Reading	3	2652	3	B.1.1.1	2	25190	0.55	0.07	0.17	0.20	0.55	0.00	0.45	-0.17	-0.12	-0.33	0.45	0.7343	0.0142	-8.1	1.0	-7.0	0.9	A+	A-	A-
Reading	3	1180	3	B.2.1.1	2	25190	0.68	0.07	0.08	0.68	0.17	0.00	0.45	-0.27	-0.20	0.45	-0.23	0.0769	0.0150	-5.2	1.0	-7.2	0.9	A-	A-	A-
Reading	3	6119	3	A.1.3.1	2	25190	0.75	0.11	0.04	0.09	0.75	0.00	0.42	-0.29	-0.32	-0.09	0.42	-0.3936	0.0161	-3.2	1.0	2.2	1.0	A+	B-	A-
Reading	3	337	3	A.1.3.1	2	25190	0.70	0.13	0.13	0.70	0.04	0.00	0.38	-0.17	-0.18	0.38	-0.26	-0.0662	0.0153	6.1	1.1	6.3	1.1	A+	A-	A-
Reading	3	1689	3	A.1.2.2	2	25190	0.84	0.84	0.03	0.06	0.07	0.00	0.48	0.48	-0.27	-0.27	-0.27	-1.0789	0.0187	-9.9	0.9	-9.9	0.7	A-	B-	C-
Reading	3	9028	3	A.1.5.1	3	25190	0.53	0.16	0.53	0.18	0.12	0.00	0.30	-0.30	0.30	-0.08	-0.03	0.8531	0.0141	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	3	1986	3	B.1.1.1	2	25190	0.60	0.60	0.03	0.31	0.05	0.01	0.37	0.37	-0.24	-0.19	-0.23	0.4697	0.0144	8.5	1.1	6.5	1.1	A+	B-	B-
Reading	3	1260	3	A.2.3.1	3	75785	0.57	0.04	0.24	0.14	0.57	0.01	0.25	-0.24	-0.10	-0.09	0.25	0.6336	0.0083	9.9	1.2	9.9	1.3			
Reading	3	1961	3	A.2.4.1	1	75785	0.51	0.13	0.18	0.17	0.51	0.01	0.42	-0.20	-0.19	-0.18	0.42	0.9307	0.0082	-6.0	1.0	0.3	1.0			
Reading	3	3830	3	B.3.3.4	2	75785	0.51	0.18	0.16	0.51	0.14	0.01	0.38	-0.25	-0.13	0.38	-0.13	0.9540	0.0082	3.4	1.0	9.9	1.1			
Reading	3	7747	3	B.3.3.4	2	75785	0.68	0.68	0.12	0.08	0.11	0.01	0.40	0.40	-0.21	-0.23	-0.17	0.0525	0.0087	7.3	1.0	-3.1	1.0			
Reading	3	7638	3	B.3.1.1	2	75785	0.46	0.24	0.12	0.18	0.46	0.01	0.29	-0.04	-0.31	-0.06	0.29	1.2333	0.0082	9.9	1.1	9.9	1.3			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	3	782	3	A.2.3.1	2	75785	0.64	0.64	0.12	0.08	0.16	0.01	0.46	0.46	-0.27	-0.25	-0.18	0.2816	0.0085	-9.9	1.0	-9.9	0.9			
Reading	3	1118	3	A.2.4.1	2	75785	0.82	0.05	0.05	0.82	0.07	0.01	0.45	-0.26	-0.27	0.45	-0.21	-0.9573	0.0105	-9.9	0.9	-9.9	0.8			
Reading	3	3585	3	A.2.6.1	2	75785	0.75	0.13	0.75	0.05	0.06	0.01	0.46	-0.20	0.46	-0.30	-0.28	-0.3919	0.0093	-9.9	1.0	-9.9	0.9			
Reading	3	678	4	A.2.4.1	2	25159	0.75	0.16	0.04	0.75	0.04	0.00	0.57	-0.43	-0.24	0.57	-0.21	-0.4169	0.0164	-9.9	0.8	-9.9	0.7	A-	B-	B-
Reading	3	6473	4	A.2.4.1	2	25159	0.81	0.81	0.06	0.08	0.05	0.00	0.53	0.53	-0.27	-0.31	-0.27	-0.8422	0.0178	-9.9	0.9	-9.9	0.7	A-	B-	B-
Reading	3	9342	4	A.2.3.1	2	25159	0.79	0.05	0.08	0.79	0.07	0.00	0.53	-0.26	-0.27	0.53	-0.33	-0.7074	0.0173	-9.9	0.9	-9.9	0.7	A+	A-	A-
Reading	3	8678	4	A.2.3.1	2	25159	0.58	0.07	0.58	0.14	0.21	0.00	0.36	-0.26	0.36	-0.25	-0.06	0.6032	0.0145	9.9	1.1	9.9	1.1	A+	A-	A-
Reading	3	167	4	A.2.3.1	2	25159	0.73	0.09	0.09	0.73	0.09	0.00	0.53	-0.29	-0.24	0.53	-0.29	-0.2517	0.0159	-9.9	0.9	-9.9	0.8	A+	A-	A-
Reading	3	140	4	B.3.1.1	2	25159	0.67	0.07	0.15	0.10	0.67	0.00	0.46	-0.29	-0.17	-0.26	0.46	0.1080	0.0152	-1.9	1.0	-4.0	1.0	A+	A-	A-
Reading	3	7627	4	A.2.2.2	2	25159	0.47	0.29	0.47	0.09	0.15	0.00	0.35	-0.27	0.35	-0.12	-0.05	1.1935	0.0143	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	3	7523	4	B.3.3.1	2	25159	0.43	0.27	0.43	0.21	0.08	0.00	0.28	-0.07	0.28	-0.10	-0.24	1.3893	0.0144	9.9	1.1	9.9	1.4	A+	A-	A+
Reading	3	4308	4	B.1.2.1	2	25159	0.49	0.14	0.49	0.20	0.17	0.00	0.27	-0.11	0.27	-0.17	-0.08	1.0547	0.0143	9.9	1.2	9.9	1.3	A-	A-	A-
Reading	3	4675	4	B.1.2.1	2	25159	0.67	0.16	0.05	0.67	0.11	0.00	0.48	-0.28	-0.31	0.48	-0.16	0.0913	0.0152	-6.5	1.0	-9.2	0.9	A+	A-	A-
Reading	3	4906	4	B.1.1.1	2	50235	0.58	0.09	0.26	0.58	0.06	0.01	0.48	-0.27	-0.21	0.48	-0.26	0.6412	0.0103	-9.9	0.9	-9.9	0.9			
Reading	3	3058	4	A.1.1.1	2	50235	0.73	0.73	0.12	0.09	0.05	0.01	0.44	0.44	-0.26	-0.20	-0.24	-0.2723	0.0113	-3.2	1.0	-2.5	1.0			
Reading	3	9824	4	A.1.3.1	2	50235	0.80	0.80	0.08	0.07	0.05	0.01	0.53	0.53	-0.29	-0.36	-0.19	-0.7587	0.0124	-9.9	0.9	-9.9	0.7			
Reading	3	6866	4	A.1.4.1	1	50235	0.60	0.29	0.04	0.60	0.05	0.01	0.42	-0.26	-0.18	0.42	-0.24	0.4985	0.0104	2.2	1.0	2.4	1.0			
Reading	3	4260	4	A.1.4.1	1	50235	0.72	0.08	0.72	0.05	0.15	0.01	0.48	-0.35	0.48	-0.25	-0.19	-0.1735	0.0112	-9.9	0.9	-9.9	0.9			
Reading	3	8315	4	A.1.4.1	1	50235	0.82	0.82	0.08	0.04	0.05	0.01	0.50	0.50	-0.29	-0.25	-0.29	-0.8927	0.0128	-9.9	0.9	-9.9	0.7			
Reading	3	6511	4	B.1.1.1	2	50235	0.53	0.32	0.07	0.53	0.07	0.01	0.48	-0.22	-0.27	0.48	-0.25	0.8975	0.0101	-9.9	0.9	-9.9	0.9			
Reading	3	1570	4	A.1.6.1	2	50235	0.70	0.11	0.12	0.70	0.06	0.01	0.45	-0.27	-0.18	0.45	-0.27	-0.0864	0.0110	-3.2	1.0	-3.4	1.0			
Reading	3	1884	5	A.1.4.1	2	25076	0.88	0.88	0.03	0.06	0.02	0.00	0.40	0.40	-0.25	-0.23	-0.19	-1.5048	0.0212	-4.6	0.9	-7.3	0.8	A+	A-	A-
Reading	3	3340	5	B.3.3.3	2	25076	0.83	0.11	0.83	0.03	0.02	0.00	0.30	-0.10	0.30	-0.27	-0.23	-0.9878	0.0186	6.7	1.1	9.9	1.4	A+	A-	A-
Reading	3	3589	5	A.1.3.1	2	25076	0.83	0.83	0.07	0.04	0.05	0.00	0.38	0.38	-0.28	-0.11	-0.22	-1.0062	0.0186	-0.4	1.0	2.3	1.1	A+	A-	A-
Reading	3	8532	5	A.1.2.2	2	25076	0.77	0.77	0.13	0.06	0.03	0.00	0.53	0.53	-0.38	-0.22	-0.21	-0.4969	0.0167	-9.9	0.9	-9.9	0.7	A+	A-	A-
Reading	3	3131	5	A.1.3.1	2	25076	0.78	0.07	0.13	0.02	0.78	0.00	0.39	-0.23	-0.21	-0.23	0.39	-0.6182	0.0171	2.9	1.0	3.6	1.1	A-	A-	A+
Reading	3	5682	5	B.1.1.1	2	25076	0.86	0.02	0.86	0.09	0.03	0.01	0.43	-0.21	0.43	-0.25	-0.28	-1.2389	0.0197	-6.7	0.9	-5.2	0.9	A+	A-	A-
Reading	3	5095	5	B.1.1.1	2	25076	0.93	0.93	0.01	0.05	0.01	0.00	0.33	0.33	-0.19	-0.22	-0.17	-2.2385	0.0269	-3.4	0.9	-4.1	0.8	A+	A-	A-
Reading	3	6925	5	B.1.1.1	2	25076	0.77	0.10	0.04	0.77	0.08	0.00	0.55	-0.32	-0.24	0.55	-0.31	-0.5050	0.0168	-9.9	0.8	-9.9	0.7	A+	A-	A-
Reading	3	9601	5	B.1.1.1	2	25076	0.77	0.08	0.03	0.12	0.77	0.00	0.45	-0.10	-0.24	-0.36	0.45	-0.4888	0.0167	-3.4	1.0	1.6	1.0	A+	A-	A-
Reading	3	4998	5	A.1.4.1	2	25076	0.39	0.15	0.39	0.09	0.36	0.00	0.24	-0.08	0.24	-0.17	-0.08	1.6137	0.0145	9.9	1.2	9.9	1.4	A+	A-	A-
Reading	3	4906	5	B.1.1.1	2	50235	0.58	0.09	0.26	0.58	0.06	0.01	0.48	-0.27	-0.21	0.48	-0.26	0.6412	0.0103	-9.9	0.9	-9.9	0.9			
Reading	3	3058	5	A.1.1.1	2	50235	0.73	0.73	0.12	0.09	0.05	0.01	0.44	0.44	-0.26	-0.20	-0.24	-0.2723	0.0113	-3.2	1.0	-2.5	1.0			
Reading	3	9824	5	A.1.3.1	2	50235	0.80	0.80	0.08	0.07	0.05	0.01	0.53	0.53	-0.29	-0.36	-0.19	-0.7587	0.0124	-9.9	0.9	-9.9	0.7			
Reading	3	6866	5	A.1.4.1	1	50235	0.60	0.29	0.04	0.60	0.05	0.01	0.42	-0.26	-0.18	0.42	-0.24	0.4985	0.0104	2.2	1.0	2.4	1.0			
Reading	3	4260	5	A.1.4.1	1	50235	0.72	0.08	0.72	0.05	0.15	0.01	0.48	-0.35	0.48	-0.25	-0.19	-0.1735	0.0112	-9.9	0.9	-9.9	0.9			
Reading	3	8315	5	A.1.4.1	1	50235	0.82	0.82	0.08	0.04	0.05	0.01	0.50	0.50	-0.29	-0.25	-0.29	-0.8927	0.0128	-9.9	0.9	-9.9	0.7			
Reading	3	6511	5	B.1.1.1	2	50235	0.53	0.32	0.07	0.53	0.07	0.01	0.48	-0.22	-0.27	0.48	-0.25	0.8975	0.0101	-9.9	0.9	-9.9	0.9			
Reading	3	1570	5	A.1.6.1	2	50235	0.70	0.11	0.12	0.70	0.06	0.01	0.45	-0.27	-0.18	0.45	-0.27	-0.0864	0.0110	-3.2	1.0	-3.4	1.0			
Reading	4	6735	0	A.2.4.1	2	121442	0.50	0.30	0.04	0.15	0.50	0.00	0.30	-0.27	-0.18	0.03	0.30	1.0594	0.0063	9.9	1.1	9.9	1.1			
Reading	4	5408	0	A.2.3.1	2	121442	0.77	0.03	0.77	0.10	0.10	0.00	0.47	-0.23	0.47	-0.25	-0.28	-0.4227	0.0074	-9.9	0.9	-9.9	0.8			
Reading	4	6945	0	A.2.2.1	2	121442	0.68	0.20	0.68	0.06	0.06	0.00	0.46	-0.35	0.46	-0.19	-0.12	0.1220	0.0068	-9.9	0.9	-9.9	0.9			
Reading	4	2942	0	A.2.3.1	2	121442	0.78	0.78	0.03	0.15	0.03	0.00	0.44	0.44	-0.22	-0.27	-0.24	-0.4729	0.0075	-9.9	0.9	-9.9	0.9			
Reading	4	3421	0	A.2.4.1	1	121442	0.71	0.21	0.03	0.04	0.71	0.00	0.35	-0.15	-0.23	-0.28	0.35	-0.0637	0.0069	9.9	1.0	9.9	1.1			
Reading	4	2483	0	A.2.3.1	2	121442	0.36	0.49	0.03	0.36	0.12	0.00	0.30	-0.10	-0.21	0.30	-0.17	1.7649	0.0065	9.9	1.1	9.9	1.2			
Reading	4	1189	0	A.2.6.1	2	121442	0.77	0.77	0.05	0.13	0.04	0.00	0.37	0.37	-0.25	-0.19	-0.18	-0.4001	0.0074	2.1	1.0	-3.9	1.0			
Reading	4	4339	0	B.3.3.3	2	121442	0.65	0.16	0.11	0.65	0.07	0.00	0.31	-0.12	-0.19	0.31	-0.17	0.2895	0.0066	9.9	1.1	9.9	1.1			
Reading	4	3867	0	A.2.3.1	2	121442	0.59	0.59	0.06	0.15	0.20	0.00	0.36	0.36	-0.21	-0.14	-0.20	0.5862	0.0064	9.9	1.0	8.4	1.0			
Reading	4	6600	0	B.1.1.1	2	121442	0.64	0.10	0.09	0.64	0.18	0.00	0.34	-0.26	-0.22	0.34	-0.06	0.3551	0.0066	9.9	1.1	9.9	1.1			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	4	188	0	A.1.4.1	2	121442	0.78	0.10	0.05	0.78	0.07	0.00	0.50	-0.36	-0.19	0.50	-0.23	-0.4959	0.0075	-9.9	0.9	-9.9	0.7			
Reading	4	3362	0	A.1.2.1	2	121442	0.60	0.16	0.17	0.06	0.60	0.00	0.42	-0.08	-0.37	-0.15	0.42	0.5465	0.0065	-9.9	1.0	-9.9	0.9			
Reading	4	8753	0	A.1.1.2	2	121442	0.59	0.08	0.59	0.23	0.09	0.00	0.34	-0.22	0.34	-0.15	-0.14	0.5866	0.0064	9.9	1.1	9.9	1.1			
Reading	4	7828	0	A.1.4.1	1	121442	0.84	0.04	0.07	0.04	0.84	0.00	0.48	-0.22	-0.33	-0.21	0.48	-0.9955	0.0085	-9.9	0.9	-9.9	0.7			
Reading	4	3241	0	B.1.1.1	2	121442	0.70	0.03	0.70	0.02	0.24	0.00	0.37	-0.25	0.37	-0.26	-0.19	-0.0029	0.0069	7.6	1.0	-0.6	1.0			
Reading	4	9593	0	A.1.3.1	2	121442	0.68	0.68	0.06	0.11	0.15	0.00	0.41	0.41	-0.20	-0.30	-0.13	0.1334	0.0067	-5.5	1.0	-7.2	1.0			
Reading	4	888	0	A.1.6.1	2	121442	0.46	0.35	0.46	0.15	0.03	0.00	0.32	-0.14	0.32	-0.14	-0.24	1.2498	0.0063	9.9	1.1	9.9	1.1			
Reading	4	4314	0	B.1.1.1	2	121442	0.74	0.74	0.07	0.16	0.04	0.00	0.45	0.45	-0.18	-0.30	-0.20	-0.2076	0.0071	-9.9	0.9	-9.9	0.9			
Reading	4	1859	0	A.1.1.2	2	121442	0.87	0.03	0.07	0.02	0.87	0.00	0.46	-0.30	-0.25	-0.22	0.46	-1.1926	0.0090	-9.9	0.9	-9.9	0.7			
Reading	4	2021	0	B.1.1.1	2	121442	0.86	0.04	0.07	0.86	0.02	0.00	0.42	-0.26	-0.23	0.42	-0.22	-1.1418	0.0088	-9.9	0.9	-9.9	0.9			
Reading	4	5178	0	A.1.3.1	2	121442	0.49	0.23	0.49	0.16	0.11	0.00	0.29	-0.17	0.29	-0.07	-0.12	1.1138	0.0063	9.9	1.1	9.9	1.2			
Reading	4	7457	0	A.1.3.1	2	121442	0.80	0.05	0.80	0.10	0.04	0.00	0.46	-0.28	0.46	-0.20	-0.27	-0.6508	0.0078	-9.9	0.9	-9.9	0.9			
Reading	4	101	0	A.1.4.1	2	121442	0.39	0.39	0.23	0.19	0.19	0.00	0.28	0.28	-0.06	-0.13	-0.15	1.6412	0.0065	9.9	1.1	9.9	1.2			
Reading	4	607	0	A.1.3.1	2	121442	0.77	0.08	0.05	0.77	0.09	0.01	0.49	-0.21	-0.28	0.49	-0.28	-0.4424	0.0074	-9.9	0.9	-9.9	0.8			
Reading	4	7941	0	A.1.3.1	2	121442	0.62	0.20	0.11	0.62	0.07	0.00	0.31	-0.23	-0.03	0.31	-0.18	0.4658	0.0065	9.9	1.1	9.9	1.1			
Reading	4	6211	0	A.1.2.2	2	121442	0.90	0.03	0.04	0.03	0.90	0.00	0.42	-0.22	-0.23	-0.26	0.42	-1.5867	0.0101	-9.9	0.9	-9.9	0.7			
Reading	4	2995	0	A.1.3.1	2	121442	0.80	0.05	0.09	0.80	0.07	0.00	0.38	-0.25	-0.20	0.38	-0.16	-0.6079	0.0077	-1.5	1.0	-8.9	0.9			
Reading	4	5071	0	B.2.1.3	2	121442	0.73	0.05	0.12	0.73	0.09	0.00	0.35	-0.26	-0.18	0.35	-0.12	-0.2001	0.0071	9.9	1.0	7.6	1.1			
Reading	4	3215	0	B.1.1.1	2	121442	0.83	0.83	0.05	0.04	0.08	0.00	0.27	0.27	-0.15	-0.26	-0.05	-0.8910	0.0083	9.9	1.1	9.9	1.3			
Reading	4	2524	0	B.2.1.1	2	121442	0.65	0.14	0.65	0.09	0.11	0.00	0.44	-0.29	0.44	-0.20	-0.16	0.2731	0.0066	-9.9	1.0	-9.9	0.9			
Reading	4	1059	0	B.2.1.1	2	121442	0.75	0.75	0.12	0.08	0.04	0.00	0.43	0.43	-0.27	-0.19	-0.21	-0.3075	0.0072	-9.9	1.0	-9.9	0.9			
Reading	4	7940	0	B.1.2.1	2	121442	0.79	0.06	0.06	0.79	0.09	0.00	0.36	-0.22	-0.27	0.36	-0.10	-0.5400	0.0076	3.4	1.0	2.8	1.0			
Reading	4	115	0	A.2.2.1		121442	0.76	0.05	0.76	0.10	0.08	0.00	0.41	-0.28	0.41	-0.20	-0.19	-0.3715	0.0073	-8.6	1.0	-9.9	0.9			
Reading	4	6403	0	A.2.5.1		121442	0.71	0.12	0.12	0.06	0.71	0.00	0.50	-0.25	-0.29	-0.23	0.50	-0.0381	0.0069	-9.9	0.9	-9.9	0.8			
Reading	4	4382	0	A.2.3.1		121442	0.72	0.72	0.12	0.09	0.07	0.00	0.37	0.37	-0.09	-0.24	-0.25	-0.0944	0.0070	5.9	1.0	9.9	1.1			
Reading	4	3976	0	A.2.2.2		121442	0.80	0.80	0.12	0.05	0.03	0.00	0.40	0.40	-0.21	-0.23	-0.24	-0.6628	0.0078	-8.3	1.0	-9.9	0.9			
Reading	4	2643	0	A.2.4.1		121442	0.78	0.05	0.06	0.78	0.11	0.00	0.50	-0.27	-0.31	0.50	-0.23	-0.4772	0.0075	-9.9	0.9	-9.9	0.8			
Reading	4	1034	0	A.2.3.1		121442	0.60	0.09	0.14	0.17	0.60	0.00	0.43	-0.28	-0.27	-0.09	0.43	0.5585	0.0065	-9.9	1.0	-9.9	1.0			
Reading	4	5283	0	B.3.3.3		121442	0.64	0.09	0.64	0.09	0.18	0.00	0.42	-0.27	0.42	-0.25	-0.14	0.3688	0.0066	-9.9	1.0	-9.9	1.0			
Reading	4	3151	0	A.2.6.1		121442	0.70	0.70	0.14	0.08	0.07	0.00	0.44	0.44	-0.16	-0.25	-0.29	0.0000	0.0069	-9.9	1.0	-9.9	0.9			
Reading	4	9778	1	A.2.4.1	1	24501	0.83	0.04	0.83	0.04	0.09	0.00	0.41	-0.17	0.41	-0.18	-0.30	-0.8645	0.0182	-5.6	0.9	-9.4	0.8	A+	A-	A-
Reading	4	5303	1	A.2.3.1	2	24501	0.84	0.08	0.05	0.02	0.84	0.00	0.41	-0.29	-0.18	-0.20	0.41	-0.9899	0.0188	-6.1	0.9	-8.4	0.8	A+	A-	A-
Reading	4	2441	1	A.2.3.1	2	24501	0.61	0.16	0.61	0.10	0.12	0.00	0.38	-0.24	0.38	-0.12	-0.18	0.4818	0.0145	3.1	1.0	0.2	1.0	A-	A-	A-
Reading	4	5501	1	B.1.1.1	2	24501	0.58	0.31	0.05	0.58	0.05	0.00	0.40	-0.18	-0.25	0.40	-0.25	0.6383	0.0143	-0.4	1.0	1.2	1.0	A+	A-	A-
Reading	4	6036	1	A.2.2.1	2	24501	0.88	0.04	0.04	0.88	0.04	0.00	0.49	-0.25	-0.28	0.49	-0.27	-1.3633	0.0209	-9.9	0.8	-9.9	0.6	A-	A-	B-
Reading	4	5286	1	A.2.6.1	2	24501	0.62	0.11	0.12	0.62	0.14	0.00	0.45	-0.25	-0.22	0.45	-0.20	0.4349	0.0145	-9.9	0.9	-9.9	0.9	A+	A+	A-
Reading	4	3138	1	B.3.1.1	2	24501	0.69	0.05	0.21	0.05	0.69	0.00	0.29	-0.33	-0.01	-0.26	0.29	0.0627	0.0152	9.9	1.1	9.9	1.3	A+	A-	A-
Reading	4	1227	1	A.2.3.1	2	24501	0.55	0.19	0.05	0.55	0.20	0.00	0.20	-0.13	-0.22	0.20	0.01	0.7942	0.0142	9.9	1.2	9.9	1.3	A+	A-	A-
Reading	4	1557	1	B.3.2.1	2	24501	0.51	0.14	0.05	0.29	0.51	0.00	0.31	-0.17	-0.28	-0.07	0.31	0.9849	0.0141	9.9	1.1	9.9	1.1	A-	A-	A-
Reading	4	7951	1	A.2.2.1	2	24501	0.85	0.85	0.07	0.06	0.02	0.00	0.44	0.44	-0.23	-0.27	-0.23	-1.0098	0.0189	-8.7	0.9	-9.9	0.8	A+	A-	A-
Reading	4	2335	1	A.1.3.1	2	72954	0.67	0.18	0.67	0.05	0.10	0.00	0.44	-0.27	0.44	-0.25	-0.15	0.2043	0.0086	-9.9	1.0	-9.9	0.9			
Reading	4	6331	1	A.1.3.1	2	72954	0.66	0.11	0.06	0.66	0.18	0.00	0.50	-0.35	-0.25	0.50	-0.18	0.2638	0.0086	-9.9	0.9	-9.9	0.8			
Reading	4	4978	1	A.1.3.1	2	72954	0.82	0.05	0.05	0.08	0.82	0.00	0.50	-0.27	-0.24	-0.29	0.50	-0.7779	0.0104	-9.9	0.9	-9.9	0.7			
Reading	4	1343	1	B.1.1.1	2	72954	0.78	0.06	0.78	0.11	0.05	0.00	0.33	-0.25	0.33	-0.11	-0.19	-0.4929	0.0097	6.4	1.0	9.9	1.1			
Reading	4	8796	1	B.1.1.1	2	72954	0.77	0.77	0.05	0.15	0.03	0.00	0.21	0.21	-0.25	0.01	-0.21	-0.4008	0.0095	9.9	1.2	9.9	1.4			
Reading	4	7321	1	A.1.4.1	2	72954	0.70	0.10	0.05	0.14	0.70	0.00	0.39	-0.22	-0.19	-0.19	0.39	-0.0027	0.0089	-0.6	1.0	-2.5	1.0			
Reading	4	7663	1	B.1.1.1	2	72954	0.73	0.16	0.05	0.05	0.73	0.00	0.38	-0.17	-0.30	-0.17	0.38	-0.1665	0.0091	-2.0	1.0	6.8	1.1			
Reading	4	2303	1	A.1.3.1	2	72954	0.72	0.02	0.03	0.72	0.22	0.00	0.26	-0.23	-0.25	0.26	-0.09	-0.0975	0.0090	9.9	1.1	9.9	1.3			
Reading	4	813	2	A.2.3.1	2	24249	0.65	0.08	0.17	0.65	0.10	0.00	0.39	-0.26	-0.18	0.39	-0.16	0.2738	0.0148	-0.2	1.0	-0.5	1.0	A+	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	4	6927	2	A.2.4.1	1	24249	0.61	0.16	0.61	0.18	0.05	0.00	0.29	-0.13	0.29	-0.14	-0.19	0.5091	0.0145	9.9	1.1	9.9	1.1	A-	A-	A-
Reading	4	5280	2	A.2.1.1	2	24249	0.79	0.08	0.79	0.06	0.07	0.00	0.50	-0.29	0.50	-0.24	-0.27	-0.5383	0.0170	-9.9	0.9	-9.9	0.7	A-	A-	A-
Reading	4	9478	2	A.2.3.1	2	24249	0.69	0.69	0.16	0.11	0.05	0.00	0.38	0.38	-0.20	-0.19	-0.20	0.0717	0.0152	0.9	1.0	-3.1	1.0	A+	A+	A+
Reading	4	4485	2	A.2.2.1	2	24249	0.77	0.02	0.77	0.12	0.08	0.00	0.31	-0.24	0.31	-0.19	-0.11	-0.3982	0.0165	6.9	1.1	8.6	1.1	A+	A-	A-
Reading	4	9932	2	B.3.1.1	2	24249	0.80	0.07	0.05	0.80	0.07	0.00	0.50	-0.28	-0.29	0.50	-0.25	-0.6690	0.0175	-9.9	0.9	-9.9	0.7	A+	A-	A-
Reading	4	8789	2	B.3.3.4	2	24249	0.55	0.08	0.55	0.27	0.09	0.00	0.33	-0.26	0.33	-0.11	-0.14	0.7838	0.0143	9.9	1.1	9.5	1.1	A+	A-	A-
Reading	4	8044	2	A.2.3.1	2	24249	0.72	0.10	0.09	0.09	0.72	0.00	0.46	-0.19	-0.24	-0.28	0.46	-0.0882	0.0156	-9.9	0.9	-9.9	0.8	A+	A-	A-
Reading	4	6422	2	B.3.3.3	2	24249	0.68	0.14	0.10	0.07	0.68	0.00	0.47	-0.25	-0.23	-0.23	0.47	0.1033	0.0152	-9.9	0.9	-9.9	0.8	A-	A+	A-
Reading	4	4818	2	B.3.3.3	2	24249	0.69	0.69	0.08	0.18	0.05	0.00	0.40	0.40	-0.18	-0.21	-0.25	0.0575	0.0153	-1.2	1.0	-5.8	0.9	A+	A-	A-
Reading	4	2335	2	A.1.3.1	2	72954	0.67	0.18	0.67	0.05	0.10	0.00	0.44	-0.27	0.44	-0.25	-0.15	0.2043	0.0086	-9.9	1.0	-9.9	0.9			
Reading	4	6331	2	A.1.3.1	2	72954	0.66	0.11	0.06	0.66	0.18	0.00	0.50	-0.35	-0.25	0.50	-0.18	0.2638	0.0086	-9.9	0.9	-9.9	0.8			
Reading	4	4978	2	A.1.3.1	2	72954	0.82	0.05	0.05	0.08	0.82	0.00	0.50	-0.27	-0.24	-0.29	0.50	-0.7779	0.0104	-9.9	0.9	-9.9	0.7			
Reading	4	1343	2	B.1.1.1	2	72954	0.78	0.06	0.78	0.11	0.05	0.00	0.33	-0.25	0.33	-0.11	-0.19	-0.4929	0.0097	6.4	1.0	9.9	1.1			
Reading	4	8796	2	B.1.1.1	2	72954	0.77	0.77	0.05	0.15	0.03	0.00	0.21	0.21	-0.25	0.01	-0.21	-0.4008	0.0095	9.9	1.2	9.9	1.4			
Reading	4	7321	2	A.1.4.1	2	72954	0.70	0.10	0.05	0.14	0.70	0.00	0.39	-0.22	-0.19	-0.19	0.39	-0.0027	0.0089	-0.6	1.0	-2.5	1.0			
Reading	4	7663	2	B.1.1.1	2	72954	0.73	0.16	0.05	0.05	0.73	0.00	0.38	-0.17	-0.30	-0.17	0.38	-0.1665	0.0091	-2.0	1.0	6.8	1.1			
Reading	4	2303	2	A.1.3.1	2	72954	0.72	0.02	0.03	0.72	0.22	0.00	0.26	-0.23	-0.25	0.26	-0.09	-0.0975	0.0090	9.9	1.1	9.9	1.3			
Reading	4	6862	3	A.2.3.1	2	24204	0.41	0.31	0.41	0.22	0.05	0.00	0.30	-0.26	0.30	0.02	-0.15	1.5064	0.0143	9.9	1.1	9.9	1.2	A+	A-	A-
Reading	4	8163	3	A.2.3.1	2	24204	0.41	0.27	0.41	0.22	0.11	0.00	0.25	-0.17	0.25	-0.03	-0.11	1.4890	0.0143	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	4	907	3	A.2.2.2	2	24204	0.84	0.84	0.05	0.07	0.05	0.00	0.45	0.45	-0.26	-0.26	-0.22	-0.9139	0.0187	-9.9	0.9	-9.9	0.8	A+	B-	B-
Reading	4	554	3	A.2.4.1	2	24204	0.77	0.04	0.09	0.77	0.09	0.00	0.47	-0.17	-0.28	0.47	-0.27	-0.4187	0.0166	-9.9	0.9	-9.9	0.8	A-	B-	B-
Reading	4	9570	3	A.2.2.2	2	24204	0.86	0.86	0.08	0.03	0.03	0.00	0.40	0.40	-0.24	-0.22	-0.20	-1.1323	0.0198	-6.1	0.9	-7.8	0.8	A-	B-	B-
Reading	4	7178	3	A.2.3.1	2	24204	0.22	0.22	0.51	0.18	0.08	0.00	0.06	0.06	0.18	-0.15	-0.21	2.5257	0.0164	9.9	1.2	9.9	1.8	A+	A+	A-
Reading	4	2739	3	A.2.3.1	2	24204	0.34	0.46	0.08	0.34	0.12	0.00	0.29	-0.10	-0.17	0.29	-0.13	1.8541	0.0147	1.7	1.0	9.9	1.2	A-	B-	A-
Reading	4	9386	3	A.2.1.2	1	24204	0.89	0.04	0.04	0.03	0.89	0.00	0.43	-0.28	-0.24	-0.19	0.43	-1.3970	0.0215	-8.6	0.9	-9.9	0.7	A+	A-	A-
Reading	4	9832	3	A.2.6.1	2	24204	0.56	0.05	0.14	0.56	0.25	0.00	0.25	-0.26	-0.21	0.25	0.01	0.7855	0.0142	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	4	6382	3	B.3.3.3	2	24204	0.47	0.47	0.33	0.05	0.15	0.00	0.24	0.24	0.02	-0.23	-0.22	1.1988	0.0141	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	4	2335	3	A.1.3.1	2	72954	0.67	0.18	0.67	0.05	0.10	0.00	0.44	-0.27	0.44	-0.25	-0.15	0.2043	0.0086	-9.9	1.0	-9.9	0.9			
Reading	4	6331	3	A.1.3.1	2	72954	0.66	0.11	0.06	0.66	0.18	0.00	0.50	-0.35	-0.25	0.50	-0.18	0.2638	0.0086	-9.9	0.9	-9.9	0.8			
Reading	4	4978	3	A.1.3.1	2	72954	0.82	0.05	0.05	0.08	0.82	0.00	0.50	-0.27	-0.24	-0.29	0.50	-0.7779	0.0104	-9.9	0.9	-9.9	0.7			
Reading	4	1343	3	B.1.1.1	2	72954	0.78	0.06	0.78	0.11	0.05	0.00	0.33	-0.25	0.33	-0.11	-0.19	-0.4929	0.0097	6.4	1.0	9.9	1.1			
Reading	4	8796	3	B.1.1.1	2	72954	0.77	0.77	0.05	0.15	0.03	0.00	0.21	0.21	-0.25	0.01	-0.21	-0.4008	0.0095	9.9	1.2	9.9	1.4			
Reading	4	7321	3	A.1.4.1	2	72954	0.70	0.10	0.05	0.14	0.70	0.00	0.39	-0.22	-0.19	-0.19	0.39	-0.0027	0.0089	-0.6	1.0	-2.5	1.0			
Reading	4	7663	3	B.1.1.1	2	72954	0.73	0.16	0.05	0.05	0.73	0.00	0.38	-0.17	-0.30	-0.17	0.38	-0.1665	0.0091	-2.0	1.0	6.8	1.1			
Reading	4	2303	3	A.1.3.1	2	72954	0.72	0.02	0.03	0.72	0.22	0.00	0.26	-0.23	-0.25	0.26	-0.09	-0.0975	0.0090	9.9	1.1	9.9	1.3			
Reading	4	1117	4	B.1.1.1	2	24258	0.49	0.16	0.32	0.49	0.03	0.00	0.33	-0.31	-0.05	0.33	-0.15	1.0972	0.0142	9.9	1.1	9.9	1.1	A+	A-	A-
Reading	4	7780	4	A.1.1.1	2	24258	0.82	0.82	0.04	0.04	0.09	0.00	0.44	0.44	-0.25	-0.28	-0.21	-0.8241	0.0182	-8.4	0.9	-9.9	0.8	A-	A-	A-
Reading	4	71	4	B.1.1.1	2	24258	0.80	0.10	0.05	0.05	0.80	0.00	0.49	-0.23	-0.28	-0.31	0.49	-0.6256	0.0174	-9.9	0.9	-9.9	0.8	A+	B-	B-
Reading	4	9840	4	B.2.1.3	2	24258	0.62	0.62	0.16	0.16	0.06	0.00	0.37	0.37	-0.27	-0.10	-0.18	0.4553	0.0146	6.1	1.0	4.0	1.0	A+	A-	A+
Reading	4	8092	4	A.1.4.1	2	24258	0.84	0.06	0.84	0.05	0.05	0.00	0.41	-0.21	0.41	-0.21	-0.25	-0.9629	0.0189	-7.1	0.9	-5.9	0.9	A-	B-	B-
Reading	4	2633	4	A.1.6.1	2	24258	0.81	0.81	0.06	0.07	0.05	0.00	0.43	0.43	-0.21	-0.18	-0.32	-0.7293	0.0178	-7.5	0.9	-9.5	0.8	A+	A-	A-
Reading	4	3847	4	A.1.3.1	2	24258	0.80	0.08	0.02	0.10	0.80	0.00	0.46	-0.25	-0.24	-0.28	0.46	-0.6131	0.0173	-9.9	0.9	-9.9	0.8	A-	C-	C-
Reading	4	3713	4	B.1.1.1	2	24258	0.90	0.03	0.90	0.05	0.02	0.00	0.33	-0.18	0.33	-0.22	-0.15	-1.5120	0.0221	-3.0	1.0	-1.5	1.0	A+	A-	A-
Reading	4	6709	4	B.1.1.1	2	24258	0.67	0.24	0.02	0.67	0.06	0.00	0.46	-0.28	-0.22	0.46	-0.28	0.1612	0.0151	-9.9	0.9	-9.9	0.9	A+	A-	B-
Reading	4	5488	4	B.1.1.1	2	24258	0.88	0.06	0.88	0.03	0.02	0.00	0.38	-0.21	0.38	-0.21	-0.23	-1.3370	0.0210	-5.7	0.9	-5.8	0.9	A+	A-	B-
Reading	4	8965	4	A.2.2.2	2	48488	0.41	0.09	0.18	0.41	0.31	0.00	0.34	-0.21	-0.07	0.34	-0.17	1.5093	0.0102	4.5	1.0	9.9	1.1			
Reading	4	8375	4	A.2.3.1	2	48488	0.43	0.37	0.06	0.14	0.43	0.00	0.39	-0.14	-0.26	-0.19	0.39	1.3990	0.0101	-9.9	1.0	1.0	1.0			
Reading	4	7161	4	A.2.3.1	2	48488	0.67	0.10	0.67	0.11	0.12	0.00	0.39	-0.20	0.39	-0.21	-0.17	0.1941	0.0106	0.5	1.0	1.0	1.0			
Reading	4	6023	4	A.2.3.1	2	48488	0.76	0.07	0.76	0.03	0.14	0.00	0.38	-0.32	0.38	-0.25	-0.11	-0.3534	0.0116	-1.3	1.0	6.5	1.1			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	4	1551	4	A.2.4.1	1	48488	0.69	0.09	0.08	0.14	0.69	0.00	0.43	-0.18	-0.20	-0.25	0.43	0.0711	0.0108	-8.4	1.0	-9.9	0.9			
Reading	4	5353	4	A.2.3.1	2	48488	0.56	0.23	0.14	0.56	0.07	0.00	0.40	-0.18	-0.21	0.40	-0.20	0.7530	0.0101	-5.4	1.0	-4.5	1.0			
Reading	4	4348	4	B.3.1.1	2	48488	0.50	0.05	0.50	0.41	0.05	0.00	0.27	-0.28	0.27	-0.03	-0.27	1.0833	0.0100	9.9	1.1	9.9	1.2			
Reading	4	3182	4	B.3.3.1	3	48488	0.54	0.13	0.22	0.11	0.54	0.00	0.34	-0.18	-0.10	-0.20	0.34	0.8771	0.0100	9.9	1.1	9.9	1.1			
Reading	4	9023	5	B.1.1.1	2	24230	0.93	0.04	0.02	0.93	0.01	0.00	0.30	-0.24	-0.16	0.30	-0.07	-1.9929	0.0262	-3.0	0.9	-2.3	0.9	A+	A-	A-
Reading	4	1528	5	A.1.3.1	2	24230	0.71	0.16	0.11	0.03	0.71	0.00	0.33	-0.24	-0.14	-0.11	0.33	-0.0262	0.0154	6.8	1.1	6.6	1.1	A-	B-	A-
Reading	4	2024	5	A.1.2.1	2	24230	0.85	0.85	0.11	0.02	0.02	0.00	0.34	0.34	-0.22	-0.18	-0.22	-1.0292	0.0191	-1.9	1.0	-3.5	0.9	A+	A+	A-
Reading	4	4879	5	A.1.4.1	1	24230	0.71	0.08	0.19	0.71	0.02	0.00	0.29	-0.28	-0.08	0.29	-0.20	-0.0285	0.0154	9.9	1.1	9.9	1.2	A+	A-	A-
Reading	4	9468	5	A.1.3.1	2	24230	0.83	0.11	0.83	0.02	0.04	0.00	0.31	-0.12	0.31	-0.20	-0.24	-0.8574	0.0183	1.5	1.0	7.0	1.2	B+	A-	A-
Reading	4	4070	5	A.1.1.1	2	24230	0.82	0.02	0.13	0.03	0.82	0.00	0.37	-0.19	-0.23	-0.23	0.37	-0.7834	0.0179	-2.6	1.0	-4.7	0.9	A+	A+	A-
Reading	4	789	5	B.2.1.2	2	24230	0.79	0.79	0.05	0.13	0.03	0.00	0.38	0.38	-0.17	-0.25	-0.21	-0.5386	0.0169	-2.1	1.0	-3.1	1.0	A+	A-	A-
Reading	4	9225	5	A.1.3.1	2	24230	0.36	0.14	0.07	0.43	0.36	0.00	0.17	-0.24	-0.18	0.10	0.17	1.7312	0.0146	9.9	1.2	9.9	1.4	A-	A-	A-
Reading	4	142	5	A.1.4.1	2	24230	0.63	0.08	0.07	0.63	0.23	0.00	0.42	-0.27	-0.22	0.42	-0.18	0.4097	0.0146	-6.7	1.0	-8.1	0.9	A+	A-	A-
Reading	4	5834	5	A.1.6.1	2	24230	0.79	0.09	0.79	0.09	0.03	0.00	0.45	-0.27	0.45	-0.23	-0.23	-0.5779	0.0171	-9.8	0.9	-9.9	0.8	A+	A-	A-
Reading	4	8965	5	A.2.2.2	2	48488	0.41	0.09	0.18	0.41	0.31	0.00	0.34	-0.21	-0.07	0.34	-0.17	1.5093	0.0102	4.5	1.0	9.9	1.1			
Reading	4	8375	5	A.2.3.1	2	48488	0.43	0.37	0.06	0.14	0.43	0.00	0.39	-0.14	-0.26	-0.19	0.39	1.3990	0.0101	-9.9	1.0	1.0	1.0			
Reading	4	7161	5	A.2.3.1	2	48488	0.67	0.10	0.67	0.11	0.12	0.00	0.39	-0.20	0.39	-0.21	-0.17	0.1941	0.0106	0.5	1.0	1.0	1.0			
Reading	4	6023	5	A.2.3.1	2	48488	0.76	0.07	0.76	0.03	0.14	0.00	0.38	-0.32	0.38	-0.25	-0.11	-0.3534	0.0116	-1.3	1.0	6.5	1.1			
Reading	4	1551	5	A.2.4.1	1	48488	0.69	0.09	0.08	0.14	0.69	0.00	0.43	-0.18	-0.20	-0.25	0.43	0.0711	0.0108	-8.4	1.0	-9.9	0.9			
Reading	4	5353	5	A.2.3.1	2	48488	0.56	0.23	0.14	0.56	0.07	0.00	0.40	-0.18	-0.21	0.40	-0.20	0.7530	0.0101	-5.4	1.0	-4.5	1.0			
Reading	4	4348	5	B.3.1.1	2	48488	0.50	0.05	0.50	0.41	0.05	0.00	0.27	-0.28	0.27	-0.03	-0.27	1.0833	0.0100	9.9	1.1	9.9	1.2			
Reading	4	3182	5	B.3.3.1	3	48488	0.54	0.13	0.22	0.11	0.54	0.00	0.34	-0.18	-0.10	-0.20	0.34	0.8771	0.0100	9.9	1.1	9.9	1.1			
Reading	5	2470	0	A.1.3.1		123947	0.79	0.16	0.79	0.01	0.04	0.00	0.30	-0.23	0.30	-0.10	-0.14	-0.3033	0.0076	9.9	1.1	9.9	1.1			
Reading	5	4430	0	A.1.4.1		123947	0.64	0.12	0.07	0.64	0.17	0.00	0.27	-0.26	-0.20	0.27	0.02	0.5674	0.0065	9.9	1.2	9.9	1.2			
Reading	5	3978	0	A.1.3.1		123947	0.68	0.08	0.68	0.15	0.09	0.00	0.22	-0.16	0.22	-0.17	0.00	0.3770	0.0067	9.9	1.2	9.9	1.3			
Reading	5	4162	0	A.1.4.1		123947	0.74	0.03	0.09	0.14	0.74	0.00	0.31	-0.15	-0.21	-0.14	0.31	0.0271	0.0071	9.9	1.1	9.9	1.2			
Reading	5	1697	0	A.1.1.2		123947	0.62	0.23	0.05	0.62	0.10	0.00	0.26	-0.11	-0.19	0.26	-0.12	0.6995	0.0065	9.9	1.2	9.9	1.2			
Reading	5	4413	0	B.2.1.3		123947	0.71	0.04	0.71	0.13	0.13	0.00	0.33	-0.18	0.33	-0.21	-0.14	0.2183	0.0069	9.9	1.1	9.9	1.1			
Reading	5	92	0	B.1.1.1		123947	0.82	0.82	0.04	0.06	0.09	0.00	0.35	0.35	-0.22	-0.20	-0.15	-0.5264	0.0079	4.6	1.0	0.1	1.0			
Reading	5	697	0	B.1.2.1		123947	0.76	0.06	0.13	0.05	0.76	0.00	0.39	-0.17	-0.23	-0.24	0.39	-0.1254	0.0073	-2.2	1.0	-4.2	1.0			
Reading	5	5411	0	A.2.4.1		123947	0.86	0.04	0.86	0.08	0.03	0.00	0.50	-0.28	0.50	-0.33	-0.21	-0.8901	0.0087	-9.9	0.9	-9.9	0.7			
Reading	5	8686	0	A.2.4.1	1	123947	0.77	0.02	0.14	0.06	0.77	0.00	0.48	-0.23	-0.31	-0.24	0.48	-0.2025	0.0074	-9.9	0.9	-9.9	0.8			
Reading	5	2708	0	A.2.4.1		123947	0.81	0.81	0.10	0.03	0.06	0.00	0.35	0.35	-0.16	-0.26	-0.17	-0.4859	0.0079	4.6	1.0	7.2	1.1			
Reading	5	8108	0	A.2.1.2		123947	0.64	0.24	0.07	0.64	0.05	0.00	0.27	-0.22	-0.09	0.27	-0.05	0.5715	0.0065	9.9	1.1	9.9	1.2			
Reading	5	1967	0	A.2.4.1		123947	0.51	0.04	0.27	0.51	0.18	0.00	0.33	-0.28	-0.07	0.33	-0.20	1.2595	0.0063	9.9	1.1	9.9	1.1			
Reading	5	8939	0	A.2.4.1		123947	0.84	0.02	0.10	0.04	0.84	0.00	0.48	-0.27	-0.28	-0.26	0.48	-0.6873	0.0083	-9.9	0.9	-9.9	0.7			
Reading	5	9197	0	B.3.1.1		123947	0.87	0.87	0.03	0.04	0.05	0.00	0.47	0.47	-0.26	-0.27	-0.25	-1.0185	0.0091	-9.9	0.9	-9.9	0.7			
Reading	5	2532	0	B.3.3.1		123947	0.59	0.08	0.59	0.13	0.21	0.00	0.34	-0.22	0.34	-0.22	-0.08	0.8667	0.0064	9.9	1.1	9.9	1.1			
Reading	5	5627	0	A.1.4.1	1	123947	0.66	0.15	0.13	0.66	0.06	0.00	0.35	-0.20	-0.16	0.35	-0.15	0.4857	0.0066	9.9	1.1	8.3	1.0			
Reading	5	7385	0	A.1.3.1	2	123947	0.67	0.10	0.20	0.67	0.03	0.00	0.31	-0.17	-0.16	0.31	-0.17	0.4272	0.0067	9.9	1.1	9.9	1.1			
Reading	5	5037	0	A.1.4.1	1	123947	0.92	0.03	0.03	0.02	0.92	0.00	0.46	-0.26	-0.27	-0.23	0.46	-1.5993	0.0109	-9.9	0.9	-9.9	0.5			
Reading	5	6650	0	B.1.1.1	2	123947	0.65	0.06	0.65	0.24	0.05	0.00	0.45	-0.22	0.45	-0.26	-0.22	0.5365	0.0066	-9.9	0.9	-9.9	0.9			
Reading	5	7359	0	A.1.3.1	2	123947	0.71	0.71	0.08	0.07	0.13	0.00	0.32	0.32	-0.24	-0.21	-0.06	0.1650	0.0069	9.9	1.1	9.9	1.2			
Reading	5	1420	0	B.1.1.1	3	123947	0.78	0.78	0.09	0.05	0.08	0.00	0.45	0.45	-0.19	-0.31	-0.22	-0.2276	0.0074	-9.9	0.9	-9.9	0.9			
Reading	5	9093	0	A.1.6.1	3	123947	0.39	0.07	0.27	0.27	0.39	0.00	0.35	-0.27	-0.09	-0.13	0.35	1.8496	0.0064	-6.2	1.0	9.9	1.1			
Reading	5	2901	0	B.2.1.2	2	123947	0.58	0.30	0.58	0.06	0.06	0.00	0.28	-0.07	0.28	-0.22	-0.22	0.9113	0.0064	9.9	1.1	9.9	1.2			
Reading	5	4622	0	A.1.4.1	1	123947	0.57	0.37	0.05	0.01	0.57	0.00	0.43	-0.29	-0.26	-0.17	0.43	0.9692	0.0063	-9.9	1.0	-9.9	1.0			
Reading	5	3571	0	B.2.2.1	2	123947	0.69	0.69	0.20	0.06	0.04	0.00	0.40	0.40	-0.23	-0.18	-0.26	0.2897	0.0068	-1.9	1.0	-9.4	1.0			
Reading	5	875	0	A.1.3.1	2	123947	0.75	0.08	0.07	0.10	0.75	0.00	0.48	-0.27	-0.26	-0.23	0.48	-0.0719	0.0072	-9.9	0.9	-9.9	0.8			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	5	5452	0	A.1.1.2	1	123947	0.82	0.02	0.13	0.82	0.03	0.00	0.33	-0.22	-0.16	0.33	-0.23	-0.5539	0.0080	6.2	1.0	9.5	1.1			
Reading	5	4534	0	A.1.3.1	2	123947	0.82	0.82	0.06	0.03	0.09	0.00	0.41	0.41	-0.21	-0.25	-0.22	-0.5888	0.0081	-8.0	1.0	-9.9	0.9			
Reading	5	4397	0	A.1.5.1	2	123947	0.73	0.04	0.10	0.73	0.13	0.00	0.47	-0.28	-0.25	0.47	-0.24	0.0503	0.0070	-9.9	0.9	-9.9	0.8			
Reading	5	4326	0	B.1.1.1	3	123947	0.67	0.17	0.67	0.07	0.09	0.00	0.37	-0.16	0.37	-0.22	-0.20	0.4218	0.0067	9.9	1.0	3.8	1.0			
Reading	5	5261	0	A.1.6.1	3	123947	0.77	0.04	0.09	0.10	0.77	0.00	0.45	-0.28	-0.23	-0.23	0.45	-0.1832	0.0074	-9.9	0.9	-9.9	0.9			
Reading	5	7770	0	A.2.4.1		123947	0.87	0.09	0.87	0.02	0.02	0.00	0.39	-0.24	0.39	-0.24	-0.21	-1.0190	0.0091	-9.9	0.9	0.0	1.0			
Reading	5	3916	0	B.2.1.4		123947	0.82	0.05	0.04	0.82	0.08	0.00	0.42	-0.27	-0.28	0.42	-0.15	-0.5677	0.0080	-9.9	0.9	-4.6	1.0			
Reading	5	2911	0	A.2.4.1		123947	0.78	0.78	0.12	0.05	0.05	0.00	0.49	0.49	-0.28	-0.28	-0.24	-0.2341	0.0074	-9.9	0.9	-9.9	0.8			
Reading	5	529	0	A.2.4.1		123947	0.88	0.07	0.88	0.03	0.02	0.00	0.49	-0.30	0.49	-0.27	-0.26	-1.1664	0.0095	-9.9	0.8	-9.9	0.6			
Reading	5	7181	0	A.2.3.1		123947	0.62	0.15	0.08	0.62	0.15	0.00	0.30	-0.20	-0.08	0.30	-0.14	0.6761	0.0065	9.9	1.1	9.9	1.2			
Reading	5	7396	0	A.2.4.1		123947	0.71	0.11	0.71	0.09	0.08	0.00	0.50	-0.28	0.50	-0.21	-0.29	0.1686	0.0069	-9.9	0.9	-9.9	0.8			
Reading	5	5678	0	B.3.1.1		123947	0.78	0.12	0.03	0.06	0.78	0.00	0.47	-0.23	-0.30	-0.27	0.47	-0.2706	0.0075	-9.9	0.9	-9.9	0.8			
Reading	5	4514	0	B.3.3.1		123947	0.58	0.16	0.58	0.11	0.15	0.00	0.36	-0.17	0.36	-0.17	-0.17	0.8950	0.0064	9.9	1.0	9.9	1.1			
Reading	5	3239	1	A.2.3.1	2	24989	0.71	0.20	0.71	0.05	0.04	0.00	0.31	-0.14	0.31	-0.19	-0.22	0.1847	0.0153	9.9	1.1	9.1	1.1	A-	A-	A-
Reading	5	5820	1	A.2.4.1	2	24989	0.86	0.04	0.06	0.04	0.86	0.00	0.43	-0.21	-0.25	-0.24	0.43	-0.8900	0.0193	-7.1	0.9	-9.9	0.8	A-	A-	A-
Reading	5	2557	1	B.3.1.1	2	24989	0.83	0.03	0.04	0.10	0.83	0.00	0.45	-0.29	-0.23	-0.24	0.45	-0.6227	0.0180	-9.0	0.9	-9.9	0.8	A+	A-	A-
Reading	5	5069	1	A.2.4.1	2	24989	0.53	0.03	0.11	0.53	0.33	0.00	0.32	-0.23	-0.23	0.32	-0.10	1.1252	0.0140	9.9	1.1	9.9	1.1	A-	A-	A-
Reading	5	8795	1	A.2.3.1	2	24989	0.74	0.07	0.14	0.05	0.74	0.00	0.26	-0.14	-0.16	-0.11	0.26	-0.0313	0.0159	9.9	1.1	9.9	1.3	A-	B-	A-
Reading	5	6630	1	A.2.1.2	2	24989	0.84	0.07	0.02	0.07	0.84	0.00	0.38	-0.22	-0.21	-0.21	0.38	-0.7220	0.0185	-3.4	1.0	-2.1	1.0	A-	A-	B-
Reading	5	6675	1	A.2.3.2	3	24989	0.66	0.21	0.09	0.66	0.04	0.00	0.33	-0.10	-0.26	0.33	-0.21	0.4691	0.0147	9.9	1.1	9.9	1.1	A-	A-	A-
Reading	5	3567	1	A.2.2.2	2	24989	0.73	0.73	0.15	0.07	0.04	0.00	0.40	0.40	-0.21	-0.20	-0.24	0.0484	0.0156	-1.1	1.0	-3.9	1.0	A-	A-	A+
Reading	5	4063	1	A.2.4.1	1	24989	0.46	0.46	0.31	0.17	0.06	0.00	0.34	0.34	-0.04	-0.23	-0.26	1.4892	0.0140	6.7	1.0	9.9	1.1	A+	A-	A-
Reading	5	9137	1	B.3.3.1	2	24989	0.41	0.19	0.41	0.10	0.29	0.00	0.24	-0.02	0.24	-0.15	-0.14	1.6991	0.0141	9.9	1.1	9.9	1.3	A-	A+	A-
Reading	5	3487	1	A.1.2.1	1	74572	0.67	0.10	0.17	0.67	0.06	0.00	0.41	-0.26	-0.21	0.41	-0.14	0.4250	0.0086	-3.3	1.0	-8.3	1.0			
Reading	5	4663	1	B.2.2.1	2	74572	0.41	0.41	0.10	0.07	0.41	0.00	0.30	-0.11	-0.14	-0.20	0.30	1.7195	0.0082	9.9	1.1	9.9	1.2			
Reading	5	393	1	A.1.2.2	2	74572	0.86	0.05	0.06	0.86	0.04	0.00	0.48	-0.29	-0.26	0.48	-0.23	-0.8895	0.0112	-9.9	0.9	-9.9	0.7			
Reading	5	9221	1	A.1.4.1	1	74572	0.78	0.78	0.06	0.06	0.10	0.00	0.47	0.47	-0.27	-0.27	-0.23	-0.2659	0.0096	-9.9	0.9	-9.9	0.8			
Reading	5	8490	1	B.2.1.1	2	74572	0.65	0.65	0.12	0.14	0.09	0.00	0.44	0.44	-0.23	-0.22	-0.21	0.5215	0.0085	-9.9	0.9	-9.9	0.9			
Reading	5	2124	1	A.1.1.1	2	74572	0.79	0.06	0.10	0.05	0.79	0.00	0.41	-0.20	-0.20	-0.25	0.41	-0.2994	0.0097	-7.7	1.0	-4.1	1.0			
Reading	5	1385	1	A.1.4.1	3	74572	0.76	0.04	0.76	0.11	0.08	0.00	0.43	-0.28	0.43	-0.21	-0.22	-0.1358	0.0094	-9.9	1.0	-9.9	0.9			
Reading	5	8879	1	B.1.1.1	2	74572	0.53	0.16	0.10	0.53	0.21	0.00	0.30	-0.04	-0.21	0.30	-0.18	1.1488	0.0081	9.9	1.1	9.9	1.2			
Reading	5	7021	2	B.3.2.2	2	24864	0.58	0.21	0.58	0.09	0.11	0.00	0.39	-0.21	0.39	-0.26	-0.09	0.8759	0.0143	0.3	1.0	-0.3	1.0	A-	A-	A-
Reading	5	2600	2	A.2.4.1	2	24864	0.44	0.12	0.13	0.44	0.30	0.00	0.29	-0.17	-0.17	0.29	-0.07	1.5720	0.0141	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	5	5176	2	A.2.2.2	2	24864	0.75	0.03	0.19	0.75	0.03	0.00	0.24	-0.19	-0.14	0.24	-0.13	-0.0798	0.0161	9.9	1.1	9.9	1.2	B-	C-	A-
Reading	5	9990	2	A.2.3.1	3	24864	0.74	0.03	0.16	0.74	0.07	0.00	0.44	-0.21	-0.28	0.44	-0.22	-0.0004	0.0159	-7.6	0.9	-9.0	0.9	A-	A-	A-
Reading	5	73	2	A.2.3.1	2	24864	0.68	0.19	0.11	0.03	0.68	0.00	0.48	-0.22	-0.35	-0.20	0.48	0.3902	0.0150	-9.9	0.9	-9.9	0.8	B-	C-	C-
Reading	5	6280	2	B.3.1.1	2	24864	0.88	0.88	0.03	0.06	0.03	0.00	0.43	0.43	-0.24	-0.24	-0.23	-1.0917	0.0207	-7.5	0.9	-9.9	0.7	A+	B-	A-
Reading	5	2482	2	A.2.1.1	2	24864	0.70	0.16	0.70	0.10	0.04	0.00	0.38	-0.16	0.38	-0.19	-0.27	0.2710	0.0152	2.1	1.0	1.4	1.0	A+	B-	B-
Reading	5	4448	2	A.2.3.2	2	24864	0.44	0.27	0.13	0.16	0.44	0.00	0.36	-0.15	-0.22	-0.10	0.36	1.5728	0.0141	-0.5	1.0	5.6	1.1	A-	A-	A-
Reading	5	8944	2	A.2.4.1	3	24864	0.58	0.10	0.12	0.58	0.20	0.00	0.34	-0.15	-0.21	0.34	-0.14	0.8868	0.0142	9.9	1.1	9.9	1.1	A-	A-	A-
Reading	5	9056	2	B.2.1.1	1	24864	0.68	0.06	0.20	0.05	0.68	0.00	0.45	-0.27	-0.21	-0.27	0.45	0.3471	0.0150	-8.6	0.9	-7.5	0.9	A-	A-	A-
Reading	5	3487	2	A.1.2.1	1	74572	0.67	0.10	0.17	0.67	0.06	0.00	0.41	-0.26	-0.21	0.41	-0.14	0.4250	0.0086	-3.3	1.0	-8.3	1.0			
Reading	5	4663	2	B.2.2.1	2	74572	0.41	0.41	0.10	0.07	0.41	0.00	0.30	-0.11	-0.14	-0.20	0.30	1.7195	0.0082	9.9	1.1	9.9	1.2			
Reading	5	393	2	A.1.2.2	2	74572	0.86	0.05	0.06	0.86	0.04	0.00	0.48	-0.29	-0.26	0.48	-0.23	-0.8895	0.0112	-9.9	0.9	-9.9	0.7			
Reading	5	9221	2	A.1.4.1	1	74572	0.78	0.78	0.06	0.06	0.10	0.00	0.47	0.47	-0.27	-0.27	-0.23	-0.2659	0.0096	-9.9	0.9	-9.9	0.8			
Reading	5	8490	2	B.2.1.1	2	74572	0.65	0.65	0.12	0.14	0.09	0.00	0.44	0.44	-0.23	-0.22	-0.21	0.5215	0.0085	-9.9	0.9	-9.9	0.9			
Reading	5	2124	2	A.1.1.1	2	74572	0.79	0.06	0.10	0.05	0.79	0.00	0.41	-0.20	-0.20	-0.25	0.41	-0.2994	0.0097	-7.7	1.0	-4.1	1.0			
Reading	5	1385	2	A.1.4.1	3	74572	0.76	0.04	0.76	0.11	0.08	0.00	0.43	-0.28	0.43	-0.21	-0.22	-0.1358	0.0094	-9.9	1.0	-9.9	0.9			
Reading	5	8879	2	B.1.1.1	2	74572	0.53	0.16	0.10	0.53	0.21	0.00	0.30	-0.04	-0.21	0.30	-0.18	1.1488	0.0081	9.9	1.1	9.9	1.2			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	5	3971	3	A.2.3.1	2	24719	0.78	0.06	0.07	0.09	0.78	0.00	0.44	-0.27	-0.20	-0.24	0.44	-0.2767	0.0168	-7.6	0.9	-9.9	0.8	A-	B-	A-
Reading	5	9632	3	B.3.3.3	1	24719	0.73	0.10	0.10	0.73	0.07	0.00	0.36	-0.22	-0.17	0.36	-0.17	0.0948	0.0157	3.5	1.0	-3.2	1.0	A-	A-	A-
Reading	5	7462	3	A.2.6.1	2	24719	0.75	0.20	0.75	0.02	0.02	0.00	0.36	-0.23	0.36	-0.18	-0.23	-0.0773	0.0162	3.6	1.0	0.7	1.0	A-	A-	A-
Reading	5	7930	3	A.2.4.1	1	24719	0.70	0.70	0.07	0.11	0.12	0.00	0.43	0.43	-0.22	-0.23	-0.22	0.2476	0.0153	-6.5	1.0	-7.4	0.9	A-	A-	A-
Reading	5	5530	3	A.2.3.1	2	24719	0.71	0.15	0.71	0.06	0.07	0.00	0.37	-0.16	0.37	-0.24	-0.20	0.1726	0.0155	3.5	1.0	-0.2	1.0	A+	A+	A+
Reading	5	3325	3	A.2.3.2	2	24719	0.61	0.07	0.24	0.61	0.08	0.00	0.23	-0.27	-0.03	0.23	-0.12	0.7547	0.0144	9.9	1.2	9.9	1.3	A-	A+	A+
Reading	5	8631	3	B.2.1.3	1	24719	0.79	0.04	0.08	0.79	0.08	0.00	0.35	-0.27	-0.18	0.35	-0.14	-0.3038	0.0169	3.0	1.0	-0.2	1.0	A+	A-	A-
Reading	5	6976	3	A.2.1.1	2	24719	0.58	0.17	0.16	0.58	0.09	0.00	0.32	-0.11	-0.13	0.32	-0.24	0.9251	0.0143	9.9	1.1	9.9	1.2	A+	A-	A-
Reading	5	4203	3	B.3.1.1	2	24719	0.91	0.03	0.03	0.03	0.91	0.00	0.49	-0.26	-0.30	-0.27	0.49	-1.4691	0.0234	-9.9	0.8	-9.9	0.5	A+	B-	B-
Reading	5	6273	3	B.3.3.2	2	24719	0.60	0.13	0.22	0.04	0.60	0.00	0.37	-0.33	-0.08	-0.18	0.37	0.7769	0.0144	4.4	1.0	4.3	1.0	A-	A-	A-
Reading	5	3487	3	A.1.2.1	1	74572	0.67	0.10	0.17	0.67	0.06	0.00	0.41	-0.26	-0.21	0.41	-0.14	0.4250	0.0086	-3.3	1.0	-8.3	1.0			
Reading	5	4663	3	B.2.2.1	2	74572	0.41	0.41	0.10	0.07	0.41	0.00	0.30	-0.11	-0.14	-0.20	0.30	1.7195	0.0082	9.9	1.1	9.9	1.2			
Reading	5	393	3	A.1.2.2	2	74572	0.86	0.05	0.06	0.86	0.04	0.00	0.48	-0.29	-0.26	0.48	-0.23	-0.8895	0.0112	-9.9	0.9	-9.9	0.7			
Reading	5	9221	3	A.1.4.1	1	74572	0.78	0.78	0.06	0.06	0.10	0.00	0.47	0.47	-0.27	-0.27	-0.23	-0.2659	0.0096	-9.9	0.9	-9.9	0.8			
Reading	5	8490	3	B.2.1.1	2	74572	0.65	0.65	0.12	0.14	0.09	0.00	0.44	0.44	-0.23	-0.22	-0.21	0.5215	0.0085	-9.9	0.9	-9.9	0.9			
Reading	5	2124	3	A.1.1.1	2	74572	0.79	0.06	0.10	0.05	0.79	0.00	0.41	-0.20	-0.20	-0.25	0.41	-0.2994	0.0097	-7.7	1.0	-4.1	1.0			
Reading	5	1385	3	A.1.4.1	3	74572	0.76	0.04	0.76	0.11	0.08	0.00	0.43	-0.28	0.43	-0.21	-0.22	-0.1358	0.0094	-9.9	1.0	-9.9	0.9			
Reading	5	8879	3	B.1.1.1	2	74572	0.53	0.16	0.10	0.53	0.21	0.00	0.30	-0.04	-0.21	0.30	-0.18	1.1488	0.0081	9.9	1.1	9.9	1.2			
Reading	5	6683	4	A.1.3.1	2	24686	0.77	0.03	0.18	0.03	0.77	0.00	0.31	-0.29	-0.12	-0.22	0.31	-0.1707	0.0165	6.9	1.1	9.9	1.2	A+	A-	A-
Reading	5	8155	4	A.1.1.1	2	24686	0.63	0.02	0.12	0.63	0.24	0.00	0.17	-0.22	-0.17	0.17	0.00	0.6559	0.0145	9.9	1.2	9.9	1.4	A+	A-	A-
Reading	5	7042	4	A.1.4.1	1	24686	0.82	0.14	0.02	0.82	0.02	0.00	0.44	-0.31	-0.22	0.44	-0.22	-0.5241	0.0179	-6.9	0.9	-9.9	0.8	A+	A-	B-
Reading	5	2517	4	B.2.2.2	3	24686	0.47	0.36	0.05	0.47	0.12	0.00	0.31	-0.03	-0.25	0.31	-0.26	1.4404	0.0140	9.7	1.1	9.9	1.1	A+	A-	A+
Reading	5	3404	4	A.1.2.1	2	24686	0.90	0.90	0.02	0.03	0.04	0.00	0.40	0.40	-0.23	-0.24	-0.20	-1.3746	0.0229	-6.0	0.9	-9.6	0.7	A+	A-	B-
Reading	5	7002	4	A.2.3.2	2	24686	0.76	0.07	0.07	0.09	0.76	0.00	0.53	-0.28	-0.29	-0.27	0.53	-0.1325	0.0164	-9.9	0.9	-9.9	0.7	A-	A-	A-
Reading	5	6457	4	B.1.1.1	3	24686	0.40	0.11	0.40	0.44	0.05	0.00	0.17	-0.19	0.17	0.05	-0.22	1.7920	0.0142	9.9	1.2	9.9	1.4	A+	A+	A-
Reading	5	6024	4	B.1.1.1	2	24686	0.69	0.15	0.69	0.02	0.13	0.00	0.38	-0.24	0.38	-0.22	-0.18	0.3013	0.0152	0.0	1.0	-0.3	1.0	A-	A-	A-
Reading	5	6323	4	A.1.5.1	2	24686	0.67	0.20	0.67	0.08	0.05	0.00	0.39	-0.19	0.39	-0.22	-0.22	0.4425	0.0149	-0.3	1.0	-0.5	1.0	A+	A-	A-
Reading	5	1853	4	A.1.6.1	3	24686	0.76	0.76	0.04	0.06	0.14	0.00	0.46	0.46	-0.25	-0.25	-0.25	-0.1000	0.0163	-9.3	0.9	-9.9	0.8	A+	A-	A-
Reading	5	49	4	A.2.3.1	2	49375	0.46	0.08	0.03	0.43	0.46	0.00	0.22	-0.24	-0.21	-0.02	0.22	1.4888	0.0099	9.9	1.2	9.9	1.3			
Reading	5	9957	4	A.2.2.2	2	49375	0.85	0.06	0.05	0.04	0.85	0.00	0.45	-0.29	-0.20	-0.23	0.45	-0.7974	0.0135	-9.9	0.9	-9.9	0.8			
Reading	5	9892	4	A.2.4.1	2	49375	0.87	0.02	0.87	0.08	0.02	0.00	0.41	-0.22	0.41	-0.24	-0.24	-0.9682	0.0142	-9.3	0.9	-9.9	0.8			
Reading	5	8805	4	B.3.3.3	2	49375	0.75	0.06	0.14	0.75	0.05	0.00	0.32	-0.18	-0.13	0.32	-0.22	-0.0483	0.0114	9.9	1.1	6.7	1.1			
Reading	5	3738	4	B.3.3.4	1	49375	0.39	0.17	0.39	0.20	0.24	0.00	0.24	-0.18	0.24	-0.08	-0.05	1.8576	0.0101	9.9	1.1	9.9	1.3			
Reading	5	350	4	A.2.4.1	2	49375	0.72	0.07	0.15	0.07	0.72	0.00	0.47	-0.28	-0.23	-0.23	0.47	0.1498	0.0110	-9.9	0.9	-9.9	0.8			
Reading	5	4192	4	A.2.3.1	2	49375	0.91	0.05	0.91	0.02	0.03	0.00	0.34	-0.15	0.34	-0.18	-0.25	-1.4053	0.0163	-5.1	0.9	0.9	1.0			
Reading	5	9119	4	A.2.6.1	3	49375	0.91	0.03	0.91	0.04	0.02	0.00	0.45	-0.27	0.45	-0.26	-0.24	-1.5187	0.0169	-9.9	0.9	-9.9	0.6			
Reading	5	5119	5	A.2.3.1	2	24689	0.71	0.11	0.10	0.71	0.08	0.00	0.37	-0.30	-0.07	0.37	-0.19	0.2096	0.0153	3.2	1.0	-1.1	1.0	A-	A-	A-
Reading	5	81	5	A.2.2.1	2	24689	0.79	0.07	0.08	0.79	0.06	0.00	0.44	-0.27	-0.18	0.44	-0.25	-0.3183	0.0170	-6.8	0.9	-9.9	0.8	A+	A+	A-
Reading	5	4806	5	A.2.6.2	3	24689	0.72	0.72	0.09	0.05	0.15	0.00	0.33	0.33	-0.28	-0.23	-0.06	0.1598	0.0155	7.0	1.1	7.8	1.1	A-	A-	A-
Reading	5	784	5	A.2.3.2	3	24689	0.57	0.17	0.18	0.57	0.08	0.00	0.31	-0.06	-0.24	0.31	-0.15	0.9424	0.0142	9.9	1.1	9.9	1.1	A+	A-	A-
Reading	5	3854	5	B.3.1.1	1	24689	0.63	0.63	0.04	0.07	0.26	0.00	0.34	0.34	-0.28	-0.19	-0.13	0.6397	0.0145	8.8	1.1	8.0	1.1	A+	A-	A-
Reading	5	7200	5	B.1.1.1	3	24689	0.30	0.16	0.30	0.05	0.48	0.00	0.21	-0.19	0.21	-0.24	0.05	2.2904	0.0150	9.9	1.1	9.9	1.4	A-	A-	A-
Reading	5	6294	5	A.1.2.2	2	24689	0.63	0.22	0.63	0.12	0.03	0.00	0.30	-0.14	0.30	-0.19	-0.13	0.6252	0.0145	9.9	1.1	9.9	1.1	A-	B-	B-
Reading	5	2463	5	B.1.1.1	2	24689	0.50	0.20	0.13	0.50	0.17	0.00	0.26	-0.14	-0.09	0.26	-0.12	1.3152	0.0140	9.9	1.1	9.9	1.2	A+	A+	A-
Reading	5	3690	5	A.1.6.1	3	24689	0.72	0.11	0.11	0.06	0.72	0.00	0.31	-0.13	-0.22	-0.13	0.31	0.1153	0.0156	8.9	1.1	9.9	1.1	A+	A-	A-
Reading	5	3493	5	B.1.2.1	3	24689	0.76	0.06	0.14	0.04	0.76	0.00	0.44	-0.22	-0.28	-0.21	0.44	-0.1029	0.0162	-8.2	0.9	-9.9	0.8	A+	A-	A-
Reading	5	49	5	A.2.3.1	2	49375	0.46	0.08	0.03	0.43	0.46	0.00	0.22	-0.24	-0.21	-0.02	0.22	1.4888	0.0099	9.9	1.2	9.9	1.3			
Reading	5	9957	5	A.2.2.2	2	49375	0.85	0.06	0.05	0.04	0.85	0.00	0.45	-0.29	-0.20	-0.23	0.45	-0.7974	0.0135	-9.9	0.9	-9.9	0.8			
Reading	5	9892	5	A.2.4.1	2	49375	0.87	0.02	0.87	0.08	0.02	0.00	0.41	-0.22	0.41	-0.24	-0.24	-0.9682	0.0142	-9.3	0.9	-9.9	0.8			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Reading	5	8805	5	B.3.3.3	2	49375	0.75	0.06	0.14	0.75	0.05	0.00	0.32	-0.18	-0.13	0.32	-0.22	-0.0483	0.0114	9.9	1.1	6.7	1.1			
Reading	5	3738	5	B.3.3.4	1	49375	0.39	0.17	0.39	0.20	0.24	0.00	0.24	-0.18	0.24	-0.08	-0.05	1.8576	0.0101	9.9	1.1	9.9	1.3			
Reading	5	350	5	A.2.4.1	2	49375	0.72	0.07	0.15	0.07	0.72	0.00	0.47	-0.28	-0.23	-0.23	0.47	0.1498	0.0110	-9.9	0.9	-9.9	0.8			
Reading	5	4192	5	A.2.3.1	2	49375	0.91	0.05	0.91	0.02	0.03	0.00	0.34	-0.15	0.34	-0.18	-0.25	-1.4053	0.0163	-5.1	0.9	0.9	1.0			
Reading	5	9119	5	A.2.6.1	3	49375	0.91	0.03	0.91	0.04	0.02	0.00	0.45	-0.27	0.45	-0.26	-0.24	-1.5187	0.0169	-9.9	0.9	-9.9	0.6			
Reading	6	4676	0	A.2.4.1		126095	0.82	0.08	0.05	0.82	0.05	0.00	0.44	-0.31	-0.26	0.44	-0.14	-0.8108	0.0079	-9.9	0.9	-9.9	0.8			
Reading	6	748	0	A.2.3.2		126095	0.85	0.04	0.85	0.03	0.08	0.00	0.38	-0.21	0.38	-0.20	-0.22	-1.1203	0.0085	-3.9	1.0	-9.9	0.9			
Reading	6	2918	0	A.2.3.1		126095	0.82	0.82	0.05	0.02	0.10	0.00	0.30	0.30	-0.27	-0.22	-0.08	-0.8829	0.0080	8.9	1.0	9.9	1.4			
Reading	6	8493	0	A.2.3.1		126095	0.68	0.68	0.10	0.10	0.12	0.00	0.37	0.37	-0.24	-0.18	-0.15	0.0733	0.0067	9.9	1.0	7.2	1.0			
Reading	6	1835	0	A.2.3.1		126095	0.66	0.66	0.08	0.15	0.11	0.00	0.37	0.37	-0.22	-0.14	-0.22	0.1800	0.0066	9.9	1.0	4.7	1.0			
Reading	6	3031	0	B.3.1.1		126095	0.91	0.02	0.91	0.03	0.04	0.00	0.45	-0.26	0.45	-0.23	-0.27	-1.7596	0.0104	-9.9	0.9	-9.9	0.6			
Reading	6	3762	0	B.1.1.1	1	126095	0.87	0.87	0.07	0.05	0.01	0.00	0.36	0.36	-0.27	-0.18	-0.12	-1.3310	0.0090	-3.7	1.0	-9.8	0.9			
Reading	6	9078	0	B.1.1.1	2	126095	0.69	0.07	0.10	0.14	0.69	0.00	0.37	-0.12	-0.21	-0.22	0.37	0.0530	0.0067	9.9	1.0	9.9	1.1			
Reading	6	7445	0	A.1.4.1	2	126095	0.58	0.24	0.58	0.14	0.05	0.00	0.33	-0.04	0.33	-0.24	-0.30	0.6437	0.0063	9.9	1.1	9.9	1.1			
Reading	6	2486	0	A.1.3.1	2	126095	0.78	0.04	0.78	0.05	0.13	0.00	0.46	-0.28	0.46	-0.24	-0.25	-0.5268	0.0074	-9.9	0.9	-9.9	0.8			
Reading	6	6103	0	A.1.3.1	3	126095	0.65	0.08	0.14	0.13	0.65	0.00	0.42	-0.24	-0.11	-0.28	0.42	0.2652	0.0065	-3.3	1.0	-3.9	1.0			
Reading	6	2118	0	A.1.6.2	2	126095	0.61	0.11	0.21	0.61	0.07	0.00	0.38	-0.18	-0.24	0.38	-0.11	0.4582	0.0064	9.9	1.0	9.9	1.0			
Reading	6	2691	0	B.2.2.1	2	126095	0.60	0.13	0.08	0.60	0.18	0.00	0.38	-0.24	-0.26	0.38	-0.08	0.5155	0.0064	9.9	1.0	9.9	1.1			
Reading	6	1882	0	A.2.4.1	1	126095	0.53	0.09	0.36	0.02	0.53	0.00	0.36	-0.23	-0.17	-0.19	0.36	0.8744	0.0063	9.9	1.1	9.9	1.1			
Reading	6	8037	0	B.3.3.3	2	126095	0.54	0.26	0.05	0.15	0.54	0.00	0.38	-0.21	-0.22	-0.12	0.38	0.8252	0.0063	9.9	1.0	9.9	1.1			
Reading	6	6724	0	A.2.4.1	1	126095	0.67	0.67	0.15	0.04	0.13	0.00	0.45	0.45	-0.24	-0.26	-0.21	0.1162	0.0067	-9.9	1.0	-9.9	0.9			
Reading	6	9587	0	A.2.2.1	2	126095	0.81	0.03	0.06	0.81	0.10	0.00	0.44	-0.25	-0.26	0.44	-0.21	-0.7435	0.0078	-9.9	0.9	-9.9	0.9			
Reading	6	8280	0	A.2.4.1	1	126095	0.74	0.03	0.74	0.13	0.09	0.00	0.42	-0.25	0.42	-0.20	-0.23	-0.2868	0.0071	-5.1	1.0	-9.9	0.9			
Reading	6	2783	0	B.3.3.3	2	126095	0.70	0.13	0.70	0.08	0.09	0.00	0.44	-0.22	0.44	-0.26	-0.19	-0.0235	0.0068	-9.9	1.0	-9.9	0.9			
Reading	6	5083	0	B.3.3.3	2	126095	0.67	0.25	0.05	0.04	0.67	0.00	0.48	-0.30	-0.24	-0.24	0.48	0.1521	0.0066	-9.9	0.9	-9.9	0.9			
Reading	6	1153	0	B.3.2.1	2	126095	0.82	0.08	0.05	0.82	0.05	0.00	0.50	-0.24	-0.29	0.50	-0.28	-0.8655	0.0080	-9.9	0.9	-9.9	0.7			
Reading	6	3187	0	A.1.6.1		126095	0.86	0.06	0.86	0.02	0.06	0.00	0.41	-0.28	0.41	-0.17	-0.22	-1.1602	0.0086	-9.9	0.9	-9.9	0.9			
Reading	6	5317	0	B.2.1.4		126095	0.74	0.03	0.18	0.05	0.74	0.00	0.34	-0.25	-0.12	-0.28	0.34	-0.2668	0.0070	9.9	1.1	9.9	1.1			
Reading	6	7110	0	A.1.3.1		126095	0.73	0.13	0.12	0.73	0.02	0.00	0.30	-0.19	-0.15	0.30	-0.17	-0.2321	0.0070	9.9	1.1	9.9	1.2			
Reading	6	4538	0	A.1.3.1		126095	0.75	0.06	0.75	0.14	0.04	0.00	0.39	-0.23	0.39	-0.19	-0.23	-0.3635	0.0072	2.1	1.0	-5.2	1.0			
Reading	6	2766	0	A.1.1.2		126095	0.63	0.06	0.03	0.28	0.63	0.00	0.40	-0.22	-0.24	-0.23	0.40	0.3480	0.0065	3.9	1.0	0.4	1.0			
Reading	6	2830	0	B.1.1.1		126095	0.82	0.08	0.04	0.82	0.06	0.00	0.41	-0.29	-0.22	0.41	-0.15	-0.8755	0.0080	-9.9	1.0	-6.7	0.9			
Reading	6	2264	0	B.1.2.1		126095	0.64	0.11	0.64	0.10	0.15	0.00	0.31	-0.20	0.31	-0.16	-0.10	0.2954	0.0065	9.9	1.1	9.9	1.2			
Reading	6	9301	0	B.1.2.1		126095	0.42	0.42	0.30	0.08	0.20	0.00	0.31	0.31	-0.01	-0.21	-0.22	1.4371	0.0063	9.9	1.1	9.9	1.2			
Reading	6	6970	0	A.1.1.2		126095	0.55	0.08	0.55	0.28	0.09	0.00	0.41	-0.29	0.41	-0.14	-0.21	0.7574	0.0063	-3.5	1.0	-2.6	1.0			
Reading	6	706	0	A.1.1.1		126095	0.80	0.07	0.04	0.80	0.09	0.00	0.50	-0.34	-0.30	0.50	-0.18	-0.7006	0.0077	-9.9	0.9	-9.9	0.8			
Reading	6	6587	0	A.1.3.1		126095	0.73	0.10	0.73	0.05	0.12	0.00	0.45	-0.16	0.45	-0.23	-0.30	-0.1999	0.0070	-9.9	1.0	-7.3	1.0			
Reading	6	5114	0	B.1.1.1		126095	0.74	0.12	0.74	0.10	0.04	0.00	0.40	-0.18	0.40	-0.22	-0.26	-0.3060	0.0071	1.2	1.0	-3.5	1.0			
Reading	6	1673	0	B.2.1.2		126095	0.77	0.77	0.04	0.05	0.15	0.00	0.36	0.36	-0.26	-0.27	-0.12	-0.4482	0.0073	8.1	1.0	9.9	1.1			
Reading	6	2632	0	A.2.3.1		126095	0.78	0.09	0.78	0.09	0.04	0.00	0.47	-0.30	0.47	-0.24	-0.20	-0.5583	0.0075	-9.9	0.9	-9.9	0.8			
Reading	6	7049	0	A.2.2.1		126095	0.50	0.50	0.07	0.26	0.17	0.00	0.40	0.40	-0.29	-0.16	-0.15	1.0189	0.0063	-9.3	1.0	3.6	1.0			
Reading	6	8665	0	A.2.2.1		126095	0.74	0.05	0.05	0.74	0.16	0.00	0.36	-0.25	-0.24	0.36	-0.14	-0.3007	0.0071	9.9	1.0	0.7	1.0			
Reading	6	1163	0	B.3.1.1		126095	0.88	0.04	0.04	0.88	0.04	0.00	0.52	-0.30	-0.31	0.52	-0.25	-1.4632	0.0094	-9.9	0.8	-9.9	0.6			
Reading	6	9787	0	B.3.3.1		126095	0.73	0.18	0.73	0.05	0.04	0.00	0.44	-0.23	0.44	-0.23	-0.26	-0.1904	0.0070	-9.9	1.0	-9.3	0.9			
Reading	6	4411	0	A.2.4.1		126095	0.74	0.19	0.04	0.74	0.03	0.00	0.35	-0.14	-0.28	0.35	-0.27	-0.2789	0.0071	9.9	1.0	9.9	1.1			
Reading	6	6966	1	A.2.4.1	1	25474	0.74	0.74	0.18	0.02	0.06	0.00	0.30	0.30	-0.11	-0.17	-0.27	-0.2869	0.0157	9.9	1.1	9.8	1.2	A-	A+	A+
Reading	6	5576	1	A.2.1.1	2	25474	0.61	0.11	0.08	0.61	0.20	0.00	0.40	-0.22	-0.15	0.40	-0.22	0.4224	0.0143	2.0	1.0	-0.4	1.0	B-	A-	A-
Reading	6	5212	1	B.2.1.3	1	25474	0.64	0.10	0.22	0.05	0.64	0.00	0.36	-0.16	-0.17	-0.25	0.36	0.3019	0.0145	9.9	1.1	6.4	1.1	A+	A+	A+
Reading	6	1626	1	B.3.3.2	2	25474	0.39	0.17	0.39	0.11	0.33	0.00	0.22	-0.03	0.22	-0.15	-0.11	1.5555	0.0142	9.9	1.2	9.9	1.4	A-	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	6	9592	1	A.2.4.1	1	25474	0.69	0.18	0.06	0.69	0.08	0.00	0.45	-0.29	-0.21	0.45	-0.18	-0.0013	0.0150	-7.0	1.0	-9.9	0.9	A-	A-	A-
Reading	6	9594	1	A.2.3.2	3	25474	0.77	0.09	0.10	0.77	0.04	0.00	0.44	-0.27	-0.19	0.44	-0.25	-0.5049	0.0163	-5.8	1.0	-7.1	0.9	A-	A-	A-
Reading	6	3317	1	B.3.1.1	3	25474	0.62	0.24	0.04	0.62	0.10	0.00	0.30	-0.13	-0.26	0.30	-0.13	0.4029	0.0144	9.9	1.1	9.9	1.2	A+	A-	A-
Reading	6	6616	1	A.2.3.1	3	25474	0.66	0.14	0.66	0.14	0.06	0.00	0.26	-0.12	0.26	-0.09	-0.21	0.1759	0.0147	9.9	1.2	9.9	1.3	A-	A-	A-
Reading	6	4464	1	A.2.3.1	2	25474	0.77	0.03	0.77	0.06	0.13	0.00	0.49	-0.27	0.49	-0.25	-0.28	-0.5096	0.0164	-9.9	0.9	-9.9	0.8	A-	B-	B-
Reading	6	9844	1	B.3.3.3	2	25474	0.77	0.77	0.04	0.13	0.06	0.00	0.36	0.36	-0.23	-0.14	-0.25	-0.5228	0.0164	3.0	1.0	4.1	1.1	A+	A+	A-
Reading	6	1968	1	B.2.1.2	3	75764	0.51	0.09	0.35	0.51	0.05	0.00	0.36	-0.27	-0.16	0.36	-0.12	0.9850	0.0081	9.9	1.0	9.9	1.1			
Reading	6	2907	1	B.2.2.1	2	75764	0.61	0.20	0.61	0.07	0.12	0.00	0.38	-0.19	0.38	-0.28	-0.11	0.4862	0.0083	6.4	1.0	4.7	1.0			
Reading	6	9720	1	A.1.4.1	1	75764	0.67	0.07	0.67	0.03	0.23	0.00	0.39	-0.31	0.39	-0.22	-0.16	0.1324	0.0086	1.9	1.0	-1.4	1.0			
Reading	6	3272	1	A.1.3.1	2	75764	0.79	0.04	0.05	0.79	0.11	0.00	0.51	-0.26	-0.28	0.51	-0.28	-0.6543	0.0098	-9.9	0.9	-9.9	0.7			
Reading	6	4674	1	B.1.1.1	2	75764	0.74	0.74	0.05	0.09	0.12	0.00	0.39	0.39	-0.25	-0.21	-0.17	-0.2849	0.0091	-0.3	1.0	3.2	1.0			
Reading	6	426	1	B.1.1.1	2	75764	0.69	0.06	0.15	0.09	0.69	0.00	0.37	-0.19	-0.09	-0.30	0.37	0.0219	0.0087	8.1	1.0	9.9	1.1			
Reading	6	8111	1	A.1.5.1	3	75764	0.77	0.77	0.07	0.11	0.04	0.00	0.47	0.47	-0.26	-0.24	-0.26	-0.4806	0.0095	-9.9	0.9	-9.9	0.8			
Reading	6	4843	1	A.1.6.1	2	75764	0.68	0.68	0.09	0.16	0.06	0.00	0.38	0.38	-0.23	-0.13	-0.26	0.0555	0.0087	6.1	1.0	7.1	1.1			
Reading	6	6638	2	A.2.3.1	2	25168	0.50	0.19	0.23	0.50	0.09	0.00	0.46	-0.16	-0.27	0.46	-0.19	1.0409	0.0140	-9.9	0.9	-9.9	0.9	C-	A-	A-
Reading	6	9753	2	A.2.4.1	1	25168	0.75	0.13	0.06	0.75	0.06	0.00	0.44	-0.24	-0.21	0.44	-0.25	-0.3098	0.0159	-5.8	1.0	-8.6	0.9	A+	A-	A-
Reading	6	1693	2	B.3.3.3	1	25168	0.89	0.89	0.04	0.02	0.05	0.00	0.37	0.37	-0.19	-0.23	-0.21	-1.4771	0.0213	-4.6	0.9	-5.4	0.9	A+	B-	A-
Reading	6	7668	2	B.3.3.2	2	25168	0.64	0.25	0.64	0.08	0.03	0.00	0.33	-0.10	0.33	-0.29	-0.23	0.3416	0.0146	9.9	1.1	9.9	1.1	A+	A-	A-
Reading	6	3410	2	A.2.3.1	2	25168	0.68	0.16	0.11	0.04	0.68	0.00	0.33	-0.22	-0.13	-0.13	0.33	0.0852	0.0150	9.9	1.1	9.9	1.2	A+	A-	A-
Reading	6	8520	2	A.2.3.1	2	25168	0.68	0.68	0.11	0.10	0.11	0.00	0.46	0.46	-0.25	-0.25	-0.20	0.1197	0.0149	-9.2	0.9	-9.9	0.9	A-	A-	A-
Reading	6	2550	2	B.3.3.1	2	25168	0.27	0.24	0.41	0.08	0.27	0.00	0.14	0.00	-0.02	-0.18	0.14	2.2393	0.0154	9.9	1.2	9.9	1.7	A+	A+	A+
Reading	6	3174	2	B.3.1.1	2	25168	0.63	0.13	0.10	0.63	0.14	0.00	0.39	-0.15	-0.25	0.39	-0.17	0.3867	0.0145	3.5	1.0	0.8	1.0	A-	A-	A-
Reading	6	8704	2	B.3.1.1	2	25168	0.49	0.07	0.18	0.49	0.25	0.00	0.30	-0.31	-0.09	0.30	-0.07	1.0897	0.0140	9.9	1.1	9.9	1.2	A-	A-	A+
Reading	6	2023	2	A.2.6.1	2	25168	0.66	0.05	0.66	0.12	0.16	0.00	0.39	-0.25	0.39	-0.23	-0.15	0.2186	0.0147	1.5	1.0	0.9	1.0	A-	B-	A-
Reading	6	1968	2	B.2.1.2	3	75764	0.51	0.09	0.35	0.51	0.05	0.00	0.36	-0.27	-0.16	0.36	-0.12	0.9850	0.0081	9.9	1.0	9.9	1.1			
Reading	6	2907	2	B.2.2.1	2	75764	0.61	0.20	0.61	0.07	0.12	0.00	0.38	-0.19	0.38	-0.28	-0.11	0.4862	0.0083	6.4	1.0	4.7	1.0			
Reading	6	9720	2	A.1.4.1	1	75764	0.67	0.07	0.67	0.03	0.23	0.00	0.39	-0.31	0.39	-0.22	-0.16	0.1324	0.0086	1.9	1.0	-1.4	1.0			
Reading	6	3272	2	A.1.3.1	2	75764	0.79	0.04	0.05	0.79	0.11	0.00	0.51	-0.26	-0.28	0.51	-0.28	-0.6543	0.0098	-9.9	0.9	-9.9	0.7			
Reading	6	4674	2	B.1.1.1	2	75764	0.74	0.74	0.05	0.09	0.12	0.00	0.39	0.39	-0.25	-0.21	-0.17	-0.2849	0.0091	-0.3	1.0	3.2	1.0			
Reading	6	426	2	B.1.1.1	2	75764	0.69	0.06	0.15	0.09	0.69	0.00	0.37	-0.19	-0.09	-0.30	0.37	0.0219	0.0087	8.1	1.0	9.9	1.1			
Reading	6	8111	2	A.1.5.1	3	75764	0.77	0.77	0.07	0.11	0.04	0.00	0.47	0.47	-0.26	-0.24	-0.26	-0.4806	0.0095	-9.9	0.9	-9.9	0.8			
Reading	6	4843	2	A.1.6.1	2	75764	0.68	0.68	0.09	0.16	0.06	0.00	0.38	0.38	-0.23	-0.13	-0.26	0.0555	0.0087	6.1	1.0	7.1	1.1			
Reading	6	2698	3	B.3.2.1	2	25122	0.15	0.15	0.60	0.22	0.04	0.00	-0.13	-0.13	0.09	0.12	-0.25	3.1048	0.0188	9.9	1.3	9.9	3.3	A-	A+	A+
Reading	6	112	3	A.2.4.1	2	25122	0.61	0.61	0.07	0.08	0.24	0.00	0.42	0.42	-0.18	-0.19	-0.25	0.4708	0.0144	-3.0	1.0	-4.5	1.0	A-	A-	A-
Reading	6	5799	3	A.2.3.1	2	25122	0.64	0.64	0.16	0.14	0.06	0.00	0.27	0.27	-0.14	-0.10	-0.19	0.3076	0.0146	9.9	1.2	9.9	1.2	A-	A-	A-
Reading	6	7618	3	B.3.3.3	2	25122	0.89	0.05	0.89	0.04	0.03	0.00	0.39	-0.22	0.39	-0.22	-0.21	-1.4807	0.0212	-5.5	0.9	-9.3	0.8	A-	B-	A-
Reading	6	5817	3	A.2.3.2	2	25122	0.80	0.06	0.80	0.08	0.06	0.00	0.48	-0.23	0.48	-0.30	-0.23	-0.6540	0.0170	-9.9	0.9	-9.9	0.8	A-	A-	B-
Reading	6	2672	3	A.2.4.1	1	25122	0.70	0.10	0.10	0.10	0.70	0.00	0.45	-0.21	-0.25	-0.24	0.45	-0.0301	0.0152	-8.4	0.9	-9.9	0.9	A-	A-	A-
Reading	6	9706	3	A.2.3.1	2	25122	0.50	0.08	0.35	0.50	0.07	0.00	0.28	-0.13	-0.10	0.28	-0.22	1.0141	0.0140	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	6	3721	3	A.2.4.1	2	25122	0.64	0.08	0.07	0.64	0.20	0.00	0.38	-0.24	-0.20	0.38	-0.16	0.2797	0.0146	4.2	1.0	-0.3	1.0	A-	A+	A+
Reading	6	4782	3	A.2.5.1	2	25122	0.59	0.22	0.07	0.59	0.12	0.00	0.25	-0.11	-0.18	0.25	-0.09	0.5912	0.0142	9.9	1.2	9.9	1.2	A-	A-	A-
Reading	6	2506	3	A.2.4.1	3	25122	0.77	0.77	0.17	0.02	0.05	0.00	0.28	0.28	-0.13	-0.22	-0.19	-0.4722	0.0164	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	6	1968	3	B.2.1.2	3	75764	0.51	0.09	0.35	0.51	0.05	0.00	0.36	-0.27	-0.16	0.36	-0.12	0.9850	0.0081	9.9	1.0	9.9	1.1			
Reading	6	2907	3	B.2.2.1	2	75764	0.61	0.20	0.61	0.07	0.12	0.00	0.38	-0.19	0.38	-0.28	-0.11	0.4862	0.0083	6.4	1.0	4.7	1.0			
Reading	6	9720	3	A.1.4.1	1	75764	0.67	0.07	0.67	0.03	0.23	0.00	0.39	-0.31	0.39	-0.22	-0.16	0.1324	0.0086	1.9	1.0	-1.4	1.0			
Reading	6	3272	3	A.1.3.1	2	75764	0.79	0.04	0.05	0.79	0.11	0.00	0.51	-0.26	-0.28	0.51	-0.28	-0.6543	0.0098	-9.9	0.9	-9.9	0.7			
Reading	6	4674	3	B.1.1.1	2	75764	0.74	0.74	0.05	0.09	0.12	0.00	0.39	0.39	-0.25	-0.21	-0.17	-0.2849	0.0091	-0.3	1.0	3.2	1.0			
Reading	6	426	3	B.1.1.1	2	75764	0.69	0.06	0.15	0.09	0.69	0.00	0.37	-0.19	-0.09	-0.30	0.37	0.0219	0.0087	8.1	1.0	9.9	1.1			
Reading	6	8111	3	A.1.5.1	3	75764	0.77	0.77	0.07	0.11	0.04	0.00	0.47	0.47	-0.26	-0.24	-0.26	-0.4806	0.0095	-9.9	0.9	-9.9	0.8			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	6	4843	3	A.1.6.1	2	75764	0.68	0.68	0.09	0.16	0.06	0.00	0.38	0.38	-0.23	-0.13	-0.26	0.0555	0.0087	6.1	1.0	7.1	1.1			
Reading	6	8142	4	A.1.4.1	1	25191	0.92	0.02	0.03	0.92	0.03	0.00	0.34	-0.16	-0.21	0.34	-0.21	-1.9298	0.0246	-3.7	0.9	-6.8	0.8	B+	A+	A-
Reading	6	3145	4	B.1.1.1	3	25191	0.75	0.06	0.16	0.75	0.03	0.00	0.16	-0.26	0.03	0.16	-0.10	-0.3178	0.0159	9.9	1.2	9.9	1.6	A+	A-	A-
Reading	6	8766	4	A.1.4.1	1	25191	0.66	0.15	0.66	0.12	0.06	0.00	0.39	-0.18	0.39	-0.23	-0.17	0.1739	0.0148	3.0	1.0	-1.3	1.0	A+	A-	A-
Reading	6	2912	4	A.1.1.2	1	25191	0.92	0.03	0.92	0.02	0.03	0.00	0.38	-0.20	0.38	-0.21	-0.22	-1.9106	0.0244	-5.5	0.9	-9.6	0.7	A+	A-	B-
Reading	6	5430	4	A.1.3.1	2	25191	0.66	0.16	0.66	0.06	0.12	0.00	0.46	-0.21	0.46	-0.23	-0.27	0.1890	0.0147	-9.7	0.9	-9.9	0.9	A+	A-	A-
Reading	6	3991	4	B.1.1.1	3	25191	0.25	0.25	0.09	0.33	0.32	0.00	0.12	0.12	-0.20	-0.03	0.05	2.3389	0.0157	9.9	1.2	9.9	1.8	A-	A-	A-
Reading	6	736	4	B.1.1.1	2	25191	0.59	0.08	0.14	0.19	0.59	0.00	0.21	-0.02	-0.19	-0.09	0.21	0.5821	0.0142	9.9	1.2	9.9	1.3	A+	A-	A+
Reading	6	1676	4	A.1.4.1	3	25191	0.93	0.02	0.02	0.93	0.02	0.00	0.40	-0.22	-0.22	0.40	-0.23	-2.0958	0.0261	-7.6	0.9	-9.9	0.6	B+	A-	A-
Reading	6	9567	4	B.1.1.1	1	25191	0.61	0.61	0.02	0.13	0.24	0.00	0.32	0.32	-0.23	-0.16	-0.15	0.4804	0.0143	9.9	1.1	9.9	1.1	A+	A-	A-
Reading	6	7787	4	A.1.5.1	2	25191	0.77	0.77	0.17	0.02	0.04	0.00	0.43	0.43	-0.29	-0.22	-0.20	-0.4543	0.0163	-5.1	1.0	-6.8	0.9	A+	A-	A-
Reading	6	6696	4	B.2.1.2	1	50331	0.73	0.11	0.13	0.73	0.03	0.00	0.35	-0.25	-0.14	0.35	-0.16	-0.2133	0.0111	9.6	1.1	9.3	1.1			
Reading	6	3519	4	B.3.3.1	2	50331	0.71	0.71	0.06	0.16	0.07	0.00	0.34	0.34	-0.22	-0.13	-0.21	-0.1133	0.0109	9.9	1.1	9.9	1.2			
Reading	6	3957	4	A.2.3.1	2	50331	0.73	0.09	0.73	0.07	0.11	0.00	0.44	-0.19	0.44	-0.19	-0.29	-0.2144	0.0111	-8.5	1.0	-6.9	0.9			
Reading	6	1074	4	A.2.4.1	2	50331	0.78	0.09	0.78	0.07	0.07	0.00	0.48	-0.27	0.48	-0.28	-0.21	-0.5200	0.0117	-9.9	0.9	-9.9	0.8			
Reading	6	766	4	A.2.3.1	3	50331	0.43	0.08	0.14	0.35	0.43	0.00	0.23	-0.18	-0.19	0.01	0.23	1.3907	0.0100	9.9	1.2	9.9	1.3			
Reading	6	5759	4	B.2.1.3	1	50331	0.79	0.13	0.04	0.79	0.04	0.00	0.43	-0.26	-0.23	0.43	-0.21	-0.6205	0.0120	-8.2	1.0	-8.5	0.9			
Reading	6	2915	4	A.1.4.1	3	50331	0.73	0.17	0.73	0.05	0.04	0.00	0.42	-0.23	0.42	-0.22	-0.25	-0.2365	0.0111	-5.5	1.0	-1.7	1.0			
Reading	6	9269	4	B.1.2.1	3	50331	0.66	0.21	0.06	0.66	0.07	0.00	0.44	-0.19	-0.26	0.44	-0.27	0.2201	0.0104	-8.7	1.0	-9.9	0.9			
Reading	6	2794	5	A.2.4.1	1	25140	0.79	0.79	0.11	0.04	0.06	0.00	0.44	0.44	-0.30	-0.19	-0.21	-0.6407	0.0170	-7.7	0.9	-9.9	0.8	B-	C-	C-
Reading	6	3920	5	B.2.1.4	3	25140	0.23	0.13	0.29	0.23	0.35	0.00	-0.02	-0.14	0.01	-0.02	0.11	2.5045	0.0162	9.9	1.3	9.9	2.3	A-	A-	A-
Reading	6	6887	5	A.2.4.1	2	25140	0.79	0.79	0.09	0.04	0.07	0.00	0.45	0.45	-0.29	-0.25	-0.19	-0.6240	0.0169	-8.6	0.9	-9.9	0.8	A-	A-	A-
Reading	6	5654	5	A.2.4.1	3	25140	0.76	0.16	0.03	0.76	0.04	0.00	0.36	-0.14	-0.25	0.36	-0.27	-0.3902	0.0162	2.8	1.0	6.4	1.1	A-	A-	A-
Reading	6	8857	5	A.2.3.1	2	25140	0.69	0.09	0.09	0.69	0.13	0.00	0.33	-0.10	-0.16	0.33	-0.23	0.0566	0.0150	9.9	1.1	9.9	1.1	A-	A-	A-
Reading	6	8404	5	B.3.1.1	2	25140	0.71	0.71	0.08	0.14	0.07	0.00	0.41	0.41	-0.23	-0.17	-0.25	-0.0852	0.0153	-1.5	1.0	-2.5	1.0	A+	A-	A-
Reading	6	1122	5	A.2.3.2	2	25140	0.69	0.14	0.10	0.69	0.07	0.00	0.45	-0.28	-0.19	0.45	-0.21	0.0503	0.0150	-7.6	1.0	-9.7	0.9	A-	A-	A-
Reading	6	1856	5	B.3.3.1	2	25140	0.60	0.17	0.60	0.19	0.04	0.00	0.42	-0.14	0.42	-0.28	-0.21	0.5085	0.0143	-2.5	1.0	-2.4	1.0	A-	A-	A-
Reading	6	7247	5	B.1.2.1	3	25140	0.84	0.04	0.08	0.84	0.04	0.00	0.45	-0.23	-0.29	0.45	-0.20	-1.0254	0.0187	-8.6	0.9	-9.9	0.8	A+	A-	A-
Reading	6	8017	5	B.1.2.1	3	25140	0.56	0.20	0.56	0.09	0.14	0.00	0.33	-0.21	0.33	-0.13	-0.11	0.7018	0.0141	9.9	1.1	9.9	1.1	A-	A-	A-
Reading	6	6696	5	B.2.1.2	1	50331	0.73	0.11	0.13	0.73	0.03	0.00	0.35	-0.25	-0.14	0.35	-0.16	-0.2133	0.0111	9.6	1.1	9.3	1.1			
Reading	6	3519	5	B.3.3.1	2	50331	0.71	0.71	0.06	0.16	0.07	0.00	0.34	0.34	-0.22	-0.13	-0.21	-0.1133	0.0109	9.9	1.1	9.9	1.2			
Reading	6	3957	5	A.2.3.1	2	50331	0.73	0.09	0.73	0.07	0.11	0.00	0.44	-0.19	0.44	-0.19	-0.29	-0.2144	0.0111	-8.5	1.0	-6.9	0.9			
Reading	6	1074	5	A.2.4.1	2	50331	0.78	0.09	0.78	0.07	0.07	0.00	0.48	-0.27	0.48	-0.28	-0.21	-0.5200	0.0117	-9.9	0.9	-9.9	0.8			
Reading	6	766	5	A.2.3.1	3	50331	0.43	0.08	0.14	0.35	0.43	0.00	0.23	-0.18	-0.19	0.01	0.23	1.3907	0.0100	9.9	1.2	9.9	1.3			
Reading	6	5759	5	B.2.1.3	1	50331	0.79	0.13	0.04	0.79	0.04	0.00	0.43	-0.26	-0.23	0.43	-0.21	-0.6205	0.0120	-8.2	1.0	-8.5	0.9			
Reading	6	2915	5	A.1.4.1	3	50331	0.73	0.17	0.73	0.05	0.04	0.00	0.42	-0.23	0.42	-0.22	-0.25	-0.2365	0.0111	-5.5	1.0	-1.7	1.0			
Reading	6	9269	5	B.1.2.1	3	50331	0.66	0.21	0.06	0.66	0.07	0.00	0.44	-0.19	-0.26	0.44	-0.27	0.2201	0.0104	-8.7	1.0	-9.9	0.9			
Reading	7	4523	0	B.3.2.1		126704	0.67	0.05	0.25	0.67	0.03	0.00	0.38	-0.25	-0.26	0.38	-0.06	0.2034	0.0066	4.1	1.0	-5.5	1.0			
Reading	7	4643	0	A.2.3.1		126704	0.72	0.15	0.07	0.07	0.72	0.00	0.26	-0.25	-0.06	-0.05	0.26	-0.0364	0.0068	9.9	1.1	9.9	1.2			
Reading	7	5608	0	A.2.4.1		126704	0.76	0.03	0.20	0.01	0.76	0.00	0.31	-0.13	-0.23	-0.17	0.31	-0.3070	0.0072	9.9	1.1	9.9	1.1			
Reading	7	7672	0	A.2.3.1		126704	0.93	0.93	0.02	0.02	0.02	0.00	0.40	0.40	-0.19	-0.22	-0.25	-1.9353	0.0114	-9.9	0.9	-9.9	0.6			
Reading	7	7744	0	B.3.1.1		126704	0.82	0.05	0.82	0.02	0.11	0.00	0.32	-0.20	0.32	-0.18	-0.17	-0.7899	0.0080	5.8	1.0	9.9	1.1			
Reading	7	4713	0	B.1.2.1		126704	0.66	0.66	0.11	0.08	0.15	0.00	0.31	0.31	-0.10	-0.18	-0.18	0.2833	0.0065	9.9	1.1	9.9	1.1			
Reading	7	1286	0	A.2.2.2	2	126704	0.87	0.87	0.09	0.02	0.02	0.00	0.35	0.35	-0.20	-0.22	-0.21	-1.1686	0.0088	-2.3	1.0	-6.5	0.9			
Reading	7	3852	0	A.2.4.1	1	126704	0.92	0.05	0.92	0.02	0.01	0.00	0.43	-0.31	0.43	-0.21	-0.18	-1.7914	0.0108	-9.9	0.9	-9.9	0.6			
Reading	7	2325	0	B.3.2.1	2	126704	0.50	0.10	0.10	0.30	0.50	0.00	0.36	-0.12	-0.08	-0.26	0.36	1.0970	0.0062	4.1	1.0	9.9	1.1			
Reading	7	8587	0	A.2.3.1	2	126704	0.48	0.15	0.25	0.12	0.48	0.00	0.29	-0.14	-0.09	-0.16	0.29	1.1823	0.0062	9.9	1.1	9.9	1.2			
Reading	7	6490	0	A.2.3.1	2	126704	0.75	0.75	0.18	0.02	0.05	0.00	0.43	0.43	-0.25	-0.22	-0.28	-0.2363	0.0071	-9.9	1.0	-9.9	0.9			
Reading	7	8632	0	B.3.3.1	3	126704	0.53	0.12	0.53	0.13	0.21	0.00	0.30	-0.19	0.30	-0.13	-0.10	0.9609	0.0062	9.9	1.1	9.9	1.1			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	7	1340	0	A.1.4.1		126704	0.60	0.19	0.60	0.19	0.02	0.00	0.25	-0.13	0.25	-0.13	-0.12	0.5943	0.0063	9.9	1.2	9.9	1.2			
Reading	7	6746	0	A.1.3.1		126704	0.63	0.07	0.63	0.25	0.05	0.00	0.30	-0.29	0.30	-0.04	-0.23	0.4311	0.0064	9.9	1.1	9.9	1.2			
Reading	7	3042	0	A.1.3.1		126704	0.77	0.07	0.08	0.77	0.08	0.00	0.34	-0.14	-0.26	0.34	-0.13	-0.3909	0.0073	8.4	1.0	9.9	1.1			
Reading	7	5972	0	A.1.4.1		126704	0.82	0.02	0.82	0.08	0.07	0.00	0.49	-0.24	0.49	-0.35	-0.20	-0.7814	0.0080	-9.9	0.9	-9.9	0.8			
Reading	7	8991	0	B.2.1.1		126704	0.91	0.91	0.04	0.02	0.03	0.00	0.42	0.42	-0.25	-0.26	-0.20	-1.6203	0.0102	-9.9	0.9	-9.9	0.7			
Reading	7	7991	0	B.1.1.1		126704	0.79	0.08	0.04	0.09	0.79	0.00	0.48	-0.25	-0.26	-0.26	0.48	-0.5086	0.0075	-9.9	0.9	-9.9	0.8			
Reading	7	5133	0	B.2.2.1		126704	0.91	0.03	0.03	0.02	0.91	0.00	0.44	-0.24	-0.25	-0.23	0.44	-1.6613	0.0103	-9.9	0.9	-9.9	0.6			
Reading	7	2982	0	A.1.6.1		126704	0.79	0.04	0.11	0.05	0.79	0.00	0.45	-0.23	-0.27	-0.21	0.45	-0.5529	0.0075	-9.9	0.9	-9.9	0.9			
Reading	7	8444	0	A.2.4.1	2	126704	0.83	0.83	0.05	0.03	0.10	0.00	0.42	0.42	-0.31	-0.21	-0.20	-0.8229	0.0081	-9.9	0.9	-9.9	0.8			
Reading	7	5930	0	B.3.1.1	2	126704	0.67	0.15	0.02	0.15	0.67	0.00	0.39	-0.19	-0.26	-0.20	0.39	0.2045	0.0066	1.8	1.0	1.2	1.0			
Reading	7	9967	0	A.2.4.1	1	126704	0.89	0.01	0.08	0.89	0.02	0.00	0.41	-0.19	-0.33	0.41	-0.14	-1.4498	0.0096	-9.9	0.9	-9.9	0.7			
Reading	7	9434	0	B.3.3.2	2	126704	0.73	0.12	0.10	0.73	0.05	0.00	0.42	-0.19	-0.29	0.42	-0.17	-0.1312	0.0069	-9.3	1.0	-9.9	0.9			
Reading	7	5465	0	A.2.2.1	2	126704	0.82	0.11	0.04	0.03	0.82	0.00	0.50	-0.28	-0.27	-0.28	0.50	-0.7598	0.0079	-9.9	0.9	-9.9	0.7			
Reading	7	3094	0	B.3.3.3	2	126704	0.65	0.23	0.65	0.05	0.07	0.00	0.40	-0.19	0.40	-0.25	-0.22	0.3381	0.0065	-4.2	1.0	-7.0	1.0			
Reading	7	5697	0	A.2.6.2	2	126704	0.72	0.13	0.04	0.11	0.72	0.00	0.49	-0.32	-0.29	-0.17	0.49	-0.0801	0.0069	-9.9	0.9	-9.9	0.8			
Reading	7	6533	0	B.1.1.1	3	126704	0.67	0.07	0.67	0.11	0.16	0.00	0.37	-0.22	0.37	-0.21	-0.14	0.2488	0.0065	9.1	1.0	4.4	1.0			
Reading	7	9063	0	A.1.1.2	1	126704	0.90	0.90	0.04	0.03	0.03	0.00	0.43	0.43	-0.26	-0.25	-0.21	-1.5173	0.0098	-9.9	0.9	-9.9	0.7			
Reading	7	6138	0	A.2.3.1	3	126704	0.72	0.07	0.08	0.13	0.72	0.00	0.35	-0.19	-0.19	-0.17	0.35	-0.0581	0.0068	9.9	1.0	9.9	1.1			
Reading	7	468	0	B.1.1.1	2	126704	0.45	0.39	0.10	0.45	0.06	0.00	0.36	-0.13	-0.22	0.36	-0.19	1.3276	0.0062	3.3	1.0	9.9	1.1			
Reading	7	5333	0	A.2.3.1	2	126704	0.65	0.03	0.04	0.27	0.65	0.00	0.46	-0.24	-0.28	-0.27	0.46	0.3172	0.0065	-9.9	0.9	-9.9	0.9			
Reading	7	8299	0	B.1.1.1	3	126704	0.49	0.05	0.49	0.29	0.16	0.00	0.26	-0.21	0.26	-0.11	-0.09	1.1344	0.0062	9.9	1.1	9.9	1.2			
Reading	7	1554	0	B.1.1.1	2	126704	0.44	0.32	0.11	0.13	0.44	0.00	0.29	-0.21	-0.06	-0.08	0.29	1.4050	0.0062	9.9	1.1	9.9	1.2			
Reading	7	6998	0	B.2.1.1	2	126704	0.79	0.05	0.06	0.79	0.10	0.00	0.32	-0.24	-0.23	0.32	-0.08	-0.5127	0.0075	9.9	1.0	9.9	1.2			
Reading	7	1263	0	A.1.3.1	2	126704	0.68	0.07	0.20	0.05	0.68	0.00	0.51	-0.29	-0.24	-0.31	0.51	0.1796	0.0066	-9.9	0.9	-9.9	0.8			
Reading	7	9772	0	A.1.3.1	2	126704	0.48	0.11	0.48	0.29	0.12	0.00	0.27	-0.19	0.27	0.01	-0.24	1.1904	0.0062	9.9	1.1	9.9	1.2			
Reading	7	8167	0	A.1.1.2	2	126704	0.58	0.58	0.18	0.09	0.15	0.00	0.40	0.40	-0.11	-0.18	-0.27	0.7138	0.0063	-8.9	1.0	-7.0	1.0			
Reading	7	515	0	B.2.1.2	3	126704	0.52	0.52	0.19	0.13	0.15	0.00	0.32	0.32	-0.16	-0.16	-0.11	0.9867	0.0062	9.9	1.1	9.9	1.1			
Reading	7	501	0	B.1.2.1	3	126704	0.67	0.67	0.05	0.21	0.07	0.00	0.27	0.27	-0.24	-0.08	-0.16	0.2537	0.0065	9.9	1.1	9.9	1.2			
Reading	7	8324	1	A.2.4.1	1	25575	0.72	0.21	0.04	0.72	0.04	0.00	0.35	-0.23	-0.20	0.35	-0.15	-0.0901	0.0153	5.4	1.0	3.4	1.0	A+	A-	A-
Reading	7	647	1	A.2.3.1	2	25575	0.40	0.19	0.19	0.40	0.23	0.00	0.23	0.02	-0.21	0.23	-0.09	1.5489	0.0140	9.9	1.1	9.9	1.3	A-	A-	A-
Reading	7	8671	1	A.2.1.2	2	25575	0.67	0.67	0.10	0.14	0.09	0.00	0.32	0.32	-0.14	-0.24	-0.09	0.1866	0.0147	9.9	1.1	3.8	1.0	A-	A-	A-
Reading	7	6617	1	A.2.4.1	2	25575	0.88	0.04	0.88	0.04	0.04	0.00	0.42	-0.23	0.42	-0.24	-0.22	-1.3213	0.0204	-7.6	0.9	-9.8	0.8	A+	A-	B-
Reading	7	9680	1	B.3.3.4	3	25575	0.25	0.46	0.22	0.07	0.25	0.00	0.23	-0.01	-0.09	-0.22	0.23	2.4070	0.0156	6.3	1.1	9.9	1.4	A-	A-	A-
Reading	7	7967	1	A.2.6.2	2	25575	0.63	0.12	0.05	0.19	0.63	0.00	0.47	-0.20	-0.21	-0.29	0.47	0.3826	0.0143	-9.9	0.9	-9.9	0.9	A+	A-	A-
Reading	7	9580	1	A.2.2.2	2	25575	0.62	0.06	0.62	0.26	0.05	0.00	0.35	-0.27	0.35	-0.10	-0.27	0.4389	0.0142	7.3	1.0	2.8	1.0	A-	C-	B-
Reading	7	8303	1	B.3.3.4	2	25575	0.58	0.13	0.58	0.16	0.14	0.00	0.37	-0.12	0.37	-0.21	-0.19	0.6684	0.0140	4.8	1.0	3.5	1.0	A+	A-	A-
Reading	7	4686	1	B.1.2.1	3	25575	0.47	0.30	0.08	0.15	0.47	0.00	0.35	-0.17	-0.14	-0.17	0.35	1.2194	0.0138	2.8	1.0	7.2	1.1	A-	A-	A-
Reading	7	6394	1	B.1.2.1	3	25575	0.65	0.65	0.05	0.13	0.17	0.00	0.36	0.36	-0.25	-0.15	-0.17	0.3285	0.0144	5.6	1.0	4.9	1.1	A-	A-	A-
Reading	7	9909	1	B.1.1.1	2	76263	0.66	0.16	0.13	0.66	0.06	0.00	0.34	-0.21	-0.18	0.34	-0.11	0.2949	0.0084	9.9	1.1	9.9	1.1			
Reading	7	4131	1	B.2.1.1	2	76263	0.68	0.03	0.68	0.24	0.05	0.00	0.34	-0.23	0.34	-0.18	-0.20	0.1408	0.0085	9.9	1.1	9.9	1.1			
Reading	7	2424	1	B.2.1.1	2	76263	0.63	0.03	0.07	0.27	0.63	0.00	0.36	-0.28	-0.30	-0.10	0.36	0.4519	0.0082	7.0	1.0	6.6	1.0			
Reading	7	4952	1	A.2.3.1	2	76263	0.80	0.08	0.80	0.07	0.05	0.00	0.49	-0.26	0.49	-0.28	-0.24	-0.5914	0.0098	-9.9	0.9	-9.9	0.7			
Reading	7	3167	1	A.1.6.2	2	76263	0.83	0.10	0.04	0.83	0.03	0.00	0.44	-0.22	-0.28	0.44	-0.24	-0.8556	0.0104	-9.9	0.9	-9.9	0.8			
Reading	7	9860	1	A.1.3.1	2	76263	0.77	0.14	0.04	0.04	0.77	0.00	0.54	-0.35	-0.24	-0.26	0.54	-0.4000	0.0094	-9.9	0.8	-9.9	0.7			
Reading	7	5643	1	A.1.3.1	2	76263	0.76	0.03	0.09	0.76	0.11	0.00	0.34	-0.26	-0.22	0.34	-0.12	-0.3594	0.0093	5.1	1.0	9.9	1.1			
Reading	7	5700	1	A.1.4.1	2	76263	0.88	0.88	0.04	0.04	0.03	0.00	0.46	0.46	-0.24	-0.24	-0.27	-1.2976	0.0118	-9.9	0.9	-9.9	0.7			
Reading	7	6508	2	A.2.3.2	2	25393	0.41	0.11	0.35	0.41	0.13	0.00	0.20	-0.26	-0.03	0.20	-0.01	1.5361	0.0140	9.9	1.2	9.9	1.3	A+	A-	A-
Reading	7	6163	2	A.2.6.2	3	25393	0.59	0.33	0.04	0.04	0.59	0.00	0.34	-0.18	-0.22	-0.21	0.34	0.6303	0.0141	8.5	1.1	9.9	1.1	A+	A-	A-
Reading	7	7736	2	A.2.3.1	2	25393	0.64	0.19	0.13	0.64	0.04	0.00	0.39	-0.16	-0.25	0.39	-0.22	0.3587	0.0144	-1.2	1.0	-3.9	1.0	A+	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Reading	7	5503	2	B.3.3.2	2	25393	0.84	0.05	0.84	0.05	0.06	0.00	0.43	-0.19	0.43	-0.25	-0.26	-0.8765	0.0182	-8.4	0.9	-9.2	0.8	A+	A-	A-
Reading	7	3658	2	B.3.3.3	2	25393	0.55	0.55	0.04	0.34	0.07	0.00	0.35	0.35	-0.25	-0.12	-0.27	0.8422	0.0139	4.3	1.0	4.9	1.0	A-	A-	A-
Reading	7	9691	2	A.2.4.1	2	25393	0.87	0.87	0.04	0.02	0.06	0.00	0.45	0.45	-0.26	-0.24	-0.26	-1.2259	0.0201	-9.9	0.9	-9.9	0.7	A+	B-	B-
Reading	7	8221	2	A.2.2.2	2	25393	0.57	0.17	0.20	0.05	0.57	0.00	0.39	-0.22	-0.19	-0.17	0.39	0.7397	0.0140	-2.2	1.0	1.5	1.0	A-	A-	A-
Reading	7	8135	2	A.2.4.1	2	25393	0.82	0.08	0.06	0.82	0.04	0.00	0.47	-0.27	-0.24	0.47	-0.24	-0.7186	0.0175	-9.9	0.9	-9.9	0.8	A+	B-	B-
Reading	7	1719	2	B.3.2.1	2	25393	0.29	0.14	0.29	0.40	0.16	0.00	0.02	-0.10	0.02	0.05	0.00	2.1326	0.0149	9.9	1.3	9.9	1.8	A+	A+	A+
Reading	7	277	2	B.1.2.1	3	25393	0.59	0.08	0.15	0.17	0.59	0.00	0.30	-0.22	-0.13	-0.11	0.30	0.6319	0.0141	9.9	1.1	9.9	1.1	A+	A+	A+
Reading	7	9909	2	B.1.1.1	2	76263	0.66	0.16	0.13	0.66	0.06	0.00	0.34	-0.21	-0.18	0.34	-0.11	0.2949	0.0084	9.9	1.1	9.9	1.1			
Reading	7	4131	2	B.2.1.1	2	76263	0.68	0.03	0.68	0.24	0.05	0.00	0.34	-0.23	0.34	-0.18	-0.20	0.1408	0.0085	9.9	1.1	9.9	1.1			
Reading	7	2424	2	B.2.1.1	2	76263	0.63	0.03	0.07	0.27	0.63	0.00	0.36	-0.28	-0.30	-0.10	0.36	0.4519	0.0082	7.0	1.0	6.6	1.0			
Reading	7	4952	2	A.2.3.1	2	76263	0.80	0.08	0.80	0.07	0.05	0.00	0.49	-0.26	0.49	-0.28	-0.24	-0.5914	0.0098	-9.9	0.9	-9.9	0.7			
Reading	7	3167	2	A.1.6.2	2	76263	0.83	0.10	0.04	0.83	0.03	0.00	0.44	-0.22	-0.28	0.44	-0.24	-0.8556	0.0104	-9.9	0.9	-9.9	0.8			
Reading	7	9860	2	A.1.3.1	2	76263	0.77	0.14	0.04	0.04	0.77	0.00	0.54	-0.35	-0.24	-0.26	0.54	-0.4000	0.0094	-9.9	0.8	-9.9	0.7			
Reading	7	5643	2	A.1.3.1	2	76263	0.76	0.03	0.09	0.76	0.11	0.00	0.34	-0.26	-0.22	0.34	-0.12	-0.3594	0.0093	5.1	1.0	9.9	1.1			
Reading	7	5700	2	A.1.4.1	2	76263	0.88	0.88	0.04	0.04	0.03	0.00	0.46	0.46	-0.24	-0.24	-0.27	-1.2976	0.0118	-9.9	0.9	-9.9	0.7			
Reading	7	9463	3	A.2.3.1	2	25295	0.88	0.07	0.88	0.02	0.02	0.00	0.22	-0.13	0.22	-0.11	-0.14	-1.3500	0.0209	4.8	1.1	9.2	1.3	A-	A-	A-
Reading	7	3702	3	A.2.2.2	2	25295	0.93	0.02	0.03	0.02	0.93	0.00	0.42	-0.25	-0.25	-0.21	0.42	-2.0231	0.0263	-7.8	0.9	-9.9	0.5	A-	C-	C-
Reading	7	1643	3	A.2.6.1	2	25295	0.71	0.71	0.12	0.05	0.12	0.00	0.44	0.44	-0.24	-0.25	-0.20	0.0064	0.0151	-7.5	1.0	-9.9	0.9	A-	A-	A-
Reading	7	2866	3	A.2.4.1	1	25295	0.51	0.51	0.22	0.10	0.18	0.00	0.31	0.31	-0.03	-0.28	-0.15	1.0465	0.0138	9.9	1.1	9.9	1.1	A-	A-	A-
Reading	7	8847	3	A.2.2.1	1	25295	0.72	0.20	0.02	0.06	0.72	0.00	0.39	-0.22	-0.24	-0.21	0.39	-0.0494	0.0153	-0.6	1.0	-4.8	0.9	A-	A-	A-
Reading	7	3413	3	A.2.3.1	1	25295	0.50	0.11	0.15	0.50	0.24	0.00	0.26	-0.17	-0.22	0.26	0.01	1.0721	0.0138	9.9	1.1	9.9	1.2	A-	A+	A+
Reading	7	7729	3	B.3.1.1	3	25295	0.49	0.49	0.26	0.05	0.20	0.00	0.19	0.19	0.05	-0.27	-0.13	1.1505	0.0138	9.9	1.2	9.9	1.3	A-	A+	A-
Reading	7	1466	3	A.2.4.1	2	25295	0.47	0.19	0.05	0.47	0.29	0.00	0.25	-0.19	-0.18	0.25	-0.02	1.2061	0.0138	9.9	1.1	9.9	1.2	B-	A-	A-
Reading	7	8230	3	B.3.3.2	2	25295	0.67	0.14	0.10	0.67	0.09	0.00	0.43	-0.28	-0.19	0.43	-0.17	0.2109	0.0147	-8.1	1.0	-9.2	0.9	A-	A-	A-
Reading	7	8482	3	B.3.3.1	2	25295	0.74	0.05	0.74	0.14	0.07	0.00	0.36	-0.19	0.36	-0.19	-0.20	-0.1712	0.0156	1.6	1.0	2.3	1.0	A-	A-	A-
Reading	7	9909	3	B.1.1.1	2	76263	0.66	0.16	0.13	0.66	0.06	0.00	0.34	-0.21	-0.18	0.34	-0.11	0.2949	0.0084	9.9	1.1	9.9	1.1			
Reading	7	4131	3	B.2.1.1	2	76263	0.68	0.03	0.68	0.24	0.05	0.00	0.34	-0.23	0.34	-0.18	-0.20	0.1408	0.0085	9.9	1.1	9.9	1.1			
Reading	7	2424	3	B.2.1.1	2	76263	0.63	0.03	0.07	0.27	0.63	0.00	0.36	-0.28	-0.30	-0.10	0.36	0.4519	0.0082	7.0	1.0	6.6	1.0			
Reading	7	4952	3	A.2.3.1	2	76263	0.80	0.08	0.80	0.07	0.05	0.00	0.49	-0.26	0.49	-0.28	-0.24	-0.5914	0.0098	-9.9	0.9	-9.9	0.7			
Reading	7	3167	3	A.1.6.2	2	76263	0.83	0.10	0.04	0.83	0.03	0.00	0.44	-0.22	-0.28	0.44	-0.24	-0.8556	0.0104	-9.9	0.9	-9.9	0.8			
Reading	7	9860	3	A.1.3.1	2	76263	0.77	0.14	0.04	0.04	0.77	0.00	0.54	-0.35	-0.24	-0.26	0.54	-0.4000	0.0094	-9.9	0.8	-9.9	0.7			
Reading	7	5643	3	A.1.3.1	2	76263	0.76	0.03	0.09	0.76	0.11	0.00	0.34	-0.26	-0.22	0.34	-0.12	-0.3594	0.0093	5.1	1.0	9.9	1.1			
Reading	7	5700	3	A.1.4.1	2	76263	0.88	0.88	0.04	0.04	0.03	0.00	0.46	0.46	-0.24	-0.24	-0.27	-1.2976	0.0118	-9.9	0.9	-9.9	0.7			
Reading	7	4073	4	A.1.4.1	1	25245	0.91	0.05	0.91	0.02	0.01	0.00	0.38	-0.31	0.38	-0.16	-0.14	-1.7135	0.0236	-6.0	0.9	-7.4	0.8	A+	A-	B-
Reading	7	6710	4	B.2.2.1	2	25245	0.76	0.10	0.06	0.76	0.08	0.00	0.38	-0.22	-0.20	0.38	-0.17	-0.2830	0.0161	1.2	1.0	-2.8	1.0	A+	A+	A-
Reading	7	8390	4	A.1.3.1	2	25245	0.72	0.08	0.04	0.72	0.16	0.00	0.46	-0.28	-0.26	0.46	-0.22	-0.0655	0.0154	-9.9	0.9	-9.9	0.9	A+	B-	B-
Reading	7	7423	4	B.1.1.1	2	25245	0.78	0.05	0.09	0.09	0.78	0.00	0.42	-0.16	-0.25	-0.25	0.42	-0.4143	0.0165	-6.0	1.0	-6.8	0.9	A+	A+	A-
Reading	7	4573	4	A.1.4.1	1	25245	0.73	0.73	0.07	0.02	0.18	0.00	0.19	0.19	-0.13	-0.21	-0.05	-0.1106	0.0156	9.9	1.2	9.9	1.3	A+	A+	A+
Reading	7	6311	4	A.1.6.1	2	25245	0.70	0.03	0.08	0.19	0.70	0.00	0.40	-0.26	-0.26	-0.18	0.40	0.0741	0.0151	-2.0	1.0	-2.1	1.0	A+	A-	A-
Reading	7	6605	4	A.1.3.1	2	25245	0.61	0.16	0.61	0.16	0.07	0.00	0.35	-0.07	0.35	-0.24	-0.22	0.5785	0.0142	7.4	1.0	8.7	1.1	A-	A-	A-
Reading	7	8307	4	B.1.1.1	2	25245	0.65	0.65	0.25	0.04	0.06	0.00	0.21	0.21	-0.06	-0.22	-0.13	0.3653	0.0145	9.9	1.2	9.9	1.3	A-	A-	A-
Reading	7	4871	4	B.1.1.1	3	25245	0.69	0.09	0.09	0.69	0.14	0.00	0.29	-0.15	-0.25	0.29	-0.07	0.1412	0.0150	9.9	1.1	9.9	1.2	A+	A-	A-
Reading	7	4800	4	A.1.4.1	1	25245	0.83	0.83	0.04	0.07	0.06	0.00	0.49	0.49	-0.25	-0.25	-0.31	-0.8347	0.0182	-9.9	0.9	-9.9	0.7	A+	A-	A-
Reading	7	2910	4	A.2.2.2	2	50441	0.48	0.15	0.22	0.48	0.15	0.00	0.40	-0.19	-0.28	0.40	-0.03	1.2172	0.0098	-9.9	1.0	0.9	1.0			
Reading	7	2959	4	A.2.4.1	1	50441	0.64	0.18	0.06	0.12	0.64	0.00	0.43	-0.19	-0.25	-0.22	0.43	0.4098	0.0102	-9.9	1.0	-9.2	0.9			
Reading	7	9988	4	B.3.1.1	3	50441	0.77	0.77	0.05	0.12	0.06	0.00	0.50	0.50	-0.27	-0.27	-0.27	-0.3418	0.0115	-9.9	0.9	-9.9	0.8			
Reading	7	9746	4	A.2.4.1	2	50441	0.70	0.16	0.70	0.10	0.03	0.00	0.32	-0.13	0.32	-0.16	-0.26	0.0523	0.0107	9.9	1.1	7.8	1.1			
Reading	7	1444	4	A.2.3.2	2	50441	0.85	0.85	0.05	0.06	0.04	0.00	0.49	0.49	-0.30	-0.26	-0.25	-0.9796	0.0134	-9.9	0.9	-9.9	0.7			
Reading	7	6584	4	A.2.1.1	2	50441	0.86	0.06	0.86	0.05	0.02	0.00	0.48	-0.25	0.48	-0.31	-0.23	-1.1134	0.0139	-9.9	0.9	-9.9	0.7			

Item Information						Classical													Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Reading	7	979	4	B.3.3.3	2	50441	0.75	0.05	0.11	0.75	0.08	0.00	0.48	-0.26	-0.23	0.48	-0.28	-0.2593	0.0113	-9.9	0.9	-9.9	0.8			
Reading	7	9159	4	A.2.6.1	2	50441	0.71	0.05	0.06	0.17	0.71	0.00	0.39	-0.22	-0.23	-0.18	0.39	0.0363	0.0107	-1.1	1.0	-3.7	1.0			
Reading	7	6206	5	A.1.3.1	2	25196	0.57	0.57	0.02	0.03	0.37	0.00	0.09	0.09	-0.15	-0.19	0.02	0.7483	0.0140	9.9	1.3	9.9	1.5	A+	A-	A-
Reading	7	2488	5	A.1.4.1	1	25196	0.65	0.13	0.65	0.21	0.01	0.00	0.37	-0.28	0.37	-0.17	-0.15	0.3472	0.0145	3.1	1.0	2.3	1.0	A-	A-	A-
Reading	7	3637	5	B.2.1.1	2	25196	0.68	0.10	0.68	0.18	0.04	0.00	0.33	-0.21	0.33	-0.12	-0.20	0.1943	0.0148	9.0	1.1	5.3	1.1	A+	A-	A-
Reading	7	2085	5	A.1.3.1	2	25196	0.75	0.75	0.11	0.05	0.09	0.00	0.30	0.30	-0.17	-0.25	-0.07	-0.1958	0.0158	9.9	1.1	8.5	1.1	A+	A-	A-
Reading	7	4319	5	B.2.1.1	2	25196	0.69	0.69	0.12	0.06	0.13	0.00	0.37	0.37	-0.15	-0.22	-0.22	0.1500	0.0149	1.3	1.0	0.7	1.0	A-	A-	A-
Reading	7	6446	5	A.1.1.2	1	25196	0.92	0.03	0.02	0.03	0.92	0.00	0.40	-0.21	-0.25	-0.22	0.40	-1.7731	0.0243	-7.1	0.9	-9.9	0.7	A-	A-	C-
Reading	7	7913	5	B.1.1.1	2	25196	0.62	0.06	0.05	0.28	0.62	0.00	0.40	-0.23	-0.21	-0.22	0.40	0.5151	0.0143	-2.5	1.0	-3.5	1.0	A+	A-	A-
Reading	7	4234	5	B.2.1.1	3	25196	0.59	0.22	0.13	0.59	0.06	0.00	0.25	-0.14	-0.12	0.25	-0.09	0.6780	0.0141	9.9	1.2	9.9	1.2	A-	A+	A-
Reading	7	8278	5	B.1.2.1	3	25196	0.54	0.37	0.05	0.04	0.54	0.00	0.29	-0.08	-0.27	-0.23	0.29	0.9273	0.0139	9.9	1.1	9.9	1.2	A+	A+	A-
Reading	7	7680	5	B.1.2.1	3	25196	0.68	0.06	0.08	0.18	0.68	0.00	0.43	-0.20	-0.23	-0.23	0.43	0.2015	0.0148	-6.3	1.0	-8.2	0.9	A+	A-	A-
Reading	7	2910	5	A.2.2.2	2	50441	0.48	0.15	0.22	0.48	0.15	0.00	0.40	-0.19	-0.28	0.40	-0.03	1.2172	0.0098	-9.9	1.0	0.9	1.0			
Reading	7	2959	5	A.2.4.1	1	50441	0.64	0.18	0.06	0.12	0.64	0.00	0.43	-0.19	-0.25	-0.22	0.43	0.4098	0.0102	-9.9	1.0	-9.2	0.9			
Reading	7	9988	5	B.3.1.1	3	50441	0.77	0.77	0.05	0.12	0.06	0.00	0.50	0.50	-0.27	-0.27	-0.27	-0.3418	0.0115	-9.9	0.9	-9.9	0.8			
Reading	7	9746	5	A.2.4.1	2	50441	0.70	0.16	0.70	0.10	0.03	0.00	0.32	-0.13	0.32	-0.16	-0.26	0.0523	0.0107	9.9	1.1	7.8	1.1			
Reading	7	1444	5	A.2.3.2	2	50441	0.85	0.85	0.05	0.06	0.04	0.00	0.49	0.49	-0.30	-0.26	-0.25	-0.9796	0.0134	-9.9	0.9	-9.9	0.7			
Reading	7	6584	5	A.2.1.1	2	50441	0.86	0.06	0.86	0.05	0.02	0.00	0.48	-0.25	0.48	-0.31	-0.23	-1.1134	0.0139	-9.9	0.9	-9.9	0.7			
Reading	7	979	5	B.3.3.3	2	50441	0.75	0.05	0.11	0.75	0.08	0.00	0.48	-0.26	-0.23	0.48	-0.28	-0.2593	0.0113	-9.9	0.9	-9.9	0.8			
Reading	7	9159	5	A.2.6.1	2	50441	0.71	0.05	0.06	0.17	0.71	0.00	0.39	-0.22	-0.23	-0.18	0.39	0.0363	0.0107	-1.1	1.0	-3.7	1.0			
Reading	8	1430	0	A.1.4.1		126191	0.74	0.10	0.05	0.11	0.74	0.00	0.29	-0.23	-0.18	-0.06	0.29	0.3564	0.0070	9.9	1.1	9.9	1.2			
Reading	8	6948	0	B.2.1.1		126191	0.47	0.47	0.23	0.13	0.17	0.00	0.32	0.32	-0.17	-0.21	-0.04	1.8255	0.0062	9.9	1.1	9.9	1.1			
Reading	8	1301	0	A.1.3.1		126191	0.72	0.07	0.17	0.72	0.04	0.00	0.24	-0.12	-0.13	0.24	-0.15	0.5164	0.0068	9.9	1.2	9.9	1.2			
Reading	8	797	0	B.1.1.1		126191	0.82	0.82	0.09	0.03	0.06	0.00	0.32	0.32	-0.13	-0.27	-0.16	-0.1949	0.0079	5.6	1.0	5.1	1.1			
Reading	8	3562	0	B.1.1.1		126191	0.50	0.22	0.50	0.04	0.24	0.00	0.36	-0.15	0.36	-0.22	-0.18	1.6419	0.0062	9.6	1.0	9.9	1.1			
Reading	8	5407	0	A.1.2.2		126191	0.84	0.08	0.04	0.84	0.05	0.00	0.42	-0.20	-0.23	0.42	-0.26	-0.3004	0.0081	-9.9	0.9	-9.9	0.8			
Reading	8	6894	0	A.1.6.2		126191	0.38	0.07	0.43	0.12	0.38	0.00	0.29	-0.18	-0.09	-0.15	0.29	2.2482	0.0064	9.9	1.1	9.9	1.2			
Reading	8	1969	0	B.1.2.1		126191	0.77	0.77	0.07	0.10	0.06	0.00	0.42	0.42	-0.16	-0.26	-0.24	0.1532	0.0073	-9.9	1.0	-9.9	0.9			
Reading	8	4662	0	A.1.3.1		126191	0.69	0.05	0.17	0.09	0.69	0.00	0.36	-0.22	-0.14	-0.23	0.36	0.6648	0.0067	9.9	1.0	9.9	1.1			
Reading	8	5235	0	A.1.1.1		126191	0.58	0.12	0.11	0.19	0.58	0.00	0.36	-0.16	-0.17	-0.18	0.36	1.2833	0.0063	9.9	1.0	7.5	1.0			
Reading	8	9481	0	A.1.4.1		126191	0.81	0.05	0.07	0.81	0.06	0.00	0.39	-0.24	-0.24	0.39	-0.15	-0.1269	0.0078	-6.8	1.0	-9.9	0.9			
Reading	8	5876	0	B.1.1.1		126191	0.77	0.09	0.77	0.06	0.07	0.00	0.42	-0.18	0.42	-0.23	-0.26	0.1521	0.0073	-9.9	1.0	-9.9	0.9			
Reading	8	9698	0	B.2.1.1		126191	0.83	0.09	0.83	0.06	0.03	0.00	0.44	-0.28	0.44	-0.19	-0.25	-0.2472	0.0080	-9.9	0.9	-9.9	0.8			
Reading	8	5888	0	A.2.6.1	2	126191	0.50	0.35	0.50	0.10	0.05	0.00	0.28	-0.15	0.28	-0.10	-0.16	1.6547	0.0062	9.9	1.1	9.9	1.2			
Reading	8	3424	0	B.3.3.1	2	126191	0.67	0.13	0.14	0.06	0.67	0.00	0.50	-0.16	-0.33	-0.29	0.50	0.7648	0.0066	-9.9	0.9	-9.9	0.8			
Reading	8	7983	0	A.2.3.1	2	126191	0.47	0.05	0.14	0.47	0.34	0.00	0.33	-0.25	-0.17	0.33	-0.11	1.8255	0.0062	9.9	1.0	9.9	1.1			
Reading	8	21	0	A.2.4.1	2	126191	0.55	0.22	0.10	0.14	0.55	0.00	0.44	-0.18	-0.19	-0.25	0.44	1.4270	0.0062	-9.9	0.9	-9.9	1.0			
Reading	8	1400	0	B.3.1.1	2	126191	0.72	0.72	0.07	0.17	0.04	0.00	0.40	0.40	-0.24	-0.21	-0.18	0.5222	0.0068	-4.0	1.0	-3.8	1.0			
Reading	8	7043	0	A.2.4.1	2	126191	0.49	0.04	0.49	0.44	0.04	0.00	0.39	-0.24	0.39	-0.21	-0.23	1.7105	0.0062	-6.7	1.0	6.1	1.0			
Reading	8	7550	0	B.3.1.1	2	126191	0.49	0.18	0.28	0.49	0.05	0.00	0.31	-0.07	-0.15	0.31	-0.27	1.7051	0.0062	9.9	1.1	9.9	1.1			
Reading	8	2183	0	B.1.2.1	3	126191	0.54	0.13	0.54	0.07	0.26	0.00	0.30	-0.33	0.30	-0.15	0.00	1.4587	0.0062	9.9	1.1	9.9	1.2			
Reading	8	935	0	A.1.2.2	2	126191	0.79	0.05	0.05	0.79	0.10	0.00	0.45	-0.23	-0.22	0.45	-0.28	0.0182	0.0075	-9.9	0.9	-9.9	0.8			
Reading	8	4225	0	B.2.2.1	2	126191	0.79	0.06	0.13	0.79	0.02	0.00	0.39	-0.24	-0.23	0.39	-0.16	0.0638	0.0075	-5.0	1.0	-4.4	1.0			
Reading	8	2286	0	A.1.3.2	2	126191	0.91	0.91	0.04	0.02	0.03	0.00	0.47	0.47	-0.28	-0.26	-0.25	-1.0399	0.0101	-9.9	0.8	-9.9	0.5			
Reading	8	1860	0	B.1.1.1	3	126191	0.83	0.04	0.83	0.07	0.05	0.00	0.32	-0.21	0.32	-0.15	-0.16	-0.2517	0.0080	2.3	1.0	9.9	1.1			
Reading	8	6958	0	B.2.1.1	2	126191	0.81	0.03	0.06	0.10	0.81	0.00	0.36	-0.25	-0.26	-0.13	0.36	-0.1250	0.0078	-3.5	1.0	7.6	1.1			
Reading	8	566	0	A.1.4.1	1	126191	0.75	0.09	0.14	0.02	0.75	0.00	0.49	-0.21	-0.35	-0.22	0.49	0.2832	0.0071	-9.9	0.9	-9.9	0.8			
Reading	8	189	0	B.1.1.1	2	126191	0.51	0.51	0.06	0.33	0.10	0.00	0.23	0.23	-0.10	-0.03	-0.26	1.5883	0.0062	9.9	1.2	9.9	1.3			
Reading	8	6626	0	A.2.3.1		126191	0.76	0.07	0.12	0.76	0.06	0.00	0.44	-0.25	-0.24	0.44	-0.19	0.2697	0.0071	-9.9	0.9	-9.9	0.9			

Item Information						Classical													Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	8	1737	0	A.2.3.1		126191	0.68	0.08	0.15	0.08	0.68	0.00	0.44	-0.20	-0.19	-0.29	0.44	0.7317	0.0066	-9.9	1.0	-9.9	0.9			
Reading	8	6011	0	A.2.4.1		126191	0.69	0.13	0.69	0.11	0.07	0.00	0.39	-0.25	0.39	-0.17	-0.17	0.6770	0.0067	1.5	1.0	-1.2	1.0			
Reading	8	8948	0	A.2.4.1		126191	0.62	0.14	0.15	0.62	0.08	0.00	0.32	-0.08	-0.20	0.32	-0.21	1.0298	0.0064	9.9	1.1	9.9	1.1			
Reading	8	7882	0	A.2.4.1		126191	0.55	0.55	0.09	0.13	0.23	0.00	0.29	0.29	-0.21	-0.15	-0.08	1.4055	0.0062	9.9	1.1	9.9	1.2			
Reading	8	1176	0	A.2.3.1		126191	0.81	0.81	0.05	0.11	0.03	0.00	0.34	0.34	-0.27	-0.15	-0.16	-0.0934	0.0077	2.4	1.0	2.3	1.0			
Reading	8	187	0	A.2.1.1		126191	0.81	0.06	0.05	0.07	0.81	0.00	0.42	-0.19	-0.28	-0.20	0.42	-0.1318	0.0078	-9.9	0.9	-7.4	0.9			
Reading	8	2439	0	A.2.4.1		126191	0.53	0.26	0.12	0.09	0.53	0.00	0.31	-0.07	-0.16	-0.25	0.31	1.5021	0.0062	9.9	1.1	9.9	1.1			
Reading	8	435	0	A.2.2.1		126191	0.84	0.05	0.84	0.08	0.03	0.00	0.43	-0.25	0.43	-0.21	-0.25	-0.3052	0.0081	-9.9	0.9	-9.9	0.8			
Reading	8	4496	0	B.1.1.1		126191	0.75	0.75	0.04	0.12	0.09	0.00	0.39	0.39	-0.27	-0.13	-0.24	0.3118	0.0071	-2.4	1.0	0.5	1.0			
Reading	8	971	0	A.2.3.1		126191	0.76	0.08	0.76	0.09	0.06	0.00	0.48	-0.26	0.48	-0.26	-0.22	0.2298	0.0072	-9.9	0.9	-9.9	0.8			
Reading	8	3006	0	A.2.4.1		126191	0.68	0.16	0.08	0.68	0.08	0.00	0.45	-0.24	-0.24	0.45	-0.19	0.7485	0.0066	-9.9	0.9	-9.9	0.9			
Reading	8	2387	1	A.2.3.1	2	25436	0.90	0.04	0.90	0.04	0.02	0.00	0.31	-0.20	0.31	-0.16	-0.16	-0.9154	0.0216	-2.1	1.0	3.3	1.1	A-	A-	B-
Reading	8	3021	1	A.2.3.2	2	25436	0.58	0.12	0.58	0.20	0.09	0.00	0.42	-0.32	0.42	-0.06	-0.27	1.2500	0.0141	-5.0	1.0	1.5	1.0	A-	A-	A-
Reading	8	9929	1	A.2.4.1	2	25436	0.61	0.19	0.02	0.19	0.61	0.00	0.29	-0.22	-0.22	-0.07	0.29	1.1279	0.0142	9.9	1.1	9.9	1.2	A+	A+	A-
Reading	8	4213	1	B.3.1.1	2	25436	0.41	0.41	0.24	0.21	0.15	0.00	0.26	0.26	-0.12	-0.10	-0.09	2.1287	0.0141	9.9	1.1	9.9	1.2	A+	A-	A-
Reading	8	6632	1	A.2.3.1	2	25436	0.50	0.21	0.50	0.09	0.20	0.00	0.37	-0.17	0.37	-0.13	-0.19	1.6754	0.0139	2.0	1.0	7.7	1.1	A-	A+	A-
Reading	8	6279	1	A.2.2.2	2	25436	0.84	0.84	0.08	0.03	0.06	0.00	0.48	0.48	-0.25	-0.22	-0.32	-0.3223	0.0182	-9.9	0.9	-9.9	0.7	A+	A+	A-
Reading	8	9240	1	A.2.3.1	2	25436	0.79	0.07	0.10	0.04	0.79	0.00	0.55	-0.31	-0.30	-0.27	0.55	0.0523	0.0167	-9.9	0.8	-9.9	0.6	A-	C-	C-
Reading	8	8336	1	A.2.5.1	3	25436	0.69	0.16	0.09	0.69	0.06	0.00	0.41	-0.17	-0.25	0.41	-0.24	0.6559	0.0150	-3.9	1.0	-6.5	0.9	A-	A-	A-
Reading	8	9397	1	A.2.6.2	2	25436	0.76	0.03	0.13	0.08	0.76	0.00	0.42	-0.23	-0.19	-0.27	0.42	0.2723	0.0159	-5.0	1.0	-5.7	0.9	A-	A-	A-
Reading	8	9117	1	A.2.3.1	2	25436	0.69	0.69	0.06	0.19	0.06	0.00	0.34	0.34	-0.26	-0.11	-0.23	0.6536	0.0150	7.5	1.1	9.9	1.1	A+	A+	A-
Reading	8	1182	1	A.1.3.1	2	75843	0.87	0.87	0.05	0.04	0.05	0.00	0.24	0.24	-0.13	-0.08	-0.17	-0.6004	0.0114	6.4	1.1	9.9	1.3			
Reading	8	4608	1	B.1.1.1	3	75843	0.73	0.11	0.73	0.09	0.08	0.00	0.45	-0.28	0.45	-0.23	-0.19	0.4558	0.0089	-9.9	0.9	-9.9	0.9			
Reading	8	5045	1	A.1.3.1	2	75843	0.73	0.03	0.18	0.73	0.07	0.00	0.33	-0.18	-0.22	0.33	-0.13	0.4548	0.0089	9.9	1.1	7.3	1.1			
Reading	8	9250	1	A.1.6.1	2	75843	0.82	0.82	0.10	0.04	0.05	0.00	0.41	0.41	-0.23	-0.23	-0.23	-0.1993	0.0102	-9.9	0.9	-9.9	0.9			
Reading	8	9876	1	A.1.4.1	2	75843	0.70	0.17	0.07	0.06	0.70	0.00	0.40	-0.18	-0.23	-0.23	0.40	0.6183	0.0087	-5.8	1.0	-8.4	0.9			
Reading	8	4737	1	A.1.4.1	2	75843	0.73	0.05	0.07	0.14	0.73	0.00	0.47	-0.24	-0.20	-0.29	0.47	0.4211	0.0090	-9.9	0.9	-9.9	0.8			
Reading	8	9034	1	B.1.1.1	3	75843	0.71	0.07	0.14	0.71	0.08	0.00	0.43	-0.25	-0.22	0.43	-0.20	0.5776	0.0087	-9.9	1.0	-9.9	0.9			
Reading	8	2138	1	B.1.2.1	2	75843	0.77	0.04	0.16	0.77	0.02	0.00	0.27	-0.22	-0.10	0.27	-0.23	0.1654	0.0094	9.9	1.1	9.9	1.3			
Reading	8	1213	2	B.3.1.1	2	25223	0.52	0.52	0.04	0.34	0.09	0.00	0.35	0.35	-0.22	-0.19	-0.15	1.5414	0.0139	6.4	1.0	9.4	1.1	A-	A-	B-
Reading	8	4604	2	A.2.2.1	2	25223	0.88	0.04	0.88	0.06	0.01	0.00	0.40	-0.27	0.40	-0.24	-0.15	-0.7606	0.0207	-6.5	0.9	-9.6	0.8	A-	A-	B-
Reading	8	2659	2	A.2.4.1	1	25223	0.93	0.93	0.03	0.02	0.02	0.00	0.44	0.44	-0.23	-0.25	-0.25	-1.3903	0.0256	-9.5	0.8	-9.9	0.5	A+	B-	B-
Reading	8	1212	2	A.2.3.1	2	25223	0.74	0.05	0.74	0.09	0.12	0.00	0.32	-0.20	0.32	-0.20	-0.13	0.3684	0.0157	7.3	1.1	5.8	1.1	A-	A-	A-
Reading	8	1928	2	A.2.1.2	2	25223	0.76	0.04	0.76	0.15	0.04	0.00	0.35	-0.15	0.35	-0.21	-0.22	0.2719	0.0160	3.3	1.0	-0.7	1.0	A+	A-	A-
Reading	8	1838	2	A.2.4.1	2	25223	0.83	0.02	0.08	0.83	0.07	0.00	0.36	-0.25	-0.18	0.36	-0.21	-0.2668	0.0181	-3.1	1.0	-1.0	1.0	A+	A-	A-
Reading	8	8838	2	B.2.1.1	3	25223	0.81	0.03	0.04	0.81	0.11	0.00	0.42	-0.28	-0.28	0.42	-0.19	-0.0842	0.0173	-7.6	0.9	-6.5	0.9	A-	C-	B-
Reading	8	7028	2	B.3.3.2	2	25223	0.39	0.34	0.07	0.19	0.39	0.00	0.31	-0.08	-0.20	-0.16	0.31	2.1907	0.0142	8.7	1.1	9.9	1.1	A+	B-	B-
Reading	8	3556	2	B.1.2.1	3	25223	0.67	0.67	0.19	0.08	0.05	0.00	0.24	0.24	-0.06	-0.18	-0.17	0.7994	0.0147	9.9	1.2	9.9	1.2	A+	A+	A-
Reading	8	8200	2	B.1.2.1	3	25223	0.83	0.02	0.09	0.05	0.83	0.00	0.36	-0.23	-0.19	-0.21	0.36	-0.2967	0.0182	-2.4	1.0	-2.0	1.0	A+	A-	A-
Reading	8	1182	2	A.1.3.1	2	75843	0.87	0.87	0.05	0.04	0.05	0.00	0.24	0.24	-0.13	-0.08	-0.17	-0.6004	0.0114	6.4	1.1	9.9	1.3			
Reading	8	4608	2	B.1.1.1	3	75843	0.73	0.11	0.73	0.09	0.08	0.00	0.45	-0.28	0.45	-0.23	-0.19	0.4558	0.0089	-9.9	0.9	-9.9	0.9			
Reading	8	5045	2	A.1.3.1	2	75843	0.73	0.03	0.18	0.73	0.07	0.00	0.33	-0.18	-0.22	0.33	-0.13	0.4548	0.0089	9.9	1.1	7.3	1.1			
Reading	8	9250	2	A.1.6.1	2	75843	0.82	0.82	0.10	0.04	0.05	0.00	0.41	0.41	-0.23	-0.23	-0.23	-0.1993	0.0102	-9.9	0.9	-9.9	0.9			
Reading	8	9876	2	A.1.4.1	2	75843	0.70	0.17	0.07	0.06	0.70	0.00	0.40	-0.18	-0.23	-0.23	0.40	0.6183	0.0087	-5.8	1.0	-8.4	0.9			
Reading	8	4737	2	A.1.4.1	2	75843	0.73	0.05	0.07	0.14	0.73	0.00	0.47	-0.24	-0.20	-0.29	0.47	0.4211	0.0090	-9.9	0.9	-9.9	0.8			
Reading	8	9034	2	B.1.1.1	3	75843	0.71	0.07	0.14	0.71	0.08	0.00	0.43	-0.25	-0.22	0.43	-0.20	0.5776	0.0087	-9.9	1.0	-9.9	0.9			
Reading	8	2138	2	B.1.2.1	2	75843	0.77	0.04	0.16	0.77	0.02	0.00	0.27	-0.22	-0.10	0.27	-0.23	0.1654	0.0094	9.9	1.1	9.9	1.3			
Reading	8	3401	3	B.3.3.1	2	25184	0.81	0.81	0.02	0.13	0.04	0.00	0.30	0.30	-0.17	-0.21	-0.11	-0.1001	0.0173	5.1	1.1	4.2	1.1	A-	A-	A-
Reading	8	6613	3	A.2.6.2	2	25184	0.67	0.04	0.19	0.10	0.67	0.00	0.41	-0.25	-0.15	-0.28	0.41	0.7969	0.0147	-3.7	1.0	-3.1	1.0	A+	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	8	9569	3	A.2.4.1	1	25184	0.50	0.50	0.15	0.05	0.30	0.00	0.36	0.36	-0.14	-0.25	-0.17	1.6460	0.0139	2.3	1.0	4.3	1.0	A-	A+	A+
Reading	8	3086	3	A.2.3.2	3	25184	0.59	0.59	0.10	0.17	0.14	0.00	0.29	0.29	-0.26	-0.15	-0.02	1.2120	0.0141	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	8	5255	3	A.2.2.2	2	25184	0.69	0.07	0.69	0.17	0.07	0.00	0.38	-0.23	0.38	-0.15	-0.24	0.6974	0.0149	-0.2	1.0	-4.7	1.0	A-	A-	A-
Reading	8	9994	3	B.3.3.2	2	25184	0.32	0.30	0.20	0.32	0.18	0.00	0.18	-0.18	-0.02	0.18	0.02	2.5425	0.0147	9.9	1.2	9.9	1.4	A-	A+	A+
Reading	8	5579	3	B.3.1.1	2	25184	0.74	0.08	0.09	0.74	0.09	0.00	0.31	-0.18	-0.14	0.31	-0.16	0.4018	0.0156	8.3	1.1	9.9	1.1	A+	A-	A-
Reading	8	2330	3	A.2.5.1	2	25184	0.74	0.08	0.12	0.74	0.05	0.00	0.37	-0.16	-0.24	0.37	-0.18	0.3543	0.0157	-0.1	1.0	-3.3	1.0	A-	A-	A-
Reading	8	6849	3	B.3.3.3	2	25184	0.30	0.19	0.30	0.20	0.31	0.00	0.12	-0.04	0.12	-0.13	0.03	2.6614	0.0149	9.9	1.2	9.9	1.6	A-	A-	A+
Reading	8	400	3	A.2.4.1	2	25184	0.54	0.15	0.54	0.28	0.04	0.00	0.37	-0.21	0.37	-0.14	-0.26	1.4668	0.0139	1.6	1.0	2.9	1.0	A-	A-	A-
Reading	8	1182	3	A.1.3.1	2	75843	0.87	0.87	0.05	0.04	0.05	0.00	0.24	0.24	-0.13	-0.08	-0.17	-0.6004	0.0114	6.4	1.1	9.9	1.3			
Reading	8	4608	3	B.1.1.1	3	75843	0.73	0.11	0.73	0.09	0.08	0.00	0.45	-0.28	0.45	-0.23	-0.19	0.4558	0.0089	-9.9	0.9	-9.9	0.9			
Reading	8	5045	3	A.1.3.1	2	75843	0.73	0.03	0.18	0.73	0.07	0.00	0.33	-0.18	-0.22	0.33	-0.13	0.4548	0.0089	9.9	1.1	7.3	1.1			
Reading	8	9250	3	A.1.6.1	2	75843	0.82	0.82	0.10	0.04	0.05	0.00	0.41	0.41	-0.23	-0.23	-0.23	-0.1993	0.0102	-9.9	0.9	-9.9	0.9			
Reading	8	9876	3	A.1.4.1	2	75843	0.70	0.17	0.07	0.06	0.70	0.00	0.40	-0.18	-0.23	-0.23	0.40	0.6183	0.0087	-5.8	1.0	-8.4	0.9			
Reading	8	4737	3	A.1.4.1	2	75843	0.73	0.05	0.07	0.14	0.73	0.00	0.47	-0.24	-0.20	-0.29	0.47	0.4211	0.0090	-9.9	0.9	-9.9	0.8			
Reading	8	9034	3	B.1.1.1	3	75843	0.71	0.07	0.14	0.71	0.08	0.00	0.43	-0.25	-0.22	0.43	-0.20	0.5776	0.0087	-9.9	1.0	-9.9	0.9			
Reading	8	2138	3	B.1.2.1	2	75843	0.77	0.04	0.16	0.77	0.02	0.00	0.27	-0.22	-0.10	0.27	-0.23	0.1654	0.0094	9.9	1.1	9.9	1.3			
Reading	8	8510	4	B.1.1.1	3	25190	0.63	0.63	0.14	0.21	0.02	0.00	0.25	0.25	-0.10	-0.16	-0.14	0.9973	0.0143	9.9	1.2	9.9	1.2	A-	A-	A-
Reading	8	8554	4	A.2.2.2	2	25190	0.58	0.27	0.04	0.58	0.11	0.00	0.39	-0.22	-0.18	0.39	-0.18	1.2783	0.0140	-1.6	1.0	-1.6	1.0	A+	B-	A-
Reading	8	8284	4	B.1.1.1	2	25190	0.83	0.07	0.05	0.06	0.83	0.00	0.39	-0.20	-0.22	-0.21	0.39	-0.2119	0.0178	-5.4	0.9	-3.7	0.9	A-	A-	B-
Reading	8	895	4	A.1.4.1	1	25190	0.73	0.73	0.16	0.03	0.08	0.00	0.29	0.29	-0.15	-0.20	-0.15	0.4526	0.0154	9.9	1.1	8.1	1.1	A-	A-	A-
Reading	8	2074	4	A.2.3.2	3	25190	0.92	0.92	0.02	0.03	0.03	0.00	0.31	0.31	-0.20	-0.19	-0.13	-1.2665	0.0246	-3.9	0.9	0.7	1.0	A+	A-	B-
Reading	8	5066	4	A.2.3.1	2	25190	0.82	0.04	0.07	0.82	0.07	0.00	0.32	-0.12	-0.21	0.32	-0.17	-0.1447	0.0175	1.3	1.0	2.0	1.0	A-	A-	A-
Reading	8	4635	4	B.2.2.1	2	25190	0.61	0.03	0.61	0.08	0.28	0.00	0.35	-0.18	0.35	-0.15	-0.22	1.1201	0.0142	6.2	1.0	4.7	1.0	A-	A-	A-
Reading	8	5676	4	A.2.4.1	1	25190	0.78	0.12	0.04	0.05	0.78	0.00	0.40	-0.16	-0.27	-0.27	0.40	0.0975	0.0165	-5.4	1.0	-3.9	0.9	A-	A-	A-
Reading	8	7905	4	A.2.2.2	2	25190	0.57	0.09	0.04	0.30	0.57	0.00	0.47	-0.18	-0.20	-0.30	0.47	1.3348	0.0140	-9.9	0.9	-9.9	0.9	A-	A-	A-
Reading	8	3933	4	A.2.6.2	2	25190	0.79	0.10	0.08	0.79	0.03	0.00	0.45	-0.21	-0.31	0.45	-0.21	0.0756	0.0166	-9.9	0.9	-9.9	0.8	A-	A-	A-
Reading	8	9343	4	A.2.3.1	2	50348	0.77	0.77	0.15	0.02	0.06	0.00	0.29	0.29	-0.15	-0.18	-0.18	0.2258	0.0114	9.9	1.1	9.9	1.2			
Reading	8	1269	4	B.3.1.1	3	50348	0.45	0.13	0.20	0.45	0.22	0.00	0.26	-0.13	-0.11	0.26	-0.10	1.9110	0.0098	9.9	1.1	9.9	1.2			
Reading	8	6556	4	A.2.4.1	1	50348	0.85	0.02	0.09	0.04	0.85	0.00	0.50	-0.23	-0.34	-0.25	0.50	-0.4361	0.0134	-9.9	0.8	-9.9	0.6			
Reading	8	7743	4	A.2.4.1	3	50348	0.62	0.62	0.06	0.11	0.21	0.00	0.40	0.40	-0.24	-0.19	-0.19	1.0761	0.0101	-5.3	1.0	-7.5	1.0			
Reading	8	1489	4	B.3.3.2	3	50348	0.39	0.20	0.31	0.39	0.09	0.00	0.21	-0.12	-0.07	0.21	-0.08	2.1711	0.0100	9.9	1.1	9.9	1.3			
Reading	8	6800	4	A.2.5.1	2	50348	0.61	0.11	0.18	0.09	0.61	0.00	0.34	-0.18	-0.12	-0.22	0.34	1.0981	0.0101	9.9	1.1	9.9	1.1			
Reading	8	1863	4	B.3.3.4	2	50348	0.49	0.26	0.49	0.06	0.19	0.00	0.25	-0.14	0.25	-0.20	-0.05	1.7127	0.0098	9.9	1.1	9.9	1.2			
Reading	8	4560	4	B.3.3.3	2	50348	0.76	0.06	0.76	0.04	0.15	0.00	0.38	-0.23	0.38	-0.19	-0.21	0.2912	0.0113	-3.0	1.0	-0.6	1.0			
Reading	8	3263	5	B.2.1.1	2	25158	0.86	0.08	0.03	0.86	0.03	0.00	0.43	-0.33	-0.19	0.43	-0.17	-0.5126	0.0194	-9.7	0.9	-9.9	0.8	A-	A-	C-
Reading	8	5167	5	A.1.2.2	2	25158	0.83	0.06	0.06	0.05	0.83	0.00	0.45	-0.21	-0.27	-0.26	0.45	-0.2030	0.0178	-9.9	0.9	-9.9	0.8	A-	A-	B-
Reading	8	5948	5	A.1.3.1	2	25158	0.52	0.06	0.08	0.52	0.34	0.00	0.29	-0.27	-0.19	0.29	-0.05	1.5592	0.0139	9.9	1.1	9.9	1.1	A-	B-	B-
Reading	8	6883	5	A.1.2.1	2	25158	0.92	0.92	0.03	0.02	0.02	0.00	0.35	0.35	-0.21	-0.21	-0.18	-1.2847	0.0249	-5.4	0.9	-7.8	0.8	A-	A-	B-
Reading	8	474	5	A.1.6.1	2	25158	0.83	0.04	0.08	0.04	0.83	0.00	0.48	-0.26	-0.29	-0.24	0.48	-0.2806	0.0182	-9.9	0.9	-9.9	0.7	A+	A-	A-
Reading	8	5634	5	A.1.4.1	1	25158	0.31	0.04	0.35	0.30	0.31	0.00	0.14	-0.23	-0.05	0.02	0.14	2.6380	0.0148	9.9	1.2	9.9	1.5	A-	A-	A-
Reading	8	2273	5	B.2.1.1	2	25158	0.70	0.12	0.07	0.12	0.70	0.00	0.38	-0.14	-0.27	-0.20	0.38	0.6252	0.0151	-2.3	1.0	-3.5	1.0	A-	A-	A-
Reading	8	5809	5	B.1.1.1	3	25158	0.68	0.22	0.68	0.03	0.08	0.00	0.37	-0.13	0.37	-0.25	-0.28	0.7568	0.0148	1.5	1.0	0.9	1.0	A-	A-	A-
Reading	8	3923	5	B.1.1.1	2	25158	0.53	0.19	0.53	0.06	0.22	0.00	0.25	-0.10	0.25	-0.27	-0.05	1.5149	0.0139	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	8	5300	5	A.1.3.1	2	25158	0.80	0.07	0.80	0.07	0.06	0.00	0.38	-0.20	0.38	-0.25	-0.16	0.0181	0.0169	-3.1	1.0	-0.5	1.0	A+	A-	A-
Reading	8	9343	5	A.2.3.1	2	50348	0.77	0.77	0.15	0.02	0.06	0.00	0.29	0.29	-0.15	-0.18	-0.18	0.2258	0.0114	9.9	1.1	9.9	1.2			
Reading	8	1269	5	B.3.1.1	3	50348	0.45	0.13	0.20	0.45	0.22	0.00	0.26	-0.13	-0.11	0.26	-0.10	1.9110	0.0098	9.9	1.1	9.9	1.2			
Reading	8	6556	5	A.2.4.1	1	50348	0.85	0.02	0.09	0.04	0.85	0.00	0.50	-0.23	-0.34	-0.25	0.50	-0.4361	0.0134	-9.9	0.8	-9.9	0.6			
Reading	8	7743	5	A.2.4.1	3	50348	0.62	0.62	0.06	0.11	0.21	0.00	0.40	0.40	-0.24	-0.19	-0.19	1.0761	0.0101	-5.3	1.0	-7.5	1.0			
Reading	8	1489	5	B.3.3.2	3	50348	0.39	0.20	0.31	0.39	0.09	0.00	0.21	-0.12	-0.07	0.21	-0.08	2.1711	0.0100	9.9	1.1	9.9	1.3			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	8	6800	5	A.2.5.1	2	50348	0.61	0.11	0.18	0.09	0.61	0.00	0.34	-0.18	-0.12	-0.22	0.34	1.0981	0.0101	9.9	1.1	9.9	1.1			
Reading	8	1863	5	B.3.3.4	2	50348	0.49	0.26	0.49	0.06	0.19	0.00	0.25	-0.14	0.25	-0.20	-0.05	1.7127	0.0098	9.9	1.1	9.9	1.2			
Reading	8	4560	5	B.3.3.3	2	50348	0.76	0.06	0.76	0.04	0.15	0.00	0.38	-0.23	0.38	-0.19	-0.21	0.2912	0.0113	-3.0	1.0	-0.6	1.0			
Reading	11	4279	0	B.3.3.2		125383	0.67	0.19	0.67	0.02	0.12	0.00	0.41	-0.25	0.41	-0.16	-0.22	0.1593	0.0065	-9.9	1.0	-9.9	0.9			
Reading	11	7393	0	A.2.3.1		125383	0.47	0.47	0.48	0.02	0.02	0.00	0.35	0.35	-0.24	-0.21	-0.19	1.1669	0.0061	-5.9	1.0	3.2	1.0			
Reading	11	3134	0	A.2.4.1		125383	0.95	0.02	0.95	0.03	0.01	0.00	0.32	-0.19	0.32	-0.20	-0.17	-2.3343	0.0132	-6.7	0.9	-9.9	0.8			
Reading	11	2750	0	A.2.3.1		125383	0.63	0.08	0.20	0.63	0.08	0.00	0.26	-0.08	-0.03	0.26	-0.33	0.3823	0.0064	9.9	1.1	9.9	1.1			
Reading	11	7724	0	A.1.3.1		125383	0.62	0.62	0.30	0.05	0.03	0.00	0.29	0.29	-0.14	-0.20	-0.17	0.4612	0.0063	9.9	1.1	9.9	1.1			
Reading	11	269	0	A.1.3.1		125383	0.71	0.71	0.08	0.10	0.10	0.00	0.36	0.36	-0.17	-0.23	-0.15	-0.0645	0.0068	0.2	1.0	-3.1	1.0			
Reading	11	1663	0	B.1.2.1		125383	0.85	0.03	0.08	0.03	0.85	0.00	0.40	-0.23	-0.20	-0.25	0.40	-0.9935	0.0084	-9.9	0.9	-9.9	0.8			
Reading	11	5802	0	B.3.3.2		125383	0.74	0.74	0.12	0.01	0.12	0.00	0.39	0.39	-0.23	-0.20	-0.22	-0.2491	0.0070	-8.1	1.0	-9.9	0.9			
Reading	11	4826	0	A.2.1.2		125383	0.70	0.18	0.07	0.70	0.05	0.00	0.44	-0.23	-0.31	0.44	-0.16	0.0134	0.0067	-9.9	0.9	-9.9	0.9			
Reading	11	1060	0	A.2.4.1		125383	0.92	0.02	0.92	0.03	0.03	0.00	0.39	-0.21	0.39	-0.22	-0.22	-1.8560	0.0110	-9.9	0.9	-9.9	0.7			
Reading	11	2657	0	A.2.4.1		125383	0.68	0.68	0.05	0.13	0.13	0.00	0.32	0.32	-0.26	-0.25	-0.01	0.1401	0.0066	9.9	1.1	9.9	1.1			
Reading	11	1205	0	B.2.1.1		125383	0.64	0.02	0.64	0.11	0.24	0.00	0.41	-0.22	0.41	-0.26	-0.20	0.3554	0.0064	-9.9	1.0	-9.9	0.9			
Reading	11	6647	0	A.2.3.1		125383	0.69	0.20	0.05	0.69	0.06	0.00	0.23	-0.06	-0.23	0.23	-0.13	0.0612	0.0066	9.9	1.1	9.9	1.2			
Reading	11	9865	0	A.2.3.1		125383	0.66	0.11	0.66	0.18	0.04	0.00	0.43	-0.37	0.43	-0.11	-0.21	0.2396	0.0065	-9.9	0.9	-9.9	0.9			
Reading	11	5290	0	B.3.3.2		125383	0.63	0.63	0.07	0.07	0.24	0.00	0.27	0.27	-0.16	-0.30	-0.03	0.4163	0.0063	9.9	1.1	9.9	1.1			
Reading	11	4947	0	A.2.4.1		125383	0.91	0.91	0.03	0.03	0.03	0.00	0.40	0.40	-0.21	-0.23	-0.22	-1.7310	0.0105	-9.9	0.9	-9.9	0.7			
Reading	11	5190	0	B.3.3.2		125383	0.85	0.06	0.06	0.02	0.85	0.00	0.41	-0.21	-0.23	-0.25	0.41	-1.0640	0.0085	-9.9	0.9	-9.9	0.9			
Reading	11	5689	0	A.2.4.1		125383	0.36	0.02	0.34	0.36	0.29	0.00	0.21	-0.21	-0.14	0.21	-0.02	1.7243	0.0064	9.9	1.1	9.9	1.3			
Reading	11	9432	0	A.2.3.1		125383	0.77	0.77	0.16	0.05	0.02	0.00	0.36	0.36	-0.17	-0.25	-0.22	-0.3866	0.0072	-0.8	1.0	1.5	1.0			
Reading	11	2362	0	A.2.2.2		125383	0.66	0.05	0.24	0.66	0.05	0.00	0.44	-0.25	-0.26	0.44	-0.18	0.2143	0.0065	-9.9	0.9	-9.9	0.9			
Reading	11	9867	0	A.2.3.1		125383	0.49	0.15	0.49	0.27	0.09	0.00	0.30	-0.10	0.30	-0.10	-0.22	1.0914	0.0061	9.9	1.0	9.9	1.1			
Reading	11	3691	0	A.2.6.2		125383	0.44	0.16	0.44	0.26	0.14	0.00	0.17	-0.11	0.17	0.03	-0.15	1.3462	0.0062	9.9	1.2	9.9	1.3			
Reading	11	2619	0	B.3.3.2		125383	0.79	0.04	0.13	0.03	0.79	0.00	0.41	-0.19	-0.24	-0.24	0.41	-0.5818	0.0075	-9.9	0.9	-9.9	0.9			
Reading	11	1930	0	B.2.1.1		125383	0.88	0.07	0.03	0.02	0.88	0.00	0.39	-0.20	-0.25	-0.23	0.39	-1.2946	0.0091	-9.9	0.9	-9.9	0.9			
Reading	11	715	0	B.1.1.1		125383	0.48	0.22	0.27	0.03	0.48	0.00	0.22	-0.21	0.05	-0.23	0.22	1.1464	0.0061	9.9	1.1	9.9	1.2			
Reading	11	423	0	A.1.3.1		125383	0.87	0.07	0.87	0.04	0.02	0.00	0.45	-0.24	0.45	-0.31	-0.20	-1.2671	0.0091	-9.9	0.9	-9.9	0.7			
Reading	11	3463	0	B.1.1.1		125383	0.78	0.78	0.05	0.05	0.12	0.00	0.33	0.33	-0.23	-0.19	-0.14	-0.5016	0.0074	3.2	1.0	9.9	1.1			
Reading	11	4095	0	A.1.3.1		125383	0.88	0.88	0.04	0.04	0.04	0.00	0.45	0.45	-0.23	-0.29	-0.24	-1.3653	0.0093	-9.9	0.9	-9.9	0.7			
Reading	11	9113	0	A.1.4.1		125383	0.89	0.03	0.05	0.89	0.03	0.00	0.36	-0.15	-0.23	0.36	-0.22	-1.4159	0.0095	-9.5	0.9	-4.6	1.0			
Reading	11	6836	0	B.1.1.1		125383	0.91	0.04	0.91	0.04	0.01	0.00	0.44	-0.26	0.44	-0.26	-0.23	-1.6253	0.0102	-9.9	0.9	-9.9	0.6			
Reading	11	2993	0	B.2.2.1		125383	0.44	0.15	0.44	0.26	0.15	0.00	0.23	-0.11	0.23	-0.01	-0.21	1.3417	0.0062	9.9	1.1	9.9	1.2			
Reading	11	6795	0	A.2.2.2		125383	0.86	0.02	0.08	0.86	0.03	0.00	0.36	-0.24	-0.16	0.36	-0.23	-1.1487	0.0087	-6.5	1.0	-4.1	1.0			
Reading	11	1080	0	B.3.2.1		125383	0.68	0.08	0.05	0.18	0.68	0.00	0.48	-0.16	-0.28	-0.30	0.48	0.0936	0.0066	-9.9	0.9	-9.9	0.8			
Reading	11	9823	0	A.2.6.2		125383	0.74	0.74	0.04	0.20	0.02	0.00	0.24	0.24	-0.22	-0.09	-0.20	-0.2286	0.0070	9.9	1.1	9.9	1.2			
Reading	11	808	0	B.3.3.2		125383	0.86	0.04	0.04	0.06	0.86	0.00	0.43	-0.24	-0.24	-0.23	0.43	-1.1128	0.0086	-9.9	0.9	-9.9	0.8			
Reading	11	5515	0	A.2.3.2		125383	0.64	0.64	0.23	0.11	0.01	0.00	0.43	0.43	-0.19	-0.31	-0.22	0.3438	0.0064	-9.9	0.9	-9.9	0.9			
Reading	11	9995	0	A.2.2.1		125383	0.51	0.04	0.26	0.18	0.51	0.00	0.18	-0.20	-0.12	0.01	0.18	0.9730	0.0061	9.9	1.2	9.9	1.3			
Reading	11	850	0	B.3.2.1		125383	0.56	0.17	0.56	0.03	0.24	0.00	0.33	-0.16	0.33	-0.28	-0.13	0.7411	0.0062	8.8	1.0	9.9	1.0			
Reading	11	2717	0	B.1.2.1		125383	0.78	0.09	0.78	0.08	0.05	0.00	0.40	-0.20	0.40	-0.24	-0.19	-0.4882	0.0074	-9.9	1.0	-9.9	0.9			
Reading	11	8016	0	B.1.2.1		125383	0.56	0.24	0.15	0.56	0.05	0.00	0.31	-0.14	-0.11	0.31	-0.24	0.7238	0.0062	9.9	1.1	9.9	1.1			
Reading	11	9	1	A.2.3.1	2	25319	0.58	0.15	0.07	0.58	0.19	0.00	0.19	-0.08	-0.16	0.19	-0.06	0.5999	0.0139	9.9	1.2	9.9	1.3	A+	A+	A+
Reading	11	7437	1	A.2.2.2	2	25319	0.76	0.08	0.11	0.76	0.05	0.00	0.42	-0.22	-0.23	0.42	-0.22	-0.3554	0.0158	-7.8	0.9	-9.9	0.8	C-	B-	B-
Reading	11	1185	1	A.2.3.2	2	25319	0.68	0.04	0.68	0.24	0.04	0.00	0.27	-0.19	0.27	-0.12	-0.20	0.0931	0.0147	9.9	1.1	9.9	1.2	A-	A+	A-
Reading	11	9088	1	B.3.1.1	2	25319	0.71	0.71	0.04	0.04	0.22	0.00	0.28	0.28	-0.19	-0.22	-0.12	-0.0589	0.0150	9.9	1.1	9.8	1.1	A+	A-	A-
Reading	11	1703	1	A.2.1.1	2	25319	0.88	0.02	0.06	0.03	0.88	0.00	0.33	-0.22	-0.15	-0.20	0.33	-1.3751	0.0207	-3.5	1.0	1.5	1.0	A-	A-	C-
Reading	11	388	1	B.3.3.2	3	25319	0.54	0.54	0.27	0.10	0.09	0.00	0.29	0.29	-0.11	-0.13	-0.19	0.8240	0.0137	9.9	1.1	9.9	1.1	A-	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Reading	11	7856	1	A.2.3.1	2	25319	0.63	0.15	0.63	0.06	0.16	0.00	0.44	-0.25	0.44	-0.27	-0.16	0.3748	0.0142	-9.9	0.9	-9.9	0.9	B-	B-	C-
Reading	11	6578	1	B.3.3.4	1	25319	0.58	0.03	0.38	0.58	0.01	0.00	0.26	-0.18	-0.17	0.26	-0.18	0.5944	0.0139	9.9	1.1	9.9	1.1	A+	A-	A-
Reading	11	9044	1	B.3.3.4	2	25319	0.91	0.03	0.91	0.05	0.02	0.00	0.41	-0.27	0.41	-0.23	-0.21	-1.6708	0.0228	-7.9	0.9	-9.9	0.7	B+	A-	B-
Reading	11	9142	1	B.1.2.1	3	25319	0.51	0.04	0.51	0.19	0.26	0.00	0.37	-0.24	0.37	-0.13	-0.20	0.9474	0.0137	-6.3	1.0	-1.0	1.0	A-	A-	A-
Reading	11	1013	1	A.1.3.1	2	75411	0.78	0.14	0.05	0.03	0.78	0.00	0.38	-0.19	-0.22	-0.24	0.38	-0.4529	0.0094	-7.5	1.0	-8.1	0.9			
Reading	11	8720	1	B.2.1.1	3	75411	0.84	0.03	0.02	0.84	0.10	0.00	0.37	-0.20	-0.22	0.37	-0.22	-0.9617	0.0107	-7.2	1.0	-7.7	0.9			
Reading	11	9870	1	A.1.2.1	2	75411	0.48	0.18	0.27	0.48	0.06	0.00	0.23	-0.16	-0.01	0.23	-0.19	1.1020	0.0079	9.9	1.1	9.9	1.2			
Reading	11	9193	1	B.2.2.1	3	75411	0.92	0.03	0.92	0.03	0.02	0.00	0.45	-0.25	0.45	-0.24	-0.25	-1.8083	0.0139	-9.9	0.9	-9.9	0.6			
Reading	11	340	1	A.1.3.1	2	75411	0.77	0.03	0.17	0.03	0.77	0.00	0.27	-0.19	-0.12	-0.19	0.27	-0.3888	0.0093	9.9	1.1	9.9	1.2			
Reading	11	7539	1	B.1.1.1	3	75411	0.59	0.08	0.59	0.24	0.09	0.00	0.28	-0.24	0.28	-0.14	-0.03	0.5954	0.0080	9.9	1.1	9.9	1.1			
Reading	11	7533	1	A.1.2.2	2	75411	0.51	0.22	0.11	0.15	0.51	0.00	0.39	-0.23	-0.15	-0.14	0.39	0.9670	0.0079	-9.9	1.0	-7.7	1.0			
Reading	11	3028	1	B.2.1.1	3	75411	0.47	0.18	0.16	0.18	0.47	0.00	0.18	-0.16	0.00	-0.06	0.18	1.1485	0.0079	9.9	1.2	9.9	1.3			
Reading	11	2297	2	B.3.1.1	2	25108	0.84	0.07	0.05	0.84	0.05	0.00	0.45	-0.22	-0.25	0.45	-0.27	-0.9029	0.0182	-9.9	0.9	-9.9	0.8	A+	B-	B-
Reading	11	9612	2	B.3.3.2	2	25108	0.53	0.29	0.04	0.14	0.53	0.00	0.31	-0.20	-0.19	-0.08	0.31	0.8785	0.0138	8.0	1.0	7.4	1.1	A-	A-	A+
Reading	11	8151	2	A.2.3.2	2	25108	0.77	0.05	0.15	0.77	0.03	0.00	0.46	-0.23	-0.30	0.46	-0.18	-0.3948	0.0161	-9.9	0.9	-9.9	0.8	A-	A-	A-
Reading	11	4110	2	B.3.2.1	2	25108	0.49	0.23	0.22	0.49	0.05	0.00	0.29	-0.12	-0.16	0.29	-0.11	1.0731	0.0137	9.9	1.1	9.9	1.1	A-	A-	C-
Reading	11	1149	2	A.2.3.1	2	25108	0.77	0.15	0.77	0.05	0.02	0.00	0.27	-0.08	0.27	-0.25	-0.18	-0.4093	0.0162	8.3	1.1	9.9	1.2	A+	A-	A-
Reading	11	4351	2	A.2.2.2	2	25108	0.89	0.03	0.89	0.04	0.03	0.00	0.45	-0.22	0.45	-0.31	-0.21	-1.4566	0.0215	-9.7	0.9	-9.9	0.6	A-	C-	C-
Reading	11	3695	2	B.3.2.1	2	25108	0.54	0.54	0.06	0.27	0.13	0.00	0.26	0.26	0.00	-0.10	-0.24	0.8576	0.0138	9.9	1.1	9.9	1.2	A+	A+	A-
Reading	11	1769	2	A.2.4.1	2	25108	0.87	0.01	0.87	0.09	0.02	0.00	0.22	-0.17	0.22	-0.10	-0.16	-1.2256	0.0200	4.7	1.1	8.8	1.2	A+	A-	A-
Reading	11	7292	2	A.2.4.1	2	25108	0.91	0.02	0.03	0.04	0.91	0.00	0.43	-0.24	-0.22	-0.27	0.43	-1.7278	0.0236	-8.7	0.9	-9.9	0.6	A+	B-	B-
Reading	11	6772	2	B.1.2.1	2	25108	0.58	0.18	0.08	0.16	0.58	0.00	0.38	-0.14	-0.17	-0.24	0.38	0.6526	0.0139	-3.3	1.0	-1.7	1.0	A-	A-	B-
Reading	11	1013	2	A.1.3.1	2	75411	0.78	0.14	0.05	0.03	0.78	0.00	0.38	-0.19	-0.22	-0.24	0.38	-0.4529	0.0094	-7.5	1.0	-8.1	0.9			
Reading	11	8720	2	B.2.1.1	3	75411	0.84	0.03	0.02	0.84	0.10	0.00	0.37	-0.20	-0.22	0.37	-0.22	-0.9617	0.0107	-7.2	1.0	-7.7	0.9			
Reading	11	9870	2	A.1.2.1	2	75411	0.48	0.18	0.27	0.48	0.06	0.00	0.23	-0.16	-0.01	0.23	-0.19	1.1020	0.0079	9.9	1.1	9.9	1.2			
Reading	11	9193	2	B.2.2.1	3	75411	0.92	0.03	0.92	0.03	0.02	0.00	0.45	-0.25	0.45	-0.24	-0.25	-1.8083	0.0139	-9.9	0.9	-9.9	0.6			
Reading	11	340	2	A.1.3.1	2	75411	0.77	0.03	0.17	0.03	0.77	0.00	0.27	-0.19	-0.12	-0.19	0.27	-0.3888	0.0093	9.9	1.1	9.9	1.2			
Reading	11	7539	2	B.1.1.1	3	75411	0.59	0.08	0.59	0.24	0.09	0.00	0.28	-0.24	0.28	-0.14	-0.03	0.5954	0.0080	9.9	1.1	9.9	1.1			
Reading	11	7533	2	A.1.2.2	2	75411	0.51	0.22	0.11	0.15	0.51	0.00	0.39	-0.23	-0.15	-0.14	0.39	0.9670	0.0079	-9.9	1.0	-7.7	1.0			
Reading	11	3028	2	B.2.1.1	3	75411	0.47	0.18	0.16	0.18	0.47	0.00	0.18	-0.16	0.00	-0.06	0.18	1.1485	0.0079	9.9	1.2	9.9	1.3			
Reading	11	5442	3	A.2.4.1	2	24984	0.34	0.55	0.09	0.02	0.34	0.00	0.12	0.02	-0.18	-0.12	0.12	1.7820	0.0143	9.9	1.2	9.9	1.4	A+	A+	A+
Reading	11	3277	3	B.3.3.2	3	24984	0.60	0.23	0.12	0.60	0.05	0.00	0.31	-0.30	-0.03	0.31	-0.08	0.5409	0.0140	5.8	1.0	5.9	1.1	A+	A-	A-
Reading	11	9237	3	A.2.2.2	2	24984	0.70	0.05	0.70	0.20	0.05	0.00	0.43	-0.16	0.43	-0.34	-0.11	0.0395	0.0149	-9.9	0.9	-9.9	0.9	B-	B-	B-
Reading	11	4375	3	B.3.1.1	2	24984	0.72	0.16	0.72	0.03	0.10	0.00	0.30	-0.11	0.30	-0.18	-0.22	-0.0772	0.0151	6.5	1.1	8.6	1.1	A+	A-	A-
Reading	11	2392	3	B.3.2.1	2	24984	0.13	0.32	0.13	0.26	0.29	0.00	0.09	-0.01	0.09	-0.14	0.08	3.2126	0.0197	5.0	1.1	9.9	2.0	A-	A-	A+
Reading	11	9963	3	B.2.2.1	3	24984	0.90	0.90	0.03	0.05	0.02	0.00	0.45	0.45	-0.21	-0.31	-0.21	-1.5297	0.0220	-9.9	0.9	-9.9	0.6	A+	B-	A-
Reading	11	8725	3	A.2.6.2	3	24984	0.61	0.04	0.22	0.13	0.61	0.00	0.13	-0.12	-0.07	-0.03	0.13	0.4898	0.0141	9.9	1.2	9.9	1.3	A+	A-	A-
Reading	11	6415	3	B.2.1.1	3	24984	0.74	0.10	0.12	0.74	0.03	0.00	0.43	-0.25	-0.22	0.43	-0.23	-0.2490	0.0156	-9.9	0.9	-9.9	0.8	A+	A-	A-
Reading	11	4459	3	A.2.3.1	2	24984	0.70	0.16	0.70	0.08	0.06	0.00	0.43	-0.21	0.43	-0.25	-0.22	0.0369	0.0149	-9.9	0.9	-9.9	0.9	A+	A-	A-
Reading	11	7652	3	A.2.3.1	2	24984	0.75	0.02	0.09	0.75	0.14	0.00	0.31	-0.25	-0.30	0.31	-0.04	-0.2816	0.0157	2.8	1.0	8.0	1.1	A+	A-	A-
Reading	11	1013	3	A.1.3.1	2	75411	0.78	0.14	0.05	0.03	0.78	0.00	0.38	-0.19	-0.22	-0.24	0.38	-0.4529	0.0094	-7.5	1.0	-8.1	0.9			
Reading	11	8720	3	B.2.1.1	3	75411	0.84	0.03	0.02	0.84	0.10	0.00	0.37	-0.20	-0.22	0.37	-0.22	-0.9617	0.0107	-7.2	1.0	-7.7	0.9			
Reading	11	9870	3	A.1.2.1	2	75411	0.48	0.18	0.27	0.48	0.06	0.00	0.23	-0.16	-0.01	0.23	-0.19	1.1020	0.0079	9.9	1.1	9.9	1.2			
Reading	11	9193	3	B.2.2.1	3	75411	0.92	0.03	0.92	0.03	0.02	0.00	0.45	-0.25	0.45	-0.24	-0.25	-1.8083	0.0139	-9.9	0.9	-9.9	0.6			
Reading	11	340	3	A.1.3.1	2	75411	0.77	0.03	0.17	0.03	0.77	0.00	0.27	-0.19	-0.12	-0.19	0.27	-0.3888	0.0093	9.9	1.1	9.9	1.2			
Reading	11	7539	3	B.1.1.1	3	75411	0.59	0.08	0.59	0.24	0.09	0.00	0.28	-0.24	0.28	-0.14	-0.03	0.5954	0.0080	9.9	1.1	9.9	1.1			
Reading	11	7533	3	A.1.2.2	2	75411	0.51	0.22	0.11	0.15	0.51	0.00	0.39	-0.23	-0.15	-0.14	0.39	0.9670	0.0079	-9.9	1.0	-7.7	1.0			
Reading	11	3028	3	B.2.1.1	3	75411	0.47	0.18	0.16	0.18	0.47	0.00	0.18	-0.16	0.00	-0.06	0.18	1.1485	0.0079	9.9	1.2	9.9	1.3			
Reading	11	66	4	B.2.1.1	2	24994	0.85	0.09	0.85	0.04	0.02	0.00	0.37	-0.26	0.37	-0.17	-0.16	-1.0490	0.0191	-3.7	1.0	-4.7	0.9	A-	A-	A-

Item Information						Classical													Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Reading	11	1102	4	A.1.1.2	1	24994	0.35	0.38	0.35	0.21	0.06	0.00	-0.06	0.18	-0.06	-0.09	-0.08	1.7722	0.0143	9.9	1.4	9.9	1.8	A-	A-	A+
Reading	11	1434	4	B.2.2.1	3	24994	0.80	0.13	0.02	0.80	0.04	0.00	0.41	-0.29	-0.21	0.41	-0.16	-0.6363	0.0171	-6.2	0.9	-9.9	0.8	A-	A-	A-
Reading	11	5645	4	B.1.1.1	2	24994	0.72	0.06	0.72	0.19	0.03	0.00	0.24	-0.25	0.24	-0.09	-0.07	-0.1074	0.0153	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	11	801	4	A.1.3.1	2	24994	0.52	0.19	0.20	0.09	0.52	0.00	0.27	-0.06	-0.08	-0.28	0.27	0.9470	0.0138	9.9	1.1	9.9	1.1	A-	A-	A-
Reading	11	509	4	B.2.1.1	3	24994	0.67	0.67	0.17	0.03	0.13	0.00	0.41	0.41	-0.21	-0.20	-0.24	0.1769	0.0147	-8.2	1.0	-9.9	0.9	A-	A-	B-
Reading	11	482	4	A.1.4.1	2	24994	0.82	0.06	0.82	0.04	0.08	0.00	0.39	-0.20	0.39	-0.21	-0.23	-0.7281	0.0175	-5.3	1.0	-8.6	0.9	A-	A-	A-
Reading	11	4519	4	A.1.4.1	2	24994	0.63	0.08	0.26	0.04	0.63	0.00	0.36	-0.11	-0.26	-0.15	0.36	0.4183	0.0142	0.9	1.0	-0.5	1.0	A-	A-	A-
Reading	11	7712	4	B.1.2.1	3	24994	0.47	0.47	0.22	0.27	0.03	0.00	0.24	0.24	-0.09	-0.11	-0.19	1.1738	0.0138	9.9	1.1	9.9	1.2	A-	A-	A-
Reading	11	7825	4	B.1.1.1	3	24994	0.79	0.08	0.02	0.11	0.79	0.00	0.42	-0.22	-0.22	-0.25	0.42	-0.5239	0.0167	-6.8	0.9	-9.9	0.8	A+	A+	A+
Reading	11	3034	4	B.3.1.1	2	49972	0.80	0.06	0.80	0.11	0.03	0.00	0.47	-0.28	0.47	-0.29	-0.17	-0.5943	0.0120	-9.9	0.9	-9.9	0.8			
Reading	11	5837	4	A.2.2.1	2	49972	0.56	0.37	0.03	0.56	0.04	0.00	0.33	-0.16	-0.25	0.33	-0.20	0.7805	0.0098	2.7	1.0	6.2	1.0			
Reading	11	5078	4	B.3.3.3	3	49972	0.63	0.23	0.11	0.63	0.02	0.00	0.37	-0.13	-0.28	0.37	-0.19	0.3983	0.0101	1.3	1.0	0.7	1.0			
Reading	11	2882	4	B.3.3.2	3	49972	0.78	0.15	0.78	0.03	0.03	0.00	0.31	-0.10	0.31	-0.26	-0.24	-0.4921	0.0117	4.1	1.0	7.0	1.1			
Reading	11	7275	4	A.2.3.1	2	49972	0.49	0.16	0.20	0.15	0.49	0.00	0.20	0.04	-0.09	-0.21	0.20	1.1151	0.0097	9.9	1.2	9.9	1.2			
Reading	11	1850	4	B.3.3.1	2	49972	0.90	0.90	0.04	0.04	0.02	0.00	0.46	0.46	-0.25	-0.30	-0.22	-1.4975	0.0155	-9.9	0.9	-9.9	0.6			
Reading	11	4241	4	A.2.6.1	3	49972	0.81	0.02	0.07	0.09	0.81	0.00	0.43	-0.24	-0.27	-0.21	0.43	-0.7188	0.0124	-9.9	0.9	-9.9	0.8			
Reading	11	4337	4	A.2.1.2	2	49972	0.70	0.07	0.70	0.09	0.15	0.00	0.33	-0.21	0.33	-0.24	-0.08	0.0568	0.0105	5.3	1.0	1.9	1.0			
Reading	11	3931	5	A.1.4.1	1	24978	0.97	0.02	0.97	0.01	0.00	0.00	0.13	-0.07	0.13	-0.10	-0.07	-2.7630	0.0356	0.2	1.0	7.1	1.4	A+	A-	A-
Reading	11	7067	5	B.1.1.1	3	24978	0.32	0.32	0.17	0.27	0.24	0.00	0.16	0.16	0.04	-0.01	-0.20	1.9537	0.0146	9.9	1.1	9.9	1.4	A-	A-	A-
Reading	11	7948	5	B.1.1.1	2	24978	0.59	0.10	0.28	0.03	0.59	0.00	0.28	-0.17	-0.14	-0.15	0.28	0.6036	0.0140	9.9	1.1	9.9	1.1	A-	A-	A+
Reading	11	7576	5	A.1.6.2	3	24978	0.74	0.02	0.02	0.74	0.22	0.00	0.15	-0.17	-0.22	0.15	-0.03	-0.1902	0.0156	9.9	1.2	9.9	1.4	A+	A-	A-
Reading	11	8808	5	A.1.4.1	1	24978	0.85	0.85	0.04	0.08	0.03	0.00	0.33	0.33	-0.18	-0.21	-0.15	-0.9829	0.0188	-1.2	1.0	-4.4	0.9	A+	B-	A-
Reading	11	4048	5	B.2.1.1	2	24978	0.19	0.28	0.04	0.19	0.49	0.00	0.16	-0.03	-0.22	0.16	-0.02	2.7182	0.0170	8.8	1.1	9.9	1.5	A-	A-	A-
Reading	11	5881	5	A.1.3.1	2	24978	0.88	0.06	0.88	0.03	0.03	0.00	0.37	-0.19	0.37	-0.22	-0.21	-1.3450	0.0209	-4.8	0.9	-8.8	0.8	A-	C-	B-
Reading	11	5153	5	B.1.1.1	2	24978	0.80	0.12	0.05	0.03	0.80	0.00	0.29	-0.18	-0.16	-0.15	0.29	-0.5970	0.0170	4.2	1.0	2.1	1.0	A-	B-	B-
Reading	11	498	5	B.2.2.2	3	24978	0.86	0.86	0.02	0.04	0.08	0.00	0.35	0.35	-0.20	-0.24	-0.17	-1.0529	0.0191	-3.3	1.0	-4.2	0.9	A+	A-	A-
Reading	11	4043	5	B.1.1.1	3	24978	0.90	0.03	0.02	0.04	0.90	0.00	0.42	-0.20	-0.20	-0.30	0.42	-1.4828	0.0218	-8.5	0.9	-9.9	0.7	A+	A-	A-
Reading	11	3034	5	B.3.1.1	2	49972	0.80	0.06	0.80	0.11	0.03	0.00	0.47	-0.28	0.47	-0.29	-0.17	-0.5943	0.0120	-9.9	0.9	-9.9	0.8			
Reading	11	5837	5	A.2.2.1	2	49972	0.56	0.37	0.03	0.56	0.04	0.00	0.33	-0.16	-0.25	0.33	-0.20	0.7805	0.0098	2.7	1.0	6.2	1.0			
Reading	11	5078	5	B.3.3.3	3	49972	0.63	0.23	0.11	0.63	0.02	0.00	0.37	-0.13	-0.28	0.37	-0.19	0.3983	0.0101	1.3	1.0	0.7	1.0			
Reading	11	2882	5	B.3.3.2	3	49972	0.78	0.15	0.78	0.03	0.03	0.00	0.31	-0.10	0.31	-0.26	-0.24	-0.4921	0.0117	4.1	1.0	7.0	1.1			
Reading	11	7275	5	A.2.3.1	2	49972	0.49	0.16	0.20	0.15	0.49	0.00	0.20	0.04	-0.09	-0.21	0.20	1.1151	0.0097	9.9	1.2	9.9	1.2			
Reading	11	1850	5	B.3.3.1	2	49972	0.90	0.90	0.04	0.04	0.02	0.00	0.46	0.46	-0.25	-0.30	-0.22	-1.4975	0.0155	-9.9	0.9	-9.9	0.6			
Reading	11	4241	5	A.2.6.1	3	49972	0.81	0.02	0.07	0.09	0.81	0.00	0.43	-0.24	-0.27	-0.21	0.43	-0.7188	0.0124	-9.9	0.9	-9.9	0.8			
Reading	11	4337	5	A.2.1.2	2	49972	0.70	0.07	0.70	0.09	0.15	0.00	0.33	-0.21	0.33	-0.24	-0.08	0.0568	0.0105	5.3	1.0	1.9	1.0			
Science	4	7189	0	B.2.1.2		125155	0.80	0.04	0.05	0.80	0.11	0.00	0.39	-0.25	-0.22	0.39	-0.19	-0.4090	0.0076	-9.9	1.0	-9.9	0.9			
Science	4	281	0	B.3.3.1	2	125155	0.82	0.04	0.82	0.03	0.11	0.00	0.36	-0.11	0.36	-0.15	-0.29	-0.5946	0.0079	-6.4	1.0	-4.8	1.0			
Science	4	8706	0	C.3.1.2	2	125155	0.69	0.08	0.12	0.69	0.11	0.00	0.27	-0.16	-0.08	0.27	-0.17	0.2995	0.0066	9.9	1.1	9.9	1.2			
Science	4	2893	0	A.1.3.2	2	125155	0.74	0.04	0.74	0.13	0.09	0.00	0.38	-0.21	0.38	-0.15	-0.26	-0.0156	0.0070	-3.2	1.0	-5.7	1.0			
Science	4	2114	0	B.1.1.1	2	125155	0.55	0.17	0.10	0.55	0.17	0.00	0.40	-0.19	-0.20	0.40	-0.17	0.9989	0.0062	-6.6	1.0	-6.0	1.0			
Science	4	6289	0	A.1.1.2	2	125155	0.46	0.06	0.24	0.46	0.25	0.00	0.22	-0.14	-0.07	0.22	-0.11	1.4707	0.0062	9.9	1.2	9.9	1.2			
Science	4	9863	0	A.3.1.4	2	125155	0.65	0.15	0.65	0.05	0.15	0.00	0.42	-0.20	0.42	-0.21	-0.23	0.4975	0.0065	-9.9	1.0	-9.9	0.9			
Science	4	6203	0	D.1.1.3	2	125155	0.44	0.28	0.13	0.15	0.44	0.00	0.25	-0.11	-0.11	-0.10	0.25	1.5380	0.0062	9.9	1.1	9.9	1.2			
Science	4	6555	0	A.2.1.4	2	125155	0.78	0.06	0.78	0.08	0.08	0.00	0.38	-0.25	0.38	-0.25	-0.11	-0.2855	0.0074	-7.4	1.0	-3.0	1.0			
Science	4	4884	0	A.3.3.2	2	125155	0.64	0.07	0.64	0.06	0.23	0.00	0.38	-0.09	0.38	-0.19	-0.27	0.5463	0.0064	1.0	1.0	0.3	1.0			
Science	4	9486	0	A.1.1.2	2	125155	0.78	0.13	0.04	0.78	0.05	0.00	0.42	-0.23	-0.25	0.42	-0.21	-0.2751	0.0074	-9.9	0.9	-9.9	0.8			
Science	4	5475	0	D.1.2.3	1	125155	0.75	0.10	0.04	0.75	0.11	0.00	0.47	-0.25	-0.26	0.47	-0.24	-0.1018	0.0071	-9.9	0.9	-9.9	0.8			
Science	4	3532	0	C.1.1.2	2	125155	0.80	0.07	0.08	0.80	0.05	0.00	0.40	-0.22	-0.22	0.40	-0.20	-0.4421	0.0076	-9.9	1.0	-9.9	0.9			
Science	4	7183	0	B.1.1.4	2	125155	0.80	0.05	0.04	0.10	0.80	0.00	0.38	-0.27	-0.22	-0.14	0.38	-0.4455	0.0076	-7.7	1.0	-4.3	1.0			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Science	4	5825	0	A.3.1.4	2	125155	0.67	0.12	0.06	0.67	0.15	0.00	0.45	-0.27	-0.28	0.45	-0.17	0.4046	0.0066	-9.9	0.9	-9.9	0.9			
Science	4	6765	0	A.3.3.2		125155	0.84	0.09	0.84	0.04	0.03	0.00	0.33	-0.17	0.33	-0.19	-0.21	-0.7447	0.0083	-2.4	1.0	1.4	1.0			
Science	4	7503	0	A.3.1.3	2	125155	0.65	0.17	0.09	0.65	0.09	0.00	0.45	-0.26	-0.20	0.45	-0.22	0.5041	0.0065	-9.9	0.9	-9.9	0.9			
Science	4	3799	0	B.3.3.3	2	125155	0.46	0.46	0.22	0.18	0.14	0.00	0.34	0.34	-0.12	-0.18	-0.15	1.4754	0.0062	7.6	1.0	9.9	1.1			
Science	4	5012	0	A.3.2.1	2	125155	0.85	0.85	0.05	0.07	0.03	0.00	0.38	0.38	-0.19	-0.22	-0.22	-0.8188	0.0084	-9.9	0.9	-9.9	0.9			
Science	4	5983	0	B.1.1.2		125155	0.80	0.14	0.80	0.02	0.04	0.00	0.34	-0.24	0.34	-0.16	-0.15	-0.3992	0.0076	2.4	1.0	-4.1	1.0			
Science	4	7601	0	A.3.3.1	2	125155	0.89	0.89	0.05	0.04	0.03	0.00	0.38	0.38	-0.19	-0.20	-0.25	-1.1645	0.0093	-9.9	0.9	-9.9	0.8			
Science	4	1674	0	B.3.3.5	2	125155	0.48	0.14	0.48	0.25	0.13	0.00	0.39	-0.17	0.39	-0.14	-0.21	1.3469	0.0062	-7.2	1.0	3.6	1.0			
Science	4	1831	0	D.1.1.2	1	125155	0.64	0.12	0.09	0.15	0.64	0.00	0.38	-0.20	-0.19	-0.17	0.38	0.5642	0.0064	1.0	1.0	-6.7	1.0			
Science	4	2535	0	D.3.1.1		125155	0.59	0.21	0.13	0.59	0.06	0.00	0.40	-0.24	-0.14	0.40	-0.22	0.8197	0.0063	-8.2	1.0	-9.9	1.0			
Science	4	934	0	A.2.1.2	2	125155	0.56	0.56	0.13	0.16	0.14	0.00	0.31	0.31	-0.17	-0.17	-0.09	0.9596	0.0063	9.9	1.1	9.9	1.1			
Science	4	1073	0	C.2.1.2		125155	0.64	0.12	0.10	0.14	0.64	0.00	0.27	-0.06	-0.15	-0.18	0.27	0.5695	0.0064	9.9	1.1	9.9	1.2			
Science	4	7888	0	A.3.2.1	2	125155	0.60	0.19	0.13	0.60	0.08	0.00	0.42	-0.12	-0.26	0.42	-0.25	0.7745	0.0063	-9.9	1.0	-9.9	1.0			
Science	4	4798	0	A.2.1.1	2	125155	0.48	0.10	0.31	0.10	0.48	0.00	0.35	-0.23	-0.09	-0.21	0.35	1.3341	0.0062	7.8	1.0	9.9	1.1			
Science	4	6016	0	C.3.1.3	2	125155	0.66	0.08	0.13	0.13	0.66	0.00	0.37	-0.19	-0.23	-0.13	0.37	0.4708	0.0065	5.0	1.0	2.1	1.0			
Science	4	1615	0	A.3.1.1	2	125155	0.80	0.10	0.80	0.05	0.05	0.00	0.45	-0.31	0.45	-0.21	-0.19	-0.4185	0.0076	-9.9	0.9	-9.9	0.8			
Science	4	5420	0	A.2.2.1	1	125155	0.91	0.04	0.03	0.02	0.91	0.00	0.34	-0.18	-0.22	-0.17	0.34	-1.4091	0.0101	-7.7	0.9	-9.9	0.9			
Science	4	9322	0	D.1.2.2	2	125155	0.49	0.16	0.19	0.15	0.49	0.00	0.32	-0.15	-0.20	-0.07	0.32	1.2847	0.0062	9.9	1.1	9.9	1.1			
Science	4	8572	0	A.2.1.3	3	125155	0.59	0.08	0.15	0.18	0.59	0.00	0.43	-0.23	-0.27	-0.13	0.43	0.8164	0.0063	-9.9	1.0	-9.9	0.9			
Science	4	7969	0	D.1.3.1	2	125155	0.57	0.16	0.20	0.57	0.07	0.00	0.34	-0.11	-0.17	0.34	-0.22	0.8994	0.0063	9.9	1.1	9.9	1.1			
Science	4	4695	0	C.3.1.1	2	125155	0.45	0.13	0.45	0.28	0.14	0.00	0.31	-0.25	0.31	-0.06	-0.12	1.4920	0.0062	9.9	1.1	9.9	1.1			
Science	4	8218	0	D.1.2.1	1	125155	0.81	0.03	0.04	0.81	0.11	0.00	0.42	-0.18	-0.21	0.42	-0.28	-0.4983	0.0077	-9.9	0.9	-9.9	0.8			
Science	4	7997	0	A.3.3.1	2	125155	0.81	0.08	0.04	0.81	0.07	0.00	0.44	-0.27	-0.27	0.44	-0.18	-0.4853	0.0077	-9.9	0.9	-9.9	0.8			
Science	4	9686	0	D.3.1.2	2	125155	0.52	0.52	0.15	0.03	0.29	0.00	0.32	0.32	-0.15	-0.21	-0.15	1.1391	0.0062	9.9	1.1	9.9	1.1			
Science	4	6482	0	A.1.3.5	2	125155	0.59	0.12	0.16	0.13	0.59	0.00	0.39	-0.13	-0.15	-0.27	0.39	0.8163	0.0063	-0.8	1.0	-6.0	1.0			
Science	4	3693	0	A.3.1.1	1	125155	0.84	0.03	0.07	0.84	0.06	0.00	0.52	-0.21	-0.32	0.52	-0.29	-0.7658	0.0083	-9.9	0.8	-9.9	0.6			
Science	4	6909	0	C.2.1.3	2	125155	0.63	0.15	0.63	0.11	0.11	0.00	0.30	-0.10	0.30	-0.15	-0.21	0.5943	0.0064	9.9	1.1	9.9	1.1			
Science	4	8698	0	A.1.3.1	2	125155	0.61	0.61	0.07	0.30	0.02	0.00	0.49	0.49	-0.31	-0.30	-0.15	0.7219	0.0063	-9.9	0.9	-9.9	0.9			
Science	4	4512	0	A.2.1.2	2	125155	0.52	0.05	0.35	0.08	0.52	0.00	0.23	-0.27	0.03	-0.27	0.23	1.1488	0.0062	9.9	1.2	9.9	1.2			
Science	4	4615	0	A.1.3.4	2	125155	0.75	0.17	0.03	0.75	0.04	0.00	0.49	-0.38	-0.19	0.49	-0.18	-0.0947	0.0071	-9.9	0.9	-9.9	0.8			
Science	4	9392	0	D.1.1.2	2	125155	0.82	0.07	0.03	0.82	0.07	0.00	0.36	-0.21	-0.23	0.36	-0.16	-0.5896	0.0079	-6.7	1.0	-1.2	1.0			
Science	4	5898	0	C.2.1.4	2	125155	0.78	0.12	0.04	0.05	0.78	0.00	0.48	-0.34	-0.22	-0.17	0.48	-0.2730	0.0074	-9.9	0.9	-9.9	0.8			
Science	4	2779	0	A.1.3.3	2	125155	0.84	0.84	0.11	0.04	0.01	0.00	0.17	0.17	-0.04	-0.19	-0.12	-0.7376	0.0082	9.9	1.1	9.9	1.4			
Science	4	3667	0	A.1.1.1	2	125155	0.90	0.03	0.90	0.03	0.04	0.00	0.39	-0.20	0.39	-0.22	-0.23	-1.3041	0.0098	-9.9	0.9	-9.9	0.8			
Science	4	8463	0	B.2.2.1	2	125155	0.68	0.68	0.14	0.09	0.09	0.00	0.39	0.39	-0.21	-0.18	-0.19	0.3460	0.0066	-1.9	1.0	-7.0	1.0			
Science	4	5481	0	A.3.2.3	2	125155	0.70	0.70	0.11	0.13	0.05	0.00	0.33	0.33	-0.17	-0.11	-0.24	0.1994	0.0067	9.9	1.1	9.9	1.1			
Science	4	6995	0	A.3.1.2	2	125155	0.78	0.05	0.78	0.04	0.13	0.00	0.36	-0.21	0.36	-0.24	-0.16	-0.2830	0.0074	-1.5	1.0	-1.0	1.0			
Science	4	3543	0	B.3.1.2	2	125155	0.65	0.07	0.10	0.19	0.65	0.00	0.43	-0.21	-0.21	-0.23	0.43	0.4947	0.0065	-9.9	1.0	-9.9	0.9			
Science	4	1167	0	A.3.2.1	2	125155	0.74	0.09	0.08	0.08	0.74	0.00	0.45	-0.23	-0.24	-0.22	0.45	-0.0449	0.0070	-9.9	0.9	-9.9	0.9			
Science	4	6066	0	A.2.1.3	3	125155	0.53	0.53	0.23	0.11	0.12	0.00	0.32	0.32	-0.05	-0.29	-0.15	1.1063	0.0062	9.9	1.1	9.9	1.1			
Science	4	7874	0	B.2.1.2	2	125155	0.88	0.04	0.04	0.88	0.04	0.00	0.49	-0.28	-0.29	0.49	-0.24	-1.1036	0.0092	-9.9	0.8	-9.9	0.6			
Science	4	2291	0	C.2.1.3	2	125155	0.72	0.10	0.10	0.72	0.08	0.00	0.41	-0.23	-0.22	0.41	-0.19	0.1175	0.0068	-9.9	1.0	-9.9	0.9			
Science	4	583	0	D.2.1.3	2	125155	0.72	0.07	0.16	0.05	0.72	0.00	0.32	-0.23	-0.09	-0.25	0.32	0.0834	0.0069	9.9	1.0	9.9	1.1			
Science	4	563	0	C.3.1.2		125155	0.73	0.11	0.73	0.08	0.08	0.00	0.45	-0.24	0.45	-0.25	-0.22	0.0727	0.0069	-9.9	0.9	-9.9	0.9			
Science	4	1898	1	A.2.1.1	2	10768	0.55	0.20	0.19	0.06	0.55	0.00	0.38	-0.12	-0.22	-0.24	0.38	0.9753	0.0213	0.4	1.0	1.0	1.0			
Science	4	9482	1	A.3.2.1	1	10768	0.15	0.11	0.15	0.45	0.29	0.00	0.03	-0.16	0.03	0.02	0.07	3.2110	0.0284	8.2	1.2	9.9	2.1	A-	A+	A-
Science	4	4702	1	D.1.1.1	2	10768	0.53	0.53	0.22	0.14	0.10	0.00	0.41	0.41	-0.20	-0.19	-0.17	1.0296	0.0212	-2.5	1.0	-1.5	1.0	A-	A-	A-
Science	4	7839	1	A.2.1.2	3	10768	0.56	0.23	0.56	0.08	0.13	0.00	0.34	-0.20	0.34	-0.12	-0.15	0.8922	0.0213	5.5	1.1	3.8	1.0	A-	A+	A-
Science	4	3075	1	B.3.3.3	2	10768	0.62	0.62	0.18	0.04	0.14	0.01	0.45	0.45	-0.23	-0.23	-0.24	0.5676	0.0218	-6.7	0.9	-5.0	0.9	A-	A-	B-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Science	4	8202	1	C.3.1.3	1	10768	0.82	0.04	0.82	0.05	0.08	0.00	0.38	-0.24	0.38	-0.19	-0.19	-0.6232	0.0268	-2.9	1.0	-1.4	1.0			
Science	4	2474	1	C.2.1.1	2	10768	0.55	0.09	0.06	0.30	0.55	0.00	0.39	-0.21	-0.20	-0.19	0.39	0.9487	0.0213	-0.7	1.0	-1.4	1.0	A+	A-	A-
Science	4	1104	1	B.1.1.5	2	10768	0.49	0.38	0.07	0.49	0.05	0.00	0.26	-0.02	-0.25	0.26	-0.25	1.2124	0.0212	9.9	1.1	9.9	1.2	A-	A-	A-
Science	4	3079	1	A.3.1.3	2	10768	0.26	0.28	0.25	0.21	0.26	0.00	0.05	-0.04	0.00	-0.01	0.05	2.4564	0.0238	9.9	1.2	9.9	1.7	A+	A-	A-
Science	4	7317	1	D.3.1.2	3	10768	0.23	0.17	0.28	0.23	0.31	0.01	0.02	-0.11	0.07	0.02	0.00	2.5990	0.0245	9.9	1.2	9.9	1.9	A-	A+	A+
Science	4	5081	2	A.3.1.3	3	10438	0.49	0.49	0.16	0.22	0.12	0.00	0.29	0.29	-0.09	-0.16	-0.12	1.2866	0.0215	9.9	1.1	9.9	1.1	A-	A+	A-
Science	4	303	2	A.1.3.2	2	10438	0.88	0.04	0.04	0.03	0.88	0.00	0.48	-0.28	-0.28	-0.24	0.48	-1.1223	0.0319	-7.7	0.8	-9.9	0.6			
Science	4	8835	2	B.1.1.4	2	10438	0.59	0.16	0.14	0.59	0.12	0.00	0.44	-0.22	-0.25	0.44	-0.16	0.8248	0.0218	-7.5	0.9	-7.9	0.9	A+	A-	A-
Science	4	761	2	C.1.1.1	1	10438	0.84	0.02	0.84	0.05	0.08	0.00	0.40	-0.22	0.40	-0.22	-0.24	-0.7377	0.0285	-4.7	0.9	-5.9	0.8	A-	A-	A-
Science	4	6957	2	D.1.3.4	2	10438	0.51	0.51	0.11	0.15	0.23	0.01	0.36	0.36	-0.15	-0.26	-0.09	1.1894	0.0215	2.5	1.0	3.7	1.0	A-	A-	A-
Science	4	5911	2	D.2.1.3	2	10438	0.43	0.28	0.43	0.07	0.22	0.00	0.29	-0.13	0.29	-0.26	-0.05	1.5857	0.0217	8.7	1.1	9.9	1.1	A-	A-	A-
Science	4	5695	2	B.1.1.1	2	10438	0.47	0.33	0.47	0.10	0.10	0.00	0.34	-0.18	0.34	-0.15	-0.13	1.4100	0.0216	3.5	1.0	5.8	1.1			
Science	4	8793	2	A.1.3.3	2	10438	0.71	0.06	0.11	0.71	0.11	0.00	0.44	-0.27	-0.20	0.44	-0.22	0.1580	0.0235	-5.9	0.9	-7.4	0.9	A-	A-	A+
Science	4	8804	2	A.3.3.1	2	10438	0.67	0.12	0.67	0.12	0.08	0.00	0.38	-0.19	0.38	-0.18	-0.21	0.3719	0.0228	-0.2	1.0	-2.6	1.0	A+	A-	A-
Science	4	6801	2	A.2.1.3	2	10438	0.44	0.08	0.40	0.08	0.44	0.01	0.28	-0.14	-0.12	-0.17	0.28	1.5423	0.0217	9.9	1.1	9.9	1.2	A-	A-	A-
Science	4	5706	3	A.3.1.1	2	10401	0.79	0.07	0.79	0.07	0.06	0.00	0.56	-0.30	0.56	-0.29	-0.30	-0.3728	0.0262	-9.9	0.8	-9.9	0.7	A-	A-	A-
Science	4	8384	3	B.1.1.3	2	10401	0.80	0.07	0.06	0.07	0.80	0.00	0.48	-0.28	-0.24	-0.25	0.48	-0.4047	0.0264	-9.2	0.9	-9.9	0.8	B+	A-	A+
Science	4	3110	3	A.1.3.4	3	10401	0.61	0.18	0.61	0.15	0.06	0.00	0.43	-0.25	0.43	-0.18	-0.21	0.7257	0.0221	-4.8	1.0	-2.2	1.0			
Science	4	6346	3	B.3.3.4	3	10401	0.48	0.17	0.20	0.14	0.48	0.00	0.32	-0.26	-0.06	-0.11	0.32	1.3315	0.0216	6.8	1.1	7.7	1.1	A+	A-	A-
Science	4	7530	3	A.2.1.3	2	10401	0.56	0.07	0.56	0.07	0.29	0.00	0.27	-0.23	0.27	-0.15	-0.08	0.9412	0.0218	9.9	1.1	9.9	1.2	A-	A-	A-
Science	4	2263	3	D.2.1.2	2	10401	0.84	0.04	0.08	0.84	0.04	0.00	0.40	-0.26	-0.21	0.40	-0.19	-0.6979	0.0284	-4.3	0.9	-2.9	0.9	A+	A-	A-
Science	4	7494	3	C.2.1.4	2	10401	0.69	0.69	0.09	0.14	0.08	0.00	0.38	0.38	-0.23	-0.14	-0.22	0.2942	0.0232	0.5	1.0	-0.3	1.0			
Science	4	8077	3	D.1.3.3	2	10401	0.64	0.22	0.08	0.06	0.64	0.00	0.43	-0.15	-0.27	-0.28	0.43	0.5638	0.0224	-4.1	1.0	-4.5	0.9	A+	A-	A-
Science	4	5828	3	A.3.1.2	2	10401	0.70	0.70	0.07	0.14	0.09	0.00	0.37	0.37	-0.21	-0.19	-0.18	0.2358	0.0234	1.0	1.0	0.1	1.0	A+	A-	A-
Science	4	5747	3	C.1.1.1	2	10401	0.76	0.08	0.10	0.05	0.76	0.00	0.39	-0.19	-0.18	-0.27	0.39	-0.1547	0.0250	-2.1	1.0	-2.3	1.0	B+	A-	A-
Science	4	9573	4	A.1.3.5	2	10444	0.62	0.04	0.62	0.11	0.23	0.00	0.37	-0.23	0.37	-0.21	-0.16	0.6591	0.0220	1.7	1.0	-0.8	1.0	A+	A-	A-
Science	4	3850	4	B.3.3.2	2	10444	0.45	0.45	0.06	0.36	0.13	0.00	0.19	0.19	-0.14	-0.06	-0.09	1.4750	0.0216	9.9	1.2	9.9	1.3	A+	A+	B+
Science	4	843	4	A.3.2.3	3	10444	0.53	0.10	0.53	0.28	0.09	0.00	0.32	-0.29	0.32	-0.03	-0.20	1.0972	0.0215	6.5	1.1	6.3	1.1			
Science	4	7210	4	C.1.1.2	2	10444	0.64	0.09	0.07	0.20	0.64	0.00	0.36	-0.19	-0.26	-0.12	0.36	0.5327	0.0223	2.5	1.0	1.2	1.0	A-	A-	A-
Science	4	998	4	D.1.3.1	2	10444	0.56	0.19	0.07	0.56	0.18	0.01	0.42	-0.19	-0.19	0.42	-0.22	0.9677	0.0216	-5.0	1.0	-3.7	1.0	A-	A-	A-
Science	4	3348	4	A.2.1.4	3	10444	0.67	0.12	0.67	0.10	0.11	0.00	0.38	-0.14	0.38	-0.21	-0.22	0.3574	0.0228	0.0	1.0	-0.7	1.0	A+	A+	A+
Science	4	9821	4	C.3.1.1	2	10444	0.39	0.25	0.14	0.22	0.39	0.00	0.41	-0.22	-0.12	-0.14	0.41	1.7920	0.0220	-9.0	0.9	-2.2	1.0	A-	A-	A-
Science	4	9214	4	D.1.2.2	1	10444	0.58	0.12	0.10	0.19	0.58	0.00	0.28	-0.17	-0.19	-0.06	0.28	0.8379	0.0217	9.9	1.1	9.9	1.1			
Science	4	3558	4	A.3.1.2	1	10444	0.28	0.28	0.29	0.13	0.29	0.00	0.23	0.23	-0.03	-0.12	-0.10	2.3898	0.0237	5.6	1.1	9.9	1.3	A-	A-	A-
Science	4	4003	4	B.2.1.1	1	10444	0.80	0.06	0.06	0.08	0.80	0.00	0.47	-0.26	-0.29	-0.21	0.47	-0.3870	0.0260	-8.2	0.9	-9.2	0.8	A+	A-	A-
Science	4	9210	5	A.1.1.2	2	10409	0.75	0.75	0.17	0.03	0.04	0.00	0.31	0.31	-0.11	-0.23	-0.26	-0.0793	0.0247	3.3	1.0	7.5	1.2	B+	B-	B-
Science	4	2371	5	B.2.1.2	2	10409	0.60	0.60	0.18	0.14	0.08	0.00	0.41	0.41	-0.21	-0.30	-0.07	0.8003	0.0219	-3.9	1.0	-2.7	1.0	A-	A-	A-
Science	4	7369	5	C.2.1.4	2	10409	0.31	0.19	0.42	0.31	0.08	0.00	0.26	-0.09	-0.08	0.26	-0.17	2.2497	0.0231	5.2	1.1	9.9	1.2	A-	A-	A-
Science	4	8176	5	A.2.1.4	2	10409	0.70	0.09	0.08	0.70	0.12	0.00	0.41	-0.24	-0.22	0.41	-0.17	0.2503	0.0233	-2.9	1.0	-3.8	0.9	A+	A-	A-
Science	4	7994	5	A.1.3.1	3	10409	0.52	0.15	0.52	0.20	0.12	0.00	0.35	-0.15	0.35	-0.10	-0.24	1.1550	0.0216	4.3	1.0	4.2	1.1			
Science	4	6732	5	A.1.3.4	2	10409	0.66	0.09	0.66	0.06	0.20	0.00	0.39	-0.21	0.39	-0.24	-0.18	0.4804	0.0226	-1.0	1.0	-2.0	1.0	A+	A-	A+
Science	4	9786	5	B.3.3.4	1	10409	0.80	0.05	0.08	0.80	0.07	0.00	0.48	-0.25	-0.27	0.48	-0.23	-0.3533	0.0261	-8.8	0.9	-9.3	0.8	A+	B-	A-
Science	4	5622	5	B.3.2.3	2	10409	0.77	0.06	0.05	0.11	0.77	0.00	0.36	-0.17	-0.28	-0.15	0.36	-0.2275	0.0254	-0.2	1.0	1.3	1.0			
Science	4	1071	5	C.2.1.1	2	10409	0.46	0.21	0.06	0.26	0.46	0.00	0.23	-0.13	-0.20	-0.03	0.23	1.4462	0.0216	9.9	1.2	9.9	1.2	A-	A-	A-
Science	4	7587	5	D.1.2.2	2	10409	0.40	0.40	0.37	0.14	0.09	0.00	0.26	0.26	-0.03	-0.23	-0.11	1.7849	0.0219	9.9	1.1	9.9	1.2	A-	A-	A-
Science	4	758	6	D.1.2.1	2	10398	0.41	0.20	0.41	0.11	0.27	0.00	0.26	-0.17	0.26	-0.10	-0.06	1.6659	0.0218	9.9	1.1	9.9	1.2	A-	A+	A+
Science	4	4933	6	B.3.3.5	2	10398	0.71	0.10	0.10	0.09	0.71	0.00	0.41	-0.19	-0.19	-0.24	0.41	0.1798	0.0234	-3.4	1.0	2.2	1.0	A+	A-	A-
Science	4	1209	6	A.1.3.4	2	10398	0.59	0.20	0.11	0.59	0.10	0.00	0.22	0.03	-0.14	0.22	-0.24	0.8084	0.0219	9.9	1.2	9.9	1.2	A-	A-	A-
Science	4	3505	6	C.3.1.3	2	10398	0.77	0.07	0.77	0.07	0.09	0.00	0.37	-0.21	0.37	-0.16	-0.21	-0.2244	0.0252	-1.2	1.0	1.2	1.0	A+	B-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Science	4	6902	6	A.1.3.3	2	10398	0.68	0.03	0.14	0.68	0.14	0.01	0.44	-0.23	-0.18	0.44	-0.30	0.3008	0.0230	-5.8	0.9	-7.4	0.9			
Science	4	739	6	A.2.1.1	2	10398	0.68	0.07	0.68	0.06	0.19	0.00	0.40	-0.17	0.40	-0.22	-0.23	0.3479	0.0229	-1.7	1.0	-3.1	1.0	A+	A-	A-
Science	4	8321	6	B.2.2.1	1	10398	0.83	0.06	0.83	0.06	0.05	0.00	0.43	-0.22	0.43	-0.25	-0.21	-0.6104	0.0276	-6.0	0.9	-4.5	0.9	A+	B-	A-
Science	4	2951	6	D.1.3.2	2	10398	0.65	0.65	0.10	0.08	0.17	0.00	0.42	0.42	-0.22	-0.26	-0.16	0.5031	0.0225	-3.7	1.0	-5.1	0.9	A-	A-	A-
Science	4	7785	6	D.3.1.3	2	10398	0.43	0.37	0.43	0.13	0.07	0.00	0.34	-0.05	0.34	-0.22	-0.25	1.5879	0.0217	3.6	1.0	6.9	1.1			
Science	4	5805	6	A.1.3.1	2	10398	0.75	0.04	0.04	0.75	0.16	0.01	0.30	-0.24	-0.20	0.30	-0.12	-0.1152	0.0247	4.1	1.1	2.7	1.1	A+	A-	A+
Science	4	950	7	B.1.1.1	2	10382	0.64	0.05	0.13	0.17	0.64	0.00	0.42	-0.27	-0.19	-0.20	0.42	0.5351	0.0224	-4.1	1.0	-5.8	0.9	A+	A+	A-
Science	4	2741	7	C.3.1.1	2	10382	0.48	0.48	0.40	0.08	0.03	0.00	0.31	0.31	-0.12	-0.21	-0.19	1.3556	0.0215	9.1	1.1	8.9	1.1			
Science	4	2274	7	B.2.1.1	2	10382	0.62	0.62	0.09	0.24	0.05	0.00	0.34	0.34	-0.26	-0.08	-0.25	0.6476	0.0221	5.1	1.1	6.0	1.1	A-	A-	A-
Science	4	386	7	D.1.1.2	2	10382	0.66	0.07	0.66	0.08	0.18	0.00	0.30	-0.21	0.30	-0.24	-0.05	0.4585	0.0226	7.4	1.1	9.2	1.2	A-	A-	A-
Science	4	8705	7	A.1.3.1	2	10382	0.65	0.05	0.09	0.20	0.65	0.01	0.40	-0.27	-0.22	-0.16	0.40	0.4738	0.0225	-2.0	1.0	-1.8	1.0	A+	A-	A-
Science	4	3490	7	A.2.2.1	2	10382	0.54	0.34	0.54	0.07	0.06	0.00	0.22	0.05	0.22	-0.28	-0.26	1.0533	0.0216	9.9	1.2	9.9	1.3	A+	A-	A+
Science	4	5737	7	A.2.1.3	2	10382	0.77	0.06	0.77	0.05	0.12	0.00	0.33	-0.14	0.33	-0.20	-0.18	-0.1853	0.0250	1.5	1.0	5.0	1.1			
Science	4	176	7	A.3.3.2	2	10382	0.65	0.10	0.11	0.65	0.15	0.00	0.32	-0.19	-0.12	0.32	-0.17	0.5058	0.0224	6.0	1.1	7.0	1.1	A-	A-	A-
Science	4	6618	7	B.3.2.3	2	10382	0.49	0.49	0.09	0.18	0.25	0.00	0.32	0.32	-0.21	-0.14	-0.11	1.3089	0.0215	5.6	1.1	6.3	1.1	A-	A-	A-
Science	4	3376	7	C.2.1.2	2	10382	0.19	0.41	0.19	0.17	0.23	0.00	0.03	0.00	0.03	-0.11	0.07	2.9692	0.0267	9.9	1.2	9.9	1.9	A-	A+	A+
Science	4	8975	8	A.1.3.1	2	10382	0.80	0.04	0.12	0.80	0.04	0.00	0.52	-0.24	-0.34	0.52	-0.26	-0.3937	0.0263	-9.9	0.8	-9.9	0.7	A+	B-	B-
Science	4	9877	8	B.3.3.3	2	10382	0.49	0.20	0.09	0.49	0.21	0.00	0.37	-0.17	-0.18	0.37	-0.15	1.2998	0.0216	1.0	1.0	3.4	1.0	A-	A-	A-
Science	4	1579	8	A.1.3.5	2	10382	0.73	0.73	0.09	0.07	0.11	0.00	0.49	0.49	-0.25	-0.25	-0.26	0.0328	0.0241	-9.9	0.9	-9.9	0.8	A-	A-	A-
Science	4	3732	8	D.1.2.3	2	10382	0.53	0.53	0.12	0.18	0.16	0.00	0.44	0.44	-0.16	-0.19	-0.25	1.0948	0.0217	-6.8	1.0	-5.0	0.9	A-	A-	A-
Science	4	5220	8	C.3.1.2	2	10382	0.81	0.11	0.06	0.81	0.01	0.00	0.36	-0.22	-0.22	0.36	-0.13	-0.5132	0.0270	-0.9	1.0	-1.2	1.0			
Science	4	3467	8	C.3.1.2	2	10382	0.50	0.50	0.20	0.11	0.19	0.00	0.28	0.28	-0.12	-0.23	-0.05	1.2771	0.0216	9.9	1.1	9.9	1.2	C-	A-	A-
Science	4	2589	8	D.3.1.3	2	10382	0.46	0.11	0.14	0.29	0.46	0.00	0.34	-0.22	-0.16	-0.09	0.34	1.4355	0.0217	4.5	1.0	5.4	1.1	A+	A-	A-
Science	4	4888	8	A.1.1.2	2	10382	0.75	0.10	0.09	0.05	0.75	0.00	0.44	-0.23	-0.24	-0.22	0.44	-0.0985	0.0247	-5.3	0.9	-6.1	0.9			
Science	4	2395	8	A.3.3.2	2	10382	0.22	0.20	0.18	0.22	0.39	0.00	0.03	-0.08	-0.12	0.03	0.14	2.7411	0.0253	9.9	1.2	9.9	1.9	A-	A-	A-
Science	4	1750	8	B.3.1.1	2	10382	0.73	0.13	0.08	0.05	0.73	0.00	0.48	-0.28	-0.22	-0.26	0.48	0.0404	0.0241	-8.6	0.9	-9.9	0.8	A+	A-	A-
Science	4	2819	9	C.3.1.2	3	10363	0.86	0.04	0.86	0.06	0.04	0.00	0.43	-0.23	0.43	-0.23	-0.26	-0.9215	0.0303	-5.9	0.9	-8.2	0.7	A+	B-	A-
Science	4	5681	9	D.1.1.1	2	10363	0.53	0.53	0.19	0.16	0.11	0.00	0.33	0.33	-0.09	-0.18	-0.20	1.0966	0.0216	5.8	1.1	5.1	1.1	A-	A+	A-
Science	4	2338	9	A.1.3.5	2	10363	0.69	0.10	0.14	0.69	0.07	0.00	0.53	-0.24	-0.33	0.53	-0.23	0.2996	0.0232	-9.9	0.9	-9.9	0.8	A-	A-	A-
Science	4	4949	9	B.3.1.1	2	10363	0.70	0.05	0.07	0.70	0.19	0.00	0.34	-0.22	-0.16	0.34	-0.17	0.2608	0.0233	3.9	1.0	1.0	1.0			
Science	4	1424	9	A.3.1.2	2	10363	0.21	0.21	0.21	0.30	0.27	0.00	0.03	0.03	-0.01	0.14	-0.16	2.8091	0.0256	9.9	1.2	9.9	1.9	A-	A+	A-
Science	4	6565	9	D.3.1.3	2	10363	0.51	0.19	0.51	0.14	0.15	0.00	0.19	-0.11	0.19	-0.04	-0.10	1.1932	0.0216	9.9	1.2	9.9	1.3	A-	A-	A-
Science	4	8873	9	A.1.1.1	2	10363	0.75	0.11	0.75	0.06	0.07	0.00	0.50	-0.26	0.50	-0.31	-0.23	-0.0622	0.0246	-9.9	0.9	-9.9	0.8	A+	A+	A-
Science	4	2431	9	A.2.1.2	2	10363	0.69	0.05	0.69	0.11	0.15	0.00	0.44	-0.25	0.44	-0.21	-0.23	0.2919	0.0232	-5.8	0.9	-5.8	0.9			
Science	4	7226	9	B.3.1.2	2	10363	0.79	0.79	0.07	0.04	0.10	0.00	0.46	0.46	-0.25	-0.23	-0.26	-0.3110	0.0259	-7.0	0.9	-9.1	0.8	A+	A-	A-
Science	4	4704	9	A.3.2.3	2	10363	0.61	0.10	0.21	0.61	0.08	0.00	0.35	-0.30	-0.08	0.35	-0.20	0.7277	0.0221	3.3	1.0	3.9	1.1	A-	A-	A+
Science	4	2365	10	A.3.2.1	2	10385	0.61	0.61	0.12	0.20	0.07	0.00	0.28	0.28	-0.12	-0.13	-0.17	0.7325	0.0220	9.9	1.1	9.9	1.2	A+	A-	A-
Science	4	582	10	C.2.1.4	2	10385	0.53	0.14	0.20	0.53	0.12	0.00	0.37	-0.15	-0.17	0.37	-0.19	1.1024	0.0216	1.0	1.0	1.7	1.0	A+	A-	A-
Science	4	8314	10	D.2.1.2	2	10385	0.67	0.67	0.08	0.18	0.06	0.00	0.39	0.39	-0.23	-0.17	-0.20	0.4013	0.0228	-0.6	1.0	-1.4	1.0			
Science	4	7833	10	A.2.1.1	2	10385	0.54	0.12	0.54	0.20	0.14	0.00	0.35	-0.22	0.35	-0.14	-0.12	1.0609	0.0216	4.0	1.0	3.4	1.0	A+	A-	A+
Science	4	8469	10	D.3.1.1	2	10385	0.29	0.46	0.16	0.08	0.29	0.01	0.17	0.08	-0.14	-0.25	0.17	2.3414	0.0235	9.9	1.1	9.9	1.5	A-	A+	A+
Science	4	7926	10	A.1.3.2	2	10385	0.77	0.02	0.08	0.77	0.12	0.00	0.45	-0.19	-0.19	0.45	-0.33	-0.2087	0.0252	-7.2	0.9	-6.2	0.9	A+	B-	A-
Science	4	861	10	B.3.2.1	2	10385	0.57	0.57	0.09	0.10	0.23	0.00	0.44	0.44	-0.27	-0.24	-0.14	0.9055	0.0218	-6.5	1.0	-4.7	0.9	A-	A+	A-
Science	4	6742	10	D.1.1.3	2	10385	0.68	0.06	0.17	0.09	0.68	0.00	0.45	-0.26	-0.25	-0.19	0.45	0.3274	0.0230	-7.6	0.9	-7.9	0.9	A+	A-	A-
Science	4	4607	10	A.3.2.2	2	10385	0.56	0.19	0.56	0.13	0.12	0.00	0.37	-0.19	0.37	-0.16	-0.16	0.9759	0.0217	1.3	1.0	0.5	1.0	A+	A-	A+
Science	4	8888	10	A.2.2.1	2	10385	0.68	0.12	0.11	0.08	0.68	0.00	0.40	-0.21	-0.17	-0.23	0.40	0.3258	0.0230	-1.8	1.0	-2.3	1.0			
Science	4	275	11	A.2.1.2	2	10413	0.58	0.08	0.17	0.17	0.58	0.00	0.33	-0.18	-0.08	-0.22	0.33	0.8649	0.0217	5.8	1.1	6.7	1.1	A+	A-	A-
Science	4	8360	11	B.3.3.1	2	10413	0.51	0.12	0.21	0.51	0.16	0.00	0.44	-0.20	-0.12	0.44	-0.27	1.1754	0.0215	-8.0	0.9	-5.5	0.9	A-	A-	B-
Science	4	8401	11	A.1.3.5	2	10413	0.62	0.10	0.11	0.17	0.62	0.00	0.47	-0.22	-0.25	-0.21	0.47	0.6410	0.0221	-9.8	0.9	-9.1	0.9	A+	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Science	4	524	11	D.2.1.3	1	10413	0.76	0.05	0.07	0.76	0.12	0.00	0.35	-0.23	-0.15	0.35	-0.18	-0.1667	0.0249	0.5	1.0	0.2	1.0			
Science	4	8074	11	A.3.2.1	1	10413	0.81	0.10	0.03	0.81	0.06	0.01	0.48	-0.27	-0.24	0.48	-0.28	-0.4478	0.0265	-9.4	0.9	-9.7	0.8	A+	A-	A-
Science	4	7809	11	B.1.1.2	2	10413	0.73	0.07	0.73	0.08	0.11	0.00	0.37	-0.26	0.37	-0.17	-0.15	0.0512	0.0239	-0.4	1.0	1.2	1.0	A+	A-	A-
Science	4	3398	11	A.3.2.1	2	10413	0.51	0.13	0.05	0.51	0.31	0.00	0.26	-0.30	-0.28	0.26	0.07	1.1889	0.0215	9.9	1.1	9.9	1.2	A+	A-	A-
Science	4	5193	11	D.2.1.1	2	10413	0.29	0.07	0.05	0.58	0.29	0.00	0.06	-0.25	-0.25	0.20	0.06	2.3264	0.0234	9.9	1.3	9.9	1.6	A-	A+	A+
Science	4	6810	11	A.1.3.5	2	10413	0.56	0.15	0.14	0.56	0.15	0.00	0.37	-0.16	-0.17	0.37	-0.18	0.9503	0.0216	0.8	1.0	0.4	1.0			
Science	4	6162	11	C.2.1.3	2	10413	0.46	0.14	0.07	0.46	0.32	0.00	0.25	-0.18	-0.23	0.25	0.00	1.4192	0.0215	9.9	1.1	9.9	1.2	A+	A-	A-
Science	4	2651	12	B.3.2.1	2	10372	0.63	0.63	0.15	0.14	0.08	0.00	0.34	0.34	-0.16	-0.15	-0.20	0.6064	0.0222	3.6	1.0	5.4	1.1			
Science	4	6874	12	D.1.1.2	2	10372	0.72	0.12	0.07	0.09	0.72	0.00	0.40	-0.22	-0.21	-0.18	0.40	0.1531	0.0236	-2.9	1.0	-3.4	0.9	A+	A-	A-
Science	4	9741	12	A.2.1.1	1	10372	0.66	0.12	0.06	0.16	0.66	0.00	0.31	-0.10	-0.23	-0.15	0.31	0.4827	0.0225	6.6	1.1	6.8	1.1	A+	A-	A-
Science	4	6551	12	C.2.1.3	2	10372	0.59	0.15	0.59	0.12	0.13	0.00	0.20	-0.10	0.20	-0.11	-0.08	0.8074	0.0218	9.9	1.2	9.9	1.2	A+	A-	A-
Science	4	9985	12	A.1.3.3	2	10372	0.65	0.65	0.20	0.09	0.05	0.00	0.28	0.28	-0.10	-0.17	-0.21	0.5086	0.0224	9.0	1.1	6.0	1.1	A-	A-	A-
Science	4	1101	12	A.3.1.4	2	10372	0.90	0.03	0.03	0.90	0.04	0.00	0.44	-0.25	-0.24	0.44	-0.25	-1.2913	0.0341	-6.4	0.9	-9.9	0.6	B+	B-	A-
Science	4	5526	12	A.3.2.2	2	10372	0.41	0.31	0.18	0.41	0.09	0.00	0.17	0.03	-0.13	0.17	-0.16	1.6917	0.0218	9.9	1.2	9.9	1.3	A-	A-	A+
Science	4	8960	12	B.3.2.2	2	10372	0.58	0.58	0.16	0.12	0.14	0.00	0.42	0.42	-0.28	-0.16	-0.14	0.8485	0.0218	-4.4	1.0	-3.6	1.0	A-	A-	A-
Science	4	2007	12	D.2.1.1	2	10372	0.31	0.31	0.23	0.30	0.16	0.00	0.17	0.17	-0.07	-0.02	-0.12	2.2330	0.0230	9.9	1.1	9.9	1.4	A+	A-	A-
Science	4	6573	12	A.3.1.4	1	10372	0.57	0.57	0.40	0.01	0.01	0.00	0.41	0.41	-0.33	-0.17	-0.16	0.9205	0.0217	-3.6	1.0	-3.5	1.0			
Science	8	3280	0	A.3.1.2	2	126094	0.72	0.05	0.08	0.16	0.72	0.00	0.41	-0.22	-0.18	-0.25	0.41	-0.4974	0.0068	-9.9	1.0	-9.9	0.9			
Science	8	4386	0	C.2.2.1	1	126094	0.94	0.94	0.01	0.02	0.03	0.00	0.11	0.11	-0.12	-0.05	-0.04	-2.4671	0.0120	4.8	1.1	9.9	1.7			
Science	8	1957	0	D.1.1.1	2	126094	0.44	0.12	0.25	0.19	0.44	0.00	0.24	-0.12	-0.01	-0.19	0.24	0.9599	0.0062	9.9	1.1	9.9	1.2			
Science	8	8938	0	A.3.2.3	3	126094	0.76	0.06	0.10	0.76	0.09	0.00	0.37	-0.13	-0.24	0.37	-0.21	-0.7496	0.0071	-6.0	1.0	-7.4	1.0			
Science	8	7731	0	A.2.2.3	2	126094	0.58	0.58	0.09	0.12	0.22	0.00	0.32	0.32	-0.21	-0.08	-0.18	0.2622	0.0062	9.9	1.1	9.9	1.1			
Science	8	6061	0	C.2.2.3	2	126094	0.49	0.13	0.49	0.26	0.13	0.00	0.40	-0.15	0.40	-0.18	-0.22	0.6964	0.0062	-9.9	1.0	-9.1	1.0			
Science	8	8859	0	C.1.1.1	2	126094	0.61	0.61	0.11	0.15	0.12	0.00	0.33	0.33	-0.19	-0.11	-0.18	0.0824	0.0063	9.9	1.1	9.9	1.1			
Science	8	0	0	A.2.1.5	2	126094	0.76	0.04	0.06	0.76	0.14	0.00	0.38	-0.24	-0.21	0.38	-0.19	-0.7329	0.0071	-8.3	1.0	-9.4	0.9			
Science	8	2155	0	B.3.1.2	2	126094	0.78	0.06	0.07	0.78	0.08	0.00	0.47	-0.28	-0.26	0.47	-0.21	-0.9106	0.0073	-9.9	0.9	-9.9	0.8			
Science	8	8865	0	A.3.1.2	2	126094	0.71	0.09	0.10	0.71	0.10	0.00	0.46	-0.22	-0.28	0.46	-0.20	-0.4267	0.0067	-9.9	0.9	-9.9	0.8			
Science	8	6303	0	D.3.1.1	2	126094	0.64	0.08	0.24	0.04	0.64	0.00	0.35	-0.14	-0.19	-0.24	0.35	-0.0500	0.0064	9.9	1.0	9.2	1.0			
Science	8	3646	0	A.1.2.2	2	126094	0.48	0.48	0.12	0.23	0.16	0.00	0.36	0.36	-0.17	-0.12	-0.19	0.7428	0.0062	4.3	1.0	6.6	1.0			
Science	8	6987	0	A.1.1.2	2	126094	0.74	0.04	0.05	0.18	0.74	0.00	0.37	-0.25	-0.26	-0.15	0.37	-0.5924	0.0069	-6.0	1.0	3.3	1.0			
Science	8	6479	0	D.1.3.2	2	126094	0.80	0.80	0.05	0.11	0.04	0.00	0.46	0.46	-0.26	-0.26	-0.22	-0.9923	0.0075	-9.9	0.9	-9.9	0.8			
Science	8	6286	0	A.1.1.1	2	126094	0.61	0.13	0.22	0.61	0.04	0.00	0.17	-0.08	-0.03	0.17	-0.21	0.1084	0.0063	9.9	1.2	9.9	1.3			
Science	8	4751	0	C.3.1.2	1	126094	0.51	0.18	0.51	0.23	0.08	0.00	0.30	-0.13	0.30	-0.12	-0.17	0.6092	0.0062	9.9	1.1	9.9	1.1			
Science	8	5355	0	A.2.1.3	2	126094	0.51	0.51	0.20	0.12	0.17	0.00	0.35	0.35	-0.09	-0.24	-0.16	0.5782	0.0062	9.6	1.0	8.8	1.0			
Science	8	3120	0	A.2.1.1	2	126094	0.67	0.67	0.09	0.20	0.03	0.00	0.46	0.46	-0.22	-0.28	-0.23	-0.2342	0.0065	-9.9	0.9	-9.9	0.9			
Science	8	1022	0	B.2.1.3	2	126094	0.64	0.09	0.18	0.08	0.64	0.00	0.29	-0.18	-0.09	-0.19	0.29	-0.0583	0.0064	9.9	1.1	9.9	1.1			
Science	8	2307	0	A.1.2.1	2	126094	0.60	0.12	0.12	0.15	0.60	0.00	0.45	-0.19	-0.23	-0.23	0.45	0.1269	0.0063	-9.9	0.9	-9.9	0.9			
Science	8	8209	0	C.1.1.2		126094	0.69	0.07	0.11	0.69	0.14	0.00	0.31	-0.20	-0.24	0.31	-0.05	-0.3118	0.0066	9.9	1.1	9.9	1.1			
Science	8	9868	0	A.3.3.1	2	126094	0.82	0.13	0.82	0.03	0.02	0.00	0.32	-0.20	0.32	-0.17	-0.20	-1.1600	0.0078	-1.7	1.0	4.0	1.0			
Science	8	4865	0	D.1.3.1	2	126094	0.80	0.04	0.80	0.08	0.08	0.00	0.47	-0.22	0.47	-0.29	-0.23	-0.9922	0.0075	-9.9	0.9	-9.9	0.8			
Science	8	2336	0	B.1.1.3		126094	0.45	0.14	0.22	0.19	0.45	0.00	0.30	-0.17	-0.12	-0.10	0.30	0.8804	0.0062	9.9	1.1	9.9	1.1			
Science	8	2579	0	A.2.2.2	2	126094	0.66	0.66	0.16	0.07	0.12	0.00	0.43	0.43	-0.22	-0.23	-0.20	-0.1409	0.0065	-9.9	1.0	-9.9	0.9			
Science	8	1237	0	B.3.3.3	2	126094	0.57	0.24	0.08	0.11	0.57	0.00	0.45	-0.24	-0.18	-0.22	0.45	0.2939	0.0062	-9.9	0.9	-9.9	0.9			
Science	8	3346	0	A.1.1.3	3	126094	0.60	0.25	0.60	0.11	0.04	0.00	0.28	-0.05	0.28	-0.21	-0.23	0.1582	0.0063	9.9	1.1	9.9	1.1			
Science	8	5782	0	C.3.1.3		126094	0.79	0.10	0.07	0.04	0.79	0.00	0.47	-0.32	-0.25	-0.16	0.47	-0.9631	0.0074	-9.9	0.9	-9.9	0.8			
Science	8	7244	0	A.3.3.2	2	126094	0.63	0.63	0.13	0.14	0.10	0.00	0.42	0.42	-0.21	-0.25	-0.14	-0.0194	0.0064	-9.9	1.0	-9.9	0.9			
Science	8	3687	0	A.2.2.3	2	126094	0.52	0.26	0.52	0.07	0.14	0.00	0.12	0.02	0.12	-0.20	-0.05	0.5628	0.0062	9.9	1.3	9.9	1.3			
Science	8	3929	0	A.1.3.2	2	126094	0.61	0.13	0.16	0.61	0.11	0.00	0.33	-0.18	-0.14	0.33	-0.16	0.1140	0.0063	9.9	1.1	9.9	1.1			
Science	8	8870	0	C.1.1.1	2	126094	0.68	0.09	0.09	0.68	0.13	0.00	0.37	-0.18	-0.21	0.37	-0.18	-0.2898	0.0066	0.6	1.0	-4.3	1.0			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Science	8	5666	0	D.1.3.1	2	126094	0.76	0.09	0.09	0.76	0.05	0.00	0.44	-0.22	-0.24	0.44	-0.24	-0.7725	0.0071	-9.9	0.9	-9.9	0.9			
Science	8	9165	0	B.3.3.4	2	126094	0.76	0.04	0.05	0.15	0.76	0.00	0.45	-0.28	-0.28	-0.22	0.45	-0.7476	0.0071	-9.9	0.9	-9.9	0.9			
Science	8	6334	0	A.1.3.4	2	126094	0.68	0.19	0.06	0.06	0.68	0.00	0.22	-0.02	-0.20	-0.19	0.22	-0.2831	0.0066	9.9	1.1	9.9	1.3			
Science	8	2583	0	C.2.2.3	1	126094	0.61	0.13	0.13	0.13	0.61	0.00	0.48	-0.24	-0.26	-0.20	0.48	0.1162	0.0063	-9.9	0.9	-9.9	0.9			
Science	8	6161	0	D.1.1.3		126094	0.54	0.54	0.15	0.09	0.21	0.00	0.39	0.39	-0.19	-0.28	-0.11	0.4382	0.0062	-5.5	1.0	-5.9	1.0			
Science	8	4388	0	B.2.2.1	1	126094	0.76	0.09	0.76	0.08	0.07	0.00	0.49	-0.28	0.49	-0.24	-0.24	-0.7252	0.0071	-9.9	0.9	-9.9	0.8			
Science	8	3786	0	D.1.3.4	2	126094	0.69	0.69	0.08	0.09	0.14	0.00	0.47	0.47	-0.27	-0.23	-0.22	-0.3274	0.0066	-9.9	0.9	-9.9	0.9			
Science	8	6095	0	B.2.1.1	2	126094	0.72	0.72	0.05	0.18	0.05	0.00	0.38	0.38	-0.25	-0.18	-0.22	-0.4906	0.0068	-4.7	1.0	-5.4	1.0			
Science	8	9563	0	A.3.1.1	2	126094	0.52	0.22	0.11	0.14	0.52	0.00	0.30	0.01	-0.23	-0.23	0.30	0.5215	0.0062	9.9	1.1	9.9	1.1			
Science	8	2823	0	A.2.1.1	2	126094	0.44	0.11	0.26	0.44	0.19	0.00	0.32	-0.17	-0.14	0.32	-0.11	0.9293	0.0062	9.9	1.0	9.9	1.1			
Science	8	9239	0	C.2.2.2	2	126094	0.46	0.05	0.46	0.38	0.11	0.00	0.37	-0.26	0.37	-0.14	-0.17	0.8446	0.0062	-1.3	1.0	7.3	1.0			
Science	8	6652	0	B.2.2.2	2	126094	0.79	0.09	0.79	0.06	0.07	0.00	0.50	-0.24	0.50	-0.29	-0.27	-0.9193	0.0074	-9.9	0.9	-9.9	0.8			
Science	8	3539	0	C.2.1.2	2	126094	0.53	0.53	0.20	0.15	0.11	0.00	0.33	0.33	-0.06	-0.24	-0.17	0.4784	0.0062	9.9	1.1	9.9	1.1			
Science	8	972	0	D.2.1.2	2	126094	0.75	0.75	0.13	0.08	0.04	0.00	0.46	0.46	-0.27	-0.23	-0.22	-0.6842	0.0070	-9.9	0.9	-9.9	0.8			
Science	8	3003	0	A.1.2.3	2	126094	0.59	0.25	0.09	0.59	0.06	0.00	0.29	-0.04	-0.27	0.29	-0.19	0.1976	0.0063	9.9	1.1	9.9	1.1			
Science	8	3748	0	A.1.1.4	2	126094	0.39	0.39	0.35	0.13	0.13	0.00	0.30	0.30	-0.11	-0.17	-0.10	1.2025	0.0063	9.9	1.1	9.9	1.1			
Science	8	9070	0	A.1.2.1	2	126094	0.58	0.11	0.17	0.58	0.14	0.00	0.46	-0.13	-0.27	0.46	-0.25	0.2390	0.0062	-9.9	0.9	-9.9	0.9			
Science	8	2865	0	D.1.3.2	2	126094	0.79	0.08	0.07	0.79	0.05	0.00	0.52	-0.28	-0.29	0.52	-0.25	-0.9704	0.0074	-9.9	0.8	-9.9	0.7			
Science	8	2990	0	A.2.2.1	2	126094	0.64	0.11	0.16	0.08	0.64	0.00	0.50	-0.26	-0.26	-0.22	0.50	-0.0594	0.0064	-9.9	0.9	-9.9	0.8			
Science	8	6653	0	D.1.3.3	2	126094	0.59	0.16	0.15	0.59	0.10	0.00	0.39	-0.19	-0.18	0.39	-0.19	0.1820	0.0063	-3.8	1.0	-6.5	1.0			
Science	8	840	0	A.1.2.3	2	126094	0.38	0.38	0.24	0.15	0.23	0.00	0.25	0.25	-0.04	-0.22	-0.06	1.2218	0.0063	9.9	1.1	9.9	1.2			
Science	8	2512	0	A.2.2.1	2	126094	0.62	0.05	0.08	0.24	0.62	0.00	0.32	-0.18	-0.18	-0.14	0.32	0.0218	0.0063	9.9	1.1	9.9	1.1			
Science	8	4475	0	A.1.3.2	3	126094	0.64	0.07	0.16	0.64	0.13	0.00	0.44	-0.27	-0.24	0.44	-0.15	-0.0443	0.0064	-9.9	0.9	-9.9	0.9			
Science	8	7863	0	A.1.1.4	1	126094	0.76	0.08	0.76	0.08	0.08	0.00	0.53	-0.26	0.53	-0.32	-0.25	-0.7400	0.0071	-9.9	0.8	-9.9	0.8			
Science	8	9743	0	B.3.1.1	2	126094	0.70	0.70	0.12	0.12	0.06	0.00	0.51	0.51	-0.27	-0.26	-0.26	-0.3724	0.0067	-9.9	0.9	-9.9	0.8			
Science	8	3473	0	B.3.1.3	2	126094	0.75	0.75	0.10	0.10	0.06	0.00	0.50	0.50	-0.25	-0.26	-0.27	-0.6687	0.0070	-9.9	0.9	-9.9	0.8			
Science	8	6189	1	B.2.1.1	2	10873	0.65	0.11	0.65	0.08	0.15	0.00	0.37	-0.17	0.37	-0.27	-0.13	-0.1319	0.0219	0.8	1.0	0.5	1.0	A+	A+	A-
Science	8	6786	1	A.2.2.3	2	10873	0.53	0.53	0.10	0.15	0.21	0.00	0.38	0.38	-0.20	-0.23	-0.10	0.4366	0.0211	-0.3	1.0	-1.3	1.0	A-	A-	A+
Science	8	8439	1	D.1.1.2	2	10873	0.26	0.17	0.37	0.20	0.26	0.00	0.09	-0.12	0.11	-0.11	0.09	1.8622	0.0236	9.9	1.2	9.9	1.5	A-	A-	A-
Science	8	6145	1	C.2.1.1	1	10873	0.64	0.08	0.05	0.64	0.23	0.00	0.34	-0.22	-0.22	0.34	-0.13	-0.0917	0.0218	3.6	1.0	3.0	1.0	A-	C-	B-
Science	8	4423	1	B.2.1.3	2	10873	0.38	0.38	0.33	0.14	0.15	0.00	0.17	0.17	0.06	-0.14	-0.17	1.1795	0.0215	9.9	1.2	9.9	1.3	A+	A-	A-
Science	8	8770	1	A.3.2.2	2	10873	0.69	0.08	0.08	0.15	0.69	0.00	0.55	-0.25	-0.30	-0.28	0.55	-0.3446	0.0225	-9.9	0.8	-9.9	0.8			
Science	8	2772	1	D.1.3.3	2	10873	0.43	0.27	0.43	0.09	0.21	0.00	0.26	-0.02	0.26	-0.21	-0.14	0.9194	0.0211	9.9	1.1	9.9	1.2	A-	A-	A-
Science	8	9756	1	A.2.2.2	2	10873	0.49	0.17	0.49	0.19	0.15	0.00	0.36	-0.11	0.36	-0.18	-0.18	0.6530	0.0210	1.0	1.0	2.8	1.0	A+	A-	A-
Science	8	6614	1	D.3.1.3	2	10873	0.58	0.11	0.11	0.19	0.58	0.00	0.42	-0.17	-0.26	-0.18	0.42	0.1966	0.0213	-4.8	1.0	-4.5	1.0			
Science	8	4107	1	A.1.2.3	2	10873	0.44	0.44	0.15	0.31	0.10	0.00	0.25	0.25	-0.08	-0.08	-0.19	0.9019	0.0211	9.9	1.1	9.9	1.2	A+	A+	A-
Science	8	7107	1	A.1.3.1	2	10873	0.30	0.12	0.30	0.21	0.36	0.00	0.18	-0.22	0.18	-0.16	0.12	1.6049	0.0226	9.9	1.1	9.9	1.3	A-	A-	A-
Science	8	2243	1	A.1.1.2	2	10873	0.57	0.06	0.28	0.57	0.09	0.00	0.31	-0.26	-0.07	0.31	-0.20	0.2525	0.0212	9.0	1.1	9.5	1.1	A+	A-	A-
Science	8	6271	2	B.3.1.2	2	10476	0.58	0.09	0.58	0.23	0.10	0.00	0.40	-0.21	0.40	-0.16	-0.22	0.2464	0.0216	-3.0	1.0	-3.8	1.0	A-	A-	A-
Science	8	684	2	D.1.1.1	2	10476	0.30	0.30	0.39	0.18	0.13	0.00	0.13	0.13	0.08	-0.18	-0.08	1.6312	0.0230	9.9	1.2	9.9	1.4	A+	A+	A+
Science	8	180	2	A.1.3.3	2	10476	0.27	0.12	0.27	0.47	0.14	0.00	0.14	-0.19	0.14	0.12	-0.16	1.8337	0.0237	9.9	1.1	9.9	1.4	A-	A+	A+
Science	8	9800	2	A.3.3.2	2	10476	0.61	0.61	0.13	0.07	0.18	0.00	0.32	0.32	-0.22	-0.26	-0.03	0.0927	0.0218	6.5	1.1	8.9	1.1	A+	A-	A-
Science	8	2801	2	C.1.1.3	2	10476	0.39	0.39	0.16	0.19	0.26	0.00	0.32	0.32	-0.10	-0.20	-0.09	1.1438	0.0217	3.0	1.0	5.9	1.1	A+	A-	A-
Science	8	5440	2	A.1.2.3	2	10476	0.53	0.53	0.08	0.14	0.25	0.00	0.43	0.43	-0.28	-0.15	-0.20	0.5123	0.0214	-8.0	0.9	-7.2	0.9			
Science	8	9507	2	B.3.3.1	2	10476	0.62	0.62	0.21	0.06	0.10	0.00	0.39	0.39	-0.15	-0.24	-0.23	0.0379	0.0219	-2.1	1.0	-3.3	1.0	A+	A+	A-
Science	8	1273	2	A.2.2.1	3	10476	0.43	0.16	0.22	0.19	0.43	0.00	0.30	-0.03	-0.14	-0.19	0.30	0.9780	0.0215	8.1	1.1	8.3	1.1	A+	A-	A-
Science	8	6094	2	A.1.1.2	2	10476	0.71	0.71	0.09	0.08	0.11	0.00	0.53	0.53	-0.28	-0.31	-0.23	-0.4586	0.0234	-9.9	0.8	-9.9	0.8	A+	A-	A-
Science	8	8231	2	D.1.3.3	2	10476	0.29	0.32	0.27	0.29	0.11	0.00	0.23	0.02	-0.21	0.23	-0.06	1.6921	0.0232	7.7	1.1	9.9	1.3			
Science	8	9820	2	D.2.1.2	2	10476	0.37	0.37	0.17	0.15	0.31	0.00	0.22	0.22	-0.02	-0.15	-0.09	1.2845	0.0220	9.9	1.1	9.9	1.2	A-	A-	A+

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Science	8	2072	2	A.3.2.3		10476	0.36	0.27	0.36	0.23	0.13	0.00	0.25	0.02	0.25	-0.16	-0.17	1.3060	0.0221	8.0	1.1	9.9	1.2	A+	A+	A-
Science	8	1823	3	A.1.3.3	3	10451	0.58	0.08	0.25	0.08	0.58	0.00	0.44	-0.21	-0.17	-0.29	0.44	0.2304	0.0216	-7.7	0.9	-6.5	0.9	A+	A-	A-
Science	8	5123	3	A.2.1.5	2	10451	0.58	0.13	0.58	0.17	0.12	0.00	0.43	-0.17	0.43	-0.23	-0.21	0.2374	0.0216	-6.9	0.9	-6.9	0.9	A+	A+	A-
Science	8	463	3	B.2.1.1	2	10451	0.43	0.09	0.35	0.14	0.43	0.00	0.23	-0.24	0.09	-0.24	0.23	0.9905	0.0216	9.9	1.1	9.9	1.2	A+	A-	A-
Science	8	6666	3	C.1.1.3	2	10451	0.41	0.41	0.21	0.24	0.14	0.00	0.29	0.29	-0.15	-0.09	-0.11	1.0609	0.0217	6.2	1.1	8.6	1.1	A+	A-	A+
Science	8	5100	3	A.1.3.4	2	10451	0.22	0.36	0.13	0.29	0.22	0.00	0.16	0.11	-0.21	-0.10	0.16	2.0965	0.0251	6.0	1.1	9.9	1.5	A-	A-	A-
Science	8	4827	3	D.1.3.4	2	10451	0.32	0.12	0.41	0.15	0.32	0.00	0.34	-0.21	-0.04	-0.18	0.34	1.5248	0.0227	-0.9	1.0	3.0	1.1	A-	A-	B-
Science	8	6009	3	B.1.1.4	2	10451	0.52	0.13	0.52	0.21	0.14	0.00	0.34	-0.18	0.34	-0.14	-0.15	0.5369	0.0214	3.5	1.0	2.9	1.0			
Science	8	952	3	A.2.2.2	2	10451	0.66	0.15	0.07	0.66	0.13	0.00	0.42	-0.15	-0.24	0.42	-0.25	-0.1495	0.0224	-4.9	1.0	-6.0	0.9	A+	A-	A-
Science	8	6522	3	A.2.1.2	2	10451	0.42	0.08	0.28	0.42	0.22	0.00	0.32	-0.20	-0.19	0.32	-0.04	1.0368	0.0216	3.7	1.0	7.1	1.1			
Science	8	6375	3	B.3.3.4	2	10451	0.31	0.20	0.35	0.31	0.13	0.00	-0.02	0.03	0.11	-0.02	-0.16	1.5680	0.0228	9.9	1.4	9.9	1.7	A+	A-	A+
Science	8	2546	3	A.1.1.3	2	10451	0.47	0.06	0.12	0.35	0.47	0.00	0.35	-0.25	-0.30	-0.03	0.35	0.7837	0.0214	1.2	1.0	3.0	1.0	A-	A-	A-
Science	8	3733	3	C.1.1.2	2	10451	0.43	0.43	0.29	0.16	0.12	0.00	0.32	0.32	-0.04	-0.15	-0.26	0.9811	0.0216	3.3	1.0	5.8	1.1	A-	A-	A+
Science	8	6100	4	D.1.1.1	2	10465	0.27	0.22	0.14	0.27	0.37	0.00	0.07	0.00	-0.23	0.07	0.10	1.8092	0.0236	9.9	1.2	9.9	1.6	A-	A+	A+
Science	8	2789	4	A.3.1.2	2	10465	0.52	0.08	0.31	0.52	0.08	0.00	0.34	-0.26	-0.11	0.34	-0.15	0.5235	0.0214	4.6	1.0	4.7	1.1	B+	A+	A+
Science	8	2369	4	B.3.3.1	3	10465	0.61	0.61	0.08	0.09	0.22	0.00	0.33	0.33	-0.30	-0.21	-0.05	0.0944	0.0219	4.6	1.0	7.2	1.1	A+	A-	A-
Science	8	7615	4	A.3.3.2	2	10465	0.67	0.12	0.06	0.67	0.14	0.00	0.42	-0.22	-0.27	0.42	-0.16	-0.2285	0.0226	-4.8	1.0	-4.2	0.9	A+	A-	A+
Science	8	6730	4	D.2.1.1	3	10465	0.63	0.18	0.05	0.13	0.63	0.00	0.35	-0.09	-0.23	-0.22	0.35	-0.0100	0.0221	2.5	1.0	2.8	1.0			
Science	8	8845	4	A.3.3.1	2	10465	0.65	0.10	0.18	0.07	0.65	0.00	0.55	-0.22	-0.34	-0.26	0.55	-0.0953	0.0223	-9.9	0.8	-9.9	0.8	A-	C-	C-
Science	8	6637	4	D.1.1.1	1	10465	0.52	0.52	0.17	0.18	0.13	0.00	0.37	0.37	-0.15	-0.18	-0.17	0.5345	0.0214	-0.2	1.0	0.3	1.0	A+	A+	A-
Science	8	3446	4	A.2.1.1	2	10465	0.63	0.63	0.11	0.14	0.11	0.00	0.42	0.42	-0.17	-0.24	-0.18	0.0185	0.0220	-4.2	1.0	-4.8	0.9	A-	A-	A-
Science	8	539	4	C.2.1.3	3	10465	0.48	0.04	0.07	0.48	0.41	0.00	0.28	-0.25	-0.19	0.28	-0.08	0.7438	0.0214	9.9	1.1	9.9	1.1	C-	A-	A+
Science	8	2952	4	B.3.1.2	2	10465	0.66	0.10	0.14	0.66	0.10	0.00	0.25	-0.06	-0.26	0.25	-0.03	-0.1627	0.0225	9.9	1.1	9.9	1.2	A+	A-	A-
Science	8	406	4	A.3.2.3	2	10465	0.26	0.33	0.15	0.26	0.26	0.00	0.05	0.09	-0.20	0.02	0.05	1.8853	0.0239	9.9	1.3	9.9	1.6	A+	A-	A+
Science	8	4542	4	A.3.3.2	2	10465	0.64	0.10	0.07	0.19	0.64	0.00	0.34	-0.19	-0.23	-0.12	0.34	-0.0370	0.0221	3.1	1.0	3.5	1.1			
Science	8	1983	5	A.1.3.3	3	10505	0.60	0.60	0.13	0.17	0.10	0.00	0.46	0.46	-0.23	-0.27	-0.15	0.1721	0.0217	-9.9	0.9	-9.9	0.9	A+	A-	A-
Science	8	1709	5	B.1.1.1	2	10505	0.53	0.16	0.20	0.11	0.53	0.00	0.39	-0.13	-0.15	-0.27	0.39	0.4848	0.0214	-1.6	1.0	-1.0	1.0	A-	A-	A+
Science	8	7142	5	B.3.1.3	2	10505	0.56	0.07	0.14	0.56	0.24	0.00	0.37	-0.28	-0.19	0.37	-0.11	0.3470	0.0215	0.9	1.0	0.7	1.0	A-	A+	A-
Science	8	1443	5	C.3.1.1	3	10505	0.45	0.12	0.45	0.18	0.25	0.00	0.28	-0.22	0.28	-0.13	-0.04	0.8772	0.0214	9.2	1.1	9.9	1.1	A-	A-	A-
Science	8	856	5	A.3.1.3	2	10505	0.39	0.19	0.20	0.39	0.22	0.00	0.20	-0.13	-0.07	0.20	-0.04	1.1826	0.0218	9.9	1.2	9.9	1.2	A-	A-	A-
Science	8	4488	5	D.1.1.4	2	10505	0.53	0.10	0.20	0.17	0.53	0.00	0.47	-0.25	-0.18	-0.23	0.47	0.5068	0.0214	-9.9	0.9	-9.9	0.9	A+	A-	A-
Science	8	3218	5	A.3.2.1	2	10505	0.74	0.05	0.06	0.15	0.74	0.00	0.44	-0.27	-0.26	-0.20	0.44	-0.6363	0.0241	-7.3	0.9	-5.6	0.9			
Science	8	6961	5	A.1.3.2	2	10505	0.42	0.42	0.23	0.24	0.11	0.00	0.29	0.29	-0.14	-0.03	-0.22	1.0180	0.0216	6.8	1.1	9.9	1.1	A-	A-	A-
Science	8	9814	5	B.2.1.5	2	10505	0.73	0.13	0.06	0.08	0.73	0.00	0.44	-0.20	-0.28	-0.22	0.44	-0.5267	0.0236	-7.4	0.9	-7.7	0.9			
Science	8	8460	5	A.1.2.4	1	10505	0.70	0.12	0.70	0.10	0.07	0.00	0.37	-0.19	0.37	-0.17	-0.21	-0.3806	0.0231	-1.0	1.0	-0.5	1.0	A+	A-	A+
Science	8	2611	5	C.2.1.2	2	10505	0.56	0.25	0.07	0.56	0.12	0.00	0.26	0.00	-0.25	0.26	-0.19	0.3609	0.0215	9.9	1.1	9.9	1.2	A+	A-	A-
Science	8	6347	5	B.3.2.3	2	10505	0.29	0.29	0.20	0.33	0.17	0.00	0.10	0.10	-0.09	0.05	-0.09	1.6729	0.0231	9.9	1.2	9.9	1.4	A-	A-	A-
Science	8	9703	6	A.1.1.3	2	10491	0.55	0.07	0.13	0.25	0.55	0.00	0.48	-0.24	-0.28	-0.19	0.48	0.3829	0.0215	-9.9	0.9	-9.9	0.9	A+	A+	A+
Science	8	8839	6	A.1.2.1	3	10491	0.61	0.13	0.13	0.61	0.13	0.00	0.44	-0.17	-0.25	0.44	-0.22	0.0625	0.0219	-6.8	0.9	-6.9	0.9	A+	A-	A-
Science	8	9714	6	A.2.2.3	2	10491	0.43	0.17	0.43	0.13	0.27	0.00	0.24	-0.15	0.24	-0.20	0.02	0.9511	0.0216	9.9	1.1	9.9	1.2	A+	A+	A-
Science	8	9935	6	B.3.3.4	2	10491	0.50	0.11	0.50	0.16	0.23	0.00	0.32	-0.20	0.32	-0.14	-0.11	0.6204	0.0214	7.3	1.1	7.6	1.1	A+	A-	A-
Science	8	8189	6	C.2.2.1	1	10491	0.58	0.10	0.17	0.58	0.15	0.00	0.25	-0.23	-0.14	0.25	-0.01	0.2143	0.0217	9.9	1.1	9.9	1.2			
Science	8	2563	6	A.1.1.1	2	10491	0.66	0.09	0.16	0.66	0.08	0.00	0.40	-0.20	-0.16	0.40	-0.26	-0.1997	0.0225	-2.5	1.0	1.7	1.0	A+	A+	A+
Science	8	6174	6	C.2.1.3	2	10491	0.66	0.11	0.66	0.17	0.05	0.00	0.42	-0.21	0.42	-0.21	-0.24	-0.1682	0.0224	-4.6	1.0	-5.6	0.9	A-	A-	A-
Science	8	6569	6	A.1.3.3	2	10491	0.39	0.39	0.08	0.13	0.40	0.00	0.29	0.29	-0.24	-0.26	0.03	1.1622	0.0219	7.8	1.1	9.9	1.1	A-	A-	A-
Science	8	3555	6	D.1.3.1	2	10491	0.76	0.05	0.12	0.07	0.76	0.00	0.44	-0.26	-0.21	-0.24	0.44	-0.7837	0.0247	-7.4	0.9	-6.4	0.9	A+	A-	A-
Science	8	8000	6	B.2.2.2	2	10491	0.48	0.16	0.48	0.28	0.08	0.00	0.26	-0.11	0.26	-0.09	-0.17	0.6998	0.0214	9.9	1.1	9.9	1.2	A+	A-	A-
Science	8	6116	6	A.1.3.1	2	10491	0.57	0.16	0.11	0.57	0.16	0.00	0.47	-0.24	-0.21	0.47	-0.20	0.2631	0.0216	-9.9	0.9	-9.9	0.9	B-	A-	A-
Science	8	1832	6	A.1.1.3	2	10491	0.64	0.12	0.07	0.16	0.64	0.00	0.46	-0.24	-0.28	-0.19	0.46	-0.0988	0.0223	-9.0	0.9	-9.7	0.9			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Science	8	1749	7	A.2.1.1	2	10474	0.58	0.11	0.19	0.58	0.12	0.00	0.36	-0.19	-0.20	0.36	-0.12	0.2203	0.0217	2.1	1.0	0.8	1.0	A-	A-	A-
Science	8	3575	7	B.3.1.1	2	10474	0.45	0.26	0.17	0.45	0.12	0.00	0.28	-0.06	-0.14	0.28	-0.19	0.8452	0.0215	9.6	1.1	9.9	1.1	A+	A-	A+
Science	8	4390	7	C.1.1.2	2	10474	0.52	0.16	0.52	0.05	0.27	0.00	0.46	-0.16	0.46	-0.27	-0.24	0.5276	0.0214	-9.9	0.9	-9.9	0.9	A-	A-	A-
Science	8	8477	7	A.1.1.1	2	10474	0.56	0.56	0.17	0.11	0.16	0.00	0.42	0.42	-0.21	-0.25	-0.14	0.3099	0.0216	-5.4	1.0	-5.6	0.9	A+	A-	A-
Science	8	2028	7	D.1.2.1	2	10474	0.55	0.55	0.14	0.19	0.13	0.00	0.43	0.43	-0.20	-0.24	-0.14	0.3969	0.0215	-5.9	1.0	-5.8	0.9	A-	A-	A-
Science	8	8114	7	A.1.2.4	2	10474	0.57	0.15	0.57	0.21	0.07	0.00	0.24	-0.12	0.24	-0.01	-0.28	0.2689	0.0216	9.9	1.1	9.9	1.2			
Science	8	1512	7	A.3.3.1	2	10474	0.33	0.21	0.24	0.22	0.33	0.00	0.09	0.02	0.00	-0.11	0.09	1.4828	0.0226	9.9	1.3	9.9	1.4	A+	A-	A+
Science	8	7586	7	C.3.1.3	2	10474	0.16	0.42	0.08	0.16	0.33	0.00	0.09	0.19	-0.25	0.09	-0.12	2.5574	0.0281	6.7	1.1	9.9	1.7	A-	A-	A-
Science	8	6259	7	A.2.1.6	2	10474	0.51	0.07	0.35	0.51	0.07	0.00	0.30	-0.29	-0.04	0.30	-0.20	0.5617	0.0214	9.8	1.1	8.5	1.1	A-	A-	A-
Science	8	3197	7	A.2.2.3	2	10474	0.69	0.10	0.69	0.11	0.10	0.00	0.46	-0.19	0.46	-0.27	-0.22	-0.3466	0.0229	-8.3	0.9	-8.7	0.9	A+	A-	A-
Science	8	9676	7	C.1.1.1	2	10474	0.67	0.11	0.67	0.11	0.10	0.00	0.44	-0.21	0.44	-0.26	-0.18	-0.2286	0.0226	-6.5	0.9	-7.7	0.9			
Science	8	4689	7	B.3.2.2	2	10474	0.41	0.18	0.16	0.25	0.41	0.00	0.37	-0.20	-0.21	-0.06	0.37	1.0556	0.0217	-3.1	1.0	2.0	1.0	A+	A-	A+
Science	8	7927	8	A.2.2.3	2	10450	0.68	0.10	0.68	0.13	0.09	0.00	0.49	-0.24	0.49	-0.27	-0.22	-0.2499	0.0227	-9.9	0.9	-9.9	0.8	A-	A-	A-
Science	8	6604	8	B.1.1.2	2	10450	0.57	0.18	0.19	0.57	0.06	0.00	0.26	-0.14	-0.05	0.26	-0.22	0.3150	0.0216	9.9	1.1	9.9	1.1	A+	A-	A+
Science	8	3845	8	A.3.1.2	2	10450	0.57	0.14	0.09	0.57	0.20	0.00	0.36	-0.17	-0.24	0.36	-0.12	0.3037	0.0216	2.6	1.0	1.9	1.0	A-	A-	A-
Science	8	4839	8	D.1.1.2	2	10450	0.36	0.10	0.34	0.20	0.36	0.00	0.26	-0.22	-0.06	-0.07	0.26	1.3467	0.0222	8.4	1.1	9.9	1.2	A-	A-	A-
Science	8	8075	8	D.2.1.1	2	10450	0.48	0.12	0.48	0.18	0.21	0.00	0.24	-0.17	0.24	-0.09	-0.06	0.7245	0.0214	9.9	1.1	9.9	1.2	A-	A-	A-
Science	8	3144	8	A.2.1.6	2	10450	0.50	0.20	0.22	0.50	0.09	0.00	0.34	-0.13	-0.19	0.34	-0.14	0.6591	0.0214	3.8	1.0	4.4	1.1			
Science	8	9522	8	C.1.1.1	2	10450	0.48	0.19	0.28	0.05	0.48	0.00	0.16	-0.03	-0.05	-0.20	0.16	0.7319	0.0214	9.9	1.2	9.9	1.3	A+	A-	A-
Science	8	1773	8	B.2.1.5	2	10450	0.40	0.16	0.26	0.17	0.40	0.00	0.22	-0.09	-0.06	-0.13	0.22	1.1021	0.0217	9.9	1.1	9.9	1.2	A+	A+	A-
Science	8	3254	8	A.2.1.5	2	10450	0.68	0.12	0.68	0.09	0.11	0.00	0.44	-0.18	0.44	-0.29	-0.20	-0.2374	0.0227	-7.3	0.9	-4.7	0.9	A+	A-	A-
Science	8	2111	8	A.3.1.1	2	10450	0.64	0.09	0.11	0.64	0.16	0.00	0.39	-0.18	-0.24	0.39	-0.15	-0.0439	0.0222	-1.2	1.0	-1.6	1.0	A+	A+	A-
Science	8	4681	8	D.1.1.4	2	10450	0.78	0.10	0.07	0.78	0.05	0.00	0.52	-0.29	-0.28	0.52	-0.25	-0.8583	0.0253	-9.9	0.8	-9.9	0.7			
Science	8	3459	8	A.1.1.4	2	10450	0.75	0.09	0.75	0.08	0.08	0.00	0.50	-0.26	0.50	-0.26	-0.26	-0.6636	0.0243	-9.9	0.9	-9.9	0.8	A+	A-	A-
Science	8	6488	9	A.1.1.4	2	10446	0.63	0.09	0.63	0.10	0.17	0.00	0.44	-0.15	0.44	-0.25	-0.24	0.0086	0.0222	-6.1	0.9	-7.6	0.9	A+	A-	A-
Science	8	6698	9	A.1.1.2	2	10446	0.62	0.62	0.15	0.13	0.10	0.00	0.51	0.51	-0.24	-0.25	-0.25	0.0678	0.0221	-9.9	0.9	-9.9	0.8	A+	A-	A-
Science	8	8064	9	D.1.3.1	1	10446	0.61	0.17	0.09	0.61	0.12	0.00	0.39	-0.16	-0.26	0.39	-0.15	0.1065	0.0220	-0.2	1.0	0.2	1.0	A-	A+	A-
Science	8	4885	9	B.3.3.1	2	10446	0.56	0.56	0.15	0.19	0.09	0.00	0.37	0.37	-0.22	-0.15	-0.15	0.3488	0.0217	2.3	1.0	1.4	1.0	A+	A-	A-
Science	8	5603	9	B.2.1.4	2	10446	0.72	0.04	0.21	0.72	0.03	0.00	0.43	-0.25	-0.24	0.43	-0.23	-0.4490	0.0235	-4.9	1.0	-5.9	0.9	A+	A-	A-
Science	8	4134	9	C.2.1.1	2	10446	0.68	0.68	0.13	0.07	0.12	0.00	0.45	0.45	-0.17	-0.31	-0.23	-0.2449	0.0229	-7.5	0.9	-8.9	0.9			
Science	8	8446	9	A.3.1.2	1	10446	0.66	0.15	0.08	0.66	0.11	0.00	0.46	-0.26	-0.25	0.46	-0.18	-0.1359	0.0226	-8.2	0.9	-9.7	0.9	A+	A-	A-
Science	8	8190	9	A.1.2.1	2	10446	0.62	0.20	0.06	0.62	0.12	0.00	0.43	-0.19	-0.26	0.43	-0.22	0.0772	0.0221	-5.4	1.0	-6.4	0.9	A+	A-	A+
Science	8	6621	9	A.3.1.4	2	10446	0.45	0.08	0.45	0.30	0.17	0.00	0.34	-0.24	0.34	-0.18	-0.05	0.9084	0.0216	2.1	1.0	5.0	1.1			
Science	8	1262	9	D.1.2.2	2	10446	0.34	0.24	0.18	0.34	0.23	0.00	0.13	-0.01	-0.13	0.13	0.00	1.4678	0.0226	9.9	1.2	9.9	1.4	A-	A+	A-
Science	8	6738	9	C.2.2.1	2	10446	0.53	0.20	0.16	0.10	0.53	0.00	0.49	-0.17	-0.26	-0.25	0.49	0.4946	0.0216	-9.9	0.9	-9.9	0.9	A-	A-	A-
Science	8	626	9	A.2.1.4	2	10446	0.63	0.13	0.12	0.63	0.12	0.00	0.40	-0.27	-0.23	0.40	-0.08	0.0299	0.0222	-1.4	1.0	1.2	1.0	A+	A-	A-
Science	8	3360	10	B.3.1.1	3	10476	0.59	0.59	0.30	0.06	0.05	0.00	0.43	0.43	-0.25	-0.23	-0.20	0.2211	0.0217	-6.8	0.9	-7.6	0.9	A-	A-	A-
Science	8	5628	10	A.1.2.2	2	10476	0.62	0.08	0.19	0.12	0.62	0.00	0.46	-0.23	-0.15	-0.31	0.46	0.0633	0.0220	-9.3	0.9	-8.4	0.9	A-	A-	A-
Science	8	1395	10	A.1.3.2	2	10476	0.49	0.15	0.49	0.26	0.10	0.00	0.24	-0.13	0.24	-0.01	-0.23	0.7023	0.0214	9.9	1.1	9.9	1.2	A+	A-	A-
Science	8	2271	10	D.1.3.3	2	10476	0.54	0.11	0.54	0.18	0.16	0.00	0.34	-0.20	0.34	-0.13	-0.16	0.4248	0.0215	4.3	1.0	4.0	1.0	A+	A-	A-
Science	8	6993	10	A.3.1.4	2	10476	0.17	0.17	0.19	0.44	0.20	0.00	-0.07	-0.07	-0.14	0.16	0.01	2.4852	0.0274	9.9	1.3	9.9	2.1	A-	A+	A+
Science	8	2187	10	C.2.2.2	2	10476	0.53	0.53	0.12	0.19	0.15	0.00	0.40	0.40	-0.24	-0.22	-0.10	0.4829	0.0214	-2.9	1.0	-3.9	1.0	A+	A-	A-
Science	8	8605	10	A.2.1.3	2	10476	0.50	0.20	0.50	0.14	0.16	0.00	0.20	-0.02	0.20	-0.16	-0.09	0.6444	0.0214	9.9	1.2	9.9	1.2	A+	A-	A+
Science	8	4053	10	C.3.1.2	2	10476	0.58	0.07	0.10	0.24	0.58	0.00	0.25	-0.25	-0.21	0.01	0.25	0.2454	0.0217	9.9	1.1	9.9	1.2			
Science	8	2617	10	A.1.2.3	2	10476	0.74	0.09	0.08	0.09	0.74	0.00	0.56	-0.28	-0.33	-0.26	0.56	-0.6012	0.0240	-9.9	0.8	-9.9	0.7	A-	B-	A-
Science	8	7588	10	B.1.1.3	2	10476	0.59	0.24	0.06	0.11	0.59	0.00	0.50	-0.22	-0.22	-0.30	0.50	0.2125	0.0217	-9.9	0.9	-9.9	0.9	A-	A-	A-
Science	8	8773	10	A.2.1.4	3	10476	0.33	0.33	0.18	0.42	0.07	0.00	0.18	0.18	-0.04	-0.02	-0.23	1.4741	0.0225	9.9	1.1	9.9	1.3			
Science	8	6003	10	D.1.1.2	2	10476	0.57	0.12	0.57	0.13	0.18	0.00	0.39	-0.22	0.39	-0.23	-0.12	0.2935	0.0216	-1.5	1.0	-1.5	1.0	A+	A-	A-
Science	8	2425	11	D.1.1.2	2	10470	0.39	0.39	0.27	0.24	0.09	0.00	0.33	0.33	-0.07	-0.20	-0.13	1.1539	0.0218	1.8	1.0	5.4	1.1	A-	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Science	8	9771	11	A.3.2.1	2	10470	0.38	0.24	0.38	0.14	0.24	0.00	0.19	-0.20	0.19	-0.25	0.19	1.2231	0.0219	9.9	1.2	9.9	1.3	A-	A-	A-
Science	8	4242	11	A.1.1.4	2	10470	0.75	0.07	0.75	0.06	0.11	0.00	0.45	-0.27	0.45	-0.26	-0.19	-0.6855	0.0243	-8.1	0.9	-8.9	0.8	A+	A+	A-
Science	8	2977	11	C.3.1.1	3	10470	0.62	0.13	0.08	0.62	0.17	0.00	0.41	-0.15	-0.25	0.41	-0.21	0.0468	0.0220	-3.9	1.0	-2.5	1.0	A-	A-	A-
Science	8	5567	11	A.2.1.4	2	10470	0.57	0.57	0.17	0.14	0.12	0.00	0.36	0.36	-0.18	-0.16	-0.16	0.3128	0.0216	2.1	1.0	0.5	1.0	A+	A-	A-
Science	8	9804	11	D.3.1.3	2	10470	0.50	0.08	0.50	0.10	0.32	0.00	0.27	-0.13	0.27	-0.20	-0.08	0.6293	0.0214	9.9	1.1	9.9	1.1	A-	A-	A-
Science	8	7604	11	A.3.2.2	2	10470	0.32	0.07	0.34	0.26	0.32	0.00	0.23	-0.29	0.03	-0.09	0.23	1.5176	0.0226	9.8	1.1	9.9	1.2	A-	A-	A-
Science	8	3792	11	B.1.1.1	2	10470	0.56	0.14	0.56	0.10	0.19	0.00	0.47	-0.34	0.47	-0.15	-0.17	0.3526	0.0215	-9.9	0.9	-9.9	0.9			
Science	8	2284	11	C.3.1.1	2	10470	0.25	0.24	0.39	0.13	0.25	0.00	0.09	-0.06	0.15	-0.25	0.09	1.9597	0.0243	9.9	1.2	9.9	1.5	A-	A-	A-
Science	8	5398	11	A.3.1.5	2	10470	0.68	0.08	0.07	0.16	0.68	0.00	0.43	-0.20	-0.22	-0.23	0.43	-0.2754	0.0228	-5.8	0.9	-3.9	0.9	A+	A-	A-
Science	8	6649	11	B.2.1.2	2	10470	0.59	0.59	0.08	0.23	0.10	0.00	0.43	0.43	-0.22	-0.21	-0.22	0.2156	0.0217	-6.8	0.9	-6.4	0.9	A-	A+	A-
Science	8	1453	11	A.2.1.5	2	10470	0.64	0.11	0.64	0.18	0.06	0.00	0.38	-0.18	0.38	-0.18	-0.23	-0.0548	0.0222	-0.8	1.0	-0.3	1.0			
Science	8	6067	12	A.2.2.3	2	10517	0.77	0.08	0.08	0.07	0.77	0.00	0.49	-0.26	-0.23	-0.28	0.49	-0.8038	0.0250	-9.9	0.9	-9.9	0.8	A-	A-	A-
Science	8	5035	12	B.2.1.5	2	10517	0.21	0.24	0.19	0.36	0.21	0.00	0.08	-0.01	-0.15	0.06	0.08	2.2096	0.0255	9.9	1.2	9.9	1.7	A-	A-	A+
Science	8	4741	12	D.3.1.3	2	10517	0.59	0.17	0.11	0.14	0.59	0.00	0.49	-0.16	-0.28	-0.27	0.49	0.2248	0.0218	-9.9	0.9	-9.9	0.9	A-	A-	A-
Science	8	3179	12	A.1.1.2	2	10517	0.71	0.13	0.71	0.09	0.07	0.00	0.45	-0.20	0.45	-0.25	-0.26	-0.4468	0.0234	-7.9	0.9	-7.1	0.9	A+	A-	A-
Science	8	3196	12	A.1.2.2	2	10517	0.40	0.40	0.32	0.15	0.13	0.00	0.34	0.34	-0.08	-0.21	-0.15	1.1478	0.0218	0.6	1.0	5.2	1.1			
Science	8	98	12	A.3.1.5	2	10517	0.64	0.16	0.10	0.64	0.11	0.00	0.46	-0.21	-0.26	0.46	-0.21	-0.0354	0.0222	-8.5	0.9	-9.9	0.9	A+	A-	A-
Science	8	9523	12	D.3.1.2	2	10517	0.68	0.15	0.07	0.09	0.68	0.00	0.49	-0.18	-0.30	-0.30	0.49	-0.2906	0.0229	-9.9	0.9	-9.9	0.8	A+	A-	A-
Science	8	5092	12	A.3.1.3	2	10517	0.54	0.09	0.17	0.54	0.20	0.00	0.22	-0.15	-0.10	0.22	-0.06	0.4424	0.0215	9.9	1.2	9.9	1.2	A+	A+	A-
Science	8	5144	12	C.3.1.2	2	10517	0.31	0.31	0.17	0.31	0.20	0.00	0.29	0.29	-0.11	-0.07	-0.14	1.5986	0.0229	2.4	1.0	9.9	1.2	B-	A-	A-
Science	8	4511	12	A.2.1.2	2	10517	0.61	0.08	0.08	0.22	0.61	0.00	0.45	-0.21	-0.28	-0.20	0.45	0.0818	0.0220	-6.7	0.9	-5.8	0.9	B+	A-	A+
Science	8	9458	12	B.3.2.1	2	10517	0.53	0.16	0.17	0.13	0.53	0.00	0.43	-0.13	-0.24	-0.22	0.43	0.4889	0.0215	-6.1	1.0	-5.2	0.9	A+	A+	A-
Science	8	831	12	B.3.1.3	2	10517	0.80	0.07	0.06	0.80	0.07	0.00	0.50	-0.26	-0.25	0.50	-0.29	-1.0199	0.0262	-9.9	0.9	-9.9	0.7			
Science	11	2443	0	D.1.1.2	2	121699	0.45	0.18	0.45	0.09	0.28	0.00	0.27	-0.12	0.27	-0.14	-0.10	0.7558	0.0062	9.9	1.1	9.9	1.1			
Science	11	1358	0	D.1.1.1		121699	0.44	0.44	0.34	0.10	0.12	0.00	0.27	0.27	-0.14	-0.20	-0.02	0.8051	0.0062	9.9	1.1	9.9	1.1			
Science	11	2494	0	A.2.2.1	2	121699	0.82	0.06	0.06	0.06	0.82	0.00	0.35	-0.14	-0.26	-0.16	0.35	-1.2315	0.0078	-9.9	0.9	-2.9	1.0			
Science	11	8837	0	B.3.3.3	3	121699	0.49	0.49	0.24	0.17	0.10	0.00	0.42	0.42	-0.10	-0.28	-0.21	0.5535	0.0062	-9.9	0.9	-9.9	0.9			
Science	11	3683	0	A.1.2.1	2	121699	0.59	0.59	0.14	0.05	0.22	0.00	0.39	0.39	-0.16	-0.24	-0.21	0.0855	0.0063	-9.9	1.0	-9.9	1.0			
Science	11	956	0	A.2.2.1	1	121699	0.86	0.86	0.05	0.06	0.03	0.00	0.45	0.45	-0.32	-0.24	-0.15	-1.5659	0.0086	-9.9	0.9	-9.9	0.6			
Science	11	6384	0	A.1.1.1	1	121699	0.56	0.05	0.56	0.26	0.13	0.00	0.27	-0.19	0.27	-0.10	-0.14	0.2437	0.0062	9.9	1.1	9.9	1.1			
Science	11	1680	0	B.3.3.2	2	121699	0.48	0.06	0.10	0.37	0.48	0.00	0.33	-0.13	-0.15	-0.18	0.33	0.6262	0.0062	9.9	1.0	9.9	1.0			
Science	11	5756	0	B.3.1.1	2	121699	0.37	0.37	0.37	0.16	0.10	0.00	0.21	-0.01	0.21	-0.14	-0.14	1.1487	0.0064	9.9	1.1	9.9	1.2			
Science	11	9110	0	A.1.1.2	2	121699	0.89	0.04	0.04	0.89	0.03	0.00	0.44	-0.22	-0.28	0.44	-0.23	-1.8633	0.0095	-9.9	0.9	-9.9	0.6			
Science	11	6872	0	D.1.3.1	2	121699	0.61	0.61	0.16	0.07	0.16	0.00	0.27	0.27	-0.14	-0.20	-0.07	-0.0095	0.0063	9.9	1.1	9.9	1.1			
Science	11	343	0	B.3.2.2	2	121699	0.71	0.71	0.18	0.07	0.04	0.00	0.40	0.40	-0.18	-0.25	-0.23	-0.5346	0.0068	-9.9	0.9	-9.9	0.9			
Science	11	733	0	D.2.1.4	2	121699	0.60	0.60	0.17	0.19	0.04	0.00	0.24	0.24	-0.21	-0.06	-0.08	0.0551	0.0063	9.9	1.1	9.9	1.1			
Science	11	7985	0	B.2.1.4	2	121699	0.82	0.06	0.06	0.82	0.05	0.00	0.48	-0.26	-0.26	0.48	-0.24	-1.2790	0.0079	-9.9	0.9	-9.9	0.7			
Science	11	7326	0	D.1.1.2	2	121699	0.68	0.17	0.07	0.07	0.68	0.00	0.47	-0.23	-0.28	-0.22	0.47	-0.3888	0.0066	-9.9	0.9	-9.9	0.9			
Science	11	4032	0	A.2.1.1	2	121699	0.49	0.20	0.49	0.14	0.17	0.00	0.21	0.00	0.21	-0.17	-0.12	0.5650	0.0062	9.9	1.1	9.9	1.2			
Science	11	3634	0	D.1.1.2	2	121699	0.59	0.20	0.59	0.17	0.04	0.00	0.26	-0.04	0.26	-0.17	-0.23	0.0949	0.0063	9.9	1.1	9.9	1.1			
Science	11	4028	0	A.3.1.3	2	121699	0.56	0.14	0.18	0.56	0.11	0.01	0.46	-0.22	-0.21	0.46	-0.23	0.2119	0.0062	-9.9	0.9	-9.9	0.9			
Science	11	4678	0	A.2.1.3	3	121699	0.41	0.04	0.12	0.41	0.42	0.00	0.16	-0.21	-0.15	0.16	0.03	0.9254	0.0063	9.9	1.2	9.9	1.2			
Science	11	636	0	B.3.1.2	1	121699	0.31	0.49	0.08	0.11	0.31	0.00	0.36	0.00	-0.29	-0.27	0.36	1.4445	0.0066	-9.9	1.0	4.4	1.0			
Science	11	9850	0	C.1.1.1	2	121699	0.54	0.26	0.54	0.14	0.06	0.00	0.52	-0.23	0.52	-0.30	-0.20	0.3038	0.0062	-9.9	0.9	-9.9	0.8			
Science	11	8466	0	A.1.3.1	3	121699	0.39	0.39	0.40	0.13	0.07	0.01	0.39	0.39	-0.09	-0.24	-0.24	1.0459	0.0063	-9.9	0.9	4.2	1.0			
Science	11	8972	0	A.1.3.1	2	121699	0.68	0.16	0.12	0.68	0.04	0.00	0.25	-0.16	-0.10	0.25	-0.11	-0.3606	0.0066	9.9	1.1	9.9	1.2			
Science	11	4617	0	C.2.2.2		121699	0.77	0.09	0.08	0.77	0.06	0.00	0.42	-0.26	-0.18	0.42	-0.21	-0.8800	0.0072	-9.9	0.9	-9.9	0.9			
Science	11	7246	0	B.2.2.3	3	121699	0.65	0.19	0.65	0.08	0.07	0.01	0.46	-0.19	0.46	-0.27	-0.26	-0.2237	0.0065	-9.9	0.9	-9.9	0.9			
Science	11	2955	0	A.2.1.3		121699	0.74	0.74	0.19	0.04	0.03	0.00	0.32	0.32	-0.17	-0.22	-0.19	-0.7255	0.0070	1.2	1.0	-2.5	1.0			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Science	11	8959	0	A.1.2.2	2	121699	0.44	0.35	0.17	0.44	0.04	0.00	0.33	-0.04	-0.26	0.33	-0.25	0.8090	0.0062	4.4	1.0	9.9	1.0			
Science	11	3043	0	A.1.1.3	2	121699	0.84	0.03	0.10	0.84	0.03	0.00	0.24	-0.23	-0.07	0.24	-0.17	-1.3746	0.0081	0.1	1.0	9.9	1.2			
Science	11	2384	0	B.3.3.2	2	121699	0.62	0.62	0.09	0.15	0.14	0.00	0.32	0.32	-0.25	-0.08	-0.15	-0.0661	0.0064	9.9	1.0	9.9	1.1			
Science	11	4078	0	D.1.2.2	2	121699	0.61	0.13	0.61	0.20	0.06	0.01	0.38	-0.16	0.38	-0.17	-0.26	0.0023	0.0063	-8.7	1.0	-5.6	1.0			
Science	11	9206	0	A.1.3.2		121699	0.70	0.06	0.70	0.18	0.05	0.00	0.37	-0.25	0.37	-0.16	-0.19	-0.5083	0.0067	-9.3	1.0	-4.6	1.0			
Science	11	9815	0	A.2.2.1	2	121699	0.78	0.02	0.78	0.12	0.07	0.00	0.30	-0.23	0.30	-0.17	-0.12	-0.9395	0.0073	3.5	1.0	3.2	1.0			
Science	11	1516	0	A.2.2.2	2	121699	0.76	0.03	0.09	0.76	0.13	0.00	0.33	-0.20	-0.14	0.33	-0.20	-0.8034	0.0071	-3.4	1.0	-1.0	1.0			
Science	11	4342	0	D.1.3.2	2	121699	0.73	0.10	0.08	0.73	0.09	0.00	0.14	-0.04	-0.11	0.14	-0.07	-0.6582	0.0069	9.9	1.2	9.9	1.3			
Science	11	3778	0	A.2.1.3	3	121699	0.46	0.15	0.31	0.46	0.07	0.00	0.31	-0.09	-0.15	0.31	-0.19	0.6906	0.0062	9.9	1.0	9.9	1.1			
Science	11	2734	0	C.1.1.1	1	121699	0.57	0.57	0.07	0.12	0.24	0.00	0.20	0.20	-0.20	-0.05	-0.06	0.1765	0.0062	9.9	1.2	9.9	1.2			
Science	11	2846	0	C.3.1.1	2	121699	0.51	0.11	0.51	0.19	0.19	0.01	0.33	-0.15	0.33	-0.20	-0.10	0.4428	0.0062	9.9	1.0	9.9	1.0			
Science	11	5404	0	A.2.1.1	3	121699	0.49	0.09	0.24	0.49	0.17	0.01	0.31	-0.25	-0.17	0.31	-0.03	0.5413	0.0062	9.9	1.0	9.9	1.1			
Science	11	9619	0	A.3.1.3	2	121699	0.74	0.12	0.09	0.05	0.74	0.01	0.34	-0.06	-0.27	-0.22	0.34	-0.7069	0.0070	-5.4	1.0	-0.1	1.0			
Science	11	5935	0	A.2.2.2	1	121699	0.53	0.20	0.13	0.14	0.53	0.00	0.33	0.01	-0.25	-0.24	0.33	0.3471	0.0062	9.9	1.0	9.9	1.0			
Science	11	320	0	D.1.3.2	2	121699	0.63	0.09	0.14	0.63	0.13	0.00	0.32	-0.23	-0.18	0.32	-0.07	-0.1359	0.0064	9.9	1.0	9.9	1.1			
Science	11	7068	0	C.1.1.2	2	121699	0.64	0.12	0.64	0.08	0.15	0.00	0.38	-0.18	0.38	-0.22	-0.17	-0.1776	0.0064	-8.6	1.0	-9.9	1.0			
Science	11	7256	0	B.1.1.1		121699	0.48	0.28	0.48	0.11	0.12	0.01	0.38	-0.09	0.38	-0.25	-0.21	0.5895	0.0062	-9.9	1.0	-5.7	1.0			
Science	11	2707	0	A.3.3.1	2	121699	0.56	0.25	0.09	0.09	0.56	0.00	0.43	-0.12	-0.30	-0.25	0.43	0.2225	0.0062	-9.9	0.9	-9.9	0.9			
Science	11	1138	0	C.3.1.5		121699	0.55	0.13	0.55	0.28	0.04	0.00	0.24	-0.16	0.24	-0.09	-0.12	0.2722	0.0062	9.9	1.1	9.9	1.1			
Science	11	4589	0	A.2.1.4		121699	0.65	0.15	0.65	0.10	0.10	0.00	0.48	-0.17	0.48	-0.30	-0.25	-0.2063	0.0065	-9.9	0.9	-9.9	0.9			
Science	11	5053	0	C.2.2.1	2	121699	0.74	0.07	0.74	0.10	0.09	0.00	0.39	-0.26	0.39	-0.16	-0.18	-0.7040	0.0070	-9.9	0.9	-9.9	0.9			
Science	11	3681	0	A.1.1.2	3	121699	0.68	0.05	0.08	0.19	0.68	0.00	0.49	-0.24	-0.28	-0.26	0.49	-0.3866	0.0066	-9.9	0.9	-9.9	0.8			
Science	11	5600	0	A.1.2.1	1	121699	0.71	0.18	0.05	0.07	0.71	0.00	0.43	-0.22	-0.26	-0.22	0.43	-0.5246	0.0067	-9.9	0.9	-9.9	0.9			
Science	11	3503	0	A.3.1.1	3	121699	0.62	0.05	0.09	0.62	0.24	0.00	0.37	-0.27	-0.25	0.37	-0.12	-0.0743	0.0064	-6.4	1.0	-9.9	1.0			
Science	11	5214	1	B.2.2.1	2	15561	0.41	0.41	0.15	0.29	0.15	0.00	0.37	0.37	-0.26	-0.13	-0.08	0.9328	0.0176	-3.7	1.0	1.8	1.0			
Science	11	8697	1	A.3.3.1	2	15561	0.44	0.44	0.18	0.07	0.30	0.00	0.25	0.25	0.00	-0.26	-0.11	0.7799	0.0175	9.9	1.1	9.9	1.2	A+	A+	A-
Science	11	2363	1	D.2.1.1	2	15561	0.21	0.21	0.29	0.25	0.24	0.01	0.09	0.09	-0.03	-0.06	0.02	2.0276	0.0209	9.9	1.1	9.9	1.6	A-	A-	A-
Science	11	4688	1	A.2.1.4	2	15561	0.53	0.16	0.17	0.14	0.53	0.00	0.44	-0.20	-0.17	-0.22	0.44	0.3409	0.0174	-9.9	0.9	-9.9	0.9	A-	A-	A-
Science	11	3374	1	A.3.3.2	2	15561	0.33	0.34	0.10	0.23	0.33	0.00	0.25	0.10	-0.22	-0.23	0.25	1.3194	0.0183	8.3	1.1	9.9	1.1	A-	A-	A-
Science	11	6125	1	C.2.1.1	3	15561	0.19	0.35	0.20	0.19	0.27	0.00	0.10	0.03	-0.12	0.10	-0.01	2.1746	0.0216	7.1	1.1	9.9	1.6	A-	A+	A-
Science	11	9212	1	C.1.1.4	2	15561	0.56	0.56	0.06	0.04	0.33	0.01	0.38	0.38	-0.25	-0.21	-0.19	0.1911	0.0175	-2.5	1.0	-3.7	1.0	A-	A+	A-
Science	11	7565	1	A.2.1.5	2	15561	0.77	0.08	0.77	0.09	0.06	0.00	0.36	-0.17	0.36	-0.23	-0.16	-0.9376	0.0203	-3.7	1.0	-4.2	0.9	A+	A-	A-
Science	11	492	1	A.3.1.3	2	15561	0.57	0.08	0.22	0.57	0.13	0.01	0.21	-0.15	-0.06	0.21	-0.11	0.1706	0.0175	9.9	1.1	9.9	1.2			
Science	11	7108	1	D.2.1.2	2	15561	0.46	0.17	0.46	0.17	0.20	0.00	0.37	-0.19	0.37	-0.14	-0.13	0.6689	0.0174	-1.3	1.0	1.2	1.0	A-	A-	A-
Science	11	3757	1	B.2.1.1	2	15561	0.70	0.70	0.11	0.13	0.05	0.01	0.50	0.50	-0.29	-0.30	-0.16	-0.5381	0.0189	-9.9	0.9	-9.9	0.8	A-	A-	A-
Science	11	7343	1	A.1.1.4	2	15561	0.48	0.33	0.09	0.48	0.10	0.00	0.22	0.08	-0.30	0.22	-0.20	0.5595	0.0174	9.9	1.1	9.9	1.2	A+	A-	A+
Science	11	2137	2	D.2.1.3	2	15122	0.37	0.22	0.37	0.06	0.35	0.01	0.15	0.02	0.15	-0.14	-0.09	1.1514	0.0181	9.9	1.2	9.9	1.3	A-	A-	A-
Science	11	2559	2	A.1.1.5	2	15122	0.34	0.21	0.34	0.07	0.37	0.00	0.29	-0.22	0.29	-0.28	0.06	1.2653	0.0183	3.4	1.0	9.9	1.1	A-	A-	A-
Science	11	3098	2	B.2.2.2	2	15122	0.32	0.18	0.21	0.32	0.28	0.01	0.10	-0.05	-0.17	0.10	0.10	1.3955	0.0186	9.9	1.2	9.9	1.4	A-	A-	A+
Science	11	3610	2	A.2.1.4	2	15122	0.37	0.37	0.22	0.10	0.30	0.00	0.31	0.31	-0.18	-0.24	0.00	1.1577	0.0181	1.8	1.0	7.6	1.1			
Science	11	4356	2	A.1.3.2	2	15122	0.64	0.16	0.10	0.64	0.10	0.00	0.39	-0.12	-0.33	0.39	-0.14	-0.1702	0.0183	-3.7	1.0	-4.0	1.0	A+	A-	A-
Science	11	2004	2	C.1.1.5	2	15122	0.25	0.26	0.31	0.25	0.17	0.00	0.17	-0.20	-0.07	0.17	0.13	1.7783	0.0199	8.0	1.1	9.9	1.3	A-	A+	A-
Science	11	1901	2	C.1.1.1	2	15122	0.58	0.11	0.19	0.58	0.12	0.01	0.45	-0.19	-0.23	0.45	-0.22	0.1604	0.0178	-9.9	0.9	-9.9	0.9	A+	A+	A-
Science	11	5770	2	C.2.1.4	2	15122	0.40	0.09	0.40	0.25	0.25	0.00	0.27	-0.09	0.27	-0.18	-0.06	1.0139	0.0179	8.0	1.1	9.9	1.1			
Science	11	6686	2	A.2.2.1	2	15122	0.58	0.19	0.12	0.10	0.58	0.00	0.49	-0.23	-0.22	-0.25	0.49	0.1266	0.0178	-9.9	0.9	-9.9	0.8	A+	A-	A-
Science	11	5606	2	D.3.1.1	2	15122	0.61	0.23	0.10	0.61	0.06	0.01	0.20	-0.13	-0.08	0.20	-0.07	0.0065	0.0180	9.9	1.1	9.9	1.2	A-	A-	A-
Science	11	8780	2	A.2.1.1	2	15122	0.57	0.14	0.57	0.20	0.09	0.00	0.45	-0.23	0.45	-0.24	-0.16	0.2022	0.0177	-9.9	0.9	-9.9	0.9	A-	A-	A-
Science	11	720	2	A.1.1.3	2	15122	0.61	0.06	0.24	0.08	0.61	0.00	0.45	-0.21	-0.25	-0.22	0.45	-0.0309	0.0180	-9.9	0.9	-9.9	0.9	A+	A-	A-
Science	11	307	3	A.1.2.2	3	15194	0.70	0.70	0.05	0.12	0.13	0.00	0.40	0.40	-0.26	-0.15	-0.22	-0.4775	0.0190	-5.1	1.0	-5.7	0.9	A-	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Science	11	7956	3	B.2.1.3	2	15194	0.44	0.21	0.17	0.44	0.18	0.00	0.25	0.00	-0.25	0.25	-0.08	0.8003	0.0176	9.9	1.1	9.9	1.1	A-	A-	A-
Science	11	731	3	A.2.1.5	2	15194	0.59	0.15	0.10	0.16	0.59	0.00	0.44	-0.21	-0.24	-0.19	0.44	0.0887	0.0178	-9.9	0.9	-9.9	0.9			
Science	11	2380	3	D.3.1.2	2	15194	0.31	0.23	0.31	0.25	0.21	0.00	0.08	0.06	0.08	-0.15	0.01	1.4473	0.0187	9.9	1.2	9.9	1.4	A-	A+	A-
Science	11	3882	3	A.1.3.1	2	15194	0.29	0.05	0.13	0.29	0.51	0.00	0.08	-0.23	-0.23	0.08	0.19	1.5183	0.0189	9.9	1.2	9.9	1.4	A+	A+	A+
Science	11	6581	3	B.3.1.4	2	15194	0.84	0.05	0.05	0.05	0.84	0.00	0.54	-0.31	-0.29	-0.28	0.54	-1.4150	0.0233	-9.9	0.8	-9.9	0.5	B+	A-	B-
Science	11	1926	3	C.2.1.3	2	15194	0.77	0.12	0.77	0.06	0.05	0.00	0.49	-0.23	0.49	-0.30	-0.26	-0.8677	0.0204	-9.9	0.9	-9.9	0.7	A+	A-	A-
Science	11	6562	3	A.3.2.3	2	15194	0.21	0.12	0.42	0.23	0.21	0.01	0.26	-0.04	-0.16	-0.03	0.26	1.9957	0.0208	-1.2	1.0	9.9	1.2	A-	A-	A+
Science	11	7145	3	D.1.1.3	2	15194	0.58	0.18	0.11	0.58	0.13	0.00	0.33	-0.19	-0.20	0.33	-0.07	0.1603	0.0177	3.8	1.0	3.7	1.0			
Science	11	7487	3	A.3.1.3	3	15194	0.36	0.21	0.36	0.14	0.28	0.01	0.21	-0.17	0.21	-0.12	0.04	1.1694	0.0181	9.9	1.1	9.9	1.2	A-	A+	A-
Science	11	1281	3	A.1.1.4	2	15194	0.40	0.40	0.39	0.12	0.08	0.01	0.22	0.22	0.10	-0.30	-0.21	0.9913	0.0178	9.9	1.1	9.9	1.2	A-	A-	A-
Science	11	2219	3	C.1.1.3	1	15194	0.26	0.27	0.20	0.26	0.26	0.00	0.14	0.02	0.02	-0.17	0.14	1.7261	0.0196	9.9	1.1	9.9	1.4	A-	A-	A+
Science	11	6104	4	C.2.1.3	2	15151	0.68	0.05	0.13	0.68	0.14	0.00	0.41	-0.17	-0.24	0.41	-0.21	-0.3671	0.0187	-6.0	1.0	-8.5	0.9	A-	A-	A-
Science	11	2688	4	A.1.1.2	2	15151	0.78	0.10	0.06	0.07	0.78	0.00	0.49	-0.21	-0.30	-0.28	0.49	-0.9462	0.0208	-9.9	0.8	-9.9	0.8	A+	A-	A-
Science	11	448	4	A.2.1.2	2	15151	0.57	0.10	0.57	0.10	0.23	0.00	0.37	-0.22	0.37	-0.29	-0.07	0.1654	0.0177	-1.6	1.0	-2.7	1.0	A+	A+	A-
Science	11	3309	4	C.1.1.4	2	15151	0.57	0.15	0.19	0.57	0.09	0.00	0.37	-0.19	-0.15	0.37	-0.19	0.1991	0.0177	-1.2	1.0	-3.0	1.0			
Science	11	2116	4	A.3.3.1	3	15151	0.42	0.30	0.18	0.42	0.10	0.00	0.04	0.17	-0.16	0.04	-0.10	0.9080	0.0177	9.9	1.3	9.9	1.4	A+	A-	A+
Science	11	5086	4	B.2.1.4	2	15151	0.63	0.63	0.17	0.13	0.08	0.00	0.33	0.33	-0.15	-0.22	-0.09	-0.0960	0.0181	4.8	1.0	1.3	1.0	A-	A+	A-
Science	11	6807	4	D.2.1.3	2	15151	0.42	0.42	0.26	0.15	0.16	0.00	0.24	0.24	0.01	-0.15	-0.19	0.8718	0.0177	9.9	1.1	9.9	1.1	A-	A-	A+
Science	11	4321	4	A.2.2.2	2	15151	0.38	0.16	0.14	0.31	0.38	0.01	0.16	-0.23	-0.21	0.18	0.16	1.0900	0.0180	9.9	1.2	9.9	1.2	A+	A-	A-
Science	11	7311	4	B.1.1.3	2	15151	0.67	0.09	0.09	0.67	0.15	0.00	0.34	-0.11	-0.29	0.34	-0.12	-0.3094	0.0186	1.9	1.0	-0.5	1.0	A-	A-	A+
Science	11	2256	4	A.3.2.3	1	15151	0.38	0.38	0.39	0.10	0.12	0.01	0.29	0.29	-0.09	-0.15	-0.16	1.0798	0.0180	5.0	1.0	9.9	1.1			
Science	11	8539	4	D.1.3.1	2	15151	0.44	0.44	0.35	0.13	0.08	0.00	0.16	0.16	0.11	-0.24	-0.17	0.8073	0.0176	9.9	1.2	9.9	1.2	A+	A+	A-
Science	11	1959	4	A.1.3.1	3	15151	0.71	0.10	0.71	0.11	0.08	0.01	0.41	-0.20	0.41	-0.24	-0.18	-0.5220	0.0192	-7.0	0.9	-8.6	0.9	A+	A-	A+
Science	11	1711	5	A.3.1.4	2	15188	0.80	0.05	0.80	0.07	0.07	0.00	0.43	-0.13	0.43	-0.30	-0.24	-1.1187	0.0216	-9.1	0.9	-9.9	0.8	A+	A-	B-
Science	11	6387	5	B.1.1.2	2	15188	0.33	0.25	0.24	0.18	0.33	0.00	0.24	-0.04	-0.10	-0.13	0.24	1.3590	0.0185	8.1	1.1	9.9	1.1			
Science	11	3073	5	D.2.1.4	2	15188	0.43	0.34	0.07	0.43	0.15	0.01	0.17	-0.07	-0.15	0.17	-0.03	0.8249	0.0176	9.9	1.2	9.9	1.2	A-	A-	A-
Science	11	5800	5	A.1.2.1	3	15188	0.22	0.22	0.30	0.32	0.15	0.00	0.23	0.23	-0.04	-0.07	-0.12	1.9575	0.0206	0.3	1.0	9.9	1.3	A-	A+	A-
Science	11	6612	5	A.1.1.3	2	15188	0.83	0.09	0.04	0.83	0.04	0.00	0.33	-0.08	-0.29	0.33	-0.21	-1.2934	0.0226	-3.7	1.0	-0.4	1.0	A+	A-	A-
Science	11	9757	5	C.1.1.2	2	15188	0.44	0.13	0.28	0.15	0.44	0.00	0.29	-0.21	-0.06	-0.13	0.29	0.7820	0.0175	7.2	1.0	7.8	1.1	A-	A+	A-
Science	11	8677	5	A.2.2.1	1	15188	0.70	0.05	0.09	0.70	0.15	0.00	0.40	-0.23	-0.22	0.40	-0.19	-0.4945	0.0190	-5.9	1.0	-9.2	0.9	A+	A-	A-
Science	11	2226	5	D.3.1.3	2	15188	0.26	0.37	0.28	0.26	0.10	0.00	0.00	0.13	-0.07	0.00	-0.10	1.7246	0.0196	9.9	1.2	9.9	1.6	A-	A+	A+
Science	11	1277	5	B.3.1.3	2	15188	0.38	0.13	0.23	0.38	0.25	0.01	0.18	-0.10	-0.23	0.18	0.12	1.0961	0.0179	9.9	1.1	9.9	1.2	A-	A-	A-
Science	11	6535	5	C.2.1.4	2	15188	0.40	0.39	0.40	0.07	0.13	0.00	0.00	0.04	0.00	-0.20	0.11	0.9689	0.0177	9.9	1.3	9.9	1.4	A-	A+	A+
Science	11	6465	5	C.3.1.2	2	15188	0.55	0.12	0.18	0.55	0.15	0.01	0.37	-0.22	-0.08	0.37	-0.21	0.3028	0.0175	-2.1	1.0	-1.6	1.0			
Science	11	3775	5	A.1.1.1	2	15188	0.46	0.11	0.20	0.22	0.46	0.01	0.36	-0.23	-0.10	-0.15	0.36	0.7087	0.0175	-1.8	1.0	0.2	1.0	A+	A-	A+
Science	11	1507	6	A.3.3.3	2	15163	0.56	0.06	0.15	0.56	0.23	0.00	0.15	-0.12	0.08	0.15	-0.17	0.2412	0.0176	9.9	1.2	9.9	1.2			
Science	11	722	6	A.1.3.3	2	15163	0.51	0.09	0.13	0.26	0.51	0.00	0.30	-0.12	-0.32	0.00	0.30	0.4659	0.0175	8.2	1.1	8.8	1.1	A+	A-	A-
Science	11	2479	6	A.3.2.1	2	15163	0.34	0.16	0.29	0.20	0.34	0.01	0.18	-0.13	-0.02	-0.06	0.18	1.2674	0.0183	9.9	1.1	9.9	1.2	A-	A-	A+
Science	11	5026	6	D.1.2.1	2	15163	0.63	0.63	0.14	0.13	0.10	0.00	0.47	0.47	-0.24	-0.25	-0.19	-0.1290	0.0181	-9.9	0.9	-9.9	0.9	A-	A-	A-
Science	11	2154	6	A.2.1.3	2	15163	0.42	0.15	0.26	0.42	0.17	0.00	0.28	-0.19	-0.14	0.28	-0.03	0.8889	0.0177	6.6	1.0	9.9	1.1	A+	A+	A-
Science	11	9665	6	C.3.1.3	2	15163	0.15	0.22	0.15	0.31	0.32	0.00	-0.08	-0.10	-0.08	-0.02	0.17	2.5055	0.0239	9.9	1.2	9.9	2.1	A-	A+	A-
Science	11	3997	6	A.2.2.2	2	15163	0.41	0.41	0.08	0.11	0.40	0.00	0.30	0.30	-0.27	-0.29	0.04	0.9355	0.0177	3.9	1.0	8.7	1.1	A-	A-	A-
Science	11	2296	6	D.2.1.1	2	15163	0.40	0.30	0.23	0.40	0.07	0.00	0.14	0.03	-0.03	0.14	-0.26	0.9501	0.0177	9.9	1.2	9.9	1.2	A+	A-	A-
Science	11	8603	6	A.1.1.3	2	15163	0.67	0.06	0.67	0.12	0.14	0.00	0.31	-0.19	0.31	-0.22	-0.08	-0.3414	0.0185	3.2	1.0	2.3	1.0	A+	A-	A-
Science	11	9695	6	B.3.3.2	2	15163	0.41	0.32	0.11	0.41	0.16	0.01	0.31	-0.08	-0.17	0.31	-0.16	0.9204	0.0177	3.2	1.0	7.6	1.1	A-	A-	A-
Science	11	9561	6	C.2.1.1	2	15163	0.25	0.21	0.17	0.25	0.36	0.00	0.13	-0.09	-0.06	0.13	0.02	1.7710	0.0198	9.9	1.1	9.9	1.4	A-	A-	A+
Science	11	7702	6	A.1.3.2	2	15163	0.29	0.41	0.29	0.17	0.12	0.01	0.21	0.09	0.21	-0.18	-0.18	1.5651	0.0191	9.3	1.1	9.9	1.2			
Science	11	4614	7	D.1.1.2	2	15207	0.17	0.17	0.22	0.30	0.30	0.00	0.16	0.16	-0.21	-0.04	0.11	2.2889	0.0224	3.0	1.0	9.9	1.5	A-	A-	A+
Science	11	4306	7	A.3.3.2	2	15207	0.65	0.06	0.65	0.14	0.14	0.00	0.44	-0.18	0.44	-0.30	-0.17	-0.2164	0.0183	-9.9	0.9	-9.9	0.9			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Science	11	185	7	A.3.3.3	2	15207	0.75	0.08	0.04	0.13	0.75	0.00	0.47	-0.28	-0.27	-0.23	0.47	-0.7910	0.0200	-9.9	0.9	-9.9	0.8	A-	B-	A-
Science	11	9146	7	A.2.1.3	2	15207	0.42	0.39	0.11	0.07	0.42	0.00	0.34	-0.01	-0.26	-0.29	0.34	0.8571	0.0177	2.2	1.0	2.9	1.0	A+	A-	A+
Science	11	3945	7	D.1.2.2	2	15207	0.33	0.17	0.30	0.20	0.33	0.01	0.40	0.02	-0.21	-0.23	0.40	1.3464	0.0185	-9.4	0.9	-4.7	0.9	A-	A-	A-
Science	11	9492	7	A.1.1.4	3	15207	0.51	0.51	0.18	0.20	0.11	0.00	0.38	0.38	-0.14	-0.16	-0.22	0.4686	0.0175	-3.9	1.0	-2.9	1.0	A+	A+	A+
Science	11	2931	7	A.1.1.3	2	15207	0.61	0.15	0.10	0.61	0.14	0.01	0.35	-0.20	-0.21	0.35	-0.10	-0.0024	0.0179	1.0	1.0	1.2	1.0	A+	A-	A-
Science	11	1082	7	C.2.1.4	2	15207	0.48	0.48	0.31	0.13	0.07	0.00	0.25	0.25	-0.06	-0.19	-0.11	0.5974	0.0175	9.9	1.1	9.9	1.1	A+	A-	A-
Science	11	5205	7	B.3.1.1	2	15207	0.26	0.06	0.26	0.16	0.49	0.04	0.05	-0.08	0.05	-0.10	0.16	1.7329	0.0197	9.9	1.2	9.9	1.5	A+	A+	A-
Science	11	5581	7	A.3.2.2	2	15207	0.54	0.15	0.22	0.08	0.54	0.01	0.41	-0.19	-0.16	-0.25	0.41	0.2966	0.0176	-7.3	1.0	-5.6	1.0	A-	A-	A-
Science	11	8621	7	D.3.1.1	1	15207	0.43	0.17	0.18	0.43	0.20	0.02	0.36	-0.18	-0.25	0.36	-0.03	0.8460	0.0177	-2.2	1.0	2.5	1.0			
Science	11	4232	7	C.2.1.2	2	15207	0.22	0.22	0.10	0.27	0.40	0.01	0.21	0.21	-0.19	-0.19	0.12	1.9497	0.0206	3.0	1.0	9.9	1.3	A-	A-	A-
Science	11	1841	8	D.2.1.2	2	15113	0.68	0.12	0.10	0.09	0.68	0.01	0.48	-0.13	-0.29	-0.30	0.48	-0.4072	0.0187	-9.9	0.9	-9.9	0.8			
Science	11	5156	8	A.3.2.3	2	15113	0.27	0.15	0.27	0.42	0.16	0.00	0.15	0.02	0.15	-0.04	-0.14	1.6581	0.0194	9.8	1.1	9.9	1.4	A-	A-	A-
Science	11	2590	8	A.1.3.4	2	15113	0.29	0.35	0.08	0.29	0.27	0.01	0.16	0.03	-0.21	0.16	-0.05	1.5443	0.0191	9.9	1.1	9.9	1.3	A-	A-	A-
Science	11	561	8	D.1.3.2	3	15113	0.46	0.46	0.30	0.14	0.10	0.00	0.22	0.22	-0.01	-0.20	-0.11	0.6914	0.0175	9.9	1.1	9.9	1.2	A-	A-	A-
Science	11	9662	8	B.3.3.2	3	15113	0.19	0.19	0.29	0.33	0.19	0.00	0.20	0.04	-0.15	-0.05	0.20	2.1460	0.0217	3.1	1.0	9.8	1.2	A-	A-	A+
Science	11	9413	8	A.2.2.1	3	15113	0.33	0.33	0.32	0.12	0.23	0.00	0.02	0.02	0.06	-0.20	0.07	1.3258	0.0184	9.9	1.2	9.9	1.4	A+	A+	A-
Science	11	7784	8	C.1.1.1	2	15113	0.64	0.09	0.18	0.64	0.08	0.01	0.43	-0.26	-0.17	0.43	-0.22	-0.1847	0.0182	-9.9	0.9	-9.9	0.9	A+	A-	A-
Science	11	7852	8	A.1.3.1	3	15113	0.48	0.08	0.48	0.24	0.19	0.00	0.17	-0.23	0.17	0.03	-0.07	0.5741	0.0175	9.9	1.2	9.9	1.2	A+	A-	A-
Science	11	5851	8	A.3.1.2	2	15113	0.79	0.05	0.79	0.06	0.10	0.01	0.40	-0.27	0.40	-0.25	-0.14	-1.0229	0.0211	-7.9	0.9	-6.8	0.9	A-	B-	A-
Science	11	2687	8	A.3.1.4	2	15113	0.60	0.60	0.08	0.25	0.06	0.01	0.32	0.32	-0.21	-0.13	-0.15	0.0375	0.0178	3.6	1.0	4.5	1.0			
Science	11	62	8	D.3.1.3	2	15113	0.21	0.21	0.14	0.49	0.15	0.02	0.11	0.11	-0.16	0.14	-0.15	2.0049	0.0209	9.9	1.1	9.9	1.4	A+	A+	A+
Science	11	9116	8	B.2.2.1	2	15113	0.29	0.31	0.29	0.24	0.15	0.01	0.03	0.09	0.03	-0.06	-0.07	1.5253	0.0190	9.9	1.2	9.9	1.5	A-	A-	A-
Writing	5	6662	0	B.5	2	127499	0.87	0.04	0.87	0.02	0.07	0.00	0.35	-0.27	0.35	-0.16	-0.16	-0.9293	0.0107	9.9	1.5	9.9	9.9			
Writing	5	2229	0	B.6	1	127499	0.70	0.10	0.11	0.08	0.70	0.00	0.33	-0.18	-0.17	-0.14	0.33	0.8381	0.0079	9.9	1.7	9.9	9.9			
Writing	5	7859	0	B.5	2	127499	0.49	0.14	0.49	0.32	0.05	0.00	0.29	-0.12	0.29	-0.11	-0.23	2.5206	0.0075	9.9	1.9	9.9	9.9			
Writing	5	9919	0	B.6	1	127499	0.88	0.07	0.03	0.88	0.03	0.00	0.40	-0.23	-0.24	0.40	-0.22	-0.9560	0.0108	9.9	1.4	9.9	9.9			
Writing	5	5979	0	B.6	1	127499	0.74	0.04	0.06	0.16	0.74	0.00	0.35	-0.24	-0.18	-0.18	0.35	0.5128	0.0082	9.9	1.6	9.9	9.9			
Writing	5	2294	0	B.5	2	127499	0.80	0.80	0.03	0.14	0.03	0.00	0.32	0.32	-0.19	-0.15	-0.23	-0.0611	0.0090	9.9	1.6	9.9	9.9			
Writing	5	5879	0	B.6	1	127499	0.76	0.04	0.76	0.16	0.04	0.00	0.32	-0.29	0.32	-0.10	-0.21	0.3644	0.0084	9.9	1.6	9.9	9.9			
Writing	5	173	0	B.5	2	127499	0.75	0.04	0.04	0.75	0.16	0.00	0.42	-0.23	-0.24	0.42	-0.24	0.3942	0.0083	9.9	1.5	9.9	9.9			
Writing	5	1066	0	B.5	2	127499	0.88	0.88	0.06	0.04	0.02	0.00	0.43	0.43	-0.26	-0.24	-0.20	-0.9825	0.0108	9.9	1.4	9.9	8.0			
Writing	5	4391	0	B.5	2	127499	0.65	0.14	0.14	0.65	0.06	0.00	0.39	-0.16	-0.20	0.39	-0.25	1.2610	0.0076	9.9	1.6	9.9	9.9			
Writing	5	7092	0	B.6	1	127499	0.58	0.20	0.06	0.15	0.58	0.00	0.29	-0.10	-0.26	-0.11	0.29	1.7956	0.0075	9.9	1.9	9.9	9.9			
Writing	5	3022	0	B.6	1	127499	0.70	0.12	0.70	0.10	0.08	0.00	0.40	-0.18	0.40	-0.20	-0.23	0.8890	0.0079	9.9	1.5	9.9	9.9			
Writing	5	8624	1	B.5	2	21373	0.87	0.87	0.08	0.03	0.02	0.00	0.31	0.31	-0.13	-0.23	-0.19	-0.7807	0.0249	9.9	1.5	9.9	9.9	A+	A-	A-
Writing	5	7733	1	B.6	1	21373	0.84	0.84	0.03	0.06	0.06	0.00	0.42	0.42	-0.21	-0.23	-0.24	-0.4447	0.0232	9.9	1.4	9.9	9.9	A+	A-	A-
Writing	5	7720	1	B.5	2	21373	0.66	0.03	0.17	0.14	0.66	0.00	0.43	-0.24	-0.25	-0.19	0.43	1.1738	0.0188	9.9	1.5	9.9	9.9	A-	B-	A-
Writing	5	3848	1	B.6	2	21373	0.51	0.13	0.51	0.32	0.04	0.00	0.24	-0.24	0.24	-0.03	-0.13	2.2656	0.0183	9.9	2.0	9.9	9.9	A+	A+	A+
Writing	5	9457	1	B.5	2	21373	0.70	0.03	0.16	0.11	0.70	0.00	0.32	-0.20	-0.13	-0.20	0.32	0.8397	0.0192	9.9	1.7	9.9	9.9	A-	B-	A-
Writing	5	1716	1	B.6	2	21373	0.84	0.04	0.84	0.04	0.07	0.00	0.40	-0.26	0.40	-0.27	-0.15	-0.4715	0.0233	9.9	1.3	9.9	9.9	A+	B-	A-
Writing	5	3295	1	B.5	2	21373	0.74	0.08	0.12	0.74	0.05	0.00	0.42	-0.21	-0.24	0.42	-0.22	0.5067	0.0199	9.9	1.4	9.9	9.9	A-	A-	A-
Writing	5	5865	1	B.6	2	21373	0.60	0.11	0.21	0.60	0.08	0.00	0.24	-0.15	-0.02	0.24	-0.21	1.6416	0.0184	9.9	2.0	9.9	9.9	A+	A-	A-
Writing	5	2400	2	B.6	2	21192	0.83	0.83	0.06	0.09	0.02	0.00	0.39	0.39	-0.30	-0.19	-0.15	-0.3043	0.0229	9.9	1.5	9.9	9.9	A-	A-	B-
Writing	5	1293	2	B.5	2	21192	0.43	0.15	0.34	0.08	0.43	0.00	0.24	-0.19	-0.02	-0.16	0.24	2.8576	0.0185	9.9	2.0	9.9	9.9	A+	A-	A-
Writing	5	8094	2	B.5	2	21192	0.65	0.26	0.65	0.02	0.07	0.00	0.34	-0.16	0.34	-0.22	-0.22	1.2964	0.0186	9.9	1.7	9.9	9.9	A+	A-	A-
Writing	5	2869	2	B.6	1	21192	0.49	0.13	0.49	0.22	0.16	0.00	0.17	-0.12	0.17	0.01	-0.13	2.3866	0.0182	9.9	2.1	9.9	9.9	A-	A-	B-
Writing	5	2655	2	B.5	2	21192	0.23	0.23	0.51	0.11	0.15	0.00	0.02	0.02	0.07	-0.13	0.00	4.5079	0.0218	9.9	2.3	9.9	9.9	A-	A-	A-
Writing	5	6558	2	B.6	2	21192	0.74	0.09	0.10	0.06	0.74	0.00	0.49	-0.24	-0.28	-0.26	0.49	0.5273	0.0200	9.9	1.3	9.9	5.8	A-	B-	B-
Writing	5	4313	2	B.5	2	21192	0.78	0.04	0.14	0.78	0.03	0.00	0.39	-0.24	-0.20	0.39	-0.25	0.1687	0.0211	9.9	1.5	9.9	9.9	A-	B-	A-

Item Information						Classical													Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Writing	5	9321	2	B.6	1	21192	0.67	0.12	0.07	0.13	0.67	0.00	0.34	-0.19	-0.14	-0.17	0.34	1.1475	0.0188	9.9	1.7	9.9	9.9	A-	A-	A-
Writing	5	7973	3	B.6	1	21312	0.79	0.79	0.15	0.03	0.04	0.00	0.31	0.31	-0.15	-0.22	-0.20	0.1487	0.0212	9.9	1.6	9.9	9.9	A-	A-	A-
Writing	5	6947	3	B.6	2	21312	0.76	0.03	0.76	0.09	0.11	0.00	0.31	-0.22	0.31	-0.15	-0.15	0.3849	0.0205	9.9	1.7	9.9	9.9	A-	B-	B-
Writing	5	2417	3	B.5	2	21312	0.58	0.19	0.12	0.58	0.11	0.00	0.30	-0.11	-0.20	0.30	-0.12	1.7850	0.0183	9.9	1.9	9.9	9.9	A+	A-	A-
Writing	5	3475	3	B.5	2	21312	0.50	0.15	0.17	0.17	0.50	0.00	0.23	-0.10	-0.06	-0.15	0.23	2.3673	0.0183	9.9	2.0	9.9	9.9	A+	A-	A-
Writing	5	6169	3	B.6	1	21312	0.71	0.19	0.71	0.05	0.05	0.00	0.35	-0.21	0.35	-0.17	-0.19	0.8284	0.0194	9.9	1.6	9.9	9.9	A+	A-	A-
Writing	5	2320	3	B.5	3	21312	0.83	0.83	0.07	0.06	0.04	0.00	0.47	0.47	-0.25	-0.27	-0.25	-0.2806	0.0229	9.9	1.3	9.9	9.8	A-	B-	B-
Writing	5	4761	3	B.6	1	21312	0.43	0.13	0.34	0.10	0.43	0.00	0.34	-0.12	-0.15	-0.18	0.34	2.9214	0.0185	9.9	1.8	9.9	9.9	A+	B-	A-
Writing	5	1253	3	B.5	3	21312	0.72	0.07	0.15	0.72	0.06	0.01	0.35	-0.15	-0.16	0.35	-0.25	0.7910	0.0195	9.9	1.6	9.9	9.9	A+	A-	A-
Writing	5	2328	4	B.6	1	21255	0.92	0.92	0.02	0.04	0.02	0.00	0.38	0.38	-0.22	-0.23	-0.20	-1.6948	0.0316	9.9	1.3	7.0	7.6	A+	A-	B-
Writing	5	1396	4	B.5	2	21255	0.49	0.12	0.49	0.18	0.21	0.00	0.25	-0.17	0.25	-0.13	-0.05	2.4508	0.0184	9.9	2.0	9.9	9.9	A+	A-	A-
Writing	5	675	4	B.6	1	21255	0.57	0.15	0.57	0.09	0.19	0.00	0.31	-0.15	0.31	-0.22	-0.10	1.8597	0.0184	9.9	1.8	9.9	9.9	A-	A-	A-
Writing	5	7205	4	B.5	2	21255	0.51	0.27	0.10	0.51	0.12	0.00	0.41	-0.27	-0.10	0.41	-0.18	2.3096	0.0184	9.9	1.6	9.9	9.9	A-	B-	C-
Writing	5	513	4	B.6	2	21255	0.76	0.76	0.08	0.10	0.07	0.00	0.35	0.35	-0.26	-0.13	-0.16	0.4330	0.0203	9.9	1.6	9.9	9.9	A-	B-	A-
Writing	5	3796	4	B.6	2	21255	0.68	0.68	0.09	0.07	0.15	0.00	0.34	0.34	-0.18	-0.21	-0.14	1.0318	0.0191	9.9	1.7	9.9	9.9	A-	A-	A-
Writing	5	6623	4	B.5	3	21255	0.76	0.12	0.07	0.05	0.76	0.00	0.43	-0.21	-0.24	-0.24	0.43	0.4156	0.0204	9.9	1.4	9.9	9.9	A+	A-	A-
Writing	5	113	4	B.5	3	21255	0.73	0.17	0.06	0.73	0.04	0.00	0.38	-0.20	-0.19	0.38	-0.24	0.6344	0.0198	9.9	1.5	9.9	9.9	A+	A-	A-
Writing	5	9893	5	B.5	2	21193	0.41	0.16	0.41	0.41	0.03	0.00	0.17	-0.05	0.17	-0.07	-0.19	3.0637	0.0186	9.9	2.1	9.9	9.9	A-	A-	A-
Writing	5	4586	5	B.6	1	21193	0.53	0.53	0.13	0.09	0.25	0.00	0.28	0.28	-0.21	-0.16	-0.05	2.2254	0.0182	9.9	1.9	9.9	9.9	A-	A-	A-
Writing	5	3368	5	B.6	2	21193	0.86	0.04	0.09	0.86	0.01	0.00	0.33	-0.16	-0.23	0.33	-0.15	-0.5905	0.0246	9.9	1.5	9.9	9.9	A+	A-	A-
Writing	5	8197	5	B.5	2	21193	0.80	0.12	0.03	0.04	0.80	0.00	0.41	-0.22	-0.23	-0.24	0.41	0.0779	0.0217	9.9	1.4	9.9	9.9	A+	A-	A-
Writing	5	1735	5	B.6	1	21193	0.37	0.07	0.37	0.48	0.07	0.00	0.23	-0.14	0.23	-0.09	-0.11	3.3459	0.0189	9.9	2.0	9.9	9.9	A+	A+	A-
Writing	5	4655	5	B.6	1	21193	0.62	0.19	0.62	0.07	0.12	0.00	0.41	-0.20	0.41	-0.24	-0.19	1.5919	0.0185	9.9	1.6	9.9	8.0	A+	A-	A-
Writing	5	8550	5	B.6	1	21193	0.66	0.66	0.03	0.06	0.25	0.00	0.34	0.34	-0.23	-0.22	-0.15	1.2753	0.0188	9.9	1.7	9.9	9.9	A-	A-	A-
Writing	5	9670	5	B.5	2	21193	0.39	0.12	0.19	0.39	0.31	0.00	0.15	-0.20	-0.15	0.15	0.11	3.2217	0.0187	9.9	2.2	9.9	9.9	A+	A-	A-
Writing	5	9302	6	B.6	2	21174	0.60	0.18	0.60	0.13	0.09	0.00	0.24	-0.16	0.24	-0.07	-0.12	1.6937	0.0183	9.9	1.9	9.9	9.9	A-	A-	A-
Writing	5	6924	6	B.5	2	21174	0.44	0.05	0.28	0.44	0.22	0.00	0.18	-0.25	-0.08	0.18	0.01	2.7977	0.0184	9.9	2.1	9.9	9.9	A-	A-	A-
Writing	5	8173	6	B.6	2	21174	0.65	0.27	0.06	0.65	0.02	0.00	0.32	-0.16	-0.18	0.32	-0.23	1.3587	0.0186	9.9	1.7	9.9	9.9	A+	A-	A-
Writing	5	5875	6	B.5	2	21174	0.71	0.23	0.03	0.03	0.71	0.00	0.43	-0.27	-0.28	-0.18	0.43	0.8983	0.0193	9.9	1.5	9.9	6.5	A-	A-	A-
Writing	5	2510	6	B.6	1	21174	0.91	0.91	0.03	0.03	0.03	0.00	0.44	0.44	-0.24	-0.25	-0.25	-1.3728	0.0295	9.8	1.2	9.9	9.9	A+	B-	B-
Writing	5	9299	6	B.5	2	21174	0.38	0.04	0.22	0.36	0.38	0.00	0.20	-0.21	-0.13	0.01	0.20	3.2404	0.0188	9.9	2.0	9.9	9.9	A-	A-	A-
Writing	5	587	6	B.5	2	21174	0.65	0.14	0.05	0.65	0.15	0.00	0.27	-0.11	-0.20	0.27	-0.12	1.3258	0.0186	9.9	1.8	9.9	9.9	A-	A-	A-
Writing	5	7125	6	B.6	2	21174	0.57	0.09	0.57	0.10	0.24	0.00	0.34	-0.16	0.34	-0.20	-0.15	1.8728	0.0182	9.9	1.7	9.9	9.5	A-	A-	A-
Writing	8	7639	0	B.5	2	128975	0.83	0.03	0.03	0.11	0.83	0.00	0.36	-0.19	-0.21	-0.21	0.36	-0.0996	0.0094	9.9	1.5	9.9	9.9			
Writing	8	39	0	B.5	2	128975	0.74	0.01	0.01	0.24	0.74	0.00	0.29	-0.16	-0.19	-0.22	0.29	0.8053	0.0082	9.9	1.8	9.9	9.9			
Writing	8	7960	0	B.6	1	128975	0.75	0.75	0.12	0.11	0.02	0.00	0.36	0.36	-0.25	-0.15	-0.18	0.6924	0.0083	9.9	1.6	9.9	9.8			
Writing	8	540	0	B.6	1	128975	0.75	0.06	0.16	0.75	0.03	0.00	0.39	-0.22	-0.24	0.39	-0.17	0.6773	0.0083	9.9	1.5	9.9	9.9			
Writing	8	1336	0	B.5	2	128975	0.52	0.52	0.24	0.19	0.05	0.00	0.26	0.26	-0.08	-0.14	-0.18	2.5606	0.0074	9.9	1.9	9.9	9.9			
Writing	8	6965	0	B.5	2	128975	0.84	0.06	0.03	0.84	0.07	0.00	0.27	-0.13	-0.19	0.27	-0.13	-0.2034	0.0096	9.9	1.7	9.9	9.9			
Writing	8	7689	0	B.6	2	128975	0.71	0.05	0.71	0.18	0.05	0.00	0.28	-0.17	0.28	-0.12	-0.17	1.0474	0.0080	9.9	1.8	9.9	9.9			
Writing	8	9207	0	B.6	2	128975	0.75	0.06	0.07	0.12	0.75	0.00	0.39	-0.25	-0.26	-0.13	0.39	0.6652	0.0083	9.9	1.5	9.9	9.9			
Writing	8	9811	0	B.6	1	128975	0.79	0.79	0.08	0.06	0.06	0.00	0.39	0.39	-0.26	-0.23	-0.13	0.2602	0.0088	9.9	1.5	9.9	9.9			
Writing	8	9048	0	B.5	2	128975	0.54	0.13	0.11	0.22	0.54	0.00	0.34	-0.14	-0.23	-0.12	0.34	2.4339	0.0074	9.9	1.7	9.9	9.9			
Writing	8	5278	0	B.5	2	128975	0.51	0.13	0.15	0.51	0.21	0.00	0.25	-0.14	-0.14	0.25	-0.06	2.6730	0.0074	9.9	2.0	9.9	9.9			
Writing	8	4434	0	B.6	1	128975	0.86	0.04	0.86	0.05	0.04	0.00	0.34	-0.20	0.34	-0.16	-0.20	-0.5810	0.0103	9.9	1.5	9.9	9.9			
Writing	8	5091	1	B.6	1	21571	0.62	0.62	0.12	0.10	0.17	0.00	0.25	0.25	-0.15	-0.20	-0.03	1.7634	0.0186	9.9	2.0	9.9	9.9	A+	A-	A-
Writing	8	5416	1	B.5	2	21571	0.30	0.33	0.30	0.09	0.27	0.00	0.31	-0.18	0.31	-0.21	0.01	4.0645	0.0195	9.9	1.7	9.9	9.9	A-	B-	B-
Writing	8	8729	1	B.5	2	21571	0.79	0.07	0.06	0.79	0.08	0.00	0.39	-0.22	-0.23	0.39	-0.18	0.3461	0.0213	9.9	1.5	9.9	8.9	A+	B-	A-
Writing	8	4760	1	B.6	2	21571	0.41	0.14	0.21	0.23	0.41	0.00	0.33	-0.08	-0.17	-0.16	0.33	3.2476	0.0183	9.9	1.7	9.9	9.9	A+	A-	A-

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Writing	8	5403	1	B.6	2	21571	0.66	0.08	0.20	0.66	0.05	0.00	0.30	-0.24	-0.09	0.30	-0.18	1.4353	0.0189	9.9	1.9	9.9	9.9	A-	A-	A-
Writing	8	4799	1	B.5	2	21571	0.65	0.18	0.10	0.06	0.65	0.00	0.46	-0.22	-0.23	-0.27	0.46	1.4950	0.0189	9.9	1.5	9.9	6.4	A+	A-	A-
Writing	8	1214	1	B.5	2	21571	0.35	0.35	0.39	0.23	0.04	0.00	0.24	0.24	-0.12	-0.03	-0.21	3.7417	0.0188	9.9	1.8	9.9	9.9	A+	B-	A-
Writing	8	9498	1	B.6	2	21571	0.64	0.05	0.28	0.03	0.64	0.01	0.31	-0.29	-0.11	-0.22	0.31	1.5728	0.0188	9.9	1.8	9.9	9.9	A+	A-	A-
Writing	8	3162	2	B.6	1	21516	0.77	0.77	0.09	0.03	0.11	0.00	0.28	0.28	-0.18	-0.14	-0.13	0.5706	0.0206	9.9	1.7	9.9	9.9	A+	A+	A+
Writing	8	2254	2	B.5	2	21516	0.51	0.04	0.51	0.27	0.18	0.00	0.35	-0.09	0.35	-0.20	-0.18	2.5534	0.0181	9.9	1.7	9.9	9.9	A-	B-	A-
Writing	8	4546	2	B.5	2	21516	0.70	0.08	0.08	0.14	0.70	0.00	0.37	-0.22	-0.23	-0.14	0.37	1.1139	0.0194	9.9	1.6	9.9	9.9	A+	A-	A-
Writing	8	7656	2	B.6	2	21516	0.52	0.12	0.15	0.52	0.21	0.00	0.32	-0.20	-0.13	0.32	-0.12	2.4914	0.0181	9.9	1.8	9.9	9.9	A+	A-	A-
Writing	8	475	2	B.5	2	21516	0.86	0.08	0.86	0.02	0.04	0.00	0.43	-0.28	0.43	-0.26	-0.19	-0.4136	0.0244	9.9	1.3	9.9	9.9	A-	A+	A-
Writing	8	8772	2	B.6	2	21516	0.43	0.43	0.21	0.21	0.15	0.00	0.22	0.22	-0.12	-0.04	-0.13	3.1370	0.0182	9.9	1.9	9.9	9.9	A+	A-	A-
Writing	8	7214	2	B.6	1	21516	0.65	0.20	0.65	0.03	0.12	0.00	0.30	-0.14	0.30	-0.23	-0.15	1.5442	0.0188	9.9	1.8	9.9	9.9	A+	A-	A-
Writing	8	8871	2	B.5	2	21516	0.66	0.08	0.14	0.66	0.11	0.00	0.39	-0.24	-0.19	0.39	-0.16	1.4631	0.0189	9.9	1.6	9.9	9.9	A+	A-	A-
Writing	8	95	3	B.6	2	21493	0.37	0.21	0.18	0.37	0.24	0.00	0.21	-0.17	-0.14	0.21	0.05	3.6064	0.0186	9.9	1.9	9.9	9.9	A+	A-	A+
Writing	8	7113	3	B.5	2	21493	0.86	0.01	0.86	0.11	0.02	0.00	0.31	-0.15	0.31	-0.22	-0.18	-0.4047	0.0244	9.9	1.5	9.9	9.9	A+	A-	B-
Writing	8	8521	3	B.5	2	21493	0.61	0.24	0.08	0.07	0.61	0.00	0.32	-0.12	-0.18	-0.22	0.32	1.8539	0.0184	9.9	1.8	9.9	9.9	A-	A-	A-
Writing	8	250	3	B.6	1	21493	0.54	0.54	0.35	0.01	0.10	0.00	0.29	0.29	-0.16	-0.16	-0.17	2.3564	0.0181	9.9	1.8	9.9	9.9	A+	B-	B-
Writing	8	5309	3	B.5	3	21493	0.56	0.27	0.56	0.06	0.11	0.00	0.23	-0.09	0.23	-0.23	-0.05	2.2527	0.0182	9.9	2.0	9.9	9.9	A+	A-	A-
Writing	8	3623	3	B.6	2	21493	0.82	0.09	0.05	0.82	0.03	0.00	0.38	-0.15	-0.29	0.38	-0.20	0.0405	0.0224	9.9	1.5	9.9	9.9	A+	A-	A-
Writing	8	4065	3	B.5	1	21493	0.53	0.53	0.19	0.19	0.09	0.00	0.29	0.29	-0.17	-0.09	-0.14	2.4253	0.0181	9.9	1.9	9.9	9.9	A+	A-	A-
Writing	8	2548	3	B.6	1	21493	0.72	0.09	0.07	0.11	0.72	0.00	0.43	-0.20	-0.30	-0.18	0.43	0.9814	0.0197	9.9	1.5	9.9	9.9	A-	A-	A-
Writing	8	9230	4	B.5	2	21499	0.44	0.22	0.20	0.44	0.14	0.00	0.18	0.03	-0.15	0.18	-0.13	2.9996	0.0181	9.9	2.0	9.9	9.9	A+	A-	A-
Writing	8	7980	4	B.6	1	21499	0.69	0.22	0.69	0.03	0.06	0.00	0.33	-0.18	0.33	-0.24	-0.15	1.2434	0.0191	9.9	1.7	9.9	9.9	A-	A-	A-
Writing	8	5137	4	B.5	2	21499	0.79	0.79	0.05	0.11	0.05	0.00	0.32	0.32	-0.22	-0.14	-0.17	0.3604	0.0211	9.9	1.6	9.9	9.9	A-	A-	B-
Writing	8	6641	4	B.6	1	21499	0.66	0.12	0.14	0.08	0.66	0.00	0.45	-0.25	-0.22	-0.20	0.45	1.4781	0.0188	9.9	1.5	9.9	6.7	A+	B-	B-
Writing	8	1624	4	B.6	2	21499	0.41	0.35	0.12	0.41	0.12	0.00	0.22	-0.02	-0.25	0.22	-0.05	3.2556	0.0183	9.9	1.9	9.9	9.9	A-	A-	A-
Writing	8	3756	4	B.5	2	21499	0.74	0.05	0.05	0.15	0.74	0.00	0.36	-0.19	-0.26	-0.16	0.36	0.7616	0.0201	9.9	1.6	9.9	9.9	A-	A-	A-
Writing	8	8191	4	B.5	2	21499	0.87	0.04	0.87	0.07	0.02	0.00	0.41	-0.26	0.41	-0.22	-0.21	-0.5534	0.0250	9.9	1.3	9.9	9.9	A-	A-	A-
Writing	8	6510	4	B.6	2	21499	0.53	0.07	0.53	0.35	0.05	0.00	0.19	-0.27	0.19	0.06	-0.24	2.4122	0.0181	9.9	2.1	9.9	9.9	A+	A+	A+
Writing	8	8840	5	B.5	3	21445	0.76	0.10	0.11	0.03	0.76	0.00	0.31	-0.15	-0.18	-0.18	0.31	0.6878	0.0204	9.9	1.7	9.9	9.9	A-	A-	A-
Writing	8	8422	5	B.6	2	21445	0.34	0.44	0.34	0.19	0.02	0.00	0.32	-0.05	0.32	-0.26	-0.17	3.8213	0.0191	9.9	1.7	9.9	9.9	A+	A-	A-
Writing	8	7621	5	B.5	3	21445	0.73	0.05	0.17	0.73	0.05	0.00	0.35	-0.24	-0.20	0.35	-0.13	0.9362	0.0198	9.9	1.6	9.9	9.9	A-	B-	A-
Writing	8	3958	5	B.6	2	21445	0.92	0.92	0.02	0.03	0.02	0.00	0.42	0.42	-0.21	-0.29	-0.20	-1.3242	0.0307	9.9	1.3	7.6	7.1	A+	A+	A-
Writing	8	5020	5	B.6	1	21445	0.61	0.02	0.61	0.11	0.26	0.00	0.33	-0.16	0.33	-0.25	-0.13	1.8593	0.0186	9.9	1.7	9.9	9.9	A-	C-	C-
Writing	8	8259	5	B.5	2	21445	0.71	0.09	0.12	0.07	0.71	0.00	0.43	-0.22	-0.20	-0.24	0.43	1.1385	0.0195	9.9	1.5	9.9	9.9	A-	B-	A-
Writing	8	5014	5	B.5	2	21445	0.57	0.18	0.12	0.57	0.12	0.00	0.33	-0.17	-0.22	0.33	-0.08	2.1461	0.0184	9.9	1.8	9.9	9.9	A-	A-	A-
Writing	8	4665	5	B.6	2	21445	0.53	0.53	0.13	0.23	0.10	0.00	0.39	0.39	-0.23	-0.14	-0.18	2.4237	0.0183	9.9	1.6	9.9	9.9	A-	A-	A-
Writing	8	4700	6	B.6	2	21451	0.37	0.37	0.47	0.12	0.03	0.00	0.30	0.30	-0.14	-0.14	-0.17	3.5924	0.0186	9.9	1.7	9.9	9.9	A-	B-	A-
Writing	8	2311	6	B.5	2	21451	0.79	0.12	0.03	0.05	0.79	0.00	0.33	-0.11	-0.24	-0.23	0.33	0.3498	0.0214	9.9	1.6	9.9	9.9	A+	B-	B-
Writing	8	9017	6	B.5	2	21451	0.86	0.86	0.05	0.06	0.02	0.00	0.43	0.43	-0.25	-0.24	-0.23	-0.4621	0.0248	9.9	1.3	9.9	8.3	A-	B-	B-
Writing	8	963	6	B.6	2	21451	0.30	0.08	0.34	0.30	0.27	0.01	0.11	-0.17	0.02	0.11	-0.03	4.1794	0.0197	9.9	2.1	9.9	9.9	A-	A-	A-
Writing	8	7899	6	B.5	2	21451	0.58	0.13	0.07	0.58	0.21	0.00	0.25	-0.15	-0.27	0.25	0.01	2.1256	0.0184	9.9	2.0	9.9	9.9	A-	A-	A-
Writing	8	9073	6	B.6	1	21451	0.80	0.03	0.09	0.08	0.80	0.00	0.37	-0.17	-0.24	-0.18	0.37	0.3185	0.0215	9.9	1.5	9.9	9.9	A+	A-	A-
Writing	8	9096	6	B.5	2	21451	0.73	0.11	0.11	0.73	0.04	0.00	0.37	-0.16	-0.23	0.37	-0.20	0.9147	0.0200	9.9	1.6	9.9	9.9	A+	A-	A-
Writing	8	2924	6	B.5	3	21451	0.72	0.17	0.72	0.03	0.08	0.00	0.28	-0.10	0.28	-0.26	-0.16	0.9858	0.0198	9.9	1.8	9.9	9.9	A+	A-	A-
Writing	11	2519	0	B.6	2	125096	0.37	0.32	0.14	0.16	0.37	0.00	0.30	-0.11	-0.10	-0.15	0.30	3.7495	0.0079	9.9	1.8	9.9	9.9			
Writing	11	2438	0	B.5	2	125096	0.80	0.06	0.80	0.12	0.02	0.00	0.32	-0.28	0.32	-0.14	-0.13	-0.0203	0.0094	9.9	1.8	9.9	9.9			
Writing	11	572	0	B.5	2	125096	0.67	0.18	0.03	0.12	0.67	0.00	0.37	-0.20	-0.21	-0.19	0.37	1.3398	0.0081	9.9	1.8	9.9	9.9			
Writing	11	5207	0	B.6	1	125096	0.93	0.02	0.01	0.93	0.04	0.00	0.36	-0.20	-0.16	0.36	-0.24	-2.0199	0.0143	9.9	1.6	9.9	9.9			
Writing	11	5115	0	B.5	2	125096	0.50	0.50	0.31	0.08	0.11	0.00	0.32	0.32	-0.16	-0.22	-0.07	2.7799	0.0076	9.9	1.8	9.9	9.9			

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	PVal	P(A)	P(B)	P(C)	P(D)	P(-)	PtBis	PT(A)	PT(B)	PT(C)	PT(D)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Writing	11	5523	0	B.5	2	125096	0.83	0.04	0.83	0.07	0.06	0.00	0.42	-0.20	0.42	-0.25	-0.23	-0.3482	0.0100	9.9	1.6	9.9	9.9			
Writing	11	3584	0	B.6	1	125096	0.72	0.05	0.11	0.13	0.72	0.00	0.44	-0.22	-0.21	-0.25	0.44	0.8831	0.0084	9.9	1.6	9.9	9.2			
Writing	11	3647	0	B.6	1	125096	0.88	0.88	0.02	0.06	0.03	0.00	0.43	0.43	-0.25	-0.24	-0.23	-1.0374	0.0114	9.9	1.5	9.9	9.9			
Writing	11	1001	0	B.6	1	125096	0.88	0.88	0.04	0.03	0.05	0.00	0.44	0.44	-0.29	-0.28	-0.18	-1.0934	0.0115	9.9	1.5	9.9	9.9			
Writing	11	1828	0	B.5	2	125096	0.72	0.09	0.06	0.13	0.72	0.00	0.41	-0.15	-0.21	-0.26	0.41	0.8863	0.0084	9.9	1.7	9.9	9.9			
Writing	11	8732	0	B.6	1	125096	0.78	0.12	0.78	0.04	0.06	0.00	0.44	-0.27	0.44	-0.26	-0.19	0.2508	0.0091	9.9	1.6	9.9	9.9			
Writing	11	8602	0	B.5	2	125096	0.70	0.06	0.10	0.14	0.70	0.00	0.34	-0.22	-0.21	-0.11	0.34	1.0398	0.0083	9.9	1.8	9.9	9.9			
Writing	11	8078	1	B.6	2	20969	0.73	0.73	0.08	0.06	0.13	0.00	0.32	0.32	-0.22	-0.17	-0.13	0.8033	0.0207	9.9	1.9	9.9	9.9	A+	A-	A-
Writing	11	4215	1	B.5	2	20969	0.28	0.40	0.28	0.28	0.03	0.00	0.07	0.05	-0.07	0.07	-0.14	4.2178	0.0204	9.9	2.3	9.9	9.9	A-	A-	A-
Writing	11	3315	1	B.6	1	20969	0.46	0.12	0.37	0.46	0.05	0.00	0.09	-0.13	0.10	0.09	-0.23	2.8991	0.0184	9.9	2.3	9.9	9.9	A-	A+	A-
Writing	11	6846	1	B.5	2	20969	0.51	0.23	0.51	0.21	0.04	0.00	0.19	-0.04	0.19	-0.13	-0.11	2.4930	0.0185	9.9	2.1	9.9	9.9	A-	A-	A-
Writing	11	3336	1	B.5	2	20969	0.41	0.06	0.41	0.30	0.22	0.00	0.24	-0.15	0.24	-0.23	0.06	3.2072	0.0185	9.9	1.9	9.9	9.9	A-	A-	A-
Writing	11	8771	1	B.6	2	20969	0.35	0.29	0.06	0.35	0.30	0.00	0.28	-0.10	-0.28	0.28	-0.05	3.7060	0.0192	9.9	1.7	9.9	9.9	A+	A-	A-
Writing	11	7623	1	B.6	1	20969	0.46	0.46	0.13	0.13	0.27	0.00	0.34	0.34	-0.18	-0.08	-0.18	2.8644	0.0184	9.9	1.7	9.9	9.9	A+	A-	A-
Writing	11	660	1	B.5	2	20969	0.78	0.06	0.06	0.10	0.78	0.00	0.40	-0.25	-0.22	-0.18	0.40	0.2682	0.0221	9.9	1.7	9.9	9.9	A+	A-	A-
Writing	11	5857	2	B.6	1	20872	0.58	0.27	0.58	0.09	0.06	0.00	0.32	-0.18	0.32	-0.14	-0.15	1.9779	0.0189	9.9	1.9	9.9	9.9	A-	A-	A-
Writing	11	1383	2	B.5	2	20872	0.68	0.25	0.03	0.05	0.68	0.00	0.26	-0.09	-0.23	-0.20	0.26	1.1931	0.0199	9.9	2.0	9.9	9.9	A+	A+	A+
Writing	11	7436	2	B.5	2	20872	0.32	0.48	0.32	0.10	0.09	0.00	0.29	-0.12	0.29	-0.17	-0.09	3.8894	0.0198	9.9	1.8	9.9	9.9	A-	A-	A-
Writing	11	7552	2	B.5	2	20872	0.81	0.81	0.01	0.03	0.15	0.00	0.22	0.22	-0.19	-0.15	-0.11	-0.0208	0.0229	9.9	2.0	9.9	9.9	A-	A-	A-
Writing	11	7691	2	B.6	2	20872	0.61	0.19	0.61	0.12	0.09	0.00	0.29	-0.19	0.29	-0.12	-0.10	1.7584	0.0191	9.9	2.0	9.9	9.9	A+	A-	B-
Writing	11	8917	2	B.6	1	20872	0.65	0.65	0.08	0.14	0.13	0.00	0.40	0.40	-0.21	-0.18	-0.20	1.4298	0.0195	9.9	1.7	9.9	9.9	A-	A-	A-
Writing	11	1751	2	B.5	2	20872	0.70	0.08	0.70	0.12	0.10	0.00	0.43	-0.21	0.43	-0.26	-0.17	1.0176	0.0202	9.9	1.6	9.9	9.1	A+	A-	A-
Writing	11	5776	2	B.5	2	20872	0.31	0.30	0.18	0.21	0.31	0.00	0.15	-0.03	-0.05	-0.09	0.15	3.9368	0.0199	9.9	2.2	9.9	9.9	A-	A-	A-
Writing	11	5102	3	B.6	2	20811	0.72	0.12	0.72	0.06	0.09	0.00	0.41	-0.21	0.41	-0.22	-0.20	0.9231	0.0205	9.9	1.7	9.9	7.8	A+	A-	A-
Writing	11	1520	3	B.5	2	20811	0.48	0.15	0.20	0.16	0.48	0.00	0.30	-0.18	-0.11	-0.11	0.30	2.7432	0.0184	9.9	1.8	9.9	9.9	A-	A-	A-
Writing	11	7331	3	B.6	1	20811	0.83	0.13	0.02	0.02	0.83	0.00	0.27	-0.20	-0.14	-0.11	0.27	-0.2224	0.0241	9.9	1.8	9.9	9.9	A+	A-	A-
Writing	11	5982	3	B.5	2	20811	0.65	0.65	0.11	0.17	0.07	0.00	0.38	0.38	-0.27	-0.14	-0.17	1.5315	0.0194	9.9	1.8	9.9	9.9	A-	A-	B-
Writing	11	3051	3	B.6	1	20811	0.36	0.06	0.36	0.27	0.32	0.00	0.15	-0.13	0.15	0.01	-0.10	3.6639	0.0192	9.9	2.1	9.9	9.9	A-	A-	A-
Writing	11	1429	3	B.6	1	20811	0.62	0.62	0.10	0.14	0.13	0.00	0.31	0.31	-0.20	-0.17	-0.08	1.7222	0.0191	9.9	1.9	9.9	9.9	A-	B-	B-
Writing	11	9491	3	B.5	2	20811	0.64	0.04	0.17	0.15	0.64	0.00	0.29	-0.20	-0.19	-0.07	0.29	1.6288	0.0192	9.9	2.0	9.9	9.9	A-	A-	A-
Writing	11	3577	3	B.5	2	20811	0.46	0.09	0.22	0.46	0.23	0.00	0.21	-0.14	-0.12	0.21	-0.04	2.9315	0.0185	9.9	1.9	9.9	9.9	A+	A-	A-
Writing	11	8664	4	B.6	1	20880	0.39	0.06	0.39	0.43	0.12	0.00	0.31	-0.14	0.31	-0.19	-0.08	3.3948	0.0190	9.9	1.8	9.9	9.9	A-	B-	A-
Writing	11	9135	4	B.5	2	20880	0.74	0.12	0.09	0.74	0.04	0.00	0.35	-0.18	-0.19	0.35	-0.18	0.6840	0.0212	9.9	1.8	9.9	9.9	A+	A+	A-
Writing	11	211	4	B.5	2	20880	0.50	0.15	0.30	0.50	0.05	0.00	0.23	-0.11	-0.10	0.23	-0.14	2.5957	0.0187	9.9	2.1	9.9	9.9	A-	A-	A-
Writing	11	471	4	B.5	2	20880	0.91	0.03	0.02	0.04	0.91	0.00	0.40	-0.23	-0.20	-0.23	0.40	-1.4133	0.0300	9.9	1.4	9.9	9.9	A-	B-	C-
Writing	11	1587	4	B.6	1	20880	0.88	0.88	0.03	0.03	0.05	0.00	0.42	0.42	-0.30	-0.25	-0.17	-0.9198	0.0270	9.9	1.5	9.9	9.9	A+	A-	B-
Writing	11	5417	4	B.6	1	20880	0.50	0.16	0.06	0.27	0.50	0.00	0.42	-0.18	-0.30	-0.16	0.42	2.6072	0.0187	9.9	1.6	9.9	8.2	A+	A-	A-
Writing	11	1845	4	B.5	2	20880	0.84	0.04	0.84	0.05	0.07	0.00	0.49	-0.29	0.49	-0.29	-0.24	-0.3962	0.0245	9.9	1.4	9.9	7.7	A-	B-	C-
Writing	11	8709	4	B.5	2	20880	0.56	0.12	0.16	0.56	0.15	0.00	0.29	-0.13	-0.20	0.29	-0.07	2.1516	0.0190	9.9	2.0	9.9	9.9	A-	A-	A-
Writing	11	9330	5	B.5	2	20765	0.53	0.26	0.53	0.18	0.03	0.00	0.32	-0.19	0.32	-0.12	-0.18	2.4054	0.0185	9.9	1.8	9.9	9.9	A+	A-	A-
Writing	11	5672	5	B.6	1	20765	0.61	0.04	0.10	0.61	0.24	0.00	0.34	-0.19	-0.20	0.34	-0.16	1.7935	0.0190	9.9	1.8	9.9	9.9	A-	A-	A-
Writing	11	9102	5	B.5	2	20765	0.60	0.60	0.08	0.10	0.22	0.00	0.34	0.34	-0.17	-0.19	-0.15	1.9102	0.0189	9.9	1.8	9.9	9.9	A-	A-	A-
Writing	11	9257	5	B.6	1	20765	0.61	0.05	0.15	0.19	0.61	0.00	0.35	-0.22	-0.26	-0.08	0.35	1.8000	0.0190	9.9	1.8	9.9	9.9	A+	A-	A-
Writing	11	4139	5	B.6	1	20765	0.56	0.11	0.27	0.56	0.05	0.00	0.38	-0.15	-0.23	0.38	-0.16	2.1708	0.0186	9.9	1.7	9.9	8.0	A+	A-	A-
Writing	11	6147	5	B.6	1	20765	0.95	0.02	0.95	0.02	0.01	0.00	0.25	-0.12	0.25	-0.16	-0.15	-2.3311	0.0388	9.9	1.6	9.9	9.9	A+	A-	A-
Writing	11	3431	5	B.5	2	20765	0.47	0.47	0.40	0.07	0.06	0.00	0.13	0.13	0.10	-0.27	-0.18	2.8546	0.0184	9.9	2.2	9.9	9.9	A+	A-	A-
Writing	11	4729	5	B.5	2	20765	0.62	0.09	0.62	0.05	0.25	0.00	0.24	-0.14	0.24	-0.25	-0.05	1.7836	0.0190	9.9	2.0	9.9	9.9	A-	A-	A-
Writing	11	9249	6	B.5	1	20799	0.40	0.40	0.32	0.11	0.17	0.00	0.25	0.25	-0.11	-0.18	-0.04	3.3257	0.0188	9.9	1.9	9.9	9.9	A+	A-	A-
Writing	11	6052	6	B.6	1	20799	0.51	0.12	0.09	0.28	0.51	0.00	0.23	0.03	-0.03	-0.26	0.23	2.5036	0.0186	9.9	2.1	9.9	9.9	A+	A-	A+

Item Information						Classical												Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**PVal**	**P(A)**	**P(B)**	**P(C)**	**P(D)**	**P(-)**	**PtBis**	**PT(A)**	**PT(B)**	**PT(C)**	**PT(D)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Writing	11	2585	6	B.6	2	20799	0.60	0.60	0.14	0.18	0.08	0.00	0.38	0.38	-0.17	-0.18	-0.21	1.8559	0.0191	9.9	1.8	9.9	8.3	A-	A-	A-
Writing	11	1270	6	B.5	2	20799	0.67	0.04	0.08	0.67	0.21	0.00	0.28	-0.25	-0.29	0.28	-0.01	1.2451	0.0199	9.9	2.0	9.9	9.9	A-	A-	A-
Writing	11	1526	6	B.6	1	20799	0.88	0.08	0.02	0.02	0.88	0.00	0.26	-0.04	-0.28	-0.24	0.26	-0.9289	0.0272	9.9	1.7	9.9	9.9	A+	A-	A-
Writing	11	6648	6	B.5	1	20799	0.72	0.08	0.07	0.72	0.13	0.00	0.25	-0.12	-0.18	0.25	-0.10	0.8445	0.0207	9.9	2.0	9.9	9.9	A-	A+	A+
Writing	11	4724	6	B.6	2	20799	0.41	0.41	0.10	0.04	0.45	0.00	0.30	0.30	-0.14	-0.21	-0.13	3.2519	0.0188	9.9	1.8	9.9	9.9	A-	A-	A-
Writing	11	2234	6	B.5	3	20799	0.83	0.83	0.04	0.06	0.06	0.00	0.39	0.39	-0.28	-0.24	-0.12	-0.3225	0.0243	9.9	1.6	9.9	9.9	A-	B-	B-

Item Information						Classical																Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	Mean	P(0)	P(1)	P(2)	P(3)	P(4)	P(B)	PtBis	PT(0)	PT(1)	PT(2)	PT(3)	PT(4)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Math	3	403	0	A.1	3	126097	2.15	0.10	0.28	0.18	0.24	0.19	0.00	0.64	-0.46	-0.34	0.10	0.28	0.34	2.5429	0.0034	9.9	1.1	9.9	1.1			
Math	3	381	0	B.1	3	126097	2.33	0.05	0.19	0.35	0.18	0.22	0.01	0.60	-0.39	-0.36	-0.02	0.20	0.38	2.1501	0.0036	9.9	1.1	9.9	1.1			
Math	3	9677	0	E.1	2	126097	3.11	0.01	0.06	0.20	0.24	0.48	0.00	0.66	-0.21	-0.48	-0.29	0.04	0.49	0.9094	0.0040	9.9	1.1	9.9	1.2			
Math	3	4173	1	D.1	2	1100	3.13	0.01	0.04	0.14	0.45	0.37	0.00	0.49	-0.19	-0.32	-0.25	0.02	0.32	0.7037	0.0481	6.5	1.3	7.2	1.4	A+	A-	A+
Math	3	5866	2	A.2	3	1099	2.25	0.12	0.16	0.18	0.42	0.12	0.00	0.64	-0.54	-0.18	-0.08	0.37	0.27	2.6070	0.0378	4.6	1.2	4.6	1.2	A+	C-	C-
Math	3	9285	3	A.1	2	1100	2.07	0.08	0.22	0.37	0.22	0.11	0.00	0.60	-0.47	-0.29	0.12	0.26	0.27	2.6729	0.0396	4.1	1.2	3.7	1.2	A-	A-	A-
Math	3	3715	4	A.1	2	1098	2.26	0.04	0.14	0.41	0.33	0.08	0.00	0.64	-0.45	-0.32	-0.09	0.39	0.24	2.3932	0.0443	-0.6	1.0	-0.5	1.0	A-	B-	B-
Math	3	3146	5	A.3	3	1099	1.06	0.40	0.27	0.21	0.10	0.01	0.00	0.58	-0.57	0.11	0.30	0.31	0.11	4.6827	0.0415	-0.2	1.0	-0.4	1.0	A+	A-	A-
Math	4	8043	0	C.3	2	122489	2.48	0.07	0.12	0.23	0.43	0.16	0.01	0.55	-0.34	-0.27	-0.14	0.24	0.31	0.8945	0.0035	9.9	1.2	9.9	1.3			
Math	4	7354	0	A.2		122489	2.10	0.16	0.15	0.19	0.42	0.08	0.03	0.59	-0.43	-0.22	-0.04	0.35	0.29	1.5467	0.0033	9.9	1.2	9.9	1.3			
Math	4	1175	0	E.3	3	122489	2.66	0.04	0.09	0.33	0.25	0.29	0.00	0.62	-0.28	-0.28	-0.30	0.11	0.49	0.4942	0.0035	9.9	1.0	9.9	1.1			
Math	4	4600	1	A.2	3	1100	1.27	0.26	0.45	0.10	0.12	0.07	0.00	0.56	-0.47	-0.02	0.17	0.28	0.30	2.2768	0.0365	3.3	1.2	2.4	1.1	A+	A-	B-
Math	4	1037	2	A.3	3	1100	2.44	0.04	0.14	0.23	0.53	0.07	0.00	0.68	-0.41	-0.40	-0.14	0.41	0.29	1.0378	0.0413	-3.9	0.8	-3.0	0.9	A-	C-	B-
Math	4	4482	4	A.1	3	1098	2.82	0.02	0.11	0.21	0.36	0.30	0.00	0.60	-0.22	-0.41	-0.25	0.16	0.40	0.1860	0.0388	1.2	1.1	2.1	1.1	A+	B-	A-
Math	4	4872	5	A.1	2	1098	1.99	0.04	0.34	0.27	0.30	0.05	0.00	0.63	-0.29	-0.49	0.10	0.42	0.23	1.3981	0.0401	-0.7	1.0	-0.8	1.0	A-	B-	C-
Math	5	845	0	D.1	3	124911	2.15	0.04	0.11	0.57	0.22	0.06	0.00	0.59	-0.31	-0.23	-0.20	0.40	0.29	1.5101	0.0043	-9.9	1.0	-9.0	1.0			
Math	5	2872	0	E.2		124911	1.98	0.11	0.26	0.27	0.24	0.12	0.04	0.55	-0.32	-0.34	0.07	0.33	0.26	1.7218	0.0034	9.9	1.4	9.9	1.4			
Math	5	6711	0	A.2		124911	2.01	0.08	0.30	0.26	0.25	0.11	0.00	0.64	-0.37	-0.37	0.03	0.33	0.36	1.6341	0.0035	9.9	1.0	9.5	1.0			
Math	5	3070	1	A.2	3	1100	1.39	0.34	0.27	0.15	0.13	0.11	0.00	0.67	-0.52	-0.14	0.24	0.32	0.38	2.4065	0.0334	-1.7	0.9	-1.1	0.9	A-	A-	A-
Math	5	6205	2	A.2	3	1100	1.49	0.31	0.25	0.17	0.19	0.08	0.00	0.64	-0.56	-0.05	0.15	0.36	0.31	2.3873	0.0339	2.7	1.1	1.9	1.1	A+	A-	B-
Math	5	4932	3	C.2	3	1098	1.59	0.18	0.33	0.28	0.15	0.06	0.00	0.58	-0.44	-0.19	0.18	0.31	0.26	2.2864	0.0374	3.6	1.2	3.4	1.2	A-	C-	A-
Math	5	5484	4	A.1	2	1099	1.32	0.11	0.60	0.19	0.07	0.04	0.00	0.60	-0.40	-0.25	0.34	0.28	0.25	2.5827	0.0451	-1.3	0.9	-1.7	0.9	A+	A-	A-
Math	5	5079	5	A.1	3	1100	1.61	0.13	0.33	0.39	0.13	0.03	0.00	0.60	-0.47	-0.20	0.23	0.32	0.20	2.4351	0.0416	0.9	1.0	0.9	1.0	A+	A-	A-
Math	6	7255	0	B.2		126610	2.66	0.05	0.11	0.14	0.55	0.16	0.00	0.55	-0.38	-0.29	-0.14	0.25	0.26	0.6322	0.0037	9.9	1.2	9.9	1.2			
Math	6	6333	0	D.2	2	126610	1.71	0.13	0.31	0.29	0.24	0.03	0.05	0.60	-0.39	-0.28	0.14	0.40	0.18	2.0372	0.0036	9.9	1.1	9.9	1.1			
Math	6	7341	0	A.2		126610	1.57	0.13	0.41	0.28	0.11	0.06	0.00	0.53	-0.36	-0.21	0.17	0.26	0.28	1.9146	0.0036	9.9	1.1	9.9	1.2			
Math	6	7968	1	A.2	2	1100	1.29	0.16	0.57	0.13	0.09	0.05	0.00	0.57	-0.45	-0.11	0.28	0.25	0.26	2.2575	0.0410	-0.7	1.0	0.6	1.0	A+	A-	A-
Math	6	3439	2	A.1	2	1097	2.18	0.15	0.19	0.17	0.29	0.19	0.00	0.68	-0.47	-0.30	-0.01	0.25	0.45	1.2231	0.0334	0.5	1.0	0.5	1.0	A-	A-	C-
Math	6	2641	3	A.3	2	1099	1.90	0.12	0.33	0.20	0.21	0.13	0.00	0.63	-0.45	-0.26	0.06	0.29	0.37	1.4569	0.0346	2.1	1.1	2.0	1.1	A+	C-	A-
Math	6	6785	4	C.1	3	1100	0.95	0.44	0.31	0.13	0.10	0.02	0.00	0.62	-0.59	0.17	0.28	0.31	0.20	2.8779	0.0386	-2.8	0.9	-3.0	0.9	A-	A-	A-
Math	6	7302	5	A.1	3	1099	2.84	0.03	0.06	0.20	0.48	0.23	0.00	0.65	-0.31	-0.29	-0.32	0.09	0.47	0.2476	0.0422	-2.7	0.9	-2.5	0.9	A-	A-	A-
Math	7	6432	0	B.1	3	127086	1.62	0.15	0.32	0.33	0.16	0.03	0.01	0.69	-0.53	-0.24	0.23	0.40	0.23	2.0124	0.0037	-9.9	0.8	-9.9	0.8			
Math	7	261	0	D.2		127086	2.10	0.20	0.11	0.24	0.27	0.17	0.06	0.64	-0.48	-0.22	-0.02	0.28	0.40	1.3178	0.0030	9.9	1.2	9.9	1.2			
Math	7	8165	0	A.2	2	127086	2.15	0.15	0.09	0.31	0.36	0.09	0.00	0.63	-0.53	-0.13	-0.03	0.31	0.30	1.3661	0.0034	9.9	1.1	9.9	1.1			
Math	7	1289	1	D.2	2	1100	1.91	0.14	0.23	0.27	0.33	0.04	0.01	0.67	-0.52	-0.22	0.03	0.44	0.25	1.7268	0.0369	-1.4	0.9	-1.2	1.0	B+	C-	B-
Math	7	4024	2	E.4	3	1099	1.12	0.39	0.31	0.16	0.07	0.06	0.00	0.57	-0.51	0.07	0.22	0.24	0.30	2.4080	0.0362	1.2	1.1	1.4	1.1	A-	A-	A-
Math	7	8072	3	D.1	3	1100	2.21	0.08	0.18	0.33	0.29	0.13	0.00	0.59	-0.47	-0.17	-0.07	0.26	0.33	1.0847	0.0369	3.2	1.1	3.2	1.1	A+	A-	C-
Math	7	753	4	D.2	3	1100	2.37	0.07	0.17	0.23	0.38	0.15	0.00	0.68	-0.46	-0.36	-0.06	0.31	0.36	0.9311	0.0365	-1.3	1.0	-1.4	0.9	A+	A-	C-
Math	7	3946	5	D.3	2	1099	1.97	0.15	0.28	0.25	0.10	0.23	0.00	0.63	-0.43	-0.25	0.03	0.19	0.47	1.2805	0.0328	3.5	1.2	2.7	1.1	A-	B-	A-
Math	8	3656	0	B.2	3	126144	2.33	0.09	0.22	0.14	0.38	0.18	0.00	0.64	-0.48	-0.31	0.02	0.25	0.36	1.0525	0.0033	9.9	1.2	9.9	1.2			
Math	8	6378	0	D.1	3	126144	1.74	0.14	0.34	0.25	0.15	0.11	0.03	0.63	-0.37	-0.36	0.18	0.33	0.33	1.7240	0.0034	-3.6	1.0	-8.2	1.0			
Math	8	1251	0	E.3	3	126144	2.02	0.10	0.28	0.26	0.22	0.14	0.00	0.66	-0.52	-0.27	0.08	0.30	0.34	1.3659	0.0034	9.9	1.1	9.9	1.1			
Math	8	8687	1	D.4	3	1100	1.50	0.30	0.24	0.19	0.20	0.07	0.00	0.66	-0.59	-0.06	0.20	0.35	0.30	2.1853	0.0341	-0.8	1.0	-0.8	1.0	A+	A-	A-
Math	8	2240	2	D.2	2	1096	3.17	0.07	0.06	0.06	0.23	0.57	0.00	0.54	-0.34	-0.24	-0.22	-0.07	0.46	0.1880	0.0365	8.0	1.5	6.7	1.6	A+	A+	A-
Math	8	1083	3	D.1	2	1098	2.66	0.08	0.06	0.26	0.31	0.29	0.00	0.58	-0.34	-0.21	-0.22	0.05	0.47	0.6958	0.0364	6.1	1.3	5.8	1.3	A-	A+	A-
Math	8	3007	4	C.1	3	1100	1.76	0.21	0.23	0.25	0.20	0.11	0.00	0.62	-0.48	-0.21	0.16	0.31	0.30	1.8110	0.0344	3.2	1.1	3.4	1.2	A+	B-	A-
Math	8	5495	5	D.2	3	1100	2.86	0.11	0.09	0.06	0.29	0.44	0.01	0.68	-0.52	-0.31	-0.11	0.10	0.48	0.5537	0.0345	2.3	1.1	2.0	1.1	A+	C-	C-
Math	11	6237	0	D.2		125116	1.49	0.33	0.26	0.14	0.13	0.14	0.02	0.68	-0.57	-0.06	0.15	0.28	0.43	1.3627	0.0031	7.7	1.0	3.9	1.0			
Math	11	5763	0	B.2	3	125116	1.72	0.20	0.31	0.11	0.36	0.03	0.05	0.66	-0.55	-0.15	0.10	0.45	0.25	1.4938	0.0034	9.9	1.1	9.9	1.2			
Math	11	4744	0	C.3	2	125116	1.35	0.24	0.37	0.22	0.14	0.03	0.02	0.71	-0.61	-0.07	0.29	0.40	0.22	1.9132	0.0037	-9.9	0.9	-9.9	0.8			

Item Information						Classical														Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**Mean**	**P(0)**	**P(1)**	**P(2)**	**P(3)**	**P(4)**	**P(B)**	**PtBis**	**PT(0)**	**PT(1)**	**PT(2)**	**PT(3)**	**PT(4)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Reading	3	4883	0	A.1.4.1	2	126020	1.51	0.07	0.47	0.33	0.13		0.01	0.42	-0.31	-0.18	0.16	0.28		0.7777	0.0044	9.9	1.2	9.9	1.2			
Reading	3	1938	0	B.1.1.1		126020	1.54	0.06	0.41	0.46	0.07		0.00	0.48	-0.41	-0.20	0.29	0.19		0.8671	0.0048	9.9	1.1	9.9	1.1			
Reading	3	1052	1	B.1.2.1	3	1098	1.45	0.07	0.48	0.39	0.06		0.01	0.53	-0.43	-0.23	0.35	0.21		1.0230	0.0503	-0.7	1.0	-0.6	1.0	B+	A-	A-
Reading	3	7711	2	B.1.1.1	3	1097	1.75	0.06	0.33	0.40	0.21		0.00	0.60	-0.42	-0.33	0.23	0.36		0.3890	0.0446	-1.7	0.9	-1.7	0.9	A+	A-	A-
Reading	3	3948	3	B.1.1.1	3	1100	2.12	0.06	0.15	0.39	0.40		0.00	0.67	-0.46	-0.34	-0.03	0.50		-0.1507	0.0445	-4.1	0.8	-3.6	0.8	A+	A-	A+
Reading	3	6309	4	B.1.2.1	3	1100	1.27	0.16	0.45	0.35	0.04		0.01	0.50	-0.46	-0.04	0.32	0.17		1.6414	0.0482	2.4	1.1	2.4	1.1	C+	A+	A+
Reading	3	3248	5	B.1.1.1	3	1098	1.51	0.09	0.43	0.36	0.12		0.01	0.53	-0.36	-0.25	0.27	0.31		0.9060	0.0462	0.7	1.0	0.6	1.0	A+	A+	A+
Reading	4	536	0	A.2.3.1	2	121442	2.13	0.06	0.13	0.44	0.37		0.00	0.49	-0.32	-0.27	-0.02	0.37		-0.0565	0.0042	9.9	1.1	9.9	1.1			
Reading	4	7089	0	A.1.3.1	2	121442	1.96	0.12	0.21	0.26	0.41		0.00	0.49	-0.35	-0.21	0.01	0.40		0.3312	0.0036	9.9	1.3	9.9	1.3			
Reading	4	7961	0	B.1.2.1	2	121442	1.52	0.06	0.56	0.17	0.21		0.00	0.42	-0.32	-0.16	0.06	0.33		0.6168	0.0040	9.9	1.2	9.9	1.3			
Reading	4	226	0	B.1.1.1		121442	1.89	0.04	0.29	0.41	0.26		0.00	0.52	-0.32	-0.33	0.12	0.36		0.1257	0.0042	9.9	1.1	9.9	1.1			
Reading	4	6843	1	B.1.1.1	3	1098	1.83	0.06	0.28	0.44	0.22		0.00	0.51	-0.32	-0.30	0.14	0.34		0.3515	0.0441	1.4	1.1	1.3	1.1	B+	A+	A+
Reading	4	7455	2	A.2.3.1	3	1098	1.74	0.06	0.24	0.58	0.11		0.00	0.47	-0.37	-0.25	0.28	0.19		0.6585	0.0493	1.2	1.1	1.2	1.1	B+	A+	A-
Reading	4	2949	3	A.2.4.1	3	1100	1.51	0.18	0.32	0.33	0.18		0.00	0.43	-0.40	-0.05	0.19	0.23		1.0255	0.0389	6.2	1.3	7.3	1.3	A+	A-	A+
Reading	4	7923	4	B.1.1.1	3	1099	1.67	0.09	0.32	0.41	0.18		0.00	0.47	-0.43	-0.14	0.20	0.25		0.7011	0.0431	3.3	1.1	3.4	1.1	A+	B-	A-
Reading	4	8276	5	B.1.1.1	2	1100	2.15	0.02	0.20	0.39	0.39		0.00	0.45	-0.24	-0.29	-0.05	0.36		-0.3463	0.0450	3.3	1.1	2.9	1.1	C+	A+	A+
Reading	5	3393	0	A.2.3.1		123947	1.89	0.04	0.22	0.56	0.19		0.00	0.53	-0.38	-0.30	0.15	0.32		0.4268	0.0046	-2.3	1.0	-2.8	1.0			
Reading	5	3461	0	A.1.5.1	3	123947	1.81	0.03	0.27	0.58	0.13		0.01	0.54	-0.32	-0.40	0.28	0.27		0.4526	0.0049	-9.5	1.0	-8.9	1.0			
Reading	5	3651	0	B.1.1.1	3	123947	1.98	0.04	0.23	0.47	0.27		0.00	0.58	-0.33	-0.40	0.11	0.40		0.2140	0.0044	-9.9	0.9	-9.9	0.9			
Reading	5	8448	0	A.2.3.1		123947	1.76	0.05	0.33	0.45	0.18		0.00	0.53	-0.35	-0.32	0.21	0.32		0.6250	0.0044	0.4	1.0	-0.2	1.0			
Reading	5	4756	1	B.3.3.3	3	1099	1.40	0.17	0.42	0.25	0.16		0.00	0.51	-0.47	-0.02	0.16	0.32		1.3872	0.0405	2.5	1.1	2.6	1.1	A-	A-	A-
Reading	5	2427	2	B.1.1.1	3	1100	2.13	0.02	0.20	0.43	0.36		0.00	0.55	-0.21	-0.44	0.01	0.41		-0.2563	0.0472	-1.0	1.0	-1.1	1.0	B+	A+	A-
Reading	5	9682	3	B.3.3.3	3	1099	1.22	0.18	0.52	0.20	0.10		0.00	0.40	-0.44	0.09	0.18	0.18		1.6799	0.0430	4.3	1.2	5.4	1.3	A+	A+	A+
Reading	5	6940	4	B.1.1.1	3	1100	1.72	0.05	0.29	0.57	0.10		0.00	0.52	-0.33	-0.33	0.28	0.26		0.8353	0.0503	-0.9	1.0	-0.6	1.0	B+	A-	B-
Reading	5	4409	5	B.1.2.1	3	1099	1.60	0.11	0.38	0.32	0.19		0.00	0.53	-0.40	-0.19	0.16	0.36		1.0157	0.0409	0.2	1.0	0.3	1.0	A+	A+	A+
Reading	6	7412	0	B.1.1.1	3	126095	1.59	0.05	0.43	0.39	0.13		0.00	0.57	-0.38	-0.34	0.30	0.32		0.6437	0.0044	-9.9	0.9	-9.9	0.9			
Reading	6	1877	0	A.2.3.1	3	126095	1.97	0.02	0.18	0.61	0.19		0.01	0.51	-0.29	-0.34	0.09	0.33		-0.0961	0.0049	0.9	1.0	0.6	1.0			
Reading	6	7038	0	B.1.2.1		126095	1.85	0.03	0.31	0.43	0.23		0.00	0.51	-0.28	-0.34	0.11	0.36		0.0743	0.0043	9.9	1.1	9.9	1.1			
Reading	6	4425	0	B.1.1.1		126095	1.82	0.08	0.24	0.47	0.21		0.00	0.59	-0.41	-0.30	0.19	0.36		0.4218	0.0042	-4.8	1.0	-6.4	1.0			
Reading	6	8445	1	A.2.3.1	3	1099	1.53	0.05	0.44	0.42	0.08		0.00	0.57	-0.32	-0.37	0.37	0.28		0.8294	0.0502	-2.6	0.9	-2.6	0.9	A+	A-	A-
Reading	6	5529	2	A.2.3.1	3	1099	1.92	0.01	0.22	0.60	0.17		0.00	0.41	-0.25	-0.27	0.09	0.26		-0.1607	0.0534	2.9	1.1	3.0	1.1	B+	A+	A-
Reading	6	862	3	A.2.3.2	3	1100	1.94	0.02	0.20	0.59	0.19		0.00	0.55	-0.27	-0.45	0.22	0.30		-0.0398	0.0515	-1.6	0.9	-1.8	0.9	A+	A+	A-
Reading	6	7212	4	B.2.2.2	3	1099	1.54	0.10	0.44	0.29	0.17		0.00	0.58	-0.42	-0.24	0.23	0.38		0.7909	0.0424	-1.9	0.9	-1.7	0.9	A+	A-	A-
Reading	6	3551	5	B.1.2.1	3	1099	1.63	0.06	0.36	0.46	0.12		0.00	0.55	-0.35	-0.32	0.29	0.30		0.6987	0.0474	-1.3	1.0	-1.3	1.0	A+	A-	A-
Reading	7	2954	0	A.2.3.1	2	126704	1.86	0.04	0.27	0.49	0.21		0.00	0.46	-0.34	-0.26	0.14	0.28		0.2016	0.0044	9.9	1.1	9.9	1.1			
Reading	7	3271	0	B.1.1.1		126704	1.82	0.07	0.22	0.55	0.17		0.01	0.60	-0.47	-0.29	0.22	0.33		0.4904	0.0044	-9.9	0.9	-9.9	0.9			
Reading	7	1046	0	A.2.3.1	3	126704	1.74	0.07	0.30	0.45	0.18		0.00	0.54	-0.39	-0.29	0.22	0.32		0.5778	0.0042	1.6	1.0	0.8	1.0			
Reading	7	4975	0	B.1.2.1	3	126704	1.45	0.12	0.39	0.40	0.09		0.01	0.55	-0.41	-0.21	0.31	0.30		1.2192	0.0042	-9.9	1.0	-9.9	1.0			
Reading	7	8623	1	B.1.2.1	3	1099	1.79	0.02	0.39	0.37	0.22		0.01	0.55	-0.26	-0.42	0.16	0.39		0.0797	0.0451	-2.0	0.9	-2.1	0.9	B+	A-	A-
Reading	7	5415	2	B.1.2.1	3	1100	1.92	0.03	0.29	0.42	0.26		0.00	0.53	-0.31	-0.32	0.03	0.41		0.0391	0.0450	-0.2	1.0	-0.2	1.0	B+	A-	A-
Reading	7	1452	3	A.2.3.2	3	1099	1.77	0.07	0.31	0.40	0.22		0.00	0.58	-0.40	-0.32	0.19	0.38		0.4801	0.0428	-2.2	0.9	-2.2	0.9	A+	A+	A-
Reading	7	8467	4	B.1.1.1	3	1100	1.49	0.09	0.42	0.37	0.11		0.00	0.60	-0.42	-0.30	0.36	0.30		1.0571	0.0455	-3.2	0.9	-3.2	0.9	C+	A+	C-
Reading	7	6283	5	B.1.2.1	3	1100	1.89	0.05	0.27	0.42	0.26		0.00	0.46	-0.27	-0.27	0.05	0.36		0.2863	0.0434	3.0	1.1	2.6	1.1	C+	A+	A+
Reading	8	543	0	B.1.2.1		126191	2.08	0.02	0.15	0.56	0.27		0.00	0.56	-0.28	-0.39	0.01	0.39		0.3175	0.0047	-9.9	0.9	-9.9	0.9			
Reading	8	4935	0	B.1.2.1	3	126191	2.29	0.04	0.14	0.32	0.51		0.01	0.67	-0.35	-0.47	-0.09	0.54		0.1644	0.0042	-9.9	0.8	-9.9	0.8			
Reading	8	4480	0	B.1.1.1	3	126191	2.03	0.03	0.16	0.55	0.26		0.00	0.60	-0.33	-0.40	0.06	0.41		0.5304	0.0046	-9.9	0.9	-9.9	0.9			
Reading	8	7761	0	B.1.1.1		126191	1.56	0.10	0.35	0.46	0.10		0.01	0.54	-0.39	-0.25	0.30	0.28		1.5928	0.0043	-2.6	1.0	-3.1	1.0			
Reading	8	5862	1	A.2.3.1	3	1099	2.23	0.02	0.14	0.43	0.41		0.00	0.61	-0.28	-0.40	-0.14	0.50		0.1111	0.0481	-2.7	0.9	-2.8	0.9	C+	A-	A-
Reading	8	7386	2	B.1.2.1	3	1098	2.03	0.02	0.26	0.38	0.33		0.00	0.47	-0.28	-0.30	-0.01	0.37		0.3529	0.0448	2.9	1.1	3.5	1.2	B+	A+	A+
Reading	8	5925	3	A.2.4.1	3	1100	2.06	0.03	0.23	0.38	0.35		0.00	0.56	-0.30	-0.36	-0.02	0.45		0.4611	0.0440	-0.6	1.0	-0.8	1.0	B+	A-	A+

Item Information						Classical														Rasch		Infit		Outfit		DIF		
Cont	**Grade**	**PubID**	**Form**	**Std**	**DOK**	**N**	**Mean**	**P(0)**	**P(1)**	**P(2)**	**P(3)**	**P(4)**	**P(B)**	**PtBis**	**PT(0)**	**PT(1)**	**PT(2)**	**PT(3)**	**PT(4)**	**Meas**	**MeasSE**	**t**	**MS**	**t**	**MS**	**M/F**	**W/B**	**W/H**
Reading	8	9452	4	B.1.1.1	3	1099	2.00	0.05	0.24	0.39	0.33		0.01	0.59	-0.35	-0.40	0.10	0.42		0.6483	0.0432	-1.9	0.9	-1.7	0.9	B+	A+	A+
Reading	8	6133	5	B.2.2.2	3	1100	1.80	0.06	0.33	0.36	0.25		0.01	0.57	-0.32	-0.36	0.14	0.41		0.9527	0.0422	-1.2	1.0	-1.3	1.0	B+	A-	A-
Reading	11	9152	0	B.1.2.1		125383	2.00	0.04	0.21	0.47	0.28		0.01	0.55	-0.34	-0.36	0.08	0.37		-0.0459	0.0043	-9.9	1.0	-9.9	1.0			
Reading	11	4789	0	B.3.1.1		125383	1.82	0.06	0.21	0.57	0.15		0.02	0.58	-0.40	-0.32	0.22	0.33		0.4306	0.0045	-9.9	0.9	-9.9	0.9			
Reading	11	3504	0	B.1.1.1		125383	1.90	0.05	0.21	0.52	0.22		0.01	0.56	-0.40	-0.31	0.15	0.35		0.2479	0.0043	-9.9	0.9	-9.9	1.0			
Reading	11	7547	0	B.1.2.1		125383	2.08	0.03	0.15	0.53	0.29		0.01	0.57	-0.33	-0.37	0.01	0.39		-0.1994	0.0045	-9.9	0.9	-9.9	0.9			
Science	4	9735	0	A.1.3.1	3	125155	1.07	0.21	0.50	0.29			0.00	0.50	-0.47	0.07	0.35			1.0321	0.0047	-3.8	1.0	-4.6	1.0			
Science	4	4473	0	B.1.1.4	3	125155	0.93	0.31	0.44	0.25			0.01	0.45	-0.43	0.13	0.32			1.4121	0.0045	9.9	1.1	9.9	1.1			
Science	4	6201	0	A.3.1.2	3	125155	1.22	0.26	0.26	0.48			0.02	0.52	-0.43	-0.13	0.49			0.7699	0.0042	9.9	1.0	9.9	1.1			
Science	4	4910	0	A.1.1.1	2	125155	1.52	0.07	0.33	0.59			0.00	0.43	-0.38	-0.15	0.35			-0.2092	0.0052	9.6	1.0	9.9	1.1			
Science	4	2351	0	C.2.1.1	2	125155	1.12	0.27	0.34	0.39			0.01	0.43	-0.35	-0.08	0.40			0.9806	0.0043	9.9	1.2	9.9	1.2			
Science	4	5223	1	A.1.1.2	2	1099	0.40	0.74	0.11	0.14			0.04	0.36	-0.33	0.08	0.33			2.4838	0.0490	2.0	1.1	1.3	1.1	A+	A-	A-
Science	4	8629	2	A.2.1.4	2	1099	0.77	0.41	0.40	0.18			0.02	0.43	-0.42	0.19	0.29			1.8240	0.0484	2.5	1.1	2.1	1.1	A+	C-	A-
Science	4	8054	3	A.2.2.1	2	1099	0.95	0.24	0.58	0.19			0.01	0.32	-0.30	0.09	0.21			1.4171	0.0534	4.7	1.2	4.8	1.2	A+	A-	A+
Science	4	7900	4	A.3.3.1	2	1099	0.80	0.39	0.43	0.18			0.01	0.51	-0.49	0.21	0.34			1.7748	0.0490	-0.9	1.0	-0.8	1.0	A+	A-	A-
Science	4	3887	5	A.3.1.4	2	1098	1.21	0.21	0.38	0.42			0.02	0.46	-0.38	-0.09	0.40			0.7613	0.0474	2.3	1.1	2.4	1.1	A+	C-	B-
Science	4	8495	6	A.3.1.1	2	1099	1.58	0.08	0.27	0.66			0.02	0.38	-0.27	-0.22	0.36			-0.2725	0.0552	2.0	1.1	3.1	1.2	B+	C-	C-
Science	4	5036	7	B.2.2.1	3	1099	0.89	0.41	0.28	0.30			0.02	0.37	-0.32	-0.01	0.35			1.4722	0.0433	5.1	1.2	6.5	1.3	A+	A-	A+
Science	4	2312	8	B.3.2.2	2	1098	1.30	0.18	0.33	0.49			0.02	0.50	-0.45	-0.07	0.41			0.5504	0.0475	0.6	1.0	0.6	1.0	A-	B-	C-
Science	4	7512	9	C.1.1.2	3	1099	1.05	0.37	0.21	0.42			0.02	0.36	-0.36	0.08	0.29			1.1532	0.0422	8.4	1.3	9.3	1.6	A+	A-	A-
Science	4	2565	10	C.2.1.2	3	1100	0.25	0.77	0.21	0.02			0.02	0.24	-0.24	0.22	0.10			3.6016	0.0685	2.3	1.1	2.8	1.3	A-	A+	A+
Science	4	6544	11	D.1.3.2	2	1099	0.56	0.52	0.40	0.08			0.02	0.42	-0.40	0.27	0.25			2.5123	0.0542	-0.4	1.0	-0.5	1.0	A-	B-	B-
Science	4	4562	12	D.1.2.2	2	1099	1.24	0.12	0.53	0.36			0.02	0.29	-0.22	-0.10	0.25			0.4935	0.0534	4.7	1.2	4.9	1.2	A-	A-	C-
Science	8	1315	0	D.3.1.3	2	126094	1.11	0.21	0.47	0.32			0.00	0.33	-0.25	-0.08	0.30			0.3334	0.0046	9.9	1.2	9.9	1.2			
Science	8	6352	0	A.3.2.1	2	126094	0.98	0.19	0.63	0.17			0.02	0.34	-0.28	0.04	0.25			0.7068	0.0053	9.9	1.1	9.9	1.1			
Science	8	1827	0	C.3.1.1	2	126094	0.87	0.36	0.41	0.23			0.02	0.44	-0.39	0.08	0.35			0.9513	0.0044	9.9	1.1	9.9	1.1			
Science	8	7416	0	B.2.2.1	2	126094	1.55	0.13	0.19	0.68			0.01	0.54	-0.46	-0.19	0.49			-0.6124	0.0047	-9.9	0.9	-9.9	0.9			
Science	8	9085	0	A.1.3.4	2	126094	1.36	0.23	0.18	0.59			0.02	0.58	-0.52	-0.12	0.54			-0.0888	0.0042	-9.9	0.9	-9.9	0.9			
Science	8	9700	1	A.3.1.4	2	1100	0.68	0.51	0.31	0.18			0.02	0.30	-0.22	-0.01	0.30			1.3598	0.0464	6.8	1.3	6.1	1.3	A+	A-	A-
Science	8	9350	2	A.3.2.2	3	1098	0.80	0.40	0.40	0.20			0.01	0.44	-0.42	0.17	0.31			1.1373	0.0476	1.7	1.1	1.6	1.1	A+	B-	C-
Science	8	2812	3	A.1.3.2	3	1100	0.27	0.78	0.17	0.05			0.02	0.32	-0.32	0.26	0.18			2.5852	0.0625	0.6	1.0	0.7	1.1	A+	A+	A+
Science	8	2283	4	A.2.2.1	2	1096	1.19	0.22	0.38	0.41			0.01	0.44	-0.36	-0.08	0.38			0.1997	0.0467	2.6	1.1	3.2	1.1	A+	A-	A-
Science	8	6560	5	D.2.1.2	2	1099	0.58	0.49	0.43	0.08			0.03	0.39	-0.36	0.22	0.26			1.8680	0.0542	0.9	1.0	0.5	1.0	A-	B-	A-
Science	8	262	6	D.3.1.1	2	1099	0.26	0.78	0.18	0.04			0.01	0.40	-0.39	0.31	0.22			2.7378	0.0650	-1.7	0.9	-2.9	0.8	A+	A+	A-
Science	8	3208	7	A.2.1.3	3	1098	0.76	0.44	0.36	0.20			0.03	0.54	-0.51	0.19	0.40			1.2077	0.0468	-2.8	0.9	-2.9	0.9	A+	A-	A-
Science	8	5151	8	B.1.1.2	2	1099	0.90	0.27	0.57	0.16			0.01	0.25	-0.19	0.01	0.22			0.9618	0.0529	5.3	1.2	5.6	1.2	A-	B-	A-
Science	8	8513	9	B.3.3.2	2	1100	0.66	0.51	0.33	0.16			0.02	0.55	-0.52	0.23	0.41			1.4725	0.0483	-3.7	0.9	-3.5	0.8	A+	A-	A-
Science	8	6831	10	D.1.2.1	3	1100	0.93	0.35	0.37	0.28			0.02	0.53	-0.52	0.17	0.37			0.8040	0.0454	-0.9	1.0	-1.0	1.0	A+	A-	A+
Science	8	1881	11	C.2.2.1	3	1099	0.25	0.78	0.18	0.03			0.02	0.43	-0.42	0.34	0.24			2.8026	0.0664	-2.3	0.9	-3.0	0.8	A-	A+	A-
Science	8	2986	12	C.2.1.3	2	1099	0.30	0.76	0.18	0.06			0.03	0.45	-0.44	0.32	0.29			2.4399	0.0593	-3.2	0.8	-3.0	0.8	B-	A-	A-
Science	11	7581	0	A.1.1.4	3	121699	1.11	0.22	0.46	0.32			0.07	0.41	-0.38	0.03	0.31			0.2305	0.0045	9.9	1.1	9.9	1.1			
Science	11	2902	0	A.3.1.2	2	121699	1.42	0.25	0.33	0.23	0.12	0.06	0.05	0.58	-0.50	-0.06	0.22	0.27	0.25	1.1147	0.0032	6.9	1.0	1.4	1.0			
Science	11	6108	0	A.2.1.1	3	121699	1.30	0.32	0.28	0.22	0.13	0.05	0.07	0.63	-0.54	-0.04	0.24	0.33	0.26	1.3009	0.0031	-9.9	0.9	-9.9	0.9			
Science	11	7687	0	A.1.3.2	3	121699	0.70	0.39	0.53	0.08			0.07	0.52	-0.51	0.36	0.26			1.4666	0.0052	-9.9	0.9	-9.9	0.9			
Science	11	5981	0	C.1.1.5	2	121699	0.95	0.34	0.36	0.30			0.05	0.60	-0.57	0.13	0.46			0.5998	0.0042	-9.9	0.9	-9.9	0.8			
Science	11	8272	0	D.1.2.2	2	121699	0.72	0.49	0.30	0.21			0.05	0.53	-0.52	0.22	0.38			1.1033	0.0043	-9.9	0.9	-9.9	0.9			
Science	11	9219	0	A.1.3.4	2	121699	1.02	0.41	0.30	0.18	0.08	0.03	0.06	0.59	-0.55	0.10	0.29	0.28	0.19	1.6496	0.0033	-9.9	0.9	-9.9	0.9			
Science	11	3448	0	A.3.2.1	3	121699	0.69	0.47	0.36	0.17			0.06	0.47	-0.46	0.23	0.32			1.2091	0.0045	-1.8	1.0	-9.8	1.0			
Science	11	3008	0	C.1.1.6	2	121699	1.03	0.29	0.38	0.32			0.09	0.51	-0.44	0.01	0.42			0.4269	0.0043	-7.7	1.0	-9.6	1.0			
Writing	5	6598	0	A.1	3	127499	2.61		0.06	0.34	0.52	0.07	0.00	0.66		-0.42	-0.39	0.40	0.32	2.3102	0.0062	-9.9	0.7	-9.9	0.6			

Appendix I: Item Statistics Open Ended

Item Information						Classical														Rasch		Infit		Outfit		DIF		
Cont	Grade	PubID	Form	Std	DOK	N	Mean	P(0)	P(1)	P(2)	P(3)	P(4)	P(B)	PtBis	PT(0)	PT(1)	PT(2)	PT(3)	PT(4)	Meas	MeasSE	t	MS	t	MS	M/F	W/B	W/H
Writing	5	6598	0	B.6	3	127499	2.59		0.07	0.34	0.51	0.07	0.00	0.68		-0.45	-0.38	0.42	0.33	2.4155	0.0060	-9.9	0.8	-9.9	0.7			
Writing	5	5717	0	A.3	3	127499	2.48		0.07	0.43	0.46	0.04	0.00	0.69		-0.46	-0.38	0.50	0.27	2.9725	0.0062	-9.9	0.7	-9.9	0.6			
Writing	5	5717	0	B.6	3	127499	2.48		0.07	0.42	0.46	0.04	0.00	0.69		-0.46	-0.38	0.50	0.27	2.9995	0.0062	-9.9	0.7	-9.9	0.7			
Writing	5	155	1	A.1	3	1092	2.70		0.04	0.34	0.49	0.13	0.00	0.66		-0.39	-0.44	0.33	0.37	1.7568	0.0635	-8.0	0.7	-7.1	0.7	B+	A-	A-
Writing	5	155	1	B.6	3	1092	2.64		0.06	0.36	0.46	0.12	0.00	0.68		-0.44	-0.40	0.35	0.37	2.0712	0.0623	-5.6	0.8	-4.9	0.8	B+	A-	A-
Writing	5	9546	2	A.2	3	1093	2.75		0.02	0.33	0.53	0.12	0.00	0.64		-0.33	-0.49	0.32	0.36	1.3036	0.0662	-8.6	0.7	-7.3	0.6	B+	A-	A+
Writing	5	9546	2	B.6	3	1093	2.72		0.03	0.34	0.51	0.12	0.00	0.66		-0.38	-0.46	0.33	0.37	1.5227	0.0644	-6.8	0.7	-4.5	0.8	B+	A-	A+
Writing	5	133	3	A.1	3	1096	2.67		0.02	0.36	0.55	0.07	0.00	0.64		-0.34	-0.49	0.42	0.29	1.7061	0.0696	-8.1	0.7	-8.1	0.6	B+	A-	A-
Writing	5	133	3	B.6	3	1096	2.63		0.05	0.34	0.54	0.07	0.00	0.66		-0.42	-0.41	0.42	0.29	2.1801	0.0663	-4.5	0.8	-4.6	0.8	B+	A-	A-
Writing	5	997	4	A.2	3	1092	2.67		0.02	0.37	0.53	0.08	0.00	0.64		-0.29	-0.50	0.38	0.33	1.7233	0.0689	-8.5	0.7	-8.3	0.6	B+	A-	A-
Writing	5	997	4	B.6	3	1092	2.64		0.03	0.38	0.51	0.08	0.00	0.65		-0.34	-0.47	0.40	0.33	1.9892	0.0676	-5.9	0.8	-4.6	0.8	C+	A-	A-
Writing	5	1404	5	A.1	3	1092	2.76		0.03	0.30	0.55	0.12	0.00	0.63		-0.35	-0.44	0.30	0.35	1.4026	0.0651	-6.2	0.8	-5.3	0.7	A+	B-	A-
Writing	5	1404	5	B.6	3	1092	2.74		0.03	0.33	0.52	0.12	0.00	0.66		-0.40	-0.46	0.34	0.35	1.5018	0.0642	-4.4	0.8	-3.8	0.8	A+	A-	A-
Writing	5	7835	6	A.2	3	1078	2.62		0.04	0.41	0.46	0.09	0.00	0.64		-0.34	-0.46	0.37	0.35	1.9846	0.0656	-8.3	0.7	-7.8	0.6	A+	A-	A-
Writing	5	7835	6	B.6	3	1078	2.59		0.04	0.41	0.45	0.09	0.00	0.67		-0.38	-0.44	0.39	0.36	2.1245	0.0646	-6.2	0.8	-5.9	0.7	B+	A-	A-
Writing	8	3793	0	A.3	4	128975	2.67		0.03	0.33	0.57	0.07	0.00	0.69		-0.36	-0.50	0.44	0.33	2.2003	0.0065	-9.9	0.6	-9.9	0.6			
Writing	8	3793	0	B.6	4	128975	2.67		0.04	0.33	0.57	0.07	0.00	0.69		-0.37	-0.50	0.45	0.33	2.2295	0.0065	-9.9	0.7	-9.9	0.6			
Writing	8	3769	0	A.2	3	128975	2.65		0.05	0.33	0.56	0.07	0.00	0.70		-0.41	-0.47	0.45	0.33	2.4016	0.0064	-9.9	0.6	-9.9	0.5			
Writing	8	3769	0	B.6	3	128975	2.64		0.05	0.33	0.56	0.07	0.00	0.71		-0.42	-0.47	0.45	0.33	2.4347	0.0064	-9.9	0.7	-9.9	0.6			
Writing	8	2696	1	A.2	3	1099	2.70		0.04	0.33	0.54	0.10	0.00	0.65		-0.32	-0.47	0.35	0.36	2.0601	0.0661	-8.9	0.7	-9.0	0.6	A+	A-	B-
Writing	8	2696	1	B.6	3	1099	2.69		0.05	0.32	0.53	0.10	0.00	0.68		-0.38	-0.45	0.37	0.36	2.1720	0.0643	-4.7	0.8	-4.3	0.8	A+	C-	C-
Writing	8	3714	2	A.3	3	1099	2.70		0.04	0.31	0.56	0.09	0.00	0.71		-0.42	-0.47	0.38	0.37	2.0544	0.0675	-9.9	0.6	-9.9	0.5	A+	C-	A-
Writing	8	3714	2	B.6	3	1099	2.71		0.04	0.29	0.56	0.10	0.00	0.71		-0.44	-0.45	0.37	0.38	2.0780	0.0666	-6.9	0.7	-6.5	0.7	B+	C-	B-
Writing	8	4623	3	A.2	3	1099	2.85		0.03	0.25	0.57	0.16	0.00	0.66		-0.37	-0.49	0.29	0.36	1.2976	0.0658	-9.5	0.6	-7.9	0.6	A+	B-	C-
Writing	8	4623	3	B.6	3	1099	2.79		0.04	0.28	0.54	0.14	0.00	0.69		-0.39	-0.50	0.33	0.38	1.5898	0.0645	-5.2	0.8	-2.0	0.9	B+	A-	C-
Writing	8	7397	4	A.3	3	1094	2.74		0.03	0.30	0.56	0.11	0.00	0.69		-0.36	-0.52	0.38	0.35	1.8235	0.0671	-9.7	0.6	-9.2	0.6	A+	C-	C-
Writing	8	7397	4	B.6	3	1094	2.78		0.03	0.28	0.57	0.12	0.00	0.69		-0.35	-0.52	0.35	0.38	1.6722	0.0668	-7.2	0.7	-6.5	0.7	A+	C-	C-
Writing	8	8290	5	A.2	3	1099	2.71		0.03	0.33	0.53	0.11	0.00	0.65		-0.36	-0.47	0.36	0.34	1.8958	0.0654	-8.9	0.7	-8.4	0.6	A+	C-	C-
Writing	8	8290	5	B.6	3	1099	2.72		0.04	0.32	0.51	0.12	0.00	0.67		-0.39	-0.45	0.34	0.37	1.9606	0.0637	-2.9	0.9	-0.5	1.0	B+	C-	C-
Writing	8	2646	6	A.3	3	1089	2.81		0.03	0.26	0.57	0.14	0.00	0.68		-0.36	-0.49	0.29	0.39	1.6138	0.0662	-9.9	0.6	-9.6	0.5	A+	B-	A+
Writing	8	2646	6	B.6	3	1089	2.81		0.04	0.25	0.57	0.14	0.00	0.69		-0.38	-0.49	0.31	0.38	1.6339	0.0661	-6.4	0.7	-4.8	0.7	A+	C-	A-
Writing	11	7509	0	A.3	3	125096	2.74		0.05	0.24	0.62	0.09	0.00	0.71		-0.45	-0.44	0.40	0.34	1.9731	0.0067	-9.9	0.7	-9.9	0.5			
Writing	11	7509	0	B.6	3	125096	2.74		0.05	0.24	0.61	0.09	0.00	0.73		-0.46	-0.45	0.40	0.35	1.9660	0.0066	-9.9	0.8	-9.9	0.7			
Writing	11	4289	0	A.2	3	125096	2.70		0.06	0.27	0.58	0.09	0.00	0.70		-0.46	-0.42	0.40	0.34	2.1558	0.0064	-9.9	0.7	-9.9	0.6			
Writing	11	4289	0	B.6	3	125096	2.71		0.06	0.26	0.58	0.09	0.00	0.72		-0.48	-0.43	0.41	0.35	2.0906	0.0064	-9.9	0.8	-9.9	0.7			

Appendix J:

Linking Item Statistics

Column Heading	Definition
Type	Item type
Form	Form
Seq	Sequence
Prev Form	Previous form
Prev Seq	Previous sequence
Prev P-Val	Previous P-Value
P-Val	P-Value
Prev Meas	Previous Rasch item measure
Meas	Rasch item measure

Mathematics Grade 3

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
567142	MC	0	1	0	1	0.89	0.88	0.2599	0.1743
550251	MC	0	2	0	2	0.96	0.96	-0.9649	-1.1262
557313	MC	0	6	0	6	0.88	0.86	0.3780	0.3853
566617	MC	0	8	0	8	0.75	0.75	1.5425	1.3784
565609	MC	0	10	0	10	0.84	0.82	0.8278	0.7571
557764	MC	0	15	0	16	0.67	0.65	2.0633	1.9785
566639	MC	0	16	0	16	0.83	0.81	0.8707	0.8485
566603	MC	0	17	0	17	0.86	0.84	0.6302	0.5794
550715	MC	0	21	0	21	0.93	0.92	-0.4072	-0.3711
557340	MC	0	24	0	24	0.90	0.89	0.0519	0.0295
557763	MC	0	54	0	54	0.81	0.80	1.0338	0.9652
550618	MC	0	57	0	57	0.83	0.81	0.8736	0.9134
550575	MC	0	58	0	58	0.91	0.89	-0.0081	0.1210
567137	MC	0	62	0	61	0.93	0.92	-0.4296	-0.3686
565605	MC	0	96	0	95	0.90	0.89	0.0809	0.0824
550621	MC	0	106	0	106	0.69	0.67	1.9347	1.8879
566599	MC	0	107	0	106	0.68	0.64	2.0046	2.0725
550466	MC	0	108	0	107	0.87	0.84	0.4933	0.6407
565067	MC	0	110	0	109	0.90	0.90	0.0434	-0.0407
567127	MC	0	112	0	111	0.70	0.72	1.8262	1.5652
550484	MC	0	114	0	113	0.89	0.86	0.2367	0.4334
557197	MC	0	116	0	115	0.86	0.85	0.5350	0.4985
550275	MC	0	117	0	117	0.97	0.96	-1.4688	-1.2605
593890	MC	0	119	0	118	0.94	0.93	-0.4832	-0.4837
609309	MC	1	66	5	65	0.72	0.71	1.6827	1.5839
606934	MC	1	73	5	72	0.89	0.89	0.2033	0.0232
606805	MC	2	65	4	64	0.88	0.87	0.3168	0.3311
620172	MC	2	71	2	70	0.82	0.78	0.9547	1.1093
606952	MC	3	70	2	69	0.96	0.95	-1.1373	-0.8900
618820	MC	3	74	3	73	0.76	0.72	1.4265	1.5565
606151	MC	4	69	2	68	0.96	0.96	-1.1359	-1.1693
606823	MC	4	73	1	72	0.82	0.82	0.9088	0.7819
606962	MC	5	68	5	67	0.88	0.85	0.4075	0.5489
606149	MC	5	71	4	70	0.93	0.94	-0.3767	-0.7547
550311	OE	0	25	0	25	0.57	0.54	2.4587	2.5429
566073	OE	0	26	0	26	0.59	0.58	2.2293	2.1501
					Mean	0.84	0.82	0.55	0.54

Mathematics Grade 4

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
542292	MC	0	1	0	1	0.80	0.81	-0.2096	-0.3698
557063	MC	0	8	0	8	0.47	0.48	1.5692	1.5307
592522	MC	0	9	0	9	0.62	0.62	0.8643	0.8231
544109	MC	0	11	0	11	0.71	0.68	0.3627	0.4621
593183	MC	0	13	0	13	0.73	0.74	0.2511	0.1452
544286	MC	0	15	0	15	0.86	0.87	-0.7565	-0.8619
593818	MC	0	16	0	16	0.64	0.64	0.7279	0.7219
542431	MC	0	17	0	17	0.67	0.68	0.5540	0.4912
593176	MC	0	20	0	20	0.69	0.67	0.4702	0.5265
565598	MC	0	22	0	22	0.73	0.72	0.2196	0.2333
593179	MC	0	23	0	23	0.46	0.45	1.6638	1.6758
593567	MC	0	24	0	24	0.74	0.71	0.1523	0.3258
550777	MC	0	57	0	57	0.73	0.73	0.1688	0.1745
565800	MC	0	100	0	100	0.51	0.49	1.4110	1.4822
566515	MC	0	102	0	102	0.64	0.62	0.7546	0.7904
557014	MC	0	103	0	103	0.54	0.54	1.2473	1.2249
565808	MC	0	106	0	106	0.78	0.76	-0.0942	-0.0051
542403	MC	0	107	0	107	0.65	0.63	0.6463	0.7558
550802	MC	0	109	0	109	0.81	0.76	-0.3533	-0.0270
550823	MC	0	110	0	110	0.63	0.61	0.7692	0.8703
542301	MC	0	113	0	113	0.87	0.86	-0.9072	-0.7761
550983	MC	0	114	0	113	0.80	0.88	-0.2541	-0.9479
593565	MC	0	117	0	117	0.81	0.81	-0.2790	-0.3726
542377	MC	0	118	0	117	0.38	0.35	2.0563	2.2215
615691	MC	1	68	3	68	0.74	0.77	0.1878	-0.1141
614035	MC	1	70	1	70	0.76	0.77	0.0001	-0.1131
608779	MC	2	70	2	70	0.70	0.63	0.4303	0.7775
611233	MC	2	76	3	76	0.67	0.67	0.6095	0.5298
608915	MC	3	73	4	73	0.74	0.73	0.2011	0.1948
609297	MC	3	76	1	76	0.86	0.86	-0.7296	-0.7819
614968	MC	4	67	1	67	0.79	0.81	-0.1823	-0.3596
611231	MC	4	68	1	68	0.74	0.74	0.1301	0.1194
614047	MC	5	74	4	74	0.67	0.67	0.6011	0.5348
608201	MC	5	75	5	75	0.73	0.72	0.2661	0.2364
593880	OE	0	25	0	25	0.62	0.62	0.8990	0.8945
548675	OE	0	26	0	26	0.56	0.52	1.3847	1.5467
					Mean	0.69	0.69	0.41	0.40

Mathematics Grade 5

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
544527	MC	0	3	0	3	0.81	0.81	-0.0140	-0.1427
544538	MC	0	6	0	5	0.85	0.84	-0.3411	-0.3706
544473	MC	0	7	0	6	0.47	0.50	1.9118	1.7382
540123	MC	0	9	0	8	0.86	0.85	-0.4612	-0.4143
544641	MC	0	10	0	9	0.37	0.37	2.4919	2.4148
551148	MC	0	23	0	23	0.76	0.75	0.3204	0.3186
544644	MC	0	54	0	54	0.91	0.90	-0.9605	-1.0259
595043	MC	0	55	0	55	0.87	0.85	-0.5130	-0.4918
594455	MC	0	58	0	58	0.66	0.65	0.9597	0.8995
595072	MC	0	60	0	60	0.54	0.53	1.5533	1.5468
566878	MC	0	98	0	98	0.88	0.91	-0.6092	-1.0553
593116	MC	0	100	0	100	0.41	0.41	2.2575	2.2037
551056	MC	0	103	0	102	0.75	0.77	0.3997	0.1868
593037	MC	0	104	0	104	0.38	0.38	2.3987	2.3841
544620	MC	0	107	0	107	0.65	0.67	0.9787	0.8092
564860	MC	0	108	0	108	0.68	0.64	0.8396	0.9572
544562	MC	0	109	0	108	0.61	0.61	1.2292	1.1425
564870	MC	0	111	0	111	0.61	0.59	1.2164	1.2583
544626	MC	0	112	0	111	0.85	0.81	-0.3632	-0.0907
595057	MC	0	115	0	115	0.83	0.83	-0.2071	-0.2592
595095	MC	0	116	0	116	0.41	0.39	2.2624	2.2825
593134	MC	0	117	0	117	0.73	0.68	0.5344	0.7491
544533	MC	0	118	0	117	0.48	0.54	1.8900	1.5021
544433	MC	0	120	0	120	0.64	0.65	1.0179	0.9357
609758	MC	1	74	1	74	0.79	0.78	0.1416	0.0854
608838	MC	1	75	5	75	0.67	0.50	0.9130	1.6685
606353	MC	2	67	1	67	0.80	0.82	0.0501	-0.2048
612073	MC	2	72	3	72	0.78	0.74	0.2430	0.3612
605338	MC	3	72	4	72	0.72	0.70	0.5695	0.6258
609737	MC	3	75	2	75	0.66	0.65	0.9186	0.9389
612071	MC	4	67	5	67	0.73	0.72	0.5791	0.5152
608839	MC	4	73	4	73	0.36	0.37	2.4656	2.4220
606375	MC	5	73	2	73	0.87	0.86	-0.5129	-0.5074
612087	MC	5	74	3	74	0.79	0.78	0.1681	0.1004
593089	OE	0	25	0	25	0.55	0.54	1.5085	1.5101
548710	OE	0	121	0	121	0.56	0.50	1.4223	1.6341
					Mean	0.67	0.66	0.76	0.74

Mathematics Grade 6

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
551184	MC	0	1	0	1	0.69	0.69	0.4394	0.4128
593117	MC	0	6	0	6	0.78	0.77	-0.1515	-0.1241
545023	MC	0	9	0	9	0.79	0.78	-0.1780	-0.1662
545021	MC	0	15	0	15	0.66	0.64	0.6151	0.6621
551235	MC	0	17	0	17	0.87	0.87	-0.8938	-0.9096
566876	MC	0	19	0	19	0.62	0.62	0.8638	0.7897
566874	MC	0	24	0	24	0.54	0.57	1.2958	1.0440
564887	MC	0	51	0	50	0.59	0.57	0.9881	1.0496
551205	MC	0	52	0	52	0.53	0.53	1.3046	1.2393
551299	MC	0	53	0	53	0.72	0.76	0.2296	-0.0346
545030	MC	0	56	0	56	0.77	0.77	-0.0962	-0.0880
551198	MC	0	57	0	57	0.71	0.71	0.3323	0.2636
564858	MC	0	61	0	60	0.83	0.82	-0.5051	-0.4691
545224	MC	0	94	0	93	0.76	0.75	-0.0327	0.0268
542580	MC	0	101	0	101	0.44	0.47	1.7762	1.5755
595030	MC	0	102	0	101	0.75	0.77	0.0840	-0.1290
542716	MC	0	103	0	103	0.89	0.89	-1.0834	-1.1762
545025	MC	0	108	0	108	0.82	0.82	-0.4399	-0.5033
542657	MC	0	109	0	108	0.79	0.77	-0.2458	-0.1031
593081	MC	0	112	0	111	0.67	0.65	0.5637	0.6158
594407	MC	0	114	0	113	0.77	0.75	-0.0525	0.0455
593128	MC	0	115	0	114	0.69	0.68	0.4288	0.4514
595002	MC	0	116	0	115	0.70	0.70	0.3663	0.3131
593086	MC	0	117	0	116	0.72	0.67	0.2643	0.4749
612110	MC	1	67	5	66	0.70	0.68	0.3928	0.4406
607424	MC	1	68	5	67	0.89	0.88	-1.0670	-1.0444
606382	MC	2	65	3	64	0.82	0.82	-0.4192	-0.4677
608866	MC	2	72	5	71	0.43	0.37	1.8307	2.0689
612108	MC	3	64	2	63	0.55	0.55	1.2074	1.1544
608879	MC	3	66	3	65	0.87	0.85	-0.8399	-0.7213
607367	MC	4	67	2	66	0.73	0.75	0.2240	0.0578
612096	MC	4	69	2	68	0.64	0.64	0.7238	0.6975
606401	MC	5	64	5	63	0.68	0.71	0.4956	0.2473
609728	MC	5	68	1	67	0.70	0.69	0.3435	0.3908
548758	OE	0	25	0	25	0.69	0.66	0.4526	0.6322
548751	OE	0	118	0	117	0.40	0.39	1.9682	1.9146
					Mean	0.70	0.69	0.31	0.30

Mathematics Grade 7

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
542845	MC	0	1	0	1	0.80	0.80	-0.3728	-0.3882
544866	MC	0	7	0	7	0.80	0.82	-0.4029	-0.4904
542910	MC	0	9	0	9	0.53	0.53	1.1865	1.1886
595014	MC	0	11	0	11	0.60	0.61	0.8459	0.7685
566867	MC	0	12	0	12	0.58	0.57	0.9329	0.9866
566803	MC	0	21	0	21	0.61	0.59	0.7881	0.9166
551394	MC	0	22	0	22	0.80	0.80	-0.4356	-0.3625
544783	MC	0	23	0	22	0.86	0.84	-0.8723	-0.6957
593151	MC	0	24	0	24	0.67	0.70	0.4681	0.2850
595011	MC	0	50	0	50	0.87	0.88	-0.9966	-1.0487
566860	MC	0	52	0	52	0.81	0.80	-0.4522	-0.3829
544767	MC	0	55	0	54	0.67	0.75	0.4048	0.0031
544936	MC	0	57	0	56	0.76	0.73	-0.1575	0.1125
544879	MC	0	58	0	58	0.82	0.84	-0.5324	-0.6520
594422	MC	0	59	0	59	0.77	0.72	-0.1822	0.1790
551362	MC	0	60	0	58	0.46	0.49	1.5933	1.3956
566802	MC	0	95	0	95	0.67	0.67	0.4883	0.4863
593058	MC	0	96	0	96	0.70	0.69	0.2742	0.3259
543052	MC	0	98	0	98	0.78	0.80	-0.2449	-0.3430
544890	MC	0	100	0	100	0.50	0.50	1.3791	1.3791
542980	MC	0	103	0	103	0.67	0.69	0.4416	0.3172
542937	MC	0	104	0	103	0.74	0.74	0.0334	0.0662
544868	MC	0	107	0	107	0.78	0.76	-0.2220	-0.0885
543112	MC	0	114	0	113	0.75	0.76	-0.0576	-0.0566
606417	MC	1	65	3	65	0.62	0.61	0.7530	0.7795
612075	MC	1	70	3	70	0.74	0.74	0.0620	0.0294
609763	MC	2	63	2	63	0.60	0.62	0.8646	0.7471
607364	MC	2	70	1	70	0.71	0.71	0.1952	0.2382
612045	MC	3	66	1	66	0.63	0.63	0.6463	0.7135
606415	MC	3	68	2	68	0.87	0.89	-0.9961	-1.1719
607369	MC	4	62	5	62	0.53	0.52	1.2322	1.2658
608827	MC	4	66	2	66	0.84	0.82	-0.6905	-0.4923
607466	MC	5	66	4	66	0.72	0.70	0.1709	0.2963
608824	MC	5	72	1	72	0.84	0.85	-0.6876	-0.7833
594362	OE	0	25	0	25	0.41	0.40	2.0347	2.0124
548799	OE	0	26	0	26	0.54	0.53	1.2600	1.3178
					Mean	0.70	0.70	0.24	0.25

Mathematics Grade 8

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
541972	MC	0	1	0	1	0.80	0.79	-0.2993	-0.2108
566825	MC	0	12	0	12	0.70	0.70	0.3796	0.3793
595012	MC	0	14	0	14	0.70	0.69	0.3897	0.4310
545754	MC	0	16	0	16	0.82	0.82	-0.4689	-0.4696
545641	MC	0	18	0	18	0.80	0.81	-0.2819	-0.3386
545698	MC	0	20	0	20	0.85	0.86	-0.7881	-0.7935
594372	MC	0	22	0	22	0.74	0.74	0.1302	0.1167
545825	MC	0	24	0	24	0.84	0.83	-0.6021	-0.5669
595048	MC	0	52	0	52	0.69	0.68	0.4524	0.4831
540310	MC	0	54	0	53	0.81	0.82	-0.3980	-0.4816
564888	MC	0	56	0	56	0.77	0.78	-0.0967	-0.1164
545796	MC	0	57	0	57	0.86	0.85	-0.8362	-0.6926
545714	MC	0	58	0	58	0.64	0.64	0.7522	0.7294
540256	MC	0	61	0	61	0.59	0.61	1.0189	0.8933
545802	MC	0	94	0	93	0.81	0.82	-0.3884	-0.4765
545799	MC	0	95	0	94	0.75	0.77	0.0490	-0.0784
557794	MC	0	99	0	98	0.79	0.79	-0.2553	-0.2470
594350	MC	0	103	0	103	0.74	0.76	0.1573	-0.0026
542001	MC	0	104	0	104	0.76	0.75	0.0027	0.0680
595096	MC	0	107	0	107	0.77	0.78	-0.0614	-0.1298
564919	MC	0	108	0	108	0.63	0.62	0.7765	0.8534
595008	MC	0	110	0	110	0.49	0.46	1.5345	1.7081
545581	MC	0	112	0	111	0.62	0.64	0.8591	0.7310
545637	MC	0	117	0	117	0.86	0.88	-0.8281	-1.0495
608799	MC	1	64	3	64	0.69	0.73	0.4360	0.2007
607440	MC	1	69	4	69	0.74	0.78	0.1313	-0.1411
606431	MC	2	63	4	63	0.87	0.84	-0.8448	-0.6459
606371	MC	2	73	3	73	0.47	0.53	1.6237	1.3236
606437	MC	3	63	2	63	0.50	0.48	1.4747	1.6050
612120	MC	3	69	2	69	0.78	0.79	-0.1474	-0.1938
612051	MC	4	66	2	66	0.75	0.74	0.0567	0.1381
608881	MC	4	72	2	72	0.85	0.82	-0.6759	-0.4012
609790	MC	5	64	5	64	0.67	0.67	0.5725	0.6043
608800	MC	5	67	3	67	0.55	0.58	1.2413	1.0725
548831	OE	0	26	0	26	0.44	0.44	1.7237	1.7240
540442	OE	0	118	0	118	0.53	0.50	1.2547	1.3659
					Mean	0.71	0.72	0.22	0.21

Mathematics Grade 11

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
540582	MC	0	1	0	1	0.55	0.56	0.5376	0.5099
542184	MC	0	3	0	3	0.86	0.85	-1.5454	-1.3389
545533	MC	0	11	0	11	0.77	0.77	-0.6938	-0.7668
566797	MC	0	12	0	12	0.74	0.74	-0.5096	-0.5254
564892	MC	0	13	0	13	0.86	0.87	-1.4832	-1.5037
595089	MC	0	21	0	21	0.73	0.68	-0.4629	-0.1681
551732	MC	0	53	0	53	0.82	0.84	-1.0772	-1.2563
542249	MC	0	57	0	57	0.69	0.70	-0.1848	-0.3168
542138	MC	0	59	0	59	0.74	0.75	-0.5629	-0.6225
551700	MC	0	60	0	61	0.83	0.85	-1.2604	-1.3214
545438	MC	0	61	0	61	0.72	0.72	-0.4082	-0.4409
593110	MC	0	64	0	64	0.63	0.61	0.1237	0.2079
545322	MC	0	96	0	96	0.62	0.63	0.1710	0.0981
542232	MC	0	97	0	96	0.80	0.79	-0.9956	-0.8768
545338	MC	0	98	0	97	0.67	0.67	-0.1055	-0.1126
595063	MC	0	102	0	102	0.64	0.62	0.0773	0.1775
542211	MC	0	103	0	103	0.42	0.41	1.2518	1.3056
545352	MC	0	104	0	104	0.89	0.90	-1.9192	-1.9632
566902	MC	0	109	0	109	0.72	0.70	-0.3761	-0.2924
564899	MC	0	110	0	110	0.64	0.64	0.0874	0.0494
551759	MC	0	111	0	111	0.73	0.76	-0.5142	-0.6816
594379	MC	0	115	0	115	0.70	0.70	-0.2687	-0.2890
551639	MC	0	118	0	118	0.76	0.78	-0.7020	-0.7990
608848	MC	1	71	4	71	0.84	0.83	-1.2759	-1.1822
606341	MC	1	75	3	75	0.60	0.61	0.3066	0.1898
605351	MC	2	66	1	66	0.40	0.40	1.3458	1.3347
605353	MC	2	69	2	69	0.82	0.80	-1.0491	-0.9617
609755	MC	3	70	4	70	0.67	0.65	-0.1101	0.0321
608844	MC	3	74	5	74	0.57	0.55	0.4643	0.5574
609701	MC	4	68	3	68	0.56	0.63	0.4843	0.1107
607456	MC	4	75	1	75	0.61	0.62	0.2384	0.1926
607455	MC	5	70	1	70	0.61	0.65	0.2353	0.0297
612054	MC	5	73	3	73	0.63	0.64	0.1552	0.0844
548869	OE	0	25	0	25	0.38	0.37	1.3327	1.3627
594375	OE	0	120	0	120	0.36	0.34	1.7537	1.9132
					Mean	0.67	0.68	-0.20	-0.21

Reading Grade 3

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
593392	MC	0	35	0	35	0.59	0.60	0.6177	0.5189
593397	MC	0	36	0	36	0.48	0.46	1.2459	1.2333
593402	MC	0	37	0	37	0.69	0.70	0.0954	-0.0665
593395	MC	0	38	0	38	0.81	0.81	-0.7482	-0.8351
593393	MC	0	39	0	39	0.71	0.70	-0.0515	-0.1065
593399	MC	0	40	0	40	0.41	0.41	1.5880	1.5189
593396	MC	0	41	0	41	0.89	0.89	-1.5545	-1.5593
593400	MC	0	42	0	42	0.72	0.71	-0.1140	-0.1532
554653	MC	0	121	0	120	0.81	0.80	-0.7382	-0.7875
554658	MC	0	122	0	121	0.77	0.76	-0.4335	-0.4761
554651	MC	0	123	0	122	0.77	0.76	-0.4538	-0.4455
554646	MC	0	124	0	123	0.50	0.50	1.0947	1.0178
554647	MC	0	125	0	124	0.77	0.78	-0.4664	-0.5883
554652	MC	0	126	0	125	0.78	0.77	-0.5455	-0.5502
554656	MC	0	127	0	126	0.56	0.56	0.8057	0.6984
554648	MC	0	128	0	127	0.91	0.90	-1.7217	-1.6649
554655	MC	0	129	0	128	0.67	0.68	0.2053	0.0648
616904	MC	1	88	1	84	0.60	0.57	0.5706	0.6336
616903	MC	1	89	1	87	0.49	0.51	1.1238	0.9307
616898	MC	1	90	1	88	0.51	0.51	1.0253	0.9540
616900	MC	1	91	1	89	0.67	0.68	0.1609	0.0525
616901	MC	1	92	1	90	0.44	0.46	1.3719	1.2333
616897	MC	1	93	1	91	0.63	0.64	0.3770	0.2816
616896	MC	1	94	1	92	0.83	0.82	-0.8759	-0.9573
616902	MC	1	95	1	93	0.76	0.75	-0.3879	-0.3919
618967	MC	4	88	4	84	0.62	0.58	0.5060	0.6412
613887	MC	4	89	4	85	0.75	0.73	-0.2909	-0.2723
613890	MC	4	90	4	86	0.84	0.80	-0.9576	-0.7587
613895	MC	4	91	4	87	0.66	0.60	0.2544	0.4985
613893	MC	4	92	4	88	0.77	0.72	-0.4256	-0.1735
613892	MC	4	93	4	89	0.87	0.82	-1.2616	-0.8927
613889	MC	4	94	4	90	0.57	0.53	0.7472	0.8975
613894	MC	4	95	4	93	0.72	0.70	-0.0825	-0.0864
557910	OE	0	130	0	129	0.54	0.51	0.7432	0.8671
					Mean	0.68	0.67	0.04	0.04

Reading Grade 4

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
565015	MC	0	45	0	45	0.72	0.74	-0.0384	-0.2076
565010	MC	0	46	0	46	0.86	0.87	-1.0545	-1.1926
565011	MC	0	47	0	47	0.87	0.86	-1.1182	-1.1418
565012	MC	0	48	0	48	0.50	0.49	1.1236	1.1138
565008	MC	0	49	0	49	0.81	0.80	-0.6280	-0.6508
565017	MC	0	50	0	50	0.40	0.39	1.6002	1.6412
565018	MC	0	51	0	51	0.78	0.77	-0.4261	-0.4424
552786	MC	0	131	0	131	0.76	0.76	-0.2578	-0.3715
552778	MC	0	132	0	132	0.73	0.71	-0.1052	-0.0381
552789	MC	0	133	0	133	0.70	0.72	0.0836	-0.0944
552785	MC	0	134	0	134	0.80	0.80	-0.5212	-0.6628
552787	MC	0	135	0	135	0.77	0.78	-0.3452	-0.4772
552788	MC	0	136	0	136	0.58	0.60	0.7290	0.5585
552783	MC	0	137	0	137	0.63	0.64	0.4810	0.3688
552784	MC	0	138	0	138	0.68	0.70	0.1970	0.0000
614522	MC	1	89	2	87	0.69	0.67	0.1766	0.2043
614512	MC	1	90	2	88	0.68	0.66	0.2188	0.2638
614515	MC	1	91	2	90	0.83	0.82	-0.7347	-0.7779
614518	MC	1	92	2	91	0.79	0.78	-0.4424	-0.4929
614514	MC	1	93	2	92	0.79	0.77	-0.4491	-0.4008
614524	MC	1	94	2	93	0.73	0.70	-0.0888	-0.0027
614519	MC	1	95	2	94	0.78	0.73	-0.3594	-0.1665
614517	MC	1	96	2	95	0.75	0.72	-0.1516	-0.0975
613111	MC	4	89	3	86	0.42	0.41	1.5235	1.5093
613109	MC	4	90	3	88	0.49	0.43	1.1878	1.3990
613110	MC	4	91	3	89	0.69	0.67	0.1865	0.1941
613117	MC	4	92	3	90	0.76	0.76	-0.2495	-0.3534
613118	MC	4	93	3	91	0.71	0.69	0.0257	0.0711
613113	MC	4	94	3	92	0.61	0.56	0.5729	0.7530
613115	MC	4	95	3	93	0.52	0.50	1.0290	1.0833
613114	MC	4	96	3	94	0.59	0.54	0.6921	0.8771
565019	OE	0	52	0	52	0.70	0.65	0.2631	0.3312
551900	OE	0	139	0	139	0.64	0.63	0.1847	0.1257
					Mean	0.69	0.68	0.10	0.09

Reading Grade 5

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
565995	MC	0	44	0	44	0.66	0.66	0.4754	0.4857
566067	MC	0	45	0	45	0.67	0.67	0.4328	0.4272
565996	MC	0	46	0	46	0.92	0.92	-1.6007	-1.5993
565947	MC	0	47	0	47	0.65	0.65	0.5460	0.5365
565949	MC	0	48	0	48	0.73	0.71	0.1174	0.1650
565993	MC	0	49	0	49	0.76	0.78	-0.1036	-0.2276
565944	MC	0	50	0	50	0.36	0.39	1.9908	1.8496
565945	MC	0	51	0	51	0.60	0.58	0.8144	0.9113
557636	MC	0	132	0	132	0.81	0.82	-0.4562	-0.5677
557637	MC	0	133	0	133	0.79	0.78	-0.3029	-0.2341
557638	MC	0	134	0	134	0.90	0.88	-1.2440	-1.1664
557639	MC	0	135	0	135	0.63	0.62	0.6545	0.6761
557640	MC	0	136	0	136	0.72	0.71	0.1491	0.1686
557641	MC	0	137	0	137	0.78	0.78	-0.2259	-0.2706
557643	MC	0	138	0	138	0.58	0.58	0.9251	0.8950
606757	MC	1	89	4	86	0.68	0.67	0.3988	0.4250
606758	MC	1	90	4	87	0.38	0.41	1.8864	1.7195
606760	MC	1	91	4	89	0.85	0.86	-0.7809	-0.8895
606762	MC	1	92	4	90	0.82	0.78	-0.5321	-0.2659
606765	MC	1	93	4	91	0.67	0.65	0.4630	0.5215
606764	MC	1	94	4	93	0.80	0.79	-0.3387	-0.2994
606773	MC	1	95	4	94	0.79	0.76	-0.2982	-0.1358
606761	MC	1	96	4	95	0.54	0.53	1.1238	1.1488
606770	MC	4	89	2	86	0.47	0.46	1.4500	1.4888
606732	MC	4	90	2	87	0.86	0.85	-0.8591	-0.7974
608486	MC	4	91	2	88	0.87	0.87	-0.9908	-0.9682
635893	MC	4	92	2	89	0.73	0.75	0.1144	-0.0483
606753	MC	4	93	2	91	0.34	0.39	2.0873	1.8576
606752	MC	4	94	2	92	0.72	0.72	0.1524	0.1498
606749	MC	4	95	2	93	0.91	0.91	-1.4849	-1.4053
606754	MC	4	96	2	95	0.92	0.91	-1.5288	-1.5187
565950	OE	0	52	0	52	0.63	0.60	0.4089	0.4526
557644	OE	0	139	0	139	0.58	0.59	0.6710	0.6250
					Mean	0.70	0.70	0.12	0.12

Reading Grade 6

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
596712	MC	0	41	0	40	0.55	0.53	0.8977	0.8744
596660	MC	0	42	0	41	0.57	0.54	0.7847	0.8252
596664	MC	0	43	0	42	0.69	0.67	0.1213	0.1162
596663	MC	0	44	0	43	0.82	0.81	-0.7494	-0.7435
596662	MC	0	45	0	44	0.75	0.74	-0.2150	-0.2868
596659	MC	0	46	0	45	0.71	0.70	0.0337	-0.0235
596657	MC	0	47	0	46	0.68	0.67	0.1774	0.1521
596654	MC	0	48	0	47	0.83	0.82	-0.7903	-0.8655
553129	MC	0	119	0	118	0.86	0.86	-1.0599	-1.1602
553132	MC	0	120	0	119	0.76	0.74	-0.2773	-0.2668
553128	MC	0	121	0	120	0.73	0.73	-0.1216	-0.2321
553135	MC	0	122	0	121	0.76	0.75	-0.3012	-0.3635
553133	MC	0	123	0	122	0.66	0.63	0.2780	0.3480
553137	MC	0	124	0	123	0.83	0.82	-0.7834	-0.8755
553141	MC	0	125	0	124	0.65	0.64	0.3411	0.2954
553139	MC	0	126	0	125	0.43	0.42	1.4953	1.4371
607165	MC	1	86	2	82	0.54	0.51	0.9330	0.9850
607178	MC	1	87	2	83	0.62	0.61	0.5248	0.4862
610487	MC	1	88	2	84	0.75	0.67	-0.2293	0.1324
607180	MC	1	89	2	85	0.84	0.79	-0.9012	-0.6543
610486	MC	1	90	2	86	0.74	0.74	-0.1577	-0.2849
609797	MC	1	91	2	87	0.71	0.69	0.0376	0.0219
607169	MC	1	92	2	89	0.78	0.77	-0.4328	-0.4806
607182	MC	1	93	2	91	0.66	0.68	0.2857	0.0555
607267	MC	4	86	1	82	0.73	0.73	-0.1522	-0.2133
607265	MC	4	87	1	83	0.72	0.71	-0.1049	-0.1133
607318	MC	4	88	1	85	0.73	0.73	-0.1453	-0.2144
609665	MC	4	89	1	86	0.79	0.78	-0.5155	-0.5200
607319	MC	4	90	1	88	0.42	0.43	1.5050	1.3907
607316	MC	4	91	1	89	0.76	0.79	-0.3347	-0.6205
607266	MC	4	92	1	90	0.74	0.73	-0.1840	-0.2365
607317	MC	4	93	1	91	0.65	0.66	0.3148	0.2201
596666	OE	0	49	0	48	0.65	0.66	0.0281	-0.0961
553142	OE	0	127	0	126	0.64	0.62	-0.1257	0.0743
					Mean	0.70	0.69	0.01	-0.02

Reading Grade 7

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
594138	MC	0	33	0	34	0.85	0.87	-0.9384	-1.1686
599552	MC	0	34	0	35	0.91	0.92	-1.5681	-1.7914
594137	MC	0	35	0	36	0.43	0.50	1.4512	1.0970
594144	MC	0	36	0	37	0.48	0.48	1.1973	1.1823
594142	MC	0	37	0	38	0.74	0.75	-0.1395	-0.2363
594163	MC	0	38	0	39	0.53	0.53	0.9719	0.9609
594097	MC	0	132	0	132	0.44	0.44	1.3926	1.4050
594127	MC	0	133	0	133	0.78	0.79	-0.4285	-0.5127
594102	MC	0	134	0	134	0.68	0.68	0.1827	0.1796
594101	MC	0	135	0	135	0.49	0.48	1.1884	1.1904
594092	MC	0	136	0	136	0.58	0.58	0.7303	0.7138
594093	MC	0	137	0	137	0.56	0.52	0.8067	0.9867
594095	MC	0	138	0	138	0.64	0.67	0.4015	0.2537
609621	MC	1	85	4	82	0.64	0.66	0.4282	0.2949
609527	MC	1	86	4	83	0.66	0.68	0.3381	0.1408
609533	MC	1	87	4	85	0.64	0.63	0.4317	0.4519
609531	MC	1	88	4	86	0.83	0.80	-0.7634	-0.5914
609620	MC	1	89	4	88	0.86	0.83	-1.0167	-0.8556
609619	MC	1	90	4	89	0.82	0.77	-0.6447	-0.4000
609529	MC	1	91	4	90	0.75	0.76	-0.1712	-0.3594
609530	MC	1	92	4	91	0.90	0.88	-1.4379	-1.2976
609606	MC	4	85	2	82	0.50	0.48	1.1432	1.2172
609611	MC	4	86	2	83	0.68	0.64	0.2199	0.4098
609614	MC	4	87	2	84	0.77	0.77	-0.3071	-0.3418
609609	MC	4	88	2	85	0.72	0.70	-0.0018	0.0523
609612	MC	4	89	2	86	0.86	0.85	-1.0702	-0.9796
609615	MC	4	90	2	87	0.87	0.86	-1.1444	-1.1134
609616	MC	4	91	2	88	0.77	0.75	-0.3042	-0.2593
609610	MC	4	92	2	91	0.73	0.71	-0.0551	0.0363
594134	OE	0	39	0	40	0.60	0.62	0.4523	0.2016
594094	OE	0	139	0	139	0.50	0.48	1.1297	1.2192
					Mean	0.68	0.68	0.08	0.07

Reading Grade 8

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
555938	MC	0	27	0	27	0.76	0.74	0.3086	0.3564
555939	MC	0	28	0	28	0.47	0.47	1.8548	1.8255
555940	MC	0	29	0	29	0.72	0.72	0.5417	0.5164
555941	MC	0	30	0	30	0.82	0.82	-0.1312	-0.1949
555942	MC	0	31	0	31	0.51	0.50	1.6564	1.6419
555943	MC	0	32	0	32	0.84	0.84	-0.2598	-0.3004
555944	MC	0	33	0	33	0.37	0.38	2.3099	2.2482
555948	MC	0	34	0	34	0.77	0.77	0.1956	0.1532
555954	MC	0	132	0	132	0.81	0.81	-0.0905	-0.0934
555961	MC	0	133	0	133	0.81	0.81	-0.0556	-0.1318
555958	MC	0	134	0	134	0.54	0.53	1.4747	1.5021
555956	MC	0	135	0	135	0.84	0.84	-0.2583	-0.3052
555951	MC	0	136	0	136	0.74	0.75	0.4285	0.3118
555955	MC	0	137	0	137	0.76	0.76	0.2870	0.2298
555953	MC	0	138	0	138	0.69	0.68	0.6958	0.7485
608633	MC	1	86	4	84	0.86	0.87	-0.5199	-0.6004
608637	MC	1	87	4	85	0.71	0.73	0.5878	0.4558
608643	MC	1	88	4	86	0.72	0.73	0.5440	0.4548
608636	MC	1	89	4	87	0.81	0.82	-0.0741	-0.1993
608640	MC	1	90	4	88	0.73	0.70	0.4830	0.6183
608635	MC	1	91	4	89	0.77	0.73	0.2010	0.4211
608639	MC	1	92	4	90	0.71	0.71	0.6207	0.5776
608641	MC	1	93	4	92	0.78	0.77	0.1394	0.1654
608548	MC	4	86	1	83	0.77	0.77	0.1904	0.2258
608552	MC	4	87	1	85	0.47	0.45	1.8239	1.9110
608550	MC	4	88	1	87	0.86	0.85	-0.4810	-0.4361
608555	MC	4	89	1	88	0.61	0.62	1.1393	1.0761
608553	MC	4	90	1	89	0.40	0.39	2.1383	2.1711
608551	MC	4	91	1	90	0.61	0.61	1.1183	1.0981
608556	MC	4	92	1	91	0.48	0.49	1.7817	1.7127
608554	MC	4	93	1	92	0.75	0.76	0.3441	0.2912
555950	OE	0	35	0	35	0.69	0.69	0.3192	0.3175
555962	OE	0	139	0	139	0.56	0.52	1.3412	1.5928
					Mean	0.69	0.69	0.63	0.62

Reading Grade 11

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
555991	MC	0	28	0	27	0.43	0.47	1.3812	1.1669
555993	MC	0	29	0	28	0.96	0.95	-2.5113	-2.3343
557936	MC	0	30	0	29	0.63	0.63	0.4338	0.3823
555997	MC	0	31	0	30	0.61	0.62	0.5191	0.4612
555996	MC	0	32	0	31	0.71	0.71	-0.0197	-0.0645
556000	MC	0	33	0	32	0.85	0.85	-1.0022	-0.9935
556110	MC	0	130	0	130	0.87	0.86	-1.2005	-1.1487
556121	MC	0	131	0	131	0.67	0.68	0.2012	0.0936
556116	MC	0	132	0	132	0.75	0.74	-0.2321	-0.2286
556115	MC	0	133	0	133	0.87	0.86	-1.1510	-1.1128
556113	MC	0	134	0	134	0.63	0.64	0.4078	0.3438
556111	MC	0	135	0	135	0.55	0.51	0.8014	0.9730
556120	MC	0	136	0	136	0.58	0.56	0.6828	0.7411
556112	MC	0	137	0	137	0.79	0.78	-0.5041	-0.4882
556119	MC	0	138	0	138	0.58	0.56	0.6928	0.7238
611845	MC	1	88	4	85	0.79	0.78	-0.5217	-0.4529
611825	MC	1	89	4	87	0.83	0.84	-0.8202	-0.9617
611827	MC	1	90	4	88	0.43	0.48	1.4271	1.1020
611846	MC	1	91	4	89	0.92	0.92	-1.8396	-1.8083
635774	MC	1	92	4	90	0.78	0.77	-0.4393	-0.3888
611809	MC	1	93	4	91	0.62	0.59	0.4809	0.5954
611810	MC	1	94	4	92	0.53	0.51	0.9303	0.9670
611822	MC	1	95	4	94	0.50	0.47	1.0790	1.1485
611776	MC	4	88	1	90	0.80	0.80	-0.6299	-0.5943
611820	MC	4	89	1	88	0.58	0.56	0.6708	0.7805
611774	MC	4	90	1	89	0.62	0.63	0.4477	0.3983
611779	MC	4	91	1	93	0.79	0.78	-0.5085	-0.4921
611772	MC	4	92	1	86	0.45	0.49	1.2966	1.1151
611777	MC	4	93	1	92	0.89	0.90	-1.4254	-1.4975
611778	MC	4	94	1	85	0.86	0.81	-1.0919	-0.7188
611821	MC	4	95	1	91	0.68	0.70	0.1583	0.0568
556002	OE	0	34	0	34	0.65	0.67	0.0880	-0.0459
556122	OE	0	139	0	139	0.71	0.69	-0.1729	-0.1994
					Mean	0.69	0.69	-0.07	-0.08

Science Grade 4

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
560026	MC	0	4	0	4	0.72	0.74	0.1532	-0.0156
559866	MC	0	5	0	5	0.59	0.55	0.8536	0.9989
565229	MC	0	10	0	10	0.68	0.64	0.3799	0.5463
565379	MC	0	11	0	11	0.78	0.78	-0.2530	-0.2751
564841	MC	0	14	0	14	0.79	0.80	-0.3510	-0.4455
564853	MC	0	19	0	19	0.87	0.85	-0.9966	-0.8188
564838	MC	0	23	0	23	0.65	0.64	0.5412	0.5642
554044	MC	0	24	0	24	0.58	0.59	0.8901	0.8197
565389	MC	0	41	0	41	0.57	0.59	0.9321	0.8164
564839	MC	0	44	0	44	0.85	0.81	-0.8158	-0.4983
564846	MC	0	45	0	45	0.81	0.81	-0.4477	-0.4853
559848	MC	0	48	0	48	0.83	0.84	-0.6433	-0.7658
565394	MC	0	49	0	49	0.64	0.63	0.5992	0.5943
560027	MC	0	52	0	52	0.75	0.75	-0.0662	-0.0947
595918	MC	0	63	0	63	0.87	0.88	-1.0035	-1.1036
549576	MC	0	66	0	66	0.71	0.73	0.1659	0.0727
559711	MC	1	30	11	30	0.55	0.55	1.0209	0.9753
608439	MC	1	67	1	67	0.83	0.82	-0.6785	-0.6232
627526	MC	2	31	5	31	0.89	0.88	-1.1585	-1.1223
627531	MC	2	68	5	67	0.50	0.47	1.2684	1.4100
608403	MC	3	32	7	32	0.57	0.61	0.9370	0.7257
607142	MC	3	68	9	68	0.59	0.69	0.8247	0.2942
608416	MC	4	32	9	32	0.58	0.53	0.9067	1.0972
559722	MC	4	69	9	69	0.61	0.58	0.7343	0.8379
559993	MC	5	34	10	34	0.53	0.52	1.1162	1.1550
608423	MC	5	69	8	69	0.80	0.77	-0.3577	-0.2275
608402	MC	6	34	6	34	0.64	0.68	0.5753	0.3008
606983	MC	6	70	12	70	0.44	0.43	1.5569	1.5879
607153	MC	7	31	10	31	0.45	0.48	1.5328	1.3556
608411	MC	7	68	2	68	0.79	0.77	-0.2924	-0.1853
607154	MC	8	34	10	71	0.82	0.81	-0.5600	-0.5132
627525	MC	8	69	3	69	0.75	0.75	-0.0128	-0.0985
627539	MC	9	33	1	71	0.70	0.70	0.1886	0.2608
627530	MC	9	69	1	69	0.65	0.69	0.4913	0.2919
608455	MC	10	32	1	32	0.68	0.67	0.2842	0.4013
626714	MC	10	71	6	70	0.69	0.68	0.3426	0.3258
560043	MC	11	33	6	33	0.75	0.76	-0.0519	-0.1667
627528	MC	11	70	5	70	0.55	0.56	1.0177	0.9503
608421	MC	12	30	3	30	0.65	0.63	0.5158	0.6064
564852	MC	12	71	3	71	0.52	0.57	1.1639	0.9205
593616	OE	0	72	0	72	0.76	0.76	-0.2401	-0.2092
565270	OE	0	73	0	73	0.65	0.56	0.6178	0.9806
					Mean	0.68	0.68	0.28	0.27

Science Grade 8

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
567026	MC	0	1	0	1	0.72	0.72	-0.5358	-0.4974
564902	MC	0	4	0	4	0.74	0.76	-0.6852	-0.7496
593323	MC	0	6	0	6	0.53	0.49	0.4652	0.6964
565240	MC	0	7	0	7	0.63	0.61	-0.0442	0.0824
566089	MC	0	8	0	8	0.76	0.76	-0.7817	-0.7329
566348	MC	0	14	0	14	0.78	0.80	-0.9437	-0.9923
565082	MC	0	17	0	17	0.49	0.51	0.6612	0.5782
565077	MC	0	23	0	23	0.77	0.80	-0.8854	-0.9922
549655	MC	0	24	0	24	0.46	0.45	0.8014	0.8804
566090	MC	0	25	0	25	0.64	0.66	-0.1147	-0.1409
566339	MC	0	26	0	26	0.55	0.57	0.3243	0.2939
558357	MC	0	39	0	39	0.79	0.79	-1.0358	-0.9631
565407	MC	0	40	0	40	0.62	0.63	-0.0122	-0.0194
565088	MC	0	49	0	49	0.70	0.76	-0.4429	-0.7252
560090	MC	0	58	0	58	0.59	0.59	0.1389	0.1976
565252	MC	0	62	0	62	0.69	0.64	-0.3796	-0.0594
607607	MC	1	34	10	34	0.67	0.69	-0.2724	-0.3446
608718	MC	1	71	4	71	0.55	0.58	0.3260	0.1966
608737	MC	2	34	6	34	0.53	0.53	0.4460	0.5123
608025	MC	3	34	9	34	0.52	0.52	0.4745	0.5369
626808	MC	3	70	10	70	0.37	0.42	1.2290	1.0368
608717	MC	4	32	12	32	0.61	0.63	0.0766	-0.0100
608466	MC	4	73	3	73	0.62	0.64	0.0102	-0.0370
626826	MC	5	34	6	72	0.70	0.74	-0.4474	-0.6363
607631	MC	5	70	3	70	0.71	0.73	-0.4965	-0.5267
608176	MC	6	32	12	70	0.69	0.58	-0.3533	0.2143
608736	MC	6	73	12	73	0.63	0.64	-0.0560	-0.0988
607065	MC	7	33	2	33	0.57	0.57	0.2600	0.2689
608726	MC	7	72	11	72	0.65	0.67	-0.1541	-0.2286
626813	MC	8	33	9	33	0.53	0.50	0.4675	0.6591
608181	MC	8	72	5	72	0.77	0.78	-0.8616	-0.8583
607639	MC	9	33	8	33	0.66	0.68	-0.2003	-0.2449
564901	MC	9	70	5	70	0.44	0.45	0.8468	0.9084
627113	MC	10	35	2	35	0.58	0.58	0.1738	0.2454
626810	MC	10	72	8	72	0.36	0.33	1.2597	1.4741
607609	MC	11	35	1	35	0.55	0.56	0.3058	0.3526
565271	MC	11	73	7	73	0.60	0.64	0.0907	-0.0548
626788	MC	12	32	4	32	0.33	0.40	1.4254	1.1478
626862	MC	12	73	1	73	0.72	0.80	-0.5891	-1.0199
565090	OE	0	36	0	36	0.55	0.56	0.3009	0.3334
593629	OE	0	75	0	75	0.63	0.68	0.0448	-0.0888
					Mean	0.61	0.62	0.02	0.01

Science Grade 11

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
554391	MC	0	2	0	2	0.42	0.44	0.8870	0.8051
559897	MC	0	3	0	3	0.81	0.82	-1.2062	-1.2315
566652	MC	0	7	0	7	0.55	0.56	0.2618	0.2437
593811	MC	0	12	0	12	0.69	0.71	-0.4562	-0.5346
560097	MC	0	26	0	26	0.68	0.68	-0.4071	-0.3606
554442	MC	0	27	0	26	0.75	0.77	-0.7998	-0.8800
593812	MC	0	28	0	28	0.63	0.65	-0.1578	-0.2237
549892	MC	0	29	0	29	0.74	0.74	-0.7516	-0.7255
565302	MC	0	33	0	33	0.61	0.61	-0.0428	0.0023
549989	MC	0	34	0	34	0.65	0.70	-0.2522	-0.5083
559912	MC	0	51	0	51	0.52	0.53	0.3750	0.3471
566356	MC	0	52	0	52	0.59	0.63	0.0462	-0.1359
549961	MC	0	54	0	54	0.50	0.48	0.4874	0.5895
549890	MC	0	56	0	56	0.56	0.55	0.2127	0.2722
559856	MC	0	60	0	60	0.68	0.71	-0.4084	-0.5246
565421	MC	0	61	0	61	0.61	0.62	-0.0398	-0.0743
610986	MC	1	46	8	46	0.39	0.41	0.9918	0.9328
610962	MC	1	70	8	70	0.55	0.57	0.2472	0.1706
610954	MC	2	49	1	49	0.40	0.37	0.9618	1.1577
612851	MC	2	69	2	69	0.38	0.40	1.0851	1.0139
610956	MC	3	48	7	48	0.64	0.59	-0.1928	0.0887
612864	MC	3	69	1	69	0.58	0.58	0.0770	0.1603
612840	MC	4	49	6	49	0.57	0.57	0.1496	0.1991
610969	MC	4	70	3	70	0.35	0.38	1.2281	1.0798
626331	MC	5	47	6	47	0.37	0.33	1.1362	1.3590
608178	MC	5	71	6	71	0.54	0.55	0.3121	0.3028
610975	MC	6	46	7	69	0.58	0.56	0.1245	0.2412
610944	MC	6	72	2	72	0.28	0.29	1.6020	1.5651
610972	MC	7	47	1	70	0.59	0.65	0.0330	-0.2164
565715	MC	7	71	1	48	0.47	0.43	0.6100	0.8460
612873	MC	8	46	2	46	0.67	0.68	-0.3414	-0.4072
610965	MC	8	70	5	70	0.59	0.60	0.0836	0.0375
560154	OE	0	62	0	62	0.36	0.35	1.1402	1.2091
565725	OE	0	63	0	63	0.54	0.52	0.2791	0.4269
					Mean	0.55	0.56	0.21	0.21

Writing Grade 5

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
607669	MC	0	1	2	13	0.83	0.87	-0.0819	-0.9293
607670	MC	0	2	2	14	0.66	0.70	1.4822	0.8381
607672	MC	0	3	2	15	0.50	0.49	2.6264	2.5206
607674	MC	0	4	2	16	0.84	0.88	-0.1054	-0.9560
608050	MC	0	9	1	5	0.76	0.74	0.6203	0.5128
608051	MC	0	10	1	6	0.82	0.80	-0.0041	-0.0611
608052	MC	0	11	1	7	0.77	0.76	0.4692	0.3644
608055	MC	0	12	1	8	0.76	0.75	0.5954	0.3942
566416	MC	0	17	6	5	0.90	0.88	-1.2505	-0.9825
566417	MC	0	18	6	6	0.69	0.65	0.9513	1.2610
566419	MC	0	19	6	7	0.65	0.58	1.2496	1.7956
566418	MC	0	20	6	8	0.73	0.70	0.6565	0.8890
606310	OE	0	22	3	22	0.65	0.65	2.2859	2.4155
606310	OE	0	22	3	22	0.65	0.65	2.2827	2.3102
559649	OE	0	23	4	23	0.67	0.62	2.0169	2.9995
559649	OE	0	23	4	23	0.67	0.62	1.9241	2.9725
					Mean	0.72	0.71	0.98	1.02

Writing Grade 8

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
610494	MC	0	1	1	13	0.78	0.83	0.5026	-0.0996
610495	MC	0	2	1	14	0.68	0.74	1.4023	0.8053
610497	MC	0	3	1	15	0.72	0.75	1.0310	0.6924
610499	MC	0	4	1	16	0.71	0.75	1.1394	0.6773
609462	MC	0	9	6	13	0.51	0.52	2.7152	2.5606
609464	MC	0	10	6	14	0.83	0.84	0.0383	-0.2034
609465	MC	0	11	6	15	0.72	0.71	1.0631	1.0474
609467	MC	0	12	6	16	0.73	0.75	1.0306	0.6652
566407	MC	0	17	5	5	0.81	0.79	0.3103	0.2602
566408	MC	0	18	5	6	0.59	0.54	2.1392	2.4339
566410	MC	0	19	5	7	0.55	0.51	2.4158	2.6730
566554	MC	0	20	5	8	0.88	0.86	-0.5199	-0.5810
595572	OE	0	22	4	22	0.68	0.67	1.9689	2.2295
595572	OE	0	22	4	22	0.67	0.67	1.9561	2.2003
594281	OE	0	23	1	23	0.71	0.66	1.5671	2.4347
594281	OE	0	23	1	23	0.69	0.66	1.7534	2.4016
					Mean	0.70	0.70	1.28	1.26

Writing Grade 11

ID	Type	Form	Seq	Prev Form	Prev Seq	Prev P-Val	P-Val	Prev Meas	Meas
616132	MC	0	1	4	13	0.41	0.37	3.3519	3.7495
616133	MC	0	2	4	14	0.80	0.80	0.1748	-0.0203
616323	MC	0	3	4	15	0.68	0.67	1.3495	1.3398
616324	MC	0	4	4	16	0.91	0.93	-1.4153	-2.0199
606324	MC	0	9	2	13	0.47	0.50	2.8835	2.7799
606325	MC	0	10	2	14	0.82	0.83	-0.0346	-0.3482
606327	MC	0	11	2	15	0.69	0.72	1.1896	0.8831
606328	MC	0	12	2	16	0.87	0.88	-0.6910	-1.0374
616327	MC	0	17	3	5	0.90	0.88	-1.1297	-1.0934
616328	MC	0	18	3	6	0.74	0.72	0.7723	0.8863
616329	MC	0	19	3	7	0.78	0.78	0.4410	0.2508
616330	MC	0	20	3	8	0.76	0.70	0.6194	1.0398
614726	OE	0	22	4	22	0.71	0.69	1.5444	1.9660
614726	OE	0	22	4	22	0.71	0.69	1.6710	1.9731
595297	OE	0	23	3	23	0.71	0.68	1.1232	2.0906
595297	OE	0	23	3	23	0.71	0.67	1.1059	2.1558
					Mean	0.73	0.72	0.81	0.91

Appendix K:

Reliabilities

Column Heading	**Definition**
Strand	Strand (Tot.=total)
Group	Subgroup
Pts.	Points possible
Len.	Length
N	N
Mean	Mean
SD	Standard deviation
r	Reliability coefficient
SEM	Standard error of measurement
Items	Item types present

Mathematics Grade 3

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	72	63	126139	57.3	12.11	0.93	3.1	MC/OE
	A	All	33	30	126139	25.7	6.19	0.88	2.2	MC/OE
	B	All	10	7	126139	6.9	2.24	0.61	1.4	MC/OE
	C	All	9	9	126139	7.8	1.46	0.63	0.9	MC
	D	All	10	10	126139	8.4	1.89	0.71	1.0	MC
	E	All	10	7	126139	8.5	1.91	0.65	1.1	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	72	63	64186	57.3	12.31	0.94	3.1	MC/OE
		Female	72	63	61906	57.3	11.90	0.93	3.1	MC/OE
	A	Male	33	30	64186	25.7	6.26	0.88	2.1	MC/OE
		Female	33	30	61906	25.8	6.12	0.88	2.2	MC/OE
	B	Male	10	7	64186	7.0	2.25	0.62	1.4	MC/OE
		Female	10	7	61906	6.9	2.21	0.60	1.4	MC/OE
	C	Male	9	9	64186	7.8	1.50	0.65	0.9	MC
		Female	9	9	61906	7.8	1.41	0.61	0.9	MC
	D	Male	10	10	64186	8.4	1.91	0.72	1.0	MC
		Female	10	10	61906	8.4	1.87	0.70	1.0	MC
	E	Male	10	7	64186	8.5	1.93	0.66	1.1	MC/OE
		Female	10	7	61906	8.5	1.88	0.65	1.1	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	72	63	88320	59.8	10.25	0.92	3.0	MC/OE
		Af. Amer.	72	63	19052	48.4	14.03	0.94	3.5	MC/OE
		Hispanic	72	63	11129	51.4	13.16	0.93	3.4	MC/OE
		Asian	72	63	4471	62.2	9.83	0.92	2.8	MC/OE
		Am. Indian	72	63	183	56.1	12.74	0.93	3.3	MC/OE
		Multi	72	63	2930	54.9	12.77	0.93	3.3	MC/OE
	A	White	33	30	88320	26.9	5.37	0.85	2.1	MC/OE
		Af. Amer.	33	30	19052	21.5	7.04	0.88	2.4	MC/OE
		Hispanic	33	30	11129	22.8	6.69	0.88	2.3	MC/OE
		Asian	33	30	4471	28.2	5.05	0.86	1.9	MC/OE
		Am. Indian	33	30	183	25.1	6.54	0.88	2.2	MC/OE
		Multi	33	30	2930	24.5	6.51	0.88	2.2	MC/OE
	B	White	10	7	88320	7.4	2.00	0.54	1.4	MC/OE
		Af. Amer.	10	7	19052	5.4	2.33	0.60	1.5	MC/OE
		Hispanic	10	7	11129	5.9	2.28	0.59	1.5	MC/OE
		Asian	10	7	4471	7.7	2.01	0.55	1.3	MC/OE
		Am. Indian	10	7	183	6.7	2.32	0.61	1.4	MC/OE
		Multi	10	7	2930	6.5	2.27	0.60	1.4	MC/OE
	C	White	9	9	88320	8.0	1.29	0.58	0.8	MC
		Af. Amer.	9	9	19052	7.1	1.77	0.65	1.1	MC
		Hispanic	9	9	11129	7.4	1.63	0.63	1.0	MC
		Asian	9	9	4471	8.3	1.19	0.63	0.7	MC
		Am. Indian	9	9	183	7.7	1.55	0.65	0.9	MC
		Multi	9	9	2930	7.6	1.54	0.63	0.9	MC

D	White	10	10	88320	8.7	1.66	0.67	1.0	MC
	Af. Amer.	10	10	19052	7.3	2.26	0.71	1.2	MC
	Hispanic	10	10	11129	7.7	2.12	0.69	1.2	MC
	Asian	10	10	4471	9.0	1.44	0.67	0.8	MC
	Am. Indian	10	10	183	8.3	1.95	0.71	1.0	MC
	Multi	10	10	2930	8.1	2.04	0.71	1.1	MC
E	White	10	7	88320	8.9	1.55	0.56	1.0	MC/OE
	Af. Amer.	10	7	19052	7.2	2.44	0.71	1.3	MC/OE
	Hispanic	10	7	11129	7.7	2.26	0.69	1.3	MC/OE
	Asian	10	7	4471	9.0	1.55	0.61	1.0	MC/OE
	Am. Indian	10	7	183	8.3	1.98	0.63	1.2	MC/OE
	Multi	10	7	2930	8.2	2.07	0.67	1.2	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
ELL	Tot.	All	72	63	3785	45.9	13.53	0.93	3.6	MC/OE
	A	All	33	30	3785	20.1	6.82	0.87	2.5	MC/OE
	B	All	10	7	3785	5.2	2.20	0.57	1.4	MC/OE
	C	All	9	9	3785	6.8	1.83	0.63	1.1	MC
	D	All	10	10	3785	7.0	2.24	0.67	1.3	MC
	E	All	10	7	3785	6.8	2.46	0.71	1.3	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
IEP	Tot.	All	72	63	18661	48.1	15.17	0.95	3.5	MC/OE
	A	All	33	30	18661	21.2	7.59	0.90	2.4	MC/OE
	B	All	10	7	18661	5.7	2.43	0.64	1.5	MC/OE
	C	All	9	9	18661	6.9	1.87	0.67	1.1	MC
	D	All	10	10	18661	7.1	2.43	0.74	1.2	MC
	E	All	10	7	18661	7.3	2.54	0.74	1.3	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
Eco. Disadv.	Tot.	All	72	63	55790	52.3	13.22	0.93	3.4	MC/OE
	A	All	33	30	55790	23.3	6.72	0.88	2.3	MC/OE
	B	All	10	7	55790	6.1	2.30	0.61	1.4	MC/OE
	C	All	9	9	55790	7.4	1.63	0.63	1.0	MC
	D	All	10	10	55790	7.7	2.11	0.70	1.2	MC
	E	All	10	7	55790	7.8	2.21	0.68	1.2	MC/OE

Mathematics Grade 4

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	72	63	122526	48.8	13.67	0.93	3.6	MC/OE
	A	All	31	28	122526	20.5	6.47	0.86	2.4	MC/OE
	B	All	10	10	122526	6.9	2.34	0.69	1.3	MC
	C	All	10	7	122526	6.2	2.22	0.58	1.4	MC/OE
	D	All	10	10	122526	6.8	2.38	0.71	1.3	MC
	E	All	11	8	122526	8.4	2.29	0.65	1.3	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	72	63	62529	49.2	13.82	0.93	3.6	MC/OE
		Female	72	63	59966	48.3	13.49	0.93	3.6	MC/OE
	A	Male	31	28	62529	20.8	6.52	0.87	2.4	MC/OE
		Female	31	28	59966	20.2	6.39	0.86	2.4	MC/OE
	B	Male	10	10	62529	7.1	2.31	0.70	1.3	MC
		Female	10	10	59966	6.6	2.35	0.68	1.3	MC
	C	Male	10	7	62529	6.2	2.25	0.59	1.4	MC/OE
		Female	10	7	59966	6.2	2.18	0.56	1.4	MC/OE
	D	Male	10	10	62529	6.8	2.40	0.72	1.3	MC
		Female	10	10	59966	6.8	2.35	0.71	1.3	MC
	E	Male	11	8	62529	8.3	2.32	0.66	1.4	MC/OE
		Female	11	8	59966	8.5	2.26	0.64	1.3	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	72	63	86555	51.5	12.32	0.92	3.5	MC/OE
		Af. Amer.	72	63	18383	39.0	13.64	0.92	3.9	MC/OE
		Hispanic	72	63	10682	41.7	13.78	0.92	3.8	MC/OE
		Asian	72	63	4322	55.2	12.51	0.93	3.3	MC/OE
		Am. Indian	72	63	185	47.3	14.00	0.93	3.7	MC/OE
		Multi	72	63	2363	46.1	13.76	0.93	3.7	MC/OE
	A	White	31	28	86555	21.7	5.94	0.84	2.3	MC/OE
		Af. Amer.	31	28	18383	16.2	6.42	0.84	2.6	MC/OE
		Hispanic	31	28	10682	17.4	6.46	0.85	2.5	MC/OE
		Asian	31	28	4322	23.7	5.81	0.86	2.2	MC/OE
		Am. Indian	31	28	185	19.9	6.63	0.87	2.4	MC/OE
		Multi	31	28	2363	19.4	6.54	0.86	2.5	MC/OE
	B	White	10	10	86555	7.3	2.15	0.67	1.2	MC
		Af. Amer.	10	10	18383	5.3	2.28	0.60	1.4	MC
		Hispanic	10	10	10682	5.7	2.33	0.63	1.4	MC
		Asian	10	10	4322	7.5	2.22	0.70	1.2	MC
		Am. Indian	10	10	185	6.7	2.30	0.67	1.3	MC
		Multi	10	10	2363	6.3	2.37	0.67	1.4	MC
	C	White	10	7	86555	6.6	2.09	0.55	1.4	MC/OE
		Af. Amer.	10	7	18383	5.0	2.24	0.52	1.5	MC/OE
		Hispanic	10	7	10682	5.4	2.24	0.53	1.5	MC/OE
		Asian	10	7	4322	7.1	2.08	0.60	1.3	MC/OE
		Am. Indian	10	7	185	6.2	2.28	0.59	1.5	MC/OE
		Multi	10	7	2363	5.9	2.20	0.55	1.5	MC/OE

D	White	10	10	86555	7.1	2.25	0.69	1.2	MC
	Af. Amer.	10	10	18383	5.7	2.46	0.70	1.4	MC
	Hispanic	10	10	10682	5.9	2.43	0.69	1.3	MC
	Asian	10	10	4322	7.9	2.08	0.71	1.1	MC
	Am. Indian	10	10	185	6.3	2.56	0.75	1.3	MC
	Multi	10	10	2363	6.5	2.41	0.71	1.3	MC
E	White	11	8	86555	8.8	1.99	0.58	1.3	MC/OE
	Af. Amer.	11	8	18383	6.8	2.56	0.68	1.4	MC/OE
	Hispanic	11	8	10682	7.3	2.55	0.69	1.4	MC/OE
	Asian	11	8	4322	9.1	2.11	0.64	1.3	MC/OE
	Am. Indian	11	8	185	8.1	2.38	0.66	1.4	MC/OE
	Multi	11	8	2363	8.0	2.33	0.64	1.4	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
ELL	Tot.	All	72	63	2861	33.7	12.59	0.90	3.9	MC/OE
	A	All	31	28	2861	14.2	5.94	0.81	2.6	MC/OE
	B	All	10	10	2861	4.7	2.06	0.49	1.5	MC
	C	All	10	7	2861	4.2	2.13	0.46	1.6	MC/OE
	D	All	10	10	2861	4.8	2.34	0.65	1.4	MC
	E	All	11	8	2861	5.8	2.62	0.69	1.5	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
IEP	Tot.	All	72	63	16874	39.5	14.62	0.93	3.9	MC/OE
	A	All	31	28	16874	16.5	6.85	0.86	2.5	MC/OE
	B	All	10	10	16874	5.6	2.41	0.66	1.4	MC
	C	All	10	7	16874	5.0	2.31	0.56	1.5	MC/OE
	D	All	10	10	16874	5.3	2.54	0.71	1.4	MC
	E	All	11	8	16874	7.0	2.66	0.71	1.4	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
Eco. Disadv.	Tot.	All	72	63	53538	42.9	13.71	0.92	3.8	MC/OE
	A	All	31	28	53538	17.9	6.49	0.85	2.5	MC/OE
	B	All	10	10	53538	6.0	2.36	0.65	1.4	MC
	C	All	10	7	53538	5.5	2.24	0.54	1.5	MC/OE
	D	All	10	10	53538	6.0	2.43	0.69	1.3	MC
	E	All	11	8	53538	7.5	2.45	0.67	1.4	MC/OE

Mathematics Grade 5

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	72	63	124973	47.3	13.52	0.93	3.5	MC/OE
	A	All	31	28	124973	21.3	6.35	0.87	2.3	MC/OE
	B	All	10	10	124973	5.2	2.52	0.69	1.4	MC
	C	All	9	9	124973	6.2	2.01	0.64	1.2	MC
	D	All	11	8	124973	7.0	2.24	0.71	1.2	MC/OE
	E	All	11	8	124973	7.6	2.28	0.60	1.4	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	72	63	63540	47.6	13.66	0.94	3.5	MC/OE
		Female	72	63	61405	46.9	13.37	0.93	3.5	MC/OE
	A	Male	31	28	63540	21.5	6.38	0.88	2.2	MC/OE
		Female	31	28	61405	21.2	6.32	0.87	2.3	MC/OE
	B	Male	10	10	63540	5.2	2.53	0.70	1.4	MC
		Female	10	10	61405	5.1	2.51	0.69	1.4	MC
	C	Male	9	9	63540	6.2	2.04	0.66	1.2	MC
		Female	9	9	61405	6.1	1.98	0.63	1.2	MC
	D	Male	11	8	63540	7.1	2.26	0.72	1.2	MC/OE
		Female	11	8	61405	6.9	2.21	0.69	1.2	MC/OE
	E	Male	11	8	63540	7.5	2.31	0.61	1.4	MC/OE
		Female	11	8	61405	7.6	2.25	0.59	1.4	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	72	63	89142	49.8	12.38	0.92	3.4	MC/OE
		Af. Amer.	72	63	18477	37.9	13.19	0.92	3.7	MC/OE
		Hispanic	72	63	10762	40.4	13.42	0.93	3.6	MC/OE
		Asian	72	63	4364	54.6	12.48	0.93	3.2	MC/OE
		Am. Indian	72	63	168	45.8	13.13	0.93	3.5	MC/OE
		Multi	72	63	2028	44.5	13.82	0.93	3.6	MC/OE
	A	White	31	28	89142	22.5	5.82	0.86	2.2	MC/OE
		Af. Amer.	31	28	18477	17.2	6.40	0.86	2.4	MC/OE
		Hispanic	31	28	10762	18.2	6.43	0.86	2.4	MC/OE
		Asian	31	28	4364	24.7	5.61	0.87	2.0	MC/OE
		Am. Indian	31	28	168	20.6	6.33	0.87	2.3	MC/OE
		Multi	31	28	2028	20.1	6.56	0.87	2.3	MC/OE
	B	White	10	10	89142	5.6	2.45	0.68	1.4	MC
		Af. Amer.	10	10	18477	3.6	2.15	0.58	1.4	MC
		Hispanic	10	10	10762	4.1	2.31	0.63	1.4	MC
		Asian	10	10	4364	6.4	2.46	0.71	1.3	MC
		Am. Indian	10	10	168	4.9	2.39	0.64	1.4	MC
		Multi	10	10	2028	4.7	2.52	0.69	1.4	MC
	C	White	9	9	89142	6.5	1.88	0.61	1.2	MC
		Af. Amer.	9	9	18477	5.0	2.02	0.59	1.3	MC
		Hispanic	9	9	10762	5.4	2.06	0.62	1.3	MC
		Asian	9	9	4364	6.9	1.89	0.67	1.1	MC
		Am. Indian	9	9	168	6.2	1.99	0.63	1.2	MC
		Multi	9	9	2028	5.9	2.06	0.64	1.2	MC

	D	White	11	8	89142	7.4	2.10	0.68	1.2	MC/OE
		Af. Amer.	11	8	18477	5.8	2.26	0.70	1.2	MC/OE
		Hispanic	11	8	10762	6.0	2.25	0.70	1.2	MC/OE
		Asian	11	8	4364	8.1	2.11	0.69	1.2	MC/OE
		Am. Indian	11	8	168	6.8	2.05	0.65	1.2	MC/OE
		Multi	11	8	2028	6.6	2.28	0.71	1.2	MC/OE
	E	White	11	8	89142	7.9	2.10	0.55	1.4	MC/OE
		Af. Amer.	11	8	18477	6.3	2.45	0.63	1.5	MC/OE
		Hispanic	11	8	10762	6.6	2.41	0.63	1.5	MC/OE
		Asian	11	8	4364	8.4	2.10	0.57	1.4	MC/OE
		Am. Indian	11	8	168	7.3	2.27	0.59	1.4	MC/OE
		Multi	11	8	2028	7.1	2.34	0.61	1.5	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
ELL	Tot.	All	72	63	2690	32.1	12.38	0.91	3.7	MC/OE
	A	All	31	28	2690	14.5	6.18	0.84	2.5	MC/OE
	B	All	10	10	2690	3.2	2.06	0.56	1.4	MC
	C	All	9	9	2690	4.3	1.90	0.51	1.3	MC
	D	All	11	8	2690	4.8	2.15	0.64	1.3	MC/OE
	E	All	11	8	2690	5.4	2.44	0.63	1.5	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
IEP	Tot.	All	72	63	16722	37.1	14.05	0.93	3.7	MC/OE
	A	All	31	28	16722	16.8	6.75	0.87	2.4	MC/OE
	B	All	10	10	16722	3.8	2.32	0.64	1.4	MC
	C	All	9	9	16722	5.0	2.11	0.62	1.3	MC
	D	All	11	8	16722	5.5	2.40	0.72	1.3	MC/OE
	E	All	11	8	16722	6.1	2.50	0.66	1.5	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
Eco. Disadv.	Tot.	All	72	63	52982	41.4	13.33	0.93	3.6	MC/OE
	A	All	31	28	52982	18.7	6.38	0.86	2.4	MC/OE
	B	All	10	10	52982	4.2	2.34	0.63	1.4	MC
	C	All	9	9	52982	5.5	2.03	0.61	1.3	MC
	D	All	11	8	52982	6.2	2.23	0.70	1.2	MC/OE
	E	All	11	8	52982	6.8	2.39	0.62	1.5	MC/OE

Mathematics Grade 6

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	72	63	126661	48.7	13.11	0.93	3.5	MC/OE
	A	All	21	18	126661	13.4	4.21	0.79	1.9	MC/OE
	B	All	10	7	126661	6.9	2.12	0.60	1.3	MC/OE
	C	All	14	14	126661	10.0	2.99	0.76	1.5	MC
	D	All	13	10	126661	8.5	2.53	0.66	1.5	MC/OE
	E	All	14	14	126661	10.0	3.14	0.78	1.5	MC

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	72	63	64471	48.4	13.38	0.93	3.5	MC/OE
		Female	72	63	62175	49.0	12.81	0.93	3.5	MC/OE
	A	Male	21	18	64471	13.2	4.29	0.80	1.9	MC/OE
		Female	21	18	62175	13.5	4.13	0.78	1.9	MC/OE
	B	Male	10	7	64471	7.0	2.12	0.60	1.3	MC/OE
		Female	10	7	62175	6.8	2.11	0.60	1.3	MC/OE
	C	Male	14	14	64471	9.9	3.05	0.77	1.5	MC
		Female	14	14	62175	10.0	2.92	0.74	1.5	MC
	D	Male	13	10	64471	8.3	2.57	0.68	1.5	MC/OE
		Female	13	10	62175	8.6	2.48	0.64	1.5	MC/OE
	E	Male	14	14	64471	9.9	3.19	0.79	1.5	MC
		Female	14	14	62175	10.0	3.08	0.77	1.5	MC

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	72	63	91287	50.9	12.01	0.92	3.4	MC/OE
		Af. Amer.	72	63	18601	40.0	13.19	0.92	3.7	MC/OE
		Hispanic	72	63	10304	41.9	13.37	0.92	3.7	MC/OE
		Asian	72	63	4237	56.1	11.66	0.93	3.2	MC/OE
		Am. Indian	72	63	188	45.2	13.09	0.92	3.6	MC/OE
		Multi	72	63	2021	46.4	12.89	0.92	3.6	MC/OE
	A	White	21	18	91287	13.9	3.99	0.77	1.9	MC/OE
		Af. Amer.	21	18	18601	11.1	4.21	0.78	2.0	MC/OE
		Hispanic	21	18	10304	11.6	4.19	0.78	2.0	MC/OE
		Asian	21	18	4237	15.9	3.70	0.76	1.8	MC/OE
		Am. Indian	21	18	188	12.2	4.37	0.79	2.0	MC/OE
		Multi	21	18	2021	12.7	4.16	0.78	1.9	MC/OE
	B	White	10	7	91287	7.2	1.92	0.56	1.3	MC/OE
		Af. Amer.	10	7	18601	5.6	2.32	0.57	1.5	MC/OE
		Hispanic	10	7	10304	6.0	2.30	0.58	1.5	MC/OE
		Asian	10	7	4237	7.8	1.86	0.59	1.2	MC/OE
		Am. Indian	10	7	188	6.5	2.13	0.54	1.4	MC/OE
		Multi	10	7	2021	6.6	2.13	0.57	1.4	MC/OE
	C	White	14	14	91287	10.4	2.78	0.73	1.4	MC
		Af. Amer.	14	14	18601	8.2	3.06	0.72	1.6	MC
		Hispanic	14	14	10304	8.6	3.07	0.73	1.6	MC
		Asian	14	14	4237	11.3	2.68	0.77	1.3	MC
		Am. Indian	14	14	188	9.4	2.88	0.71	1.6	MC
		Multi	14	14	2021	9.5	3.01	0.74	1.5	MC

D	White	13	10	91287	8.8	2.38	0.63	1.4	MC/OE
	Af. Amer.	13	10	18601	7.2	2.59	0.64	1.5	MC/OE
	Hispanic	13	10	10304	7.3	2.66	0.66	1.5	MC/OE
	Asian	13	10	4237	9.8	2.28	0.63	1.4	MC/OE
	Am. Indian	13	10	188	7.9	2.49	0.64	1.5	MC/OE
	Multi	13	10	2021	8.1	2.51	0.65	1.5	MC/OE
E	White	14	14	91287	10.5	2.89	0.76	1.4	MC
	Af. Amer.	14	14	18601	8.0	3.15	0.73	1.6	MC
	Hispanic	14	14	10304	8.3	3.21	0.75	1.6	MC
	Asian	14	14	4237	11.3	2.81	0.79	1.3	MC
	Am. Indian	14	14	188	9.1	3.21	0.76	1.6	MC
	Multi	14	14	2021	9.4	3.09	0.75	1.5	MC

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
ELL	Tot.	All	72	63	2522	33.1	12.38	0.90	3.8	MC/OE
	A	All	21	18	2522	9.6	4.07	0.76	2.0	MC/OE
	B	All	10	7	2522	4.7	2.35	0.53	1.6	MC/OE
	C	All	14	14	2522	6.8	2.81	0.64	1.7	MC
	D	All	13	10	2522	5.8	2.63	0.64	1.6	MC/OE
	E	All	14	14	2522	6.3	2.82	0.65	1.7	MC

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
IEP	Tot.	All	72	63	16461	36.8	13.65	0.92	3.8	MC/OE
	A	All	21	18	16461	9.9	4.34	0.79	2.0	MC/OE
	B	All	10	7	16461	5.4	2.39	0.58	1.5	MC/OE
	C	All	14	14	16461	7.7	3.06	0.71	1.6	MC
	D	All	13	10	16461	6.4	2.69	0.67	1.5	MC/OE
	E	All	14	14	16461	7.5	3.30	0.75	1.6	MC

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
Eco. Disadv.	Tot.	All	72	63	52432	43.0	13.23	0.92	3.7	MC/OE
	A	All	21	18	52432	11.8	4.21	0.78	2.0	MC/OE
	B	All	10	7	52432	6.1	2.26	0.58	1.5	MC/OE
	C	All	14	14	52432	8.8	3.06	0.73	1.6	MC
	D	All	13	10	52432	7.6	2.59	0.65	1.5	MC/OE
	E	All	14	14	52432	8.7	3.20	0.75	1.6	MC

Mathematics Grade 7

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	72	63	127152	48.2	13.84	0.93	3.6	MC/OE
	A	All	16	13	127152	10.7	3.31	0.72	1.8	MC/OE
	B	All	11	8	127152	6.7	2.62	0.74	1.3	MC/OE
	C	All	14	14	127152	10.7	2.78	0.76	1.4	MC
	D	All	19	16	127152	12.3	4.31	0.78	2.0	MC/OE
	E	All	12	12	127152	7.9	2.59	0.68	1.5	MC

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	72	63	64787	47.8	14.22	0.94	3.6	MC/OE
		Female	72	63	62354	48.6	13.42	0.93	3.6	MC/OE
	A	Male	16	13	64787	10.6	3.34	0.73	1.7	MC/OE
		Female	16	13	62354	10.8	3.28	0.72	1.7	MC/OE
	B	Male	11	8	64787	6.6	2.66	0.75	1.3	MC/OE
		Female	11	8	62354	6.7	2.57	0.72	1.4	MC/OE
	C	Male	14	14	64787	10.7	2.87	0.77	1.4	MC
		Female	14	14	62354	10.7	2.70	0.74	1.4	MC
	D	Male	19	16	64787	12.1	4.40	0.79	2.0	MC/OE
		Female	19	16	62354	12.5	4.20	0.77	2.0	MC/OE
	E	Male	12	12	64787	7.8	2.70	0.70	1.5	MC
		Female	12	12	62354	7.9	2.48	0.65	1.5	MC

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	72	63	91699	50.6	12.62	0.92	3.5	MC/OE
		Af. Amer.	72	63	18929	39.3	13.95	0.92	3.8	MC/OE
		Hispanic	72	63	10454	40.4	14.24	0.93	3.8	MC/OE
		Asian	72	63	3970	56.3	11.93	0.93	3.2	MC/OE
		Am. Indian	72	63	188	45.3	12.40	0.91	3.7	MC/OE
		Multi	72	63	1884	45.1	14.30	0.93	3.7	MC/OE
	A	White	16	13	91699	11.2	3.07	0.69	1.7	MC/OE
		Af. Amer.	16	13	18929	8.7	3.35	0.69	1.9	MC/OE
		Hispanic	16	13	10454	9.0	3.38	0.69	1.9	MC/OE
		Asian	16	13	3970	12.5	2.92	0.72	1.5	MC/OE
		Am. Indian	16	13	188	10.0	3.11	0.66	1.8	MC/OE
		Multi	16	13	1884	10.0	3.42	0.72	1.8	MC/OE
	B	White	11	8	91699	7.1	2.44	0.71	1.3	MC/OE
		Af. Amer.	11	8	18929	5.1	2.59	0.72	1.4	MC/OE
		Hispanic	11	8	10454	5.3	2.67	0.73	1.4	MC/OE
		Asian	11	8	3970	8.1	2.29	0.68	1.3	MC/OE
		Am. Indian	11	8	188	6.3	2.53	0.73	1.3	MC/OE
		Multi	11	8	1884	6.1	2.70	0.75	1.4	MC/OE
	C	White	14	14	91699	11.1	2.50	0.72	1.3	MC
		Af. Amer.	14	14	18929	9.1	3.12	0.75	1.5	MC
		Hispanic	14	14	10454	9.4	3.11	0.76	1.5	MC
		Asian	14	14	3970	11.8	2.29	0.74	1.2	MC
		Am. Indian	14	14	188	10.2	2.68	0.71	1.4	MC
		Multi	14	14	1884	10.1	2.96	0.76	1.4	MC

	D	White	19	16	91699	13.0	4.01	0.76	2.0	MC/OE
		Af. Amer.	19	16	18929	9.8	4.35	0.77	2.1	MC/OE
		Hispanic	19	16	10454	10.2	4.42	0.78	2.1	MC/OE
		Asian	19	16	3970	14.8	3.64	0.76	1.8	MC/OE
		Am. Indian	19	16	188	11.6	3.98	0.73	2.1	MC/OE
		Multi	19	16	1884	11.5	4.40	0.78	2.1	MC/OE
	E	White	12	12	91699	8.2	2.46	0.65	1.5	MC
		Af. Amer.	12	12	18929	6.5	2.54	0.63	1.5	MC
		Hispanic	12	12	10454	6.6	2.59	0.65	1.5	MC
		Asian	12	12	3970	9.0	2.42	0.69	1.3	MC
		Am. Indian	12	12	188	7.1	2.40	0.59	1.5	MC
		Multi	12	12	1884	7.4	2.63	0.67	1.5	MC

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
ELL	Tot.	All	72	63	2528	31.7	12.80	0.91	3.9	MC/OE
	A	All	16	13	2528	7.1	3.29	0.65	1.9	MC/OE
	B	All	11	8	2528	3.9	2.34	0.65	1.4	MC/OE
	C	All	14	14	2528	7.8	3.08	0.71	1.7	MC
	D	All	19	16	2528	7.8	4.03	0.75	2.0	MC/OE
	E	All	12	12	2528	5.1	2.33	0.55	1.6	MC

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
IEP	Tot.	All	72	63	15930	34.8	13.97	0.92	3.9	MC/OE
	A	All	16	13	15930	7.8	3.40	0.68	1.9	MC/OE
	B	All	11	8	15930	4.4	2.58	0.71	1.4	MC/OE
	C	All	14	14	15930	8.3	3.24	0.75	1.6	MC
	D	All	19	16	15930	8.5	4.23	0.76	2.1	MC/OE
	E	All	12	12	15930	5.7	2.58	0.63	1.6	MC

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
Eco. Disadv.	Tot.	All	72	63	51411	41.9	13.98	0.93	3.8	MC/OE
	A	All	16	13	51411	9.3	3.35	0.69	1.9	MC/OE
	B	All	11	8	51411	5.6	2.63	0.73	1.4	MC/OE
	C	All	14	14	51411	9.6	3.04	0.76	1.5	MC
	D	All	19	16	51411	10.5	4.34	0.77	2.1	MC/OE
	E	All	12	12	51411	6.9	2.57	0.64	1.5	MC

Mathematics Grade 8

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	72	63	126204	49.3	13.99	0.94	3.6	MC/OE
	A	All	15	15	126204	11.1	2.95	0.74	1.5	MC
	B	All	11	8	126204	7.4	2.73	0.70	1.5	MC/OE
	C	All	13	13	126204	8.6	2.93	0.76	1.4	MC
	D	All	19	16	126204	13.2	4.18	0.83	1.7	MC/OE
	E	All	14	11	126204	9.0	3.05	0.70	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	72	63	64238	48.9	14.37	0.94	3.6	MC/OE
		Female	72	63	61931	49.8	13.57	0.93	3.5	MC/OE
	A	Male	15	15	64238	11.2	3.03	0.76	1.5	MC
		Female	15	15	61931	11.1	2.85	0.72	1.5	MC
	B	Male	11	8	64238	7.3	2.77	0.70	1.5	MC/OE
		Female	11	8	61931	7.5	2.67	0.70	1.5	MC/OE
	C	Male	13	13	64238	8.6	2.95	0.76	1.4	MC
		Female	13	13	61931	8.7	2.92	0.75	1.4	MC
	D	Male	19	16	64238	13.0	4.34	0.84	1.8	MC/OE
		Female	19	16	61931	13.5	3.99	0.81	1.7	MC/OE
	E	Male	14	11	64238	8.9	3.09	0.70	1.7	MC/OE
		Female	14	11	61931	9.1	3.00	0.69	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	72	63	91606	51.6	12.75	0.93	3.5	MC/OE
		Af. Amer.	72	63	18310	40.4	14.42	0.93	3.7	MC/OE
		Hispanic	72	63	10215	41.9	14.68	0.94	3.7	MC/OE
		Asian	72	63	4007	57.7	11.76	0.93	3.2	MC/OE
		Am. Indian	72	63	177	47.1	14.51	0.94	3.6	MC/OE
		Multi	72	63	1849	46.5	14.51	0.94	3.6	MC/OE
	A	White	15	15	91606	11.6	2.72	0.71	1.5	MC
		Af. Amer.	15	15	18310	9.5	3.05	0.70	1.7	MC
		Hispanic	15	15	10215	9.6	3.15	0.72	1.7	MC
		Asian	15	15	4007	12.5	2.47	0.73	1.3	MC
		Am. Indian	15	15	177	10.5	3.11	0.74	1.6	MC
		Multi	15	15	1849	10.5	3.12	0.75	1.6	MC
	B	White	11	8	91606	7.8	2.53	0.67	1.5	MC/OE
		Af. Amer.	11	8	18310	5.9	2.88	0.71	1.6	MC/OE
		Hispanic	11	8	10215	6.2	2.89	0.71	1.6	MC/OE
		Asian	11	8	4007	8.8	2.18	0.66	1.3	MC/OE
		Am. Indian	11	8	177	7.1	2.76	0.70	1.5	MC/OE
		Multi	11	8	1849	6.9	2.77	0.69	1.5	MC/OE
	C	White	13	13	91606	9.0	2.76	0.73	1.4	MC
		Af. Amer.	13	13	18310	7.0	2.96	0.73	1.5	MC
		Hispanic	13	13	10215	7.4	2.95	0.73	1.5	MC
		Asian	13	13	4007	10.2	2.59	0.76	1.3	MC
		Am. Indian	13	13	177	8.5	3.01	0.76	1.5	MC
		Multi	13	13	1849	8.2	3.00	0.76	1.5	MC

D	White	19	16	91606	13.8	3.87	0.80	1.7	MC/OE
	Af. Amer.	19	16	18310	11.0	4.46	0.84	1.8	MC/OE
	Hispanic	19	16	10215	11.3	4.44	0.84	1.8	MC/OE
	Asian	19	16	4007	15.7	3.27	0.77	1.6	MC/OE
	Am. Indian	19	16	177	12.8	4.23	0.83	1.7	MC/OE
	Multi	19	16	1849	12.5	4.40	0.84	1.8	MC/OE
E	White	14	11	91606	9.5	2.79	0.66	1.6	MC/OE
	Af. Amer.	14	11	18310	7.1	3.10	0.69	1.7	MC/OE
	Hispanic	14	11	10215	7.3	3.23	0.71	1.7	MC/OE
	Asian	14	11	4007	10.5	2.88	0.70	1.6	MC/OE
	Am. Indian	14	11	177	8.3	3.31	0.74	1.7	MC/OE
	Multi	14	11	1849	8.5	3.10	0.70	1.7	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
ELL	Tot.	All	72	63	2473	32.5	13.49	0.92	3.8	MC/OE
	A	All	15	15	2473	7.8	3.01	0.66	1.8	MC
	B	All	11	8	2473	4.8	2.81	0.68	1.6	MC/OE
	C	All	13	13	2473	5.9	2.82	0.70	1.6	MC
	D	All	19	16	2473	9.0	4.33	0.83	1.8	MC/OE
	E	All	14	11	2473	5.0	2.78	0.65	1.6	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
IEP	Tot.	All	72	63	15648	35.0	14.42	0.93	3.8	MC/OE
	A	All	15	15	15648	8.3	3.24	0.71	1.8	MC
	B	All	11	8	15648	5.1	2.87	0.69	1.6	MC/OE
	C	All	13	13	15648	6.3	2.92	0.72	1.6	MC
	D	All	19	16	15648	9.2	4.46	0.83	1.8	MC/OE
	E	All	14	11	15648	6.1	3.04	0.69	1.7	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
Eco. Disadv.	Tot.	All	72	63	49369	43.1	14.45	0.93	3.7	MC/OE
	A	All	15	15	49369	9.9	3.10	0.72	1.6	MC
	B	All	11	8	49369	6.4	2.87	0.71	1.6	MC/OE
	C	All	13	13	49369	7.5	2.97	0.74	1.5	MC
	D	All	19	16	49369	11.6	4.40	0.84	1.8	MC/OE
	E	All	14	11	49369	7.7	3.12	0.70	1.7	MC/OE

Mathematics Grade 11

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	72	63	125113	45.6	14.73	0.94	3.7	MC/OE
	A	All	10	10	125113	7.0	2.29	0.68	1.3	MC
	B	All	10	7	125113	5.7	2.52	0.67	1.4	MC/OE
	C	All	12	9	125113	7.1	2.67	0.70	1.5	MC/OE
	D	All	29	26	125113	18.0	6.55	0.86	2.4	MC/OE
	E	All	11	11	125113	7.7	2.36	0.68	1.3	MC

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	72	63	62852	45.7	15.14	0.94	3.7	MC/OE
		Female	72	63	62192	45.5	14.30	0.93	3.7	MC/OE
	A	Male	10	10	62852	7.0	2.32	0.70	1.3	MC
		Female	10	10	62192	7.0	2.25	0.67	1.3	MC
	B	Male	10	7	62852	5.8	2.56	0.68	1.4	MC/OE
		Female	10	7	62192	5.7	2.47	0.66	1.4	MC/OE
	C	Male	12	9	62852	7.2	2.69	0.71	1.4	MC/OE
		Female	12	9	62192	7.1	2.66	0.69	1.5	MC/OE
	D	Male	29	26	62852	17.9	6.75	0.87	2.4	MC/OE
		Female	29	26	62192	18.1	6.34	0.86	2.4	MC/OE
	E	Male	11	11	62852	7.8	2.42	0.70	1.3	MC
		Female	11	11	62192	7.6	2.30	0.66	1.3	MC

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	72	63	94411	47.7	13.87	0.93	3.6	MC/OE
		Af. Amer.	72	63	16710	36.1	13.99	0.93	3.8	MC/OE
		Hispanic	72	63	8234	37.0	14.28	0.93	3.8	MC/OE
		Asian	72	63	4198	54.5	13.81	0.94	3.4	MC/OE
		Am. Indian	72	63	190	41.3	15.00	0.94	3.8	MC/OE
		Multi	72	63	1288	41.6	14.68	0.94	3.7	MC/OE
	A	White	10	10	94411	7.2	2.17	0.67	1.3	MC
		Af. Amer.	10	10	16710	5.7	2.31	0.62	1.4	MC
		Hispanic	10	10	8234	5.9	2.33	0.64	1.4	MC
		Asian	10	10	4198	8.2	2.00	0.72	1.1	MC
		Am. Indian	10	10	190	6.4	2.41	0.69	1.3	MC
		Multi	10	10	1288	6.5	2.28	0.65	1.4	MC
	B	White	10	7	94411	6.1	2.39	0.64	1.4	MC/OE
		Af. Amer.	10	7	16710	4.2	2.40	0.65	1.4	MC/OE
		Hispanic	10	7	8234	4.4	2.47	0.66	1.4	MC/OE
		Asian	10	7	4198	7.0	2.41	0.66	1.4	MC/OE
		Am. Indian	10	7	190	5.1	2.53	0.64	1.5	MC/OE
		Multi	10	7	1288	5.1	2.50	0.65	1.5	MC/OE
	C	White	12	9	94411	7.5	2.52	0.67	1.4	MC/OE
		Af. Amer.	12	9	16710	5.4	2.57	0.68	1.4	MC/OE
		Hispanic	12	9	8234	5.7	2.64	0.69	1.5	MC/OE
		Asian	12	9	4198	8.5	2.57	0.69	1.4	MC/OE
		Am. Indian	12	9	190	6.4	2.96	0.75	1.5	MC/OE
		Multi	12	9	1288	6.4	2.67	0.70	1.5	MC/OE

D	White	29	26	94411	18.8	6.30	0.86	2.4	MC/OE
	Af. Amer.	29	26	16710	14.3	6.11	0.84	2.4	MC/OE
	Hispanic	29	26	8234	14.6	6.20	0.85	2.4	MC/OE
	Asian	29	26	4198	22.2	5.99	0.86	2.2	MC/OE
	Am. Indian	29	26	190	16.1	6.46	0.86	2.4	MC/OE
	Multi	29	26	1288	16.4	6.53	0.86	2.4	MC/OE
E	White	11	11	94411	8.0	2.21	0.65	1.3	MC
	Af. Amer.	11	11	16710	6.4	2.49	0.67	1.4	MC
	Hispanic	11	11	8234	6.5	2.49	0.67	1.4	MC
	Asian	11	11	4198	8.6	2.22	0.70	1.2	MC
	Am. Indian	11	11	190	7.2	2.31	0.62	1.4	MC
	Multi	11	11	1288	7.2	2.45	0.68	1.4	MC

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
ELL	Tot.	All	72	63	2081	31.3	14.17	0.93	3.8	MC/OE
	A	All	10	10	2081	5.2	2.42	0.65	1.4	MC
	B	All	10	7	2081	3.5	2.41	0.67	1.4	MC/OE
	C	All	12	9	2081	4.7	2.68	0.71	1.5	MC/OE
	D	All	29	26	2081	12.6	6.14	0.85	2.4	MC/OE
	E	All	11	11	2081	5.2	2.41	0.62	1.5	MC

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
IEP	Tot.	All	72	63	13506	30.5	13.38	0.92	3.7	MC/OE
	A	All	10	10	13506	4.9	2.26	0.58	1.5	MC
	B	All	10	7	13506	3.6	2.31	0.63	1.4	MC/OE
	C	All	12	9	13506	4.7	2.52	0.68	1.4	MC/OE
	D	All	29	26	13506	11.8	5.72	0.83	2.4	MC/OE
	E	All	11	11	13506	5.5	2.52	0.66	1.5	MC

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
Eco. Disadv.	Tot.	All	72	63	40405	38.6	14.31	0.93	3.8	MC/OE
	A	All	10	10	40405	6.0	2.31	0.64	1.4	MC
	B	All	10	7	40405	4.7	2.47	0.66	1.4	MC/OE
	C	All	12	9	40405	6.0	2.64	0.69	1.5	MC/OE
	D	All	29	26	40405	15.1	6.28	0.85	2.4	MC/OE
	E	All	11	11	40405	6.8	2.46	0.67	1.4	MC

Reading Grade 3

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	46	42	126062	30.8	8.98	0.91	2.7	MC/OE
	A	All	32	30	126062	21.5	6.42	0.87	2.3	MC/OE
	B	All	14	12	126062	9.3	2.94	0.76	1.5	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	46	42	64143	29.9	9.24	0.91	2.7	MC/OE
		Female	46	42	61872	31.7	8.62	0.90	2.7	MC/OE
	A	Male	32	30	64143	20.9	6.57	0.88	2.3	MC/OE
		Female	32	30	61872	22.0	6.22	0.87	2.3	MC/OE
	B	Male	14	12	64143	9.0	3.04	0.77	1.5	MC/OE
		Female	14	12	61872	9.7	2.80	0.74	1.4	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	46	42	88289	32.6	8.11	0.90	2.6	MC/OE
		Af. Amer.	46	42	19042	24.9	9.26	0.90	2.9	MC/OE
		Hispanic	46	42	11104	26.1	9.27	0.90	2.9	MC/OE
		Asian	46	42	4463	33.5	8.25	0.90	2.6	MC/OE
		Am. Indian	46	42	183	30.1	9.02	0.91	2.7	MC/OE
		Multi	46	42	2927	29.3	9.00	0.90	2.8	MC/OE
	A	White	32	30	88289	22.7	5.84	0.86	2.2	MC/OE
		Af. Amer.	32	30	19042	17.4	6.57	0.86	2.4	MC/OE
		Hispanic	32	30	11104	18.1	6.57	0.86	2.4	MC/OE
		Asian	32	30	4463	23.3	5.99	0.87	2.2	MC/OE
		Am. Indian	32	30	183	20.9	6.47	0.88	2.3	MC/OE
		Multi	32	30	2927	20.4	6.44	0.87	2.3	MC/OE
	B	White	14	12	88289	9.9	2.67	0.72	1.4	MC/OE
		Af. Amer.	14	12	19042	7.5	3.12	0.74	1.6	MC/OE
		Hispanic	14	12	11104	8.0	3.11	0.75	1.6	MC/OE
		Asian	14	12	4463	10.1	2.65	0.72	1.4	MC/OE
		Am. Indian	14	12	183	9.2	2.94	0.74	1.5	MC/OE
		Multi	14	12	2927	8.9	2.98	0.75	1.5	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	46	42	3753	20.8	8.11	0.86	3.0	MC/OE
	A	All	32	30	3753	14.4	5.75	0.81	2.5	MC/OE
	B	All	14	12	3753	6.4	2.85	0.67	1.6	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	46	42	18648	23.3	10.04	0.92	2.9	MC/OE
	A	All	32	30	18648	16.2	7.14	0.88	2.4	MC/OE
	B	All	14	12	18648	7.1	3.30	0.77	1.6	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Dis.	Tot.	All	46	42	55727	27.0	9.24	0.90	2.8	MC/OE
	A	All	32	30	55727	18.8	6.56	0.87	2.4	MC/OE
	B	All	14	12	55727	8.2	3.09	0.75	1.5	MC/OE

Reading Grade 4

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	52	44	121479	35.3	9.59	0.90	3.0	MC/OE
	A	All	35	31	121479	23.9	6.81	0.87	2.5	MC/OE
	B	All	17	13	121479	11.4	3.26	0.71	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	52	44	61756	34.5	9.85	0.90	3.1	MC/OE
		Female	52	44	59695	36.1	9.25	0.89	3.0	MC/OE
	A	Male	35	31	61756	23.5	6.99	0.87	2.5	MC/OE
		Female	35	31	59695	24.4	6.59	0.86	2.5	MC/OE
	B	Male	17	13	61756	11.1	3.33	0.73	1.7	MC/OE
		Female	17	13	59695	11.7	3.15	0.70	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	52	44	85773	37.2	8.54	0.88	3.0	MC/OE
		Af. Amer.	52	44	18245	28.8	9.91	0.89	3.3	MC/OE
		Hispanic	52	44	10592	30.1	10.17	0.90	3.2	MC/OE
		Asian	52	44	4300	39.0	9.10	0.90	2.8	MC/OE
		Am. Indian	52	44	184	34.7	9.97	0.91	3.1	MC/OE
		Multi	52	44	2352	33.7	9.71	0.90	3.1	MC/OE
	A	White	35	31	85773	25.3	6.07	0.84	2.4	MC/OE
		Af. Amer.	35	31	18245	19.3	7.05	0.85	2.7	MC/OE
		Hispanic	35	31	10592	20.3	7.21	0.86	2.7	MC/OE
		Asian	35	31	4300	26.4	6.46	0.87	2.3	MC/OE
		Am. Indian	35	31	184	23.5	6.89	0.87	2.5	MC/OE
		Multi	35	31	2352	22.8	6.98	0.86	2.6	MC/OE
	B	White	17	13	85773	11.9	2.99	0.67	1.7	MC/OE
		Af. Amer.	17	13	18245	9.5	3.38	0.71	1.8	MC/OE
		Hispanic	17	13	10592	9.8	3.47	0.73	1.8	MC/OE
		Asian	17	13	4300	12.6	3.09	0.71	1.7	MC/OE
		Am. Indian	17	13	184	11.2	3.46	0.74	1.8	MC/OE
		Multi	17	13	2352	10.9	3.23	0.70	1.8	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	52	44	2798	22.6	8.80	0.85	3.4	MC/OE
	A	All	35	31	2798	15.0	6.31	0.80	2.8	MC/OE
	B	All	17	13	2798	7.6	3.07	0.64	1.8	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	52	44	15860	27.7	10.80	0.91	3.3	MC/OE
	A	All	35	31	15860	18.6	7.68	0.88	2.7	MC/OE
	B	All	17	13	15860	9.1	3.61	0.75	1.8	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Dis.	Tot.	All	52	44	52984	31.1	9.85	0.89	3.2	MC/OE
	A	All	35	31	52984	21.0	7.03	0.86	2.7	MC/OE
	B	All	17	13	52984	10.1	3.33	0.71	1.8	MC/OE

Reading Grade 5

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	52	44	124007	36.3	9.07	0.90	2.9	MC/OE
	A	All	36	30	124007	25.0	6.25	0.86	2.4	MC/OE
	B	All	16	14	124007	11.3	3.24	0.75	1.6	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	52	44	62752	35.4	9.33	0.90	2.9	MC/OE
		Female	52	44	61227	37.3	8.68	0.89	2.8	MC/OE
	A	Male	36	30	62752	24.4	6.43	0.86	2.4	MC/OE
		Female	36	30	61227	25.7	5.99	0.85	2.3	MC/OE
	B	Male	16	14	62752	10.9	3.32	0.76	1.6	MC/OE
		Female	16	14	61227	11.6	3.11	0.74	1.6	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	52	44	88381	38.1	7.99	0.88	2.8	MC/OE
		Af. Amer.	52	44	18374	30.1	9.73	0.90	3.1	MC/OE
		Hispanic	52	44	10683	31.4	9.84	0.90	3.1	MC/OE
		Asian	52	44	4336	39.2	8.54	0.90	2.7	MC/OE
		Am. Indian	52	44	168	35.0	9.48	0.91	2.9	MC/OE
		Multi	52	44	2033	34.7	9.20	0.90	2.9	MC/OE
	A	White	36	30	88381	26.3	5.49	0.83	2.3	MC/OE
		Af. Amer.	36	30	18374	20.7	6.75	0.86	2.6	MC/OE
		Hispanic	36	30	10683	21.7	6.79	0.86	2.5	MC/OE
		Asian	36	30	4336	27.0	5.88	0.86	2.2	MC/OE
		Am. Indian	36	30	168	24.2	6.55	0.87	2.4	MC/OE
		Multi	36	30	2033	23.9	6.36	0.85	2.4	MC/OE
	B	White	16	14	88381	11.8	2.94	0.71	1.6	MC/OE
		Af. Amer.	16	14	18374	9.4	3.44	0.74	1.8	MC/OE
		Hispanic	16	14	10683	9.7	3.50	0.75	1.7	MC/OE
		Asian	16	14	4336	12.2	3.03	0.75	1.5	MC/OE
		Am. Indian	16	14	168	10.8	3.36	0.76	1.6	MC/OE
		Multi	16	14	2033	10.8	3.26	0.74	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	52	44	2645	23.0	8.59	0.86	3.2	MC/OE
	A	All	36	30	2645	16.2	6.05	0.80	2.7	MC/OE
	B	All	16	14	2645	6.8	3.08	0.65	1.8	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	52	44	15770	28.2	10.42	0.91	3.1	MC/OE
	A	All	36	30	15770	19.7	7.25	0.88	2.6	MC/OE
	B	All	16	14	15770	8.5	3.62	0.76	1.8	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Dis.	Tot.	All	52	44	52480	32.2	9.51	0.90	3.0	MC/OE
	A	All	36	30	52480	22.3	6.59	0.86	2.5	MC/OE
	B	All	16	14	52480	9.9	3.38	0.74	1.7	MC/OE

Reading Grade 6

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	52	44	126146	35.8	9.47	0.91	2.9	MC/OE
	A	All	27	25	126146	19.0	5.21	0.84	2.1	MC/OE
	B	All	25	19	126146	16.8	4.70	0.82	2.0	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	52	44	64025	34.6	9.75	0.91	2.9	MC/OE
		Female	52	44	62106	37.0	9.00	0.90	2.8	MC/OE
	A	Male	27	25	64025	18.5	5.37	0.85	2.1	MC/OE
		Female	27	25	62106	19.5	5.00	0.83	2.0	MC/OE
	B	Male	25	19	64025	16.1	4.82	0.83	2.0	MC/OE
		Female	25	19	62106	17.5	4.45	0.80	2.0	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	52	44	90847	37.5	8.54	0.89	2.8	MC/OE
		Af. Amer.	52	44	18567	29.8	9.86	0.90	3.1	MC/OE
		Hispanic	52	44	10284	30.2	10.10	0.91	3.1	MC/OE
		Asian	52	44	4226	39.3	8.83	0.91	2.7	MC/OE
		Am. Indian	52	44	184	34.5	8.97	0.89	3.0	MC/OE
		Multi	52	44	2015	34.5	9.37	0.90	3.0	MC/OE
	A	White	27	25	90847	19.9	4.74	0.82	2.0	MC/OE
		Af. Amer.	27	25	18567	15.7	5.34	0.82	2.3	MC/OE
		Hispanic	27	25	10284	16.0	5.48	0.83	2.2	MC/OE
		Asian	27	25	4226	20.8	4.76	0.84	1.9	MC/OE
		Am. Indian	27	25	184	18.5	4.84	0.81	2.1	MC/OE
		Multi	27	25	2015	18.2	5.16	0.83	2.1	MC/OE
	B	White	25	19	90847	17.6	4.26	0.79	2.0	MC/OE
		Af. Amer.	25	19	18567	14.1	5.01	0.82	2.1	MC/OE
		Hispanic	25	19	10284	14.3	5.10	0.83	2.1	MC/OE
		Asian	25	19	4226	18.5	4.47	0.82	1.9	MC/OE
		Am. Indian	25	19	184	15.9	4.71	0.81	2.1	MC/OE
		Multi	25	19	2015	16.2	4.69	0.81	2.0	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	52	44	2493	21.5	8.01	0.84	3.2	MC/OE
	A	All	27	25	2493	11.5	4.42	0.71	2.4	MC/OE
	B	All	25	19	2493	10.0	4.22	0.74	2.2	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	52	44	15955	26.3	10.26	0.91	3.1	MC/OE
	A	All	27	25	15955	14.1	5.65	0.83	2.3	MC/OE
	B	All	25	19	15955	12.2	5.08	0.83	2.1	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Dis.	Tot.	All	52	44	52175	31.5	9.79	0.90	3.0	MC/OE
	A	All	27	25	52175	16.7	5.36	0.83	2.2	MC/OE
	B	All	25	19	52175	14.8	4.91	0.82	2.1	MC/OE

Reading Grade 7

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	52	44	126765	35.1	8.96	0.89	2.9	MC/OE
	A	All	28	24	126765	19.9	4.97	0.83	2.1	MC/OE
	B	All	24	20	126765	15.1	4.45	0.79	2.0	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	52	44	64449	33.9	9.37	0.90	2.9	MC/OE
		Female	52	44	62304	36.3	8.36	0.88	2.9	MC/OE
	A	Male	28	24	64449	19.3	5.19	0.84	2.1	MC/OE
		Female	28	24	62304	20.6	4.63	0.81	2.0	MC/OE
	B	Male	24	20	64449	14.6	4.61	0.80	2.1	MC/OE
		Female	24	20	62304	15.7	4.20	0.77	2.0	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	52	44	91427	36.6	8.14	0.88	2.8	MC/OE
		Af. Amer.	52	44	18893	29.6	9.18	0.89	3.1	MC/OE
		Hispanic	52	44	10378	29.9	9.64	0.90	3.1	MC/OE
		Asian	52	44	3967	38.8	8.29	0.89	2.7	MC/OE
		Am. Indian	52	44	190	33.6	8.52	0.88	3.0	MC/OE
		Multi	52	44	1881	33.8	9.15	0.90	3.0	MC/OE
	A	White	28	24	91427	20.8	4.45	0.80	2.0	MC/OE
		Af. Amer.	28	24	18893	16.9	5.31	0.82	2.3	MC/OE
		Hispanic	28	24	10378	17.2	5.60	0.84	2.2	MC/OE
		Asian	28	24	3967	21.8	4.57	0.82	1.9	MC/OE
		Am. Indian	28	24	190	19.3	4.86	0.81	2.1	MC/OE
		Multi	28	24	1881	19.2	5.03	0.82	2.1	MC/OE
	B	White	24	20	91427	15.9	4.16	0.77	2.0	MC/OE
		Af. Amer.	24	20	18893	12.7	4.37	0.76	2.1	MC/OE
		Hispanic	24	20	10378	12.8	4.51	0.78	2.1	MC/OE
		Asian	24	20	3967	17.1	4.17	0.79	1.9	MC/OE
		Am. Indian	24	20	190	14.3	4.11	0.74	2.1	MC/OE
		Multi	24	20	1881	14.6	4.55	0.80	2.1	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	52	44	2478	21.7	8.01	0.84	3.3	MC/OE
	A	All	28	24	2478	12.4	4.93	0.76	2.4	MC/OE
	B	All	24	20	2478	9.4	3.69	0.64	2.2	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	52	44	15614	25.8	9.75	0.89	3.2	MC/OE
	A	All	28	24	15614	14.9	5.72	0.84	2.3	MC/OE
	B	All	24	20	15614	10.9	4.51	0.77	2.2	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Dis.	Tot.	All	52	44	51202	31.0	9.25	0.89	3.1	MC/OE
	A	All	28	24	51202	17.8	5.31	0.83	2.2	MC/OE
	B	All	24	20	51202	13.2	4.43	0.77	2.1	MC/OE

Reading Grade 8

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	52	44	126250	35.2	9.30	0.90	2.9	MC/OE
	A	All	25	25	126250	16.9	4.88	0.82	2.1	MC
	B	All	27	19	126250	18.2	4.90	0.82	2.1	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	52	44	64155	33.8	9.60	0.90	3.0	MC/OE
		Female	52	44	62064	36.7	8.73	0.89	2.9	MC/OE
	A	Male	25	25	64155	16.3	5.03	0.83	2.1	MC
		Female	25	25	62064	17.6	4.62	0.81	2.0	MC
	B	Male	27	19	64155	17.4	5.04	0.83	2.1	MC/OE
		Female	27	19	62064	19.1	4.59	0.81	2.0	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	52	44	91651	36.7	8.57	0.89	2.9	MC/OE
		Af. Amer.	52	44	18341	30.1	9.50	0.89	3.1	MC/OE
		Hispanic	52	44	10191	29.9	9.94	0.90	3.1	MC/OE
		Asian	52	44	4000	39.3	8.75	0.90	2.7	MC/OE
		Am. Indian	52	44	178	33.6	9.15	0.89	3.0	MC/OE
		Multi	52	44	1853	33.6	9.46	0.90	3.0	MC/OE
	A	White	25	25	91651	17.7	4.52	0.80	2.0	MC
		Af. Amer.	25	25	18341	14.3	4.95	0.80	2.2	MC
		Hispanic	25	25	10191	14.3	5.21	0.82	2.2	MC
		Asian	25	25	4000	18.8	4.64	0.83	1.9	MC
		Am. Indian	25	25	178	16.4	4.71	0.80	2.1	MC
		Multi	25	25	1853	16.1	4.92	0.82	2.1	MC
	B	White	27	19	91651	19.0	4.54	0.80	2.0	MC/OE
		Af. Amer.	27	19	18341	15.7	5.07	0.81	2.2	MC/OE
		Hispanic	27	19	10191	15.6	5.25	0.82	2.2	MC/OE
		Asian	27	19	4000	20.4	4.53	0.82	1.9	MC/OE
		Am. Indian	27	19	178	17.2	4.91	0.81	2.1	MC/OE
		Multi	27	19	1853	17.5	5.03	0.82	2.1	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	52	44	2432	21.3	7.56	0.81	3.3	MC/OE
	A	All	25	25	2432	10.1	4.05	0.68	2.3	MC
	B	All	27	19	2432	11.2	4.24	0.71	2.3	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	52	44	15758	25.3	9.66	0.89	3.2	MC/OE
	A	All	25	25	15758	12.2	4.99	0.80	2.3	MC
	B	All	27	19	15758	13.1	5.21	0.81	2.3	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Dis.	Tot.	All	52	44	49388	30.9	9.55	0.89	3.1	MC/OE
	A	All	25	25	49388	14.8	4.99	0.81	2.2	MC
	B	All	27	19	49388	16.1	5.07	0.81	2.2	MC/OE

Reading Grade 11

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	52	44	125380	36.0	8.49	0.88	2.9	MC/OE
	A	All	23	23	125380	16.1	3.92	0.76	1.9	MC
	B	All	29	21	125380	19.9	5.10	0.83	2.1	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	52	44	62870	35.0	8.89	0.89	2.9	MC/OE
		Female	52	44	62439	37.0	7.95	0.87	2.8	MC/OE
	A	Male	23	23	62870	15.9	4.07	0.77	1.9	MC
		Female	23	23	62439	16.2	3.75	0.74	1.9	MC
	B	Male	29	21	62870	19.1	5.33	0.84	2.2	MC/OE
		Female	29	21	62439	20.8	4.71	0.81	2.1	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	52	44	94660	37.3	7.73	0.87	2.8	MC/OE
		Af. Amer.	52	44	16730	30.8	8.99	0.88	3.1	MC/OE
		Hispanic	52	44	8234	30.8	9.35	0.89	3.1	MC/OE
		Asian	52	44	4190	37.7	9.29	0.91	2.8	MC/OE
		Am. Indian	52	44	191	34.2	9.16	0.89	3.0	MC/OE
		Multi	52	44	1290	34.8	8.42	0.88	3.0	MC/OE
	A	White	23	23	94660	16.7	3.55	0.72	1.9	MC
		Af. Amer.	23	23	16730	13.6	4.09	0.75	2.1	MC
		Hispanic	23	23	8234	13.7	4.32	0.77	2.1	MC
		Asian	23	23	4190	16.4	4.40	0.82	1.9	MC
		Am. Indian	23	23	191	15.3	4.03	0.76	2.0	MC
		Multi	23	23	1290	15.5	3.87	0.74	2.0	MC
	B	White	29	21	94660	20.6	4.73	0.81	2.1	MC/OE
		Af. Amer.	29	21	16730	17.3	5.47	0.82	2.3	MC/OE
		Hispanic	29	21	8234	17.1	5.55	0.83	2.3	MC/OE
		Asian	29	21	4190	21.3	5.33	0.85	2.0	MC/OE
		Am. Indian	29	21	191	18.8	5.69	0.84	2.3	MC/OE
		Multi	29	21	1290	19.3	5.08	0.82	2.2	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	52	44	2069	21.7	7.55	0.82	3.2	MC/OE
	A	All	23	23	2069	9.4	3.60	0.64	2.2	MC
	B	All	29	21	2069	12.3	4.69	0.74	2.4	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	52	44	13821	26.7	9.30	0.88	3.2	MC/OE
	A	All	23	23	13821	12.4	4.31	0.76	2.1	MC
	B	All	29	21	13821	14.4	5.58	0.83	2.3	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Dis.	Tot.	All	52	44	40433	31.9	8.91	0.88	3.1	MC/OE
	A	All	23	23	40433	14.3	4.12	0.75	2.0	MC
	B	All	29	21	40433	17.6	5.37	0.82	2.3	MC/OE

Science Grade 4

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	68	63	125170	45.7	12.28	0.92	3.5	MC/OE
	A	All	35	32	125170	24.3	6.55	0.86	2.4	MC/OE
	B	All	12	11	125170	7.9	2.55	0.68	1.4	MC/OE
	C	All	11	10	125170	7.2	2.39	0.62	1.5	MC/OE
	D	All	10	10	125170	6.4	2.18	0.61	1.4	MC

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	68	63	64106	46.0	12.55	0.92	3.4	MC/OE
		Female	68	63	61021	45.4	11.97	0.91	3.5	MC/OE
	A	Male	35	32	64106	24.3	6.71	0.87	2.4	MC/OE
		Female	35	32	61021	24.3	6.37	0.85	2.4	MC/OE
	B	Male	12	11	64106	7.9	2.56	0.69	1.4	MC/OE
		Female	12	11	61021	7.8	2.54	0.68	1.4	MC/OE
	C	Male	11	10	64106	7.4	2.42	0.64	1.5	MC/OE
		Female	11	10	61021	7.0	2.35	0.60	1.5	MC/OE
	D	Male	10	10	64106	6.5	2.21	0.63	1.3	MC
		Female	10	10	61021	6.3	2.16	0.59	1.4	MC

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	68	63	88069	48.8	10.61	0.90	3.4	MC/OE
		Af. Amer.	68	63	18860	35.5	12.05	0.90	3.7	MC/OE
		Hispanic	68	63	11150	38.0	12.16	0.91	3.7	MC/OE
		Asian	68	63	4448	48.8	12.05	0.92	3.3	MC/OE
		Am. Indian	68	63	187	46.1	11.95	0.92	3.5	MC/OE
		Multi	68	63	2413	43.1	12.15	0.91	3.6	MC/OE
	A	White	35	32	88069	25.9	5.65	0.83	2.4	MC/OE
		Af. Amer.	35	32	18860	19.0	6.64	0.84	2.7	MC/OE
		Hispanic	35	32	11150	20.4	6.70	0.85	2.6	MC/OE
		Asian	35	32	4448	26.1	6.23	0.86	2.3	MC/OE
		Am. Indian	35	32	187	24.3	6.37	0.85	2.5	MC/OE
		Multi	35	32	2413	23.0	6.51	0.85	2.5	MC/OE
	B	White	12	11	88069	8.4	2.29	0.62	1.4	MC/OE
		Af. Amer.	12	11	18860	6.0	2.54	0.64	1.5	MC/OE
		Hispanic	12	11	11150	6.5	2.56	0.65	1.5	MC/OE
		Asian	12	11	4448	8.3	2.58	0.71	1.4	MC/OE
		Am. Indian	12	11	187	8.1	2.42	0.65	1.4	MC/OE
		Multi	12	11	2413	7.4	2.58	0.67	1.5	MC/OE
	C	White	11	10	88069	7.7	2.17	0.56	1.4	MC/OE
		Af. Amer.	11	10	18860	5.6	2.37	0.56	1.6	MC/OE
		Hispanic	11	10	11150	5.9	2.39	0.57	1.6	MC/OE
		Asian	11	10	4448	7.6	2.40	0.65	1.4	MC/OE
		Am. Indian	11	10	187	7.2	2.41	0.62	1.5	MC/OE
		Multi	11	10	2413	6.8	2.38	0.59	1.5	MC/OE
	D	White	10	10	88069	6.8	1.99	0.55	1.3	MC
		Af. Amer.	10	10	18860	4.8	2.12	0.53	1.5	MC
		Hispanic	10	10	11150	5.2	2.13	0.53	1.5	MC
		Asian	10	10	4448	6.8	2.14	0.62	1.3	MC
		Am. Indian	10	10	187	6.4	2.11	0.59	1.3	MC
		Multi	10	10	2413	5.9	2.19	0.59	1.4	MC

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	68	63	3462	30.7	10.91	0.88	3.8	MC/OE
	A	All	35	32	3462	16.5	6.29	0.82	2.7	MC/OE
	B	All	12	11	3462	5.2	2.34	0.55	1.6	MC/OE
	C	All	11	10	3462	4.8	2.19	0.50	1.6	MC/OE
	D	All	10	10	3462	4.3	1.96	0.43	1.5	MC

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	68	63	19489	37.8	13.15	0.92	3.7	MC/OE
	A	All	35	32	19489	19.9	7.23	0.87	2.6	MC/OE
	B	All	12	11	19489	6.5	2.65	0.67	1.5	MC/OE
	C	All	11	10	19489	6.0	2.51	0.62	1.5	MC/OE
	D	All	10	10	19489	5.4	2.23	0.59	1.4	MC

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Disadv.	Tot.	All	68	63	55195	40.2	12.40	0.91	3.7	MC/OE
	A	All	35	32	55195	21.4	6.74	0.85	2.6	MC/OE
	B	All	12	11	55195	6.9	2.58	0.66	1.5	MC/OE
	C	All	11	10	55195	6.3	2.42	0.60	1.5	MC/OE
	D	All	10	10	55195	5.6	2.18	0.57	1.4	MC

Science Grade 8

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	68	63	126112	43.1	12.75	0.92	3.6	MC/OE
	A	All	32	30	126112	19.5	6.12	0.83	2.5	MC/OE
	B	All	12	11	126112	8.5	2.82	0.75	1.4	MC/OE
	C	All	12	11	126112	7.2	2.57	0.65	1.5	MC/OE
	D	All	12	11	126112	7.9	2.63	0.69	1.5	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	68	63	64199	43.6	13.30	0.93	3.5	MC/OE
		Female	68	63	61865	42.5	12.12	0.91	3.6	MC/OE
	A	Male	32	30	64199	19.8	6.36	0.85	2.5	MC/OE
		Female	32	30	61865	19.2	5.84	0.81	2.5	MC/OE
	B	Male	12	11	64199	8.4	2.94	0.77	1.4	MC/OE
		Female	12	11	61865	8.6	2.68	0.73	1.4	MC/OE
	C	Male	12	11	64199	7.4	2.63	0.67	1.5	MC/OE
		Female	12	11	61865	7.0	2.48	0.62	1.5	MC/OE
	D	Male	12	11	64199	8.1	2.67	0.71	1.4	MC/OE
		Female	12	11	61865	7.8	2.59	0.67	1.5	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	68	63	91570	46.0	11.39	0.91	3.5	MC/OE
		Af. Amer.	68	63	18193	33.0	11.94	0.90	3.8	MC/OE
		Hispanic	68	63	10200	34.3	12.48	0.91	3.8	MC/OE
		Asian	68	63	4084	47.4	12.14	0.92	3.4	MC/OE
		Am. Indian	68	63	179	41.7	12.28	0.91	3.6	MC/OE
		Multi	68	63	1831	40.6	12.71	0.92	3.7	MC/OE
	A	White	32	30	91570	20.8	5.59	0.81	2.5	MC/OE
		Af. Amer.	32	30	18193	15.1	5.75	0.79	2.6	MC/OE
		Hispanic	32	30	10200	15.6	5.95	0.80	2.6	MC/OE
		Asian	32	30	4084	21.6	5.85	0.83	2.4	MC/OE
		Am. Indian	32	30	179	19.0	5.95	0.82	2.6	MC/OE
		Multi	32	30	1831	18.5	6.08	0.82	2.6	MC/OE
	B	White	12	11	91570	9.0	2.50	0.71	1.3	MC/OE
		Af. Amer.	12	11	18193	6.5	2.97	0.71	1.6	MC/OE
		Hispanic	12	11	10200	6.7	3.03	0.73	1.6	MC/OE
		Asian	12	11	4084	9.2	2.59	0.74	1.3	MC/OE
		Am. Indian	12	11	179	8.2	2.73	0.70	1.5	MC/OE
		Multi	12	11	1831	8.0	2.93	0.75	1.5	MC/OE
	C	White	12	11	91570	7.7	2.40	0.60	1.5	MC/OE
		Af. Amer.	12	11	18193	5.4	2.26	0.54	1.5	MC/OE
		Hispanic	12	11	10200	5.6	2.40	0.59	1.5	MC/OE
		Asian	12	11	4084	7.9	2.57	0.67	1.5	MC/OE
		Am. Indian	12	11	179	6.9	2.53	0.64	1.5	MC/OE
		Multi	12	11	1831	6.7	2.51	0.62	1.5	MC/OE
	D	White	12	11	91570	8.4	2.39	0.65	1.4	MC/OE
		Af. Amer.	12	11	18193	6.0	2.60	0.63	1.6	MC/OE
		Hispanic	12	11	10200	6.4	2.65	0.65	1.6	MC/OE
		Asian	12	11	4084	8.7	2.45	0.69	1.4	MC/OE
		Am. Indian	12	11	179	7.7	2.58	0.67	1.5	MC/OE
		Multi	12	11	1831	7.4	2.67	0.69	1.5	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
ELL	Tot.	All	68	63	2756	25.6	9.24	0.83	3.8	MC/OE
	A	All	32	30	2756	11.6	4.57	0.67	2.6	MC/OE
	B	All	12	11	2756	4.7	2.49	0.57	1.6	MC/OE
	C	All	12	11	2756	4.3	1.94	0.39	1.5	MC/OE
	D	All	12	11	2756	5.0	2.26	0.49	1.6	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
IEP	Tot.	All	68	63	16114	32.0	12.58	0.91	3.8	MC/OE
	A	All	32	30	16114	14.4	5.93	0.80	2.6	MC/OE
	B	All	12	11	16114	6.1	3.03	0.72	1.6	MC/OE
	C	All	12	11	16114	5.5	2.46	0.60	1.6	MC/OE
	D	All	12	11	16114	6.0	2.70	0.66	1.6	MC/OE

	Strand	**Group**	**Pts.**	**Len.**	**N**	**Mean**	***SD***	**r**	***SEM***	**Items**
Eco. Disadv.	Tot.	All	68	63	49224	36.7	12.68	0.91	3.7	MC/OE
	A	All	32	30	49224	16.7	6.04	0.81	2.6	MC/OE
	B	All	12	11	49224	7.2	3.00	0.74	1.5	MC/OE
	C	All	12	11	49224	6.1	2.46	0.60	1.5	MC/OE
	D	All	12	11	49224	6.8	2.69	0.67	1.5	MC/OE

Science Grade 11

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	74	62	121693	39.5	13.38	0.92	3.8	MC/OE
	A	All	37	31	121693	20.1	6.79	0.85	2.6	MC/OE
	B	All	9	9	121693	4.9	2.11	0.62	1.3	MC
	C	All	15	11	121693	7.4	3.30	0.72	1.8	MC/OE
	D	All	13	11	121693	7.0	2.71	0.61	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	74	62	61062	40.2	13.94	0.93	3.8	MC/OE
		Female	74	62	60536	38.7	12.74	0.91	3.8	MC/OE
	A	Male	37	31	61062	20.3	7.07	0.86	2.6	MC/OE
		Female	37	31	60536	19.9	6.50	0.83	2.7	MC/OE
	B	Male	9	9	61062	5.0	2.16	0.64	1.3	MC
		Female	9	9	60536	4.8	2.05	0.59	1.3	MC
	C	Male	15	11	61062	7.7	3.39	0.74	1.7	MC/OE
		Female	15	11	60536	7.2	3.20	0.70	1.8	MC/OE
	D	Male	13	11	61062	7.2	2.80	0.64	1.7	MC/OE
		Female	13	11	60536	6.8	2.60	0.58	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	74	62	93340	42.0	12.32	0.90	3.8	MC/OE
		Af. Amer.	74	62	15127	28.3	11.71	0.90	3.7	MC/OE
		Hispanic	74	62	7525	30.2	12.61	0.91	3.8	MC/OE
		Asian	74	62	4174	42.1	14.87	0.93	3.8	MC/OE
		Am. Indian	74	62	184	36.2	13.20	0.92	3.8	MC/OE
		Multi	74	62	1231	36.7	13.22	0.92	3.8	MC/OE
	A	White	37	31	93340	21.3	6.28	0.82	2.6	MC/OE
		Af. Amer.	37	31	15127	14.7	6.20	0.82	2.6	MC/OE
		Hispanic	37	31	7525	15.6	6.55	0.84	2.6	MC/OE
		Asian	37	31	4174	21.5	7.43	0.87	2.6	MC/OE
		Am. Indian	37	31	184	18.6	6.81	0.85	2.6	MC/OE
		Multi	37	31	1231	18.8	6.74	0.85	2.6	MC/OE
	B	White	9	9	93340	5.2	2.02	0.59	1.3	MC
		Af. Amer.	9	9	15127	3.6	1.90	0.50	1.3	MC
		Hispanic	9	9	7525	3.8	2.01	0.56	1.3	MC
		Asian	9	9	4174	5.2	2.30	0.69	1.3	MC
		Am. Indian	9	9	184	4.6	2.04	0.57	1.3	MC
		Multi	9	9	1231	4.6	2.10	0.61	1.3	MC
	C	White	15	11	93340	8.0	3.13	0.68	1.8	MC/OE
		Af. Amer.	15	11	15127	5.0	2.83	0.66	1.7	MC/OE
		Hispanic	15	11	7525	5.4	3.03	0.69	1.7	MC/OE
		Asian	15	11	4174	8.3	3.67	0.77	1.8	MC/OE
		Am. Indian	15	11	184	6.6	3.10	0.68	1.7	MC/OE
		Multi	15	11	1231	6.7	3.21	0.70	1.7	MC/OE
	D	White	13	11	93340	7.5	2.55	0.56	1.7	MC/OE
		Af. Amer.	13	11	15127	5.0	2.45	0.56	1.6	MC/OE
		Hispanic	13	11	7525	5.3	2.61	0.60	1.6	MC/OE
		Asian	13	11	4174	7.1	2.84	0.66	1.7	MC/OE
		Am. Indian	13	11	184	6.4	2.91	0.66	1.7	MC/OE
		Multi	13	11	1231	6.6	2.67	0.60	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	74	62	2106	20.9	7.97	0.80	3.6	MC/OE
	A	All	37	31	2106	10.9	4.52	0.69	2.5	MC/OE
	B	All	9	9	2106	2.6	1.56	0.29	1.3	MC
	C	All	15	11	2106	3.7	2.19	0.52	1.5	MC/OE
	D	All	13	11	2106	3.7	1.88	0.34	1.5	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	74	62	13386	27.9	11.96	0.90	3.7	MC/OE
	A	All	37	31	13386	14.1	6.18	0.82	2.6	MC/OE
	B	All	9	9	13386	3.6	1.99	0.55	1.3	MC
	C	All	15	11	13386	5.0	2.83	0.65	1.7	MC/OE
	D	All	13	11	13386	5.2	2.62	0.60	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Disadv.	Tot.	All	74	62	37903	32.4	12.72	0.91	3.8	MC/OE
	A	All	37	31	37903	16.7	6.58	0.84	2.6	MC/OE
	B	All	9	9	37903	4.1	2.03	0.57	1.3	MC
	C	All	15	11	37903	5.9	3.05	0.68	1.7	MC/OE
	D	All	13	11	37903	5.8	2.66	0.61	1.7	MC/OE

Writing Grade 5

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	100	16	127549	64.8	14.91	0.79	6.9	MC/OE
	A	All	80	2	127549	50.9	12.20	0.70	6.7	OE
	B	All	20	14	127549	13.9	3.37	0.80	1.5	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	100	16	65074	61.6	14.95	0.79	6.9	MC/OE
		Female	100	16	62453	68.2	14.11	0.76	6.8	MC/OE
	A	Male	80	2	65074	48.3	12.20	0.70	6.7	OE
		Female	80	2	62453	53.7	11.57	0.67	6.7	OE
	B	Male	20	14	65074	13.3	3.45	0.80	1.5	MC/OE
		Female	20	14	62453	14.5	3.18	0.79	1.5	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	100	16	90973	67.1	14.13	0.77	6.8	MC/OE
		Af. Amer.	100	16	19000	56.5	14.66	0.78	6.9	MC/OE
		Hispanic	100	16	10951	58.6	14.50	0.76	7.0	MC/OE
		Asian	100	16	4357	70.9	14.43	0.78	6.7	MC/OE
		Am. Indian	100	16	170	62.1	15.45	0.79	7.1	MC/OE
		Multi	100	16	2074	62.2	14.99	0.78	7.0	MC/OE
	A	White	80	2	90973	52.6	11.72	0.67	6.7	OE
		Af. Amer.	80	2	19000	44.8	11.92	0.68	6.7	OE
		Hispanic	80	2	10951	46.3	11.77	0.66	6.9	OE
		Asian	80	2	4357	55.8	11.88	0.70	6.6	OE
		Am. Indian	80	2	170	48.8	12.70	0.71	6.9	OE
		Multi	80	2	2074	49.0	12.29	0.69	6.9	OE
	B	White	20	14	90973	14.5	3.06	0.77	1.5	MC/OE
		Af. Amer.	20	14	19000	11.7	3.50	0.78	1.6	MC/OE
		Hispanic	20	14	10951	12.2	3.49	0.78	1.6	MC/OE
		Asian	20	14	4357	15.2	3.12	0.80	1.4	MC/OE
		Am. Indian	20	14	170	13.3	3.46	0.80	1.5	MC/OE
		Multi	20	14	2074	13.2	3.42	0.79	1.6	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	100	16	2745	50.8	13.97	0.74	7.1	MC/OE
	A	All	80	2	2745	41.0	11.46	0.64	6.8	OE
	B	All	20	14	2745	9.8	3.31	0.73	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	100	16	19947	52.7	15.65	0.80	6.9	MC/OE
	A	All	80	2	19947	41.9	12.73	0.72	6.7	OE
	B	All	20	14	19947	10.8	3.71	0.80	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Dis.	Tot.	All	100	16	54561	58.8	14.56	0.77	7.0	MC/OE
	A	All	80	2	54561	46.4	11.87	0.67	6.8	OE
	B	All	20	14	54561	12.4	3.45	0.78	1.6	MC/OE

Writing Grade 8

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	100	16	129035	67.1	14.41	0.82	6.1	MC/OE
	A	All	80	2	129035	53.2	11.79	0.75	5.9	OE
	B	All	20	14	129035	13.9	3.25	0.78	1.5	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	100	16	65923	64.0	14.67	0.82	6.2	MC/OE
		Female	100	16	63076	70.2	13.39	0.80	6.0	MC/OE
	A	Male	80	2	65923	50.7	11.98	0.75	6.0	OE
		Female	80	2	63076	55.8	11.01	0.72	5.9	OE
	B	Male	20	14	65923	13.3	3.38	0.79	1.5	MC/OE
		Female	20	14	63076	14.5	3.00	0.76	1.5	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	100	16	93858	69.2	13.58	0.80	6.1	MC/OE
		Af. Amer.	100	16	18740	59.5	14.33	0.80	6.3	MC/OE
		Hispanic	100	16	10308	59.6	14.49	0.81	6.3	MC/OE
		Asian	100	16	4016	73.5	14.03	0.82	6.0	MC/OE
		Am. Indian	100	16	186	65.9	13.67	0.81	5.9	MC/OE
		Multi	100	16	1884	64.4	14.35	0.82	6.1	MC/OE
	A	White	80	2	93858	54.8	11.21	0.73	5.9	OE
		Af. Amer.	80	2	18740	47.3	11.68	0.73	6.1	OE
		Hispanic	80	2	10308	47.5	11.80	0.73	6.1	OE
		Asian	80	2	4016	58.0	11.55	0.74	5.9	OE
		Am. Indian	80	2	186	52.2	11.20	0.74	5.7	OE
		Multi	80	2	1884	51.1	11.77	0.75	5.9	OE
	B	White	20	14	93858	14.4	3.01	0.76	1.5	MC/OE
		Af. Amer.	20	14	18740	12.2	3.36	0.76	1.6	MC/OE
		Hispanic	20	14	10308	12.2	3.41	0.77	1.6	MC/OE
		Asian	20	14	4016	15.5	2.99	0.79	1.4	MC/OE
		Am. Indian	20	14	186	13.7	3.24	0.78	1.5	MC/OE
		Multi	20	14	1884	13.3	3.29	0.78	1.6	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	100	16	2453	50.7	13.11	0.76	6.5	MC/OE
	A	All	80	2	2453	40.8	10.79	0.67	6.2	OE
	B	All	20	14	2453	9.8	3.10	0.69	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	100	16	19395	53.6	14.43	0.81	6.3	MC/OE
	A	All	80	2	19395	43.0	11.91	0.74	6.1	OE
	B	All	20	14	19395	10.6	3.32	0.74	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Dis.	Tot.	All	100	16	50840	61.0	14.30	0.81	6.2	MC/OE
	A	All	80	2	50840	48.5	11.69	0.74	6.0	OE
	B	All	20	14	50840	12.5	3.32	0.76	1.6	MC/OE

Writing Grade 11

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Overall	Tot.	All	100	16	125095	68.6	15.27	0.83	6.4	MC/OE
	A	All	80	2	125095	54.4	12.48	0.75	6.2	OE
	B	All	20	14	125095	14.2	3.42	0.82	1.4	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Gender	Tot.	Male	100	16	62908	65.8	16.17	0.84	6.5	MC/OE
		Female	100	16	62092	71.5	13.71	0.80	6.2	MC/OE
	A	Male	80	2	62908	52.1	13.20	0.77	6.4	OE
		Female	80	2	62092	56.7	11.22	0.71	6.0	OE
	B	Male	20	14	62908	13.7	3.62	0.83	1.5	MC/OE
		Female	20	14	62092	14.8	3.12	0.80	1.4	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Ethnicity	Tot.	White	100	16	95702	70.4	14.38	0.81	6.3	MC/OE
		Af. Amer.	100	16	16001	60.6	16.10	0.83	6.7	MC/OE
		Hispanic	100	16	7710	61.5	16.03	0.82	6.7	MC/OE
		Asian	100	16	4127	73.8	15.84	0.83	6.6	MC/OE
		Am. Indian	100	16	190	66.4	15.46	0.80	6.9	MC/OE
		Multi	100	16	1251	66.5	15.16	0.84	6.1	MC/OE
	A	White	80	2	95702	55.7	11.85	0.74	6.1	OE
		Af. Amer.	80	2	16001	48.5	13.20	0.76	6.5	OE
		Hispanic	80	2	7710	49.2	13.05	0.75	6.6	OE
		Asian	80	2	4127	58.7	12.82	0.75	6.4	OE
		Am. Indian	80	2	190	52.6	12.81	0.72	6.8	OE
		Multi	80	2	1251	52.7	12.52	0.78	5.9	OE
	B	White	20	14	95702	14.7	3.16	0.80	1.4	MC/OE
		Af. Amer.	20	14	16001	12.2	3.61	0.81	1.6	MC/OE
		Hispanic	20	14	7710	12.3	3.68	0.82	1.6	MC/OE
		Asian	20	14	4127	15.1	3.59	0.85	1.4	MC/OE
		Am. Indian	20	14	190	13.8	3.36	0.80	1.5	MC/OE
		Multi	20	14	1251	13.8	3.37	0.81	1.5	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
ELL	Tot.	All	100	16	1863	50.8	14.66	0.75	7.3	MC/OE
	A	All	80	2	1863	41.6	12.40	0.67	7.1	OE
	B	All	20	14	1863	9.2	3.05	0.67	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
IEP	Tot.	All	100	16	16806	53.5	16.19	0.83	6.8	MC/OE
	A	All	80	2	16806	43.1	13.45	0.76	6.6	OE
	B	All	20	14	16806	10.4	3.56	0.78	1.7	MC/OE

	Strand	Group	Pts.	Len.	N	Mean	*SD*	r	*SEM*	Items
Eco. Dis.	Tot.	All	100	16	39684	62.3	15.83	0.83	6.6	MC/OE
	A	All	80	2	39684	49.7	12.96	0.75	6.4	OE
	B	All	20	14	39684	12.6	3.59	0.81	1.6	MC/OE

Appendix L:

Cut Scores and Scale Transformations

Column Heading	Definition
LOSS	Lowest Obtainable Scaled Score

				Scaled Score Cuts			Logit Cuts		
	Grade	**Scaling**	**LOSS**	**Basic**	**Prof.**	**Adv.**	**Basic**	**Prof.**	**Adv.**
Mathematics	**3**	128.81X + 964.24	750	1044	1180	1370	0.6192	1.6750	3.1501
	4	200.00X + 1183.52	700	1156	1246	1445	-0.1376	0.3124	1.3074
	5	189.80X + 1134.10	700	1158	1312	1483	0.1259	0.9373	1.8383
	6	200.00X + 1201.54	700	1174	1298	1476	-0.1377	0.4823	1.3723
	7	200.00X + 1225.28	700	1183	1298	1472	-0.2114	0.3636	1.2336
	8	177.53X + 1182.30	700	1171	1284	1446	-0.0637	0.5729	1.4854
	11	206.42X + 1203.10	700	1167	1304	1509	-0.1749	0.4888	1.4819
Reading	**3**	123.80X + 1207.70	1000	1168	1235	1442	-0.3207	0.2205	1.8926
	4	200.00X + 1156.30	700	1112	1255	1469	-0.2215	0.4935	1.5635
	5	198.80X + 1094.60	700	1137	1275	1497	0.2133	0.9074	2.0241
	6	200.00X + 1168.96	700	1121	1278	1456	-0.2398	0.5452	1.4352
	7	200.00X + 1194.40	700	1131	1279	1470	-0.3170	0.4230	1.3780
	8	234.82X + 1113.70	700	1146	1280	1473	0.1376	0.7082	1.5301
	11	245.45X + 1115.20	700	1112	1257	1492	-0.0130	0.5777	1.5351
Science	**7**	176.75X + 1225.65	1050	1150	1275	1483	-0.4280	0.2792	1.4560
	8	191.54X + 1196.64	925	1150	1275	1464	-0.2435	0.4091	1.3958
	11	101.81X + 1194.69	1050	1150	1275	1347	-0.4390	0.7888	1.4960
Writing	**7**	100.00X + 1071.44	700	745	1236	1909	-3.2644	1.6456	8.3756
	8	100.00X + 1123.84	700	914	1236	1748	-2.0984	1.1216	6.2416
	11	100.00X + 1244.30	700	952	1236	1806	-2.9230	-0.0830	5.6170

Appendix M:

PSSA Historical Statistics

			2005	2006	2007	2008	2009	2010	2011	2012
Mathematics Grade 3	Raw Score	**Mean**	-	-	54.98	55.00	60.02	60.32	59.45	57.33
		SD	-	-	9.66	9.91	10.63	9.97	10.81	12.11
		Max	-	-	66	66	72	72	72	72
	Scaled Score	**Mean**	-	-	1314.5	1332.9	1333.0	1341.0	1345.7	1330.2
		SD	-	-	176.6	184.7	176.0	164.7	176.6	185.0
		Max	-	-	1765	1827	1814	1816	1832	1843
	Raw Cuts	**Bel. Basic/Basic**	-	-	37	36	38	38	37	35
		Basic/Prof.	-	-	50	49	53	52	51	49
		Prof./Adv.	-	-	61	60	65	65	64	63
	Theta Cuts	**Bel. Basic/Basic**	-	-	0.6369	0.6397	0.6171	0.6277	0.6410	0.6440
		Basic/Prof.	-	-	1.7479	1.7081	1.7404	1.7186	1.7186	1.6906
		Prof./Adv.	-	-	3.3362	3.2408	3.1592	3.2516	3.2193	3.1710
	Impact %	**Bel. Basic**	-	-	6.1	6.0	5.2	4.2	5.1	6.6
		Basic	-	-	15.4	13.5	13.1	11.3	11.4	13.3
		Proficient	-	-	44.2	38.0	38.1	41.1	37.3	36.4
		Advanced	-	-	34.3	42.5	43.6	43.4	46.2	43.6
		Prof. + Adv.	-	-	78.5	80.5	81.7	84.5	83.5	80.0
	Demographic	**N Count**	-	-	125533	126552	127268	126676	124749	126139
		% City	-	-	11.4	11.2	10.9	10.8	10.6	10.5
		% White	-	-	73.1	72.8	72.5	71.5	70.8	70.0
		% Black	-	-	15.8	15.8	15.5	15.5	15.4	15.1
		% Hispanic	-	-	7.2	7.5	7.6	8.1	8.5	8.8

			2005	2006	2007	2008	2009	2010	2011	2012
Mathematics Grade 4	Raw Score	**Mean**	-	45.08	43.61	44.28	47.22	49.11	48.92	48.78
		SD	-	12.66	12.41	13.25	14.51	12.95	13.25	13.67
		Max	-	66	66	66	72	72	72	72
	Scaled Score	**Mean**	-	1403.0	1416.7	1445.3	1456.6	1469.6	1476.9	1475.7
		SD	-	220.6	221.0	243.0	234.0	222.4	221.6	237.7
		Max	-	2282	2348	2370	2405	2446	2467	2482
	Raw Cuts	**Bel. Basic/Basic**	-	29	28	27	26	28	27	28
		Basic/Prof.	-	36	34	33	33	35	34	35
		Prof./Adv.	-	50	47	47	49	50	50	50
	Theta Cuts	**Bel. Basic/Basic**	-	-0.1359	-0.1029	-0.0871	-0.1178	-0.1150	-0.0872	-0.0802
		Basic/Prof.	-	0.3124	0.3496	0.3348	0.3321	0.3378	0.3446	0.3611
		Prof./Adv.	-	1.3089	1.3315	1.3437	1.3204	1.3175	1.3544	1.3427
	Impact %	**Bel. Basic**	-	12.6	12.7	12.3	9.4	7.0	7.1	8.7
		Basic	-	10.1	9.3	8.2	8.8	8.1	7.6	8.6
		Proficient	-	33.7	31.1	29.6	30.6	30.9	31.0	29.2
		Advanced	-	43.5	46.9	50.0	51.2	54.0	54.2	53.4
		Prof. + Adv.	-	77.3	78.0	79.5	81.8	84.8	85.2	82.7
	Demographic	**N Count**	-	127959	126154	126414	127601	126333	125604	122526
		% City	-	11.6	11.3	11.0	10.9	10.6	10.2	10.2
		% White	-	74.5	73.6	73.0	72.5	72.2	71.5	70.6
		% Black	-	15.4	15.7	15.7	15.6	15.3	15.1	15.0
		% Hispanic	-	6.4	6.9	7.5	7.6	7.7	8.3	8.7

			2005	2006	2007	2008	2009	2010	2011	2012
Mathematics Grade 5	Raw Score	**Mean**	47.21	44.71	43.81	43.39	46.20	48.59	47.54	47.28
		SD	12.31	12.99	12.45	14.08	14.57	13.60	13.17	13.52
		Max	66	66	66	66	72	72	72	72
	Scaled Score	**Mean**	1419.3	1424.0	1427.6	1453.1	1451.9	1477.1	1474.1	1462.5
		SD	223.8	238.1	226.7	234.2	226.2	236.3	222.2	235.2
		Max	2272	2292	2476	2329	2409	2432	2470	2455
	Raw Cuts	**Bel. Basic/Basic**	31	29	28	23	25	28	27	28
		Basic/Prof.	43	40	38	35	37	40	38	39
		Prof./Adv.	54	51	49	48	51	52	51	51
	Theta Cuts	**Bel. Basic/Basic**	-	0.1924	0.1886	0.1398	0.1286	0.1494	0.1911	0.1526
		Basic/Prof.	-	0.9868	0.9326	0.9407	0.9367	0.9992	0.9477	0.9473
		Prof./Adv.	-	1.8626	1.8384	1.8360	1.8797	1.9071	1.9015	1.8719
	Impact %	**Bel. Basic**	11.9	13.4	12.1	10.4	9.6	8.8	7.7	9.5
		Basic	19.1	19.8	17.0	16.4	16.9	16.8	16.0	17.3
		Proficient	30.9	28.0	29.5	27.5	29.2	26.8	30.1	27.5
		Advanced	38.1	38.9	41.5	45.7	44.3	47.6	46.2	45.8
		Prof. + Adv.	69.0	66.9	71.0	73.2	73.5	74.4	76.3	73.2
	Demographic	**N Count**	134322	131702	129781	127324	127544	126419	126578	124973
		% City	12.3	11.6	11.0	10.8	10.6	10.6	9.7	9.5
		% White	74.4	74.7	74.2	73.4	72.9	72.3	72.2	71.3
		% Black	16.3	15.6	15.4	15.6	15.5	15.5	15.0	14.8
		% Hispanic	6.0	6.3	6.7	7.2	7.5	7.8	7.9	8.6

			2005	2006	2007	2008	2009	2010	2011	2012
Mathematics Grade 6	Raw Score	**Mean**	-	42.44	44.66	42.96	47.90	49.42	49.33	48.65
		SD	-	13.07	11.81	13.85	14.36	13.68	13.92	13.11
		Max	-	66	66	66	72	72	72	72
	Scaled Score	**Mean**	-	1400.2	1421.1	1457.4	1469.9	1493.4	1499.2	1485.9
		SD	-	227.7	233.6	253.5	240.2	245.0	248.0	240.2
		Max	-	2345	2369	2453	2415	2447	2476	2580
	Raw Cuts	**Bel. Basic/Basic**	-	28	31	26	28	29	29	29
		Basic/Prof.	-	37	39	35	38	39	38	39
		Prof./Adv.	-	49	50	47	51	51	51	51
	Theta Cuts	**Bel. Basic/Basic**	-	-0.1366	-0.1292	-0.0912	-0.1288	-0.1237	-0.0971	-0.1424
		Basic/Prof.	-	0.4823	0.5116	0.5200	0.5206	0.5324	0.4855	0.5263
		Prof./Adv.	-	1.3721	1.4429	1.4008	1.4040	1.3791	1.4047	1.4132
	Impact %	**Bel. Basic**	-	15.8	14.4	14.1	11.1	9.4	10.1	9.0
		Basic	-	16.2	15.9	13.6	13.2	12.6	11.0	13.8
		Proficient	-	30.2	30.0	25.5	26.2	24.7	25.0	26.7
		Advanced	-	37.8	39.6	46.8	49.5	53.3	53.8	50.5
		Prof. + Adv.	-	68.0	69.6	72.3	75.7	78.0	78.9	77.2
	Demographic	**N Count**	-	136186	133610	130851	128421	126288	126630	126661
		% City	-	11.4	10.8	10.3	10.2	10.2	9.7	9.0
		% White	-	74.5	74.5	74.2	73.3	72.8	72.2	72.1
		% Black	-	16.1	15.6	15.3	15.4	15.2	15.2	14.7
		% Hispanic	-	6.2	6.5	6.9	7.3	7.6	8.0	8.1

			2005	2006	2007	2008	2009	2010	2011	2012
Mathematics Grade 7	**Raw Score**	**Mean**	-	39.77	40.54	41.58	45.62	47.88	47.81	48.19
		SD	-	13.38	13.23	13.41	14.57	14.61	14.13	13.84
		Max	-	66	66	66	72	72	72	72
	Scaled Score	**Mean**	-	1393.3	1419.2	1442.7	1464.2	1500.0	1503.8	1499.9
		SD	-	221.7	248.5	236.7	233.4	254.7	249.7	239.8
		Max	-	2343	2487	2407	2450	2475	2545	2548
	Raw Cuts	**Bel. Basic/Basic**	-	26	27	26	26	28	28	27
		Basic/Prof.	-	34	35	34	35	36	36	36
		Prof./Adv.	-	46	46	46	49	49	49	49
	Theta Cuts	**Bel. Basic/Basic**	-	-0.2123	-0.2114	-0.1486	-0.2145	-0.1565	-0.1500	-0.2106
		Basic/Prof.	-	0.3636	0.4076	0.4271	0.3755	0.3673	0.3885	0.3655
		Prof./Adv.	-	1.2351	1.3170	1.2916	1.2920	1.2552	1.2924	1.2310
	Impact %	**Bel. Basic**	-	17.3	17.8	14.9	11.6	11.7	10.8	9.2
		Basic	-	16.3	15.0	14.5	13.1	10.3	10.6	10.8
		Proficient	-	29.3	26.2	26.8	27.8	23.6	24.9	24.7
		Advanced	-	37.2	41.0	43.8	47.5	54.3	53.7	55.4
		Prof. + Adv.	-	66.4	67.2	70.6	75.3	78.0	78.6	80.0
	Demographic	**N Count**	-	141300	138838	135807	132803	127685	126993	127152
		% City	-	10.9	10.7	10.0	9.7	9.6	9.2	8.6
		% White	-	75.1	74.3	74.4	74.1	73.3	72.7	72.1
		% Black	-	15.8	15.9	15.4	15.1	15.1	14.8	14.9
		% Hispanic	-	6.0	6.4	6.7	7.0	7.4	7.9	8.2

			2005	2006	2007	2008	2009	2010	2011	2012
Mathematics Grade 8	**Raw Score**	**Mean**	43.97	42.33	42.62	44.17	47.17	49.33	49.21	49.32
		SD	13.69	13.71	13.70	13.54	14.84	14.53	14.17	13.99
		Max	66	66	66	66	72	72	72	72
	Scaled Score	**Mean**	1369.2	1368.7	1393.5	1406.3	1419.8	1450.7	1448.7	1446.1
		SD	222.2	222.5	222.3	221.0	220.3	236.9	225.4	223.0
		Max	2240	2225	2259	2270	2286	2314	2310	2301
	Raw Cuts	**Bel. Basic/Basic**	31	29	28	29	28	30	30	30
		Basic/Prof.	41	39	37	38	39	40	39	40
		Prof./Adv.	52	50	49	50	52	52	52	52
	Theta Cuts	**Bel. Basic/Basic**	-	-0.0514	-0.0174	-0.0046	-0.0649	-0.0609	-0.0168	-0.0559
		Basic/Prof.	-	0.6355	0.6341	0.6221	0.6285	0.6122	0.5777	0.6189
		Prof./Adv.	-	1.4907	1.5493	1.5535	1.4991	1.5042	1.5154	1.5031
	Impact %	**Bel. Basic**	19.3	18.9	16.9	16.0	12.8	12.0	11.4	11.4
		Basic	17.8	18.9	15.2	13.7	16.0	12.8	11.7	12.2
		Proficient	26.5	26.1	27.6	27.7	26.6	24.1	26.7	25.0
		Advanced	36.4	36.1	40.3	42.6	44.7	51.1	50.2	51.4
		Prof. + Adv.	62.9	62.2	67.9	70.3	71.2	75.1	76.9	76.5
	Demographic	**N Count**	145999	143749	141451	138582	135909	129983	126786	126204
		% City	11.1	11.0	10.6	10.3	9.8	9.5	9.1	8.7
		% White	76.8	75.9	75.0	74.5	74.4	74.1	73.3	72.6
		% Black	15.0	15.4	15.7	15.6	15.0	14.7	14.8	14.5
		% Hispanic	5.3	5.6	6.2	6.5	6.9	7.0	7.6	8.1

			2005	2006	2007	2008	2009	2010	2011	2012
Mathematics Grade 11	**Raw Score**	**Mean**	39.89	43.39	40.95	42.00	45.97	47.62	47.99	45.57
		SD	15.17	14.24	14.25	14.33	15.50	15.23	14.56	14.73
		Max	66	66	66	66	72	72	72	72
	Scaled Score	**Mean**	1338.1	1342.5	1332.8	1343.8	1345.4	1372.2	1379.0	1375.8
		SD	288.3	292.5	253.3	267.3	259.9	276.0	264.0	267.0
		Max	2440	2398	2349	2342	2347	2377	2425	2587
	Raw Cuts	**Bel. Basic/Basic**	31	36	31	33	35	37	36	34
		Basic/Prof.	41	45	41	42	46	46	46	43
		Prof./Adv.	53	55	54	54	59	58	59	56
	Theta Cuts	**Bel. Basic/Basic**	-	-0.1182	-0.1546	-0.1113	-0.1731	-0.1149	-0.1601	-0.1157
		Basic/Prof.	-	0.5620	0.5150	0.5254	0.5272	0.4987	0.4983	0.4933
		Prof./Adv.	-	1.5382	1.5344	1.5474	1.5417	1.4788	1.5722	1.4957
	Impact %	**Bel. Basic**	30.5	30.4	26.6	26.6	24.9	24.8	21.6	23.2
		Basic	18.7	17.7	19.8	17.6	19.5	15.6	18.0	16.8
		Proficient	24.6	23.9	29.5	30.0	29.9	27.6	31.5	29.6
		Advanced	26.3	28.1	24.2	25.9	25.7	32.0	28.8	30.4
		Prof. + Adv.	50.8	51.9	53.7	55.9	55.7	59.6	60.4	60.0
	Demographic	**N Count**	129962	132666	135632	135137	133952	129910	127797	125113
		% City	9.3	8.5	8.2	7.8	8.4	8.2	8.2	7.5
		% White	80.5	80.5	79.5	79.1	77.8	76.6	75.9	75.5
		% Black	12.1	12.2	12.6	12.7	13.5	13.7	13.9	13.4
		% Hispanic	3.8	4.0	4.5	5.0	5.3	5.8	6.2	6.6

			2005	2006	2007	2008	2009	2010	2011	2012
Reading Grade 3	**Raw Score**	**Mean**	-	-	30.18	30.64	30.82	30.64	31.11	30.81
		SD	-	-	9.43	8.87	8.80	9.09	8.87	8.98
		Max	-	-	46	46	46	46	46	46
	Scaled Score	**Mean**	-	-	1330.8	1334.8	1342.1	1350.2	1346.5	1332.8
		SD	-	-	149.7	139.4	145.8	158.6	155.9	150.7
		Max	-	-	1891	1896	1928	1966	1942	1929
	Raw Cuts	**Bel. Basic/Basic**	-	-	19	19	20	19	20	21
		Basic/Prof.	-	-	25	25	25	25	25	26
		Prof./Adv.	-	-	39	39	38	38	38	38
	Theta Cuts	**Bel. Basic/Basic**	-	-	-0.3137	-0.3235	-0.2423	-0.3251	-0.3173	-0.2522
		Basic/Prof.	-	-	0.2857	0.2836	0.2779	0.3125	0.2220	0.2858
		Prof./Adv.	-	-	2.0417	2.0544	1.9360	2.0230	1.9466	1.8854
	Impact %	**Bel. Basic**	-	-	14.8	12.4	13.5	12.9	13.1	15.9
		Basic	-	-	12.4	10.7	9.5	11.9	9.6	10.0
		Proficient	-	-	50.8	57.1	50.8	47.9	48.9	46.9
		Advanced	-	-	22.0	19.7	26.2	27.3	28.3	27.2
		Prof. + Adv.	-	-	72.8	76.9	77.0	75.2	77.2	74.1
	Demographic	**N Count**	-	-	125344	126395	127154	126588	124678	126062
		% City	-	-	11.4	11.2	10.9	10.8	10.6	10.5
		% White	-	-	73.2	72.8	72.5	71.6	70.8	70.0
		% Black	-	-	15.8	15.8	15.5	15.5	15.4	15.1
		% Hispanic	-	-	7.2	7.5	7.6	8.1	8.5	8.8

			2005	2006	2007	2008	2009	2010	2011	2012
Reading Grade 4	**Raw Score**	**Mean**	-	33.10	31.74	33.93	34.07	34.97	35.41	35.30
		SD	-	9.92	9.63	9.82	10.15	9.98	9.26	9.59
		Max	-	52	52	52	52	52	52	52
	Scaled Score	**Mean**	-	1339.3	1349.2	1366.6	1375.5	1379.6	1379.5	1367.6
		SD	-	217.9	218.7	225.1	223.0	222.9	205.8	221.4
		Max	-	2303	2411	2318	2299	2294	2286	2249
	Raw Cuts	**Bel. Basic/Basic**	-	22	21	22	21	22	23	24
		Basic/Prof.	-	30	28	30	29	30	31	31
		Prof./Adv.	-	40	38	40	40	41	41	42
	Theta Cuts	**Bel. Basic/Basic**	-	-0.2218	-0.1667	-0.2014	-0.2069	-0.2073	-0.1389	-0.1402
		Basic/Prof.	-	0.4935	0.5021	0.5469	0.5023	0.5057	0.5607	0.4941
		Prof./Adv.	-	1.5629	1.5675	1.6028	1.5925	1.6441	1.6033	1.6862
	Impact %	**Bel. Basic**	-	15.3	14.9	13.6	12.8	12.8	11.3	13.5
		Basic	-	16.6	15.0	16.3	14.6	14.3	15.3	14.4
		Proficient	-	37.1	38.1	35.8	36.2	36.3	37.9	41.3
		Advanced	-	31.0	32.0	34.3	36.4	36.6	35.4	30.8
		Prof. + Adv.	-	68.1	70.1	70.1	72.6	72.9	73.4	72.0
	Demographic	**N Count**	-	127680	125981	126280	127519	128452	124535	121479
		% City	-	11.5	11.3	11.0	10.9	10.5	10.2	10.2
		% White	-	74.5	73.7	73.0	72.5	72.2	71.4	70.6
		% Black	-	15.4	15.7	15.7	15.6	15.3	15.2	15.0
		% Hispanic	-	6.4	6.9	7.4	7.6	7.7	8.4	8.7

			2005	2006	2007	2008	2009	2010	2011	2012
Reading Grade 5	**Raw Score**	**Mean**	35.87	35.13	33.83	34.57	35.11	35.65	35.72	36.29
		SD	9.52	9.81	9.68	9.80	9.19	8.79	8.53	9.07
		Max	52	52	52	52	52	52	52	52
	Scaled Score	**Mean**	1334.8	1311.5	1318.0	1329.7	1332.1	1328.9	1354.3	1353.5
		SD	235.1	232.9	221.9	222.0	219.8	217.6	214.5	226.4
		Max	2300	2234	2261	2262	2322	2357	2344	2293
	Raw Cuts	**Bel. Basic/Basic**	28	28	26	26	27	28	27	28
		Basic/Prof.	35	35	33	34	34	35	34	35
		Prof./Adv.	44	44	43	43	43	43	43	43
	Theta Cuts	**Bel. Basic/Basic**	-	0.2263	0.2564	0.2378	0.2289	0.2219	0.2425	0.2815
		Basic/Prof.	-	0.9268	0.9094	0.9934	0.9321	0.9505	0.9668	0.9794
		Prof./Adv.	-	2.0985	2.0854	2.0706	2.1020	2.0584	2.1815	2.0234
	Impact %	**Bel. Basic**	19.1	21.1	20.4	18.9	17.9	17.2	14.6	17.0
		Basic	16.7	18.3	19.7	19.6	17.5	18.7	18.2	18.0
		Proficient	41.3	39.8	39.2	38.1	41.8	41.2	44.9	36.7
		Advanced	22.9	20.8	20.8	23.5	22.7	22.9	22.4	28.3
		Prof. + Adv.	64.2	60.6	59.9	61.5	64.5	64.1	67.2	65.0
	Demographic	**N Count**	134142	131488	129593	127211	127430	128933	125963	124007
		% City	12.2	11.6	11.0	10.8	10.6	10.5	9.7	9.5
		% White	74.4	74.7	74.3	73.5	72.9	72.2	72.2	71.3
		% Black	16.3	15.6	15.5	15.6	15.5	15.6	15.0	14.8
		% Hispanic	5.9	6.3	6.7	7.2	7.5	7.8	7.9	8.6

			2005	2006	2007	2008	2009	2010	2011	2012
Reading Grade 6	**Raw Score**	**Mean**	-	32.96	33.11	34.54	35.44	35.71	36.22	35.79
		SD	-	9.26	9.87	9.60	9.67	9.72	9.27	9.47
		Max	-	52	52	52	52	52	52	52
	Scaled Score	**Mean**	-	1335.6	1342.7	1357.6	1373.1	1378.4	1396.4	1377.0
		SD	-	210.4	223.9	221.5	222.4	233.7	234.0	238.4
		Max	-	2339	2306	2290	2285	2293	2332	2319
	Raw Cuts	**Bel. Basic/Basic**	-	23	23	24	24	25	25	25
		Basic/Prof.	-	31	31	32	33	33	33	33
		Prof./Adv.	-	39	40	41	41	41	41	41
	Theta Cuts	**Bel. Basic/Basic**	-	-0.2409	-0.1960	-0.1898	-0.1980	-0.1583	-0.1615	-0.2155
		Basic/Prof.	-	0.5452	0.5488	0.5587	0.6215	0.5928	0.6003	0.5576
		Prof./Adv.	-	1.4345	1.5094	1.5553	1.5044	1.5051	1.5402	1.5031
	Impact %	**Bel. Basic**	-	15.6	17.0	15.3	14.0	14.8	13.1	14.2
		Basic	-	18.5	19.6	17.7	18.4	16.4	17.0	17.3
		Proficient	-	33.5	32.7	34.9	30.5	30.7	30.5	31.1
		Advanced	-	32.4	30.8	32.0	37.1	38.1	39.4	37.4
		Prof. + Adv.	-	65.9	63.5	66.9	67.6	68.7	69.9	68.5
	Demographic	**N Count**	-	135914	133399	130706	128284	128921	126170	126146
		% City	-	11.4	10.8	10.3	10.2	10.1	9.7	9.0
		% White	-	74.5	74.6	74.3	73.3	72.7	72.2	72.0
		% Black	-	16.0	15.6	15.3	15.4	15.3	15.2	14.7
		% Hispanic	-	6.2	6.5	6.9	7.3	7.6	8.0	8.2

			2005	2006	2007	2008	2009	2010	2011	2012
Reading Grade 7	Raw Score	**Mean**	-	33.13	33.19	34.12	34.52	34.83	34.42	35.06
		SD	-	9.75	10.18	10.05	9.91	9.48	9.02	8.96
		Max	-	52	52	52	52	52	52	52
	Scaled Score	**Mean**	-	1363.5	1372.4	1394.2	1413.1	1413.9	1418.3	1412.8
		SD	-	220.1	229.7	234.8	231.0	219.2	210.7	221.2
		Max	-	2351	2361	2366	2388	2373	2387	2394
	Raw Cuts	**Bel. Basic/Basic**	-	22	22	22	21	22	21	23
		Basic/Prof.	-	30	30	30	30	30	29	30
		Prof./Adv.	-	39	39	40	39	39	38	39
	Theta Cuts	**Bel. Basic/Basic**	-	-0.3167	-0.2713	-0.2808	-0.3012	-0.2353	-0.2950	-0.2634
		Basic/Prof.	-	0.4230	0.4511	0.4361	0.4955	0.4820	0.4572	0.4224
		Prof./Adv.	-	1.3773	1.3771	1.4939	1.4066	1.4015	1.3935	1.4251
	Impact %	**Bel. Basic**	-	14.6	16.0	13.8	11.2	11.2	9.2	10.7
		Basic	-	17.3	17.3	16.2	17.4	15.3	14.8	13.2
		Proficient	-	33.2	30.3	34.0	30.0	31.6	32.7	34.7
		Advanced	-	34.9	36.5	36.0	41.4	41.9	43.3	41.3
		Prof. + Adv.	-	68.0	66.8	70.0	71.4	73.5	76.0	76.1
	Demographic	**N Count**	-	141012	138610	135669	132641	130376	126902	126765
		% City	-	10.9	10.6	10.0	9.7	9.6	9.2	8.6
		% White	-	75.2	74.4	74.5	74.2	73.3	72.7	72.1
		% Black	-	15.7	15.9	15.4	15.1	15.2	14.9	14.9
		% Hispanic	-	6.0	6.4	6.7	7.0	7.4	7.9	8.2

			2005	2006	2007	2008	2009	2010	2011	2012
Reading Grade 8	Raw Score	**Mean**	39.12	34.98	33.08	33.57	34.77	34.61	35.60	35.18
		SD	9.07	9.78	8.98	10.13	9.55	8.89	8.93	9.30
		Max	52	52	52	52	52	52	52	52
	Scaled Score	**Mean**	1359.5	1424.8	1441.3	1479.9	1499.5	1491.3	1513.0	1505.5
		SD	274.3	284.7	249.2	272.8	263.7	245.3	260.4	265.7
		Max	2349	2559	2646	2628	2621	2635	2639	2626
	Raw Cuts	**Bel. Basic/Basic**	33	25	22	20	21	21	22	21
		Basic/Prof.	39	31	28	26	27	27	28	28
		Prof./Adv.	45	39	36	35	36	36	36	36
	Theta Cuts	**Bel. Basic/Basic**	-	0.1584	0.1727	0.1507	0.1775	0.1659	0.1977	0.1407
		Basic/Prof.	-	0.7466	0.7668	0.7042	0.7360	0.7294	0.7688	0.7964
		Prof./Adv.	-	1.6424	1.6248	1.5700	1.6317	1.6340	1.5882	1.6002
	Impact %	**Bel. Basic**	19.7	16.2	12.3	12.1	10.6	8.7	8.9	9.0
		Basic	16.3	13.2	12.7	9.6	8.9	9.4	9.3	11.3
		Proficient	30.6	27.1	29.3	24.2	25.2	28.6	24.1	24.1
		Advanced	33.5	43.5	45.7	54.1	55.3	53.3	57.7	55.7
		Prof. + Adv.	64.0	70.6	75.0	78.2	80.5	81.9	81.7	79.8
	Demographic	**N Count**	145752	143401	141193	138377	135739	132906	127125	126250
		% City	11.1	11.0	10.6	10.2	9.8	9.4	9.0	8.6
		% White	76.8	76.0	75.0	74.5	74.5	74.1	73.3	72.6
		% Black	15.0	15.4	15.7	15.6	15.0	14.8	14.8	14.5
		% Hispanic	5.3	5.6	6.2	6.5	6.9	7.1	7.6	8.1

			2005	2006	2007	2008	2009	2010	2011	2012
Reading Grade 11	Raw Score	**Mean**	38.75	34.76	34.02	34.81	35.04	35.25	35.88	35.99
		SD	9.51	9.13	9.55	9.28	9.39	9.38	9.10	8.49
		Max	52	52	52	52	52	52	52	52
	Scaled Score	**Mean**	1362.9	1366.4	1346.2	1360.2	1368.5	1363.2	1381.6	1370.0
		SD	316.5	278.5	266.9	276.2	280.8	280.4	273.4	258.6
		Max	2446	2631	2529	2546	2524	2520	2511	2520
	Raw Cuts	**Bel. Basic/Basic**	33	27	26	27	27	27	27	28
		Basic/Prof.	38	33	32	33	33	33	33	34
		Prof./Adv.	45	41	41	41	41	41	41	41
	Theta Cuts	**Bel. Basic/Basic**	-	0.0646	0.0416	0.0582	0.0675	0.0156	0.0437	0.0633
		Basic/Prof.	-	0.6639	0.6034	0.6497	0.6540	0.6097	0.6194	0.6795
		Prof./Adv.	-	1.6804	1.6229	1.6056	1.5958	1.5606	1.5392	1.5355
	Impact %	**Bel. Basic**	22.0	18.5	19.3	19.0	18.8	18.0	15.9	15.7
		Basic	12.9	16.3	15.3	16.2	15.9	14.8	14.9	16.5
		Proficient	31.4	33.9	36.5	32.9	32.1	33.2	33.0	33.6
		Advanced	33.6	31.2	28.9	31.8	33.1	34.0	36.1	34.2
		Prof. + Adv.	65.0	65.2	65.4	64.7	65.3	67.2	69.2	67.8
	Demographic	**N Count**	129693	132434	135364	135015	133753	133291	127997	125380
		% City	9.3	8.5	8.2	7.8	8.4	8.2	8.2	7.4
		% White	80.6	80.5	79.6	79.2	77.8	76.4	75.9	75.5
		% Black	12.1	12.2	12.5	12.7	13.4	13.9	13.9	13.3
		% Hispanic	3.8	4.0	4.5	4.9	5.2	5.9	6.2	6.6

			2005	2006	2007	2008	2009	2010	2011	2012
Science Grade 4	Raw Score	**Mean**	-	-	-	45.80	47.25	48.64	48.47	45.73
		SD	-	-	-	11.04	11.53	12.22	11.88	12.28
		Max	-	-	-	66	66	68	68	68
	Scaled Score	**Mean**	-	-	-	1429.4	1449.2	1456.8	1452.4	1447.8
		SD	-	-	-	174.1	176.0	200.4	181.9	183.8
		Max	-	-	-	2256	2271	2254	2234	2285
	Raw Cuts	**Bel. Basic/Basic**	-	-	-	26	25	28	26	24
		Basic/Prof.	-	-	-	36	36	38	37	34
		Prof./Adv.	-	-	-	51	52	53	53	50
	Theta Cuts	**Bel. Basic/Basic**	-	-	-	-0.4243	-0.4261	-0.3909	-0.3994	-0.3851
		Basic/Prof.	-	-	-	0.2798	0.3223	0.3093	0.3180	0.3065
		Prof./Adv.	-	-	-	1.4659	1.5133	1.4914	1.4788	1.4523
	Impact %	**Bel. Basic**	-	-	-	5.9	4.9	7.7	5.6	6.1
		Basic	-	-	-	12.7	11.7	10.8	11.5	11.6
		Proficient	-	-	-	41.2	41.0	35.5	38.0	37.8
		Advanced	-	-	-	40.3	42.4	45.9	44.9	44.5
		Prof. + Adv.	-	-	-	81.5	83.4	81.5	83.0	82.3
	Demographic	**N Count**	-	-	-	126426	127537	128565	128103	125170
		% City	-	-	-	10.9	10.7	10.5	10.2	10.3
		% White	-	-	-	72.9	72.5	72.0	71.2	70.4
		% Black	-	-	-	15.5	15.5	15.3	15.2	15.1
		% Hispanic	-	-	-	7.6	7.7	7.9	8.5	8.9

			2005	2006	2007	2008	2009	2010	2011	2012
Science Grade 8	Raw Score	**Mean**	-	-	-	38.25	41.00	42.61	42.10	43.09
		SD	-	-	-	11.71	13.02	13.74	13.62	12.75
		Max	-	-	-	66	66	68	68	68
	Scaled Score	**Mean**	-	-	-	1284.4	1302.9	1309.0	1312.5	1319.6
		SD	-	-	-	174.1	197.6	210.1	203.2	191.9
		Max	-	-	-	2297	2303	2258	2283	2276
	Raw Cuts	**Bel. Basic/Basic**	-	-	-	29	31	33	31	32
		Basic/Prof.	-	-	-	39	41	42	41	42
		Prof./Adv.	-	-	-	51	53	55	54	54
	Theta Cuts	**Bel. Basic/Basic**	-	-	-	-0.2333	-0.2118	-0.1829	-0.2267	-0.2018
		Basic/Prof.	-	-	-	0.4587	0.4620	0.4202	0.4102	0.4526
		Prof./Adv.	-	-	-	1.4173	1.4098	1.4771	1.4148	1.4096
	Impact %	**Bel. Basic**	-	-	-	23.1	24.0	25.5	22.9	20.9
		Basic	-	-	-	24.3	21.1	17.3	18.9	19.5
		Proficient	-	-	-	36.4	32.5	33.7	34.0	35.4
		Advanced	-	-	-	16.3	22.3	23.5	24.3	24.3
		Prof. + Adv.	-	-	-	52.7	54.8	57.2	58.3	59.6
	Demographic	**N Count**	-	-	-	137790	134969	132452	127075	126112
		% City	-	-	-	10.1	9.7	9.3	9.0	8.6
		% White	-	-	-	74.6	74.5	74.1	73.2	72.6
		% Black	-	-	-	15.3	14.9	14.6	14.7	14.4
		% Hispanic	-	-	-	6.6	7.0	7.1	7.6	8.1

			2005	2006	2007	2008	2009	2010	2011	2012
Science Grade 11	Raw Score	**Mean**	-	-	-	36.11	39.02	39.48	39.72	39.47
		SD	-	-	-	12.46	13.16	13.02	13.94	13.38
		Max	-	-	-	72	72	74	74	74
	Scaled Score	**Mean**	-	-	-	1236.3	1244.0	1242.6	1244.8	1245.9
		SD	-	-	-	89.0	101.5	96.7	96.5	93.5
		Max	-	-	-	1825	1859	1862	1822	1814
	Raw Cuts	**Bel. Basic/Basic**	-	-	-	24	27	27	26	25
		Basic/Prof.	-	-	-	42	44	45	45	44
		Prof./Adv.	-	-	-	53	53	54	56	55
	Theta Cuts	**Bel. Basic/Basic**	-	-	-	-0.3955	-0.3898	-0.4062	-0.3853	-0.4439
		Basic/Prof.	-	-	-	0.7921	0.8144	0.8288	0.7891	0.7792
		Prof./Adv.	-	-	-	1.5577	1.4967	1.5053	1.5633	1.5334
	Impact %	**Bel. Basic**	-	-	-	18.1	19.8	19.0	18.8	16.3
		Basic	-	-	-	46.2	40.5	41.2	40.4	41.8
		Proficient	-	-	-	25.2	22.5	25.0	26.7	27.6
		Advanced	-	-	-	10.5	17.2	14.8	14.1	14.2
		Prof. + Adv.	-	-	-	35.6	39.7	39.8	40.8	41.9
	Demographic	**N Count**	-	-	-	131157	130262	129926	125307	121693
		% City	-	-	-	6.8	7.3	7.0	7.4	6.4
		% White	-	-	-	80.2	78.8	77.5	76.8	76.7
		% Black	-	-	-	11.6	12.4	13.0	13.1	12.4
		% Hispanic	-	-	-	4.8	5.1	5.7	6.0	6.2

			2005	2006	2007	2008	2009	2010	2011	2012
Writing Grade 5	Raw Score	Mean	-	68.63	65.07	66.56	66.03	65.44	65.83	64.82
		SD	-	12.97	13.03	13.93	14.35	14.55	14.57	14.91
		Max	-	100	100	100	100	100	100	100
	Scaled Score	Mean	-	1300.2	1274.5	1319.6	1303.2	1322.1	1351.3	1331.0
		SD	-	248.9	215.4	304.4	246.0	265.5	277.7	275.7
		Max	-	2188	2145	2615	2162	2249	2294	2314
	Raw Cuts	Bel. Basic/Basic	-	35	35	34	31	30	31	28
		Basic/Prof.	-	68	64	65	64	63	61	62
		Prof./Adv.	-	96	98	89	97	94	92	91
	Theta Cuts	Bel. Basic/Basic				-3.2096	-3.2167	-3.2280	-3.1071	-3.1662
		Basic/Prof.				1.6555	1.7538	1.7554	1.7133	1.7283
		Prof./Adv.				8.6187	8.4299	8.4710	8.4777	8.3972
	Impact %	Bel. Basic	-	0.8	1.1	1.2	1.0	1.8	1.9	1.8
		Basic	-	45.0	41.6	41.6	40.9	36.5	31.0	34.0
		Proficient	-	52.0	56.0	52.7	55.5	59.8	64.9	62.5
		Advanced	-	2.1	1.3	4.6	2.6	2.0	2.2	1.7
		Prof. + Adv.	-	54.1	57.3	57.3	58.1	61.7	67.1	64.2
	Demographic	N Count	-	129802	128637	125547	126625	128201	128833	127549
		% City	-	11.2	10.7	10.5	10.4	10.4	9.6	9.5
		% White	-	75.2	74.6	73.9	73.1	72.4	72.2	71.3
		% Black	-	15.2	15.2	15.5	15.3	15.4	15.1	14.9
		% Hispanic	-	6.2	6.6	7.0	7.5	7.7	7.9	8.6

			2005	2006	2007	2008	2009	2010	2011	2012
Writing Grade 8	Raw Score	Mean	-	71.71	67.24	68.05	67.82	68.36	67.11	67.06
		SD	-	14.09	13.91	13.32	13.83	14.90	14.22	14.41
		Max	-	100	100	100	100	100	100	100
	Scaled Score	Mean	-	1340.5	1375.1	1322.5	1363.1	1400.9	1415.5	1406.6
		SD	-	266.0	258.4	210.5	265.5	271.9	272.1	276.8
		Max	-	2119	2265	2098	2288	2245	2329	2341
	Raw Cuts	Bel. Basic/Basic	-	45	40	43	43	38	38	38
		Basic/Prof.	-	69	60	63	62	60	58	59
		Prof./Adv.	-	92	85	94	85	86	82	82
	Theta Cuts	Bel. Basic/Basic				-1.9218	-2.0619	-2.0663	-2.0134	-1.9652
		Basic/Prof.				1.1614	1.1847	1.1789	1.2283	1.2174
		Prof./Adv.				6.4254	6.3760	6.4115	6.3574	6.4652
	Impact %	Bel. Basic	-	3.4	2.8	2.9	4.2	3.2	2.8	3.2
		Basic	-	30.6	25.5	28.0	24.6	21.6	24.1	24.1
		Proficient	-	60.5	60.9	66.8	60.7	61.7	62.1	62.2
		Advanced	-	5.6	10.9	2.3	10.5	13.5	11.0	10.5
		Prof. + Adv.	-	66.0	71.7	69.1	71.2	75.1	73.1	72.7
	Demographic	N Count	-	141365	139263	136417	134976	131780	129619	129035
		% City	-	10.4	10.1	9.8	9.6	9.3	8.9	8.5
		% White	-	76.7	75.6	75.0	74.7	74.3	73.4	72.7
		% Black	-	14.9	15.3	15.2	14.9	14.6	14.8	14.5
		% Hispanic	-	5.5	6.0	6.4	6.8	7.0	7.5	8.0

			2005	2006	2007	2008	2009	2010	2011	2012
Writing Grade 11	Raw Score	Mean	-	71.90	70.23	69.71	72.30	69.60	71.44	68.63
		SD	-	13.22	11.48	13.27	14.48	14.35	14.76	15.27
		Max	-	100	100	100	100	100	100	100
	Scaled Score	Mean	-	1515.7	1442.9	1470.6	1480.4	1483.7	1536.8	1523.3
		SD	-	274.8	216.7	262.8	283.7	282.3	298.6	293.9
		Max	-	2356	2283	2377	2257	2382	2364	2418
	Raw Cuts	Bel. Basic/Basic	-	36	38	36	39	35	34	31
		Basic/Prof.	-	57	59	56	60	57	55	53
		Prof./Adv.	-	83	87	84	88	82	83	81
	Theta Cuts	Bel. Basic/Basic				-2.8217	-2.8091	-2.7956	-2.7861	-2.9190
		Basic/Prof.				-0.0891	-0.0515	-0.0159	-0.0562	0.0251
		Prof./Adv.				5.6192	5.6480	5.6311	5.7382	5.7556
	Impact %	Bel. Basic	-	1.2	0.8	1.2	2.3	2.2	1.7	2.5
		Basic	-	13.1	11.3	13.0	14.9	17.1	13.6	14.6
		Proficient	-	69.8	80.2	72.2	67.9	67.7	66.0	69.3
		Advanced	-	15.8	7.7	13.6	14.8	13.0	18.7	13.6
		Prof. + Adv.	-	85.7	87.8	85.8	82.8	80.7	84.7	82.9
	Demographic	N Count	-	130572	133368	132349	132866	130352	128775	125095
		% City	-	7.9	7.4	7.0	7.9	7.3	7.5	6.7
		% White	-	81.4	80.3	80.1	78.2	77.3	76.5	76.5
		% Black	-	11.6	12.0	11.9	13.1	13.2	13.4	12.8
		% Hispanic	-	3.8	4.3	4.8	5.1	5.7	6.1	6.2

Appendix N:

Raw-to-Scaled Score Conversion Tables

Column Heading	**Definition**
Raw	Raw score
Meas	Rasch measure
MeasSE	Rasch measure standard error
SS	Scaled score
SSSE	Scaled score standard error
Freq	Frequency
Freq%	Frequency percent
Cum	Cumulative frequency
Cum%	Cumulative frequency percent
Pct	Percentile

Mathematics Grade 3

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.2274	1.8330	750	236	0	0.0	0	0.0	0
1	-4.0046	1.0134	750	131	1	0.0	1	0.0	1
2	-3.2845	0.7260	750	94	0	0.0	1	0.0	1
3	-2.8518	0.6004	750	77	0	0.0	1	0.0	1
4	-2.5368	0.5266	750	68	1	0.0	2	0.0	1
5	-2.2863	0.4770	750	61	0	0.0	2	0.0	1
6	-2.0763	0.4409	750	57	1	0.0	3	0.0	1
7	-1.8944	0.4132	750	53	3	0.0	6	0.0	1
8	-1.7329	0.3913	750	50	2	0.0	8	0.0	1
9	-1.5869	0.3734	760	48	14	0.0	22	0.0	1
10	-1.4531	0.3585	777	46	14	0.0	36	0.0	1
11	-1.3291	0.3460	793	45	36	0.0	72	0.1	1
12	-1.2132	0.3353	808	43	28	0.0	100	0.1	1
13	-1.1039	0.3260	822	42	69	0.1	169	0.1	1
14	-1.0003	0.3180	835	41	80	0.1	249	0.2	1
15	-0.9014	0.3109	848	40	125	0.1	374	0.3	1
16	-0.8067	0.3047	860	39	158	0.1	532	0.4	1
17	-0.7156	0.2992	872	39	191	0.2	723	0.6	1
18	-0.6276	0.2943	883	38	216	0.2	939	0.7	1
19	-0.5422	0.2900	894	37	247	0.2	1186	0.9	1
20	-0.4593	0.2862	905	37	258	0.2	1444	1.1	1
21	-0.3783	0.2828	916	36	308	0.2	1752	1.4	1
22	-0.2992	0.2798	926	36	328	0.3	2080	1.6	2
23	-0.2217	0.2772	936	36	367	0.3	2447	1.9	2
24	-0.1455	0.2748	945	35	432	0.3	2879	2.3	2
25	-0.0705	0.2728	955	35	408	0.3	3287	2.6	2
26	0.0034	0.2710	965	35	422	0.3	3709	2.9	3
27	0.0764	0.2695	974	35	471	0.4	4180	3.3	3
28	0.1487	0.2683	983	35	496	0.4	4676	3.7	4
29	0.2204	0.2672	993	34	554	0.4	5230	4.1	4
30	0.2916	0.2664	1002	34	550	0.4	5780	4.6	4
31	0.3624	0.2658	1011	34	559	0.4	6339	5.0	5
32	0.4329	0.2654	1020	34	658	0.5	6997	5.5	5
33	0.5033	0.2652	1029	34	676	0.5	7673	6.1	6
34	0.5736	0.2652	1038	34	708	0.6	8381	6.6	6
35	0.6440	0.2653	1047	34	821	0.7	9202	7.3	7
36	0.7145	0.2657	1056	34	803	0.6	10005	7.9	8
37	0.7852	0.2662	1065	34	843	0.7	10848	8.6	8
38	0.8562	0.2670	1075	34	925	0.7	11773	9.3	9
39	0.9277	0.2679	1084	35	1017	0.8	12790	10.1	10
40	0.9998	0.2689	1093	35	1035	0.8	13825	11.0	11
41	1.0725	0.2702	1102	35	1149	0.9	14974	11.9	11
42	1.1459	0.2717	1112	35	1179	0.9	16153	12.8	12
43	1.2201	0.2734	1121	35	1279	1.0	17432	13.8	13
44	1.2954	0.2752	1131	35	1351	1.1	18783	14.9	14
45	1.3717	0.2773	1141	36	1363	1.1	20146	16.0	15
46	1.4493	0.2796	1151	36	1540	1.2	21686	17.2	17
47	1.5281	0.2822	1161	36	1691	1.3	23377	18.5	18
48	1.6086	0.2850	1171	37	1793	1.4	25170	20.0	19
49	1.6906	0.2880	1182	37	1932	1.5	27102	21.5	21

50	1.7745	0.2913	1193	38	2018	1.6	29120	23.1	22
51	1.8605	0.2950	1204	38	2306	1.8	31426	24.9	24
52	1.9486	0.2989	1215	39	2371	1.9	33797	26.8	26
53	2.0392	0.3032	1227	39	2589	2.1	36386	28.8	28
54	2.1326	0.3079	1239	40	2804	2.2	39190	31.1	30
55	2.2290	0.3131	1251	40	2969	2.4	42159	33.4	32
56	2.3288	0.3188	1264	41	3302	2.6	45461	36.0	35
57	2.4324	0.3250	1278	42	3567	2.8	49028	38.9	37
58	2.5403	0.3320	1291	43	3811	3.0	52839	41.9	40
59	2.6531	0.3398	1306	44	4060	3.2	56899	45.1	43
60	2.7714	0.3485	1321	45	4442	3.5	61341	48.6	47
61	2.8963	0.3586	1337	46	4749	3.8	66090	52.4	51
62	3.0290	0.3702	1354	48	5014	4.0	71104	56.4	54
63	3.1710	0.3838	1373	49	5416	4.3	76520	60.7	59
64	3.3245	0.4002	1392	52	5875	4.7	82395	65.3	63
65	3.4925	0.4204	1414	54	6038	4.8	88433	70.1	68
66	3.6797	0.4459	1438	57	6463	5.1	94896	75.2	73
67	3.8932	0.4797	1466	62	6785	5.4	101681	80.6	78
68	4.1453	0.5269	1498	68	6760	5.4	108441	86.0	83
69	4.4592	0.5984	1539	77	6299	5.0	114740	91.0	88
70	4.8879	0.7223	1594	93	5474	4.3	120214	95.3	93
71	5.6013	1.0095	1686	130	3919	3.1	124133	98.4	97
72	6.8183	1.8307	1843	236	2006	1.6	126139	100.0	99

Mathematics Grade 4

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.2916	1.8317	700	366	0	0.0	0	0.0	0
1	-4.0725	1.0108	700	202	0	0.0	0	0.0	0
2	-3.3578	0.7223	700	144	1	0.0	1	0.0	1
3	-2.9306	0.5959	700	119	0	0.0	1	0.0	1
4	-2.6211	0.5214	700	104	0	0.0	1	0.0	1
5	-2.3760	0.4711	708	94	0	0.0	1	0.0	1
6	-2.1717	0.4345	749	87	3	0.0	4	0.0	1
7	-1.9954	0.4064	784	81	5	0.0	9	0.0	1
8	-1.8395	0.3840	816	77	12	0.0	21	0.0	1
9	-1.6992	0.3657	844	73	28	0.0	49	0.0	1
10	-1.5711	0.3505	869	70	46	0.0	95	0.1	1
11	-1.4528	0.3376	893	68	88	0.1	183	0.1	1
12	-1.3426	0.3266	915	65	112	0.1	295	0.2	1
13	-1.2391	0.3170	936	63	148	0.1	443	0.4	1
14	-1.1413	0.3087	955	62	240	0.2	683	0.6	1
15	-1.0482	0.3014	974	60	327	0.3	1010	0.8	1
16	-0.9594	0.2949	992	59	387	0.3	1397	1.1	1
17	-0.8741	0.2891	1009	58	479	0.4	1876	1.5	1
18	-0.7921	0.2840	1025	57	542	0.4	2418	2.0	2
19	-0.7127	0.2794	1041	56	624	0.5	3042	2.5	2
20	-0.6358	0.2753	1056	55	736	0.6	3778	3.1	3
21	-0.5610	0.2716	1071	54	800	0.7	4578	3.7	3
22	-0.4881	0.2683	1086	54	788	0.6	5366	4.4	4
23	-0.4170	0.2654	1100	53	939	0.8	6305	5.1	5
24	-0.3473	0.2627	1114	53	1010	0.8	7315	6.0	6
25	-0.2789	0.2603	1128	52	1041	0.8	8356	6.8	6
26	-0.2117	0.2582	1141	52	1104	0.9	9460	7.7	7
27	-0.1455	0.2564	1154	51	1241	1.0	10701	8.7	8
28	-0.0802	0.2547	1167	51	1258	1.0	11959	9.8	9
29	-0.0157	0.2533	1180	51	1390	1.1	13349	10.9	10
30	0.0482	0.2521	1193	50	1448	1.2	14797	12.1	11
31	0.1115	0.2511	1206	50	1491	1.2	16288	13.3	13
32	0.1744	0.2503	1218	50	1575	1.3	17863	14.6	14
33	0.2368	0.2497	1231	50	1719	1.4	19582	16.0	15
34	0.2991	0.2492	1243	50	1669	1.4	21251	17.3	17
35	0.3611	0.2490	1256	50	1846	1.5	23097	18.9	18
36	0.4231	0.2489	1268	50	1943	1.6	25040	20.4	20
37	0.4851	0.2491	1281	50	1936	1.6	26976	22.0	21
38	0.5472	0.2494	1293	50	2000	1.6	28976	23.6	23
39	0.6095	0.2499	1305	50	2166	1.8	31142	25.4	25
40	0.6721	0.2507	1318	50	2194	1.8	33336	27.2	26
41	0.7352	0.2516	1331	50	2415	2.0	35751	29.2	28
42	0.7988	0.2528	1343	51	2433	2.0	38184	31.2	30
43	0.8630	0.2542	1356	51	2516	2.1	40700	33.2	32
44	0.9280	0.2558	1369	51	2451	2.0	43151	35.2	34
45	0.9940	0.2578	1382	52	2629	2.1	45780	37.4	36
46	1.0610	0.2599	1396	52	2759	2.3	48539	39.6	38
47	1.1292	0.2624	1409	52	2789	2.3	51328	41.9	41
48	1.1987	0.2652	1423	53	2867	2.3	54195	44.2	43
49	1.2699	0.2683	1438	54	2877	2.3	57072	46.6	45

50	1.3427	0.2717	1452	54	3033	2.5	60105	49.1	48
51	1.4176	0.2756	1467	55	3187	2.6	63292	51.7	50
52	1.4946	0.2798	1482	56	3283	2.7	66575	54.3	53
53	1.5743	0.2846	1498	57	3318	2.7	69893	57.0	56
54	1.6568	0.2899	1515	58	3392	2.8	73285	59.8	58
55	1.7425	0.2957	1532	59	3276	2.7	76561	62.5	61
56	1.8318	0.3023	1550	60	3432	2.8	79993	65.3	64
57	1.9254	0.3097	1569	62	3389	2.8	83382	68.1	67
58	2.0239	0.3180	1588	64	3459	2.8	86841	70.9	69
59	2.1279	0.3274	1609	65	3614	2.9	90455	73.8	72
60	2.2385	0.3381	1631	68	3473	2.8	93928	76.7	75
61	2.3570	0.3504	1655	70	3596	2.9	97524	79.6	78
62	2.4848	0.3648	1680	73	3461	2.8	100985	82.4	81
63	2.6240	0.3817	1708	76	3417	2.8	104402	85.2	84
64	2.7772	0.4018	1739	80	3270	2.7	107672	87.9	87
65	2.9484	0.4264	1773	85	3201	2.6	110873	90.5	89
66	3.1430	0.4570	1812	91	2971	2.4	113844	92.9	92
67	3.3695	0.4964	1857	99	2702	2.2	116546	95.1	94
68	3.6417	0.5495	1912	110	2264	1.8	118810	97.0	96
69	3.9850	0.6268	1981	125	1752	1.4	120562	98.4	98
70	4.4549	0.7548	2075	151	1167	1.0	121729	99.3	99
71	5.2242	1.0408	2228	208	623	0.5	122352	99.9	99
72	6.4904	1.8514	2482	370	174	0.1	122526	100.0	99

Mathematics Grade 5

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.2680	1.8337	700	348	0	0.0	0	0.0	0
1	-4.0437	1.0144	700	193	0	0.0	0	0.0	0
2	-3.3216	0.7272	700	138	0	0.0	0	0.0	0
3	-2.8873	0.6018	700	114	0	0.0	0	0.0	0
4	-2.5708	0.5280	700	100	0	0.0	0	0.0	0
5	-2.3188	0.4784	700	91	0	0.0	0	0.0	0
6	-2.1076	0.4423	734	84	1	0.0	1	0.0	1
7	-1.9244	0.4147	769	79	8	0.0	9	0.0	1
8	-1.7617	0.3928	800	75	18	0.0	27	0.0	1
9	-1.6145	0.3750	828	71	40	0.0	67	0.1	1
10	-1.4795	0.3602	853	68	56	0.0	123	0.1	1
11	-1.3543	0.3478	877	66	90	0.1	213	0.2	1
12	-1.2372	0.3372	899	64	139	0.1	352	0.3	1
13	-1.1266	0.3281	920	62	221	0.2	573	0.5	1
14	-1.0216	0.3201	940	61	251	0.2	824	0.7	1
15	-0.9213	0.3132	959	59	360	0.3	1184	0.9	1
16	-0.8252	0.3072	977	58	418	0.3	1602	1.3	1
17	-0.7324	0.3019	995	57	498	0.4	2100	1.7	1
18	-0.6427	0.2972	1012	56	586	0.5	2686	2.1	2
19	-0.5557	0.2931	1029	56	656	0.5	3342	2.7	2
20	-0.4709	0.2894	1045	55	746	0.6	4088	3.3	3
21	-0.3881	0.2861	1060	54	851	0.7	4939	4.0	4
22	-0.3070	0.2832	1076	54	913	0.7	5852	4.7	4
23	-0.2276	0.2807	1091	53	1100	0.9	6952	5.6	5
24	-0.1495	0.2784	1106	53	1123	0.9	8075	6.5	6
25	-0.0725	0.2764	1120	52	1153	0.9	9228	7.4	7
26	0.0034	0.2747	1135	52	1281	1.0	10509	8.4	8
27	0.0784	0.2732	1149	52	1390	1.1	11899	9.5	9
28	0.1526	0.2718	1163	52	1496	1.2	13395	10.7	10
29	0.2262	0.2707	1177	51	1606	1.3	15001	12.0	11
30	0.2993	0.2698	1191	51	1672	1.3	16673	13.3	13
31	0.3719	0.2691	1205	51	1752	1.4	18425	14.7	14
32	0.4442	0.2685	1218	51	1858	1.5	20283	16.2	15
33	0.5161	0.2681	1232	51	1919	1.5	22202	17.8	17
34	0.5879	0.2679	1246	51	2060	1.6	24262	19.4	19
35	0.6596	0.2678	1259	51	2216	1.8	26478	21.2	20
36	0.7313	0.2678	1273	51	2329	1.9	28807	23.1	22
37	0.8031	0.2681	1287	51	2267	1.8	31074	24.9	24
38	0.8751	0.2685	1300	51	2392	1.9	33466	26.8	26
39	0.9473	0.2690	1314	51	2537	2.0	36003	28.8	28
40	1.0198	0.2697	1328	51	2644	2.1	38647	30.9	30
41	1.0928	0.2706	1342	51	2667	2.1	41314	33.1	32
42	1.1663	0.2717	1355	52	2792	2.2	44106	35.3	34
43	1.2404	0.2729	1370	52	2706	2.2	46812	37.5	36
44	1.3154	0.2744	1384	52	2839	2.3	49651	39.7	39
45	1.3911	0.2761	1398	52	2939	2.4	52590	42.1	41
46	1.4678	0.2780	1413	53	2968	2.4	55558	44.5	43
47	1.5457	0.2802	1427	53	2964	2.4	58522	46.8	46
48	1.6249	0.2826	1443	54	3057	2.4	61579	49.3	48
49	1.7055	0.2853	1458	54	3052	2.4	64631	51.7	50

50	1.7878	0.2884	1473	55	3152	2.5	67783	54.2	53
51	1.8719	0.2918	1489	55	3164	2.5	70947	56.8	56
52	1.9582	0.2956	1506	56	3237	2.6	74184	59.4	58
53	2.0468	0.2999	1523	57	3249	2.6	77433	62.0	61
54	2.1381	0.3046	1540	58	3354	2.7	80787	64.6	63
55	2.2325	0.3100	1558	59	3325	2.7	84112	67.3	66
56	2.3304	0.3160	1576	60	3490	2.8	87602	70.1	69
57	2.4324	0.3227	1596	61	3338	2.7	90940	72.8	71
58	2.5389	0.3303	1616	63	3390	2.7	94330	75.5	74
59	2.6508	0.3389	1637	64	3342	2.7	97672	78.2	77
60	2.7690	0.3488	1660	66	3332	2.7	101004	80.8	79
61	2.8946	0.3602	1683	68	3358	2.7	104362	83.5	82
62	3.0290	0.3733	1709	71	3269	2.6	107631	86.1	85
63	3.1741	0.3888	1737	74	3037	2.4	110668	88.6	87
64	3.3322	0.4072	1767	77	2888	2.3	113556	90.9	90
65	3.5070	0.4296	1800	82	2705	2.2	116261	93.0	92
66	3.7033	0.4575	1837	87	2504	2.0	118765	95.0	94
67	3.9289	0.4937	1880	94	2104	1.7	120869	96.7	96
68	4.1963	0.5430	1931	103	1751	1.4	122620	98.1	97
69	4.5295	0.6160	1994	117	1216	1.0	123836	99.1	99
70	4.9816	0.7397	2080	140	705	0.6	124541	99.7	99
71	5.7225	1.0239	2220	194	358	0.3	124899	99.9	99
72	6.9604	1.8390	2455	349	74	0.1	124973	100.0	99

Mathematics Grade 6

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.5625	1.8336	700	367	0	0.0	0	0.0	0
1	-4.3384	1.0143	700	203	0	0.0	0	0.0	0
2	-3.6165	0.7271	700	145	0	0.0	0	0.0	0
3	-3.1824	0.6016	700	120	0	0.0	0	0.0	0
4	-2.8661	0.5278	700	106	0	0.0	0	0.0	0
5	-2.6144	0.4781	700	96	1	0.0	1	0.0	1
6	-2.4036	0.4418	721	88	0	0.0	1	0.0	1
7	-2.2210	0.4139	757	83	5	0.0	6	0.0	1
8	-2.0589	0.3918	790	78	13	0.0	19	0.0	1
9	-1.9127	0.3736	819	75	21	0.0	40	0.0	1
10	-1.7788	0.3585	846	72	53	0.0	93	0.1	1
11	-1.6549	0.3456	871	69	72	0.1	165	0.1	1
12	-1.5393	0.3346	894	67	109	0.1	274	0.2	1
13	-1.4307	0.3250	915	65	153	0.1	427	0.3	1
14	-1.3278	0.3165	936	63	251	0.2	678	0.5	1
15	-1.2300	0.3091	956	62	284	0.2	962	0.8	1
16	-1.1365	0.3025	974	61	342	0.3	1304	1.0	1
17	-1.0468	0.2966	992	59	434	0.3	1738	1.4	1
18	-0.9604	0.2914	1009	58	504	0.4	2242	1.8	2
19	-0.8769	0.2867	1026	57	543	0.4	2785	2.2	2
20	-0.7959	0.2824	1042	56	624	0.5	3409	2.7	2
21	-0.7173	0.2787	1058	56	732	0.6	4141	3.3	3
22	-0.6406	0.2753	1073	55	804	0.6	4945	3.9	4
23	-0.5656	0.2723	1088	54	845	0.7	5790	4.6	4
24	-0.4923	0.2696	1103	54	994	0.8	6784	5.4	5
25	-0.4203	0.2672	1117	53	1004	0.8	7788	6.1	6
26	-0.3494	0.2651	1132	53	1076	0.8	8864	7.0	7
27	-0.2796	0.2634	1146	53	1200	0.9	10064	7.9	7
28	-0.2106	0.2618	1159	52	1287	1.0	11351	9.0	8
29	-0.1424	0.2606	1174	52	1382	1.1	12733	10.1	10
30	-0.0748	0.2595	1187	52	1433	1.1	14166	11.2	11
31	-0.0077	0.2588	1200	52	1489	1.2	15655	12.4	12
32	0.0591	0.2582	1213	52	1598	1.3	17253	13.6	13
33	0.1257	0.2578	1227	52	1638	1.3	18891	14.9	14
34	0.1921	0.2577	1240	52	1763	1.4	20654	16.3	16
35	0.2586	0.2578	1253	52	1920	1.5	22574	17.8	17
36	0.3251	0.2581	1267	52	1940	1.5	24514	19.4	19
37	0.3918	0.2586	1280	52	2137	1.7	26651	21.0	20
38	0.4589	0.2593	1293	52	2199	1.7	28850	22.8	22
39	0.5263	0.2602	1307	52	2304	1.8	31154	24.6	24
40	0.5943	0.2613	1320	52	2364	1.9	33518	26.5	26
41	0.6629	0.2626	1334	53	2489	2.0	36007	28.4	27
42	0.7323	0.2642	1348	53	2597	2.1	38604	30.5	29
43	0.8025	0.2659	1362	53	2622	2.1	41226	32.5	32
44	0.8738	0.2679	1376	54	2787	2.2	44013	34.7	34
45	0.9461	0.2701	1391	54	2874	2.3	46887	37.0	36
46	1.0198	0.2726	1406	55	2948	2.3	49835	39.3	38
47	1.0948	0.2754	1421	55	3062	2.4	52897	41.8	41
48	1.1715	0.2785	1436	56	3171	2.5	56068	44.3	43
49	1.2500	0.2818	1452	56	3183	2.5	59251	46.8	46

50	1.3305	0.2856	1468	57	3388	2.7	62639	49.5	48
51	1.4132	0.2897	1484	58	3512	2.8	66151	52.2	51
52	1.4985	0.2943	1501	59	3668	2.9	69819	55.1	54
53	1.5865	0.2993	1519	60	3565	2.8	73384	57.9	57
54	1.6777	0.3048	1537	61	3757	3.0	77141	60.9	59
55	1.7725	0.3110	1556	62	3789	3.0	80930	63.9	62
56	1.8713	0.3179	1576	64	3744	3.0	84674	66.9	65
57	1.9748	0.3255	1597	65	3828	3.0	88502	69.9	68
58	2.0835	0.3341	1618	67	3863	3.0	92365	72.9	71
59	2.1983	0.3438	1641	69	3843	3.0	96208	76.0	74
60	2.3202	0.3547	1666	71	3850	3.0	100058	79.0	77
61	2.4504	0.3672	1692	73	3826	3.0	103884	82.0	81
62	2.5904	0.3815	1720	76	3693	2.9	107577	84.9	83
63	2.7423	0.3983	1750	80	3600	2.8	111177	87.8	86
64	2.9087	0.4182	1783	84	3318	2.6	114495	90.4	89
65	3.0935	0.4424	1820	88	3025	2.4	117520	92.8	92
66	3.3025	0.4729	1862	95	2631	2.1	120151	94.9	94
67	3.5446	0.5128	1910	103	2301	1.8	122452	96.7	96
68	3.8351	0.5681	1969	114	1784	1.4	124236	98.1	97
69	4.2031	0.6503	2042	130	1223	1.0	125459	99.1	99
70	4.7121	0.7877	2144	158	822	0.6	126281	99.7	99
71	5.5500	1.0831	2312	217	319	0.3	126600	100.0	99
72	6.8911	1.8846	2580	377	61	0.0	126661	100.0	99

Mathematics Grade 7

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.4273	1.8329	700	367	0	0.0	0	0.0	0
1	-4.2053	1.0128	700	203	0	0.0	0	0.0	0
2	-3.4863	0.7251	700	145	0	0.0	0	0.0	0
3	-3.0550	0.5992	700	120	0	0.0	0	0.0	0
4	-2.7417	0.5251	700	105	0	0.0	0	0.0	0
5	-2.4928	0.4751	727	95	3	0.0	3	0.0	1
6	-2.2848	0.4386	768	88	2	0.0	5	0.0	1
7	-2.1048	0.4107	804	82	2	0.0	7	0.0	1
8	-1.9455	0.3884	836	78	13	0.0	20	0.0	1
9	-1.8019	0.3702	865	74	41	0.0	61	0.0	1
10	-1.6706	0.3550	891	71	62	0.0	123	0.1	1
11	-1.5492	0.3421	915	68	137	0.1	260	0.2	1
12	-1.4360	0.3310	938	66	167	0.1	427	0.3	1
13	-1.3297	0.3214	959	64	257	0.2	684	0.5	1
14	-1.2291	0.3129	979	63	364	0.3	1048	0.8	1
15	-1.1337	0.3054	999	61	440	0.3	1488	1.2	1
16	-1.0424	0.2988	1017	60	557	0.4	2045	1.6	1
17	-0.9549	0.2929	1034	59	658	0.5	2703	2.1	2
18	-0.8706	0.2876	1051	58	703	0.6	3406	2.7	2
19	-0.7894	0.2828	1067	57	779	0.6	4185	3.3	3
20	-0.7106	0.2785	1083	56	854	0.7	5039	4.0	4
21	-0.6341	0.2747	1098	55	901	0.7	5940	4.7	4
22	-0.5597	0.2712	1113	54	1018	0.8	6958	5.5	5
23	-0.4870	0.2680	1128	54	1097	0.9	8055	6.3	6
24	-0.4159	0.2652	1142	53	1135	0.9	9190	7.2	7
25	-0.3463	0.2626	1156	53	1225	1.0	10415	8.2	8
26	-0.2779	0.2604	1170	52	1248	1.0	11663	9.2	9
27	-0.2106	0.2584	1183	52	1234	1.0	12897	10.1	10
28	-0.1444	0.2566	1196	51	1351	1.1	14248	11.2	11
29	-0.0789	0.2551	1210	51	1430	1.1	15678	12.3	12
30	-0.0142	0.2538	1222	51	1429	1.1	17107	13.5	13
31	0.0500	0.2527	1235	51	1507	1.2	18614	14.6	14
32	0.1136	0.2519	1248	50	1555	1.2	20169	15.9	15
33	0.1769	0.2512	1261	50	1697	1.3	21866	17.2	17
34	0.2399	0.2508	1273	50	1694	1.3	23560	18.5	18
35	0.3028	0.2506	1286	50	1810	1.4	25370	20.0	19
36	0.3655	0.2506	1298	50	1966	1.5	27336	21.5	21
37	0.4284	0.2508	1311	50	1963	1.5	29299	23.0	22
38	0.4914	0.2513	1324	50	2044	1.6	31343	24.7	24
39	0.5547	0.2520	1336	50	2147	1.7	33490	26.3	25
40	0.6184	0.2528	1349	51	2251	1.8	35741	28.1	27
41	0.6826	0.2540	1362	51	2290	1.8	38031	29.9	29
42	0.7475	0.2553	1375	51	2326	1.8	40357	31.7	31
43	0.8131	0.2570	1388	51	2529	2.0	42886	33.7	33
44	0.8796	0.2588	1401	52	2627	2.1	45513	35.8	35
45	0.9471	0.2610	1415	52	2755	2.2	48268	38.0	37
46	1.0159	0.2634	1428	53	2752	2.2	51020	40.1	39
47	1.0860	0.2662	1442	53	2800	2.2	53820	42.3	41
48	1.1576	0.2692	1457	54	2937	2.3	56757	44.6	43
49	1.2310	0.2726	1472	55	3101	2.4	59858	47.1	46

50	1.3064	0.2764	1487	55	3231	2.5	63089	49.6	48
51	1.3839	0.2806	1502	56	3281	2.6	66370	52.2	51
52	1.4639	0.2852	1518	57	3276	2.6	69646	54.8	53
53	1.5467	0.2903	1535	58	3417	2.7	73063	57.5	56
54	1.6327	0.2960	1552	59	3631	2.9	76694	60.3	59
55	1.7221	0.3023	1570	60	3747	2.9	80441	63.3	62
56	1.8156	0.3093	1588	62	3754	3.0	84195	66.2	65
57	1.9136	0.3171	1608	63	3857	3.0	88052	69.2	68
58	2.0169	0.3258	1629	65	3806	3.0	91858	72.2	71
59	2.1262	0.3357	1651	67	3931	3.1	95789	75.3	74
60	2.2426	0.3469	1674	69	3953	3.1	99742	78.4	77
61	2.3673	0.3597	1699	72	3817	3.0	103559	81.4	80
62	2.5020	0.3745	1726	75	3857	3.0	107416	84.5	83
63	2.6487	0.3919	1755	78	3699	2.9	111115	87.4	86
64	2.8103	0.4125	1787	83	3460	2.7	114575	90.1	89
65	2.9907	0.4375	1823	88	3124	2.5	117699	92.6	91
66	3.1954	0.4685	1864	94	2783	2.2	120482	94.8	94
67	3.4331	0.5081	1912	102	2283	1.8	122765	96.5	96
68	3.7176	0.5612	1969	112	1750	1.4	124515	97.9	97
69	4.0743	0.6378	2040	128	1300	1.0	125815	98.9	98
70	4.5583	0.7641	2137	153	807	0.6	126622	99.6	99
71	5.3413	1.0470	2294	209	390	0.3	127012	99.9	99
72	6.6157	1.8544	2548	371	140	0.1	127152	100.0	99

Mathematics Grade 8

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.4986	1.8322	700	325	0	0.0	0	0.0	0
1	-4.2780	1.0118	700	180	0	0.0	0	0.0	0
2	-3.5609	0.7239	700	129	0	0.0	0	0.0	0
3	-3.1314	0.5979	700	106	0	0.0	0	0.0	0
4	-2.8194	0.5238	700	93	2	0.0	2	0.0	1
5	-2.5718	0.4739	726	84	1	0.0	3	0.0	1
6	-2.3647	0.4376	762	78	3	0.0	6	0.0	1
7	-2.1856	0.4098	794	73	10	0.0	16	0.0	1
8	-2.0268	0.3878	822	69	25	0.0	41	0.0	1
9	-1.8836	0.3698	848	66	50	0.0	91	0.1	1
10	-1.7525	0.3549	871	63	76	0.1	167	0.1	1
11	-1.6310	0.3423	893	61	134	0.1	301	0.2	1
12	-1.5177	0.3315	913	59	176	0.1	477	0.4	1
13	-1.4109	0.3222	932	57	284	0.2	761	0.6	1
14	-1.3097	0.3141	950	56	392	0.3	1153	0.9	1
15	-1.2133	0.3070	967	55	485	0.4	1638	1.3	1
16	-1.1210	0.3008	983	53	553	0.4	2191	1.7	2
17	-1.0322	0.2953	999	52	695	0.6	2886	2.3	2
18	-0.9465	0.2904	1014	52	724	0.6	3610	2.9	3
19	-0.8635	0.2860	1029	51	749	0.6	4359	3.5	3
20	-0.7827	0.2822	1043	50	820	0.6	5179	4.1	4
21	-0.7041	0.2787	1057	49	894	0.7	6073	4.8	4
22	-0.6273	0.2757	1071	49	914	0.7	6987	5.5	5
23	-0.5521	0.2730	1084	48	968	0.8	7955	6.3	6
24	-0.4782	0.2706	1097	48	987	0.8	8942	7.1	7
25	-0.4056	0.2685	1110	48	1030	0.8	9972	7.9	7
26	-0.3340	0.2666	1123	47	1004	0.8	10976	8.7	8
27	-0.2634	0.2650	1136	47	1016	0.8	11992	9.5	9
28	-0.1936	0.2636	1148	47	1133	0.9	13125	10.4	10
29	-0.1245	0.2624	1160	47	1201	1.0	14326	11.4	11
30	-0.0559	0.2614	1172	46	1238	1.0	15564	12.3	12
31	0.0122	0.2606	1184	46	1326	1.1	16890	13.4	13
32	0.0799	0.2599	1196	46	1333	1.1	18223	14.4	14
33	0.1474	0.2595	1208	46	1441	1.1	19664	15.6	15
34	0.2146	0.2592	1220	46	1508	1.2	21172	16.8	16
35	0.2817	0.2591	1232	46	1555	1.2	22727	18.0	17
36	0.3489	0.2591	1244	46	1590	1.3	24317	19.3	19
37	0.4161	0.2593	1256	46	1703	1.3	26020	20.6	20
38	0.4834	0.2597	1268	46	1800	1.4	27820	22.0	21
39	0.5510	0.2603	1280	46	1901	1.5	29721	23.5	23
40	0.6189	0.2610	1292	46	2071	1.6	31792	25.2	24
41	0.6873	0.2620	1304	47	2153	1.7	33945	26.9	26
42	0.7562	0.2631	1317	47	2243	1.8	36188	28.7	28
43	0.8257	0.2644	1329	47	2410	1.9	38598	30.6	30
44	0.8961	0.2660	1341	47	2404	1.9	41002	32.5	32
45	0.9673	0.2677	1354	48	2609	2.1	43611	34.6	34
46	1.0395	0.2697	1367	48	2679	2.1	46290	36.7	36
47	1.1129	0.2720	1380	48	2793	2.2	49083	38.9	38
48	1.1875	0.2746	1393	49	2962	2.3	52045	41.2	40
49	1.2637	0.2774	1407	49	3038	2.4	55083	43.6	42

50	1.3415	0.2806	1420	50	3001	2.4	58084	46.0	45
51	1.4212	0.2841	1435	50	3240	2.6	61324	48.6	47
52	1.5031	0.2880	1449	51	3484	2.8	64808	51.4	50
53	1.5872	0.2923	1464	52	3497	2.8	68305	54.1	53
54	1.6739	0.2970	1479	53	3471	2.8	71776	56.9	55
55	1.7637	0.3022	1495	54	3715	2.9	75491	59.8	58
56	1.8568	0.3080	1512	55	3759	3.0	79250	62.8	61
57	1.9536	0.3145	1529	56	3875	3.1	83125	65.9	64
58	2.0548	0.3217	1547	57	3759	3.0	86884	68.8	67
59	2.1609	0.3298	1566	59	3858	3.1	90742	71.9	70
60	2.2727	0.3390	1586	60	3971	3.1	94713	75.0	73
61	2.3912	0.3496	1607	62	3930	3.1	98643	78.2	77
62	2.5176	0.3619	1629	64	3868	3.1	102511	81.2	80
63	2.6538	0.3764	1653	67	3934	3.1	106445	84.3	83
64	2.8018	0.3938	1680	70	3551	2.8	109996	87.2	86
65	2.9652	0.4152	1709	74	3502	2.8	113498	89.9	89
66	3.1486	0.4423	1741	79	3286	2.6	116784	92.5	91
67	3.3596	0.4779	1779	85	2810	2.2	119594	94.8	94
68	3.6108	0.5271	1823	94	2518	2.0	122112	96.8	96
69	3.9261	0.6006	1879	107	1892	1.5	124004	98.3	98
70	4.3588	0.7260	1956	129	1280	1.0	125284	99.3	99
71	5.0791	1.0135	2084	180	659	0.5	125943	99.8	99
72	6.3021	1.8332	2301	325	261	0.2	126204	100.0	99

Mathematics Grade 11

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.8990	1.8333	700	378	0	0.0	0	0.0	0
1	-4.6755	1.0139	700	209	0	0.0	0	0.0	0
2	-3.9544	0.7266	700	150	0	0.0	0	0.0	0
3	-3.5209	0.6011	700	124	0	0.0	0	0.0	0
4	-3.2051	0.5274	700	109	0	0.0	0	0.0	0
5	-2.9538	0.4777	700	99	0	0.0	0	0.0	0
6	-2.7432	0.4416	700	91	5	0.0	5	0.0	1
7	-2.5607	0.4139	700	85	10	0.0	15	0.0	1
8	-2.3987	0.3919	708	81	24	0.0	39	0.0	1
9	-2.2522	0.3739	738	77	53	0.0	92	0.1	1
10	-2.1181	0.3590	766	74	104	0.1	196	0.2	1
11	-1.9939	0.3463	792	71	194	0.2	390	0.3	1
12	-1.8777	0.3355	816	69	303	0.2	693	0.6	1
13	-1.7684	0.3261	838	67	406	0.3	1099	0.9	1
14	-1.6648	0.3179	859	66	582	0.5	1681	1.3	1
15	-1.5661	0.3107	880	64	702	0.6	2383	1.9	2
16	-1.4715	0.3043	899	63	896	0.7	3279	2.6	2
17	-1.3807	0.2986	918	62	977	0.8	4256	3.4	3
18	-1.2931	0.2936	936	61	1121	0.9	5377	4.3	4
19	-1.2082	0.2891	954	60	1194	1.0	6571	5.3	5
20	-1.1258	0.2850	971	59	1248	1.0	7819	6.2	6
21	-1.0457	0.2814	987	58	1310	1.0	9129	7.3	7
22	-0.9674	0.2782	1003	57	1336	1.1	10465	8.4	8
23	-0.8908	0.2753	1019	57	1442	1.2	11907	9.5	9
24	-0.8157	0.2727	1035	56	1458	1.2	13365	10.7	10
25	-0.7419	0.2704	1050	56	1399	1.1	14764	11.8	11
26	-0.6694	0.2684	1065	55	1566	1.3	16330	13.1	12
27	-0.5978	0.2666	1080	55	1602	1.3	17932	14.3	14
28	-0.5271	0.2651	1094	55	1632	1.3	19564	15.6	15
29	-0.4573	0.2637	1109	54	1769	1.4	21333	17.1	16
30	-0.3880	0.2626	1123	54	1834	1.5	23167	18.5	18
31	-0.3193	0.2616	1137	54	1888	1.5	25055	20.0	19
32	-0.2511	0.2608	1151	54	1910	1.5	26965	21.6	21
33	-0.1833	0.2602	1165	54	2042	1.6	29007	23.2	22
34	-0.1157	0.2597	1179	54	2065	1.7	31072	24.8	24
35	-0.0484	0.2594	1193	54	2084	1.7	33156	26.5	26
36	0.0189	0.2593	1207	54	2247	1.8	35403	28.3	27
37	0.0861	0.2593	1221	54	2283	1.8	37686	30.1	29
38	0.1534	0.2595	1235	54	2294	1.8	39980	32.0	31
39	0.2208	0.2598	1249	54	2480	2.0	42460	33.9	33
40	0.2884	0.2603	1263	54	2524	2.0	44984	36.0	35
41	0.3563	0.2609	1277	54	2474	2.0	47458	37.9	37
42	0.4245	0.2617	1291	54	2561	2.0	50019	40.0	39
43	0.4933	0.2627	1305	54	2573	2.1	52592	42.0	41
44	0.5626	0.2639	1319	54	2685	2.1	55277	44.2	43
45	0.6326	0.2653	1334	55	2720	2.2	57997	46.4	45
46	0.7034	0.2669	1348	55	2741	2.2	60738	48.5	47
47	0.7752	0.2688	1363	55	2805	2.2	63543	50.8	50
48	0.8480	0.2710	1378	56	2903	2.3	66446	53.1	52
49	0.9221	0.2734	1393	56	2866	2.3	69312	55.4	54

50	0.9976	0.2762	1409	57	2860	2.3	72172	57.7	57
51	1.0747	0.2794	1425	58	2949	2.4	75121	60.0	59
52	1.1538	0.2830	1441	58	2924	2.3	78045	62.4	61
53	1.2350	0.2871	1458	59	2950	2.4	80995	64.7	64
54	1.3188	0.2918	1475	60	2966	2.4	83961	67.1	66
55	1.4055	0.2972	1493	61	3059	2.4	87020	69.6	68
56	1.4957	0.3034	1512	63	2968	2.4	89988	71.9	71
57	1.5898	0.3105	1531	64	3020	2.4	93008	74.3	73
58	1.6888	0.3188	1552	66	3018	2.4	96026	76.8	76
59	1.7934	0.3284	1573	68	2976	2.4	99002	79.1	78
60	1.9049	0.3397	1596	70	3028	2.4	102030	81.6	80
61	2.0248	0.3531	1621	73	3040	2.4	105070	84.0	83
62	2.1550	0.3691	1648	76	2985	2.4	108055	86.4	85
63	2.2983	0.3885	1678	80	2845	2.3	110900	88.6	88
64	2.4583	0.4122	1711	85	2748	2.2	113648	90.8	90
65	2.6403	0.4419	1748	91	2584	2.1	116232	92.9	92
66	2.8521	0.4798	1792	99	2357	1.9	118589	94.8	94
67	3.1058	0.5294	1844	109	2086	1.7	120675	96.5	96
68	3.4212	0.5966	1909	123	1637	1.3	122312	97.8	97
69	3.8329	0.6913	1994	143	1277	1.0	123589	98.8	98
70	4.4077	0.8340	2113	172	876	0.7	124465	99.5	99
71	5.3215	1.1148	2302	230	465	0.4	124930	99.9	99
72	6.7020	1.8952	2587	391	183	0.1	125113	100.0	99

Reading Grade 3

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.5098	1.8375	1000	227	0	0.0	0	0.0	0
1	-4.2758	1.0213	1000	126	1	0.0	1	0.0	1
2	-3.5394	0.7371	1000	91	5	0.0	6	0.0	1
3	-3.0905	0.6140	1000	76	15	0.0	21	0.0	1
4	-2.7590	0.5423	1000	67	32	0.0	53	0.0	1
5	-2.4916	0.4944	1000	61	88	0.1	141	0.1	1
6	-2.2646	0.4599	1000	57	175	0.1	316	0.3	1
7	-2.0654	0.4338	1000	54	306	0.2	622	0.5	1
8	-1.8863	0.4133	1000	51	524	0.4	1146	0.9	1
9	-1.7224	0.3969	1000	49	782	0.6	1928	1.5	1
10	-1.5702	0.3835	1013	47	1112	0.9	3040	2.4	2
11	-1.4275	0.3724	1031	46	1194	0.9	4234	3.4	3
12	-1.2923	0.3632	1048	45	1416	1.1	5650	4.5	4
13	-1.1633	0.3554	1064	44	1539	1.2	7189	5.7	5
14	-1.0394	0.3489	1079	43	1630	1.3	8819	7.0	6
15	-0.9196	0.3435	1094	43	1666	1.3	10485	8.3	8
16	-0.8031	0.3391	1108	42	1807	1.4	12292	9.8	9
17	-0.6894	0.3354	1122	42	1864	1.5	14156	11.2	10
18	-0.5780	0.3325	1136	41	1923	1.5	16079	12.8	12
19	-0.4682	0.3302	1150	41	1982	1.6	18061	14.3	14
20	-0.3597	0.3286	1163	41	2022	1.6	20083	15.9	15
21	-0.2522	0.3275	1176	41	2275	1.8	22358	17.7	17
22	-0.1451	0.3271	1190	40	2252	1.8	24610	19.5	19
23	-0.0381	0.3272	1203	41	2445	1.9	27055	21.5	20
24	0.0692	0.3278	1216	41	2723	2.2	29778	23.6	23
25	0.1770	0.3290	1230	41	2888	2.3	32666	25.9	25
26	0.2858	0.3308	1243	41	3017	2.4	35683	28.3	27
27	0.3960	0.3332	1257	41	3300	2.6	38983	30.9	30
28	0.5080	0.3363	1271	42	3581	2.8	42564	33.8	32
29	0.6224	0.3401	1285	42	3984	3.2	46548	36.9	35
30	0.7395	0.3446	1299	43	4194	3.3	50742	40.3	39
31	0.8601	0.3500	1314	43	4734	3.8	55476	44.0	42
32	0.9848	0.3565	1330	44	5078	4.0	60554	48.0	46
33	1.1145	0.3641	1346	45	5502	4.4	66056	52.4	50
34	1.2502	0.3731	1362	46	6043	4.8	72099	57.2	55
35	1.3933	0.3837	1380	48	6217	4.9	78316	62.1	60
36	1.5453	0.3964	1399	49	6592	5.2	84908	67.4	65
37	1.7084	0.4117	1419	51	6907	5.5	91815	72.8	70
38	1.8854	0.4303	1442	53	6938	5.5	98753	78.3	76
39	2.0803	0.4534	1465	56	6929	5.5	105682	83.8	81
40	2.2988	0.4826	1492	60	6210	4.9	111892	88.8	86
41	2.5497	0.5209	1523	64	5506	4.4	117398	93.1	91
42	2.8476	0.5732	1560	71	4118	3.3	121516	96.4	95
43	3.2188	0.6500	1606	80	2609	2.1	124125	98.5	97
44	3.7208	0.7777	1668	96	1354	1.1	125479	99.5	99
45	4.5291	1.0615	1768	131	489	0.4	125968	99.9	99
46	5.8283	1.8651	1929	231	94	0.1	126062	100.0	99

Reading Grade 4

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.4651	1.8362	700	367	0	0.0	0	0.0	0
1	-4.2343	1.0189	700	204	0	0.0	0	0.0	0
2	-3.5033	0.7333	700	147	1	0.0	1	0.0	1
3	-3.0603	0.6088	700	122	3	0.0	4	0.0	1
4	-2.7355	0.5357	700	107	15	0.0	19	0.0	1
5	-2.4754	0.4866	700	97	26	0.0	45	0.0	1
6	-2.2563	0.4510	705	90	56	0.0	101	0.1	1
7	-2.0655	0.4237	743	85	122	0.1	223	0.2	1
8	-1.8953	0.4022	777	80	190	0.2	413	0.3	1
9	-1.7406	0.3848	808	77	325	0.3	738	0.6	1
10	-1.5982	0.3704	837	74	411	0.3	1149	0.9	1
11	-1.4655	0.3584	863	72	575	0.5	1724	1.4	1
12	-1.3408	0.3482	888	70	635	0.5	2359	1.9	2
13	-1.2226	0.3396	912	68	802	0.7	3161	2.6	2
14	-1.1099	0.3323	934	66	904	0.7	4065	3.3	3
15	-1.0016	0.3260	956	65	997	0.8	5062	4.2	4
16	-0.8971	0.3206	977	64	1159	1.0	6221	5.1	5
17	-0.7959	0.3160	997	63	1181	1.0	7402	6.1	6
18	-0.6972	0.3121	1017	62	1247	1.0	8649	7.1	7
19	-0.6008	0.3089	1036	62	1375	1.1	10024	8.3	8
20	-0.5063	0.3062	1055	61	1423	1.2	11447	9.4	9
21	-0.4133	0.3040	1074	61	1504	1.2	12951	10.7	10
22	-0.3214	0.3023	1092	60	1670	1.4	14621	12.0	11
23	-0.2305	0.3010	1110	60	1835	1.5	16456	13.5	13
24	-0.1402	0.3001	1128	60	1992	1.6	18448	15.2	14
25	-0.0502	0.2996	1146	60	2061	1.7	20509	16.9	16
26	0.0395	0.2996	1164	60	2284	1.9	22793	18.8	18
27	0.1293	0.2999	1182	60	2505	2.1	25298	20.8	20
28	0.2194	0.3006	1200	60	2661	2.2	27959	23.0	22
29	0.3101	0.3017	1218	60	2852	2.3	30811	25.4	24
30	0.4015	0.3032	1237	61	3156	2.6	33967	28.0	27
31	0.4941	0.3052	1255	61	3387	2.8	37354	30.7	29
32	0.5879	0.3076	1274	62	3638	3.0	40992	33.7	32
33	0.6833	0.3104	1293	62	3810	3.1	44802	36.9	35
34	0.7808	0.3138	1312	63	3971	3.3	48773	40.1	39
35	0.8805	0.3178	1332	64	4314	3.6	53087	43.7	42
36	0.9829	0.3223	1353	64	4648	3.8	57735	47.5	46
37	1.0884	0.3276	1374	66	4903	4.0	62638	51.6	50
38	1.1977	0.3336	1396	67	5175	4.3	67813	55.8	54
39	1.3112	0.3405	1419	68	5233	4.3	73046	60.1	58
40	1.4298	0.3485	1442	70	5512	4.5	78558	64.7	62
41	1.5544	0.3577	1467	72	5524	4.5	84082	69.2	67
42	1.6862	0.3686	1494	74	5645	4.6	89727	73.9	72
43	1.8268	0.3817	1522	76	5533	4.6	95260	78.4	76
44	1.9784	0.3976	1552	80	5331	4.4	100591	82.8	81
45	2.1442	0.4174	1585	83	5028	4.1	105619	86.9	85
46	2.3288	0.4430	1622	89	4477	3.7	110096	90.6	89
47	2.5397	0.4771	1664	95	3849	3.2	113945	93.8	92
48	2.7895	0.5250	1714	105	2999	2.5	116944	96.3	95
49	3.1017	0.5975	1777	120	2240	1.8	119184	98.1	97

50	3.5300	0.7225	1862	145	1373	1.1	120557	99.2	99
51	4.2444	1.0103	2005	202	661	0.5	121218	99.8	99
52	5.4626	1.8312	2249	366	261	0.2	121479	100.0	99

Reading Grade 5

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.5220	1.8374	700	365	0	0.0	0	0.0	0
1	-4.2882	1.0210	700	203	0	0.0	0	0.0	0
2	-3.5527	0.7363	700	146	2	0.0	2	0.0	1
3	-3.1052	0.6125	700	122	0	0.0	2	0.0	1
4	-2.7757	0.5401	700	107	11	0.0	13	0.0	1
5	-2.5109	0.4915	700	98	27	0.0	40	0.0	1
6	-2.2871	0.4563	700	91	62	0.0	102	0.1	1
7	-2.0915	0.4294	700	85	95	0.1	197	0.2	1
8	-1.9164	0.4082	714	81	153	0.1	350	0.3	1
9	-1.7569	0.3909	745	78	245	0.2	595	0.5	1
10	-1.6097	0.3767	775	75	320	0.3	915	0.7	1
11	-1.4724	0.3648	802	73	446	0.4	1361	1.1	1
12	-1.3430	0.3547	828	71	501	0.4	1862	1.5	1
13	-1.2202	0.3461	852	69	647	0.5	2509	2.0	2
14	-1.1030	0.3388	875	67	695	0.6	3204	2.6	2
15	-0.9904	0.3325	898	66	841	0.7	4045	3.3	3
16	-0.8818	0.3270	919	65	900	0.7	4945	4.0	4
17	-0.7764	0.3224	940	64	907	0.7	5852	4.7	4
18	-0.6737	0.3184	961	63	1072	0.9	6924	5.6	5
19	-0.5734	0.3151	981	63	1052	0.8	7976	6.4	6
20	-0.4750	0.3123	1000	62	1230	1.0	9206	7.4	7
21	-0.3782	0.3101	1019	62	1288	1.0	10494	8.5	8
22	-0.2826	0.3084	1038	61	1435	1.2	11929	9.6	9
23	-0.1879	0.3071	1057	61	1521	1.2	13450	10.8	10
24	-0.0938	0.3063	1076	61	1670	1.3	15120	12.2	12
25	-0.0001	0.3059	1095	61	1864	1.5	16984	13.7	13
26	0.0935	0.3060	1113	61	1944	1.6	18928	15.3	14
27	0.1873	0.3065	1132	61	2141	1.7	21069	17.0	16
28	0.2815	0.3075	1151	61	2324	1.9	23393	18.9	18
29	0.3764	0.3089	1169	61	2578	2.1	25971	20.9	20
30	0.4724	0.3108	1189	62	2803	2.3	28774	23.2	22
31	0.5697	0.3132	1208	62	3113	2.5	31887	25.7	24
32	0.6687	0.3161	1228	63	3505	2.8	35392	28.5	27
33	0.7697	0.3196	1248	64	3702	3.0	39094	31.5	30
34	0.8731	0.3237	1268	64	4281	3.5	43375	35.0	33
35	0.9794	0.3286	1289	65	4506	3.6	47881	38.6	37
36	1.0892	0.3342	1311	66	4794	3.9	52675	42.5	41
37	1.2030	0.3407	1334	68	5272	4.3	57947	46.7	45
38	1.3216	0.3481	1357	69	5747	4.6	63694	51.4	49
39	1.4457	0.3568	1382	71	6059	4.9	69753	56.2	54
40	1.5765	0.3668	1408	73	6201	5.0	75954	61.2	59
41	1.7153	0.3784	1436	75	6519	5.3	82473	66.5	64
42	1.8636	0.3920	1465	78	6402	5.2	88875	71.7	69
43	2.0234	0.4081	1497	81	6487	5.2	95362	76.9	74
44	2.1976	0.4272	1531	85	6148	5.0	101510	81.9	79
45	2.3898	0.4504	1570	90	5853	4.7	107363	86.6	84
46	2.6055	0.4793	1613	95	5108	4.1	112471	90.7	89
47	2.8526	0.5163	1662	103	4190	3.4	116661	94.1	92
48	3.1443	0.5662	1720	113	3163	2.6	119824	96.6	95
49	3.5048	0.6392	1791	127	2266	1.8	122090	98.5	98

50	3.9879	0.7617	1887	151	1231	1.0	123321	99.4	99
51	4.7639	1.0418	2042	207	555	0.4	123876	99.9	99
52	6.0288	1.8499	2293	368	131	0.1	124007	100.0	99

Reading Grade 6

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.7438	1.8376	700	368	0	0.0	0	0.0	0
1	-4.5095	1.0213	700	204	0	0.0	0	0.0	0
2	-3.7734	0.7367	700	147	0	0.0	0	0.0	0
3	-3.3253	0.6130	700	123	2	0.0	2	0.0	1
4	-2.9954	0.5405	700	108	10	0.0	12	0.0	1
5	-2.7302	0.4919	700	98	16	0.0	28	0.0	1
6	-2.5060	0.4566	700	91	54	0.0	82	0.1	1
7	-2.3100	0.4297	707	86	86	0.1	168	0.1	1
8	-2.1346	0.4084	742	82	172	0.1	340	0.3	1
9	-1.9750	0.3912	774	78	281	0.2	621	0.5	1
10	-1.8277	0.3769	803	75	399	0.3	1020	0.8	1
11	-1.6901	0.3650	831	73	480	0.4	1500	1.2	1
12	-1.5607	0.3549	857	71	601	0.5	2101	1.7	1
13	-1.4379	0.3463	881	69	773	0.6	2874	2.3	2
14	-1.3205	0.3389	905	68	923	0.7	3797	3.0	3
15	-1.2078	0.3326	927	67	1024	0.8	4821	3.8	3
16	-1.0991	0.3272	949	65	1062	0.8	5883	4.7	4
17	-0.9936	0.3226	970	65	1205	1.0	7088	5.6	5
18	-0.8908	0.3187	991	64	1214	1.0	8302	6.6	6
19	-0.7903	0.3154	1011	63	1316	1.0	9618	7.6	7
20	-0.6917	0.3127	1031	63	1379	1.1	10997	8.7	8
21	-0.5947	0.3105	1050	62	1547	1.2	12544	9.9	9
22	-0.4988	0.3088	1069	62	1667	1.3	14211	11.3	11
23	-0.4039	0.3076	1088	62	1712	1.4	15923	12.6	12
24	-0.3095	0.3068	1107	61	1953	1.5	17876	14.2	13
25	-0.2155	0.3065	1126	61	2006	1.6	19882	15.8	15
26	-0.1216	0.3066	1145	61	2094	1.7	21976	17.4	17
27	-0.0274	0.3072	1163	61	2486	2.0	24462	19.4	18
28	0.0673	0.3081	1182	62	2569	2.0	27031	21.4	20
29	0.1626	0.3096	1201	62	2781	2.2	29812	23.6	23
30	0.2590	0.3115	1221	62	3045	2.4	32857	26.0	25
31	0.3568	0.3139	1240	63	3308	2.6	36165	28.7	27
32	0.4562	0.3168	1260	63	3531	2.8	39696	31.5	30
33	0.5576	0.3202	1280	64	3797	3.0	43493	34.5	33
34	0.6614	0.3243	1301	65	4236	3.4	47729	37.8	36
35	0.7680	0.3290	1323	66	4554	3.6	52283	41.4	40
36	0.8780	0.3345	1345	67	4785	3.8	57068	45.2	43
37	0.9920	0.3408	1367	68	5006	4.0	62074	49.2	47
38	1.1106	0.3481	1391	70	5371	4.3	67445	53.5	51
39	1.2346	0.3564	1416	71	5753	4.6	73198	58.0	56
40	1.3650	0.3661	1442	73	5761	4.6	78959	62.6	60
41	1.5031	0.3773	1470	75	5997	4.8	84956	67.3	65
42	1.6503	0.3904	1499	78	5931	4.7	90887	72.0	70
43	1.8086	0.4058	1531	81	6088	4.8	96975	76.9	74
44	1.9806	0.4242	1565	85	5868	4.7	102843	81.5	79
45	2.1700	0.4467	1603	89	5625	4.5	108468	86.0	84
46	2.3817	0.4746	1645	95	5008	4.0	113476	90.0	88
47	2.6237	0.5106	1694	102	4299	3.4	117775	93.4	92
48	2.9087	0.5596	1751	112	3339	2.6	121114	96.0	95
49	3.2608	0.6317	1821	126	2525	2.0	123639	98.0	97

50	3.7332	0.7539	1916	151	1568	1.2	125207	99.3	99
51	4.4959	1.0348	2068	207	734	0.6	125941	99.8	99
52	5.7501	1.8454	2319	369	205	0.2	126146	100.0	99

Reading Grade 7

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.6455	1.8370	700	367	0	0.0	0	0.0	0
1	-4.4126	1.0205	700	204	0	0.0	0	0.0	0
2	-3.6779	0.7360	700	147	0	0.0	0	0.0	0
3	-3.2306	0.6126	700	123	2	0.0	2	0.0	1
4	-2.9008	0.5406	700	108	10	0.0	12	0.0	1
5	-2.6353	0.4924	700	98	27	0.0	39	0.0	1
6	-2.4104	0.4577	712	92	66	0.1	105	0.1	1
7	-2.2132	0.4313	752	86	132	0.1	237	0.2	1
8	-2.0364	0.4104	787	82	196	0.2	433	0.3	1
9	-1.8750	0.3936	819	79	280	0.2	713	0.6	1
10	-1.7256	0.3798	849	76	411	0.3	1124	0.9	1
11	-1.5858	0.3682	877	74	538	0.4	1662	1.3	1
12	-1.4539	0.3585	904	72	676	0.5	2338	1.8	2
13	-1.3284	0.3502	929	70	720	0.6	3058	2.4	2
14	-1.2083	0.3431	953	69	835	0.7	3893	3.1	3
15	-1.0928	0.3370	976	67	886	0.7	4779	3.8	3
16	-0.9810	0.3318	998	66	977	0.8	5756	4.5	4
17	-0.8724	0.3273	1020	65	1075	0.8	6831	5.4	5
18	-0.7665	0.3236	1041	65	1132	0.9	7963	6.3	6
19	-0.6629	0.3204	1062	64	1260	1.0	9223	7.3	7
20	-0.5611	0.3178	1082	64	1307	1.0	10530	8.3	8
21	-0.4608	0.3157	1102	63	1394	1.1	11924	9.4	9
22	-0.3617	0.3141	1122	63	1648	1.3	13572	10.7	10
23	-0.2634	0.3129	1142	63	1766	1.4	15338	12.1	11
24	-0.1657	0.3122	1161	62	1917	1.5	17255	13.6	13
25	-0.0684	0.3118	1181	62	2124	1.7	19379	15.3	14
26	0.0288	0.3119	1200	62	2346	1.9	21725	17.1	16
27	0.1263	0.3124	1220	62	2643	2.1	24368	19.2	18
28	0.2242	0.3134	1239	63	2876	2.3	27244	21.5	20
29	0.3228	0.3148	1259	63	3115	2.5	30359	23.9	23
30	0.4224	0.3166	1279	63	3564	2.8	33923	26.8	25
31	0.5233	0.3189	1299	64	3762	3.0	37685	29.7	28
32	0.6259	0.3217	1320	64	4194	3.3	41879	33.0	31
33	0.7303	0.3250	1340	65	4560	3.6	46439	36.6	35
34	0.8372	0.3289	1362	66	4883	3.9	51322	40.5	39
35	0.9469	0.3335	1384	67	5285	4.2	56607	44.7	43
36	1.0599	0.3389	1406	68	5595	4.4	62202	49.1	47
37	1.1768	0.3450	1430	69	5970	4.7	68172	53.8	51
38	1.2982	0.3521	1454	70	6227	4.9	74399	58.7	56
39	1.4251	0.3604	1479	72	6181	4.9	80580	63.6	61
40	1.5583	0.3699	1506	74	6246	4.9	86826	68.5	66
41	1.6992	0.3810	1534	76	6229	4.9	93055	73.4	71
42	1.8493	0.3940	1564	79	6270	4.9	99325	78.4	76
43	2.0105	0.4094	1597	82	5873	4.6	105198	83.0	81
44	2.1856	0.4279	1632	86	5378	4.2	110576	87.2	85
45	2.3781	0.4504	1670	90	4776	3.8	115352	91.0	89
46	2.5934	0.4785	1713	96	3837	3.0	119189	94.0	93
47	2.8392	0.5147	1762	103	2945	2.3	122134	96.3	95
48	3.1289	0.5640	1820	113	2155	1.7	124289	98.0	97
49	3.4864	0.6364	1892	127	1375	1.1	125664	99.1	99

50	3.9655	0.7587	1988	152	733	0.6	126397	99.7	99
51	4.7364	1.0392	2142	208	274	0.2	126671	99.9	99
52	5.9975	1.8484	2394	370	94	0.1	126765	100.0	99

Reading Grade 8

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-4.9073	1.8348	700	431	0	0.0	0	0.0	0
1	-3.6801	1.0165	700	239	0	0.0	0	0.0	0
2	-2.9535	0.7305	700	172	1	0.0	1	0.0	1
3	-2.5142	0.6060	700	142	2	0.0	3	0.0	1
4	-2.1924	0.5332	700	125	12	0.0	15	0.0	1
5	-1.9348	0.4845	700	114	17	0.0	32	0.0	1
6	-1.7176	0.4492	710	105	49	0.0	81	0.1	1
7	-1.5280	0.4225	755	99	109	0.1	190	0.2	1
8	-1.3586	0.4015	795	94	178	0.1	368	0.3	1
9	-1.2043	0.3846	831	90	285	0.2	653	0.5	1
10	-1.0619	0.3707	864	87	398	0.3	1051	0.8	1
11	-0.9288	0.3591	896	84	509	0.4	1560	1.2	1
12	-0.8035	0.3494	925	82	621	0.5	2181	1.7	1
13	-0.6843	0.3412	953	80	782	0.6	2963	2.3	2
14	-0.5702	0.3343	980	79	857	0.7	3820	3.0	3
15	-0.4605	0.3284	1006	77	1049	0.8	4869	3.9	3
16	-0.3544	0.3234	1030	76	1094	0.9	5963	4.7	4
17	-0.2512	0.3191	1055	75	1192	0.9	7155	5.7	5
18	-0.1505	0.3156	1078	74	1340	1.1	8495	6.7	6
19	-0.0519	0.3126	1102	73	1325	1.0	9820	7.8	7
20	0.0451	0.3102	1124	73	1492	1.2	11312	9.0	8
21	0.1407	0.3083	1147	72	1550	1.2	12862	10.2	10
22	0.2353	0.3069	1169	72	1766	1.4	14628	11.6	11
23	0.3292	0.3059	1191	72	1818	1.4	16446	13.0	12
24	0.4225	0.3054	1213	72	1966	1.6	18412	14.6	14
25	0.5157	0.3052	1235	72	2135	1.7	20547	16.3	15
26	0.6089	0.3054	1257	72	2345	1.9	22892	18.1	17
27	0.7023	0.3061	1279	72	2641	2.1	25533	20.2	19
28	0.7964	0.3071	1301	72	2824	2.2	28357	22.5	21
29	0.8911	0.3086	1323	72	3072	2.4	31429	24.9	24
30	0.9869	0.3104	1345	73	3392	2.7	34821	27.6	26
31	1.0839	0.3127	1368	73	3585	2.8	38406	30.4	29
32	1.1826	0.3155	1391	74	3877	3.1	42283	33.5	32
33	1.2831	0.3188	1415	75	4245	3.4	46528	36.9	35
34	1.3860	0.3227	1439	76	4475	3.5	51003	40.4	39
35	1.4915	0.3271	1464	77	4900	3.9	55903	44.3	42
36	1.6002	0.3323	1489	78	5164	4.1	61067	48.4	46
37	1.7126	0.3383	1516	79	5420	4.3	66487	52.7	51
38	1.8293	0.3451	1543	81	5748	4.6	72235	57.2	55
39	1.9511	0.3531	1572	83	5819	4.6	78054	61.8	60
40	2.0789	0.3623	1602	85	5916	4.7	83970	66.5	64
41	2.2140	0.3730	1634	88	6083	4.8	90053	71.3	69
42	2.3578	0.3857	1667	91	6062	4.8	96115	76.1	74
43	2.5123	0.4008	1704	94	5645	4.5	101760	80.6	78
44	2.6800	0.4190	1743	98	5285	4.2	107045	84.8	83
45	2.8648	0.4413	1786	104	4895	3.9	111940	88.7	87
46	3.0717	0.4695	1835	110	4201	3.3	116141	92.0	90
47	3.3089	0.5061	1891	119	3622	2.9	119763	94.9	93
48	3.5898	0.5563	1957	131	2641	2.1	122404	97.0	96
49	3.9390	0.6302	2039	148	1900	1.5	124304	98.5	98

50	4.4111	0.7548	2150	177	1180	0.9	125484	99.4	99
51	5.1779	1.0382	2330	244	591	0.5	126075	99.9	99
52	6.4386	1.8488	2626	434	175	0.1	126250	100.0	99

Reading Grade 11

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.7809	1.8364	700	451	0	0.0	0	0.0	0
1	-4.5494	1.0195	700	250	0	0.0	0	0.0	0
2	-3.8168	0.7345	700	180	0	0.0	0	0.0	0
3	-3.3717	0.6108	700	150	3	0.0	3	0.0	1
4	-3.0442	0.5385	700	132	7	0.0	10	0.0	1
5	-2.7810	0.4901	700	120	17	0.0	27	0.0	1
6	-2.5583	0.4553	700	112	41	0.0	68	0.1	1
7	-2.3633	0.4288	700	105	89	0.1	157	0.1	1
8	-2.1886	0.4080	700	100	144	0.1	301	0.2	1
9	-2.0290	0.3913	700	96	219	0.2	520	0.4	1
10	-1.8814	0.3775	700	93	249	0.2	769	0.6	1
11	-1.7433	0.3661	700	90	370	0.3	1139	0.9	1
12	-1.6128	0.3566	719	88	449	0.4	1588	1.3	1
13	-1.4886	0.3485	750	86	580	0.5	2168	1.7	1
14	-1.3696	0.3416	779	84	613	0.5	2781	2.2	2
15	-1.2549	0.3358	807	82	689	0.5	3470	2.8	2
16	-1.1438	0.3308	834	81	814	0.6	4284	3.4	3
17	-1.0358	0.3266	861	80	814	0.6	5098	4.1	4
18	-0.9303	0.3231	887	79	901	0.7	5999	4.8	4
19	-0.8269	0.3202	912	79	956	0.8	6955	5.5	5
20	-0.7252	0.3178	937	78	1069	0.9	8024	6.4	6
21	-0.6248	0.3159	962	78	1147	0.9	9171	7.3	7
22	-0.5254	0.3145	986	77	1317	1.1	10488	8.4	8
23	-0.4269	0.3135	1010	77	1407	1.1	11895	9.5	9
24	-0.3289	0.3129	1034	77	1628	1.3	13523	10.8	10
25	-0.2311	0.3127	1058	77	1776	1.4	15299	12.2	11
26	-0.1333	0.3129	1082	77	2002	1.6	17301	13.8	13
27	-0.0352	0.3134	1107	77	2369	1.9	19670	15.7	15
28	0.0633	0.3144	1131	77	2554	2.0	22224	17.7	17
29	0.1625	0.3158	1155	78	2860	2.3	25084	20.0	19
30	0.2628	0.3175	1180	78	3301	2.6	28385	22.6	21
31	0.3643	0.3198	1205	78	3563	2.8	31948	25.5	24
32	0.4673	0.3224	1230	79	4052	3.2	36000	28.7	27
33	0.5723	0.3256	1256	80	4380	3.5	40380	32.2	30
34	0.6795	0.3293	1282	81	4914	3.9	45294	36.1	34
35	0.7893	0.3336	1309	82	5282	4.2	50576	40.3	38
36	0.9022	0.3386	1337	83	5836	4.7	56412	45.0	43
37	1.0188	0.3443	1365	85	6063	4.8	62475	49.8	47
38	1.1395	0.3509	1395	86	6358	5.1	68833	54.9	52
39	1.2653	0.3585	1426	88	6768	5.4	75601	60.3	58
40	1.3969	0.3673	1458	90	6919	5.5	82520	65.8	63
41	1.5355	0.3776	1492	93	6690	5.3	89210	71.2	68
42	1.6825	0.3896	1528	96	6617	5.3	95827	76.4	74
43	1.8398	0.4040	1567	99	6294	5.0	102121	81.4	79
44	2.0099	0.4213	1609	103	5560	4.4	107681	85.9	84
45	2.1961	0.4425	1654	109	5063	4.0	112744	89.9	88
46	2.4036	0.4694	1705	115	4170	3.3	116914	93.2	92
47	2.6400	0.5045	1763	124	3252	2.6	120166	95.8	95
48	2.9181	0.5527	1831	136	2355	1.9	122521	97.7	97
49	3.2619	0.6246	1916	153	1511	1.2	124032	98.9	98

50	3.7249	0.7472	2029	183	850	0.7	124882	99.6	99
51	4.4773	1.0297	2214	253	398	0.3	125280	99.9	99
52	5.7238	1.8425	2520	452	100	0.1	125380	100.0	99

Science Grade 4

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.4278	1.8327	1050	324	1	0.0	1	0.0	1
1	-4.2061	1.0126	1050	179	0	0.0	1	0.0	1
2	-3.4875	0.7250	1050	128	1	0.0	2	0.0	1
3	-3.0564	0.5992	1050	106	0	0.0	2	0.0	1
4	-2.7429	0.5252	1050	93	0	0.0	2	0.0	1
5	-2.4939	0.4754	1050	84	3	0.0	5	0.0	1
6	-2.2854	0.4392	1050	78	4	0.0	9	0.0	1
7	-2.1049	0.4114	1050	73	7	0.0	16	0.0	1
8	-1.9449	0.3894	1050	69	18	0.0	34	0.0	1
9	-1.8004	0.3714	1050	66	31	0.0	65	0.1	1
10	-1.6681	0.3565	1050	63	58	0.0	123	0.1	1
11	-1.5456	0.3438	1050	61	85	0.1	208	0.2	1
12	-1.4311	0.3330	1050	59	145	0.1	353	0.3	1
13	-1.3234	0.3236	1050	57	243	0.2	596	0.5	1
14	-1.2213	0.3155	1050	56	278	0.2	874	0.7	1
15	-1.1241	0.3083	1050	54	429	0.3	1303	1.0	1
16	-1.0311	0.3020	1050	53	527	0.4	1830	1.5	1
17	-0.9416	0.2963	1059	52	585	0.5	2415	1.9	2
18	-0.8553	0.2913	1074	51	678	0.5	3093	2.5	2
19	-0.7717	0.2869	1089	51	807	0.6	3900	3.1	3
20	-0.6906	0.2829	1104	50	804	0.6	4704	3.8	3
21	-0.6116	0.2793	1118	49	941	0.8	5645	4.5	4
22	-0.5345	0.2761	1131	49	982	0.8	6627	5.3	5
23	-0.4591	0.2733	1145	48	1006	0.8	7633	6.1	6
24	-0.3851	0.2707	1158	48	1156	0.9	8789	7.0	7
25	-0.3124	0.2685	1170	47	1196	1.0	9985	8.0	7
26	-0.2408	0.2665	1183	47	1185	0.9	11170	8.9	8
27	-0.1703	0.2648	1196	47	1371	1.1	12541	10.0	9
28	-0.1006	0.2633	1208	47	1365	1.1	13906	11.1	11
29	-0.0316	0.2621	1220	46	1424	1.1	15330	12.2	12
30	0.0368	0.2610	1232	46	1620	1.3	16950	13.5	13
31	0.1047	0.2602	1244	46	1628	1.3	18578	14.8	14
32	0.1722	0.2595	1256	46	1749	1.4	20327	16.2	16
33	0.2395	0.2591	1268	46	1849	1.5	22176	17.7	17
34	0.3065	0.2589	1280	46	1997	1.6	24173	19.3	19
35	0.3735	0.2588	1292	46	2054	1.6	26227	21.0	20
36	0.4406	0.2590	1304	46	2227	1.8	28454	22.7	22
37	0.5077	0.2594	1315	46	2296	1.8	30750	24.6	24
38	0.5751	0.2599	1327	46	2449	2.0	33199	26.5	26
39	0.6429	0.2607	1339	46	2590	2.1	35789	28.6	28
40	0.7111	0.2618	1351	46	2789	2.2	38578	30.8	30
41	0.7799	0.2630	1363	46	2931	2.3	41509	33.2	32
42	0.8495	0.2645	1376	47	3061	2.4	44570	35.6	34
43	0.9199	0.2663	1388	47	3162	2.5	47732	38.1	37
44	0.9914	0.2684	1401	47	3347	2.7	51079	40.8	39
45	1.0640	0.2707	1414	48	3412	2.7	54491	43.5	42
46	1.1380	0.2734	1427	48	3488	2.8	57979	46.3	45
47	1.2136	0.2765	1440	49	3699	3.0	61678	49.3	48
48	1.2911	0.2800	1454	49	3823	3.1	65501	52.3	51
49	1.3705	0.2839	1468	50	3975	3.2	69476	55.5	54

50	1.4523	0.2883	1483	51	3964	3.2	73440	58.7	57
51	1.5369	0.2933	1497	52	4053	3.2	77493	61.9	60
52	1.6245	0.2989	1513	53	4125	3.3	81618	65.2	64
53	1.7157	0.3053	1529	54	4229	3.4	85847	68.6	67
54	1.8111	0.3125	1546	55	4170	3.3	90017	71.9	70
55	1.9113	0.3207	1563	57	4240	3.4	94257	75.3	74
56	2.0171	0.3302	1582	58	4132	3.3	98389	78.6	77
57	2.1296	0.3411	1602	60	4018	3.2	102407	81.8	80
58	2.2503	0.3539	1623	63	3920	3.1	106327	84.9	83
59	2.3807	0.3690	1646	65	3648	2.9	109975	87.9	86
60	2.5235	0.3871	1672	68	3398	2.7	113373	90.6	89
61	2.6818	0.4093	1700	72	3092	2.5	116465	93.0	92
62	2.8606	0.4373	1731	77	2653	2.1	119118	95.2	94
63	3.0674	0.4738	1768	84	2259	1.8	121377	97.0	96
64	3.3149	0.5238	1812	93	1630	1.3	123007	98.3	98
65	3.6269	0.5980	1867	106	1153	0.9	124160	99.2	99
66	4.0566	0.7240	1943	128	683	0.5	124843	99.7	99
67	4.7739	1.0120	2069	179	257	0.2	125100	99.9	99
68	5.9948	1.8323	2285	324	70	0.1	125170	100.0	99

Science Grade 8

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.7273	1.8341	925	351	0	0.0	0	0.0	0
1	-4.5024	1.0146	925	194	0	0.0	0	0.0	0
2	-3.7805	0.7267	925	139	2	0.0	2	0.0	1
3	-3.3474	0.6004	925	115	0	0.0	2	0.0	1
4	-3.0330	0.5257	925	101	2	0.0	4	0.0	1
5	-2.7837	0.4752	925	91	1	0.0	5	0.0	1
6	-2.5759	0.4382	925	84	3	0.0	8	0.0	1
7	-2.3966	0.4097	925	78	9	0.0	17	0.0	1
8	-2.2382	0.3870	925	74	15	0.0	32	0.0	1
9	-2.0957	0.3684	925	71	36	0.0	68	0.1	1
10	-1.9658	0.3529	925	68	85	0.1	153	0.1	1
11	-1.8460	0.3397	925	65	161	0.1	314	0.2	1
12	-1.7345	0.3284	925	63	209	0.2	523	0.4	1
13	-1.6299	0.3186	925	61	375	0.3	898	0.7	1
14	-1.5311	0.3101	925	59	517	0.4	1415	1.1	1
15	-1.4373	0.3026	925	58	624	0.5	2039	1.6	1
16	-1.3478	0.2960	938	57	810	0.6	2849	2.3	2
17	-1.2620	0.2901	955	56	982	0.8	3831	3.0	3
18	-1.1794	0.2849	971	55	1086	0.9	4917	3.9	3
19	-1.0995	0.2802	986	54	1294	1.0	6211	4.9	4
20	-1.0222	0.2761	1001	53	1429	1.1	7640	6.1	5
21	-0.9470	0.2725	1015	52	1414	1.1	9054	7.2	7
22	-0.8737	0.2692	1029	52	1500	1.2	10554	8.4	8
23	-0.8019	0.2663	1043	51	1594	1.3	12148	9.6	9
24	-0.7317	0.2638	1056	51	1588	1.3	13736	10.9	10
25	-0.6627	0.2616	1070	50	1601	1.3	15337	12.2	12
26	-0.5948	0.2597	1083	50	1646	1.3	16983	13.5	13
27	-0.5278	0.2580	1096	49	1758	1.4	18741	14.9	14
28	-0.4616	0.2567	1108	49	1793	1.4	20534	16.3	16
29	-0.3960	0.2556	1121	49	1914	1.5	22448	17.8	17
30	-0.3310	0.2547	1133	49	1884	1.5	24332	19.3	19
31	-0.2662	0.2540	1146	49	2013	1.6	26345	20.9	20
32	-0.2018	0.2536	1158	49	1988	1.6	28333	22.5	22
33	-0.1376	0.2534	1170	49	2089	1.7	30422	24.1	23
34	-0.0733	0.2535	1183	49	2174	1.7	32596	25.8	25
35	-0.0090	0.2537	1195	49	2300	1.8	34896	27.7	27
36	0.0555	0.2542	1207	49	2379	1.9	37275	29.6	29
37	0.1202	0.2549	1220	49	2476	2.0	39751	31.5	31
38	0.1854	0.2558	1232	49	2634	2.1	42385	33.6	33
39	0.2511	0.2569	1245	49	2778	2.2	45163	35.8	35
40	0.3174	0.2583	1257	49	2793	2.2	47956	38.0	37
41	0.3845	0.2599	1270	50	2969	2.4	50925	40.4	39
42	0.4526	0.2617	1283	50	3193	2.5	54118	42.9	42
43	0.5216	0.2639	1297	51	3180	2.5	57298	45.4	44
44	0.5918	0.2663	1310	51	3373	2.7	60671	48.1	47
45	0.6635	0.2690	1324	52	3499	2.8	64170	50.9	49
46	0.7366	0.2721	1338	52	3576	2.8	67746	53.7	52
47	0.8116	0.2755	1352	53	3680	2.9	71426	56.6	55
48	0.8885	0.2793	1367	53	3903	3.1	75329	59.7	58
49	0.9677	0.2835	1382	54	3991	3.2	79320	62.9	61

50	1.0494	0.2883	1398	55	3892	3.1	83212	66.0	64
51	1.1340	0.2936	1414	56	4149	3.3	87361	69.3	68
52	1.2219	0.2995	1431	57	4084	3.2	91445	72.5	71
53	1.3136	0.3061	1448	59	4072	3.2	95517	75.7	74
54	1.4096	0.3137	1467	60	3981	3.2	99498	78.9	77
55	1.5106	0.3222	1486	62	3884	3.1	103382	82.0	80
56	1.6174	0.3319	1506	64	3806	3.0	107188	85.0	83
57	1.7313	0.3431	1528	66	3436	2.7	110624	87.7	86
58	1.8534	0.3561	1552	68	3217	2.6	113841	90.3	89
59	1.9857	0.3715	1577	71	2853	2.3	116694	92.5	91
60	2.1304	0.3899	1605	75	2547	2.0	119241	94.6	94
61	2.2911	0.4124	1635	79	2143	1.7	121384	96.3	95
62	2.4726	0.4406	1670	84	1710	1.4	123094	97.6	97
63	2.6825	0.4773	1710	91	1294	1.0	124388	98.6	98
64	2.9337	0.5275	1759	101	844	0.7	125232	99.3	99
65	3.2500	0.6018	1819	115	518	0.4	125750	99.7	99
66	3.6846	0.7277	1902	139	263	0.2	126013	99.9	99
67	4.4078	1.0152	2041	194	84	0.1	126097	100.0	99
68	5.6333	1.8342	2276	351	15	0.0	126112	100.0	99

Science Grade 11

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
0	-5.5677	1.8335	1050	187	0	0.0	0	0.0	0
1	-4.3439	1.0140	1050	103	0	0.0	0	0.0	0
2	-3.6226	0.7267	1050	74	0	0.0	0	0.0	0
3	-3.1892	0.6010	1050	61	1	0.0	1	0.0	1
4	-2.8736	0.5271	1050	54	3	0.0	4	0.0	1
5	-2.6227	0.4772	1050	49	7	0.0	11	0.0	1
6	-2.4127	0.4409	1050	45	25	0.0	36	0.0	1
7	-2.2308	0.4130	1050	42	53	0.0	89	0.1	1
8	-2.0696	0.3908	1050	40	118	0.1	207	0.2	1
9	-1.9241	0.3726	1050	38	227	0.2	434	0.4	1
10	-1.7910	0.3574	1050	36	316	0.3	750	0.6	1
11	-1.6680	0.3445	1050	35	480	0.4	1230	1.0	1
12	-1.5531	0.3335	1050	34	677	0.6	1907	1.6	1
13	-1.4452	0.3239	1050	33	891	0.7	2798	2.3	2
14	-1.3430	0.3154	1058	32	1039	0.9	3837	3.2	3
15	-1.2460	0.3080	1068	31	1174	1.0	5011	4.1	4
16	-1.1532	0.3014	1077	31	1320	1.1	6331	5.2	5
17	-1.0641	0.2955	1086	30	1440	1.2	7771	6.4	6
18	-0.9784	0.2902	1095	30	1474	1.2	9245	7.6	7
19	-0.8956	0.2854	1104	29	1628	1.3	10873	8.9	8
20	-0.8153	0.2812	1112	29	1670	1.4	12543	10.3	10
21	-0.7374	0.2773	1120	28	1737	1.4	14280	11.7	11
22	-0.6615	0.2738	1127	28	1788	1.5	16068	13.2	12
23	-0.5874	0.2706	1135	28	1861	1.5	17929	14.7	14
24	-0.5149	0.2678	1142	27	1912	1.6	19841	16.3	16
25	-0.4439	0.2652	1150	27	1979	1.6	21820	17.9	17
26	-0.3742	0.2629	1157	27	2063	1.7	23883	19.6	19
27	-0.3057	0.2608	1164	27	2068	1.7	25951	21.3	20
28	-0.2382	0.2589	1170	26	2205	1.8	28156	23.1	22
29	-0.1716	0.2572	1177	26	2254	1.9	30410	25.0	24
30	-0.1058	0.2557	1184	26	2370	1.9	32780	26.9	26
31	-0.0408	0.2544	1191	26	2506	2.1	35286	29.0	28
32	0.0237	0.2533	1197	26	2547	2.1	37833	31.1	30
33	0.0877	0.2524	1204	26	2621	2.2	40454	33.2	32
34	0.1511	0.2516	1210	26	2685	2.2	43139	35.4	34
35	0.2142	0.2509	1216	26	2793	2.3	45932	37.7	37
36	0.2771	0.2505	1223	26	2886	2.4	48818	40.1	39
37	0.3397	0.2501	1229	25	2967	2.4	51785	42.6	41
38	0.4023	0.2500	1236	25	3000	2.5	54785	45.0	44
39	0.4647	0.2500	1242	25	3082	2.5	57867	47.6	46
40	0.5272	0.2501	1248	25	3204	2.6	61071	50.2	49
41	0.5899	0.2504	1255	25	3187	2.6	64258	52.8	51
42	0.6526	0.2509	1261	26	3191	2.6	67449	55.4	54
43	0.7157	0.2515	1268	26	3295	2.7	70744	58.1	57
44	0.7792	0.2523	1275	26	3200	2.6	73944	60.8	59
45	0.8430	0.2533	1281	26	3244	2.7	77188	63.4	62
46	0.9075	0.2545	1287	26	3260	2.7	80448	66.1	65
47	0.9726	0.2559	1294	26	3179	2.6	83627	68.7	67
48	1.0384	0.2575	1300	26	3260	2.7	86887	71.4	70
49	1.1052	0.2593	1307	26	3187	2.6	90074	74.0	73

50	1.1730	0.2614	1314	27	3066	2.5	93140	76.5	75
51	1.2420	0.2638	1321	27	2915	2.4	96055	78.9	78
52	1.3123	0.2665	1328	27	2854	2.3	98909	81.3	80
53	1.3841	0.2696	1336	27	2786	2.3	101695	83.6	82
54	1.4577	0.2730	1343	28	2673	2.2	104368	85.8	85
55	1.5334	0.2769	1351	28	2443	2.0	106811	87.8	87
56	1.6112	0.2813	1359	29	2266	1.9	109077	89.6	89
57	1.6917	0.2862	1367	29	2187	1.8	111264	91.4	91
58	1.7752	0.2918	1375	30	1931	1.6	113195	93.0	92
59	1.8622	0.2982	1384	30	1790	1.5	114985	94.5	94
60	1.9532	0.3054	1394	31	1560	1.3	116545	95.8	95
61	2.0490	0.3136	1403	32	1300	1.1	117845	96.8	96
62	2.1503	0.3231	1414	33	1080	0.9	118925	97.7	97
63	2.2582	0.3342	1425	34	836	0.7	119761	98.4	98
64	2.3742	0.3471	1436	35	663	0.5	120424	99.0	99
65	2.4999	0.3625	1449	37	488	0.4	120912	99.4	99
66	2.6379	0.3810	1463	39	320	0.3	121232	99.6	99
67	2.7916	0.4037	1479	41	214	0.2	121446	99.8	99
68	2.9659	0.4322	1497	44	133	0.1	121579	99.9	99
69	3.1684	0.4694	1517	48	63	0.1	121642	100.0	99
70	3.4121	0.5203	1542	53	32	0.0	121674	100.0	99
71	3.7208	0.5955	1574	61	16	0.0	121690	100.0	99
72	4.1481	0.7227	1617	74	3	0.0	121693	100.0	99
73	4.8642	1.0118	1690	103	0	0.0	121693	100.0	100
74	6.0852	1.8326	1814	187	0	0.0	121693	100.0	100

Writing Grade 5

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
22	-6.4124	1.8366	700	184	49	0.0	49	0.0	1
23	-5.1804	1.0201	700	102	208	0.2	257	0.2	1
24	-4.4460	0.7362	700	74	429	0.3	686	0.5	1
25	-3.9978	0.6139	700	61	558	0.4	1244	1.0	1
26	-3.6656	0.5433	705	54	557	0.4	1801	1.4	1
27	-3.3965	0.4970	732	50	491	0.4	2292	1.8	2
28	-3.1662	0.4643	755	46	388	0.3	2680	2.1	2
29	-2.9622	0.4402	775	44	279	0.2	2959	2.3	2
30	-2.7767	0.4220	794	42	220	0.2	3179	2.5	2
31	-2.6047	0.4080	811	41	143	0.1	3322	2.6	3
32	-2.4428	0.3972	827	40	119	0.1	3441	2.7	3
33	-2.2884	0.3890	843	39	126	0.1	3567	2.8	3
34	-2.1396	0.3828	857	38	264	0.2	3831	3.0	3
35	-1.9949	0.3782	872	38	527	0.4	4358	3.4	3
36	-1.8531	0.3751	886	38	717	0.6	5075	4.0	4
37	-1.7132	0.3731	900	37	868	0.7	5943	4.7	4
38	-1.5745	0.3721	914	37	915	0.7	6858	5.4	5
39	-1.4361	0.3719	928	37	935	0.7	7793	6.1	6
40	-1.2976	0.3724	942	37	945	0.7	8738	6.9	6
41	-1.1586	0.3734	956	37	846	0.7	9584	7.5	7
42	-1.0187	0.3746	970	37	763	0.6	10347	8.1	8
43	-0.8778	0.3761	984	38	605	0.5	10952	8.6	8
44	-0.7359	0.3774	998	38	415	0.3	11367	8.9	9
45	-0.5930	0.3786	1012	38	385	0.3	11752	9.2	9
46	-0.4493	0.3794	1027	38	600	0.5	12352	9.7	9
47	-0.3053	0.3797	1041	38	1122	0.9	13474	10.6	10
48	-0.1611	0.3794	1055	38	1745	1.4	15219	11.9	11
49	-0.0175	0.3786	1070	38	2246	1.8	17465	13.7	13
50	0.1254	0.3772	1084	38	2949	2.3	20414	16.0	15
51	0.2670	0.3754	1098	38	3650	2.9	24064	18.9	17
52	0.4071	0.3732	1112	37	3992	3.1	28056	22.0	20
53	0.5454	0.3708	1126	37	4223	3.3	32279	25.3	24
54	0.6820	0.3683	1140	37	3899	3.1	36178	28.4	27
55	0.8167	0.3659	1153	37	2758	2.2	38936	30.5	29
56	0.9498	0.3637	1166	36	1368	1.1	40304	31.6	31
57	1.0814	0.3618	1180	36	317	0.2	40621	31.8	32
58	1.2117	0.3603	1193	36	475	0.4	41096	32.2	32
59	1.3411	0.3593	1206	36	834	0.7	41930	32.9	33
60	1.4701	0.3589	1218	36	1422	1.1	43352	34.0	33
61	1.5990	0.3592	1231	36	2258	1.8	45610	35.8	35
62	1.7283	0.3602	1244	36	3225	2.5	48835	38.3	37
63	1.8586	0.3620	1257	36	4610	3.6	53445	41.9	40
64	1.9906	0.3648	1271	36	5639	4.4	59084	46.3	44
65	2.1250	0.3686	1284	37	6227	4.9	65311	51.2	49
66	2.2627	0.3737	1298	37	5331	4.2	70642	55.4	53
67	2.4047	0.3802	1312	38	3063	2.4	73705	57.8	57
68	2.5522	0.3884	1327	39	315	0.2	74020	58.0	58
69	2.7069	0.3986	1342	40	126	0.1	74146	58.1	58
70	2.8708	0.4113	1359	41	274	0.2	74420	58.3	58
71	3.0463	0.4271	1376	43	618	0.5	75038	58.8	59

72	3.2369	0.4468	1395	45	1256	1.0	76294	59.8	59
73	3.4474	0.4715	1416	47	2247	1.8	78541	61.6	61
74	3.6840	0.5024	1440	50	4080	3.2	82621	64.8	63
75	3.9554	0.5406	1467	54	6586	5.2	89207	69.9	67
76	4.2719	0.5851	1499	59	9242	7.2	98449	77.2	74
77	4.6408	0.6278	1536	63	10136	7.9	108585	85.1	81
78	5.0521	0.6495	1577	65	7321	5.7	115906	90.9	88
79	5.4689	0.6360	1618	64	222	0.2	116128	91.0	91
80	5.8518	0.5994	1657	60	3	0.0	116131	91.0	91
81	6.1875	0.5597	1690	56	18	0.0	116149	91.1	91
82	6.4814	0.5256	1720	53	44	0.0	116193	91.1	91
83	6.7432	0.4987	1746	50	89	0.1	116282	91.2	91
84	6.9813	0.4783	1770	48	221	0.2	116503	91.3	91
85	7.2025	0.4631	1792	46	495	0.4	116998	91.7	92
86	7.4118	0.4523	1813	45	950	0.7	117948	92.5	92
87	7.6129	0.4453	1833	45	1854	1.5	119802	93.9	93
88	7.8093	0.4415	1852	44	2722	2.1	122524	96.1	95
89	8.0036	0.4407	1872	44	2782	2.2	125306	98.2	97
90	8.1987	0.4431	1891	44	56	0.0	125362	98.3	98
91	8.3972	0.4487	1911	45	0	0.0	125362	98.3	98
92	8.6026	0.4582	1932	46	2	0.0	125364	98.3	98
93	8.8186	0.4723	1953	47	3	0.0	125367	98.3	98
94	9.0507	0.4925	1977	49	7	0.0	125374	98.3	98
95	9.3070	0.5216	2002	52	23	0.0	125397	98.3	98
96	9.6005	0.5644	2031	56	47	0.0	125444	98.3	98
97	9.9551	0.6314	2067	63	133	0.1	125577	98.5	98
98	10.4245	0.7499	2114	75	328	0.3	125905	98.7	99
99	11.1786	1.0294	2189	103	680	0.5	126585	99.2	99
100	12.4237	1.8415	2314	184	964	0.8	127549	100.0	99

Writing Grade 8

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
22	-6.9950	1.8383	700	184	29	0.0	29	0.0	1
23	-5.7584	1.0234	700	102	134	0.1	163	0.1	1
24	-5.0170	0.7411	700	74	287	0.2	450	0.3	1
25	-4.5614	0.6201	700	62	354	0.3	804	0.6	1
26	-4.2215	0.5508	702	55	364	0.3	1168	0.9	1
27	-3.9438	0.5057	729	51	341	0.3	1509	1.2	1
28	-3.7045	0.4742	753	47	252	0.2	1761	1.4	1
29	-3.4907	0.4515	775	45	205	0.2	1966	1.5	1
30	-3.2948	0.4347	794	43	127	0.1	2093	1.6	2
31	-3.1114	0.4223	813	42	90	0.1	2183	1.7	2
32	-2.9371	0.4132	830	41	53	0.0	2236	1.7	2
33	-2.7691	0.4068	847	41	62	0.0	2298	1.8	2
34	-2.6055	0.4026	863	40	191	0.1	2489	1.9	2
35	-2.4445	0.4001	879	40	360	0.3	2849	2.2	2
36	-2.2848	0.3992	895	40	545	0.4	3394	2.6	2
37	-2.1253	0.3996	911	40	734	0.6	4128	3.2	3
38	-1.9652	0.4010	927	40	709	0.5	4837	3.7	3
39	-1.8036	0.4031	943	40	695	0.5	5532	4.3	4
40	-1.6401	0.4056	960	41	614	0.5	6146	4.8	5
41	-1.4746	0.4081	976	41	495	0.4	6641	5.1	5
42	-1.3072	0.4102	993	41	364	0.3	7005	5.4	5
43	-1.1383	0.4115	1010	41	252	0.2	7257	5.6	6
44	-0.9687	0.4118	1027	41	197	0.2	7454	5.8	6
45	-0.7995	0.4107	1044	41	296	0.2	7750	6.0	6
46	-0.6318	0.4082	1061	41	648	0.5	8398	6.5	6
47	-0.4666	0.4045	1077	40	1253	1.0	9651	7.5	7
48	-0.3049	0.3998	1093	40	1942	1.5	11593	9.0	8
49	-0.1471	0.3944	1109	39	2721	2.1	14314	11.1	10
50	0.0061	0.3886	1124	39	3440	2.7	17754	13.8	12
51	0.1549	0.3828	1139	38	3884	3.0	21638	16.8	15
52	0.2993	0.3771	1154	38	3975	3.1	25613	19.8	18
53	0.4394	0.3718	1168	37	3517	2.7	29130	22.6	21
54	0.5758	0.3669	1181	37	2856	2.2	31986	24.8	24
55	0.7088	0.3627	1195	36	1697	1.3	33683	26.1	25
56	0.8390	0.3590	1208	36	750	0.6	34433	26.7	26
57	0.9668	0.3561	1221	36	277	0.2	34710	26.9	27
58	1.0928	0.3539	1233	35	459	0.4	35169	27.3	27
59	1.2174	0.3524	1246	35	819	0.6	35988	27.9	28
60	1.3413	0.3517	1258	35	1525	1.2	37513	29.1	28
61	1.4651	0.3519	1270	35	2347	1.8	39860	30.9	30
62	1.5892	0.3530	1283	35	3328	2.6	43188	33.5	32
63	1.7144	0.3550	1295	36	4072	3.2	47260	36.6	35
64	1.8415	0.3581	1308	36	4658	3.6	51918	40.2	38
65	1.9712	0.3624	1321	36	4222	3.3	56140	43.5	42
66	2.1045	0.3679	1334	37	3091	2.4	59231	45.9	45
67	2.2423	0.3750	1348	38	1459	1.1	60690	47.0	46
68	2.3862	0.3839	1362	38	258	0.2	60948	47.2	47
69	2.5377	0.3949	1378	39	234	0.2	61182	47.4	47
70	2.6989	0.4085	1394	41	535	0.4	61717	47.8	48
71	2.8725	0.4255	1411	43	1234	1.0	62951	48.8	48

72	3.0624	0.4467	1430	45	2430	1.9	65381	50.7	50
73	3.2736	0.4734	1451	47	4345	3.4	69726	54.0	52
74	3.5136	0.5074	1475	51	6875	5.3	76601	59.4	57
75	3.7928	0.5506	1503	55	9808	7.6	86409	67.0	63
76	4.1248	0.6028	1536	60	11627	9.0	98036	76.0	71
77	4.5220	0.6556	1576	66	10961	8.5	108997	84.5	80
78	4.9741	0.6817	1621	68	6292	4.9	115289	89.3	87
79	5.4288	0.6593	1667	66	135	0.1	115424	89.5	89
80	5.8326	0.6097	1707	61	7	0.0	115431	89.5	89
81	6.1743	0.5602	1741	56	15	0.0	115446	89.5	89
82	6.4652	0.5201	1770	52	55	0.0	115501	89.5	89
83	6.7193	0.4893	1796	49	139	0.1	115640	89.6	90
84	6.9471	0.4663	1819	47	350	0.3	115990	89.9	90
85	7.1564	0.4494	1839	45	769	0.6	116759	90.5	90
86	7.3526	0.4373	1859	44	1329	1.0	118088	91.5	91
87	7.5402	0.4294	1878	43	2413	1.9	120501	93.4	92
88	7.7224	0.4250	1896	43	3055	2.4	123556	95.8	95
89	7.9023	0.4240	1914	42	2384	1.8	125940	97.6	97
90	8.0829	0.4263	1932	43	62	0.0	126002	97.6	98
91	8.2668	0.4322	1951	43	1	0.0	126003	97.7	98
92	8.4576	0.4421	1970	44	0	0.0	126003	97.7	98
93	8.6592	0.4568	1990	46	1	0.0	126004	97.7	98
94	8.8772	0.4780	2012	48	15	0.0	126019	97.7	98
95	9.1195	0.5082	2036	51	40	0.0	126059	97.7	98
96	9.3993	0.5524	2064	55	102	0.1	126161	97.8	98
97	9.7406	0.6209	2098	62	240	0.2	126401	98.0	98
98	10.1970	0.7414	2144	74	563	0.4	126964	98.4	98
99	10.9386	1.0234	2218	102	930	0.7	127894	99.1	99
100	12.1751	1.8383	2341	184	1141	0.9	129035	100.0	99

Writing Grade 11

Raw	Meas	MeasSE	SS	SSSE	Freq	Freq%	Cum	Cum%	Pct
22	-6.7127	1.8363	700	184	35	0.0	35	0.0	1
23	-5.4815	1.0195	700	102	196	0.2	231	0.2	1
24	-4.7482	0.7354	769	74	457	0.4	688	0.5	1
25	-4.3012	0.6129	814	61	563	0.5	1251	1.0	1
26	-3.9706	0.5420	847	54	596	0.5	1847	1.5	1
27	-3.7028	0.4954	874	50	439	0.4	2286	1.8	2
28	-3.4742	0.4624	897	46	332	0.3	2618	2.1	2
29	-3.2721	0.4379	917	44	286	0.2	2904	2.3	2
30	-3.0887	0.4194	935	42	181	0.1	3085	2.5	2
31	-2.9190	0.4050	952	41	131	0.1	3216	2.6	3
32	-2.7597	0.3938	968	39	87	0.1	3303	2.6	3
33	-2.6082	0.3850	983	39	123	0.1	3426	2.7	3
34	-2.4627	0.3782	998	38	232	0.2	3658	2.9	3
35	-2.3217	0.3730	1012	37	446	0.4	4104	3.3	3
36	-2.1841	0.3691	1026	37	596	0.5	4700	3.8	4
37	-2.0490	0.3663	1039	37	753	0.6	5453	4.4	4
38	-1.9156	0.3643	1053	36	759	0.6	6212	5.0	5
39	-1.7833	0.3630	1066	36	730	0.6	6942	5.5	5
40	-1.6518	0.3623	1079	36	703	0.6	7645	6.1	6
41	-1.5207	0.3620	1092	36	592	0.5	8237	6.6	6
42	-1.3897	0.3619	1105	36	482	0.4	8719	7.0	7
43	-1.2587	0.3619	1118	36	400	0.3	9119	7.3	7
44	-1.1278	0.3618	1132	36	272	0.2	9391	7.5	7
45	-0.9969	0.3616	1145	36	344	0.3	9735	7.8	8
46	-0.8663	0.3612	1158	36	608	0.5	10343	8.3	8
47	-0.7360	0.3604	1171	36	1029	0.8	11372	9.1	9
48	-0.6065	0.3594	1184	36	1326	1.1	12698	10.2	10
49	-0.4778	0.3580	1197	36	1726	1.4	14424	11.5	11
50	-0.3502	0.3564	1209	36	2090	1.7	16514	13.2	12
51	-0.2238	0.3546	1222	35	2301	1.8	18815	15.0	14
52	-0.0987	0.3528	1234	35	2537	2.0	21352	17.1	16
53	0.0251	0.3509	1247	35	2411	1.9	23763	19.0	18
54	0.1476	0.3492	1259	35	1881	1.5	25644	20.5	20
55	0.2690	0.3477	1271	35	1297	1.0	26941	21.5	21
56	0.3895	0.3466	1283	35	701	0.6	27642	22.1	22
57	0.5093	0.3458	1295	35	461	0.4	28103	22.5	22
58	0.6288	0.3456	1307	35	485	0.4	28588	22.9	23
59	0.7483	0.3459	1319	35	868	0.7	29456	23.5	23
60	0.8682	0.3468	1331	35	1331	1.1	30787	24.6	24
61	0.9890	0.3485	1343	35	1815	1.5	32602	26.1	25
62	1.1113	0.3510	1355	35	2547	2.0	35149	28.1	27
63	1.2356	0.3544	1368	35	3331	2.7	38480	30.8	29
64	1.3627	0.3589	1381	36	3813	3.0	42293	33.8	32
65	1.4934	0.3645	1394	36	3834	3.1	46127	36.9	35
66	1.6288	0.3715	1407	37	2920	2.3	49047	39.2	38
67	1.7699	0.3801	1421	38	1433	1.1	50480	40.4	40
68	1.9183	0.3907	1436	39	513	0.4	50993	40.8	41
69	2.0759	0.4035	1452	40	331	0.3	51324	41.0	41
70	2.2449	0.4191	1469	42	624	0.5	51948	41.5	41
71	2.4284	0.4382	1487	44	1102	0.9	53050	42.4	42

72	2.6305	0.4617	1507	46	2154	1.7	55204	44.1	43
73	2.8568	0.4905	1530	49	3789	3.0	58993	47.2	46
74	3.1146	0.5260	1556	53	6533	5.2	65526	52.4	50
75	3.4137	0.5686	1586	57	9964	8.0	75490	60.3	56
76	3.7643	0.6156	1621	62	12816	10.2	88306	70.6	65
77	4.1704	0.6558	1661	66	12335	9.9	100641	80.5	76
78	4.6124	0.6674	1706	67	6853	5.5	107494	85.9	83
79	5.0440	0.6410	1749	64	517	0.4	108011	86.3	86
80	5.4272	0.5957	1787	60	38	0.0	108049	86.4	86
81	5.7556	0.5511	1820	55	28	0.0	108077	86.4	86
82	6.0386	0.5142	1848	51	44	0.0	108121	86.4	86
83	6.2878	0.4855	1873	49	164	0.1	108285	86.6	86
84	6.5126	0.4637	1896	46	359	0.3	108644	86.8	87
85	6.7199	0.4476	1916	45	737	0.6	109381	87.4	87
86	6.9148	0.4360	1936	44	1585	1.3	110966	88.7	88
87	7.1013	0.4284	1954	43	2721	2.2	113687	90.9	90
88	7.2829	0.4243	1973	42	3771	3.0	117458	93.9	92
89	7.4623	0.4235	1991	42	3235	2.6	120693	96.5	95
90	7.6425	0.4259	2009	43	267	0.2	120960	96.7	97
91	7.8262	0.4319	2027	43	0	0.0	120960	96.7	97
92	8.0168	0.4419	2046	44	2	0.0	120962	96.7	97
93	8.2183	0.4567	2066	46	3	0.0	120965	96.7	97
94	8.4361	0.4779	2088	48	15	0.0	120980	96.7	97
95	8.6784	0.5081	2112	51	60	0.0	121040	96.8	97
96	8.9580	0.5523	2140	55	108	0.1	121148	96.8	97
97	9.2993	0.6209	2174	62	303	0.2	121451	97.1	97
98	9.7557	0.7414	2220	74	686	0.5	122137	97.6	97
99	10.4973	1.0234	2294	102	1373	1.1	123510	98.7	98
100	11.7338	1.8383	2418	184	1585	1.3	125095	100.0	99