

A+ COMPUTER REPAIR

INDUSTRY SECTOR | Information and Communications Technologies
PATHWAY | Information Support and Services Pathway

COURSE ESSENTIAL QUESTION:

How do you diagnose and troubleshoot a malfunctioning Personal Computer?

COURSE OVERVIEW:

This course will prepare students for the Comp TIA A+ certification exam and entry-level jobs working at a helpdesk, or in a computer repair shop. Students will learn various computer hardware and software, including operating systems. Students will be introduced to various devices, such as mobile devices, laptop, scanner, printers, network architecture, Internet, and security. Integrated throughout the course are Common Core State Standards and Career Technical Education Standards, which include safety, communication, technology, ethics, career planning and other employability skills.

INFORMATION:

- A. **Pre-requisite:** 16 years old or a 11th / 12th grader
- B. **Abilities Required:** 9th grade level read and write
- C. **Dress Requirement and Grooming:** As required by Industry Standard
- D. **Students must master 75% of the certificate competencies to receive a certificate.**
- E. **Fee:** None
- F. **Course Length:** 180 hours
- G. **Textbook:** Jean Andrews, A+ Guide to Managing and Maintaining your PC, seventh Edition. Course Technology Incorporated, 2009, Textbook - 9th Edition
- H. **UC a-g Approved:** Yes
- I. **Industry Certification:** Yes
- J. **Sequencing to Include a Capstone:** Yes
- K. **Community College Articulation:** Yes
- L. **Common Core Alignment:** Yes
- M. **Community Classroom:** No
- N. **Career Technical Student Organization:** No
- O. **Work-Based Learning:** No

THEME: UNIT 1. PERSONAL COMPUTERS HARDWARE

ENGAGING TITLE:

ESSENTIAL QUESTION: Computers, hum? I've heard it all boils to just a bunch of ones and zeroes. I don't know how that enables me to browse the Internet.

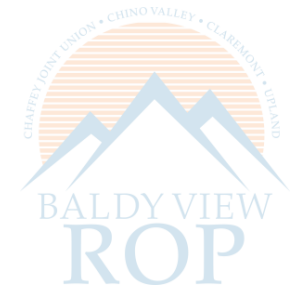
INSTRUCTIONAL HOURS: 60.00 Hours

Common Core Unit Objective

This unit of instruction will introduce students to the technical advances and historical events in technology that have led to the development of the modern computer. Students will be introduced to conventional hardware and interpret and apply information from instructional and informational texts such as user manuals, handouts, and power point lecture notes to troubleshoot and resolve common problems. AC power inputs and DC power outputs will be introduced and students will differentiate between both by explaining the factors that influence power supply. Cooling methods will be discussed and students will demonstrate the ability to install a PC cooling fan. Motherboard BIOS will be introduced and students will demonstrate an ability to recognize and navigate through BIOS settings. The general lineups for Intel and AMD processors will be reviewed in depth and based on pre-determined scenarios, students will determine which kind of processor should be used based on the characteristics and purposes of each. The importance of adequate physical memory will be discussed and students will practice installing memory into a PC. Various drive technologies and their interfaces will be reviewed and students will learn how to replace and install hard drives of different sizes. Power connectors and connecting devices will be introduced and students will learn and practice appropriate safety techniques for handling electronic components.

Key Assignments

- **Building a PC:** Following teacher lecture/PowerPoint presentation, instructional handout, video presentation, and guided group practice, students will take apart a PC, identify and describe the purpose of all the components, and correctly reassemble the PC. Students must also troubleshoot and resolve issues as they arise during this exercise. Formative student assessment consists of peer evaluation during guided group practice and summative assessments are conducted by the teacher on an individual basis upon completion of the guided group exercise.



Anchor Standards

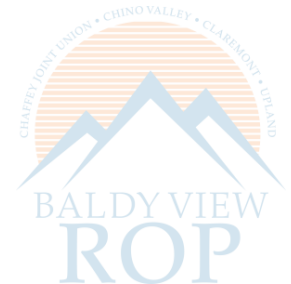
- 1.0 **Academics:** Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment.
- 4.0 **Technology:** Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the Information and Communication Technologies sector workplace environment.
 - 4.1 Use electronic reference materials to gather information and produce products and services.
- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
 - 5.5 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- 6.0 **Health and Safety:** Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Information and Communication Technologies sector workplace environment.
 - 6.6 Maintain a safe and healthful working environment.

Pathway Standards

- A1.0 Describe the role of information and communication technologies in organizations.
- A3.0 Access and transmit information in a networked environment.
 - A3.5 Use multiple online search techniques and resources to acquire information.
- A6.0 Diagnose and solve software, hardware, networking, and security problems.
 - A6.3 Use specific problem-solving strategies appropriate to troubleshooting eliminating possibilities, or guess and check.

Common Core Standards

- RSIT 11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.



RESOURCES:

Resources

Text book, Chapter 1, 2,3,4,5,6,9, 19, Professor Messer videos, and Computer Hardware Components, and Internet Search.

1. How to Disassemble a Computer – <http://www.instructables.com/id/Disassembleacomputer>
2. Liquid Cooling vs Traditional Cooling – <http://www.pcworld.com/article/20282993/liquid-cooling-what-you-need-to-know.html>
3. A study of Hardware Failure Rate by Microsoft – <http://research.microsoft.com/pubs/144888/eurosys84-mighting.le.pdf>.
4. Common Power Problems – <http://www.power-solutions.com/power-quality/power-problems/common-problems>
5. How Motherboard Works – <http://computer.howstuffworks.com/motherboard2.htm>
6. How to Configure a PC's BIOS – <http://www.pcworld.com/article/200374/portsevenbuildingapcconfiguringth.Blos.html>
7. How to Install a Motherboard – <http://www.tomsharorhardware.com/faglid-1830160/install-motherboard.html>



THEME: UNIT 2. Mobile Devices and Smart Phone

ENGAGING TITLE:

ESSENTIAL QUESTION: How to shop for your next Mobile Device?

INSTRUCTIONAL HOURS: 15:00 HOURS

Common Core Unit Objective

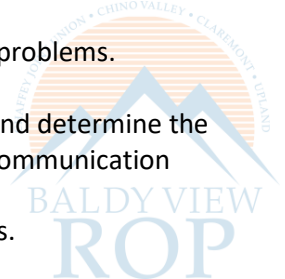
In this chapter, students will learn about the two most common mobile devices operating systems on the market: Apple's IOS and Google's Android OS. Basic functions for working with either operating system are discussed. Security is also briefly covered for both operating systems. Finally, virtualization technologies are discussed. Students will learn the difference between client side and server-side virtualization, as well as how to differentiate between the two types of hypervisor.

Key Assignments

- **Smart Phone OS Research:** Following teacher lecture/PowerPoint presentation, instructional handout, video presentation, and guided group practice, students will demonstrate the ability to conduct research to compare various smart phones. Students discriminate between various smart phone operating systems to address teacher provided topics such as: comparison of hardware specification between smartphones, applications, and costs of the comparable phones. Students will address questions provided on a worksheet and submit to the instructor for evaluation.

Anchor Standards

- 4.0 **Technology:** Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the Information and Communication Technologies sector workplace environment.
- 4.5 Research past, present, and projected technological advances as they impact a particular pathway.
- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 5.3 Use systems thinking to analyze how various components interact with each other to produce outcomes in a complex work environment
- 5.5 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- 5.6 Know the available resources for identifying and resolving problems.
- 6.0 **Health and Safety:** Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Information and Communication Technologies sector workplace environment.
- 6.3 Use health and safety practices for storing, cleaning, and maintaining tools, equipment, and supplies.
- 6.4 Practice personal safety when lifting, bending, or moving equipment and supplies.



Pathway Standards

- A6.0 Diagnose and solve software, hardware, networking, and security problems.
- A6.1 Use available resources to identify and resolve problems using knowledge bases, forums, and manuals.
- A6.2 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- A6.3 Use specific problem solving strategies appropriate to troubleshooting, eliminating possibilities, or guess and check.

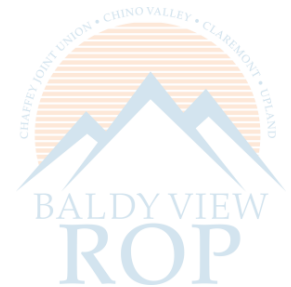
Common Core Standards

- RSIT 11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
- WS 11-12.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

RESOURCES:

Resources

- Text book, Chapter 20, Professor Messer videos, and Computer Hardware Components, and Internet Search.
1. Laptop Parts 101 – <http://www.laptoppartslol.com>



THEME: UNIT 3. Installing, Maintaining and Troubleshooting Windows XP, Windows 7, and Windows 8

ENGAGING TITLE:

ESSENTIAL QUESTION: What is an Operating System?

INSTRUCTIONAL HOURS: 30.00 HOURS

Common Core Unit Objective

Different operating systems will be explored in this unit of instruction with emphasis on: design, function, and purpose. Students will identify and list the criteria and processes for evaluating the functions of information systems. Students will be presented with a detailed description of the evolution of operating system advancements. DOS will be extensively covered and students will demonstrate the ability to recognize commands and copy and format disks. Most Windows operating problems stem from poor maintenance, thus students will learn how to maintain a Windows operating system. Students will learn how to investigate, evaluate, select, and use major types of software, services, and vendors.

Key Assignments

- **PC Operating Systems:** Following teacher lecture/PowerPoint presentation, instructional handout, video presentation, and guided group practice, students will demonstrate the ability to install and maintain Windows 7 and Windows 8 Operating systems on a PC. Formative student assessment consists of peer evaluation during guided group practice and summative assessments are conducted by the teacher on an individual basis upon completion of the guided group exercise.

Anchor Standards

- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 5.5 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.



Pathway Standards

- A2.0 Acquire, install, and implement software and systems.
 - A2.1 Identify and list the criteria and processes for evaluating the functions of information systems.
 - A2.2 Investigate, evaluate, select, and use major types of software, services, and vendors.
 - A2.3 Install software and setup hardware.
- A6.0 Diagnose and solve software, hardware, networking, and security problems.
 - A6.1 Use available resources to identify and resolve problems using knowledge bases, forums, and manuals.
 - A6.2 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
 - A6.3 Use specific problem-solving strategies appropriate to troubleshooting, eliminating possibilities.

Common Core Standards

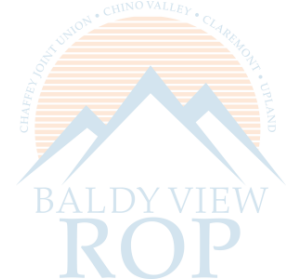
- RSIT 11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
- WS 11-12.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

RESOURCES:

Resources

Text book, Chapter 7, 8, 9, 10, and 11, Professor Messer videos, and computer Hardware Components, Internet Search, and YouTube clips.

1. Microsoft home page for Windows - <http://www.microsoft.com/windows/>
2. Tips and Tricks for Navigating in Windows8-<http://www.biztechmagazine.com/article/2013/03/tips-and-tricks.navigating.new.windows-8-user-inte-face>
3. Microsoft's home page for Window7 – <http://windows.microsoft.com/windows7/products/home>
4. Microsoft's home page for Windows 8 – <http://windows.microsoft.com/en.us/windows/home>
5. Windows 8 Technical library Roadmap – <http://technet.microsoft.com/en-us/library/hh832030.25px>



THEME: UNIT 4. Operation and Care of PC

ENGAGING TITLE:

ESSENTIAL QUESTION: How do you care for your PC?

INSTRUCTIONAL HOURS: 10.00 HOURS

Common Core Unit Objective

The focus of this unit of instruction is on the roles of the professional PC support technician including: required certifications, record keeping practices, and informational tools. Interpersonal skills and communication techniques will be emphasized and practiced by students. By the time students reach this unit of instruction, they should be able to synthesize themes and concepts covered in previous units and demonstrate appropriate use of technology including: power requirements and locations, safety practices, maintenance and cleaning, troubleshooting, and how to prevent and handle viruses.

Key Assignments

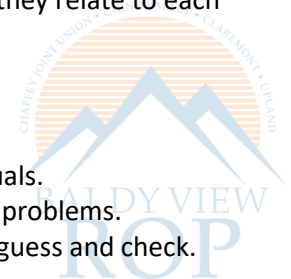
- **Maintaining a PC:** Following teacher lecture/PowerPoint presentation, instructional handout, video presentation, and guided group practice, students will work in groups to trouble shoot a PC which has a teacher manufactured problem. Each group must work cooperatively to trouble shoot, create a solution, and resolve the problem. Each group will complete a detailed lab report and present their case to the class. Rubric based evaluation will be based on completion of the lab report and repair of the problem.

Anchor Standards

- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques
- 5.5 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- 10.0 **Technical Knowledge and Skills:** Apply essential technical knowledge and skills common to all pathways in the Information and Communication Technologies sector, following procedures when carrying out experiments or performing technical tasks.
- 10.5 Understand the major software and hardware components of a computer and a network and how they relate to each other.

Pathway Standards

- A6.0 Diagnose and solve software, hardware, networking, and security problems.
- A6.1. Use available resources to identify and resolve problems using knowledge bases, forums, and manuals.
- A6.2. Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- A6.3. Use specific problem solving strategies appropriate to troubleshooting, eliminating possibilities, or guess and check.



Common Core Standards

- RSIT 11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
- WS 11-12.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

RESOURCES:

Resources

- Text book, Chapter 1, Professor Messer videos, and Computer Hardware Components, Internet Search, and YouTube clips
1. *Keeping your Computer Clean* – <https://www.gcfllearnfree.org/computerbasic/keeping-your-computer-clean///>



THEME: UNIT 5. Connecting To and Setting up a Network

ENGAGING TITLE:

ESSENTIAL QUESTION: How to setup your Local Area Network?

INSTRUCTIONAL HOURS: 15.00 HOURS

Common Core Unit Objective

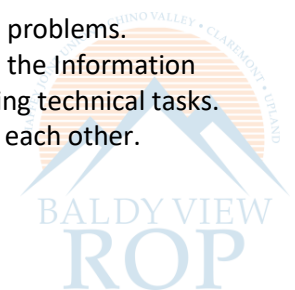
This unit of instruction will introduce students to how Windows supports and manages network connections and how computers are identified and addressed on a network. Students will demonstrate the ability to connect a computer to a network and troubleshoot and solve network connection problems. Students will demonstrate a working knowledge of TCP/IP protocols and standards that Windows uses for networking. Students will demonstrate the ability to configure and secure a multifunction router on a local network.

Key Assignments

- **Setting-up a Network:** Following teacher lecture/PowerPoint presentation, instructional handout, video presentation, and guided group practice, students will demonstrate the ability to set up a small network including both hardware and software. Students will demonstrate critical thinking skills through troubleshooting and resolving any issues that may arise. Formative student assessment consists of peer evaluation during guided group practice and summative assessments are conducted by the teacher on an individual basis upon completion of the guided group exercise.

Anchor Standards

- 4.0 **Technology:** Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the Information and Communication Technologies sector workplace environment.
- 4.1 Use electronic reference materials to gather information and produce products and services.
- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 5.5 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- 10.0 **Technical Knowledge and Skills:** Apply essential technical knowledge and skills common to all pathways in the Information and Communication Technologies sector, following procedures when carrying out experiments or performing technical tasks.
- 10.5 Understand the major hardware components of a computer and a network and how they relate to each other.



Pathway Standards

- A3.0 Access and transmit information in a networked environment.
 - A3.2 Validate and cite Internet resources.
 - A3.5 Use multiple online search techniques and resources to acquire information.
- A6.0 Diagnose and solve software, hardware, networking, and security problems.
 - A6.1 Use available resources to identify and resolve problems using knowledge bases, forums, and manuals.
 - A6.2 Use a logical and structured approach to isolate and identify the sources of problems and to resolve problems.
 - A6.3 Use specific problem solving strategies appropriate to troubleshooting, eliminating possibilities, or guess and check.

Common Core Standards

- RSIT 11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
- WS 11-12.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

RESOURCES:

Resources

- Text book, Chapter 4, Professor Messer videos, and Computer Hardware Components, Internet Search, and YouTube clips
1. TCP/IP – http://www.tcpipguide.com/free/t_TCPIPOvcrviewandhistory.htm



THEME: UNIT 6. Securing Your PC and LAN

ENGAGING TITLE:

ESSENTIAL QUESTION: How to secure your PC and LAN?

INSTRUCTIONAL HOURS: 10.00 HOURS

Common Core Unit Objective

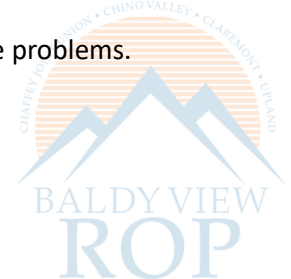
Students will learn how to protect a computer on a small network through the application of acquired knowledge of relative concepts, technologies, and best practices. Students will protect computing resource through authentication and authorization of users, system lock-down, encryption, protecting against malware, and providing education to network users on how to avoid compromising the system. Students will practice securing desktop and laptop computers and will demonstrate the ability to clean an infected system. Emphasis will be placed on the importance of maintaining security of the network including the employment of strategies such as: limiting account permissions, use of strong passwords, and the use of security software and hardware to protect systems from attack.

Key Assignments

- **Securing Your PC:** Following teacher lecture/PowerPoint presentation, instructional handout, video presentation, and guided group practice, students will demonstrate the ability to secure a PC by checking for, identifying, and removing viruses, setting up accounts and passwords, and using security software. Students will demonstrate critical thinking skills through troubleshooting and resolving any issues that may arise. Formative student assessment consists of peer evaluation during guided group practice and summative assessments are conducted by the teacher on an individual basis upon completion of the guided group exercise.

Anchor Standards

- 4.0 **Technology:** Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the Information and Communication Technologies sector workplace environment.
 - 4.5. Research past, present, and projected technological advances as they impact a particular pathway.
- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
 - 5.5. Use of logical and structured approach to isolate and identify the source of problems and to resolve problems.



Pathway Standards

- A5.0 Identify requirements for maintaining secure network systems.
- A5.3 Take preventative measures to reduce security risks (e.g., strong passwords, avoid social engineering ploys, limit account permissions).
- A5.4 Use security software and hardware to protect systems from attack and alert of potential threats, anti-malware software, and firewalls.
- A6.0 Diagnose and solve software, hardware, networking, and security problems.
 - A6.1 Use available resources to identify and resolve problems using knowledge bases, forums, and manuals.
 - A6.2 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
 - A6.3 Use specific problem solving strategies appropriate to troubleshooting, eliminating possibilities, or guess and check.

Common Core Standards

- RSIT 11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
- WS 11-12.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
- AD 12.7.5 Explain how public policy is formed, including the setting of the public agenda and implementation of it through regulations and executive orders.

RESOURCES:

Resources

Text book, chapter 18, Professor Messer videos, and Computer Hardware Components, Internet Search, and YouTube clips.

1. Password Myths and Tips – <http://www.securityfocus.com/infocus/1554>
2. Anti-Malware Software Review – <http://antimalware-software-review.toptenreview.com/>
3. How Fire Wall Works – <http://www.howstuffworks.com/crewall.htm>
4. Differences Among Viruses, Worms, and Trojan Horses – <http://www.webopedia/didyouknow/internet/200h/virus.asp>



THEME: UNIT 7. THE PROFESSIONAL PC TECHNICIAN & SATISFYING CUSTOMER NEEDS

ENGAGING TITLE:

ESSENTIAL QUESTION: What are the qualification for Professional PC Technician?

INSTRUCTIONAL HOURS: 10.00 Hours

Common Core Unit Objective

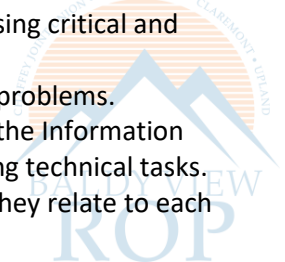
This unit of instruction will familiarize the student with workplace norms of the professional PC Technician. Students will participate in cultural competence exercises with the intention of preparing them for workplace experiences. Instruction will clarify professional obligations and workplace expectations including: software copyrights and legal obligations and ethical behavior. Students will learn how to effectively communicate and gather pertinent information necessary to customize a computer to meet the customer's needs. Principles in organizational management will be explored and students will analyze the basic elements of workforce and organizational management.

Key Assignments

- **Customer Service Role Play:** Based on teacher instruction and video presentation, students will participate in a role play activity to simulate discussion between the customer and repair technician. Students will employ interviewing skills to assess the customer's needs and demonstrate the ability to interpret the customer's needs by writing a detailed technical report addressing the customer's concerns and outlining the tech's (student) service plan. The role play exercise and technical report will be evaluated by the teacher using rubric.

Anchor Standards

- 3.0 **Career Planning and Management:** Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.
- 3.1 Identify personal interests, aptitudes, information, and skills necessary for informed career decision making.
- 3.2 Evaluate personal character traits such as trust, respect, and responsibility and understand the impact they can have on career success.
- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 5.5 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- 10.0 **Technical Knowledge and Skills:** Apply essential technical knowledge and skills common to all pathways in the Information and Communication Technologies sector, following procedures when carrying out experiments or performing technical tasks.
- 10.5 Understand the major software and hardware components of a computer and a network and how they relate to each other.



Pathway Standards

- A6.0 Diagnose and solve software, hardware, networking, and security problems.
 - A6.1 Use available resources to identify and resolve problems using knowledge bases, forums, and manuals.
 - A6.2 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- A7.0 Support and train users on various software, hardware, and network systems.
 - A7.1 Recognize the scope of duties ICT support staff have and tiered levels of support.
 - A7.2 Describe and apply the principles of a customer-oriented service approach to supporting users.
 - A7.3 Use technical writing and communication skills to work effectively with diverse groups of people, including users with less technical abilities.

Common Core Standards

- RSIT 11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.

RESOURCES:

Resources

Text book, chapter 12, Professor Messer videos, and Computer Hardware Components, Internet Search, and YouTube clips.

1. Customer Service Etiquette – [http://technet.microsoft.com/en.us/library/dd74567\(v=ws.10\)](http://technet.microsoft.com/en.us/library/dd74567(v=ws.10))
2. Reviews and Rankings of the Best Call Tracking Software – http://www.topseos.com/rankings-of-best-call_tracking_software



THEME: UNIT 8. CAREER PLANNING

ENGAGING TITLE:

ESSENTIAL QUESTION: How to prepare for your next Job adventure?

INSTRUCTIONAL HOURS: 10.00 HOURS

Common Core Unit Objective

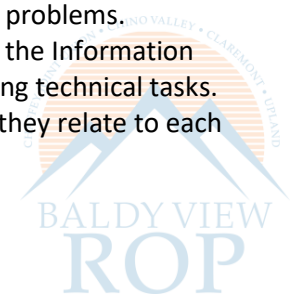
The skills described in this unit are introduced, integrated, reinforced, and assessed throughout the course as applicable. The objective of this unit is to learn and demonstrate appropriate workplace behaviors, including teamwork, participation, etiquette, and flexibility. Students will develop job search skills including: job search strategies, interviewing, resume preparation, completion of application for employment, and demonstration of interviewing skills. Students will discuss careers in computer repair and will identify the educational and experiential requirements for each career.

Key Assignments

- Following instructor lecture and videos, students will construct job search documents such as: cover letter, resume, and job application.

Anchor Standards

- 3.0 **Career Planning and Management:** Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.
- 4.0 **Technology** Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the Information and Communication Technologies sector workplace environment.
- 4.1 Use electronic reference materials to gather information and produce products and services.
- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 5.5 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- 10.0 **Technical Knowledge and Skills:** Apply essential technical knowledge and skills common to all pathways in the Information and Communication Technologies sector, following procedures when carrying out experiments or performing technical tasks.
- 10.5 Understand the major software and hardware components of a computer and a network and how they relate to each other.



Pathway Standards

- A6.0 Diagnose and solve software, hardware, networking, and security problems.
- A6.2. Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- A6.3. Use specific problems solving strategies appropriate to troubleshooting, eliminating possibilities, or guess and check.

Common Core Standards

- RSIT 11-12.7 Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
- WS 11-12.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

RESOURCES:

Resources

Guest speaker, hand out materials, and YouTube video clips.



THEME: UNIT 9. MOBILE DEVICES AND CLINET-SIDE VIRTUALIZATION

ENGAGING TITLE:

ESSENTIAL QUESTION: How to shop for your next Mobile Device?

INSTRUCTIONAL HOURS: 10.00 HOURS

Common Core Unit Objective

In this chapter, students will learn about the two most common mobile devices operating systems on the market: Apple’s IOS and Google’s Android OS. Basic functions for working with either operating system are discussed. Security is also briefly covered for both operating systems. Finally, virtualization technologies are discussed. Students will learn the difference between client side and server side virtualization, as well as how to differentiate between the two types of hypervisor.

Key Assignments

- Students will complete chapter worksheet, projects, lab using Internet and chapter test.

Anchor Standards

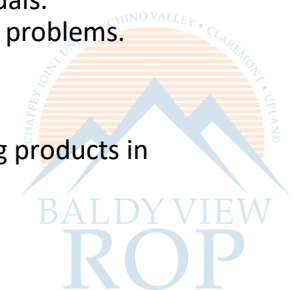
- 4.0 **Technology:** Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the Information and Communication Technologies sector workplace environment.
- 4.5 Research past, present, and projected technological advances as they impact a particular pathway.
- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 5.6 Know the available resources for identifying and resolving problems.

Pathway Standards

- A6.0 Diagnose and solve software, hardware, networking, and security problems.
- A6.1. Use available resources to identify and resolve problems using knowledge bases, forums, and manuals.
- A6.2. Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.

Common Core Standards

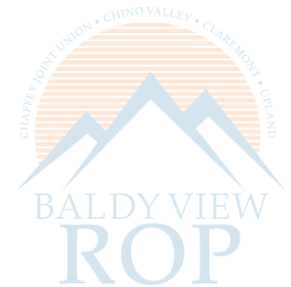
- WS 11-12.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.



RESOURCES:

Resources

Resources



THEME: UNIT 10. INSTALLING, MAINTAINING AND TROUBLESHOOTING WINDOWS XP, WINDOWS 7 , AND WINDOWS 8

ENGAGING TITLE:

ESSENTIAL QUESTION: What is Operating System?

INSTRUCTIONAL HOURS: 20.00 HOURS

Common Core Unit Objective

This unit reviews how to support a Windows operating system and how to maintain the OS after it is installed. Most Windows problems stem from poor maintenance. If the student is a PC support technician responsible for ongoing support of several computers, he or she can make their work easier, and their users happier, by setting up and executing a good maintenance plan for each computer. A well-maintained computer gives fewer problems and performs better than one that is not maintained.

Key Assignments

- Students will complete chapter worksheet, projects, lab, and hands on installing Windows XP, Windows 7, and Windows 8, perform install Windows updates, service packs and chapter test.

Anchor Standards

- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 5.5 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.

Pathway Standards

- A2.0 Acquire, install, and implement software and systems.
- A2.1 Identify and list the criteria and processes for evaluating the functions of information systems.
- A2.2 Investigate, evaluate, select, and use major types of software, services, and vendors.
- A2.3 Install software and setup hardware.

Common Core Standards

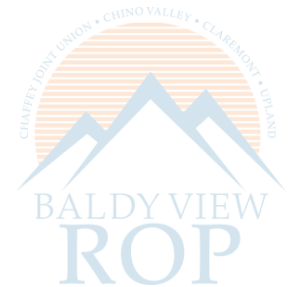
- WS 11-12.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.



RESOURCES:

Resources

Resources



THEME: UNIT 11. OPERATION AND CARE OF PC

ENGAGING TITLE:

ESSENTIAL QUESTION: How do you care for your PC?

INSTRUCTIONAL HOURS: 10.00 HOURS

Common Core Unit Objective

In this unit, the student will learn about the job roles of a professional PC support technician, including the certifications, record keeping, and informational tools the student might use. The chapter also focuses on interpersonal skills (people skills) needed by a technical support technician.

Key Assignments

- Students will complete chapter worksheet, projects, lab, and hands on download/installing antivirus software and chapter test.

Anchor Standards

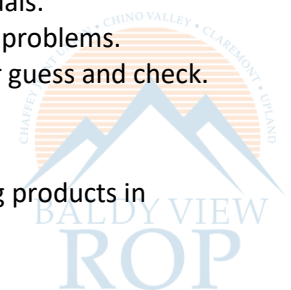
- 5.0 **Problem Solving and Critical Thinking:** Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Information and Communication Technologies sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques.
- 5.5 Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- 10.0 **Technical Knowledge and Skills:** Apply essential technical knowledge and skills common to all pathways in the Information and Communication Technologies sector, following procedures when carrying out experiments or performing technical tasks.
- 10.5 Understand the major software and hardware components of a computer and a network and how they relate to each other.

Pathway Standards

- A6.0 Diagnose and solve software, hardware, networking, and security problems.
- A6.1. Use available resources to identify and resolve problems using knowledge bases, forums, and manuals.
- A6.2. Use a logical and structured approach to isolate and identify the source of problems and to resolve problems.
- A6.3. Use specific problems solving strategies appropriate to troubleshooting, eliminating possibilities, or guess and check.

Common Core Standards

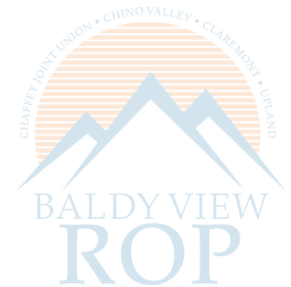
- WS 11-12.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.



RESOURCES:

Resources

Guest speaker, hand out materials, and Youtube videos clips.



THEME: UNIT 12. CONNECTING TO AND SETTING UP A NETWORK

ENGAGING TITLE:

ESSENTIAL QUESTION: How to setup your Local Area Network?

INSTRUCTIONAL HOURS: 10.00 HOURS

Common Core Unit Objective

Student will learn how Windows supports and manages a network connection, including how computers are identified and addressed on a network. Finally, the student will learn how to connect a computer to a network and what to do when that connection gives problems.

Key Assignments

- Students will complete chapter worksheet, projects, lab, and hands on connecting a computer to a network and chapter test.

Anchor Standards

- 4.0 **Technology:** Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the Information and Communication Technologies sector workplace environment.
- 4.1 Use electronic reference materials to gather information and produce products and services.

Pathway Standards

- A3.0 Access and transmit information in a networked environment.
- A3.2 Validate and cite Internet resources.
- A3.5 Use multiple online search techniques and resources to acquire information.

Common Core Standards

- WS 11-12.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

RESOURCES:

Resources

Resources



THEME: UNIT 13. SECURING YOUR PC AND LAN

ENGAGING TITLE:

ESSENTIAL QUESTION: How to secure your PC and LAN?

INSTRUCTIONAL HOURS: 10.00 HOURS

Common Core Unit Objective

This unit focuses on the concepts, technologies, and best practices the student needs to know to protect a computer and a small network. The student will learn many ways to protect computing resources, including authenticating and authorizing users, locking down systems, encryption, protecting against malware, and educating users not to unintentionally compromise the system. Finally, the student will learn about the importance of maintaining the security measures they have implemented.

Key Assignments

- Students will complete chapter worksheet, projects, lab, and hands on connecting a computer to a network and chapter test.

Anchor Standards

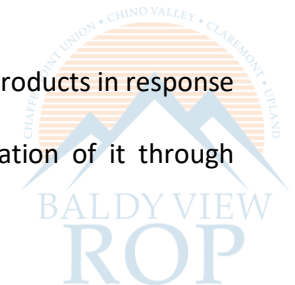
- 4.0 **Technology:** Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the Information and Communication Technologies sector workplace environment.
- 4.5 Research past, present, and projected technologies advances as they impact a particular Pathway Standards.

Pathway Standards

- A5.0 Identify requirements for maintaining secure network systems.
- A5.3 Take preventative measures to reduce security risks (e.g., strong passwords, avoid social engineering ploys, limit account permissions).
- A5.4 Use security software and hardware to protect systems from attack and alert of potential threats and anti-malware software.

Common Core Standards

- WS 11-12.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
- AD 12-7.5. Explain how public policy is formed, including the setting of the public agenda and implementation of it through regulations and executive orders.



RESOURCES:

Resources

Resources



THEME: UNIT 14. THE PROFESSIONAL PC TECHNICIAN & SATISFYING CUSTOMER NEEDS

ENGAGING TITLE:

ESSENTIAL QUESTION: What are the qualification for Professional PC Technician?

INSTRUCTIONAL HOURS: 5.00 HOURS

Common Core Unit Objective

This unit explores proper procedure and behavior when working with customers and coworkers. The student will learn how to handle unique situations involving customers of different backgrounds. Lastly, the customization of a computer to meet various requirements.

Key Assignments

- Students will complete chapter worksheet, projects, lab, and chapter test.

Anchor Standards

- 3.0 **Career Planning and Management:** Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans.
- 3.1. Identify personal interests, aptitudes, information, and skills necessary for informed career decision making.
- 3.2. Evaluate personal character traits such as trust, respect, and responsibility and understand the impact they can have on career success.

Pathway Standards

- A7.0 Support and train users on various software, hardware, and network systems.
- A7.1 Recognize the scope of duties ICT support staff have and tiered levels of support.
- A7.2 Describe and apply the principles of a customer-oriented service approach to supporting users.
- A7.3 Use technical writing and communication skills to work effectively with diverse groups of people, including users with less technical ability.

Common Core Standards

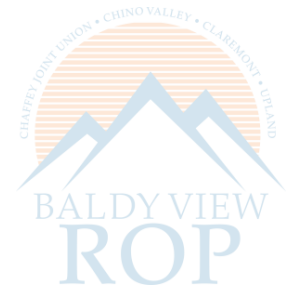
- A-REI 2. Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.



RESOURCES:

Resources

Resources



THEME: UNIT 15. CAREER PLANNING

ENGAGING TITLE:

ESSENTIAL QUESTION: How to prepare for your next Job adventure?

INSTRUCTIONAL HOURS: 5.00 HOURS

Common Core Unit Objective

In this unit the students will create a draft resume and finalize it. The resume and other components will then be download onto a flash drive for final project submission. Students will complete a practice interview display proper dress, behavior and knowledge of the company where they are applying. Students will submit a job application as well as an on-line application. Students will demonstrate how social media, networking, job fairs and other job search avenues are used. Students will demonstrate how laws affect the job search process.

Key Assignments

- Interviews assignment and practice interview. Social media, online applications, your network.
- Complete resume, application and scholarship.

Anchor Standards

- 4.0 **Technology:** Use existing and emerging technology, to investigate, research, and produce products and services, including new information, as required in the Information and Communication Technologies sector workplace environment.
- 4.1 Use electronic reference materials to gather information and produce products and services.

Pathway Standards

- 2.0 Analyze the basic elements of workforce and organizational management, including the roles and responsibilities of effective management and employees in the industry.
- 5.0 Demonstrate an understanding of the basics of systems operations and the importance of maintaining facilities, equipment, tools, and supplies.

Common Core Standards

- WS 11-12.6. Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.



RESOURCES:

Resources

Resources

