

# Computer Engineering: Grades 9, 10, 11, 12

Adopted 2004

## Ensuring Safety

**A001.** Identify various preventive maintenance products and procedures used with computers **A001**

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**A002.** Identify issues, procedures, and products designed to protect people, hardware, and the surrounding workspace within the computer environment **A002**

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## Investigating Careers

**B001.** Describe primary responsibilities of a computer systems technician **B001**

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**B002.** Research career opportunities in computer systems technology **B002**

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## Using Diagnostic and Troubleshooting Techniques

**C001.** Identify common symptoms and problems associated with various computer components **C001**

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**C002.** Demonstrate basic troubleshooting procedures **C002**

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**C003.** Recognize common PC hardware problems and determine how to resolve them **C003**

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**C004.** Preventing power system failure **C004**

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## Configuring a Computer System

**D001.** Identify basic terms, concepts, and functions of computer system components **D001**

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**D002.** Describe the way each computer system component works during normal operation and during the boot process **D002**

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**D003.** Demonstrate basic procedures for adding and removing field-replaceable units for both desktop and portable computer systems **D003**

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**D004.** Identify available IRQs, DMAs, and I/O addresses and procedures for device installation and configuration **D004**

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**D005.** Identify common computer peripheral ports, associated cabling, and their connectors **D005**

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**D006.** Demonstrate procedures for installing and configuring computer IDE/EIDE devices **D006**

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**D007.** Demonstrate procedures for installing and configuring computer SCSI devices **D007**

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**D008.** Demonstrate procedures for installing and configuring computer peripheral devices **D008**

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**D009.** Identify methods of upgrading computer system hardware performance, including procedures for replacing basic subsystem components **D009**

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**D010.** Identify unique computer components and determine criteria for their use **D010**

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**Identifying  
Motherboards,  
Processors, and Memory**

**E001.** Compare popular computer CPU chips in terms of basic characteristics **E001**

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**E002.** Identify the categories of computer RAM by terminology, locations, and physical characteristics **E002**

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**E003.** Identify popular types of computer motherboards, their components, and their architecture **E003**

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**E004.** Identify the purpose of computer CMOS, its settings, and the procedures for changing its basic parameters **E004**

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**Demonstrating  
Knowledge of Operating  
System Functions**

**F001.** Compare computer operating systems in current use in terms of functions, features, and benefits **F001**

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**F002.** Identify the functions, structure, and major system files used to navigate the Windows operating system **F002**

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**F003.** Describe various means of obtaining technical information **F003**

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**F004.** Identify the basic concepts and procedures for creating, viewing, and managing files, directories, and disks **F004**

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**Installing and  
Configuring an  
Operating System**

**G001.** Identify the procedures for installing the operating system and bringing the software to a basic operational level **G001**

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**G002.** Identify the steps to perform an operating system upgrade **G002**

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**G003.** Identify the basic system boot sequences and boot methods, including the steps to create an emergency boot disk with utilities installed **G003**

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**G004.** Identify procedures for loading or adding and configuring application and hardware device drivers **G004**

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**G005.** Identify where to obtain software and resources related to the operating system **G005**

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**G006.** Identify the procedures for installing the network operating system and bringing the network software to a basic operational level **G006**

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**Diagnosing and Troubleshooting a PC Operating System**

**H001.** Recognize and interpret the meaning of common error codes and startup messages created during the boot sequence **H001**

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**H002.** Demonstrate steps to correct the problems identified by PC error codes and startup messages **H002**

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**H003.** Recognize common PC operating system problems and determine how to resolve them **H003**

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**Understanding Basic Network Concepts**

**I001.** Identify basic networking concepts, including its operation and the ramifications of repairs on a network **I001**

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**I002.** Identify the functions of a network administrator **I002**

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**I003.** Identify concepts and capabilities related to the Internet and the basic procedures for setting up a system for Internet access **I003**

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**I004.** Identify the functions, features, and benefits of different web browsers **I004**

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**Diagnosing and Troubleshooting a Network Operating System**

**J001.** Recognize and interpret the meaning of common network error codes and startup messages created during the boot sequence **J001**

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**J002.** Demonstrate steps to correct problems identified by network error codes and startup messages **J002**

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**J003.** Recognize common network problems and determine how to resolve them **J003**

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**Installing and Configuring Printers**

**K001.** Identify basic concepts related to primary printer types, including operation and components (laser, inkjet, dye sublimation, and dot matrix) **K001**

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**K002.** Demonstrate care and service techniques for common problems with primary printer types **K002**

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**Examining Computer-Related Security, Privacy, and Ethical Issues**

**L001.** Identify and remove viruses, worms, bombs, and Trojan horses **L001**

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**L002.** Examine issues of computer-related business ethics **L002**

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**L003.** Examine issues of copyright ownership and infringement **L003**

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**L004.** Examine issues of computer-related privacy **L004**

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**L005. Identify functions of a network firewall** L005

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**L006. Identify computer security issues** L006

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**L007. Identify harassment issues involving computer use** L007

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**L008. Identify employer-employee issues of electronic documentation ownership** L008

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**General Safety Practices**

**GS001. Follow personal safety guidelines** GS001

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**GS002. Utilize tools and equipment safely** GS002

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**GS003. Comply with fire and hazardous material guidelines** GS003

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**GS004. Report injuries** GS004

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**GS005. Inspect work place for safe working environment** GS005

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**GS006. Report unsafe personal, environmental, and equipment safety hazards** GS006

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**GS007. Participate in safety training programs** GS007

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**GS008. Practice safe lifting and carrying procedures** GS008

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