

# How Computers Work

## Textbook

### How Computers Work



### Meet the Devices—Input, Output, and Everything in Between

Every time you interact with a computer, you're using *input* or *output* (I/O) devices—also known as *peripherals*. These devices help you give instructions to the computer (input) and receive feedback or results (output).

**Input Devices** let you tell the computer what to do:

- **Keyboard:** Types letters and commands
- **Mouse:** Moves the pointer and selects items
- **Microphone:** Captures sound, like your voice

**Output Devices** let the computer respond back to you:

- **Monitor:** Displays images and text
- **Speakers/Headphones:** Play sound

- **Printer:** Produces physical copies of digital work

Some devices, like a **touchscreen**, can act as *both* input and output.

## Hardware and Software—A Perfect Team

Computers work because *hardware* and *software* team up.

- **Hardware** is the physical part of the computer: the keyboard, CPU, hard drive, and screen.
- **Software** is the invisible set of instructions that tells the hardware what to do—like apps, games, or operating systems.

Even low-level software like **BIOS (Basic Input/Output System)** or **firmware** is essential. These systems are stored directly in hardware and help the computer turn on and connect its parts before the operating system even loads. Without software, hardware is useless—and vice versa.

## Desktop Apps vs. Software as a Service (SaaS)

Have you ever used Google Docs online and Microsoft Word on your desktop? That's a perfect example of the two types of software:

- **Desktop Applications** are installed directly onto your computer. You usually don't need the internet to use them.
- **Software as a Service (SaaS)** is cloud-based. You access it through the internet and often use it in a web browser. It might offer different features or automatic saving online.

SaaS programs are great for working anywhere with Wi-Fi, while desktop programs are useful when you need offline access or powerful tools.

## Taking Computers Apart (and Putting Them Back Together!)


Ever wondered what's inside a desktop computer? It's like a puzzle of connected parts. Knowing how to **disassemble and reassemble** one can help you understand how they all work together.

When disassembling:

1. Turn off and unplug the computer.
2. Open the case using a screwdriver.
3. Carefully remove parts like RAM, the hard drive, and cables—note where everything goes.

When reassembling:

1. Return components to their original slots.
2. Plug in all power and data cables.
3. Close the case and plug the computer back in.

 **Mini Activity:** Use an online virtual PC builder (like PCPartPicker or a school-safe simulation) to drag and drop components into a desktop tower. Identify each piece as you go!

## Critical Thinking Questions

1. Why might a business choose a SaaS version of a program over a desktop version?
2. How would you explain the relationship between firmware and hardware to a friend who thinks

software is "just apps"?

## Questions (5)

MULTIPLE CHOICE

### 1. Which of these devices is an input device?

Choose the correct answer:

- A. Monitor
- B. Printer
- C. Keyboard
- D. Speaker

MULTIPLE CHOICE

### 2. What does BIOS do in a computer system?

Choose the correct answer:

- A. Stores your downloaded music
- B. Provides internet access
- C. Helps the hardware communicate during startup
- D. Manages cloud software subscriptions

MULTIPLE CHOICE

### 3. Which is a major difference between desktop applications and SaaS programs?

Choose the correct answer:

- A. Desktop apps always need the internet
- B. SaaS programs are downloaded to your hard drive
- C. Desktop apps are cloud-based
- D. SaaS programs are accessed through the web and often require internet

MULTIPLE CHOICE

### 4. What's the purpose of reassembling a computer correctly?

Choose the correct answer:

- A. To increase Wi-Fi speed
- B. To learn how each part connects and works
- C. To erase all files
- D. To create a new password system

**5. Which device is both an input and output device?****Choose the correct answer:**

- A. Headphones
- B. Printer
- C. Microphone
- D. Touchscreen

## Answer Keys & Solutions

### Questions

#### 1. Which of these devices is an input device?

MULTIPLE CHOICE

Correct Answer:

- A. Monitor ✗ Incorrect
- B. Printer ✗ Incorrect
- C. Keyboard ✓ Correct
- D. Speaker ✗ Incorrect

#### 2. What does BIOS do in a computer system?

MULTIPLE CHOICE

Correct Answer:

- A. Stores your downloaded music ✗ Incorrect
- B. Provides internet access ✗ Incorrect
- C. Helps the hardware communicate during startup ✓ Correct
- D. Manages cloud software subscriptions ✗ Incorrect

#### 3. Which is a major difference between desktop applications and SaaS programs?

MULTIPLE CHOICE

Correct Answer:

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#### 4. What's the purpose of reassembling a computer correctly?

MULTIPLE CHOICE

Correct Answer:

- A. To increase Wi-Fi speed ✗ Incorrect
- B. To learn how each part connects and works ✓ Correct
- C. To erase all files ✗ Incorrect
- D. To create a new password system ✗ Incorrect

#### 5. Which device is both an input and output device?

MULTIPLE CHOICE

Correct Answer:

- A. Headphones ✗ Incorrect
- B. Printer ✗ Incorrect
- C. Microphone ✗ Incorrect
- D. Touchscreen ✓ Correct