

### Computer Systems Networking and Telecommunications, Classification of Instructional Program (CIP) 11.0901 Units of Instruction and Task Grid Linked to Pennsylvania Core Standards

**Common Career** 

**Secondary Competency Task Grid** 

	with Unit and Task Numbers	Technical Core Standards	Reading for Technical Subjects Standard 3.5	Standards for Writing for Technical Subjects Standard 3.6	Standards for Mathematics Standard 2.1		
100 PERSONAL AND ENVIRONMENTAL SAFETY.							
101 102 103 104 105 106 107 108 109	List common causes of accidents and injuries in a computer facility.  Wear personal protective equipment.  List and identify safety hazard symbols.  Review Safety Data Sheets (SDS) and explain their requirements in handling hazardous materials.  Describe types of fire extinguishers and explain which types to use for extinguishing various fires.  Use safe procedures to follow when lifting and carrying heavy objects.  Describe the importance of safety as it relates to environmental issues.  Identify potential hazards when working with power supplies.  Identify proper disposal procedures for batteries and display devices.  Identify proper disposal procedures for chemical solvents	CAREER CLUSTER 1: Arts, AV Technology and Communications Career Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAYS INCLUDE: A. Telecommunications Career Pathway (Choose Standards) 1-2-3  CAREER CLUSTER 2: Information Technology (Choose Standards) 1-2-3-4-5-6-7-8-9-10 PATHWAYS INCLUDE:	KEY IDEAS/DETAILS GRADES 9-10-11-12 Standard CC.3.5.9-10. A Standard CC.3.5.11-12 A Cite specific textual evidence, etc. Standard CC.3.5.9-10 B Standard CC.3.5.11-12. B Determine the central ideas or conclusions of a text; etc. Standard CC.3.5.9-10.C Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.  CRAFT & STRUCTURE GRADES 9-10-11-12 Standard CC.3.5.9-10. D Standard CC.3.5.11-12.D				
111 112 113	and pressurized cans.  Prevent Electro Static Discharge conditions.  Describe the meaning and importance of the Energy Star Rating System.  Configure a computer's power management settings to maximize energy efficiency.	Information Support and Services Career Pathway (Choose Standards) 1-2-3-4-5-6-7-8-9-10 Network Systems Career Pathway (Choose Standards) 1-2-3-4-5	Determine the meaning of symbols, key terms, and other domain specific words.  Standard CC.3.5.9-10.E  Standard CC.3.5.11-12.E  Analyze the structure of the relationships among concepts in a text, etc.				

Pennsylvania Core Standards for

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Pennsylvania Core

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	safe work area to avoid common accidents and	Programming and	Standard CC.3.5.9-10.F	
injuries.		Software Development	Standard CC.3.5.11-12.F	
		Career Pathway (Choose Standards)	Analyze the author's purpose in	
		1-2-3-4-5-6-7-8-9-10	providing an explanation, describing a procedureand	
		1-2-3-4-3-0-7-8-9-10	Analyze the structure of the	
			relationships among concepts in a	
		Web and Digital	text.	
		Communications Career	lext.	
		Pathway	INTEGRATE IZNOMI EDGE 8	
		(Choose Standards)	INTEGRATE KNOWLEDGE & IDEAS	
		1-2-3-4-5-6-7-8-9-10		
			GRADES 9-10	
		NOTE:	Standard CC.3.5.9-10.G	
		Refer to the Common	Translate quantitative or technical	
		Career Technical Core	information expressed in a text into	
		Standards Booklet if you	visual form (e.g. a table or chart).	
		wish to add more	Standard CC.3.5.9-10. H	
		Pathways, for your local	Assess the reasoning in a text to	
		area.	support the author's claim for solving	
			a technical problem.	
			Standard CC.3.5.9-10. I	
			Compare and contrast findings	
			presented in a text to those from	
			other sources, etc.	
			other sources, etc.	
			INTEGRATE KNOWLEDGE & IDEAS	
			GRADES 11-12	
			Standard CC.3.5.11-12. G	
			Integrate and evaluate multiple	
			sources of information presented in	
			diverse formatsto solve a problem.	
			Standard CC.3.5.11-12. H	
			Evaluate the hypotheses, data,	
			analysis, and conclusions in a	
			technical text, verifying the data	
			when possible.	
			Standard CC.3.5.11-12. I	
			Synthesize information from a range	
			of sources into a coherent	
			understanding.	
			RANGE OF READING	
			GRADES 9-10-11-12	
			Standard CC.3.5.9-10.J	

			Standard CC.3.5.11-12.J		
			By the end of grades 9-10, AND 11-		
			12, read and comprehend technical		
			texts independently and proficiently.		
200	COMPUTER HARDWARE.				
201	Categorize storage devices and backup media.	CAREER CLUSTER 1:	KEY IDEAS/DETAILS		NUMBERS AND
202	Categorize the different types of computer cases.	Arts, AV Technology and	GRADES 9-10-11-12		OPERATIONS
203	Explain motherboard components, types and features.	Communications Career	Standard CC.3.5.9-10. A		Standard 2.1.HS.F.2
204	Categorize power supplies types and characteristics.	Cluster	Standard CC.3.5.11-12 A		Apply properties of rational
205	Explain the purpose and characteristics of CPUs and	(Choose Standards)	Cite specific textual evidence, etc.		and irrational numbers to
	their features.	1-2-3-4-5-6	Standard CC.3.5.9-10 B		solve real world or
206	Explain cooling methods and devices.	PATHWAYS	Standard CC.3.5.11-12. B		mathematical problems.
207	Compare and contrast memory types, characteristics,	INCLUDE:	Determine the central ideas or		Standard 2.1.HS.F.4
	and their purpose.	A. Telecommunications Career Pathway	conclusions of a text; etc.  Standard CC.3.5.9-10.C		Use units as a way to
208	Distinguish between the different display devices and	(Choose Standards)	Standard CC.3.5.9-10.C Standard CC.3.5.11-12.C		understand problems and to
	their characteristics.	1-2-3	Follow precisely a complex multistep		guide the solution of
209	Summarize the function and types of adapter cards.	123	procedure, etc.		multistep problems.
210	Install and configure peripherals and input devices.	CAREER CLUSTER 2:	procedure, etc.		Standard 2.1.HS.F.5
211	Configure and optimize portable devices such as:	Information Technology	CRAFT & STRUCTURE		
	laptops, tablets, and smart devices.	(Choose Standards)	GRADES 9-10-11-12		Choose a level of accuracy appropriate to limitations on
212	Install and configure printers.	1-2-3-4-5-6-7-8-9-10	Standard CC.3.5.9-10. D		measurement when
213	Install configure and maintain personal computer	PATHWAYS			reporting quantities.
	components.	INCLUDE:	Standard CC.3.5.11-12.D		Standard 2.1.HS.F.6
214	Detect problems, troubleshoot, and repair/replace desk	Information Support and	Determine the meaning of symbols,		I I
	top and laptop computer components.	Services Career Pathway	key terms, and other domain specific		Extend the knowledge of arithmetic operations and
215	Diagnose and repair common printer issues.	(Choose Standards) 1-2-3-4-5-6-7-8-9-10	words.		apply to complex numbers.
		Network Systems Career	Standard CC.3.5.9-10.E		apply to complex numbers.
		Pathway	Standard CC.3.5.11-12.E		
		(Choose Standards)	Analyze the structure of the		
		1-2-3-4-5	relationships among concepts in a text, etc.		
		Programming and	Standard CC.3.5.9-10.F		
		Software Development	Standard CC.3.5.11-12.F		
		Career Pathway	Analyze the author's purpose in		
		(Choose Standards)	providing an explanation, describing		
		1-2-3-4-5-6-7-8-9-10	a procedureand		
			Analyze the structure of the		
			relationships among concepts in a		
		Web and Digital	text.		
		Communications Career			
		Pathway (Changa Standards)	INTEGRATE KNOWLEDGE &		
		(Choose Standards) 1-2-3-4-5-6-7-8-9-10	IDEAS		
		1-4-3-4-3-0-7-0-7-10	GRADES 9-10		
				<u> </u>	

NOTE: Refer to the Common Career Technical Core Standards Booklet if you wish to add more Pathways, for your local area.	Standard CC.3.5.9-10.G  Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).  Standard CC.3.5.9-10. H  Assess the reasoning in a text to support the author's claim for solving a technical problem.  Standard CC.3.5.9-10. I  Compare and contrast findings presented in a text to those from other sources, etc.  INTEGRATE KNOWLEDGE & IDEAS  GRADES 11-12  Standard CC.3.5.11-12. G  Integrate and evaluate multiple	
	sources of information presented in diverse formatsto solve a problem.  Standard CC.3.5.11-12. H  Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.  Standard CC.3.5.11-12. I  Synthesize information from a range of sources into a coherent understanding.  RANGE OF READING GRADES 9-10-11-12  Standard CC.3.5.9-10.J  Standard CC.3.5.11-12.J  By the end of grades 9-10, AND 11-12, read and comprehend technical texts independently and proficiently.	

300	TROUBLESHOOTING, REPAIR, AND			
	MAINTENANCE.			
301 302	Apply industry standard troubleshooting methods.  Identify common hardware and operating system symptoms and their causes.  Use troubleshooting methods and tools for printers	CAREER CLUSTER 1: Arts, AV Technology and Communications Career Cluster	Standard CC.3.5.9-10. A Standard CC.3.5.11-12 A	NUMBERS AND OPERATIONS Standard 2.1.HS.F.2
303	Use troubleshooting methods and tools for printers.	(Choose Standards)	Cite specific textual evidence, etc.	

Revised June 2018 4

304	Identify common laptop issues and determine the	1-2-3-4-5-6	Standard CC.3.5.9-10 B	Apply properties of rational
	appropriate basic troubleshooting method.	PATHWAYS	Standard CC.3.5.11-12. B	and irrational numbers to
305	Integrate common preventative maintenance	INCLUDE:	Determine the central ideas or	solve real world or
303	techniques.	A. Telecommunications	conclusions of a text; etc.	mathematical problems.
20.6	-	Career Pathway	Standard CC.3.5.9-10.C	Standard 2.1.HS.F.4
306	RESERVED	(Choose Standards)	Standard CC.3.5.11-12.C	Use units as a way to
		1-2-3	Follow precisely a complex multistep	understand problems and to
			procedure, etc.	guide the solution of
		CAREER CLUSTER 2:		multistep problems.
		Information Technology	CRAFT & STRUCTURE	Standard 2.1.HS.F.5
		(Choose Standards) 1-2-3-4-5-6-7-8-9-10	GRADES 9-10-11-12	Choose a level of accuracy
		PATHWAYS	Standard CC.3.5.9-10. D	appropriate to limitations on
		INCLUDE:	Standard CC.3.5.11-12.D	measurement when
		Information Support and	Determine the meaning of symbols,	reporting quantities.
		Services Career Pathway	key terms, and other domain specific	Standard 2.1.HS.F.6
		(Choose Standards)	words.	Extend the knowledge of
		1-2-3-4-5-6-7-8-9-10	Standard CC.3.5.9-10.E	arithmetic operations and
		Network Systems Career	Standard CC.3.5.11-12.E	apply to complex numbers.
		Pathway	Analyze the structure of the	TI J
		(Choose Standards)	relationships among concepts in a	
		1-2-3-4-5	text, etc.	
		Programming and	Standard CC.3.5.9-10.F	
		Software Development	Standard CC.3.5.11-12.F	
		(Choose Standards)	Analyze the author's purpose in	
		1-2-3-4-5-6-7-8-9-10	providing an explanation, describing	
		1-2-3-4-3-0-7-8-9-10	a procedureand	
			Analyze the structure of the	
		Web and Digital	relationships among concepts in a text.	
		<b>Communications Career</b>	text.	
		Pathway	INTEGRATE KNOWLEDGE &	
		(Choose Standards)	IDEAS	
		1-2-3-4-5-6-7-8-9-10	GRADES 9-10	
		NOTE:	Standard CC.3.5.9-10.G	
		Refer to the Common	Translate quantitative or technical	
		Career Technical Core	information expressed in a text into	
		Standards Booklet if you wish to add more	visual form (e.g. a table or chart).	
		Pathways, for your local	Standard CC.3.5.9-10. H	
		area.	Assess the reasoning in a text to	
			support the author's claim for solving	
			a technical problem.	
			Standard CC.3.5.9-10. I	

Revised June 2018 5

Compare and contrast findings presented in a text to those from other sources, etc.
INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12 Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formatsto solve a problem. Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible. Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent
RANGE OF READING GRADES 9-10-11-12 Standard CC.3.5.9-10.J Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical texts independently and proficiently.

400	OPERATING SYSTEMS AND SOFTWARE.				
401 402 403 404 405 406 407 408 409 410	Identify different operating systems by their features. Use various user interfaces. Install and configure an operating system. Explain boot sequences, methods, and startup utilities for various operating systems. Select the appropriate commands and options to troubleshoot and resolve problems. Differentiate between various operating system directory structures. Use system utilities/tools and evaluate the results. Troubleshoot common OS and software issues. Manage local users, groups, and institute local security policies. Install and configure a network and workstation operating system.	CAREER CLUSTER 1: Arts, AV Technology and Communications Career Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAYS INCLUDE: A. Telecommunications Career Pathway (Choose Standards) 1-2-3  CAREER CLUSTER 2: Information Technology (Choose Standards)	KEY IDEAS/DETAILS GRADES 9-10-11-12 Standard CC.3.5.9-10. A Standard CC.3.5.11-12 A Cite specific textual evidence, etc. Standard CC.3.5.9-10 B Standard CC.3.5.11-12. B Determine the central ideas or conclusions of a text; etc. Standard CC.3.5.9-10.C Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.  CRAFT & STRUCTURE	TEXT TYPES AND PURPOSE GRADES 9-10-11-12 Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.	NUMBERS AND OPERATIONS Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems. Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems. Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on

1-2-3-4-5-6-7-8-9-10 **PATHWAYS** 

PATHWAYS INCLUDE:

**Information Support and Services Career Pathway** 

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

Network Systems Career Pathway

(Choose Standards) 1-2-3-4-5

Programming and Software Development Career Pathway

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

Web and Digital Communications Career Pathway

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

#### NOTE:

Refer to the Common Career Technical Core Standards Booklet if you wish to add more Pathways, for your local area. GRADES 9-10-11-12

Standard CC.3.5.9-10. D Standard CC.3.5.11-12.D

Determine the meaning of symbols, key terms, and other domain specific words.

#### Standard CC.3.5.9-10.E Standard CC.3.5.11-12.E

Analyze the structure of the relationships among concepts in a text, etc.

#### Standard CC.3.5.9-10.F Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...and
Analyze the structure of the relationships among concepts in a text

## INTEGRATE KNOWLEDGE & IDEAS

GRADES 9-10

**Standard CC.3.5.9-10.G** 

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

#### Standard CC.3.5.9-10. H

Assess the reasoning in a text to support the author's claim for solving a technical problem.

#### Standard CC.3.5.9-10. I

Compare and contrast findings presented in a text to those from other sources, etc.

## INTEGRATE KNOWLEDGE & IDEAS

**GRADES 11-12** 

Standard CC.3.5.11-12. G

Integrate and evaluate multiple sources of information presented in diverse formats...to solve a problem.

Standard CC.3.5.11-12. H

# PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12

Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C

Produce clear and coherent writing...appropriate to task, purpose, and audience.

#### Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E.

#### Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E.

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12 Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G

Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

## Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H.

Draw evidence from informational texts to support

measurement when reporting quantities.

#### Standard 2.1.HS.F.6

Extend the knowledge of arithmetic operations and apply to complex numbers.

	Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.  Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.  RANGE OF READING GRADES 9-10-11-12 Standard CC.3.5.9-10.J Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11-12, read and comprehend technical texts independently and proficiently.	analysis, reflection, and research.  RANGE OF WRITING GRADES 9-10-11-12 Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.
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500	NETWORK TECHNOLOGIES.				
501	Explain the function of common networking protocols, such as FTP, TCP/IP suite, DHCP, DNS, etc.	CAREER CLUSTER 1: Arts, AV Technology and Communications Career	KEY IDEAS/DETAILS GRADES 9-10-11-12 Standard CC.3.5.9-10. A	TEXT TYPES AND PURPOSE GRADES 9-10-11-12	NUMBERS AND OPERATIONS Standard 2.1.HS.F.2
502	Identify commonly used TCP and UDP default ports, including TCP ports: FTP – 20, 21, SSH – 22, TELNET – 23, HTTP – 80, etc.	Cluster (Choose Standards) 1-2-3-4-5-6	Standard CC.3.5.11-12 A Cite specific textual evidence, etc. Standard CC.3.5.9-10 B	Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on	Apply properties of rational and irrational numbers to solve real world or
503	Identify the following address formats, including IPv6, IPv4, MAC addressing.  Evaluate the proper use of addressing technologies	PATHWAYS INCLUDE: A. Telecommunications	Standard CC.3.5.11-12. B Determine the central ideas or conclusions of a text; etc.	discipline specific content.  Standard CC.3.6.9-10.B  Standard CC.3.6.11-12.B	mathematical problems.  Standard 2.1.HS.F.4
	and addressing schemes, including: subnetting: classful vs. classless, NAT, PAT, SNAT, public vs. private, DHCP, addressing schemes: unicast,	Career Pathway (Choose Standards) 1-2-3	Standard CC.3.5.9-10.C Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.	Write informative or explanatory texts, including the narration of technical processes, etc.	Use units as a way to understand problems and to guide the solution of multistep problems.
505	multicast, broadcast, etc.  Identify common IPv4 and IPv6 routing protocols, including link state, distance vector, and hybrid protocols.	CAREER CLUSTER 2: Information Technology (Choose Standards) 1-2-3-4-5-6-7-8-9-10	CRAFT & STRUCTURE GRADES 9-10-11-12	PRODUCTION & DISTRIBUTION OF WRITING	Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when
506	Explain the purpose and properties of routing, including IGP vs. EGP, static vs. dynamic, next hop, interpret routing tables and how they pertain to path	PATHWAYS INCLUDE: Information Support and Services Career Pathway	Standard CC.3.5.9-10. D Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific	GRADES 9-10-11-12 Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent	reporting quantities.  Standard 2.1.HS.F.6  Extend the knowledge of
507	selection, explain convergence (steady state). Identify the characteristics of wireless communication standards, including 802.11 standards: speeds, distance, channels, frequency, authentication, and encryption.	(Choose Standards) 1-2-3-4-5-6-7-8-9-10 Network Systems Career Pathway	words.  Standard CC.3.5.9-10.E  Standard CC.3.5.11-12.E  Analyze the structure of the	writingappropriate to task, purpose, and audience. Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D	arithmetic operations and apply to complex numbers.
508	Identify the basic elements of unified communication technology such as: VoIP, Video, Real Time Services, POS and UC devices	(Choose Standards) 1-2-3-4-5	relationships among concepts in a text, etc.  Standard CC.3.5.9-10.F	Develop and strengthen writing as needed by planning, revising, editing,	

509	Implement technologies that support cloud and	Programming and	Standard CC.3.5.11-12.F	rewriting, or trying a new
	virtualization such as: virtual hardware, SANs, IaaS,	Software Development	Analyze the author's purpose in	approach, focusing on
	SaaS, and PaaS.	Career Pathway	providing an explanation, describing	addressing what is most
	,	(Choose Standards)	a procedureand	significant for a specific
		1-2-3-4-5-6-7-8-9-10	Analyze the structure of the	purpose and audience.
			relationships among concepts in a	Standard CC.3.6.9-10.E
			text.	Standard CC.3.6.11-12.E.
		Web and Digital		Use technology, including
		Communications Career	INTEGRATE KNOWLEDGE &	the internet, to produce,
		Pathway (Choose Standards)	IDEAS	publish, and update individual or shared writing
		1-2-3-4-5-6-7-8-9-10	GRADES 9-10	products.
		1-2-3-4-3-0-7-0-9-10	Standard CC.3.5.9-10.G	products.
		NOTE:	Translate quantitative or technical	RESEARCH
		Refer to the Common	information expressed in a text into	GRADES 9-10-11-12
		Career Technical Core	visual form (e.g. a table or chart).	Standard CC.3.6.9-10.F
		Standards Booklet if you	Standard CC.3.5.9-10. H	Standard CC.3.6.11-12.F
		wish to add more	Assess the reasoning in a text to	Conduct short and more
		Pathways, for your local area.	support the author's claim for solving	sustained research to
		area.	a technical problem.	answer a question or solve a problem.
			Standard CC.3.5.9-10. I	Standard CC.3.6.9-10.G.
			Compare and contrast findings	Standard CC.3.6.11-12.G
			presented in a text to those from	Gather relevant information
			other sources, etc.	from multiple authoritative
				print and digital sources,
			INTEGRATE KNOWLEDGE &	following a standard format
			IDEAS	for citation.
			GRADES 11-12	Standard CC.3.6.9-10.H.
			Standard CC.3.5.11-12. G	Standard CC.3.6.11-12.H.
			Integrate and evaluate multiple	Draw evidence from
			sources of information presented in	informational texts to support analysis, reflection, and
			diverse formatsto solve a problem.  Standard CC.3.5.11-12. H	research.
			Evaluate the hypotheses, data,	research.
			analysis, and conclusions in a	RANGE OF WRITING
			technical text, verifying the data	GRADES 9-10-11-12
			when possible.	Standard CC.3.5.9-10.I &
			Standard CC.3.5.11-12. I	Standard CC.3.5.11-12.I.
			Synthesize information from a range	Write routinely over
			of sources into a coherent	extended time frames and
			understanding.	shorter time frames for a
				range of tasks, purposes and
			RANGE OF READING	audiencesetc.
			GRADES 9-10-11-12	
			Standard CC.3.5.9-10.J	
L			Standard CC.3.5.11-12.J	

			By the end of grades 9-10, AND 11-		
			12, read and comprehend technical		
			texts independently and proficiently.		
600	NETWORK MEDIA AND TOPOLOGIES.				
601	Categorize standard cable types and their properties including: UTP, STP, coaxial, fiber; plenum vs. non-plenum properties: transmission speeds, distance, duplex, noise immunity, frequency.  Identify common connector types, including UTP,	CAREER CLUSTER 1: Arts, AV Technology and Communications Career Cluster (Choose Standards) 1-2-3-4-5-6	KEY IDEAS/DETAILS GRADES 9-10-11-12 Standard CC.3.5.9-10. A Standard CC.3.5.11-12 A Cite specific textual evidence, etc. Standard CC.3.5.9-10 B	TEXT TYPES AND PURPOSE GRADES 9-10-11-12 Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on	NUMBERS AND OPERATIONS Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to
	STP, coaxial, and fiber.	PATHWAYS	Standard CC.3.5.11-12. B	discipline specific content.	solve real world or mathematical problems.
603	Identify common physical network topologies.	INCLUDE: A. Telecommunications	Determine the central ideas or conclusions of a text; etc.	Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B	Standard 2.1.HS.F.4
604	Differentiate and fabricate cables according to TIA/EIA 568A and 568B standards, including patch, crossover, and rollover cables.	Career Pathway (Choose Standards) 1-2-3	Standard CC.3.5.9-10.C Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.	Write informative or explanatory texts, including the narration of technical processes, etc.	Use units as a way to understand problems and to guide the solution of multistep problems.
605	Categorize common WAN technology types and properties.	CAREER CLUSTER 2: Information Technology	CRAFT & STRUCTURE	PRODUCTION &	Standard 2.1.HS.F.5
606 607 608	Categorize common LAN technology types and ethernet properties: CSMA/CD, broadcast, collision, bonding, speed, distance.  Explain common logical network topologies and their characteristics, including peer to peer and client/server.  Install components of wiring distribution, including vertical and horizontal cross connects, verify	(Choose Standards) 1-2-3-4-5-6-7-8-9-10 PATHWAYS INCLUDE: Information Support and Services Career Pathway (Choose Standards) 1-2-3-4-5-6-7-8-9-10 Network Systems Career Pathway	GRADES 9-10-11-12 Standard CC.3.5.9-10. D Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words. Standard CC.3.5.9-10.E Standard CC.3.5.11-12.E Analyze the structure of the	DISTRIBUTION OF WRITING GRADES 9-10-11-12 Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writingappropriate to task, purpose, and audience. Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.  Standard 2.1.HS.F.6  Extend the knowledge of arithmetic operations and apply to complex numbers.
	installation and termination.	(Choose Standards) 1-2-3-4-5 Programming and Software Development Career Pathway (Choose Standards) 1-2-3-4-5-6-7-8-9-10  Web and Digital Communications Career Pathway (Choose Standards) 1-2-3-4-5-6-7-8-9-10  NOTE:	relationships among concepts in a text, etc.  Standard CC.3.5.9-10.F  Standard CC.3.5.11-12.F  Analyze the author's purpose in providing an explanation, describing a procedureand  Analyze the structure of the relationships among concepts in a text.  INTEGRATE KNOWLEDGE & IDEAS  GRADES 9-10  Standard CC.3.5.9-10.G	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.  Standard CC.3.6.9-10.E  Standard CC.3.6.11-12.E.  Use technology, including the internet, to produce, publish, and update individual or shared writing products.	

Translate quantitative or technical	RESEARCH
	GRADES 9-10-11-12
visual form (e.g. a table or chart).	Standard CC.3.6.9-10.F
Standard CC.3.5.9-10. H	Standard CC.3.6.11-12.F
Assess the reasoning in a text to	Conduct short and more
_	sustained research to
	answer a question or solve
Standard CC 3 5 9-10 I	a problem.
	Standard CC.3.6.9-10.G.
1	Standard CC.3.6.11-12.G
	Gather relevant information
other sources, etc.	from multiple authoritative
	print and digital sources,
INTEGRATE KNOWLEDGE &	following a standard format
IDEAS	for citation.
GRADES 11-12	Standard CC.3.6.9-10.H.
Standard CC.3.5.11-12. G	Standard CC.3.6.11-12.H.
Integrate and evaluate multiple	Draw evidence from
sources of information presented in	informational texts to support
diverse formatsto solve a problem.	analysis, reflection, and
Standard CC.3.5.11-12. H	research.
Evaluate the hypotheses, data,	
analysis, and conclusions in a	RANGE OF WRITING
technical text, verifying the data	GRADES 9-10-11-12
when possible.	Standard CC.3.5.9-10.1 &
Standard CC.3.5.11-12. I	Standard CC.3.5.11-12.I.
Synthesize information from a range	Write routinely over
of sources into a coherent	extended time frames and
understanding.	shorter time frames for a
	range of tasks, purposes and
RANGE OF READING	audiencesetc.
GRADES 9-10-11-12	
Standard CC.3.5.9-10.J	
Standard CC.3.5.11-12.J	
By the end of grades 9-10, AND 11-	
12, read and comprehend technical	
texts independently and proficiently.	1
	IDEAS GRADES 11-12 Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formatsto solve a problem. Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible. Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.  RANGE OF READING GRADES 9-10-11-12 Standard CC.3.5.9-10.J Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11- 12, read and comprehend technical

700	NETWORK DEVICES.				
701 702	Install, configure and differentiate between common network connectivity devices.  Identify the functions of specialized network devices such as, multilayer switch, content switch, IDS/IPS,	CAREER CLUSTER 1: Arts, AV Technology and Communications Career Cluster (Choose Standards) 1-2-3-4-5-6	KEY IDEAS/DETAILS GRADES 9-10-11-12 Standard CC.3.5.9-10. A Standard CC.3.5.11-12 A Cite specific textual evidence, etc. Standard CC.3.5.9-10 B Standard CC.3.5.11-12. B	TEXT TYPES AND PURPOSE GRADES 9-10-11-12 Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.	NUMBERS AND OPERATIONS Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to

load balancer, multifunction network devices, DNS server, bandwidth shaper, proxy server, CSU/DSU.

703 Explain the advanced features of a switch such as, PoE, spanning tree, VLAN, trunking, port mirroring, port authentication, etc.

704 Install a basic wireless network, including client configuration, access point placement and Installation.

705 Configure appropriate encryption, configure channels and frequencies, set ESSID and beacon, verify installation.

PATHWAYS INCLUDE: A. Telecommunications Career Pathway (Choose Standards) 1-2-3

**CAREER CLUSTER 2: Information Technology** (Choose Standards) 1-2-3-4-5-6-7-8-9-10 **PATHWAYS INCLUDE: Information Support and Services Career Pathway** (Choose Standards) 1-2-3-4-5-6-7-8-9-10 **Network Systems Career** Pathway (Choose Standards) 1-2-3-4-5 Programming and **Software Development** 

Web and Digital Communications Career Pathway

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

Career Pathway

(Choose Standards)

1-2-3-4-5-6-7-8-9-10

NOTE:

Refer to the Common Career Technical Core Standards Booklet if you wish to add more Pathways, for your local area. Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C

Standard CC.3.5.11-12.C

Follow precisely a complex multistep procedure, etc.

CRAFT & STRUCTURE GRADES 9-10-11-12 Standard CC.3.5.9-10. D Standard CC.3.5.11-12.D

Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E Standard CC.3.5.11-12.E Analyze the structure of the

Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...and
Analyze the structure of the relationships among concepts in a text.

INTEGRATE KNOWLEDGE & IDEAS GRADES 9-10 Standard CC.3.5.9-10.G

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

Standard CC.3.5.9-10. H

Assess the reasoning in a text to support the author's claim for solving a technical problem.

Standard CC.3.5.9-10. I

Compare and contrast findings presented in a text to those from other sources, etc.

Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.

PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12 Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience. Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Standard CC.3.6.11-12.E.

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

RESEARCH GRADES 9-10-11-12 Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources. solve real world or mathematical problems.

Standard 2.1.HS.F.4

Use units as a way to understand problems and to guide the solution of multistep problems.

Standard 2.1.HS.F.5

Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Standard 2.1.HS.F.6

Extend the knowledge of arithmetic operations and apply to complex numbers.

			INTEGRATE KNOWLEDGE &	following a standard format	
			IDEAS	for citation.	
			GRADES 11-12	Standard CC.3.6.9-10.H.	
			Standard CC.3.5.11-12. G	Standard CC.3.6.11-12.H.	
			Integrate and evaluate multiple	Draw evidence from	
			sources of information presented in	informational texts to support	
			diverse formatsto solve a problem.	analysis, reflection, and	
			Standard CC.3.5.11-12. H	research.	
			Evaluate the hypotheses, data,		
			analysis, and conclusions in a	RANGE OF WRITING	
			technical text, verifying the data	GRADES 9-10-11-12	
			when possible.	Standard CC.3.5.9-10.I &	
			Standard CC.3.5.11-12. I	Standard CC.3.5.11-12.I.	
			Synthesize information from a range	Write routinely over	
			of sources into a coherent	extended time frames and	
			understanding.	shorter time frames for a	
			andorsanding.		
			RANGE OF READING	range of tasks, purposes and	
			GRADES 9-10-11-12	audiencesetc.	
			Standard CC.3.5.9-10.J		
			Standard CC.3.5.11-12.J		
			By the end of grades 9-10, AND 11-		
			12, read and comprehend technical		
			texts independently and proficiently.		
800	NETWORK MANAGEMENT.		texts independently and proficiently.		
300					
801	Explain, compare, and contrast the layers of the	CAREER CLUSTER 1:	KEY IDEAS/DETAILS	TEXT TYPES AND	NUMBERS AND
	TCP/IP and OSI models.	Arts, AV Technology and	GRADES 9-10-11-12	PURPOSE	OPERATIONS
802	Prepare physical and logical network diagrams,	Communications Career	Standard CC.3.5.9-10. A	GRADES 9-10-11-12	Standard 2.1.HS.F.2
	baselines, policies, procedures, and configurations and	Cluster	Standard CC.3.5.11-12 A	Standard CC.3.6.9-10.A	Apply properties of rational
	regulations.	(Choose Standards)	Cite specific textual evidence, etc.	Standard CC.3.6.11-12.A	and irrational numbers to
803	Evaluate the network based on configuration	1-2-3-4-5-6	Standard CC.3.5.9-10 B	Write arguments focused on	
555	management documentation; such as: wiring	PATHWAYS	Standard CC.3.5.11-12. B	discipline specific content.	solve real world or
	schematics; physical and logical network diagrams;	INCLUDE:	Determine the central ideas or	Standard CC.3.6.9-10.B	mathematical problems.
	baselines; policies, procedures, and configurations to	A. Telecommunications	conclusions of a text; etc.	Standard CC.3.6.11-12.B	Standard 2.1.HS.F.4
		Career Pathway	Standard CC.3.5.9-10.C	Write informative or	Use units as a way to
	network devices and infrastructure; wiring schematics;	(Choose Standards)	Standard CC.3.5.11-12.C	explanatory texts, including	understand problems and to
	physical and logical network diagrams; and,	1-2-3	Follow precisely a complex multistep	the narration of technical	guide the solution of
1	configurations and job logs as needed.		procedure, etc.	processes, etc.	multistep problems.
804	Conduct network monitoring to identify performance	<b>CAREER CLUSTER 2:</b>			Standard 2.1.HS.F.5
	and connectivity issues such as, packet sniffers,	Information Technology	CRAFT & STRUCTURE	PRODUCTION &	Choose a level of accuracy
	connectivity software, load testing, throughput testers,	(Choose Standards)	GRADES 9-10-11-12	DISTRIBUTION OF	-
	system logs, history logs, event logs.	1-2-3-4-5-6-7-8-9-10		WRITING	appropriate to limitations on
805	Perform network optimization.	PATHWAYS	Standard CC.3.5.9-10. D	GRADES 9-10-11-12	measurement when
	1	INCLUDE:	Standard CC.3.5.11-12.D	Standard CC.3.6.9-10.C	reporting quantities.
		Information Support and		Standard CC.3.6.11-12 C	Standard 2.1.HS.F.6
		Services Career Pathway			
		· ·		I	
		(Choose Standards)			

1-2-3-4-5-6-7-8-9-10 Determine the meaning of symbols, Produce clear and coherent Extend the knowledge of **Network Systems Career** key terms, and other domain specific writing...appropriate to task, arithmetic operations and Pathway words. purpose, and audience. apply to complex numbers. **Standard CC.3.6.9-10 D** (Choose Standards) Standard CC.3.5.9-10.E 1-2-3-4-5 Standard CC.3.6.11-12.D Standard CC.3.5.11-12.E Programming and Develop and strengthen Analyze the structure of the **Software Development** writing as needed by relationships among concepts in a **Career Pathway** planning, revising, editing, text, etc. rewriting, or trying a new (Choose Standards) **Standard CC.3.5.9-10.F** 1-2-3-4-5-6-7-8-9-10 approach, focusing on Standard CC.3.5.11-12.F addressing what is most Analyze the author's purpose in significant for a specific providing an explanation, describing Web and Digital purpose and audience. a procedure...and Standard CC.3.6.9-10.E **Communications Career** Analyze the structure of the Standard CC.3.6.11-12.E. **Pathway** relationships among concepts in a (Choose Standards) Use technology, including 1-2-3-4-5-6-7-8-9-10 the internet, to produce, publish, and update INTEGRATE KNOWLEDGE & NOTE: individual or shared writing **IDEAS** Refer to the Common products. **GRADES 9-10** Career Technical Core **Standard CC.3.5.9-10.G** Standards Booklet if you RESEARCH wish to add more Translate quantitative or technical Pathways, for your local information expressed in a text into GRADES 9-10-11-12 Standard CC.3.6.9-10.F area. visual form (e.g. a table or chart). Standard CC.3.6.11-12.F Standard CC.3.5.9-10. H Conduct short and more Assess the reasoning in a text to sustained research to support the author's claim for solving answer a question or solve a technical problem. a problem. Standard CC.3.5.9-10. I Standard CC.3.6.9-10.G. Compare and contrast findings Standard CC.3.6.11-12.G presented in a text to those from Gather relevant information other sources, etc. from multiple authoritative print and digital sources, following a standard format INTEGRATE KNOWLEDGE & for citation. **IDEAS** Standard CC.3.6.9-10.H. **GRADES 11-12** Standard CC.3.6.11-12.H. Standard CC.3.5.11-12. G Draw evidence from Integrate and evaluate multiple informational texts to support sources of information presented in analysis, reflection, and diverse formats...to solve a problem. research. Standard CC.3.5.11-12. H Evaluate the hypotheses, data, RANGE OF WRITING analysis, and conclusions in a **GRADES 9-10-11-12** technical text, verifying the data Standard CC.3.5.9-10.I & when possible.

900	NETWORK TOOLS AND TROUBLESHOOTING.		Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.  RANGE OF READING GRADES 9-10-11-12 Standard CC.3.5.9-10.J Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11-12, read and comprehend technical texts independently and proficiently.	Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.	
901 902 903 904 905 906 907	Select the appropriate command line/graphical tools and interpret the output to verify functionality such as, Traceroute, Ipconfig, Ifconfig, Ping, Arp ping, Arp, Nslookup, Hostname, Dig, Mtr, Route, Nbtstat, Netstat.  Use network scanners such as, packet sniffers, intrusion detection software, Intrusion prevention software, port scanners.  Select the appropriate hardware tools such as, cable testers, protocol analyzer, certifiers, TDR, OTDR, multimeter, toner probe, butt set, punch down tool, cable stripper, snips, voltage event recorder, temperature monitor.  Implement network troubleshooting methodologies, including Information gathering – identify symptoms and problems, Identify the affected areas of the network.  Describe and create an action plan and solution identifying potential effects, implement and test the solution, identify the results and effects of the solution, document the solution and the entire process. Troubleshoot common wired and wireless connectivity issues and select an appropriate solution to include physical and logical issues.  Troubleshoot and resolve common WAN issues such as: loss of connectivity, DNS, Router configurations, and default gateways	CAREER CLUSTER 1: Arts, AV Technology and Communications Career Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAYS INCLUDE: A. Telecommunications Career Pathway (Choose Standards) 1-2-3  CAREER CLUSTER 2: Information Technology (Choose Standards) 1-2-3-4-5-6-7-8-9-10 PATHWAYS INCLUDE: Information Support and Services Career Pathway (Choose Standards) 1-2-3-4-5-6-7-8-9-10 Network Systems Career Pathway (Choose Standards) 1-2-3-4-5 Programming and Software Development Career Pathway (Choose Standards) 1-2-3-4-5	KEY IDEAS/DETAILS GRADES 9-10-11-12 Standard CC.3.5.9-10. A Standard CC.3.5.9-10. A Cite specific textual evidence, etc. Standard CC.3.5.9-10 B Standard CC.3.5.11-12. B Determine the central ideas or conclusions of a text; etc. Standard CC.3.5.9-10.C Standard CC.3.5.9-10.C Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.  CRAFT & STRUCTURE GRADES 9-10-11-12 Standard CC.3.5.9-10. D Standard CC.3.5.9-10. D Standard CC.3.5.11-12.D Determine the meaning of symbols, key terms, and other domain specific words.  Standard CC.3.5.9-10.E Standard CC.3.5.11-12.E Analyze the structure of the relationships among concepts in a text, etc. Standard CC.3.5.9-10.F Standard CC.3.5.11-12.F Analyze the author's purpose in providing an explanation, describing a procedureand	TEXT TYPES AND PURPOSE GRADES 9-10-11-12 Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.  PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12 Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writingappropriate to task, purpose, and audience. Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most	NUMBERS AND OPERATIONS Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems. Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems. Standard 2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. Standard 2.1.HS.F.6 Extend the knowledge of arithmetic operations and apply to complex numbers.

- 1001 Configure hardware and software security devices such as, network-based fire wall, host-based fire wall, DMZ, IDS, IPS, VPN concentrator.
- 1002 Implement features of a network fire wall such as, application layer vs. network layer, stateful vs. stateless, scanning services, content filtering, signature identification, zones.
- 1003 Configure network access security such as, ACL: MAC filtering, IP filtering tunneling and encryption: SSL VPN, VPN, L2TP, PPTP and related others.
- 1004 Differentiate the principals of user authentication such as, PKI, Kerberos, AAA: RADIUS, TACACS+, network access control: 802.1x, CHAP, MS-CHAP, EAP.
- 1005 Evaluate issues that affect device security such as, physical security and network access.
- 1006 Identify and mitigate common security threats.
- 1007 Demonstrate security features including BIOS security, password management, locking workstations, and biometrics.
- 1008 Demonstrate basic forensic concepts such as: incident response, chain of custody, evidence preservation, and documentation.

#### CAREER CLUSTER 1: Arts, AV Technology and Communications Career Cluster

(Choose Standards) 1-2-3-4-5-6

## PATHWAYS INCLUDE:

A. Telecommunications
Career Pathway
(Choose Standards)

(Choose Standards) 1-2-3

## **CAREER CLUSTER 2:** Information Technology

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

## PATHWAYS INCLUDE:

Information Support and Services Career Pathway

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

#### Network Systems Career Pathway

(Choose Standards) 1-2-3-4-5

#### Programming and Software Development Career Pathway

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

#### Web and Digital Communications Career Pathway

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

#### NOTE:

Refer to the Common Career Technical Core Standards Booklet if you wish to add more Pathways, for your local area.

#### KEY IDEAS/DETAILS GRADES 9-10-11-12

Standard CC.3.5.9-10. A Standard CC.3.5.11-12 A

Cite specific textual evidence, etc.

#### Standard CC.3.5.9-10 B Standard CC.3.5.11-12. B

Determine the central ideas or conclusions of a text; etc.

Standard CC.3.5.9-10.C Standard CC.3.5.11-12.C

Follow precisely a complex multistep procedure, etc.

#### CRAFT & STRUCTURE GRADES 9-10-11-12

Standard CC.3.5.9-10. D Standard CC.3.5.11-12.D

Determine the meaning of symbols, key terms, and other domain specific words.

#### Standard CC.3.5.9-10.E Standard CC.3.5.11-12.E

Analyze the structure of the relationships among concepts in a text, etc.

#### Standard CC.3.5.9-10.F Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...and
Analyze the structure of the relationships among concepts in a text

## INTEGRATE KNOWLEDGE & IDEAS

**GRADES 9-10** 

#### **Standard CC.3.5.9-10.G**

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

#### Standard CC.3.5.9-10. H

#### TEXT TYPES AND PURPOSE GRADES 9-10-11-12 Standard CC.3.6.9-10.A

Standard CC.3.6.11-12.A Write arguments focused on discipline specific content.

#### Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B

Write informative or explanatory texts, including the narration of technical processes, etc.

# PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12

Standard CC.3.6.9-10.C Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task,

purpose, and audience. Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D

# Develop and strengthen writing as needed by planning, revising, editing,

rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

#### Standard CC.3.6.9-10.E Standard CC.3.6.11-12.E.

Use technology, including the internet, to produce, publish, and update individual or shared writing products.

#### RESEARCH GRADES 9-10-11-12 Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F

## NUMBERS AND OPERATIONS

#### Standard 2.1.HS.F.2

Apply properties of rational and irrational numbers to solve real world or mathematical problems.

#### Standard 2.1.HS.F.4

Use units as a way to understand problems and to guide the solution of multistep problems.

#### Standard 2.1.HS.F.5

Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

#### Standard 2.1.HS.F.6

Extend the knowledge of arithmetic operations and apply to complex numbers.

			Assess the reasoning in a text to support the author's claim for solving a technical problem.  Standard CC.3.5.9-10. I  Compare and contrast findings presented in a text to those from other sources, etc.  INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12	Conduct short and more sustained research to answer a question or solve a problem. Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation. Standard CC.3.6.9-10.H.	
			Standard CC.3.5.11-12. G Integrate and evaluate multiple sources of information presented in diverse formatsto solve a problem. Standard CC.3.5.11-12. H Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible. Standard CC.3.5.11-12. I Synthesize information from a range of sources into a coherent understanding.  RANGE OF READING GRADES 9-10-11-12 Standard CC.3.5.9-10.J Standard CC.3.5.11-12.J By the end of grades 9-10, AND 11-12, read and comprehend technical	Standard CC.3.6.11-12.H. Draw evidence from informational texts to support analysis, reflection, and research.  RANGE OF WRITING GRADES 9-10-11-12 Standard CC.3.5.9-10.I & Standard CC.3.5.11-12.I. Write routinely over extended time frames and shorter time frames for a range of tasks, purposes and audiencesetc.	
1100	COMMUNICATION AND PROFESSIONALISM.		texts independently and proficiently.		
1101 1102 1103	Demonstrate the use of effective communication with customers such as: proper etiquette, active listening, cultural sensitivity.  Demonstrate techniques to solve customer problems. Implement and adhere to acceptable use policies.  Demonstrate how to maintain customer confidentiality.	CAREER CLUSTER 1: Arts, AV Technology and Communications Career Cluster (Choose Standards) 1-2-3-4-5-6 PATHWAYS INCLUDE: A. Telecommunications Career Pathway (Choose Standards) 1-2-3	KEY IDEAS/DETAILS GRADES 9-10-11-12 Standard CC.3.5.9-10. A Standard CC.3.5.11-12 A Cite specific textual evidence, etc. Standard CC.3.5.9-10 B Standard CC.3.5.11-12. B Determine the central ideas or conclusions of a text; etc. Standard CC.3.5.9-10.C Standard CC.3.5.11-12.C Follow precisely a complex multistep procedure, etc.	TEXT TYPES AND PURPOSE GRADES 9-10-11-12 Standard CC.3.6.9-10.A Standard CC.3.6.11-12.A Write arguments focused on discipline specific content. Standard CC.3.6.9-10.B Standard CC.3.6.11-12.B Write informative or explanatory texts, including the narration of technical processes, etc.	NUMBERS AND OPERATIONS Standard 2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real world or mathematical problems. Standard 2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multistep problems.

CAREER CLUSTER 2: Information Technology

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

PATHWAYS INCLUDE:

Information Support and Services Career Pathway

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

Network Systems Career Pathway

(Choose Standards) 1-2-3-4-5

Programming and Software Development Career Pathway

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

Web and Digital Communications Career Pathway

(Choose Standards) 1-2-3-4-5-6-7-8-9-10

#### NOTE:

Refer to the Common Career Technical Core Standards Booklet if you wish to add more Pathways, for your local area. CRAFT & STRUCTURE GRADES 9-10-11-12 Standard CC.3.5.9-10. D

Standard CC.3.5.11-12.D

Determine the meaning of symbols, key terms, and other domain specific words.

Standard CC.3.5.9-10.E Standard CC.3.5.11-12.E

Analyze the structure of the relationships among concepts in a text, etc.

Standard CC.3.5.9-10.F Standard CC.3.5.11-12.F

Analyze the author's purpose in providing an explanation, describing a procedure...and
Analyze the structure of the relationships among concepts in a

## INTEGRATE KNOWLEDGE & IDEAS

GRADES 9-10

Standard CC.3.5.9-10.G

Translate quantitative or technical information expressed in a text into visual form (e.g. a table or chart).

#### Standard CC.3.5.9-10. H

Assess the reasoning in a text to support the author's claim for solving a technical problem.

#### Standard CC.3.5.9-10. I

Compare and contrast findings presented in a text to those from other sources, etc.

INTEGRATE KNOWLEDGE & IDEAS GRADES 11-12 Standard CC.3.5.11-12. G

#### PRODUCTION & DISTRIBUTION OF WRITING GRADES 9-10-11-12

**Standard CC.3.6.9-10.C** 

Standard CC.3.6.11-12 C Produce clear and coherent writing...appropriate to task, purpose, and audience.

Standard CC.3.6.9-10 D Standard CC.3.6.11-12.D

Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

Standard CC.3.6.9-10.E

Standard CC.3.6.11-12.E. Use technology, including the internet, to produce, publish, and update individual or shared writing

RESEARCH GRADES 9-10-11-12 Standard CC.3.6.9-10.F Standard CC.3.6.11-12.F Conduct short and more

products.

Conduct short and more sustained research to answer a question or solve a problem.

Standard CC.3.6.9-10.G. Standard CC.3.6.11-12.G

Gather relevant information from multiple authoritative print and digital sources, following a standard format for citation.

Standard CC.3.6.9-10.H. Standard CC.3.6.11-12.H.

#### Standard 2.1.HS.F.5

Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

#### Standard 2.1.HS.F.6

Extend the knowledge of arithmetic operations and apply to complex numbers.

Integrate and evaluate multiple Draw evidence from
sources of information presented in informational texts to support
diverse formatsto solve a problem. analysis, reflection, and
Standard CC.3.5.11-12. H research.
Evaluate the hypotheses, data,
analysis, and conclusions in a RANGE OF WRITING
technical text, verifying the data GRADES 9-10-11-12
when possible. Standard CC.3.5.9-10.1 &
Standard CC.3.5.11-12. I Standard CC.3.5.11-12.I.
Synthesize information from a range Write routinely over
of sources into a coherent extended time frames and
understanding. shorter time frames for a
range of tasks, purposes and
RANGE OF READING audiencesetc.
GRADES 9-10-11-12
Standard CC.3.5.9-10.J
Standard CC.3.5.11-12.J
By the end of grades 9-10, AND 11-
12, read and comprehend technical
texts independently and proficiently.