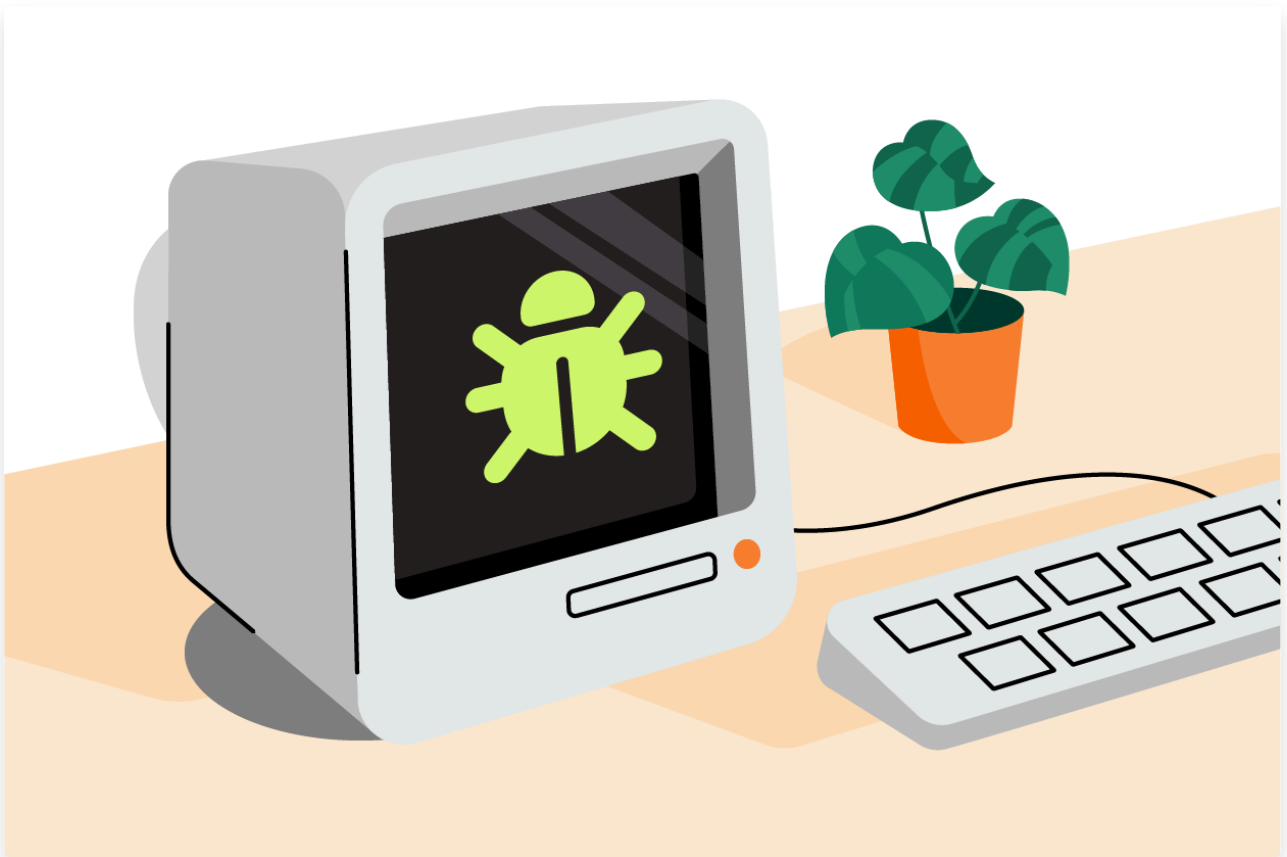


Hardware, Software, and Troubleshooting

Textbook

Hardware, Software, and Troubleshooting



What do you like to do on the computer? Do you enjoy playing games or talking to your friends? No matter what you do on the computer, you need all the parts of the computer to work together to help your machine run correctly.

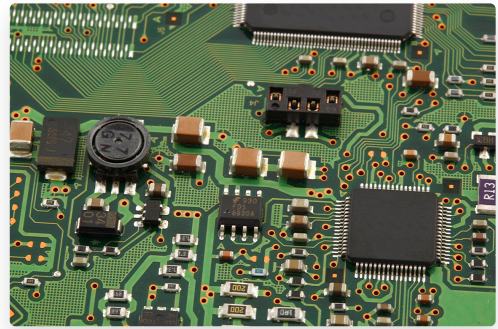
Computers have many parts and pieces that all work together to form a system. These parts and pieces can be split into two categories: internal parts and external parts.

Internal Parts

[Internal parts](#) are the pieces inside the computer. Some internal parts include:

Description	Image
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Motherboard - The motherboard is where all the computer parts tie together in one spot to work together and make the computer run. It is usually the color green, but can be other colors too.



Hard Drive - The hard drive is where the computer's memory is.




Fan - A computer can get very hot as it works hard to do everything we program it to do! This is why we need a fan to help cool down the working parts.



External Parts

[External parts](#) are the pieces that plug into or connect to the computer. Some external parts include:

Description	Image
<p>Mouse - The mouse lets you click things on your computer screen.</p>	

Printer – The printer allows you to print out your documents or pictures.



WiFi Router – The WiFi router helps you connect to the internet.



Hardware: Input or Output

Sometimes, we need to tell the computer what to do or give it information. We use special hardware called input devices to do this. Think of it like giving instructions to our robot. Some input devices include keyboard and mouse.

Once the computer has information, it often needs to show it to us or do something with it. We use output devices to get information *out* of the computer. Think of it like our robot showing us what it has done. Output devices include monitor, printer, or speakers.

Some devices can be both! They can take information in and give information out! Some hardware that are both input and output include:

- **Touchscreen:** Think about a tablet or a smartphone. You touch the screen to tell it what to do (that's input!), and the screen also shows you what's happening (that's output!).
- **Webcam:** A webcam can take pictures or videos of you and send them *into* the computer (input). But sometimes, a webcam can also have a little light that turns on to show you it's working (a type of output!).

Software

Software refers to programs on the computer that you use.



Notice how each of these examples of [software](#) are programs that you use on the computer. [Hardware](#) are physical parts of the computer while software are programs on the computer.

Here are some types of software you might use every day:

- Creative Software: These programs help you make things!
 - For Writing: Like a digital notebook where you type stories and ideas (e.g., Google Docs).
 - For Drawing: Like a digital art pad where you can draw and paint (e.g., Paint programs).
- Data Software: These programs help you collect and organize information.
 - For Collecting Info: Like a digital survey to ask questions and see answers (e.g., simple online forms).
 - For Organizing Info: Like a digital table to keep track of numbers or lists (e.g., simple spreadsheets).
- Sharing Software: These programs help you send and show your work to others!
 - For Sending Messages: Like sending a super-fast letter through the computer (e.g., Email).
 - For Showing Ideas: Like making a digital slideshow to present your ideas (e.g., Google Slides).
 - For Working Together: Like a digital classroom where you share your work with your teacher (e.g., Google Classroom).

All these helpful programs are software! They tell your computer what to do so you can learn, create, and share.

Troubleshooting

Sometimes things can go wrong when you are working on a computer. This is when you can practice troubleshooting. [Troubleshooting](#) is when you fix the computer problem. Common solutions include restarting the computer, closing unused tabs, and plugging the computer back into its charger.

Critical Thinking Questions

1. Why do you think all the parts of a computer, like the motherboard and the mouse, need to work together for the computer to function properly?
2. If you were troubleshooting a computer problem, what would you check first, and why do you think that might help fix the issue?
3. Think about all the different things you can do on a computer. Besides just writing stories or drawing pictures, what are two other *very different* ways software helps people in their daily lives? Think about entertainment, productivity, communication. How does software help?

Questions (5)

1. What are internal parts?

MULTIPLE CHOICE

Choose the correct answer:

- A. The pieces inside the computer.
- B. The pieces outside the computer.
- C. The parts that plug into the computer.
- D. The programs on the computer that you use.

2. Which of the following is an internal part?

MULTIPLE CHOICE

Choose the correct answer:

- A. Mouse
- B. Printer
- C. Motherboard
- D. Microsoft Word

3. What are external parts?

MULTIPLE CHOICE

Choose the correct answer:

- A. The pieces that plug into the computer.
- B. The pieces that are inside the computer.
- C. The programs used to take pictures.
- D. The programs used to go online.

4. Which of the following is an external part?

Choose the correct answer:

- A. Mouse
- B. Motherboard
- C. Hard Drive
- D. Fan

5. What is software?


Choose the correct answer:

- A. The programs on the computer that you use.
- B. The parts that make up a computer.

Games (4)

1. Hardware, Software, and Troubleshooting Typing Game

Full Screen Audio Instructions Restart Pause



0s 100%

Hardware are physical po

2. Hardware, Software, and Troubleshooting Categories Game

Full Screen

Audio

Instructions

Answer Key




Pause

Clear All

Check Order

Attempts: 0

Hardware			Software		
photos app	mouse	web browser			
Spotify	wifi router	Google Docs			
motherboard	fan	printer			
Powerpoint	A computer game				



3. Hardware, Software, and Troubleshooting Matching Game

Full Screen

Audio

Instructions







Answer Key




Pause

Clear All

Check Matches

Attempts: 0

			mouse	wifi router	A fan
			printer	motherboard	hard drive



4. Hardware, Software, and Troubleshooting Memory Game

Full Screen













Audio


Instructions


Answer Key


Pause

Flips: 0

<div>f</div> <div></div>	<div>s</div> <div></div>	<div>ε</div> <div></div>
<div>Δ</div> <div></div>	<div>ε</div> <div></div>	<div>δ</div> <div></div>
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<div>0f</div> <div></div>	<div>1f</div> <div></div>	<div>5f</div> <div></div>







Blocks Pro Challenges (2)

1. Hardware

Challenge

Textbook

Hardware

Draw each of the following hardware items:

- Monitor
- Keyboard
- Mouse
- Motherboard
- Fan

Each sprite should explain the item and its function when you click on the sprite.

Requirements

0/2

5 Looks

5 Event

Blocks must be connected to an Event block in order to pass the requirements

Submit

Code

Costumes

Sounds

Motion

move 10 steps

turn 15 degrees

turn 15 degrees

go to random position

go to x: 0 y: 0

glide 1 secs to random position

glide 1 secs to x: 0 y: 0

point in direction 90

point towards mouse-pointer

change x by 10

set x to 0

change y by 10

set y to 0

if on edge, bounce

set rotation style left-right

x position

Sprite1

x 0 y 0

Size 100 Direction 90

Sprite1

Stage

Backdrops 1

2. Software

Challenge

Textbook

Software

Draw each of the following software programs:

- Internet Software
- Word Processing Software
- Slideshow Software
- Social Media Software

Each sprite should explain the software and what it is used for.

Requirements

0/2

4 Looks

4 Event

Blocks must be connected to an Event block in order to pass the requirements

Submit

Code

Costumes

Sounds

Motion

move 10 steps

turn 15 degrees

turn 15 degrees

go to random position

go to x: 0 y: 0

glide 1 secs to random position

glide 1 secs to x: 0 y: 0

point in direction 90

point towards mouse-pointer

change x by 10

set x to 0

change y by 10

set y to 0

if on edge, bounce

set rotation style left-right

x position

Sprite1

x 0 y 0

Size 100 Direction 90

Sprite1

Stage

Backdrops 1

Answer Keys & Solutions

Questions

1. What are internal parts?

MULTIPLE CHOICE

Correct Answer:

- A. The pieces inside the computer. ✓ Correct
- B. The pieces outside the computer. ✗ Incorrect
- C. The parts that plug into the computer. ✗ Incorrect
- D. The programs on the computer that you use. ✗ Incorrect

Explanation:

Remember, internal parts can be found in the computer.

2. Which of the following is an internal part?

MULTIPLE CHOICE

Correct Answer:

- A. Mouse ✗ Incorrect
- B. Printer ✗ Incorrect
- C. Motherboard ✓ Correct
- D. Microsoft Word ✗ Incorrect

Explanation:

The mouse and printer are external parts.

3. What are external parts?

MULTIPLE CHOICE

Correct Answer:

- A. The pieces that plug into the computer. ✓ Correct

B. The pieces that are inside the computer.

✗ Incorrect

C. The programs used to take pictures.

✗ Incorrect

D. The programs used to go online.

✗ Incorrect

Explanation:

External parts are parts that connect to the computer.

4. Which of the following is an external part?

MULTIPLE CHOICE

Correct Answer:

A. Mouse

✓ Correct

B. Motherboard

✗ Incorrect

C. Hard Drive

✗ Incorrect

D. Fan

✗ Incorrect

Explanation:

Which of these can you plug into the computer?

5. What is software?

MULTIPLE CHOICE

Correct Answer:

A. The programs on the computer that you use.

✓ Correct

B. The parts that make up a computer.

✗ Incorrect

Explanation:

Software are programs.

Games

1. Hardware, Software, and Troubleshooting Typing Game

Typing game - no answer key needed. Students practice typing the provided content.

2. Hardware, Software, and Troubleshooting Categories Game

Category Solutions:

Category 1: Hardware

- mouse
- printer
- motherboard
- fan
- wifi router

Category 2: Software

- web browser
- Powerpoint
- Google Docs
- Spotify
- A computer game
- photos app

Scoring:

- Gold: 1 attempts or fewer
- Silver: 2 attempts or fewer
- Bronze: 3 attempts or fewer

Students must sort items into their correct categories.

3. Hardware, Software, and Troubleshooting Matching Game













Matching Game Solutions:

1.  motherboard →
2.  A computer fan →
3.  hard drive →
4.  wifi router →
5.  printer →
6.  mouse →

Students must drag items from the left to match with corresponding items on the right.

4. Hardware, Software, and Troubleshooting Memory Game

Memory Game Pairs:

1.  motherboard ↔  motherboard
2.  A computer fan ↔  A computer fan
3.  hard drive ↔  hard drive
4.  wifi router ↔  wifi router
5.  printer ↔  printer
6.  mouse ↔  mouse

Students must find all matching pairs by flipping cards and remembering their positions.