

Hands On with Hardware

Textbook

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Taking Apart and Putting Together a Desktop Computer

A desktop computer is like a puzzle made of important parts. Learning how to **disassemble** and **reassemble** one helps students understand how computers work on the inside. This process usually involves:

- Turning off and unplugging the computer
- Opening the case safely
- Identifying and carefully removing parts like the RAM, hard drive, CPU, and power supply
- Putting all components back in the correct order

Each part has a purpose—and handling them correctly teaches responsibility and respect for technology.

What Makes a Computer Fast or Slow?

Not all computers work the same. Their **hardware specifications**—the details about their parts—affect how well they perform. For example:

- **Multicore processors** let computers do more things at once. A quad-core processor (four cores) can multitask better than a single-core one.

- A **refresh rate**, measured in hertz (Hz), tells how often the screen updates per second. A 60Hz screen is fine for everyday use, but gamers might prefer 120Hz or more for smoother motion.

Learning how different parts affect speed and performance helps students choose the right device for their needs.

Keeping Hardware Safe from Exploitation

Protecting the **physical security** of devices is just as important as protecting software. Some simple but powerful ways to keep devices safe include:

- **Disabling or locking USB ports** to stop people from plugging in unauthorized devices
- Using **lock screens** and requiring passwords to access a computer
- Limiting **access to restricted areas** where servers or shared computers are located

Even tablets and phones can be protected with lock codes, fingerprint scanners, and physical cases. Schools and businesses use these tools to keep important systems and data secure.

Critical Thinking Questions

1. Why might someone need to reassemble a desktop computer, and what skills would they need to do it safely?
2. Imagine you were in charge of protecting a school's computer lab. What physical security measures would you recommend and why?

Questions (5)

1. What is the first step before disassembling a desktop computer?

MULTIPLE CHOICE

Choose the correct answer:

- A. Open the case
- B. Plug in extra cables
- C. Turn off and unplug the computer
- D. Remove the CPU

2. Which hardware spec allows a computer to run multiple tasks more efficiently?

MULTIPLE CHOICE

Choose the correct answer:

- A. USB port
- B. Screen brightness
- C. Refresh rate
- D. Multicore processor

3. What does a refresh rate of 120Hz mean?

Choose the correct answer:

- A. The computer has 120 hard drives
- B. The screen updates 120 times per second
- C. The battery lasts 120 hours
- D. The processor has 120 cores

4. Why might USB ports be disabled on school computers?

Choose the correct answer:

- A. To make them charge faster
- B. To protect them from viruses or stolen data
- C. To help the keyboard work better
- D. To prevent screen flickering

5. Which of these devices can benefit from physical security measures?

Choose the correct answer:

- A. Laptops
- B. Tablets
- C. Smartphone
- D. All of the above

Answer Keys & Solutions

Questions

1. What is the first step before disassembling a desktop computer?

MULTIPLE CHOICE

Correct Answer:

- A. Open the case ✗ Incorrect
- B. Plug in extra cables ✗ Incorrect
- C. Turn off and unplug the computer ✓ Correct
- D. Remove the CPU ✗ Incorrect

2. Which hardware spec allows a computer to run multiple tasks more efficiently?

MULTIPLE CHOICE

Correct Answer:

- A. USB port ✗ Incorrect
- B. Screen brightness ✗ Incorrect
- C. Refresh rate ✗ Incorrect
- D. Multicore processor ✓ Correct

3. What does a refresh rate of 120Hz mean?

MULTIPLE CHOICE

Correct Answer:

- A. The computer has 120 hard drives ✗ Incorrect
- B. The screen updates 120 times per second ✓ Correct
- C. The battery lasts 120 hours ✗ Incorrect

D. The processor has 120 cores

✗ Incorrect

4. Why might USB ports be disabled on school computers?

MULTIPLE CHOICE

Correct Answer:

A. To make them charge faster

✗ Incorrect

B. To protect them from viruses or stolen data

✓ Correct

C. To help the keyboard work better

✗ Incorrect

D. To prevent screen flickering

✗ Incorrect

5. Which of these devices can benefit from physical security measures?

MULTIPLE CHOICE

Correct Answer:

A. Laptops

✗ Incorrect

B. Tablets

✗ Incorrect

C. Smartphone

✗ Incorrect

D. All of the above

✓ Correct