



# Computing Devices

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# Overview of Computing Devices

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We rely on various computing devices to work, organize our lives, and entertain ourselves. Different devices serve different purposes based on their portability, processing power, and intended use.

## Key Computing Devices Covered in This Chapter:

- **Mobile Phones**
- **Tablets**
- **Laptops**
- **Workstations**
- **Servers**
- **Gaming Consoles**
- **Internet of Things (IoT) Devices**



# Computing Device Types & Functions

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All computing devices perform four basic operations:

- **Input** – Receiving data from users or other sources
- **Storage** – Keeping data for immediate or future use
- **Processing** – Computing operations performed by the CPU
- **Output** – Displaying or transmitting results
- The **operating system (OS)** is the software that manages these functions and ensures that applications run smoothly. It controls hardware, manages memory, and allows multiple programs to operate simultaneously.





# Desktop Computers vs. Workstations

## Desktop Computers

- Used in offices and homes for general computing
- Typically less expensive than portable devices
- Require external monitor, keyboard, and mouse
- Less common in offices due to increased use of mobile devices

## Workstations

- Specialized computers designed for high-performance tasks
- Used by **graphic designers, video editors, engineers, and scientists**
- Have **enhanced graphics processing and computing power**
- Still stationary but more powerful than standard desktops





# Servers

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- **Powerful computers** designed to perform dedicated tasks
- Found in **data centers** rather than individual workspaces
- Common server functions:
  - **File sharing**
  - **Website hosting**
  - **Database management**
  - **Cloud computing services**



# Mobile Computing Devices

## Laptops

- **Portable** versions of desktops with a built-in screen, keyboard, and battery
- Can be **as powerful as desktops** but are usually more expensive
- Ideal for professionals who need mobility
- Often connected to **external monitors** at workstations



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# Mobile Computing Devices

## Smartphones

- Small, highly portable computing devices
- **More powerful** than desktops from a decade ago
- Use **mobile operating systems** like iOS (Apple) and Android (Google)
- Used for communication, apps, and Internet browsing



# Mobile Computing Devices

## Tablets

- **Larger than smartphones but smaller than laptops**
- **Touchscreen-based**, lacking a built-in physical keyboard
- Used in customer service, healthcare, and interactive kiosk systems
- Less powerful than laptops but more portable







# Gaming Consoles

- **Specialized computers** optimized for **graphics and audio**
- Designed for entertainment rather than business use
- Common in-home networks

# Internet of Things (IoT) Devices

IoT refers to **embedded computers in everyday devices** that connect to the Internet.

## Home IoT Devices

- **Smart home appliances:** Refrigerators, ovens, washing machines
- **Security systems:** IP cameras, smart door locks
- **Smart thermostats:** Control temperature based on weather and user preferences
- **Streaming media devices:** Connect to online entertainment services





# Internet of Things (IoT) Devices

## Workplace IoT Devices

- Used in **manufacturing, power plants, and healthcare**
- **Industrial Control Systems (ICS)** manage:
  - Power grids, water treatment, gas pipelines
  - Factory automation and production lines
- **Healthcare IoT:** Medical devices that **monitor and report patient data**







# Key Takeaways for the Exam


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## Key Takeaways for the Exam

- **Desktop computers** and **workstations** serve users who work from a single location.
- **Laptops, tablets, and smartphones** are designed for users who need portability.
- **Servers** provide essential network services and are housed in **data centers**.
- **IoT devices** connect everyday objects to the Internet, enhancing automation in homes and workplaces.
- **Understand user needs:**
  - A **desktop** is good for a user who stays in one place.
  - A **tablet** may be better for mobile workers interacting with customers.
  - A **laptop** is ideal for frequent travelers.

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# Questions?

- **Exam Tip:** Be prepared to **choose the most appropriate device** based on the user's needs and budget. Balance **usability and cost** when making recommendations.
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# Computing Devices

The logo for SEMtech! features the word "SEM" in a bold, red, serif font, followed by "tech!" in a black, sans-serif font. The text is set against a background of concentric, wavy circles in shades of light blue and green.

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Student Engagement & Mentoring in Technology

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