

FBLA: COMPUTER PROBLEM SOLVING

Competency: Personal Computer Components	
Task	
1.	Identify how hardware components interact and work with software to perform computing tasks.
2.	Install, configure, optimize, and upgrade personal computer components.
3.	Identify tools, diagnostic procedures, and troubleshooting techniques for computer components.
4.	Describe the characteristics and functions of CPUs, motherboards, random access memory (RAM), expansion connections, floppy drives, hard drives, and CD-ROM drives.
5.	Explain the functions and characteristics of system expansion devices (e.g., graphics cards, sound cards, and modems).
6.	Recognize and isolate issues with peripherals, multimedia, specialty input devices, internal and external storage, memory utilization, and CPUs.
7.	Identify the steps used to troubleshoot components (e.g., installation, appropriate components, error codes, connections, compatibility, functionality, settings, and drivers).
8.	Identify and apply common preventative maintenance techniques for personal computer components.
9.	Identify issues that must be considered when purchasing or upgrading a computer.
10.	Demonstrate the use of connectivity devices and peripheral equipment (e.g., portable storage devices, printers, cable modem, and wireless technologies).
11.	Identify the various types of computer storage devices and compare the advantages and disadvantages of certain storage devices.
12.	Identify and demonstrate resolutions to simple hardware and software problems as they occur (e.g., frozen screen, disk error, and printing problems).
Competency: Laptop and Portable Devices	
Task	
1.	Identify names, purposes, and characteristics of laptop-specific devices.
2.	Identify and distinguish between mobile and desktop motherboards and processors including throttling, power management, and Wi-Fi.
3.	Identify appropriate applications for laptop-specific communications such as Bluetooth, infrared, cellular Wan, and Ethernet.
4.	Identify appropriate laptop-specific power and electrical input devices and determine how amperage and voltage can affect performance.
5.	Identify the major components of the LCD including inverter, screen, and video card.
6.	Install, configure, optimize, and upgrade laptops and portable devices.
7.	Remove laptop-specific hardware such as peripherals, hot-swappable, and non-hot swappable devices.
8.	Describe how video sharing affects memory upgrades.
9.	Use tools, diagnostic procedures, and troubleshooting techniques for laptops and portable devices.
10.	Identify and apply common preventive maintenance techniques for laptops and portable devices, cooling devices, hardware and video, cleaning materials, operating environments including temperature and air quality, storage, transportation and shipping.

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Competency: Printers and Scanners	
Task	
1.	Identify differences between types of printers and scanners including laser, ink dispersion, thermal, solid ink, impact printers, and scanners.
2.	Identify names, purposes, and characteristics of printer and scanner components (e.g., memory, driver, and firmware) and consumables (e.g., toner, ink cartridge, and paper).
3.	Identify the names, purposes, and characteristics of interfaces used by printers and scanners including port and cable types.
4.	Install and configure printers/scanners.
5.	Install and configure printer upgrades including memory and firmware.
6.	Optimize scanner performance including resolution, file format, and default settings.
7.	Optimize printer performance for example, printer settings such as tray switching, print spool settings, device calibration, media types, and paper orientation.
8.	Isolate and resolve identified printer/scanner problems including defining the cause, applying the fix, and verifying functionality.
9.	Identify appropriate tools used for troubleshooting and repairing printer/scanner problems.
10.	Perform scheduled maintenance according to vendor guidelines (e.g., install maintenance kits and reset page counts).
11.	Use recommended supplies and a suitable environment.
Competency: Operating Systems	
Task	
1.	Compare and contrast the functionality of various operating systems.
2.	Explain what an operating system is, describe its purpose, and site examples of different operating systems including DOS, Windows, and Macintosh.
3.	Identify the fundamentals of using operating systems (e.g., Mac, Windows, and Linux) and describe operating system revision levels including GIU system requirements, application, and hardware compatibility.
4.	Identify names, purposes, and characteristics of the primary operating system components including registry virtual memory and file system.
5.	Install, configure, optimize, and upgrade operating systems using appropriate procedures and utilities.
6.	Describe features of operating system interfaces.
7.	Use command-line functions and utilities to manage operating systems, including proper syntax.
8.	Identify concepts and procedures for creating, viewing, and managing disks, directories, and files on operating systems.
9.	Demonstrate proficiency with file management and structure (e.g., folder creation, format, file creation, backup, copy, rename, delete, move, open, and save).
10.	Demonstrate file management skills and perform basic software configuration operations (e.g., install new software, compress and expand files as needed, and download files as appropriate).

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11. Identify the names, locations, purposes, and characteristics of operating system files.
12. Demonstrate the ability to recover operating systems (e.g., boot methods, recovery console, ASR, and ERD).
13. Recognize and resolve common operational problems, such as blue screen, system lock-up, input/output device, and application install.
14. Recognize, explain, and resolve common error messages and codes.
15. Identify the names, locations, purposes, and characteristics of operating system utilities.
16. Use disk management tools (e.g., DEFRAG, NTBACKUP, CHKDSK, and format), system management tools (e.g., device and task manager and MSCONFIG>EXE) and file management tools (e.g., Windows Explorer and ATTRIB.EXE) to enhance optimization of operating system.
17. Demonstrate the ability to perform preventive maintenance on operating systems including software and Windows updates (e.g., service packs), scheduled backups/restore, and restore points.
18. Document computer system malfunction and software malfunction.
Competency: Networks
Task
1. Define networking and describe the purpose, benefits, and risks of a network.
2. Identify the types (e.g., LAN, WAN, and MAN), features, advantages, and disadvantages of different networks.
3. Identify names, purposes, and characteristics of basic network protocols and terminologies.
4. Identify names, purposes, and characteristics of technologies for establishing connectivity.
5. Identify the purposes and interrelationships among the major components of networks (e.g., servers, clients, transmission media, network operating system, and network boards).
6. Understand the differences between various network environments (e.g., peer-to-peer, client-server, thin client, n-tier, internetworks, intranets, and extranets).
7. Analyze the advantages and the disadvantages of the client/server model.
8. Identify and analyze the seven layers at which decisions must be made according to the OSI standard.
9. Install, configure, optimize, and upgrade networks.
10. Describe standard topologies, such as bus, star, ring, and broadband.
11. Demonstrate knowledge of IP addressing schemes.
12. Identify the types of wireless network media and the uses, advantages, and disadvantages of each.
13. Install, identify, and obtain wired and wireless connection.
14. Identify tools, diagnostic procedures, and troubleshooting techniques for basic network issues.
15. Configure protocols such as TCP/IP (e.g., gateway, subnet mask, DNS, WINS, and static and automatic address assignment) and IPX/SPX (e.g., NWLink).
16. Perform preventive maintenance of networks including securing and protecting network cabling.
17. Install and configure e-mail applications.
18. Differentiate areas of responsibilities between the telecommunications providers' responsibilities and their clients' responsibilities.

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Competency: Security	
Task	
1.	Identify the purposes and characteristics of access control and permissions, auditing, and event logging.
2.	Identify names, purposes, and characteristics of hardware and software security issues including wireless, data and physical security.
3.	Define the various virus types and describe the common symptoms caused by viruses and their potential effects.
4.	Implement virus protection and removal procedures for a stand-alone computer or a network.
5.	Describe importance and process of incidence reporting.
6.	Install, configure, upgrade, and optimize software, wireless, and data security.
7.	Recognize social engineering and address social engineering situations.
8.	Implement security preventive maintenance techniques such as installing service packs and patches and training users about malicious software prevention technologies.
9.	Define concepts such as phishing, viruses, e-mail attachments, social engineering, spoofing, identify theft, and spamming.
10.	Explain concepts such as denial of service, hacking/cracking, intrusion, and intellectual property.
11.	Implement procedures used to recover information from failures and security breaches (e.g., malware and viral infection).
12.	Assess security threats and develop plan to address.
Competency: Safety and Environmental Issues	
Task	
1.	Explain how information technology affects the natural environment (e.g., disposal of equipment, energy use, and use of natural resources).
2.	Identify potential hazards and implement proper safety procedures including ESD precautions and procedures, safe work environment, and equipment handling.
3.	Identify potential hazards and proper safety procedures including power supply, display devices, and environment (e.g., trip, liquid, situational, atmospheric hazards, and high-voltage and moving equipment).
4.	Identify proper disposal procedures for batteries, display devices, chemical solvents, and cans.
5.	Describe methods to handle environmental and human (e.g., electrical, chemical, and physical) accidents including incident reporting.
6.	Determine safe working practices to avoid or eliminate electrical hazards.
7.	Use Material Safety Data Sheets (MSDS) or equivalent documentation.
8.	Use appropriate repair tools.
9.	Describe ergonomic issues related to input technologies and demonstrate proper safety techniques.

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