Technology In Action
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Chapter 2
Looking at Computers:
Understanding the Parts
Chapter Topics

- Hardware components
- Input devices
- Output devices
- System unit
- Ergonomics
Hardware

- System Unit
- Peripheral Devices
Input Devices

- Devices used to enter information or instructions into the computer
  - Keyboard
  - Mouse / pointing device
  - Microphone
  - Scanner
  - Digital camera
Keyboard

- The QWERTY keyboard is standard on most PCs
- Enhanced features include number, function and navigation keys.
Dvorak Keyboard

- Puts the most commonly used keys at “home keys”
- Reduces distance of finger stretches
Specialty Keyboards

- Laptops
- PDAs
- Wireless
- Ergonomic
- Gaming

Laptop

PDA

Ergonomic
Mouse

- **Rollerball mouse**
  - Less expensive
  - Harder to keep clean

- **Trackball**
  - Harder to control
  - Stationary on desk

- **Optical mouse**
  - Needs no mouse pad
  - Doesn’t need cleaning
  - More expensive

- **Game pads**
  - Buttons and pointing devices
Other Input Devices

• Scanners
  – Text
  – Images

• Digital cameras
  – Images
  – Video
Input for the Physically Challenged

- Visually Impaired
  - Voice recognition
  - Keyboards with large keys
  - On-screen keyboards
- Motor control
  - Special trackballs
  - Head-mounted devices
Inputting Sound

• Microphone Input
  – Teleconferencing
  – Voice over Internet
  – Voice Recognition

Microsoft Voice Recognition
Output Devices

- Retrieving information from the computer
- Output devices
  - Softcopy (video, sounds, control signals)
  - Hardcopy (print)
Monitor Types

• **CRT** Cathode Ray Tube
  - Less expensive
  - Use much more space
  - Uses more energy
  - Better viewing angles

• **LCD** Liquid Crystal Display
  - More expensive
  - Uses far less space
  - More energy efficient
  - Less viewable from an angle
CRT Monitors

- Uses picture tube technology
- Screen size – Diagonal measurement of the screen (15, 17, 19, 21)
- Resolution – Sharpness of the image determined by the number of pixels that the screen can display (800 x 600, 1024 x 768, 1600 x 1200)
- Refresh rate – Speed at which the screen is refreshed (60Hz, 75Hz) Faster rate equals less flicker.
Liquid Crystal Display

- Liquid crystal sandwiched between two transparent layers form images
- Used for notebook computers, PDAs, cellular phones, and personal computers
Other Video Output

- Touch-screen monitors double as both input and output devices.
- Data projectors project a computer image to a large screen for sharing with large groups.
Printers

- Impact printers
  - Dot-matrix
- Nonimpact printers
  - Inkjet
  - Laser
  - Multifunction
- Specialty printers
  - Plotters
  - Thermal printers
Nonimpact Printers

- **Inkjet**
  - Less expensive device
  - Full color printing
  - Slower in pages per minute (PPM)
  - More expensive per page in B&W

- **Laser**
  - More expensive device
  - Black and White (Color lasers are very expensive)
  - Faster in PPM
  - Less expensive in B&W
Outputting Sound

- Speakers and Headphones
The System Unit

Box that contains the central electronic components of the computer:

- CPU/RAM/motherboard
- Expansion cards
- Power supply
- Storage devices
The Front Panel

- Drive bays
- Memory card reader
- Floppy drive
- Productivity ports
- Power button
The Back

- Ports for peripheral devices
- Types of ports:
  - Serial
  - Parallel
  - VGA
  - USB
  - Connectivity
Inside the System Unit

- Essential electronic components used to process data
- Types of components:
  - Power supply
  - Hard disk drive
  - Motherboard
  - CPU
  - Expansion cards
The Motherboard

- CPU
- RAM
- Expansion cards
- Chip set
- Built-in components
Expansion Cards

- Adds functions
- Provides new connections for peripheral devices
- Common types:
  - Sound
  - Modem
  - Video (VGA)
  - Network (NIC)
Hard Disk Drive

- Stores data and program instructions
- Permanent (nonvolatile) storage
- Storage capacities up to 250 GB and higher
- Transfers data in milliseconds
Setting it all up: Ergonomics

- **Ergonomics** refers to minimizing injury or discomfort while using the computer.

- **Steps to follow:**
  - Position monitor correctly
  - Use adjustable chair
  - Assume proper position while typing
  - Take breaks
  - Ensure adequate lighting
Chapter 2 Summary Questions

• What devices do you use to get data into the computer?
Chapter 2 Summary Questions

• What devices enable us to see or hear the processed information?
Chapter 2 Summary Questions

- What’s on the front of your system unit?
Chapter 2 Summary Questions

• What’s on the back of your system unit?
Chapter 2 Summary Questions

- What’s inside your system unit?
Chapter 2 Summary Questions

• How do you set up your computer to avoid strain and injury?