

UR East Overview of Year
Grade 10-11 Curriculum: Computer Hardware & System Support



SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE
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Unit 1	Unit 2	Unit 3	Unit 4
PC System Essentials/Construction	System Software & Protection	System Peripherals & Storage	Network Fundamentals

Unit 1- PC Essentials & Construction	Understanding	Essential Question
<p>CDOS Standards (Career Development and Occupational Studies): 1, 2, 3a, and 3b</p> <p>CCTC Standards (Common Career Technical Core)* Information Technology Career Cluster® IT-SUP 3.1: 3.2: 3.3</p> <p>CCR- ELA <i>Text Types and Purposes 2, 3</i> <i>Writing 4, 5, 6</i> <i>Research 7, 8</i> * National Association of State Directors of Career Technical Education Consortium (NASDCTEC)</p>	<p>Enduring Understandings <i>Scholars will understand that...</i></p> <p>U1 Computers are a system of interconnected parts that work in conjunction with software as a tool for human productivity.</p> <p>U2 Computers were invented for the purpose of processing data for human use; this data in the form of text, audio, pictures and video. This data is transferred through electricity in the form of binary code.</p> <p>U3 Computers use electricity in a variety of forms; safety protocols must be followed to avoid damaging the parts and causing harm to the user.</p> <p>U4 The many interacting parts of a computer system and what possible issues that can cause failure in a computer system.</p> <p>U5 The importance of being critical and following procedures, processes and industry experts when trouble shooting computer systems.</p>	<p>Essential Questions <i>Scholars will consider such questions as...</i></p> <ul style="list-style-type: none"> • (Hook) What do we know and why do we need to know it? • How did/do computers collect and process data in all its forms? • How does electricity play a part in computer system? • How do the parts of a computer system work together to allow me to do work? • What is the process I should be using when a computer system is not working the way it should?
<p>Performance Task: <i>Scholars will construct a desktop PC per a list of client specs, then load and test the Operating System to the point where application software can then be added.</i></p>		
<p>Common Formative Assessments: <i>Career Pathways programs will monitor universal employability skills for each student. These will be formally assessed with an Employability Profile.</i></p>		

Unit 2- System Software & Protection	Understanding	Essential Question
<p>CDOS Standards (Career Development and Occupational Studies): 1, 2, 3a, and 3b</p> <p>CCTC Standards (Common Career Technical Core)* Information Technology Career Cluster® (IT) SUP 2.1: 2.2: 4.1: 4.2</p> <p>CCR- ELA <i>Text Types and Purposes 2, 3</i> <i>Writing 4, 5, 6</i> <i>Research 7, 8</i></p> <p>* National Association of State Directors of Career Technical Education Consortium (NASDCTEc)</p>	<p>Enduring Understandings <i>Scholars will understand that...</i></p> <p>U1 Software is a set of instructions or code used to direct the basic operation of the computer (BIOS), operate and coordinate all of the various components of the computer system (OS) or perform a specific task for the user (Apps)</p> <p>U2 That there is a process that occurs when a computer is turned on that involves all of the software installed on that computer. Any breakdown in communication between any or all of the software can cause a host of problems for the user.</p> <p>U3 Manufacturers of OS software build in a series of tools for managing and monitoring the computer and its various systems.</p> <p>U4 Operating Software is the only software that allows users to troubleshoot, change, or make additions to an computer system; and manufacturers will often push through updates to fix larger problems experienced by many users</p> <p>U5. OS and Application software can be installed onto a variety of platforms; HDD, SSD, Flash, External, Cloud to the computer and be able to successfully install OS to a computer.</p> <p>U6. Computer software and hardware are linked so strongly together, that they are vulnerable to being accessed or harmed by software designed for just that purpose. Protecting a computer system is necessary and the user must be vigilant to avoid serious consequences to their personal data and to their computer system in general.</p>	<p>Essential Questions <i>Scholars will consider such questions as...</i></p> <ul style="list-style-type: none"> • (Hook) “What happens behind the scenes from when you turn on a computer to when you can input something? • Who are the major companies producing Operating System software and why do they keep running updates? • What is customization mean when it comes to setting up a computer system? • What are the ways a computer system is vulnerable to attack? Can you do anything to protect the system from these attacks?
<p>Performance Task: Scholars will take the PC that they have built in Unit One and continue working on it by: modifying the BIOS, loading Windows OS, Customizing the desktop with applications and installing the necessary protection software for the system.</p>		

Unit 3- System Peripherals, Storage, and Troubleshooting	Understanding	Essential Question
<p>CDOS Standards (Career Development and Occupational Studies): 1, 2, 3a, and 3b</p> <p>CCTC Standards (Common Career Technical Core)* Information Technology Career Cluster® (IT) SUP 1.1:1.2:1.3:9.1: IT 11.2 IT 7.1:</p> <p>CCR- ELA <i>Text Types and Purposes 2, 3</i> <i>Writing 4, 5, 6</i> <i>Research 7, 8</i></p> <p><small>* National Association of State Directors of Career Technical Education Consortium (NASDCTEc)</small></p>	<p>Enduring Understandings <i>Scholars will understand that...</i></p> <p>U1 A computers performance is directly related to its internal CPU, Memory and MOBO architecture.</p> <p>U2 Data is stored both permanently and temporarily in a computer system in a variety of forms.</p> <p>U2 Input and output devices are handled through the operating system's IRQ system. Adjustments to these devices are also done through the OS.</p> <p>U3 Output devices are also handled through the OS as are all adjustments. Printers are the only output device that also has its own software component for adjustments.</p> <p>U4 In order to maintain data integrity, proper system maintenance and backups must be performed regularly</p> <p>U5 There are many different careers available in computer service, repair and support</p> <p>U6 When working with clients they must apply effective listening and questioning skills while employing customer service principles and scientific methods to evaluate the problem and to provide follow-up on customer service provided.</p>	<p>Essential Questions <i>Scholars will consider such questions as...</i></p> <ul style="list-style-type: none"> • (Hook) Which is faster? A bike or a motorcycle, a golf cart or a car? • How do computer systems store all those zeros and ones and remember where they are? • What are some ways you can add to an existing computer system to make it more versatile? • Why do you set your phone to back up every night and how does that translate to someone who is in charge of a company's computers? • What would you do if?.....
<p>Performance Task: Scholars will research the most common customer issues in computer support and their solutions from which they will create a simple troubleshooting training manual with dialog and support solutions.</p>		
<p>Common Formative Assessments: <i>Career Pathways programs will monitor universal employability skills for each student. These will be formally assessed with an Employability Profile.</i></p>		

Unit 4- Network Fundamentals	Understanding	Essential Question
<p>CDOS Standards (Career Development and Occupational Studies): 1, 2, 3a, and 3b</p> <p>CCTC Standards (Common Career Technical Core)* Information Technology Career Cluster® (IT) IT-SUP 5.1: 5.2: 6.1: 9.1:</p> <p>CCR- ELA <i>Text Types and Purposes 2, 3</i> <i>Writing 4, 5, 6</i> <i>Research 7, 8</i></p> <p>* National Association of State Directors of Career Technical Education Consortium (NASDCTEC)</p>	<p>Enduring Understandings <i>Scholars will understand that...</i></p> <p>U1 Networks are made up of equipment and software that follow very specific protocols in order to share information.</p> <p>U2 All Networks have a client (human) component and server (computer) component; that serves as the foundation for all network communications.</p> <p>U3 Networks have classifications from large global types of networks to peer to peer networks and these classifications are named from the design of the network.</p> <p>U4 There are a variety of network media used to create networks, and how to choose the correct media for what every network is being created.</p> <p>U5 What cloud computing is and how it has changed the way humans store information, use software and communicate with other humans and what the new Internet of Things IoT mean for the future of humans and networking</p> <p>U6 Network security dominates the world stage as more and more personal data is being sent through networks around the world; and how companies and the IT industry are working to make sure data is secure.</p> <p>U7 What careers are available in the field of Networking.</p>	<p>Essential Questions <i>Scholars will consider such questions as...</i></p> <ul style="list-style-type: none"> • (Hook)“ What are some ways you share your thoughts, ideas, photos etc, with friends and family or at school? • What roles do computers play in the way we share information? • What technology do you need to be able to access and use a network? • Why would the IT industry choose the word “cloud” to describe the newest way we access data over a network? • What are some of the security issues you have heard about in the news when it comes to networks and peoples personal information? • IF you wanted to work with networks, what careers should you look at?
<p>Performance Task: Scholars will design a small LAN with their classmates, utilizing what they have learned about networking and network media. They will create from scratch the Ethernet cabling, connect their PC’s through a router/switch, then set up a series of shared folders and documents.</p>		
<p>Common Formative Assessments: <i>Career Pathways programs will monitor universal employability skills for each student. These will be formally assessed with an Employability Profile</i></p>		