

# Computer Systems and the Internet

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## Textbook

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# Computer Systems and the Internet



## Introduction

Have you ever clicked a button and watched something happen on your screen? That's your computer system at work! Every computer has three main parts that help it do its job: inputs, a processor, and outputs. An input is something you do—like pressing a key or tapping a screen. The processor, like the computer's brain, figures out what to do with that input. Then, the output shows the result, like making a sound or moving a character.

But what happens when computers need to talk to each other? That's where the Internet comes in! The Internet is like a giant web made of networks that connect computers and devices so they can send and receive information. These networks are made up of nodes connected by links that allow information to travel. That information is broken into packets—tiny pieces sent separately and reassembled when they arrive. Special tools like hubs, routers, and switches help guide the packets along the best paths so everything reaches the right place.

Because the Internet connects computers all around the world, you can access a website or share information with someone almost anywhere, at any time, just by being connected!

Let's take a look at how computer systems and the Internet work together to help computers communicate!

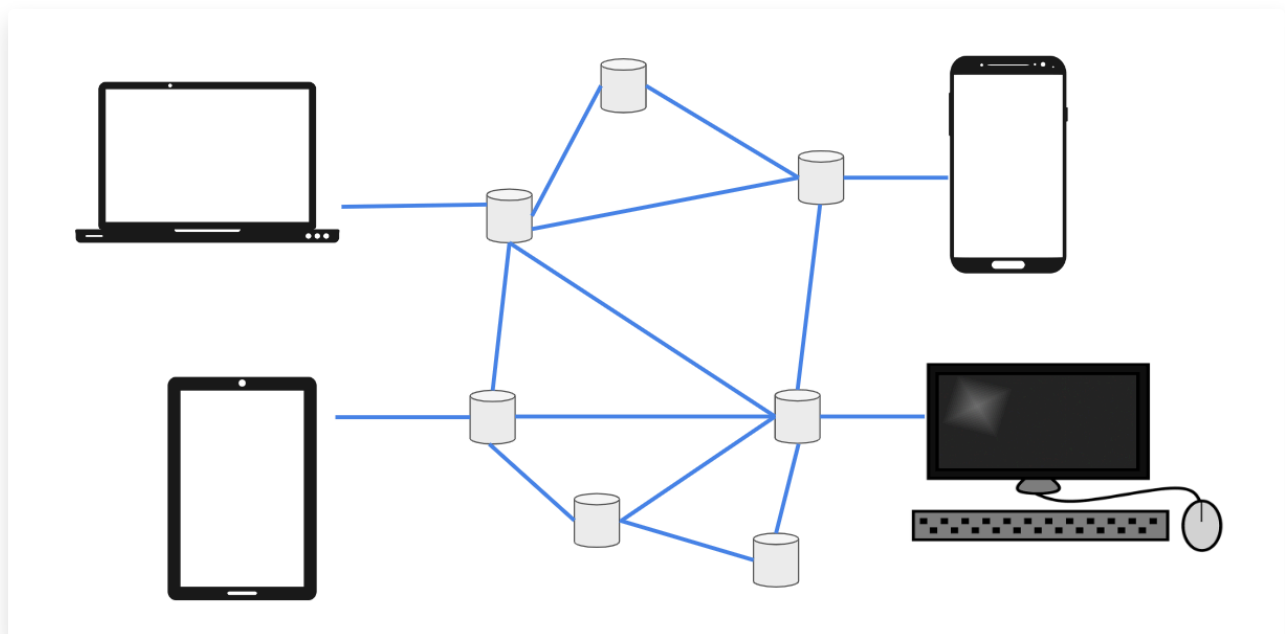
# Computer Systems

Every computer system has three important parts: **inputs**, a **processor**, and **outputs**. An **input** is something you do to give the computer information, like pressing a key, clicking a mouse, or speaking into a microphone. The **processor** is like the computer's brain—it thinks about the input and decides what to do. Then, the **output** is what the computer does in response, like showing a picture, making a sound, or moving a character on the screen. These parts work together to help computers complete tasks.

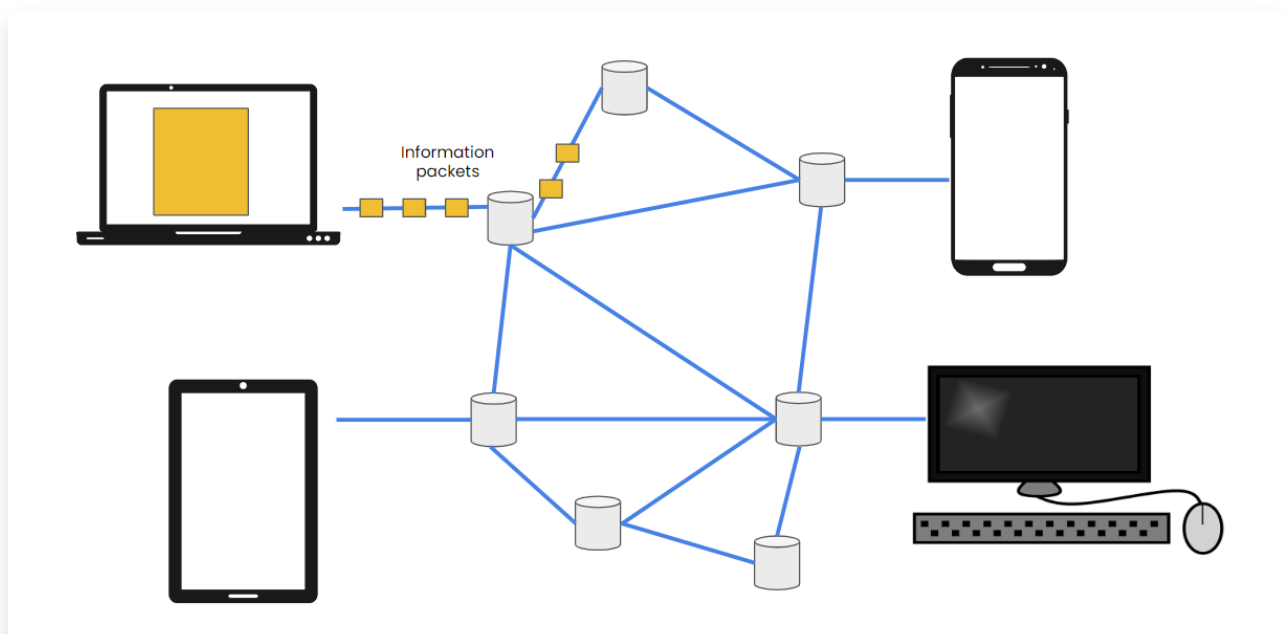
## The Internet

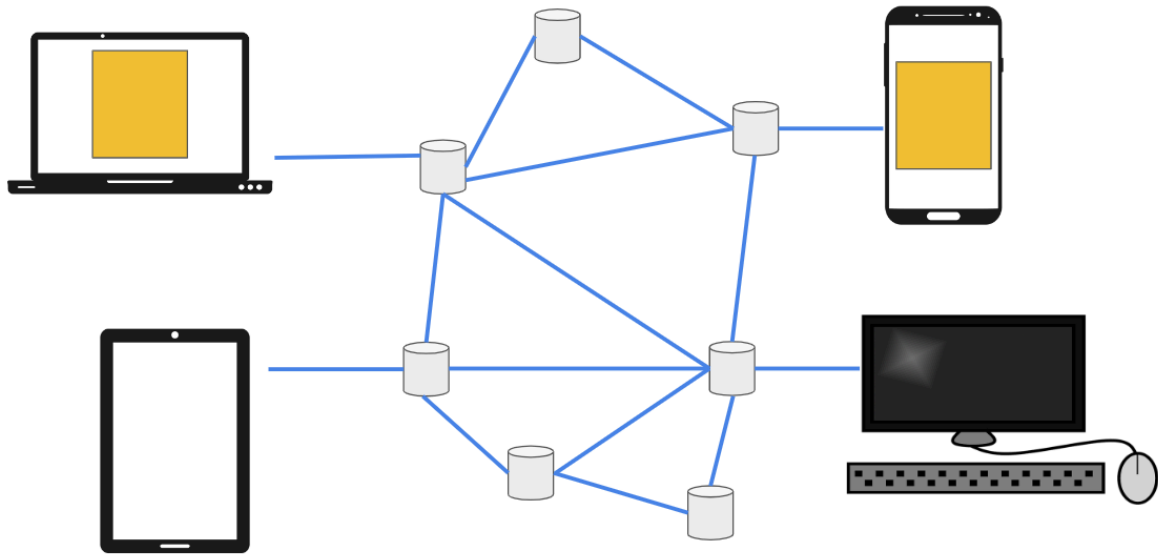
A [network](#) is what makes it possible for computers to communicate and send information to each other. A computer network is when many computers and devices are connected to each other by **links**.

These links allow the computers and other [devices](#) to send information back and forth through something called **nodes**. A network is made up of nodes. A node can receive information and send information to other computers.



Links connect all the nodes to the computer devices where information is being sent. When information is sent, it is broken into smaller pieces, called **packets**. [Packets](#) are sent independently and reassembled at the destination.





Physical devices are needed for the internet to work on a computer. The **hub** connects different networking devices together. [Routers](#) and [switches](#) are used to send packets across paths to their destinations.

## Critical Thinking Questions

1. Why do you think information is broken into smaller pieces (packets) when it's sent over the internet? How does this help the information reach its destination?
2. How do special devices like routers and switches make sure that the packets of information go to the right place? Can you think of another way to guide the packets without them?

## Questions (5)

**1. True or False: A computer network is when many computers and devices are connected.**

MULTIPLE CHOICE

Choose the correct answer:

- A. True
- B. False

**2. What are devices connected by in a network?**

MULTIPLE CHOICE

Choose the correct answer:

- A. Clusters
- B. Links
- C. Cans
- D. Packs

MULTIPLE CHOICE

### 3. What do you call the information that is sent and broken into smaller pieces?

Choose the correct answer:

- A. Packets
- B. Nodes
- C. Bite Sizes
- D. Littles

SELECT MULTIPLE

### 4. Choose the 3 physical devices needed for the internet to work on a computer.

Select all that apply:

- A. Hub
- B. Routers
- C. Switches
- D. Keyboards

MULTIPLE CHOICE

### 5. What are nodes in a computer network?

Choose the correct answer:

- A. Smaller pieces of data transmitted over the network
- B. Physical devices like hubs and routers
- C. Points where information can be received and sent
- D. The software used to access the internet

## Games (2)

### 1. Computer Systems and the Internet Typing Game


Full Screen

Audio

Instructions

Restart

Pause



0s 100%

A computer network is wh

### 2. Computer Systems and the Internet Matching Game

Full Screen

Audio

Instructions

Answer Key

Pause

Clear All

Check Matches

Attempts: 0

What makes it possible for computers to communicate and send information to each other?

A computer network is when many computers and devices are connected to each other by what?

Links allow the computers and other devices to send information back and forth through something called what?


Links

Network

Packets

Nodes

When information is sent, it is broken into smaller pieces, called what?



# Blocks Pro Challenges (1)

## 1. Internet Network

### Internet Network

Draw what a network looks like using the drawing tool.

Then, program a sprite to act as your presenter. The presenter should explain what a computer network does and how it works.

#### Requirements

0/2

1 Looks

1 Event

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

Submit ↗

The interface shows a code editor with the following blocks in the script area:

- go to random position
- 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

The stage area shows a cat sprite named 'Sprite1' with a size of 100 and a direction of 90. The background is a solid light blue.

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## Answer Keys & Solutions

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### Questions

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**1. True or False: A computer network is when many computers and devices are connected.**

MULTIPLE CHOICE

**Correct Answer:**

A. True ✓ Correct

B. False ✗ Incorrect

**Explanation:**

The internet connects us to people all over the world. The internet is a network.

**2. What are devices connected by in a network?**

MULTIPLE CHOICE

**Correct Answer:**

A. Clusters ✗ Incorrect

B. Links ✓ Correct

C. Cans ✗ Incorrect

D. Packs ✗ Incorrect

**Explanation:**

Links allow computers and other devices to send information back and forth.

**3. What do you call the information that is sent and broken into smaller pieces?**

MULTIPLE CHOICE

**Correct Answer:**

A. Packets ✓ Correct

B. Nodes

✗ Incorrect

C. Bite Sizes

✗ Incorrect

D. Littles

✗ Incorrect

**Explanation:**

Packets are sent independently and reassembled at the destination.

**4. Choose the 3 physical devices needed for the internet to work on a computer.**

SELECT MULTIPLE

**Correct Answers:**

A. Hub

✓ Correct

B. Routers

✓ Correct

C. Switches

✓ Correct

D. Keyboards

✗ Incorrect

**Explanation:**

Keyboards are an external part and, therefore, are not needed for the internet to work.

**5. What are nodes in a computer network?**

MULTIPLE CHOICE

**Correct Answer:**

A. Smaller pieces of data transmitted over the network

✗ Incorrect

B. Physical devices like hubs and routers

✗ Incorrect

C. Points where information can be received and sent

✓ Correct

D. The software used to access the internet

✗ Incorrect

**Explanation:**

Nodes are essential components that manage information flow.



### 1. Computer Systems and the Internet Typing Game

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

### 2. Computer Systems and the Internet Matching Game

**Matching Game Solutions:**

1. →

2. →

3. →

4. →

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