PC Systems

Revised UBD Curriculum
Egg Harbor Township High School
Industrial Technology Department

CTE

Career and Technical Education

Created By: Joseph Dilks
Coordinated By: Dr. Carmelita Graham

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DISTRICT MISSION STATEMENT

Our mission in the Egg Harbor Township School District is to partner with the student, family, school, and community to provide a safe learning environment that addresses rigorous and relevant 21st Century standards and best practices which will develop academic scholarship, integrity, leadership, citizenship, and the unique learning style of students, while encouraging them to develop a strong work ethic and to act responsibly in their school community and everyday society.

CAREER AND TECHNICAL EDUCATION

Mission:

New Jersey's Office of Career and Technical Education seeks to prepare students for career opportunities of the 21st century, succeed as global citizens and support healthy economic growth for New Jersey. Career and Technical Education prepares students to succeed as global citizens for career opportunities for the 21st Century and to support healthy economic growth within the state.

INTRODUCTION

The most precious resource teachers have is time. Regardless of how much time a course is scheduled for, it is never enough to accomplish all that one would like. Therefore, it is imperative that teachers utilize the time they have wisely in order to maximize the potential for all students to achieve the desired learning.

High quality educational programs are characterized by clearly stated goals for student learning, teachers who are well-informed and skilled in enabling students to reach those goals, program designs that allow for continuous growth over the span of years of instruction, and ways of measuring whether students are achieving program goals.

EGG HARBOR TOWNSHIP SCHOOL DISTRICT CURRICULUM TEMPLATE

The Egg Harbor Township School District has embraced the backward-design model as the foundation for all curriculum development for the educational program. When reviewing curriculum documents and the Egg Harbor Township curriculum template, aspects of the backward-design model will be found in the stated enduring *understandings/essential questions, unit assessments,* and *instructional activities*. Familiarization with backward-design is critical to working effectively with Egg Harbor Township's curriculum guides.

GUIDING PRINCIPLES: WHAT IS BACKWARD DESIGN?

WHAT IS UNDERSTANDING BY DESIGN?

"Backward design" is an increasingly common approach to planning curriculum and instruction. As its name implies, "backward design" is based on defining clear goals, providing acceptable evidence of having achieved those goals, and then working 'backward' to identify what actions need to be taken that will ensure that the gap between the current status and the desired status is closed.

Building on the concept of backward design, Grant Wiggins and Jay McTighe (2005) have developed a structured approach to planning programs, curriculum, and instructional units. Their model asks educators to state goals; identify deep understandings, pose essential questions, and specify clear evidence that goals, understandings, and core learning have been achieved.

Program based on backward design use desired results to drive decisions. With this design, there are questions to consider, such as: What should students understand, know, and be able to do? What does it look like to meet those goals? What kind of program will result in the outcomes stated? How will we know students have achieved that result? What other kinds of evidence will tell us that we have a quality program? These questions apply regardless of whether they are goals in program planning or classroom instruction.

The backward design process involves three interrelated stages for developing an entire curriculum or a single unit of instruction. The relationship from planning to curriculum design, development, and implementation hinges upon the integration of the following three stages.

Stage I: Identifying Desired Results: Enduring understandings, essential questions, knowledge and skills need to be woven into curriculum publications, documents, standards, and scope and sequence materials. Enduring understandings identify the "big ideas" that students will grapple with during the course of the unit. Essential questions provide a unifying focus for the unit and students should be able to answer more deeply and fully these questions as they proceed through the unit. Knowledge and skills are the *"stuff"* upon which the understandings are built.

Stage II: Determining Acceptable Evidence: Varied types of evidence are specified to ensure that students demonstrate attainment of desired results. While discrete knowledge assessments (e.g.:

multiple choice, fill-in-the-blank, short answer, etc…) will be utilized during an instructional unit, the overall unit assessment is performance-based and asks students to demonstrate that they have mastered the desired understandings. These culminating (summative) assessments are authentic tasks that students would likely encounter in the real-world after they leave school. They allow students to demonstrate all that they have learned and can do. To demonstrate their understandings students can explain, interpret, apply, provide critical and insightful points of view, show empathy and/or evidence self-knowledge. Models of student performance and clearly defined criteria (i.e.: rubrics) are provided to all students in advance of starting work on the unit task.

Stage III: Designing Learning Activities: Instructional tasks, activities, and experiences are aligned with stages one and two so that the desired results are obtained based on the identified evidence or assessment tasks. Instructional activities and strategies are considered only once stages one and two have been clearly explicated. Therefore, congruence among all three stages can be ensured and teachers can make wise instructional choices.

At the curricular level, these three stages are best realized as a fusion of research, best practices, shared and sustained inquiry, consensus building, and initiative that involves all stakeholders. In this design, administrators are instructional leaders who enable the alignment between the curriculum and other key initiatives in their district or schools. These leaders demonstrate a clear purpose and direction for the curriculum within their school or district by providing support for implementation, opportunities for revision through sustained and consistent professional development, initiating action research activities, and collecting and evaluating materials to ensure alignment with the desired results. Intrinsic to the success of curriculum is to show how it aligns with the overarching goals of the district, how the document relates to district, state, or national standards, what a high quality educational program looks like, and what excellent teaching and learning looks like. Within education, success of the educational program is realized through this blend of commitment and organizational direction.

INTENT OF THE GUIDE

This guide is intended to provide teachers with course objective and possible activities, as well as assist the teacher in planning and delivering instruction in accordance with the New Jersey Core Curriculum Content Standards. The guide is not intended to restrict or limit the teacher's resources or individual instruction techniques. It is expected that the teacher will reflectively adjust and modify instruction and units during the course of normal lessons depending on the varying needs of the class, provided such modified instruction attends to the objectives and essential questions outlined below.

PC Systems - Power Standards

Standard Number	Standard
Marking Period 1	
12.9.3.IT.12	Demonstrate knowledge of the hardware components associated with information systems.
12.9.3.IT.13	Compare key functions and applications of software and determine maintenance strategies for computer systems.
12.9.3.IT-SUP.9	Employ technical writing and documentation skills in support of an information system.
CCCS.ELA-LITERACY.RST.11-12.4	Workplace Safety
Marking Period 2	
12.9.3.IT-SUP.2	Manage operating systems and software applications, including maintenance of upgrades, patches and service packs.
12.9.3.IT-SUP.3	Apply appropriate troubleshooting techniques in resolving computer hardware, software and configuration problems.
12.9.3.IT-SUP.4	Perform installation, configuration and maintenance of operating systems.
CCCS.ELA-LITERACY.RST.11-12.4	Workplace Safety

PC Systems - Power Standards

Standard Number	Standard
Marking Period 3	
12.9.3.IT-PROG.5	Apply an appropriate software development process to design a software application.
12.9.3.IT-PROG.7	Demonstrate software testing procedures to ensure quality products.
12.9.3.IT.12	Demonstrate knowledge of the hardware components associated with information systems.
CCCS.ELA-LITERACY.RST.11-12.4	Workplace Safety
Marking Period 4	
12.9.3.IT-PROG.3	Analyze system and software requirements to ensure maximum operating efficiency.
12.9.3.IT-PROG.4	Demonstrate the effective use of software development tools to develop software applications.
12.9.3.IT-PROG.9	Perform software maintenance and customer support functions.
CCCS.ELA-LITERACY.RST.11-12.4	Workplace Safety

Unit Name: Introduction to a Typical PC **Time Frame: 1 week**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – Students will learn to identify the major components inside a typical PC and their functions.

UNIT RESOURCES –

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:
www.cbi.umn.edu
www.computerhistory.org
www.intel.com
www.karbosguide.com
www.pcguide.com

STAGE ONE

GOALS AND STANDARDS

- **12.9.3.IT.1** Demonstrate effective professional communication skills and practices that enable positive customer relationships.
- **12.9.3.IT.2** Use product or service design processes and guidelines to produce a quality information technology (IT) product or service.
- **12.9.3.IT.3** Demonstrate the use of cross-functional teams in achieving IT project goals.
- **12.9.3.IT.4** Demonstrate positive cyber citizenry by applying industry accepted ethical practices and behaviors.
- **12.9.3.IT.5** Explain the implications of IT on business development.
- **12.9.3.IT.6** Describe trends in emerging and evolving computer technologies and their influence on IT practices.
- **12.9.3.IT.7** Perform standard computer backup and restore procedures to protect IT information.
- **12.9.3.IT.8** Recognize and analyze potential IT security threats to develop and maintain security requirements.
- **12.9.3.IT.9** Describe quality assurance practices and methods employed in producing and providing quality IT products and services.

- **12.9.3.IT.10** Describe the use of computer forensics to prevent and solve information technology crimes and security breaches.
- **12.9.3.IT.12** Demonstrate knowledge of the hardware components associated with information systems.
- **12.9.3.IT.13** Compare key functions and applications of software and determine maintenance strategies for computer systems.
- **12.9.3.IT-PROG.1** Analyze customer software needs and requirements.
- **12.9.3.IT-PROG.2** Demonstrate the use of industry standard strategies and project planning to meet customer specifications.
- **12.9.3.IT-PROG.3** Analyze system and software requirements to ensure maximum operating efficiency.
- **12.9.3.IT-PROG.4** Demonstrate the effective use of software development tools to develop software applications.
- **12.9.3.IT-PROG.5** Apply an appropriate software development process to design a software application.
- **12.9.3.IT-PROG.6** Program a computer application using the appropriate programming language.
- **12.9.3.IT-PROG.7** Demonstrate software testing procedures to ensure quality products.
- **12.9.3.IT-PROG.8** Perform quality assurance tasks as part of the software development cycle.
- **12.9.3.IT-PROG.9** Perform software maintenance and customer support functions.
- **12.9.3.IT-PROG.10** Design, create and maintain a database.
- **12.9.3.IT-NET.1** Analyze customer or organizational network system needs and requirements.
- **12.9.3.IT-NET.2** Analyze wired and wireless network systems to determine if they meet specifications (e.g., IEEE, power and security).
- **12.9.3.IT-NET.3** Design a network system using technologies, tools and standards.
- **12.9.3.IT-NET.4** Perform network system installation and configuration.
- **12.9.3.IT-NET.5** Perform network administration, monitoring and support to maintain a network system.
- **12.9.3.IT-SUP.1** Provide technology support to maintain service.
- **12.9.3.IT-SUP.2** Manage operating systems and software applications, including maintenance of upgrades, patches and service packs.
- **12.9.3.IT-SUP.3** Apply appropriate troubleshooting techniques in resolving computer hardware, software and configuration problems.
- **12.9.3.IT-SUP.4** Perform installation, configuration and maintenance of operating systems.
- **12.9.3.IT-SUP.5** Demonstrate the use of networking concepts to develop a network.
- **12.9.3.IT-SUP.6** Evaluate the effectiveness of an information system.
- **12.9.3.IT-SUP.7** Employ system installation and maintenance skills to setup and maintain an information system.
- **12.9.3.IT-SUP.8** Employ system administration and control skills to monitor the performance of an information system.
- **12.9.3.IT-SUP.9** Employ technical writing and documentation skills in support of an information system.
- **12.9.3.IT-SUP.10** Apply quality assurance processes to maximize information system operation.
- **CCCS.MATH.CONTENT.HSN-Q.A.1-3** Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas.

- **NJCCS 9-12.9.1.12.B.4.c,d,e,f,g** Time management; Organization; Decision Making; Goal Setting; Resources Allocation
- **NJCCS 9-12.9.1.12.1** Collaboration and teamwork enable individuals or groups to achieve common goals with greater efficiency
- **NJCCS 9-12.9.1.12.F.2** Demonstrate a positive work ethic in various settings, including the classroom and during structured learning experiences.
- **CCCS.ELA-LITERACY.RST.11-12.4** Workplace Safety
- **NJCC.9.3.12.C** Workplace Safety
- **CCCS.ELA-LITERACY.WHST 11-12.2.** Critical Thinking, Problem Solving and Decision Making
- **NJCCS 8.1.12.F** Critical Thinking, Problem Solving and Decision Making
- **NJCCS 9.1.12.A** Critical Thinking, Problem Solving and Decision Making
- **CCCS.ELA-LITERACY.RST.11-12.4.** Follow Multi-step Procedure
- **NJCCS 9.3.12.3** Follow Multi-step Procedure
- **NJCCS 9.3.12.3** Follow Multi-step Procedure
- **CCCS.ELA-LITERACY.RST.11-12.4.** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.
- ***LA.11-12.CCSS.ELA-Literacy.WHST.11-12.2e*** Provide a concluding statement or section that follows from and supports the information or explanation provided.
- ***WORK.9-12.9.1.12.1*** The ability to recognize a problem and apply critical thinking and problem-solving skills to solve the problem is a lifelong skill that develops over time.
- ***WORK.9-12.9.1.12.2*** Leadership abilities develop over time through participation in groups and/or teams that are engaged in challenging or competitive activities.
- **NJCCS 9.3.12.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.
- **NJCCS 8.1.12.C.1** Develop an innovative solution to a real world problem or issue in collaboration with peers and experts, and present ideas for feedback through social media or in an online community.
- **NJCCS 8.1.12.E.1** Produce a position statement about a real world problem by developing a systematic plan of investigation with peers and experts synthesizing information from multiple sources.
- **NJCCS 8.1.12.F.1** Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs.
- **NJCCS 8.2.12.A.2** Analyze a current technology and the resources used, to identify the trade-offs in terms of availability, cost, desirability and waste.
- **NJCCS 8.2.12.A.3** Research and present information on an existing technological product that has been repurposed for a different function.
- **NJCCS 8.2.12.C.2** Analyze a product and how it has changed or might change over time to meet human needs and wants.
- **NJCCS 8.2.12.C.4** Explain and identify interdependent systems and their functions.
- **NJCCS 8.2.12.C.6** Research an existing product, reverse engineer and redesign it to improve form and function.
- **NJCCS 8.2.12.D.3** Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.
- **NJCCS 8.2.12.E.1** Demonstrate an understanding of the problem-solving capacity of computers in our world.
- **NJCCS 8.2.12.E.2** Analyze the relationships between internal and external computer components.

- **NJCCS 8.2.12.E.4** Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).
- **CRP1**. Act as a responsible and contributing citizen and employee.
- **CRP2.** Apply appropriate academic and technical skills.
- **CRP4.** Communicate clearly and effectively and with reason.
- **CRP6.** Demonstrate creativity and innovation.
- **CRP7.** Employ valid and reliable research strategies.
- **CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them.
- **CRP9.** Model integrity, ethical leadership and effective management.
- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will learn to install and maintain computer hardware and software systems. They will learn to diagnose and repair components and functions and learn how to solve failures when they occur. Students will have an opportunity to practice these skills in a series of hands-on lab activities.
- An impossible problem can be made possible by applying what you know.
- The process of elimination is crucial in diagnosing and repair of a PC.
- Self Discipline to read and write is crucial for success.
- Working in teams helps to diagnose and problem solve.

ESSENTIAL QUESTIONS

- What is a PC Computer.
- What are the major components of a PC Computer.
- What are the four functions of a computer.

KNOWLEDGE AND SKILLS

Students will be able to:

- Explain the role of computers
- Explain what a computer is.
- Describe computer data.
- Identify the major components of a typical PC.
- Describe the power-on sequence of a typical PC.
- Explain how the major components interact with each other.
- Interpret the common prefixes associated with the computer's size and speed.
- Define electrostatic discharge.
- Identify common tools used to service a PC.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects

- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Identify major motherboard components.
- Identify common motherboard ports.
- Identify components of the four functions of a computer.
- Identify common computer tools.
- Open computer and remove components.
- Be aware and practice safe working skills.

Unit Name: Operating Systems **Time Frame: 2 Weeks**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – Students will learn that understanding the operating system is essential for troubleshooting a PC system.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.ami.com
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- **CRP2.** Apply appropriate academic and technical skills.
- **CRP4.** Communicate clearly and effectively and with reason.
- **CRP6.** Demonstrate creativity and innovation.
- **CRP7.** Employ valid and reliable research strategies.
- **CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them.
- **CRP9.** Model integrity, ethical leadership and effective management.
- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- An operating system is the most important software that runs on a computer. It manages the computer's memory**,** processes, and all of its software and hardware. It also allows you to communicate with the computer without knowing how to speak the computer's language. Without an operating system, a computer is useless.
- Your computer's operating system (OS) manages all of the software and hardware on the computer. Most of the time, there are many different computer programs running at the same time, and they all need to access your computer's central processing unit (CPU)**,** memory, and storage. The operating system coordinates all of this to make sure each program gets what it needs.

ESSENTIAL QUESTIONS

- What is an operating system.
- What is GUI OS Environment
- What is CUI OD Environment.

KNOWLEDGE AND SKILLS

- Identify various computer operating systems.
- Explain minimum requirements of an operating system.
- Describe the three core DOS files.
- Identify DOS limitations.
- Explain the differences between the various versions of the Windows operating system.
- Describe the boot process.
- Describe the relationship of applications software; operating systems, BIOS, and system hardware components.
- Describe the common characteristics of different operating systems.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
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- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activitities

- Identify a GUI OS.
- Identify a CUI OS.
- Identify hardware components of a GUI and CUI OS.
- Modify the BIOS of the OS.
- Install the OS.
- Be aware and practice safe working skills.

Unit Name: Motherboards **Time Frame: 1 week**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – Students will be able identify different types of motherboards and install motherboards into a computer case.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.asus.com
www.amd.com
www.formfactors.org
www.giga-byte.com
www.intel.com
www.micron.com
www.motherboards.org
www.sis.com
www.soyo.com
www.via.com
www.hp.com

STAGE ONE

GOALS AND STANDARDS

- **12.9.3.IT.1** Demonstrate effective professional communication skills and practices that enable positive customer relationships.
- **12.9.3.IT.2** Use product or service design processes and guidelines to produce a quality information technology (IT) product or service.
- **12.9.3.IT.3** Demonstrate the use of cross-functional teams in achieving IT project goals.
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- **12.9.3.IT.5** Explain the implications of IT on business development.
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- **12.9.3.IT.7** Perform standard computer backup and restore procedures to protect IT information.
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ENDURING UNDERSTANDING

- Students will identify the fundamental principles of a motherboard and the installation, configuration, optimization, and types of peripheral devices.
- Students will also identify the tools, installation procedures, and troubleshooting techniques for motherboards.

ESSENTIAL QUESTIONS

- What factors will you consider when selecting a motherboard.
- How can you add peripheral devices to a system?
- What factors should you consider when adding an expansion card to a computer?

KNOWLEDGE AND SKILLS

- Identify major parts of a motherboard.
- Identify common motherboard form factors.
- Explain motherboard bus architecture.
- Identify expansion slot architectures.
- Identify the important system resources and explain what they are used for.
- Identify and explain IRQs.
- Explain the role of a chipset.
- Explain the purpose of the CMOS Setup program.
- Explain the procedure for upgrading a Flash BIOS.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
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- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Identify the major types of motherboards, and expansion cards available.
- Identify common motherboard form factor tpyes.
- Install a motherboard into the computer case.
- Install peripheral devices into the motherboard.
- Be aware and practice safe working skills.

Unit Name: CPU **Time Frame: 1 Week**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – Students will learn to identify the type of CPU and the process of installing and or upgrading the CPU can range from easy to nearly impossible.

UNIT RESOURCES

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www.intel.com
www.amd.com
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www.motorola.com
www.sun.com

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ENDURING UNDERSTANDING

- Students will learn to identify / install the correct CPU onto the correct motherboard with the correct heatsink / fan components.

ESSENTIAL QUESTIONS

- How is CPU performance measured?
- Which CPU fits which socket?
- What is the difference between 32-bit and 64-bit processing?
- What is the purpose of thermal compound.

KNOWLEDGE AND SKILLS

- Identify the operation, function, and purpose of the CPU.
- Differentiate between the internal and external bus system
- Identify and explain the major portions of a CPU.
- Briefly review the evolution of the CPU.
- Identify sockets and SEC connections associated with the CPU.
- Identify and explain the purpose od a voltage regulator.
- Explain real and protected modes of operation.
- Define the terms multiple branch prediction, superscalar technology, processor affinity, processor throttling, and MMX technology as it applies to the CPU.

STAGE TWO

PERFORMANCE TASKS

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- Lecture / Notes
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OTHER EVIDENCE

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STAGE THREE

LEARNING PLAN - Activities

- Identify differnet types of CPU sockets with actual CPUs.
- Install the CPU onto a motherboard socket.
- Apply the correct amount of thermal compound between the CPU and heatsink.
- Attach the heatsink fan assemble and plug in the fans power to the motherboard.
- Check CPU speed in the BIOS.
- Be aware and practice safe working skills.

Unit Name: Power Supplies **Time Frame: 1 week**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – Students will be able to identify, install a power supply into the computer case, and connect power to all components requiring power.

UNIT RESOURCES

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Internet Resource Links:

www.corsair.com
www.antec.com
www.apcc.com
www.bestpower.com
www.duracell.com
www.tomshardware.com/faq/id-1927916/power-supply-101-understanding-power-supplies-selecting-job.html

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- **NJCCS 8.2.12.C.6** Research an existing product, reverse engineer and redesign it to improve form and function.

- **NJCCS 8.2.12.D.3** Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.
- **NJCCS 8.2.12.E.1** Demonstrate an understanding of the problem-solving capacity of computers in our world.
- **NJCCS 8.2.12.E.2** Analyze the relationships between internal and external computer components.
- **NJCCS 8.2.12.E.4** Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).
- **CRP1**. Act as a responsible and contributing citizen and employee.
- **CRP2.** Apply appropriate academic and technical skills.
- **CRP4.** Communicate clearly and effectively and with reason.
- **CRP6.** Demonstrate creativity and innovation.
- **CRP7.** Employ valid and reliable research strategies.
- **CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them.
- **CRP9.** Model integrity, ethical leadership and effective management.
- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Power supplies are the primary supplier of power to your motherboard. They do this by converting the high voltage alternating current (AC) that comes out of the wall socket (in the range of 110V to 240V) into usable low voltage direct current (DC).
- Determine the correct power supply choice for a new computer.

ESSENTIAL QUESTIONS

- How does a power supply convert AC to DC power.
- What does watts mean on a power supply.
- Do all power cables on the power suplly have to be connected into the computer.

KNOWLEDGE AND SKILLS

- Replace a PC power supply unit.
- Determine if a power supply is defective.
- Check the voltage input and output of a power supply unit.
- Install the power supply into the case and connect the power to the motherboard.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events

- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Identify the power supply information label.
- Install the power supply into the computer.
- Connect power cables to the computer components.
- Determine if the power supply is functional with a diagnostic tool.
- Be aware and practice safe working skills.

Unit Name: Memory **Time Frame: 1 week**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – Students will be able identify the different types of memory and install the correct amount of memory into the computer.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.intel.com
www.corsair.com
www.kingston.com
www.fujitsu.com

STAGE ONE

GOALS AND STANDARDS

- **12.9.3.IT.1** Demonstrate effective professional communication skills and practices that enable positive customer relationships.
- **12.9.3.IT.2** Use product or service design processes and guidelines to produce a quality information technology (IT) product or service.
- **12.9.3.IT.3** Demonstrate the use of cross-functional teams in achieving IT project goals.
- **12.9.3.IT.4** Demonstrate positive cyber citizenry by applying industry accepted ethical practices and behaviors.
- **12.9.3.IT.5** Explain the implications of IT on business development.
- **12.9.3.IT.6** Describe trends in emerging and evolving computer technologies and their influence on IT practices.
- **12.9.3.IT.7** Perform standard computer backup and restore procedures to protect IT information.
- **12.9.3.IT.8** Recognize and analyze potential IT security threats to develop and maintain security requirements.
- **12.9.3.IT.9** Describe quality assurance practices and methods employed in producing and providing quality IT products and services.

- **12.9.3.IT.10** Describe the use of computer forensics to prevent and solve information technology crimes and security breaches.
- **12.9.3.IT.12** Demonstrate knowledge of the hardware components associated with information systems.
- **12.9.3.IT.13** Compare key functions and applications of software and determine maintenance strategies for computer systems.
- **12.9.3.IT-PROG.1** Analyze customer software needs and requirements.
- **12.9.3.IT-PROG.2** Demonstrate the use of industry standard strategies and project planning to meet customer specifications.
- **12.9.3.IT-PROG.3** Analyze system and software requirements to ensure maximum operating efficiency.
- **12.9.3.IT-PROG.4** Demonstrate the effective use of software development tools to develop software applications.
- **12.9.3.IT-PROG.5** Apply an appropriate software development process to design a software application.
- **12.9.3.IT-PROG.6** Program a computer application using the appropriate programming language.
- **12.9.3.IT-PROG.7** Demonstrate software testing procedures to ensure quality products.
- **12.9.3.IT-PROG.8** Perform quality assurance tasks as part of the software development cycle.
- **12.9.3.IT-PROG.9** Perform software maintenance and customer support functions.
- **12.9.3.IT-PROG.10** Design, create and maintain a database.
- **12.9.3.IT-NET.1** Analyze customer or organizational network system needs and requirements.
- **12.9.3.IT-NET.2** Analyze wired and wireless network systems to determine if they meet specifications (e.g., IEEE, power and security).
- **12.9.3.IT-NET.3** Design a network system using technologies, tools and standards.
- **12.9.3.IT-NET.4** Perform network system installation and configuration.
- **12.9.3.IT-NET.5** Perform network administration, monitoring and support to maintain a network system.
- **12.9.3.IT-SUP.1** Provide technology support to maintain service.
- **12.9.3.IT-SUP.2** Manage operating systems and software applications, including maintenance of upgrades, patches and service packs.
- **12.9.3.IT-SUP.3** Apply appropriate troubleshooting techniques in resolving computer hardware, software and configuration problems.
- **12.9.3.IT-SUP.4** Perform installation, configuration and maintenance of operating systems.
- **12.9.3.IT-SUP.5** Demonstrate the use of networking concepts to develop a network.
- **12.9.3.IT-SUP.6** Evaluate the effectiveness of an information system.
- **12.9.3.IT-SUP.7** Employ system installation and maintenance skills to setup and maintain an information system.
- **12.9.3.IT-SUP.8** Employ system administration and control skills to monitor the performance of an information system.
- **12.9.3.IT-SUP.9** Employ technical writing and documentation skills in support of an information system.
- **12.9.3.IT-SUP.10** Apply quality assurance processes to maximize information system operation.

CCCS.MATH.CONTENT.HSN-Q.A.1-3 Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas.

- **NJCCS 9-12.9.1.12.B.4.c,d,e,f,g** Time management; Organization; Decision Making; Goal Setting; Resources Allocation
- **NJCCS 9-12.9.1.12.1** Collaboration and teamwork enable individuals or groups to achieve common goals with greater efficiency
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- **NJCC.9.3.12.C** Workplace Safety
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- **NJCCS 8.1.12.F** Critical Thinking, Problem Solving and Decision Making
- **NJCCS 9.1.12.A** Critical Thinking, Problem Solving and Decision Making
- **CCCS.ELA-LITERACY.RST.11-12.4.** Follow Multi-step Procedure
- **NJCCS 9.3.12.3** Follow Multi-step Procedure
- **NJCCS 9.3.12.3** Follow Multi-step Procedure
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- ***LA.11-12.CCSS.ELA-Literacy.WHST.11-12.2e*** Provide a concluding statement or section that follows from and supports the information or explanation provided.
- ***WORK.9-12.9.1.12.1*** The ability to recognize a problem and apply critical thinking and problem-solving skills to solve the problem is a lifelong skill that develops over time.
- ***WORK.9-12.9.1.12.2*** Leadership abilities develop over time through participation in groups and/or teams that are engaged in challenging or competitive activities.
- **NJCCS 9.3.12.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.
- **NJCCS 8.1.12.C.1** Develop an innovative solution to a real world problem or issue in collaboration with peers and experts, and present ideas for feedback through social media or in an online community.
- **NJCCS 8.1.12.E.1** Produce a position statement about a real world problem by developing a systematic plan of investigation with peers and experts synthesizing information from multiple sources.
- **NJCCS 8.1.12.F.1** Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs.
- **NJCCS 8.2.12.A.2** Analyze a current technology and the resources used, to identify the trade-offs in terms of availability, cost, desirability and waste.
- **NJCCS 8.2.12.A.3** Research and present information on an existing technological product that has been repurposed for a different function.
- **NJCCS 8.2.12.C.2** Analyze a product and how it has changed or might change over time to meet human needs and wants.
- **NJCCS 8.2.12.C.4** Explain and identify interdependent systems and their functions.
- **NJCCS 8.2.12.C.6** Research an existing product, reverse engineer and redesign it to improve form and function.
- **NJCCS 8.2.12.D.3** Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.
- **NJCCS 8.2.12.E.1** Demonstrate an understanding of the problem-solving capacity of computers in our world.
- **NJCCS 8.2.12.E.2** Analyze the relationships between internal and external computer components.

- **NJCCS 8.2.12.E.4** Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).
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- **CRP9.** Model integrity, ethical leadership and effective management.
- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Memory is the Random Access memory that a computer uses when it is in operation. It is the volatile memory and it means that when the power is switched off, the data is vanished from it. Memory can have many of the types. Each type is better than the previous one, but specific to the requirements of the motherboard.

ESSENTIAL QUESTIONS

- What type of memory does your personnel computer have.
- What is the difference between PC Memory and Laptop Memory.
- What is the limit of memory storage for a 32 bit OS PC.

KNOWLEDGE AND SKILLS

- Identify the amount of Memory installed in the PC.
- Identify the amount of virtual memory.
- Access the Resource Monitor utility.
- Visually identify the different types of memory.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Identify typical memory problems.
- Identify and classify the various types of memory available.
- Install all types of memory into the correct memory slots on the motherboards.
- Determine the amount of memory and add more memory to a PC.
- Test memory with diagonostic tools.
- Be aware and practice safe working skills.

Unit Name: Input Devices **Time Frame: 1 week**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – Students will be able to connect varies types of input devices to the computer and understand their individual functions.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.blackbox.com
www.irda.org
www.logitech.com
www.microsoft.com
www.usb.org
www.wi-fi.org

STAGE ONE

GOALS AND STANDARDS

- **12.9.3.IT.1** ***Demonstrate effective professional communication skills and practices that enable positive customer relationships.***
- **12.9.3.IT.2** ***Use product or service design processes and guidelines to produce a quality information technology (IT) product or service.***
- **12.9.3.IT.3 Demonstrate the use of cross-functional teams in achieving IT project goals.**
- **12.9.3.IT.4** ***Demonstrate positive cyber citizenry by applying industry accepted ethical practices and behaviors.***
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- **12.9.3.IT.6** ***Describe trends in emerging and evolving computer technologies and their influence on IT practices.***
- **12.9.3.IT.7** ***Perform standard computer backup and restore procedures to protect IT information.***
- **12.9.3.IT.8** ***Recognize and analyze potential IT security threats to develop and maintain security requirements.***

- **12.9.3.IT.9** ***Describe quality assurance practices and methods employed in producing and providing quality IT products and services.***
- **12.9.3.IT.10** ***Describe the use of computer forensics to prevent and solve information technology crimes and security breaches*****.**
- **12.9.3.IT.12** Demonstrate knowledge of the hardware components associated with information systems.
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- **12.9.3.IT-PROG.7** Demonstrate software testing procedures to ensure quality products.
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- **NJCCS 8.2.12.D.3** Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.

- **NJCCS 8.2.12.E.1** Demonstrate an understanding of the problem-solving capacity of computers in our world.
- **NJCCS 8.2.12.E.2** Analyze the relationships between internal and external computer components.
- **NJCCS 8.2.12.E.4** Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).
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- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- The student will be able to understand that: Input devices enable you to input data and commands into the computer via varies types of input devices.

ESSENTIAL QUESTIONS

- What is the difference between a PS2 input and USB input connection.
- Why do computers require input.
- Why do some input devices require software drivers to be installed first.

KNOWLEDGE AND SKILLS

- Explain how a keyboard scan code is generated.
- Modify input device properties of a keyboard or mouse using Control Panel.
- Explain how to access input device information using Device Manager.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
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- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Identify all major input devices that can be connected to the computer.
- Connect all varies types of input devices to the computer.
- Connect input devices after the PC has been turned on.
- Test and repair input devices with component testers.
- Replace broken components of input devices.
- Do Not Throw Keyboards and steal mouse balls.
- Be aware and practice safe working skills.

Unit Name: Video Display and Audio Systems **Time Frame: 2 weeks**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – Students will be able to change varies display and sound devices connected to a computer. Students will be able to load and install drivers for video and sound devices.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.nvidia.com
www.microsoft.com
www.sony.com
www.soundblaster.com
www.yamaha.com

STAGE ONE

GOALS AND STANDARDS

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- **NJCCS 9-12.9.1.12.F.2** Demonstrate a positive work ethic in various settings, including the classroom and during structured learning experiences.
- **CCCS.ELA-LITERACY.RST.11-12.4** Workplace Safety
- **NJCC.9.3.12.C** Workplace Safety
- **CCCS.ELA-LITERACY.WHST 11-12.2.** Critical Thinking, Problem Solving and Decision Making
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- **NJCCS 9.1.12.A** Critical Thinking, Problem Solving and Decision Making
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- **NJCCS 9.3.12.3** Follow Multi-step Procedure
- **NJCCS 9.3.12.3** Follow Multi-step Procedure
- **CCCS.ELA-LITERACY.RST.11-12.4.** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.
- ***LA.11-12.CCSS.ELA-Literacy.WHST.11-12.2e*** Provide a concluding statement or section that follows from and supports the information or explanation provided.
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- **NJCCS 8.2.12.A.2** Analyze a current technology and the resources used, to identify the trade-offs in terms of availability, cost, desirability and waste.
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- **NJCCS 8.2.12.C.4** Explain and identify interdependent systems and their functions.
- **NJCCS 8.2.12.C.6** Research an existing product, reverse engineer and redesign it to improve form and function.
- **NJCCS 8.2.12.D.3** Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.

- **NJCCS 8.2.12.E.1** Demonstrate an understanding of the problem-solving capacity of computers in our world.
- **NJCCS 8.2.12.E.2** Analyze the relationships between internal and external computer components.
- **NJCCS 8.2.12.E.4** Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).
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- **CRP2.** Apply appropriate academic and technical skills.
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- **CRP6.** Demonstrate creativity and innovation.
- **CRP7.** Employ valid and reliable research strategies.
- **CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them.
- **CRP9.** Model integrity, ethical leadership and effective management.
- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will be able to install / setup varies types of display and sound devices.

ESSENTIAL QUESTIONS

- Write Three
- How does an image appear on the display device.
- How is audio sound produce.
- What is the difference between vga, dvi and hdmi connections.

KNOWLEDGE AND SKILLS

- Beginning of Chapter
- Describe the basic operation of the CRT.
- Describe the basic operation of the LCD – LED panel.
- Explain screen resolution.
- Define screen pitch.
- Explain the major steps for installing a video adapter card.
- Explain the major steps of installing a sound card.
- Define different display systems.
- Explain how data compression works.
- Explain how MIDI produces sound.
- Compare WAV file and MIDI file types.
- Explain how sampling rate and number of bits determine the quality of analog-to-digital conversion.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Modify the appearance of the desktop area.
- Change the screen saver.
- Change the resolution of the screen.
- Install video and sound drivers to level three.
- Resolve missing drivers via device manager.
- Be aware and practice safe working skills.

Unit Name: Magnetic Storage Devices **Time Frame: 2 weeks**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – Students will be able to identify varies types of storage devices and install into a computer systems.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.adaptec.com
www.ibm.com
www.maxtor.com
www.quantum.com
www.scsita.org
www.westerndigital.com
www.seagate.com

STAGE ONE

GOALS AND STANDARDS

- **12.9.3.IT.1** Demonstrate effective professional communication skills and practices that enable positive customer relationships.
- **12.9.3.IT.2** Use product or service design processes and guidelines to produce a quality information technology (IT) product or service.
- **12.9.3.IT.3** Demonstrate the use of cross-functional teams in achieving IT project goals.
- **12.9.3.IT.4** Demonstrate positive cyber citizenry by applying industry accepted ethical practices and behaviors.
- **12.9.3.IT.5** Explain the implications of IT on business development.
- **12.9.3.IT.6** Describe trends in emerging and evolving computer technologies and their influence on IT practices.
- **12.9.3.IT.7** Perform standard computer backup and restore procedures to protect IT information.
- **12.9.3.IT.8** Recognize and analyze potential IT security threats to develop and maintain security requirements.

- **12.9.3.IT.9** Describe quality assurance practices and methods employed in producing and providing quality IT products and services.
- **12.9.3.IT.10** Describe the use of computer forensics to prevent and solve information technology crimes and security breaches.
- **12.9.3.IT.12** Demonstrate knowledge of the hardware components associated with information systems.
- **12.9.3.IT.13** Compare key functions and applications of software and determine maintenance strategies for computer systems.
- **12.9.3.IT-PROG.1** Analyze customer software needs and requirements.
- **12.9.3.IT-PROG.2** Demonstrate the use of industry standard strategies and project planning to meet customer specifications.
- **12.9.3.IT-PROG.3** Analyze system and software requirements to ensure maximum operating efficiency.
- **12.9.3.IT-PROG.4** Demonstrate the effective use of software development tools to develop software applications.
- **12.9.3.IT-PROG.5** Apply an appropriate software development process to design a software application.
- **12.9.3.IT-PROG.6** Program a computer application using the appropriate programming language.
- **12.9.3.IT-PROG.7** Demonstrate software testing procedures to ensure quality products.
- **12.9.3.IT-PROG.8** Perform quality assurance tasks as part of the software development cycle.
- **12.9.3.IT-PROG.9** Perform software maintenance and customer support functions.
- **12.9.3.IT-PROG.10** Design, create and maintain a database.
- **12.9.3.IT-NET.1** Analyze customer or organizational network system needs and requirements.
- **12.9.3.IT-NET.2** Analyze wired and wireless network systems to determine if they meet specifications (e.g., IEEE, power and security).
- **12.9.3.IT-NET.3** Design a network system using technologies, tools and standards.
- **12.9.3.IT-NET.4** Perform network system installation and configuration.
- **12.9.3.IT-NET.5** Perform network administration, monitoring and support to maintain a network system.
- **12.9.3.IT-SUP.1** Provide technology support to maintain service.
- **12.9.3.IT-SUP.2** Manage operating systems and software applications, including maintenance of upgrades, patches and service packs.
- **12.9.3.IT-SUP.3** Apply appropriate troubleshooting techniques in resolving computer hardware, software and configuration problems.
- **12.9.3.IT-SUP.4** Perform installation, configuration and maintenance of operating systems.
- **12.9.3.IT-SUP.5** Demonstrate the use of networking concepts to develop a network.
- **12.9.3.IT-SUP.6** Evaluate the effectiveness of an information system.
- **12.9.3.IT-SUP.7** Employ system installation and maintenance skills to setup and maintain an information system.
- **12.9.3.IT-SUP.8** Employ system administration and control skills to monitor the performance of an information system.
- **12.9.3.IT-SUP.9** Employ technical writing and documentation skills in support of an information system.
- **12.9.3.IT-SUP.10** Apply quality assurance processes to maximize information system operation.

CCCS.MATH.CONTENT.HSN-Q.A.1-3 Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas.

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- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will be able to configure multiple storage devices and install devices into computer systems.
- Students will be able test storage devices using varies testing devices.

ESSENTIAL QUESTIONS

- What is the difference between an IDE and SATA storage device.
- What must be done to prepare a storage device for data.
- What type of software is used with storage devices.

KNOWLEDGE AND SKILLS

- Explain how magnetic principles are used for data storage.
- Understand disk geometry.
- Explain how disk fragmentation occurs.
- Explain the purpose of using ScanDisk and Chkdsk.
- Identify major parts of common disk storage units.
- Select the appropriate file storage system.
- Explain how to install a second hard drive.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations

- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Prepare a storage device for data.
- Install a storage device into the computer.
- Connect the storage device into the motherboard.
- Add a second and or third storage device to the computer.
- Replace bad storage device.
- Test storage device with testing equipment.
- Change storage device jumper settings.
- Be aware and practice safe working skills.

Unit Name: CD Technology **Time Frame: 1 week**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – An overview of the development of CD technology – types – storage – methods of recording information onto the disk.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.hp.com
www.iomega.com
www.phillips.com
www.sony.com
www.verbatim.com

STAGE ONE

GOALS AND STANDARDS

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- **CRP10.** Plan education and career paths aligned to personal goals.
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- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will learn how information is recorded onto the optical disk.
- Students will understand the difference between varies types of CD storage methods.

ESSENTIAL QUESTIONS

- What is an optical drive.
- What type of lasser does an optical drive use, is there more than one.
- How much data can be stored on a optical drive.

KNOWLEDGE AND SKILLS

- Explain how data is stored and retrieved using optical storage devices.
- Describe how CD and DVD discs are constructed.
- Explain different CD formats such as CD-ROM, CD-R, CD-RW, and DVD-RW.
- Describe major parts of a CD and DVD storage device.
- Define Sierra format.
- Explain the steps for installing an optical drive.
- Discuss the compatibility of different CD and DVD formats.
- Explain the CD file systems ISO 9660 and UDF.
- Distinguish between CD, DVD, HD-DVD, and Blu-ray Disc Storage technologies.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Install an optical drive into a computer.
- Install the software for an optical drive.
- Take apart an old optical drive.
- Record data onto an optical drive using the OS program.
- Be aware and practice safe working skills.

Unit Name: Printers **Time Frame: 2 weeks**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY - The basic operation of most types of printers – laser and ink jet, and how to install printers to computers/networks.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.epson.com
www.hp.com
www.ricoh.com
www.xerox.com

STAGE ONE

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- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will understand the methods of produce text/images onto paper with a printer.
- Students will be able to install a printer to a computer / network.
- Students will be able to troubleshoot basic printer problems.

ESSENTIAL QUESTIONS

- How does the ink/toner stick to the paper.
- What type of printer drivers are needed between usb and tcp/ip type printers.
- Why would a printer print out gibberish.

KNOWLEDGE AND SKILLS

- Expalin the operating principles of a laser printer.
- Explain the operating principles of an inkjet printer.
- Explain the operating principles of a dot matrix printer.
- Explain how to install a printer.
- Install print driver software.
- Complete printer installation and setup.
- Identify and diagnose common laser printer faults.
- Explain how fonts are generated and installed.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
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- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
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- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Install and setup a local printer to a computer.
- Download the printer drivers from the Internet.
- Take apart an old printer.
- Add aprinter to a network.
- Be aware and practice safe working skills.

Unit Name: Portable PCs **Time Frame: 2 weeks**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – An overview of types of computers with rechargeable batteries – laptops – notebooks – smartphones.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.3com.com
www.bluetooth.com
www.comdex.com
www.compaq.com
www.hp.com
www.ibm.com
www.motorola.com
www.palm.com
www.sun.com

STAGE ONE

GOALS AND STANDARDS

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ENDURING UNDERSTANDING

- Students will understand the difference between a laptop vs a desktop.
- Students will learn how batteries can power portable devices.
- Students will understand the different methods of receiving/sending data to portable devices.

ESSENTIAL QUESTIONS

- Can a laptop be more powerful than a desktop computer.
- Are portable devices more likey to be damage.
- How much data storage is available on a average portable device.

KNOWLEDGE AND SKILLS

- Distinguish between laptops, notebooks, palmtops, and personal digital assistants.
- Identify the parts that are different in full-size PCs and portable PCs.
- Explain the difference the types of batteries used in portable PCs.
- Identify the three standard PCMCIA cards.
- Identify the two widths of ExpressCards.
- Define what the Bluetooth standard does.
- Describe how Windows Briefcase is used.
- Describe direct cable connection communications.

STAGE TWO

PERFORMANCE TASKS

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- Lecture / Notes
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OTHER EVIDENCE

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STAGE THREE

LEARNING PLAN - Activities

- Transfer files from a portable device to a desktop.
- Setup portable devices for use by multiple users.
- Install varies OS on portable devices.
- Track the amount of charge available on several portable devices.
- Upgrade devices with new hardware – if possible.
- Be aware and practice safe working skills.

Unit Name: Modems and Transceivers **Time Frame: 2 weeks**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY - A review of the many forms of modems used by all devices connected to the Internet.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.56k.com
www.cablelabs.com
www.catv.org
www.teledata-networks.com
www.usrobotics.com
www.verizon.com
www.comcast.com

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ENDURING UNDERSTANDING

- Students will be able to identify the different types of modems used in today's Interent.
- Students will be able install/setup a modem connection between a computer and the Internet.
- Students will understand how data is transmitted through a modem.

ESSENTIAL QUESTIONS

- What is a modem.
- What type of signal does a modem have to use.
- How fast can a modem transmit data.

KNOWLEDGE AND SKILLS

- Identify base features of telephone wiring systems.
- Explain the operation of a modem.
- Explain how modems negotiate a connection.
- Set up a standard modem.
- Use the Phone and Modem Optios dialog box.
- Explain ISDN, DSI, Cable, and T-carrier lines.
- Identify several basic AT commands.
- Diagnose common modem problems.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations

- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Connect a computer to a phone modem.
- Connect a computer to a DSL modem.
- Compare two computers with two different modems, are the speeds the same.
- Be aware and practice safe working skills.

Unit Name: Viruses **Time Frame: 1 week**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – The fundamentals of virus infection, protection, and its elimination in the computer environment.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.antivirus.com
www.cert.org
www.datafellows.com
www.datarescue.com
www.fedcirc.gov
www.f-secure.com
www.lavasoft.com
www.mcafree.com
www.norman.com
www.ontrack.com
www.stiller.com
www.symantec.com
www.virusbtn.com

STAGE ONE

GOALS AND STANDARDS

- **12.9.3.IT.1** Demonstrate effective professional communication skills and practices that enable positive customer relationships.
- **12.9.3.IT.2** Use product or service design processes and guidelines to produce a quality information technology (IT) product or service.
- **12.9.3.IT.3** Demonstrate the use of cross-functional teams in achieving IT project goals.
- **12.9.3.IT.4** Demonstrate positive cyber citizenry by applying industry accepted ethical practices and behaviors.
- **12.9.3.IT.5** Explain the implications of IT on business development.
- **12.9.3.IT.6** Describe trends in emerging and evolving computer technologies and their influence on IT practices.

- **12.9.3.IT.7** Perform standard computer backup and restore procedures to protect IT information.
- **12.9.3.IT.8** Recognize and analyze potential IT security threats to develop and maintain security requirements.
- **12.9.3.IT.9** Describe quality assurance practices and methods employed in producing and providing quality IT products and services.
- **12.9.3.IT.10** Describe the use of computer forensics to prevent and solve information technology crimes and security breaches.
- **12.9.3.IT.12** Demonstrate knowledge of the hardware components associated with information systems.
- **12.9.3.IT.13** Compare key functions and applications of software and determine maintenance strategies for computer systems.
- **12.9.3.IT-PROG.1** Analyze customer software needs and requirements.
- **12.9.3.IT-PROG.2** Demonstrate the use of industry standard strategies and project planning to meet customer specifications.
- **12.9.3.IT-PROG.3** Analyze system and software requirements to ensure maximum operating efficiency.
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- **12.9.3.IT-PROG.5** Apply an appropriate software development process to design a software application.
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- **12.9.3.IT-PROG.10** Design, create and maintain a database.
- **12.9.3.IT-NET.1** Analyze customer or organizational network system needs and requirements.
- **12.9.3.IT-NET.2** Analyze wired and wireless network systems to determine if they meet specifications (e.g., IEEE, power and security).
- **12.9.3.IT-NET.3** Design a network system using technologies, tools and standards.
- **12.9.3.IT-NET.4** Perform network system installation and configuration.
- **12.9.3.IT-NET.5** Perform network administration, monitoring and support to maintain a network system.
- **12.9.3.IT-SUP.1** Provide technology support to maintain service.
- **12.9.3.IT-SUP.2** Manage operating systems and software applications, including maintenance of upgrades, patches and service packs.
- **12.9.3.IT-SUP.3** Apply appropriate troubleshooting techniques in resolving computer hardware, software and configuration problems.
- **12.9.3.IT-SUP.4** Perform installation, configuration and maintenance of operating systems.
- **12.9.3.IT-SUP.5** Demonstrate the use of networking concepts to develop a network.
- **12.9.3.IT-SUP.6** Evaluate the effectiveness of an information system.
- **12.9.3.IT-SUP.7** Employ system installation and maintenance skills to setup and maintain an information system.
- **12.9.3.IT-SUP.8** Employ system administration and control skills to monitor the performance of an information system.

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- **12.9.3.IT-SUP.10** Apply quality assurance processes to maximize information system operation.

CCCS.MATH.CONTENT.HSN-Q.A.1-3 Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas.

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- **NJCCS 9-12.9.1.12.1** Collaboration and teamwork enable individuals or groups to achieve common goals with greater efficiency
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- **CCCS.ELA-LITERACY.RST.11-12.4** Workplace Safety
- **NJCC.9.3.12.C** Workplace Safety
- **CCCS.ELA-LITERACY.WHST 11-12.2.** Critical Thinking, Problem Solving and Decision Making
- **NJCCS 8.1.12.F** Critical Thinking, Problem Solving and Decision Making
- **NJCCS 9.1.12.A** Critical Thinking, Problem Solving and Decision Making
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- **NJCCS 9.3.12.3** Follow Multi-step Procedure
- **CCCS.ELA-LITERACY.RST.11-12.4.** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.
- ***LA.11-12.CCSS.ELA-Literacy.WHST.11-12.2e*** Provide a concluding statement or section that follows from and supports the information or explanation provided.
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- ***WORK.9-12.9.1.12.2*** Leadership abilities develop over time through participation in groups and/or teams that are engaged in challenging or competitive activities.
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- **NJCCS 8.2.12.C.2** Analyze a product and how it has changed or might change over time to meet human needs and wants.
- **NJCCS 8.2.12.C.4** Explain and identify interdependent systems and their functions.

- **NJCCS 8.2.12.C.6** Research an existing product, reverse engineer and redesign it to improve form and function.
- **NJCCS 8.2.12.D.3** Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.
- **NJCCS 8.2.12.E.1** Demonstrate an understanding of the problem-solving capacity of computers in our world.
- **NJCCS 8.2.12.E.2** Analyze the relationships between internal and external computer components.
- **NJCCS 8.2.12.E.4** Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).
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- **CRP9.** Model integrity, ethical leadership and effective management.
- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will be able to identify varies forms of virus.
- Students will be able to take steps of protection from virus.
- Students will be able to install varies forms of virus protection programs.

ESSENTIAL QUESTIONS

- What is a virus.
- How do you identify a virus in a computer.
- What type of virus protection software is the best.

KNOWLEDGE AND SKILLS

- Identify common virus characteristics.com
- Explain how virus detection.
- Explain how virus are spread.
- Explain the prevention of virus infection.
- Define virus signature.
- Classify viruses by their action or description.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events

- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
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OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
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- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Review and identify all forms of virus.
- Review and install virus protection programs.
- Remove infected computer virus with help from virus programs.
- Review OS downloads – what files deal with virus.
- Be aware and practice safe working skills.

Unit Name: PC Troubleshooting **Time Frame: 3 weeks**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – PC troubleshooting involves making decisions based on type of failures in the hardware or software. Determining the problem will lead into a series of procedures to resovle the issues in a timely manner.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.biocentral.com
www.support.dell.com
www.support.microsoft.com
www.ami.com
www.computerhope.com
www.configsafe.com
www.pc-doctor.com
www.phoenix.com
www.sysinternals.com
www.winternals.com

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- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will be able to determine pc problems as a hardware or software issue.
- Students will be able resovle hardware failures.
- Students will be able to resovle software failures.
- Students will understand how to use system diagnosis tools.

ESSENTIAL QUESTIONS

- How do you determine the computer problem issues.
- What type of diagnosis tools are necessary for a repair technication.
- How often does a computer need to be clean and or serviced.

KNOWLEDGE AND SKILLS

- State commonly practiced troubleshooting steps.
- Identify the three stages of computer operation.
- Recognize common startup problems and understand their causes.
- Restart a PC in a variety of troubleshooting modes.
- Identify the appropriate diagnostics utility to use given a specific problem.
- Step through a PC's boot sequence.
- Explain basic data recovery methods.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes

- Current Events
- Quizzes / Tests
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OTHER EVIDENCE

- Quarterly Exam
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STAGE THREE

LEARNING PLAN - Activities

- Replace faulty hardware components.
- Resolve faulty software program issues.
- Maintain computer systems with service checks.
- Use advanced diagnosis tools to determine pc problems.
- Be aware and practice safe working skills.

Unit Name: Introduction to Networking **Time Frame: 2 weeks**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – A basic understanding of the principals and operation of networked computers.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.blackbox.com
www.cables-unlimited.com
www.howstuffworks.com
www.techfest.com

STAGE ONE

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- **NJCCS 8.2.12.E.1** Demonstrate an understanding of the problem-solving capacity of computers in our world.
- **NJCCS 8.2.12.E.2** Analyze the relationships between internal and external computer components.

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- **CRP2.** Apply appropriate academic and technical skills.
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- **CRP6.** Demonstrate creativity and innovation.
- **CRP7.** Employ valid and reliable research strategies.
- **CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them.
- **CRP9.** Model integrity, ethical leadership and effective management.
- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will understand the basic principals of computers in a network.
- Students will be able to join several computers into basic network.
- Students will be able to use tools related to networking.

ESSENTIAL QUESTIONS

- What is a network of computers.
- What type of tools are used in a network.
- How do computers communicate in a network.

KNOWLEDGE AND SKILLS

- Identify and describe network topologies.
- Describe the communication theory of a network system.
- List and describe common network systems.
- Describe the communication principles of Ethernet and Token Ring systems.
- Describe the installation of a typical network adapter.
- Identify common network cabling materials.
- Identify a network's basic hardware devices.
- List and describe the layers of the OSI model.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Construct a small peer to peer network.
- Create custom length standard Cat5e network cables.
- Use networking tools.
- Create a shared network drive for the peer network.
- Be aware and practice safe working skills.

Unit Name: Network Adminstration **Time Frame: 2 weeks**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – The use of network software packages to manage network system operations, network security and coordination of shared resources.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.dell.com
www.ibm.com
www.microsoft.com
www.novell.com
www.linux.com

STAGE ONE

GOALS AND STANDARDS

- **12.9.3.IT.1** Demonstrate effective professional communication skills and practices that enable positive customer relationships.
- **12.9.3.IT.2** Use product or service design processes and guidelines to produce a quality information technology (IT) product or service.
- **12.9.3.IT.3** Demonstrate the use of cross-functional teams in achieving IT project goals.
- **12.9.3.IT.4** Demonstrate positive cyber citizenry by applying industry accepted ethical practices and behaviors.
- **12.9.3.IT.5** Explain the implications of IT on business development.
- **12.9.3.IT.6** Describe trends in emerging and evolving computer technologies and their influence on IT practices.
- **12.9.3.IT.7** Perform standard computer backup and restore procedures to protect IT information.
- **12.9.3.IT.8** Recognize and analyze potential IT security threats to develop and maintain security requirements.
- **12.9.3.IT.9** Describe quality assurance practices and methods employed in producing and providing quality IT products and services.

- **12.9.3.IT.10** Describe the use of computer forensics to prevent and solve information technology crimes and security breaches.
- **12.9.3.IT.12** Demonstrate knowledge of the hardware components associated with information systems.
- **12.9.3.IT.13** Compare key functions and applications of software and determine maintenance strategies for computer systems.
- **12.9.3.IT-PROG.1** Analyze customer software needs and requirements.
- **12.9.3.IT-PROG.2** Demonstrate the use of industry standard strategies and project planning to meet customer specifications.
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- **12.9.3.IT-PROG.10** Design, create and maintain a database.
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- **12.9.3.IT-NET.5** Perform network administration, monitoring and support to maintain a network system.
- **12.9.3.IT-SUP.1** Provide technology support to maintain service.
- **12.9.3.IT-SUP.2** Manage operating systems and software applications, including maintenance of upgrades, patches and service packs.
- **12.9.3.IT-SUP.3** Apply appropriate troubleshooting techniques in resolving computer hardware, software and configuration problems.
- **12.9.3.IT-SUP.4** Perform installation, configuration and maintenance of operating systems.
- **12.9.3.IT-SUP.5** Demonstrate the use of networking concepts to develop a network.
- **12.9.3.IT-SUP.6** Evaluate the effectiveness of an information system.
- **12.9.3.IT-SUP.7** Employ system installation and maintenance skills to setup and maintain an information system.
- **12.9.3.IT-SUP.8** Employ system administration and control skills to monitor the performance of an information system.
- **12.9.3.IT-SUP.9** Employ technical writing and documentation skills in support of an information system.
- **12.9.3.IT-SUP.10** Apply quality assurance processes to maximize information system operation.

CCCS.MATH.CONTENT.HSN-Q.A.1-3 Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas.

- **NJCCS 9-12.9.1.12.B.4.c,d,e,f,g** Time management; Organization; Decision Making; Goal Setting; Resources Allocation
- **NJCCS 9-12.9.1.12.1** Collaboration and teamwork enable individuals or groups to achieve common goals with greater efficiency
- **NJCCS 9-12.9.1.12.F.2** Demonstrate a positive work ethic in various settings, including the classroom and during structured learning experiences.
- **CCCS.ELA-LITERACY.RST.11-12.4** Workplace Safety
- **NJCC.9.3.12.C** Workplace Safety
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- **NJCCS 8.1.12.F** Critical Thinking, Problem Solving and Decision Making
- **NJCCS 9.1.12.A** Critical Thinking, Problem Solving and Decision Making
- **CCCS.ELA-LITERACY.RST.11-12.4.** Follow Multi-step Procedure
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- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will be able to install and use network software.
- Students will be able to determine problems are either PC based or in the network.
- Students understand the responsibilities of an Network Administrator.

ESSENTIAL QUESTIONS

- What is a network administrator.
- What type of software does an network administrator use in the network.
- What is a domain, group and user for the network administrator.

KNOWLEDGE AND SKILLS

- Explain the difference between user-level and share-level security.
- Explain the role of the network administrator.
- Describe the characteristics of centralized and decentralized network administration.
- Describe the characteristics of a strong password.
- Describe some of the features that may be implemented to increase network security.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
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- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam

- Homework / Classroom Assignments
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- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Create a client / server network.
- Install Windows 2003 Advanced Server software.
- Add user accounts to a network.
- Set user login rights to groups of users.
- Be aware and practice safe working skills.

Unit Name: WAN **Time Frame: 1 weeks**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – A basic understanding of how a WAN operates and to explain some of the technical terminology associated with wide area networks.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.cisco.com
www.domainregistry.com
www.learntcpip.com/OSIModel/OSIModel.html
www.linux.com
www.microsoft.com
www.novell.com
www.pacbell.com
www.unix.com
www.youdzone.com

STAGE ONE

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ENDURING UNDERSTANDING

- Students will understand how WAN operate on the Internet.
- Students will understand how data travels through the WAN.
- Students will have the basic history of the creation of today Internet.

ESSENTIAL QUESTIONS

- What is a WAN Network.
- How does data travel through the Internet.
- What is a router – why is important in the WAN network.

KNOWLEDGE AND SKILLS

- Explain the difference between a LAN and a WAN.
- Explain how IP addresses are used.
- Explain DNS, WINS, and DHCP services.
- Explain the use of common diagnostic utilities associated with networks.
- Describe the physical structure and evolution of the Internet.
- Identify equipment associated with a WAN.
- Describe the function of several common network troubleshooting software commands.
- Explain how to set up an e-mail account.
- Describe the common features associated with e-mail.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects

- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Setup up a network with a router.
- Review the procedures for joining an ISP.
- Setup a computer to be remotely controlled through the WAN Network.
- Be aware and practice safe working skills.

Unit Name: Small-Office/Home-Office (SOHO) Networking

Time Frame: 1 week

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – Learn how to use the Network Setup Wizard to configure a SOHO network and how to troubleshoot the common problems that can occur in a SOHO network.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.microsoft.com
www.2wire.com
www.3com.com

STAGE ONE

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- **12.9.3.IT-SUP.2** Manage operating systems and software applications, including maintenance of upgrades, patches and service packs.
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- **12.9.3.IT-SUP.4** Perform installation, configuration and maintenance of operating systems.
- **12.9.3.IT-SUP.5** Demonstrate the use of networking concepts to develop a network.
- **12.9.3.IT-SUP.6** Evaluate the effectiveness of an information system.
- **12.9.3.IT-SUP.7** Employ system installation and maintenance skills to setup and maintain an information system.
- **12.9.3.IT-SUP.8** Employ system administration and control skills to monitor the performance of an information system.
- **12.9.3.IT-SUP.9** Employ technical writing and documentation skills in support of an information system.
- **12.9.3.IT-SUP.10** Apply quality assurance processes to maximize information system operation.

CCCS.MATH.CONTENT.HSN-Q.A.1-3 Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas.

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- **NJCCS 8.2.12.A.3** Research and present information on an existing technological product that has been repurposed for a different function.
- **NJCCS 8.2.12.C.2** Analyze a product and how it has changed or might change over time to meet human needs and wants.
- **NJCCS 8.2.12.C.4** Explain and identify interdependent systems and their functions.
- **NJCCS 8.2.12.C.6** Research an existing product, reverse engineer and redesign it to improve form and function.
- **NJCCS 8.2.12.D.3** Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.
- **NJCCS 8.2.12.E.1** Demonstrate an understanding of the problem-solving capacity of computers in our world.
- **NJCCS 8.2.12.E.2** Analyze the relationships between internal and external computer components.

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- **CRP1**. Act as a responsible and contributing citizen and employee.
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- **CRP6.** Demonstrate creativity and innovation.
- **CRP7.** Employ valid and reliable research strategies.
- **CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them.
- **CRP9.** Model integrity, ethical leadership and effective management.
- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will learn to use the type of media that will be used to connect the PCs together.
- Students will determine the manner in which the networked PCs will access the Internet.
- Students will determine the level of administration that wil be used to protect the network from intruders.
- Students will select the method of security for the network.

ESSENTIAL QUESTIONS

- What is a SOHO.
- What type of network media is used in a SOHO.
- How do you configure a SOHO network with Windows OS.

KNOWLEDGE AND SKILLS

- Determine the best media for use in a SOHO network based on cost and building structure.
- Determine an appropriate Internet access configuration based on the number of PCs and the type of network media used in a SOHO network.
- Design a SOHO network based on the media, the number of PCs, and the type of Internet access that will be used.
- Determine an appropriate level of administration for a SOHO network.
- Identify methods to secure a SOHO network.
- Use the Network Setup Wizard to set up Internet Connection Sharing (ICS) on a host PC.
- Use the Network Setup Wizard to allow a client access to the Internet through a host PC.
- Explain the networking features in Windows OS.
- Explain how Network Discovery works in Windows OS.
- Identify common problems that can occur in a new SOHO network installation.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes

- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Design a SOHO network for a home network.
- Configure a VPN on a peer network.
- Configure a firewall on the peer network.
- Configure multiple printers on the peer network.
- Be aware and practice safe working skills.

Unit Name: Customer Support, Communication, and Professionalism

Time Frame: 1 week

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – The basic skills necessary to function in a customer or client-related environment.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.oneorzero.com
www.technet.microsoft.com
www.helpstar.com
www.troubleticketexpress.com

STAGE ONE

GOALS AND STANDARDS

- **12.9.3.IT.1** Demonstrate effective professional communication skills and practices that enable positive customer relationships.
- **12.9.3.IT.2** Use product or service design processes and guidelines to produce a quality information technology (IT) product or service.
- **12.9.3.IT.3** Demonstrate the use of cross-functional teams in achieving IT project goals.
- **12.9.3.IT.4** Demonstrate positive cyber citizenry by applying industry accepted ethical practices and behaviors.
- **12.9.3.IT.5** Explain the implications of IT on business development.
- **12.9.3.IT.6** Describe trends in emerging and evolving computer technologies and their influence on IT practices.
- **12.9.3.IT.7** Perform standard computer backup and restore procedures to protect IT information.
- **12.9.3.IT.8** Recognize and analyze potential IT security threats to develop and maintain security requirements.

- **12.9.3.IT.9** Describe quality assurance practices and methods employed in producing and providing quality IT products and services.
- **12.9.3.IT.10** Describe the use of computer forensics to prevent and solve information technology crimes and security breaches.
- **12.9.3.IT.12** Demonstrate knowledge of the hardware components associated with information systems.
- **12.9.3.IT.13** Compare key functions and applications of software and determine maintenance strategies for computer systems.
- **12.9.3.IT-PROG.1** Analyze customer software needs and requirements.
- **12.9.3.IT-PROG.2** Demonstrate the use of industry standard strategies and project planning to meet customer specifications.
- **12.9.3.IT-PROG.3** Analyze system and software requirements to ensure maximum operating efficiency.
- **12.9.3.IT-PROG.4** Demonstrate the effective use of software development tools to develop software applications.
- **12.9.3.IT-PROG.5** Apply an appropriate software development process to design a software application.
- **12.9.3.IT-PROG.6** Program a computer application using the appropriate programming language.
- **12.9.3.IT-PROG.7** Demonstrate software testing procedures to ensure quality products.
- **12.9.3.IT-PROG.8** Perform quality assurance tasks as part of the software development cycle.
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- **12.9.3.IT-PROG.10** Design, create and maintain a database.
- **12.9.3.IT-NET.1** Analyze customer or organizational network system needs and requirements.
- **12.9.3.IT-NET.2** Analyze wired and wireless network systems to determine if they meet specifications (e.g., IEEE, power and security).
- **12.9.3.IT-NET.3** Design a network system using technologies, tools and standards.
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- **12.9.3.IT-SUP.1** Provide technology support to maintain service.
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- **NJCCS 8.2.12.E.1** Demonstrate an understanding of the problem-solving capacity of computers in our world.
- **NJCCS 8.2.12.E.2** Analyze the relationships between internal and external computer components.
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- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will understand how to deliver customer support.
- Students will learn of the multiple levels of support within most organizations.
- Students will learn the skills of customer communication.

ESSENTIAL QUESTIONS

- What is the help desk.
- What level of help does a call center provide.
- Listening skills, an important customer support feature.

KNOWLEDGE AND SKILLS

- Explain the difference between a help desk and a call center.
- Describe the three levels of technical support.
- Identify desirable communications skills.
- Explain how body language influences customer and client perceptions.
- Identify the traits that exhibit a professional image.
- Identify strategies for dealing with difficult customers and clients.
- Explain the importance of performing a follow-up in customer relations.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
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- Group / Team Projects

- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Create a document that provides in class support of current projects.
- Create a video tutorial of a service procedure.
- Maintain a databased of support documents for future use.
- Be aware and practice safe working skills.

Unit Name: CompTIA A+ Certification Exams Preparation

Time Frame: 1 week

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – A prepartation study guide leading towards taking a certification test. A review of questions that can be asked on most certification exams.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

www.comptia.org

STAGE ONE

GOALS AND STANDARDS

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- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will prepare to take a certification exam.
- Students will understand the types of certification exams available and what is required to pass the exams.
- Students will take practice exams for certification and determine areas of further study required.

ESSENTIAL QUESTIONS

- What is the CompTIA A+ Exam.
- What is the NOCTI Exam.
- What is required study material for an certification exam.

KNOWLEDGE AND SKILLS

- Explain the format of the CompTIA A+ Certification exams.
- Explain eligibility for taking the CompTIA A+ Certification exams.
- Identify strategies for preparing for the CompTIA A+ Certification exams.
- Evaluate your readiness for the CompTIA A+ Certification exams.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam

- Homework / Classroom Assignments
- Lab Projects / Class activities
- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Form a study group of students and ask typical questions that may be on the certification exam.
- Take practice certification exams.
- Create your own study guide for review.
- Be aware and practice safe working skills.

Unit Name: Employment and Advanced Education **Time Frame: 1 week**

Author: Industrial Technology Committee

UNIT

Subject: **PC Systems** Country: **United States of America**

Course/Grade: **9-12** State/Group: **NJ**

School: **Egg Harbor Township High School**

UNIT SUMMARY – A review of methods to gain employment and ways to advance your career as a computer service and repair.

UNIT RESOURCES

Computer Service and Repair (2008)
Laboratory Manual Computer Service and Repair (2008)
Study Guide Computer Service and Repair (2008)
Classroom Computers, Related Equipment, Software, and Tools.

Internet Resource Links:

???

STAGE ONE

GOALS AND STANDARDS

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- **12.9.3.IT.2** Use product or service design processes and guidelines to produce a quality information technology (IT) product or service.
- **12.9.3.IT.3** Demonstrate the use of cross-functional teams in achieving IT project goals.
- **12.9.3.IT.4** Demonstrate positive cyber citizenry by applying industry accepted ethical practices and behaviors.
- **12.9.3.IT.5** Explain the implications of IT on business development.
- **12.9.3.IT.6** Describe trends in emerging and evolving computer technologies and their influence on IT practices.
- **12.9.3.IT.7** Perform standard computer backup and restore procedures to protect IT information.
- **12.9.3.IT.8** Recognize and analyze potential IT security threats to develop and maintain security requirements.
- **12.9.3.IT.9** Describe quality assurance practices and methods employed in producing and providing quality IT products and services.
- **12.9.3.IT.10** Describe the use of computer forensics to prevent and solve information technology crimes and security breaches.
- **12.9.3.IT.12** Demonstrate knowledge of the hardware components associated with information systems.

- **12.9.3.IT.13** Compare key functions and applications of software and determine maintenance strategies for computer systems.
- **12.9.3.IT-PROG.1** Analyze customer software needs and requirements.
- **12.9.3.IT-PROG.2** Demonstrate the use of industry standard strategies and project planning to meet customer specifications.
- **12.9.3.IT-PROG.3** Analyze system and software requirements to ensure maximum operating efficiency.
- **12.9.3.IT-PROG.4** Demonstrate the effective use of software development tools to develop software applications.
- **12.9.3.IT-PROG.5** Apply an appropriate software development process to design a software application.
- **12.9.3.IT-PROG.6** Program a computer application using the appropriate programming language.
- **12.9.3.IT-PROG.7** Demonstrate software testing procedures to ensure quality products.
- **12.9.3.IT-PROG.8** Perform quality assurance tasks as part of the software development cycle.
- **12.9.3.IT-PROG.9** Perform software maintenance and customer support functions.
- **12.9.3.IT-PROG.10** Design, create and maintain a database.
- **12.9.3.IT-NET.1** Analyze customer or organizational network system needs and requirements.
- **12.9.3.IT-NET.2** Analyze wired and wireless network systems to determine if they meet specifications (e.g., IEEE, power and security).
- **12.9.3.IT-NET.3** Design a network system using technologies, tools and standards.
- **12.9.3.IT-NET.4** Perform network system installation and configuration.
- **12.9.3.IT-NET.5** Perform network administration, monitoring and support to maintain a network system.
- **12.9.3.IT-SUP.1** Provide technology support to maintain service.
- **12.9.3.IT-SUP.2** Manage operating systems and software applications, including maintenance of upgrades, patches and service packs.
- **12.9.3.IT-SUP.3** Apply appropriate troubleshooting techniques in resolving computer hardware, software and configuration problems.
- **12.9.3.IT-SUP.4** Perform installation, configuration and maintenance of operating systems.
- **12.9.3.IT-SUP.5** Demonstrate the use of networking concepts to develop a network.
- **12.9.3.IT-SUP.6** Evaluate the effectiveness of an information system.
- **12.9.3.IT-SUP.7** Employ system installation and maintenance skills to setup and maintain an information system.
- **12.9.3.IT-SUP.8** Employ system administration and control skills to monitor the performance of an information system.
- **12.9.3.IT-SUP.9** Employ technical writing and documentation skills in support of an information system.
- **12.9.3.IT-SUP.10** Apply quality assurance processes to maximize information system operation.

CCCS.MATH.CONTENT.HSN-Q.A.1-3 Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas.

- **NJCCS 9-12.9.1.12.B.4.c,d,e,f,g** Time management; Organization; Decision Making; Goal Setting; Resources Allocation
- **NJCCS 9-12.9.1.12.1** Collaboration and teamwork enable individuals or groups to achieve common goals with greater efficiency

- **NJCCS 9-12.9.1.12.F.2** Demonstrate a positive work ethic in various settings, including the classroom and during structured learning experiences.
- **CCCS.ELA-LITERACY.RST.11-12.4** Workplace Safety
- **NJCC.9.3.12.C** Workplace Safety
- **CCCS.ELA-LITERACY.WHST 11-12.2.** Critical Thinking, Problem Solving and Decision Making
- **NJCCS 8.1.12.F** Critical Thinking, Problem Solving and Decision Making
- **NJCCS 9.1.12.A** Critical Thinking, Problem Solving and Decision Making
- **CCCS.ELA-LITERACY.RST.11-12.4.** Follow Multi-step Procedure
- **NJCCS 9.3.12.3** Follow Multi-step Procedure
- **NJCCS 9.3.12.3** Follow Multi-step Procedure
- **CCCS.ELA-LITERACY.RST.11-12.4.** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.
- ***LA.11-12.CCSS.ELA-Literacy.WHST.11-12.2e*** Provide a concluding statement or section that follows from and supports the information or explanation provided.
- ***WORK.9-12.9.1.12.1*** The ability to recognize a problem and apply critical thinking and problem-solving skills to solve the problem is a lifelong skill that develops over time.
- ***WORK.9-12.9.1.12.2*** Leadership abilities develop over time through participation in groups and/or teams that are engaged in challenging or competitive activities.
- **NJCCS 9.3.12.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context.
- **NJCCS 8.1.12.C.1** Develop an innovative solution to a real world problem or issue in collaboration with peers and experts, and present ideas for feedback through social media or in an online community.
- **NJCCS 8.1.12.E.1** Produce a position statement about a real world problem by developing a systematic plan of investigation with peers and experts synthesizing information from multiple sources.
- **NJCCS 8.1.12.F.1** Evaluate the strengths and limitations of emerging technologies and their impact on educational, career, personal and or social needs.
- **NJCCS 8.2.12.A.2** Analyze a current technology and the resources used, to identify the trade-offs in terms of availability, cost, desirability and waste.
- **NJCCS 8.2.12.A.3** Research and present information on an existing technological product that has been repurposed for a different function.
- **NJCCS 8.2.12.C.2** Analyze a product and how it has changed or might change over time to meet human needs and wants.
- **NJCCS 8.2.12.C.4** Explain and identify interdependent systems and their functions.
- **NJCCS 8.2.12.C.6** Research an existing product, reverse engineer and redesign it to improve form and function.
- **NJCCS 8.2.12.D.3** Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.
- **NJCCS 8.2.12.E.1** Demonstrate an understanding of the problem-solving capacity of computers in our world.
- **NJCCS 8.2.12.E.2** Analyze the relationships between internal and external computer components.
- **NJCCS 8.2.12.E.4** Use appropriate terms in conversation (e.g., troubleshooting, peripherals, diagnostic software, GUI, abstraction, variables, data types and conditional statements).
- **CRP1**. Act as a responsible and contributing citizen and employee.

- **CRP2.** Apply appropriate academic and technical skills.
- **CRP4.** Communicate clearly and effectively and with reason.
- **CRP6.** Demonstrate creativity and innovation.
- **CRP7.** Employ valid and reliable research strategies.
- **CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them.
- **CRP9.** Model integrity, ethical leadership and effective management.
- **CRP10.** Plan education and career paths aligned to personal goals.
- **CRP11.** Use technology to enhance productivity.
- **CRP12.** Work productively in teams while using cultural global competence.

ENDURING UNDERSTANDING

- Students will learn to create an action plan for employment.
- Students will learn how to keep up with the rapid changes in technology.
- Students will define their career goals.

ESSENTIAL QUESTIONS

- What type of jobs are available with a basic certification.
- What type of certifications are employers looking for.
- What type of jobs require further training.

KNOWLEDGE AND SKILLS

- Conduct a job search.
- Identify appropriate interview skills.
- Discuss a variety of computer careers and the associated educational requirements.
- Define entrepreneur and entrepreneurship.
- Identify career information sources.
- Identify advanced training options.
- List the elements of a successful resume.
- Outline ideas for a successful job search.

STAGE TWO

PERFORMANCE TASKS

- Labortory Projects
- Lecture / Notes
- Current Events
- Quizzes / Tests
- Lab Reports
- Skill Presentations
- Group / Team Projects
- On-line Video Tutorials

OTHER EVIDENCE

- Quarterly Exam
- Homework / Classroom Assignments
- Lab Projects / Class activities

- Formative / Summative Assessments

STAGE THREE

LEARNING PLAN - Activities

- Conduct a search for entry level job positions.
- Create a job re'sume'.
- Define your professional goals.
- Create a list of references for a job interview.
- Be aware and practice safe working skills.