UR East Overview of Year
Grade 9-10 Curriculum: Introduction to Information Technology

SEPT	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE
Unit 1 **What is IT – Digital Revolution**		**Unit 2** **Internet Fundamentals**		**Unit 3** **Fundamentals of Computer Hardware**		**Unit 4** **Fundamentals of Computer Software**		**Unit 5** **Impact of IT**	

Unit 1- What is IT – Digital Revolution	**Understanding**	**Essential Question**
CDOS Standards (Career Development and Occupational Studies): 1, 2, 3a, and 3b **CCTC Standards (Common Career Technical Core)*** Information Technology Career Cluster® (IT) 1, 4, 5, 6, 9 **CCR- ELA** *Text Types and Purposes* **2, 3** *Writing* **4, 5, 6** *Research* **7, 8** *** National Association of State Directors of Career Technical Education Consortium (NASDCTEc)**	**Enduring Understandings** *Scholars will understand that…* **U1** Information technology (IT) is the application of computers and telecommunications equipment to store, retrieve, transmit and manipulate data. **U2** Information or "data" underwent a revolution or change in the last century changing from analog to digital; which led to the evolution of new forms of data. **U3** Information Technology has allowed unprecedented access to all types of information over a variety of platforms. **U4** Information and the technologies used with it have become a driving force of change in all aspects of society. **U5** The importance of being critical consumers of information and the technologies used with it.	**Essential Questions** *Scholars will consider such questions as…* • (Hook) What do we know and why do we need to know it? • How **did/do** humans collect and share information? • What technologies drove this change in the way we get information? • What changes occurred in the way we access, use and send information because of this technology? • What is the impact of Information Technology on you and your world?
Performance Task: Digital Storytelling: The Digital Revolution –" **"** Known as the **Third Industrial Revolution**, it is the change from analog, mechanical, and electronic technology to digital technology which began anywhere from the late 1950s to the late 1970s with the computers, digital record keeping and networking to share information; that continues to grow exponentially even today. This term also used to describe the sweeping changes brought about by digital computing and communication technology during (and after) the latter half of the 20th century. However, this is a revolution few Scholars have heard about in or outside the classroom. The project will use the tools of Windows-Movie Maker and PowerPoint.		
Common Formative Assessments: *Career Pathways programs will monitor universal employability skills for each student. These will be formally assessed with an Employability Profile.*		

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Unit 2- Internet Fundamentals	Understanding	Essential Question
CDOS Standards (Career Development and Occupational Studies): 1, 2, 3a, and 3b **CCTC Standards (Common Career Technical Core)*** Information Technology Career Cluster® (IT) 1, 4, 5, 6, 9 **CCR- ELA** *Text Types and Purposes* **2, 3** *Writing* **4, 5, 6** *Research* **7, 8** *** National Association of State Directors of Career Technical Education Consortium (NASDCTEc)**	**Enduring Understandings** *Scholars will understand that…* **U1** Our world has changed dramatically as the Internet has become more available to the majority of the Earth's citizens. **U2** Internet has multiple layers of interconnectivity and complexity. **U3** The Internet/World Wide Web is a public domain and that any information uploaded through any platform is accessible by a variety of groups or individuals. **U4** Any original material uploaded to the Internet is owned by the person who created it. **U5** The importance of "net neutrality" to protects the rights of all citizens to have equal access to the net. **U6** Dangers lurk on the Internet that everyone needs to be aware of and understand how to protect themselves, their family, technologies and personal data.	**Essential Questions** *Scholars will consider such questions as…* • (Hook)"Magic or Minions" How does the Internet work? • What is the impact – positive and negative of the Internet on self and society? • Would you pay to be heard or seen on the Net? • What skills do I need to successfully and safely use the Internet and WWW?
Performance Task: Scholars will create an informational "Web"-opedia, Web Page on a current Internet issues such as cyber safety, net neutrality, the new Internet of Things, cyber security, etc.- these pages will be linked to the teachers school website and Scholars. Scholars will then create an assessment/feedback matrix by identifying as a group the criteria for comparison and why they are relevant to the performance task. This matrix will then be used by the students to assess their own work and at least the work of two other scholars.		
Common Formative Assessments: Formative Assessments: *Career Pathways programs will monitor universal employability skills for each student. These will be formally assessed with an Employability Profile.*		

Unit 3- Fundamentals of Computer Hardware	Understanding	Essential Question
CDOS Standards (Career Development and Occupational Studies): 1, 2, 3a, and 3b **CCTC Standards (Common Career Technical Core)*** Information Technology Career Cluster® (IT) 1, 4, 5, 6, 9,11 **CCR- ELA** *Text Types and Purposes* **2, 3** *Writing* **4, 5, 6** *Research* **7, 8** *** National Association of State Directors of Career Technical Education Consortium (NASDCTEc)**	**Enduring Understandings** *Scholars will understand that…* **U1** Computers systems have evolved rapidly- with the focus being on size, speed, and function **U2** Today's modern computer systems are the result several other important inventions and discoveries **U2** The electronic circuits involved in today's computers has evolved from the vacuum tube to the microprocessor **U3** All electric computers share four basic elements for input, processing, storage and output **U4** That the elements of IPSO determine the hardware necessary for each type of computer	**Essential Questions** *Scholars will consider such questions as…* • (Hook)"Man vs. Machine" Are computers smarter than humans? • What discoveries and inventions led to today's modern computers? • How do computers use electricity to process information? • Would you use a computer if it had no sound or picture? • What are the standard components or parts of a computer system?
Performance Task: Robots are excellent examples of the idea behind a computer system, as they have many components interacting in organized, methodical ways to achieve results as a whole that they could not have achieved separately. Scholars will utilize the LEGO Mindstorms NXT Robots to learn how to program basic robot behaviors using motors and rotation, sound, light, touch and ultrasonic sensors. They will learning basic robot building instructions, programming and movement then move on to working with sensors and more complex robot behaviors. Scholars will also develop and understanding of the relationships among technologies and the connections between technology as several different technologies (e.g. desktop computer, USB/Bluetooth, peripheral interface, mobile robotics, controller, electromechanical sensors, and actuators) are routinely used together in the operation of the NXT robot system, and all are necessary for it to work.		
Common Formative Assessments: *Career Pathways programs will monitor universal employability skills for each student. These will be formally assessed with an Employability Profile.*		

Unit 4- Fundamentals of Computer Software	Understanding	Essential Question
CDOS Standards (Career Development and Occupational Studies): 1, 2, 3a, and 3b **CCTC Standards (Common Career Technical Core)*** Information Technology Career Cluster® (IT) 1, 4, 5, 6, 9,11 **CCR- ELA** *Text Types and Purposes* **2, 3** *Writing* **4, 5, 6** *Research* **7, 8** *** National Association of State Directors of Career Technical Education Consortium (NASDCTEc)**	**Enduring Understandings** *Scholars will understand that…* **U1** Computers need software or instructions to function **U2** Software are programs stored in the memory of digital computers **U3** software is needed for input , processing , output, storage and information management activities **U4** Software is stored on several different platforms then accessed before it can be used **U5** Computer software focuses on software that computers use (operating software) and software that humans use (applications software) **U6** Software is heading toward conversational or natural programming languages making it easier for programmers and toward easy-to-use multipurpose applications which makes it easier for consumers	**Essential Questions** *Scholars will consider such questions as…* • (Hook)"Do as I Say not as I Do" How important is good software to computers? • What discoveries and inventions led to today's software? • How does software make humans more productive? • Would you use a computer if it didn't do what you asked it to? • What if anyone could design and program a computer?
Performance Task: Maze Mania – Scholars will create maze game using Game Maker 8 an object oriented programming language. Scholars will use what they have learned about the process of designing software as well as the content and rules of a video games for the pre-production stage and designing the gameplay, environment, storyline, and characters in the production stage. Scholars will use artistic and technical competence as well as writing skills to make the game fun and challenging for the novice as well as the expert.		
Common Formative Assessments: *Career Pathways programs will monitor universal employability skills for each student. These will be formally assessed with an Employability Profile*		

Unit 5- **Impact of IT**	**Understanding**	**Essential Question**
CDOS Standards (Career Development and Occupational Studies): 1, 2, 3a, and 3b **CCTC Standards (Common Career Technical Core)*** Information Technology Career Cluster® (IT) 1, 4, 5, 6, 9,11 **CCR- ELA** *Text Types and Purposes* **2, 3** *Writing* **4, 5, 6** *Research* **7, 8** *** National Association of State Directors of Career Technical Education Consortium (NASDCTEc)**	Enduring Understandings *Scholars will understand that…* **U1** What historical, current, and future trends are in the field of IT **U2** Identify issues in IT as they relate to race, ethical, social, psychological, political, and economic implications **U3** Develop critical thinking in the area of current Information Technology issues **U4** Identify issues of computer security and Information security **U5** There are several career pathways inside the field of Information Technology many combining other areas such as English, Math and Science	Essential Questions *Scholars will consider such questions as…* • What are 3 major impacts IT has had on the world? • What are some of the possible negative impacts of IT on security, safety and the environment? • How does/has IT affected race, ethical, social, psychological, political, and economic issues around the world? • What are the emerging fields in IT? • What careers are there in the future in the IT field?
Performance Task: IT – Topic Debate - Scholars will pair up to write a short but powerful persuasive paper on a contemporary, controversial IT subject. The research involved has authenticity, relevancy and a real purpose. They will use technology to facilitate every aspect of the project, from research to process writing, to publication. Scholar partners may choose from one of three platforms for the debate: **Technique #1: Devil's Advocate.** This is a twist on the debate positions preparation. Instead of supporting their own opinion and platform, the students will also try their best to throw kinks into their supporting argument, so that, in essence, instead of preparing just one argument "pro," they also have to prepare one "contra." **Technique #2: Worst-Case Scenario.** This is another take-off of debate platform preparation. Students preparing to support their position look into the future at the worst possible thing that could happen as a result of the opposing argument, and prepare their defense from that point on.		

Technique #3: Glass Half Empty or Full. This is a technique to help the students view the different perspectives and prepare for arguments from each. Students look at their platform from a positive point of view and from a pessimistic point of view. The class will create an assessment/feedback matrix by identifying as a group the criteria for comparison and why they are relevant to the performance task. This matrix will then be used by the students to assess their own work and at least the work of two other debate teams. Scholar partners will use their essay to perform a debate that is evaluated by classmates and the teacher.
Common Formative Assessments: *Career Pathways programs will monitor universal employability skills for each student. These will be formally assessed with an Employability Profile*