



1.0 Operating Systems

1.1 Identify basic features of Microsoft Windows editions.

- **Windows 10 editions**
 - Home
 - Pro
 - Pro for Workstations
 - Enterprise
- **Feature differences**
 - Domain access vs. workgroup
 - Desktop styles/user interface
 - Availability of Remote Desktop Protocol (RDP)
 - Random-access memory (RAM) support limitations
 - BitLocker
 - gpedit.msc
- **Upgrade paths**
 - In-place upgrade

1.2 Given a scenario, use the appropriate Microsoft command-line tool.

- **Navigation**
 - cd
 - dir
 - md
 - rmdir
 - Drive navigation inputs:
 - C: or D: or x:
- **Command-line tools**
 - ipconfig
 - ping
 - hostname
 - netstat
 - nslookup
 - chkdsk
 - net user
 - net use
 - tracert
 - format
- xcopy
 - copy
 - robocopy
 - gpupdate
 - gpresult
 - shutdown
 - sfc
 - [command name] /?
 - diskpart
 - pathping
 - winver



1.3 Given a scenario, use features and tools of the Microsoft Windows 10 operating system (OS).

- **Task Manager**
 - Services
 - Startup
 - Performance
 - Processes
 - Users
 - **Microsoft Management Console (MMC) snap-in**
 - Event Viewer (eventvwr.msc)
 - Disk Management (diskmgmt.msc)
 - Task Scheduler (taskschd.msc)
 - Device Manager (devmgmt.msc)
 - Certificate Manager (certmgr.msc)
 - Local Users and Groups (lusrmgr.msc)
 - Performance Monitor (perfmon.msc)
 - Group Policy Editor (gpedit.msc)
 - **Additional tools**
 - System Information (msinfo32.exe)
 - Resource Monitor (resmon.exe)
 - System Configuration (msconfig.exe)
 - Disk Cleanup (cleanmgr.exe)
 - Disk Defragment (dfrgui.exe)
 - Registry Editor (regedit.exe)
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1.4 Given a scenario, use the appropriate Microsoft Windows 10 Control Panel utility.

- Internet Options
- Devices and Printers
- Programs and Features
- Network and Sharing Center
- System
- Windows Defender Firewall
- Mail
- Sound
- User Accounts
- Device Manager
- Indexing Options
- Administrative Tools
- File Explorer Options
 - Show hidden files
 - Hide extensions
 - General options
 - View options
- Power Options
 - Hibernate
 - Power plans
 - Sleep/suspend
 - Standby
 - Choose what closing the lid does
 - Turn on fast startup
 - Universal Serial Bus (USB) selective suspend
- Ease of Access



1.5 Given a scenario, use the appropriate Windows settings.

- Time and Language
 - Update and Security
 - Personalization
 - Apps
 - Privacy
 - System
 - Devices
 - Network and Internet
 - Gaming
 - Accounts
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1.6 Given a scenario, configure Microsoft Windows networking features on a client/desktop.

- **Workgroup vs. domain setup**
 - Shared resources
 - Printers
 - File servers
 - Mapped drives
 - **Local OS firewall settings**
 - Application restrictions and exceptions
 - Configuration
 - **Client network configuration**
 - Internet Protocol (IP) addressing scheme
 - Domain Name System (DNS) settings
 - Subnet mask
 - Gateway
 - Static vs. dynamic
 - **Establish network connections**
 - Virtual private network (VPN)
 - Wireless
 - Wired
 - Wireless wide area network (WWAN)
 - **Proxy settings**
 - **Public network vs. private network**
 - **File Explorer navigation – network paths**
 - **Metered connections and limitations**
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1.7 Given a scenario, apply application installation and configuration concepts.

- **System requirements for applications**
 - 32-bit vs. 64-bit dependent application requirements
 - Dedicated graphics card vs. integrated
 - Video random-access memory (VRAM) requirements
 - RAM requirements
 - Central processing unit (CPU) requirements
 - External hardware tokens
 - Storage requirements
- **OS requirements for applications**
 - Application to OS compatibility
 - 32-bit vs. 64-bit OS
- **Distribution methods**
 - Physical media vs. downloadable
 - ISO mountable
- **Other considerations for new applications**
 - Impact to device
 - Impact to network
 - Impact to operation
 - Impact to business



1.8 Explain common OS types and their purposes.

- **Workstation OSs**
 - Windows
 - Linux
 - macOS
 - Chrome OS
 - **Cell phone/tablet OSs**
 - iPadOS
 - iOS
 - Android
 - **Various filesystem types**
 - New Technology File System (NTFS)
 - File Allocation Table 32 (FAT32)
 - Third extended filesystem (ext3)
 - Fourth extended filesystem (ext4)
 - Apple File System (APFS)
 - Extensible File Allocation Table (exFAT)
 - **Vendor life-cycle limitations**
 - End-of-life (EOL)
 - Update limitations
 - **Compatibility concerns between OSs**
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1.9 Given a scenario, perform OS installations and upgrades in a diverse OS environment.

- **Boot methods**
 - USB
 - Optical media
 - Network
 - Solid-state/flash drives
 - Internet-based
 - External/hot-swappable drive
 - Internal hard drive (partition)
- **Types of installations**
 - Upgrade
 - Recovery partition
 - Clean install
 - Image deployment
 - Repair installation
 - Remote network installation
 - Other considerations
 - Third-party drivers
- **Partitioning**
 - GUID [globally unique identifier] Partition Table (GPT)
 - Master boot record (MBR)
- **Drive format**
- **Upgrade considerations**
 - Backup files and user preferences
 - Application and driver support/backward compatibility
 - Hardware compatibility
- **Feature updates**
 - Product life cycle



1.10 Identify common features and tools of the macOS/desktop OS.

- **Installation and uninstallation of applications**
 - File types
 - .dmg
 - .pkg
 - .app
 - App Store
 - Uninstallation process
 - **Apple ID and corporate restrictions**
 - **Best practices**
 - Backups
 - Antivirus
 - Updates/patches
 - **System Preferences**
 - Displays
 - Networks
 - Printers
 - Scanners
 - Privacy
 - Accessibility
 - Time Machine
 - **Features**
 - Multiple desktops
 - Mission Control
 - Keychain
 - Spotlight
 - iCloud
 - Gestures
 - Finder
 - Remote Disc
 - Dock
 - **Disk Utility**
 - **FileVault**
 - **Terminal**
 - **Force Quit**
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1.11 Identify common features and tools of the Linux client/desktop OS.

- **Common commands**
 - ls
 - pwd
 - mv
 - cp
 - rm
 - chmod
 - chown
 - su/sudo
 - apt-get
 - yum
- ip
 - df
 - grep
 - ps
 - man
 - top
 - find
 - dig
 - cat
 - nano
- **Best practices**
 - Backups
 - Antivirus
 - Updates/patches
- **Tools**
 - Shell/terminal
 - Samba