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

Secondary Competency Task Grid with Unit and Task Numbers	Common Career Technical Core Standards	Pennsylvania Core Standards for Reading for Technical Subjects Standard 3.5	Pennsylvania Core Standards for Writing for Technical Subjects Standard 3.6	Pennsylvania Core Standards for Mathematics Standard 2.1
100 PERSONAL AND ENVIRONMENTAL SAFETY.				
101 List common causes of accidents and injuries in a computer facility. 102 Wear personal protective equipment. 103 List and identify safety hazard symbols. 104 Review Safety Data Sheets (SDS) and explain their requirements in handling hazardous materials. 105 Describe types of fire extinguishers and explain which types to use for extinguishing various fires. 106 Use safe procedures to follow when lifting and carrying heavy objects. 107 Describe the importance of safety as it relates to environmental issues. 108 Identify potential hazards when working with power supplies. 109 Identify proper disposal procedures for batteries and display devices. 110 Identify proper disposal procedures for chemical solvents and pressurized cans. 111 Prevent Electro Static Discharge conditions. 112 Describe the meaning and importance of the Energy Star Rating System. 113 Configure a computer's power management settings to maximize energy efficiency.	**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	**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.		

114	Maintain safe work area to avoid common accidents and injuries.	**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.	**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** 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.**				
201 202 203 204 205 206 207 208 209 210 211 212 213 214 215	Categorize storage devices and backup media. Categorize the different types of computer cases. Explain motherboard components, types and features. Categorize power supplies types and characteristics. Explain the purpose and characteristics of CPUs and their features. Explain cooling methods and devices. Compare and contrast memory types, characteristics, and their purpose. Distinguish between the different display devices and their characteristics. Summarize the function and types of adapter cards. Install and configure peripherals and input devices. Configure and optimize portable devices such as: laptops, tablets, and smart devices. Install and configure printers. Install configure and maintain personal computer components. Detect problems, troubleshoot, and repair/replace desk top and laptop computer components. Diagnose and repair common printer issues.	**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) 1-2-3-4-5-6-7-8-9-10 **Web and Digital Communications Career Pathway** (Choose Standards) 1-2-3-4-5-6-7-8-9-10	**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**		**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.

	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 formats...to 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.**				
301 302 303	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** (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.		**NUMBERS AND OPERATIONS** **Standard 2.1.HS.F.2**

304 Identify common laptop issues and determine the appropriate basic troubleshooting method. 305 Integrate common preventative maintenance techniques. 306 RESERVED	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) 1-2-3-4-5-6-7-8-9-10 **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.	**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** Assess the reasoning in a text to support the author's claim for solving a technical problem. **Standard CC.3.5.9-10. I**		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.

		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** 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.		

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 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.3.6.11-12.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 audiences...etc.	

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 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	**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**	**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,	**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.
502	Identify commonly used TCP and UDP default ports, including TCP ports: FTP – 20, 21, SSH – 22, TELNET – 23, HTTP – 80, etc.				
503	Identify the following address formats, including IPv6, IPv4, MAC addressing.				
504	Evaluate the proper use of addressing technologies and addressing schemes, including: subnetting: classful vs. classless, NAT, PAT, SNAT, public vs. private, DHCP, addressing schemes: unicast, multicast, broadcast, etc.				
505	Identify common IPv4 and IPv6 routing protocols, including link state, distance vector, and hybrid protocols.				
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 selection, explain convergence (steady state).				
507	Identify the characteristics of wireless communication standards, including 802.11 standards: speeds, distance, channels, frequency, authentication, and encryption.				
508	Identify the basic elements of unified communication technology such as: VoIP, Video, Real Time Services, POS and UC devices				

509	Implement technologies that support cloud and virtualization such as: virtual hardware, SANs, IaaS, SaaS, and PaaS.	**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.	**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** 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**	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, 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 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 audiences...etc.	

		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.	**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) 1-2-3-4-5-6-7-8-9-10 **Web and Digital Communications Career Pathway** (Choose Standards) 1-2-3-4-5-6-7-8-9-10 **NOTE:**	**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**	**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.	**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.
602	Identify common connector types, including UTP, STP, coaxial, and fiber.				
603	Identify common physical network topologies.				
604	Differentiate and fabricate cables according to TIA/EIA 568A and 568B standards, including patch, crossover, and rollover cables.				
605	Categorize common WAN technology types and properties.				
606	Categorize common LAN technology types and ethernet properties: CSMA/CD, broadcast, collision, bonding, speed, distance.				
607	Explain common logical network topologies and their characteristics, including peer to peer and client/server.				
608	Install components of wiring distribution, including vertical and horizontal cross connects, verify installation and termination.				

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

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 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.	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** 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 & 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** 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.	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 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 audiences...etc.	
800	**NETWORK MANAGEMENT.**				
801 802 803 804 805	Explain, compare, and contrast the layers of the TCP/IP and OSI models. Prepare physical and logical network diagrams, baselines, policies, procedures, and configurations and regulations. Evaluate the network based on configuration management documentation; such as: wiring schematics; physical and logical network diagrams; baselines; policies, procedures, and configurations to network devices and infrastructure; wiring schematics; physical and logical network diagrams; and, configurations and job logs as needed. Conduct network monitoring to identify performance and connectivity issues such as, packet sniffers, connectivity software, load testing, throughput testers, system logs, history logs, event logs. Perform network optimization.	**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)	**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**	**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**	**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**

	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.	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** Evaluate the hypotheses, data, analysis, and conclusions in a technical text, verifying the data when possible.	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, 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 analysis, reflection, and research. **RANGE OF WRITING** **GRADES 9-10-11-12** **Standard CC.3.5.9-10.I &**	Extend the knowledge of arithmetic operations and apply to complex numbers.

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900	**NETWORK TOOLS AND TROUBLESHOOTING.**				
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) 1-2-3-4-5-6-7-8-9-10	**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	**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	**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.

	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.	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** 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.	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, 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 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 audiences...etc.	
1000 SECURITY FUNDAMENTALS.				

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) 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.

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1100 COMMUNICATION AND PROFESSIONALISM.					
1101 Demonstrate the use of effective communication with customers such as: proper etiquette, active listening, cultural sensitivity. 1102 Demonstrate techniques to solve customer problems. 1103 Implement and adhere to acceptable use policies. 1104 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 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**	**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, 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 sources of information presented in diverse formats...to 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.	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 audiences...etc.	