



SuperNovaSchool®
L E A R N T O B E D I S T I N C T

Computing

Grade IV

UNIT/STRAND	3
TOPIC	Networks and Digital Communication
Session	2025-26
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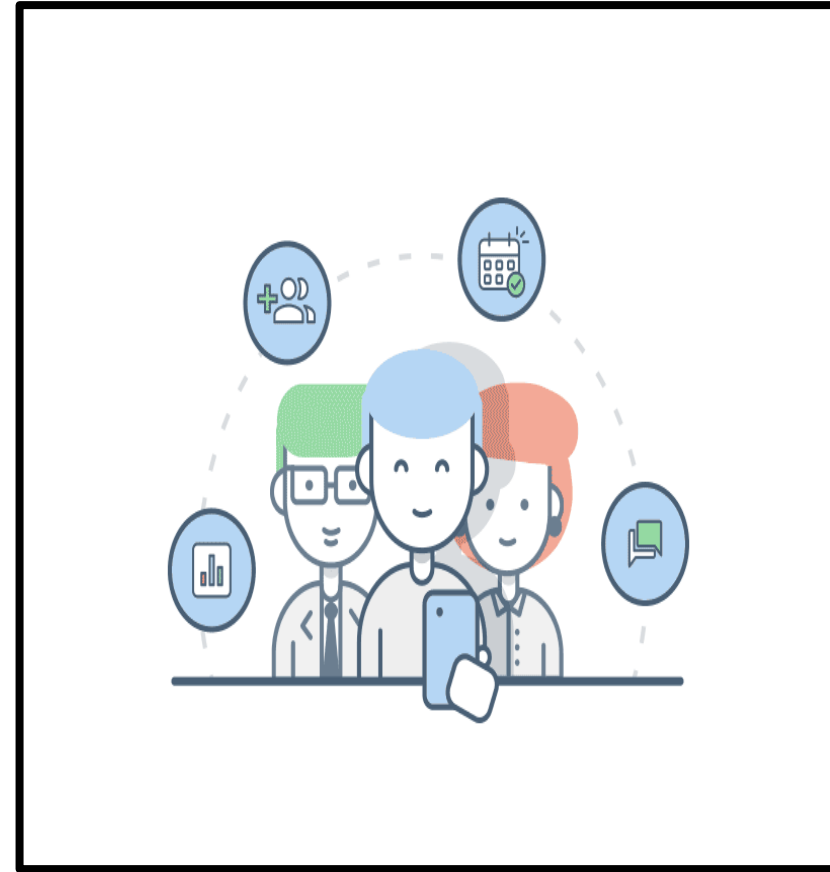


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Computer Network

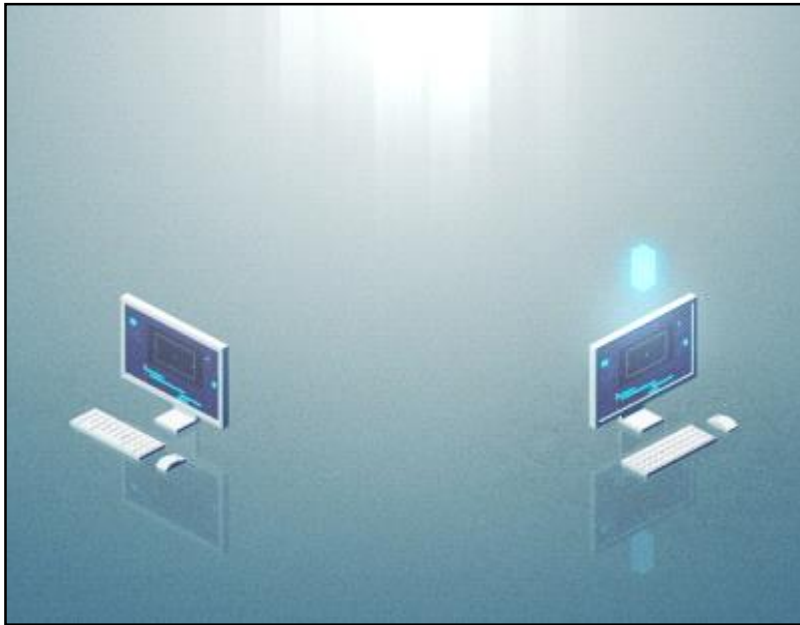


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What is a Computer network?

A network is two or more computers connected together to share resources.

- share files
- share printer
- share internet

Examples:

- Computer lab
- Home Wi-fi
- Library Computers

Think of it like roads connecting houses.





How do Computers connect?



Wi-Fi

Invisible radio waves, no wires needed! Range ~100 feet indoors.



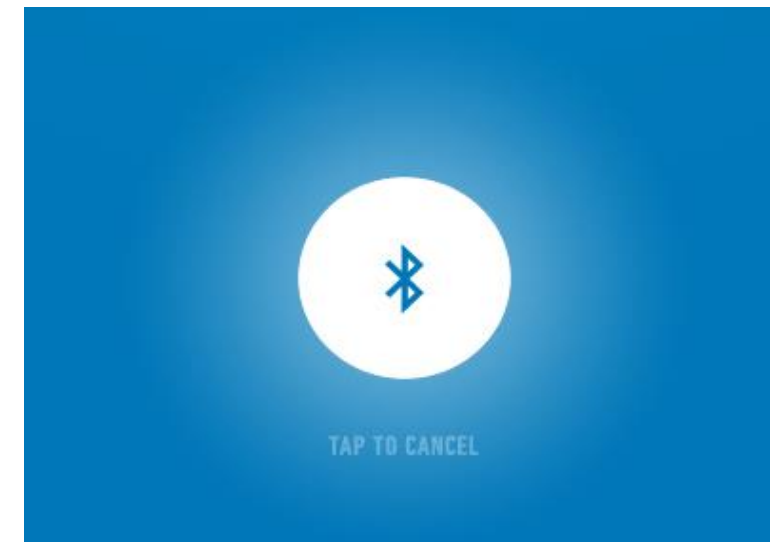
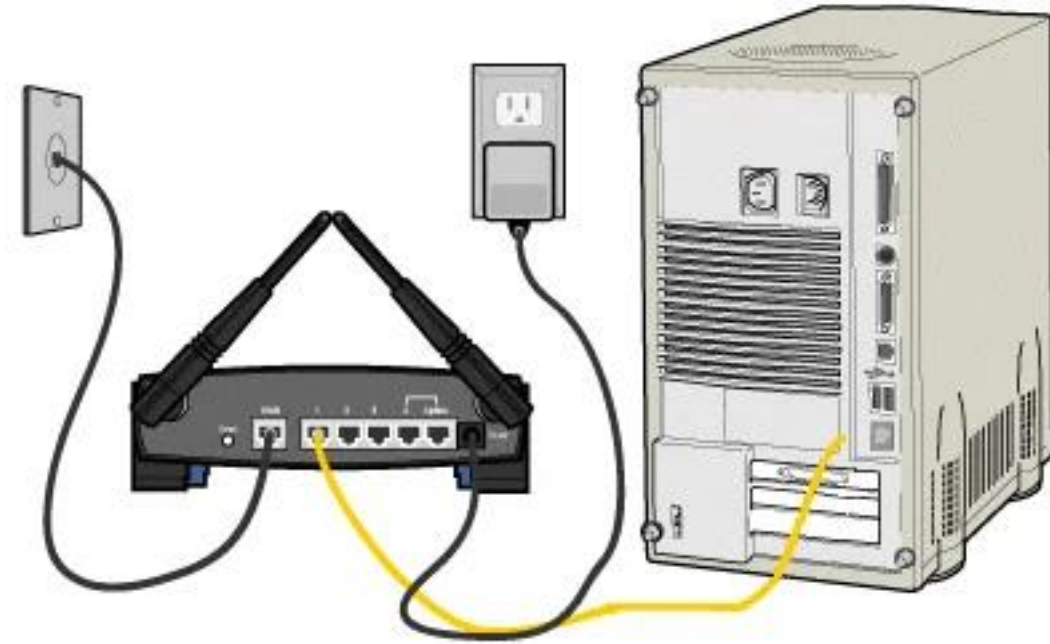
Ethernet Cable

Physical wire connecting computers. Speeds up to 10 Gigabits/second.



Bluetooth

Short distance connections, like headphones. Range ~30 feet.





Sharing Resources on a Network

Sharing is caring on a network! Computers can share files, printers, and even the Internet.

Files

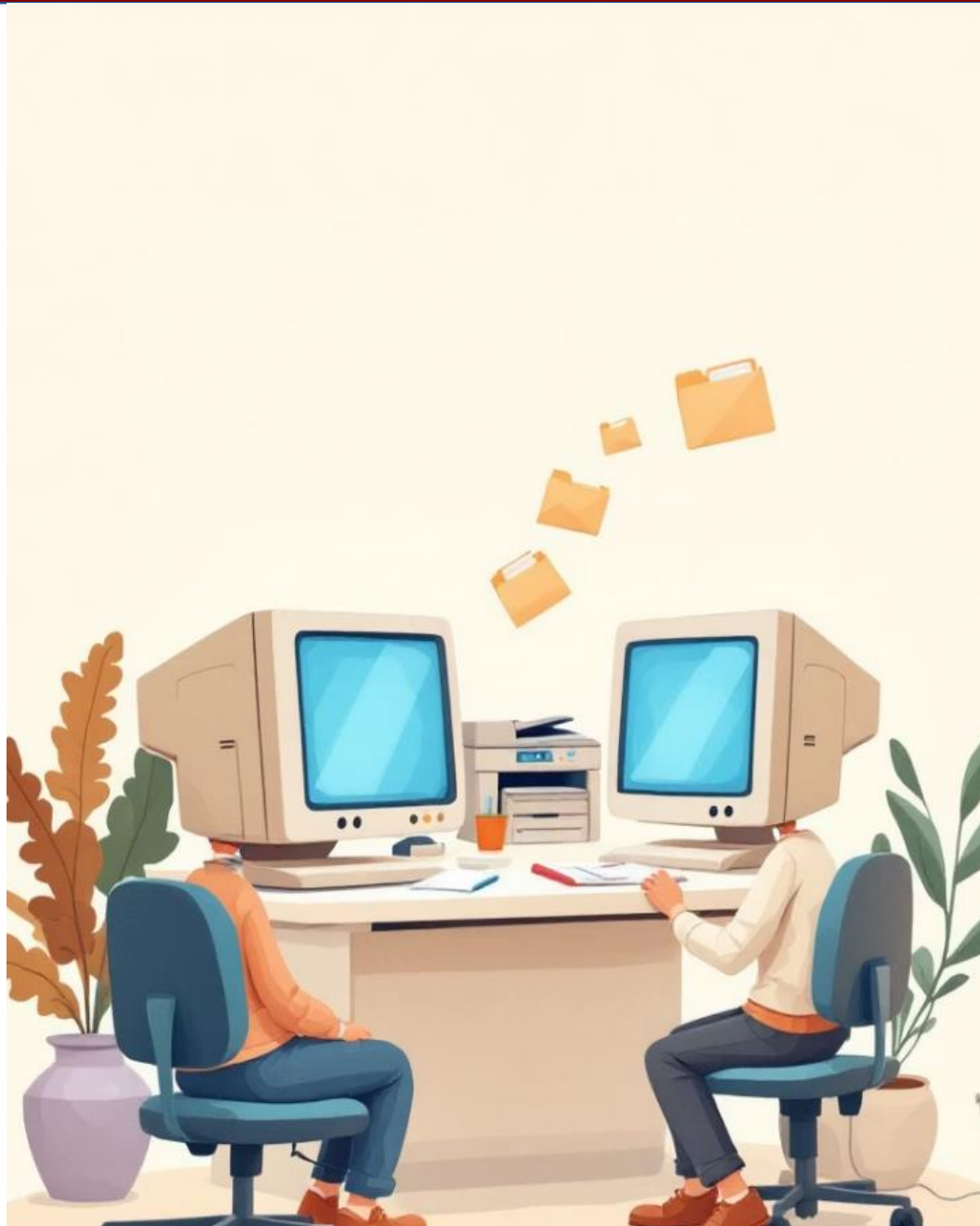
Sharing homework with classmates, sending pictures to family.

Printers

One printer for everyone in the class.

Internet

Accessing websites and online games.





Activity Time

Network Scavenger Hunt

Find Devices

Find devices connected to your network (at school or home).

Identify Connections

What types of connections are they using?

Draw a Map

Draw a map of your network!





Client and Servers

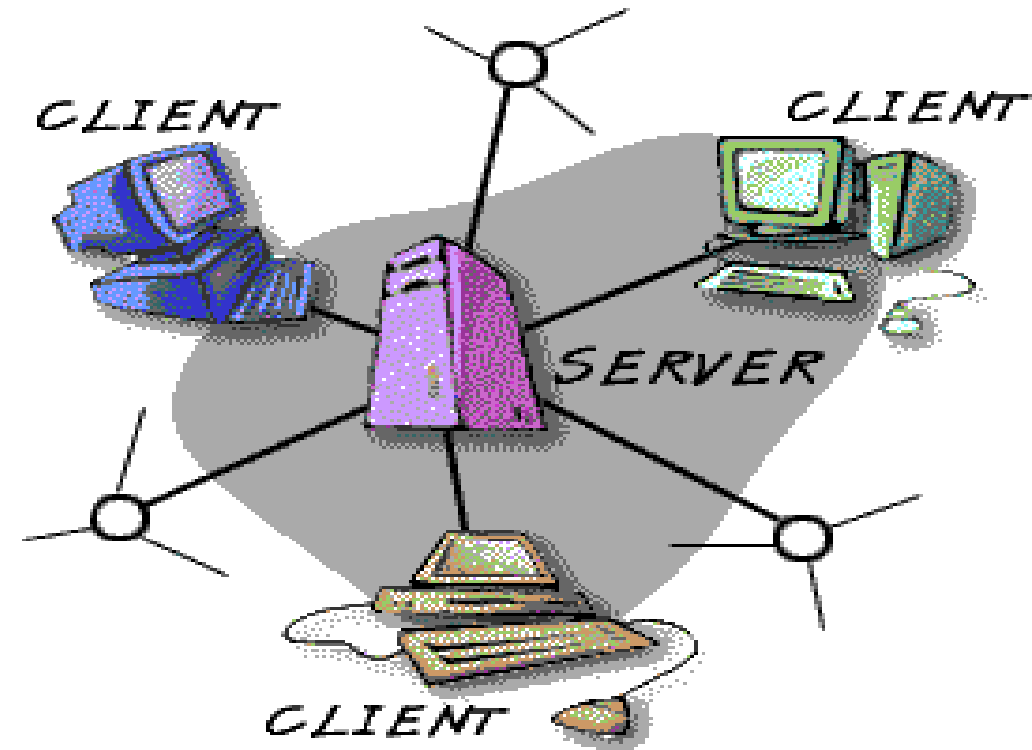
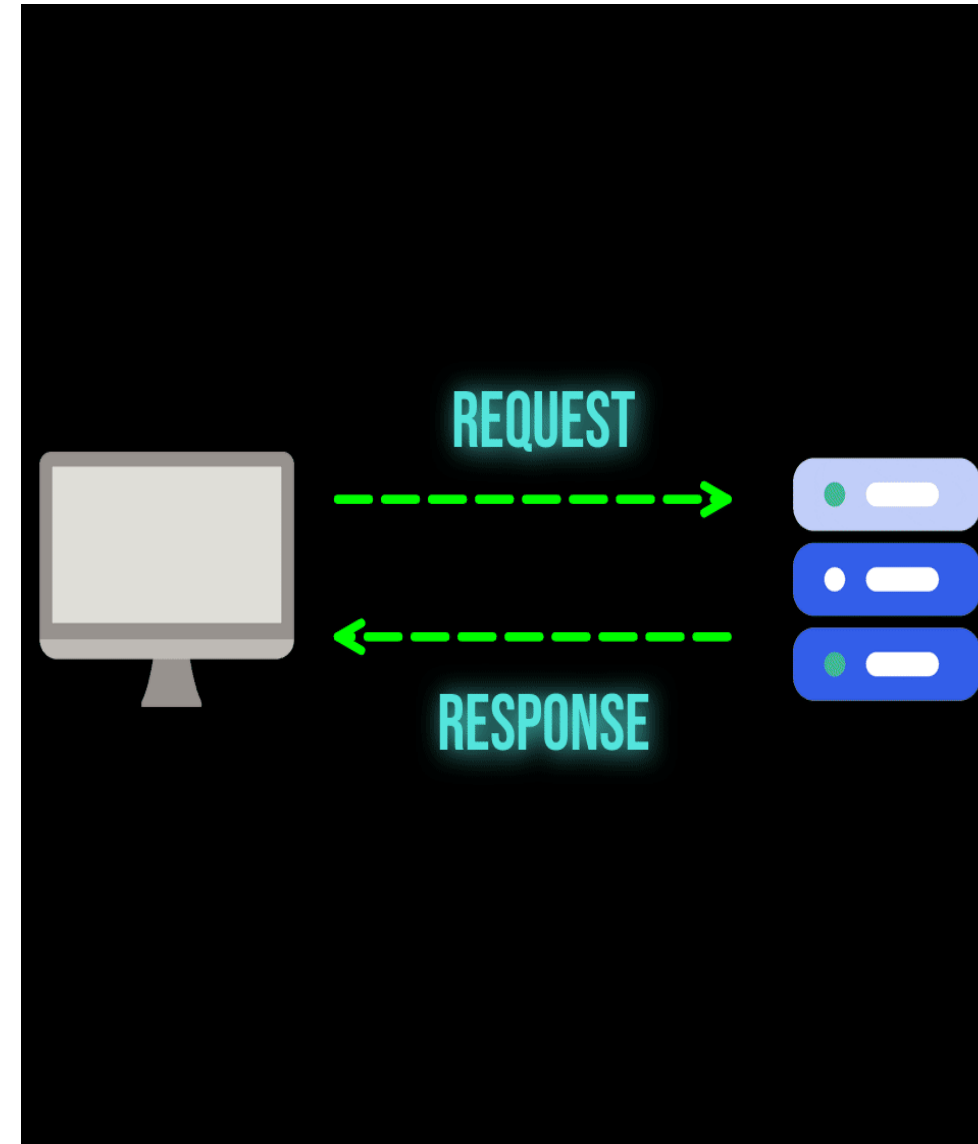


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Understanding the Client-Server Model

- Let's Learn How Computers Talk!
- **What is a Client?:** A computer or device that asks for something, like a website.
- **What is a Server?:** A special computer that gives the client what it asks for.
- **How They Work Together:** Client asks → Server answers. That's how the Internet works!





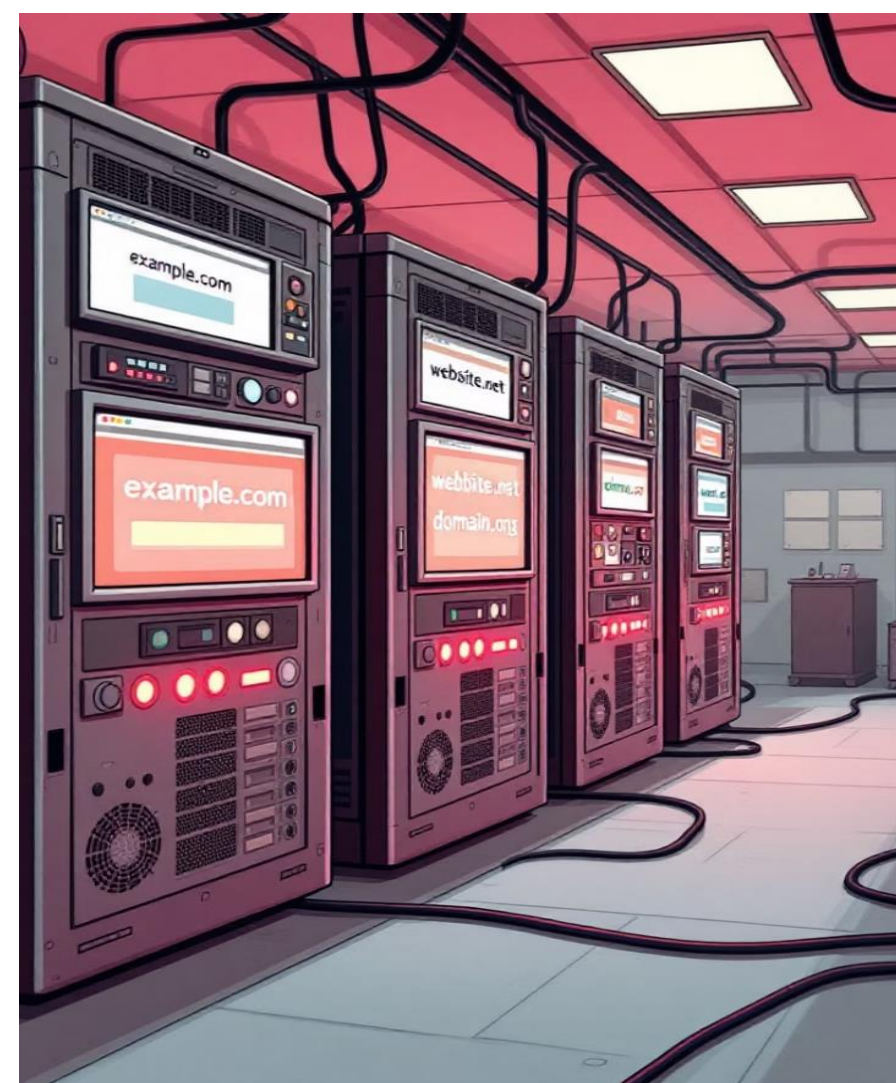
Who is the Client?(the one who asks)

- The User:** You or your device asking for something, like opening a website.
- Sends a Request:** The client sends a message to ask for a page, video, or info.
- Waits for Response:** The client waits for the server to send back what was asked.





Who is the server?(the one who answers)



- **Big Helper Computer:** Stores and sends information like web pages or videos.
- **Listens for Requests:** The server is always ready to hear from clients.
- **Sends Responses:** It sends the correct content back to the client.

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How Client and Server Talk?



Step 1: Ask

The client sends a message asking the server for something.



Step 2: Listen

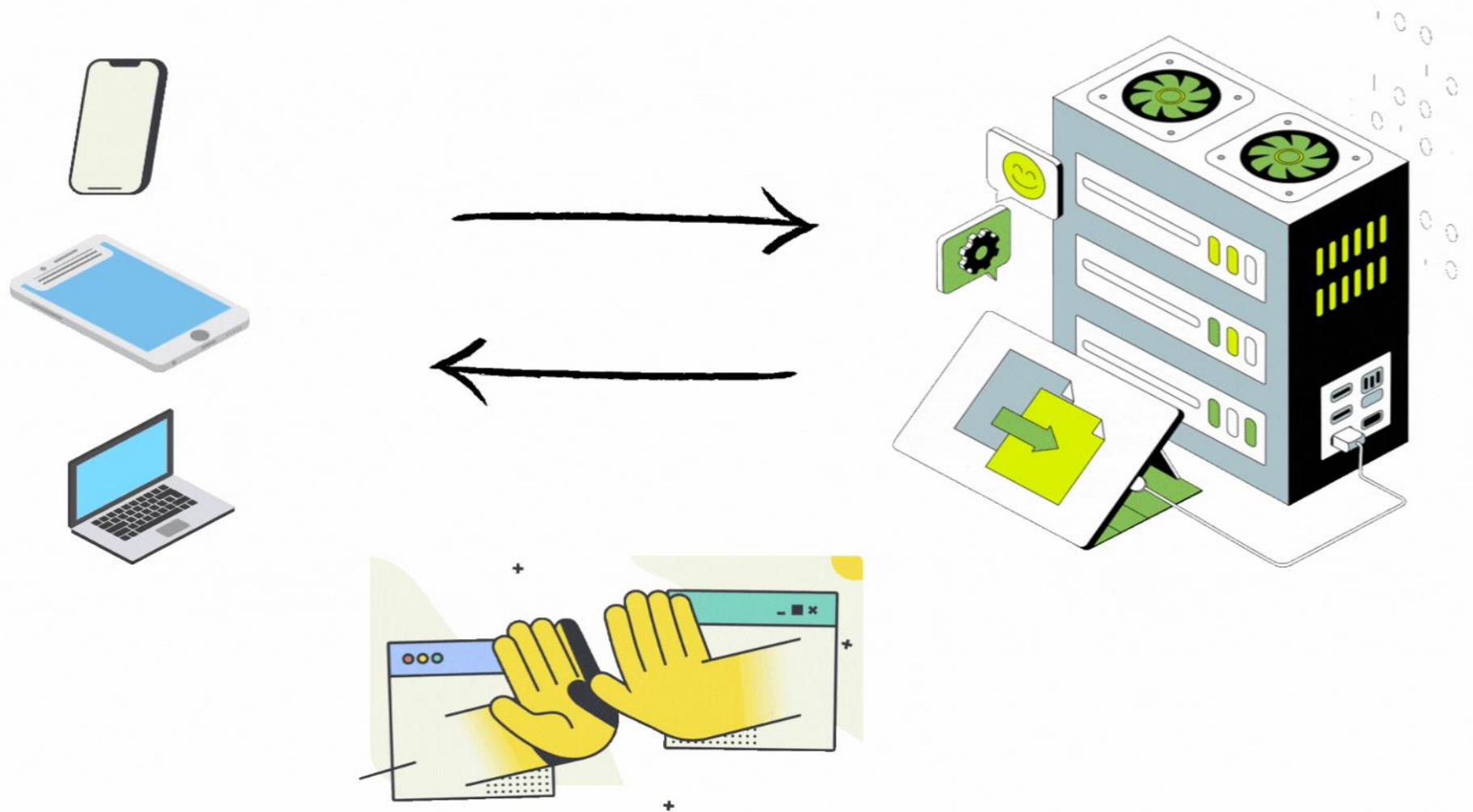
The server gets the request and finds the right information.



Step 3: Answer

The server sends the answer back to the client.

Client-Server Communication





Client-Server Activity

Let's play Client and Server!

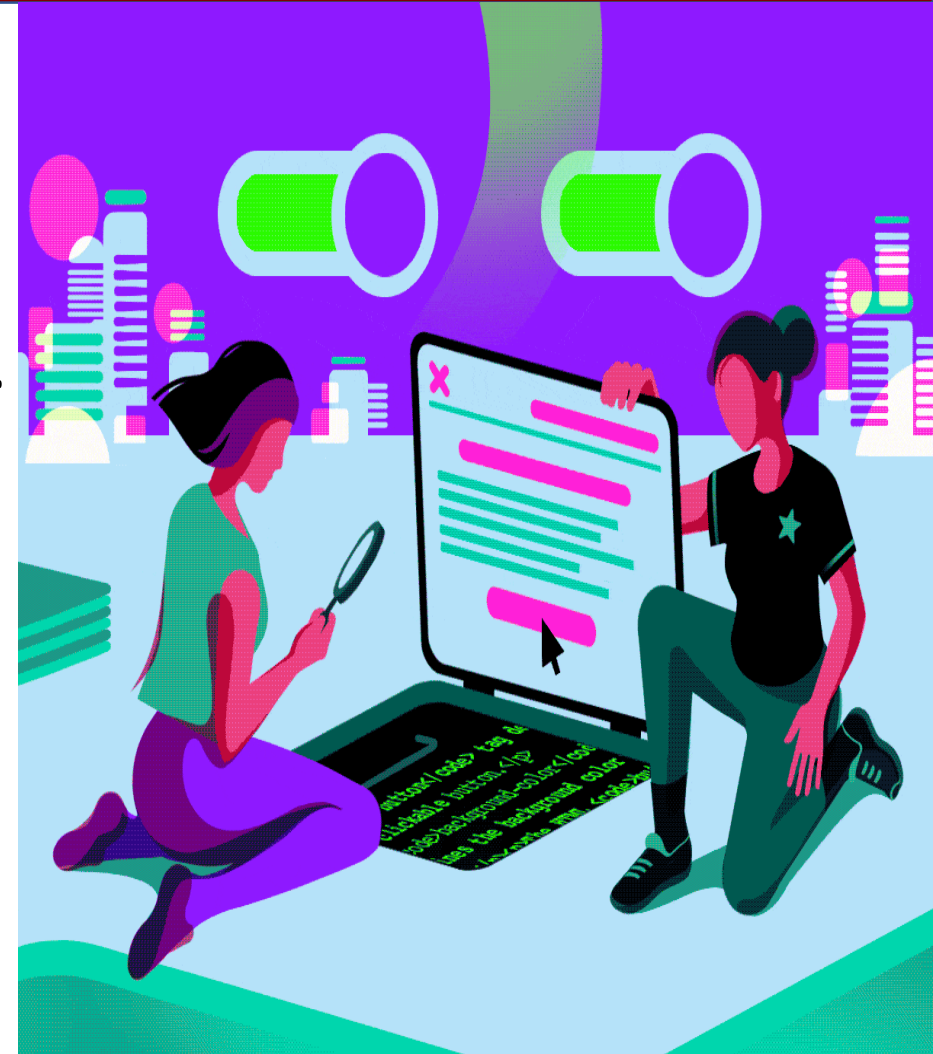
1. One student acts as the Client (asks a question).
2. The Server reads and responds (with answers, drawings, songs, etc.).

- - “What is $2 + 2$?” → Server says: “4”
- - “Show me a cat” → Server draws a cat

3. Switch roles so everyone gets a turn.

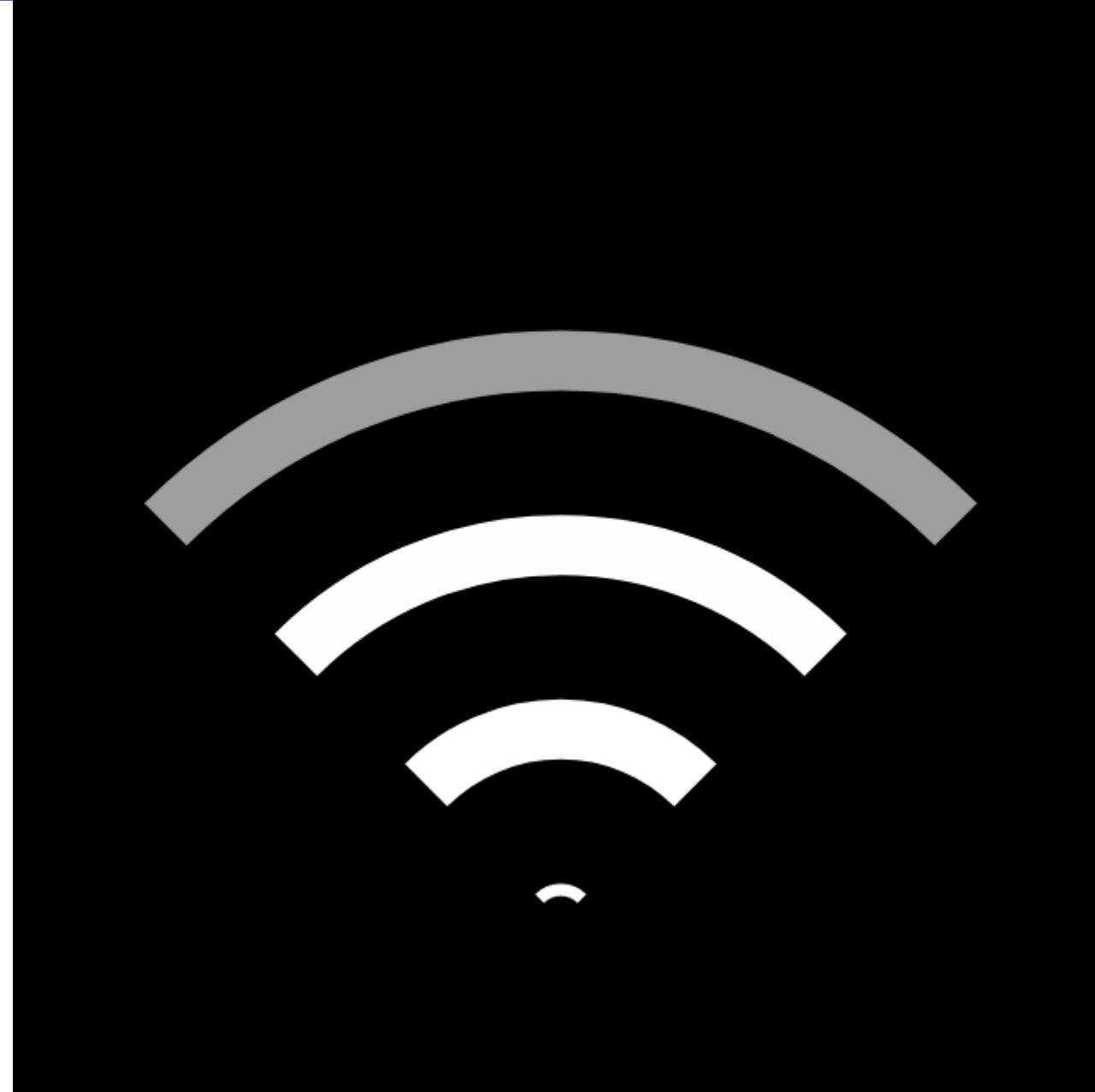
- Time the responses (simulate network speed!)
- Throw in a fake 'error message' for tricky questions

Material needed: Paper and markers/color pencil.





Internet and world wide Web





Understanding the Internet and the World Wide Web

What Are They?



The Internet

A vast network connecting computers worldwide to share information.

World Wide Web

A part of the Internet where we access websites, videos, and games.



Working Together

The Web uses the Internet to work, like cars using roads.





The Internet – A Global Connection

What Is the Internet?

- **Global Network:** Connects millions of computers around the world.
- **Communication:** Let us send messages, and emails, and make video calls.
- **Entertainment:** Gives access to games, videos, and music.





The World Wide Web

What Is the Web?



Websites

Pages with stories, videos, games, and pictures.



Hyperlinks

Clicking a link jumps to another page or website.



Needs Internet

We use the Internet to visit websites on the Web.



How the Internet and Web Work Together

Teamwork of Technology

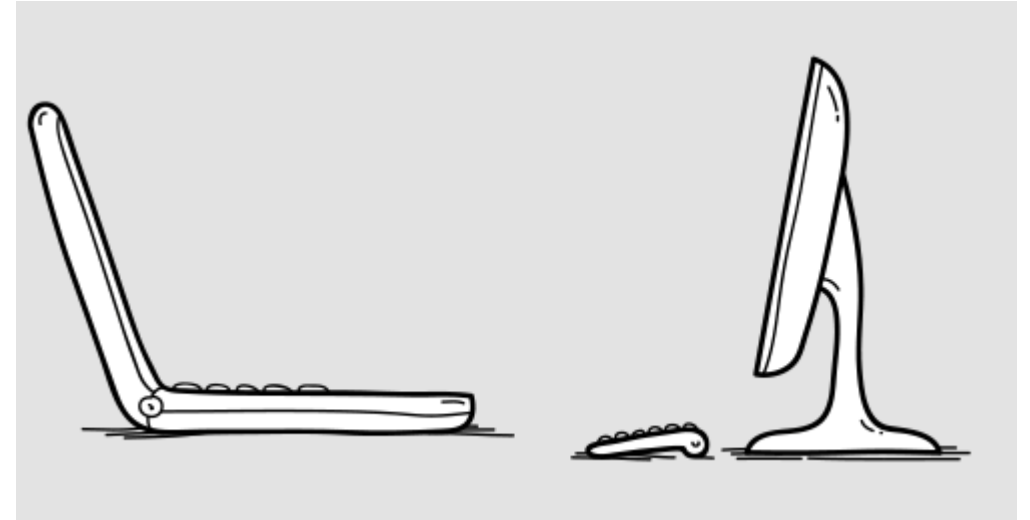
- **Internet is the Highway:** It's the path that connects computers so information can travel.
- **Web is the Car:** Websites ride on the Internet like cars on a highway.
- **Need Both:** To visit a website, we need the Web and the Internet working together.





Key Differences – Internet vs. Web

- **The Internet:** A network that connects computers and devices worldwide.
- **The Web:** A system of websites and web pages we access using the Internet.
- **Not the Same:** The Web is part of the Internet, not the other way around.





Fun Example: Internet vs. Web

Like Roads and Cars!

- **Internet = Roads:** The Internet is like roads that connect cities and homes.
- **Web = Cars:** The Web is like cars driving on those roads to reach places.
- **Together = Journey:** We use both to go places online and explore websites.





Quiz Time

Let's See What You Remember

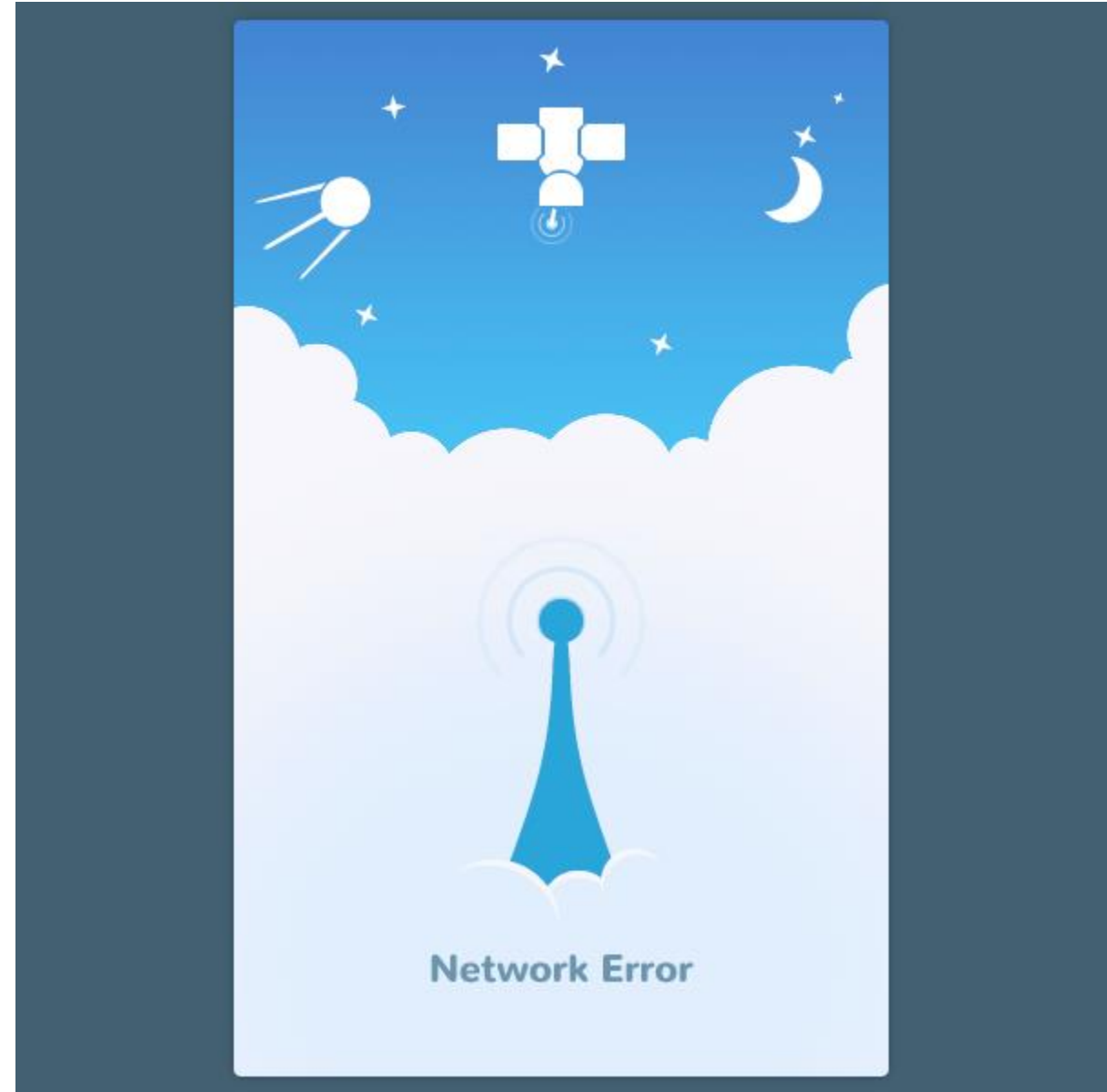
- Q1: What connects all the computers?:** A) The World Wide Web B) The Internet
- Q2: What do we use to visit websites?:** A) The Web B) A TV
- Q3: Is the Web the same as the Internet?:** A) Yes B) No



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Network Failure

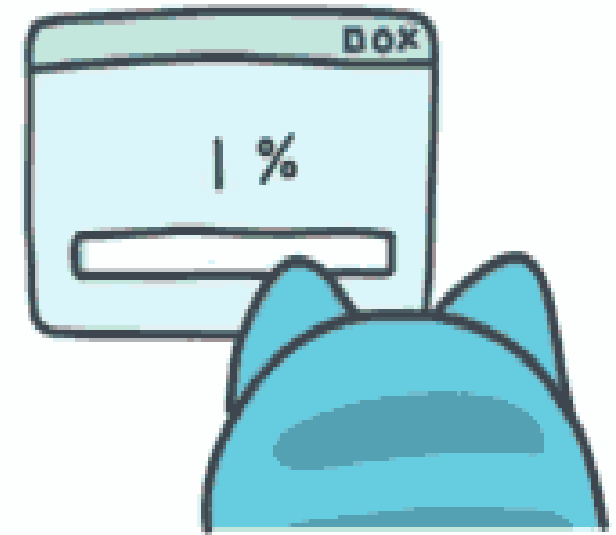




What Happens When a Network Fails?

Oops! Something Went Wrong!

- **No Internet:** You can't watch videos, play games, or send messages.
- **Devices Can't Talk:** Your tablet can't connect to websites or other computers.
- **It Feels Slow or Frozen:** Sometimes things don't load or stop working altogether.





Cause #1 – Broken Wires or Cables

- **Wires Connect Us:** Cables carry signals to help us get online.
- **Damage or Cuts:** If a cable breaks, the signal can't travel anymore.
- **Internet Stops:** Broken wires mean no websites, videos, or games!





Cause #2 – Power Outage

- **Electricity Powers It All:** Wi-Fi routers and computers need power to work.
- **Power Goes Off:** When electricity is lost, the network stops too.
- **Everything Goes Quiet:** No lights, no internet, and no screen time!





Cause #3 – Too Many Users

- The Network Gets Crowded
- **Everyone Online:** Too many people using the network at once slows it down.
- **Takes Longer:** Websites and videos take longer to load.
- **It Might Crash:** If it's too busy, the network can stop working!





Cause #4 – Bad Weather

- Rain, Thunder & No Signal



Storms Interfere

Lightning and rain can damage wires and slow signals.



Signal Trouble

Bad weather makes it hard for the internet to work properly.



Stay Safe

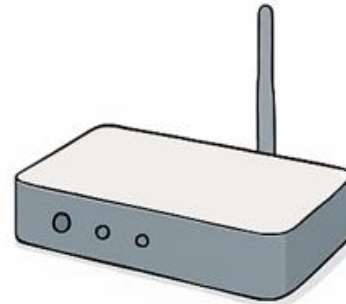
Always unplug devices during big storms!





Activity Time: Guess the cause of network failure

Why do You think the internet is not working?



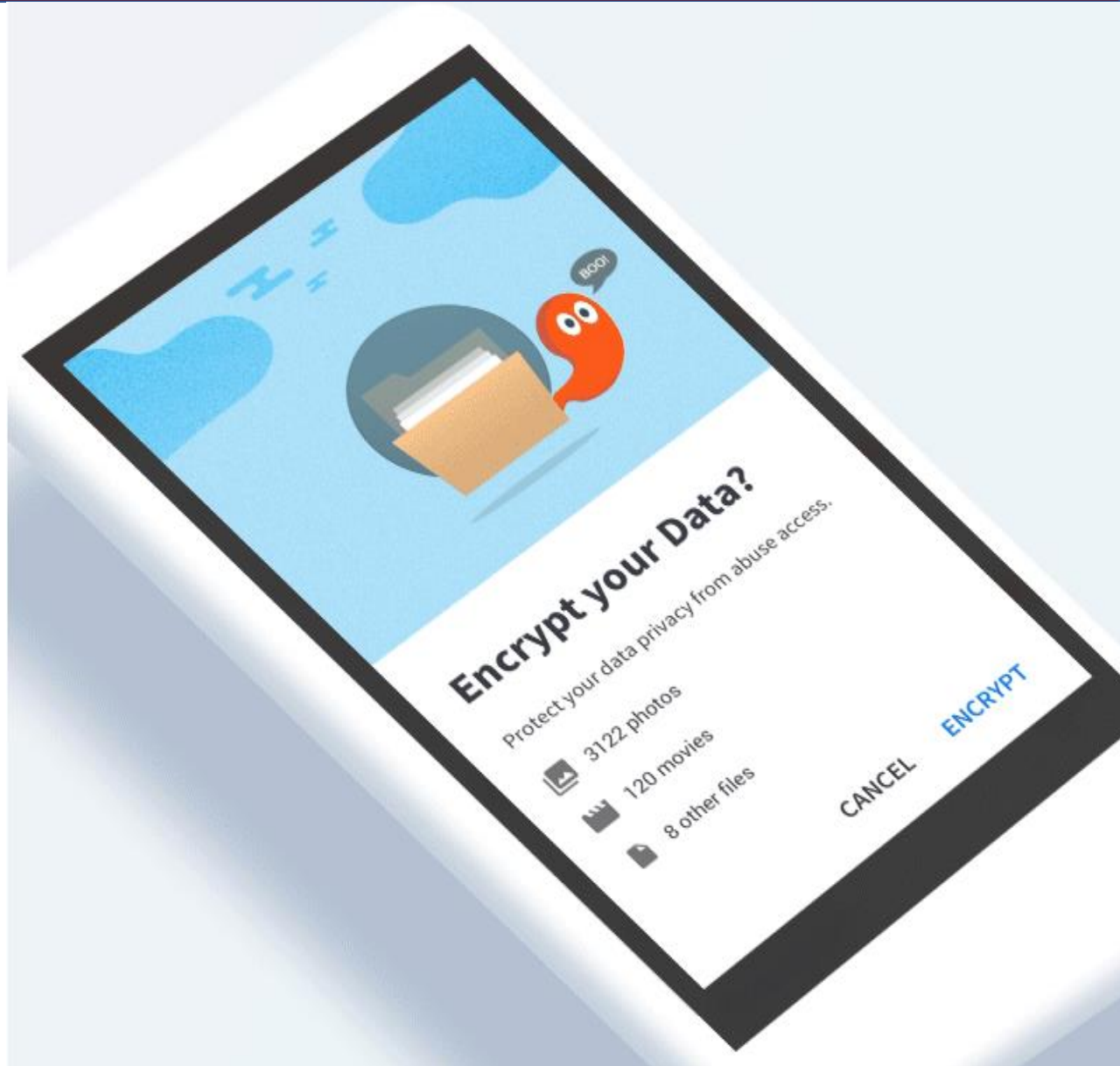
What could be the cause of network failure?

Why is only one student having a network problem?





Encrypting Data



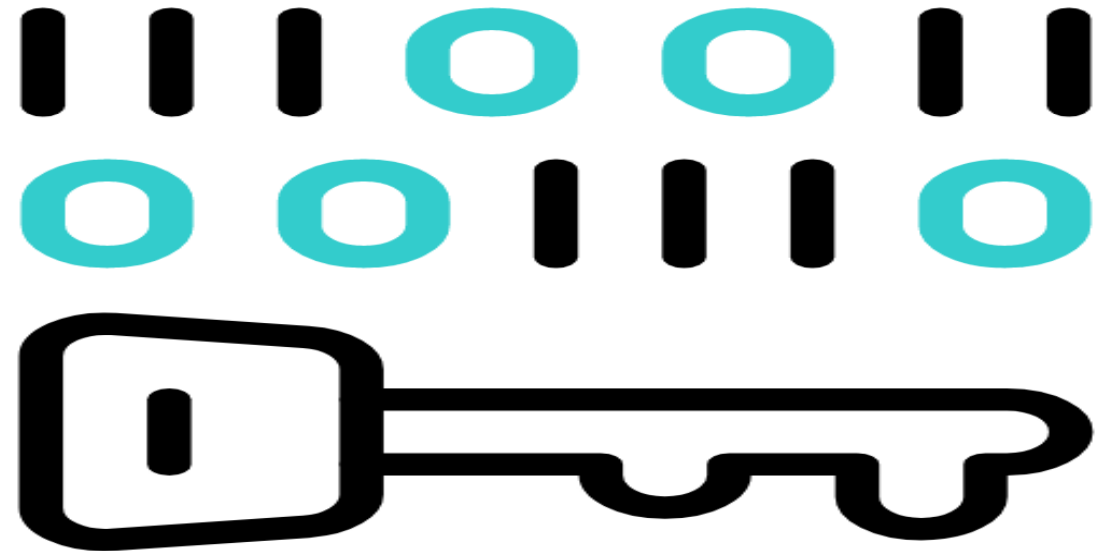


What is Encryption?



Encryption is like putting secret messages in a locked box.

Only someone with the key can unlock it and read the message!

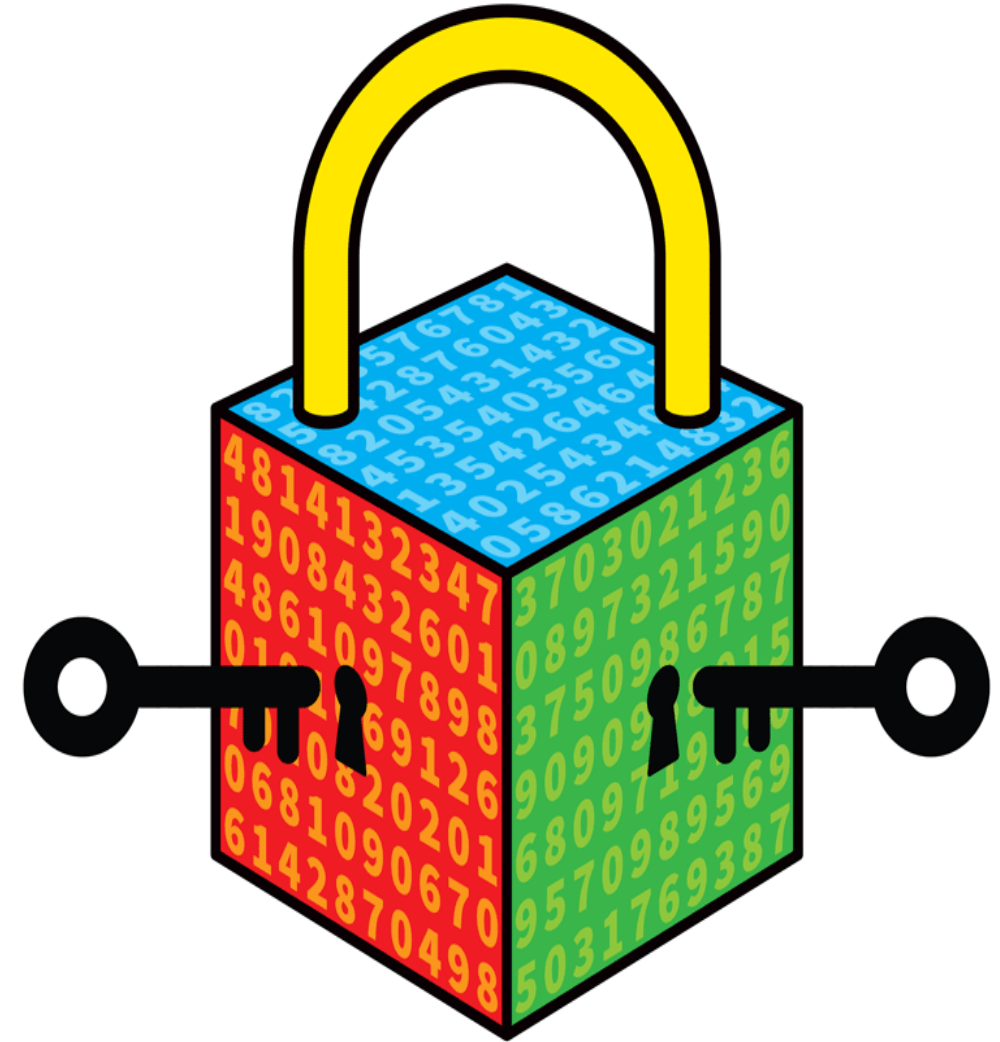




Why do we need Encryption?

To keep secrets safe! Like...

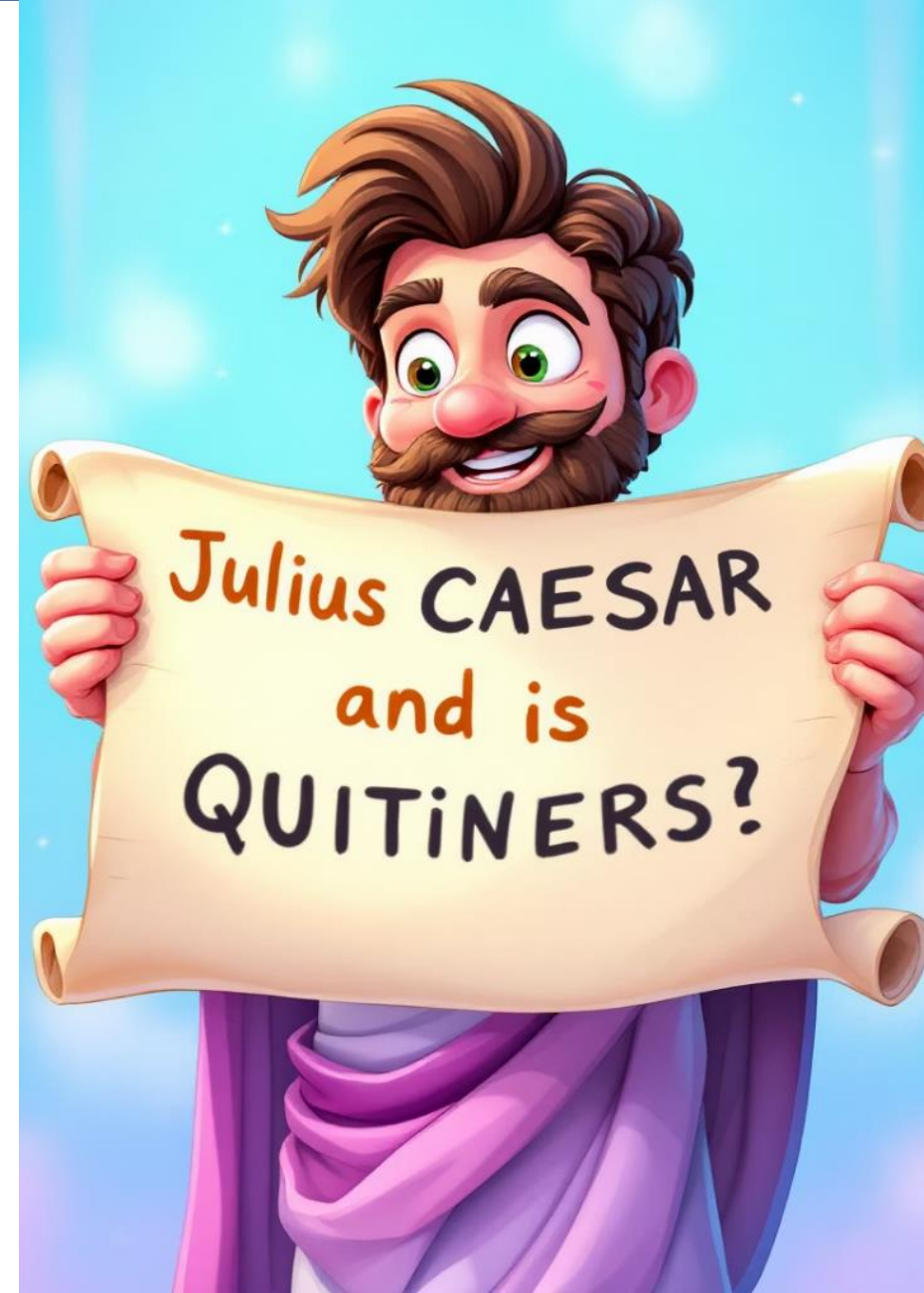
- Sharing your password
- Writing a diary
- Sending secret messages to friends!





The Caesar Cipher

- A very old way to hide messages, used by Julius Caesar (a Roman ruler!)
- It works by shifting each letter a few places down the alphabet.





How Does It Work?

Shift each letter in your message by a certain number.

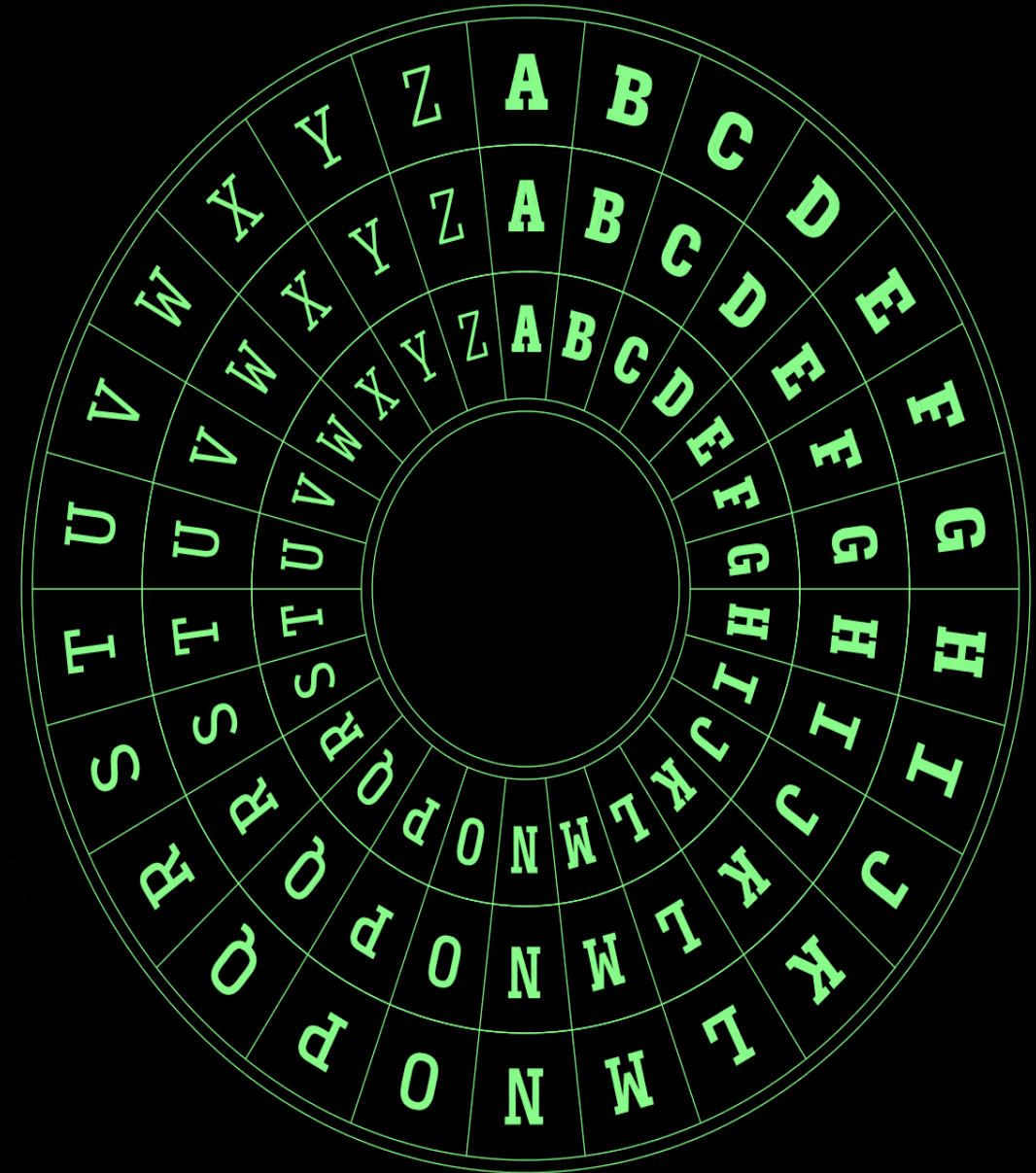
Example: If we shift by 3: A → D

A → D

B → E

C → F

(and so on!)





Let's Try It!

Your message: “CAT”

Shift by 1: “DBU”

Shift by 2: “ECV”

Activity: Let's decode this: “KHOOOR”

(Hint: shift by 3!)



Caesar Cipher with a shift of 3

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

Shift: 0

Plain Text: Hello

Cipher Text:

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Make Your Own Secret Code!

- Pick a letter between A-Z
- Write a message
- Shift each letter by 1
- Give it to a friend to decode!

