



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

Computing

Grade 3

Cambridge Lower Secondary Computing Learners Book 3

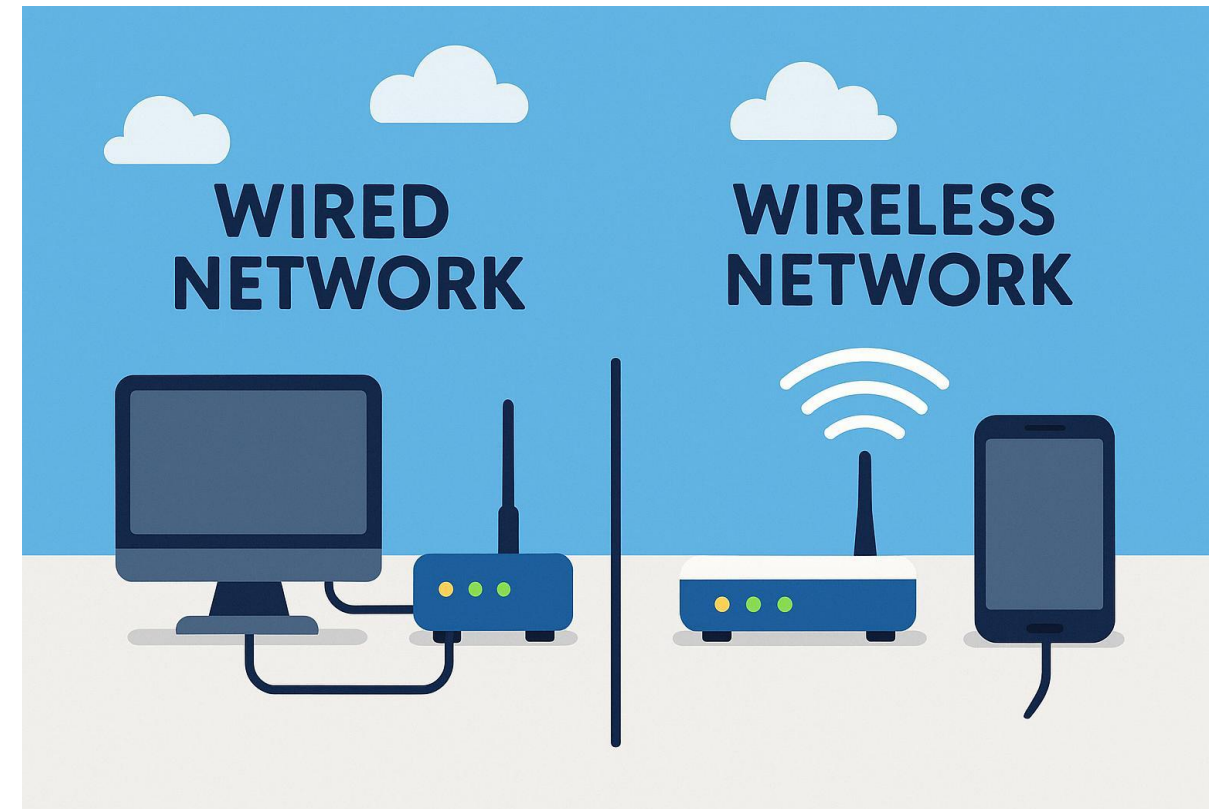
UNIT	Unit 3
TOPIC	Networks and Digital Communication
Sub Topics	1. Networks everywhere 2. Secret cipher
Session	2025-26
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3.1: Networks everywhere



Wired and wireless network

- **Network:** A group of connected devices that share information.
 - **Examples:** School computers, printers, tablets.
- **Wired network:** Digital devices connecting to the internet through a network cable.
 - **Example:** A desktop computer at home connected to the internet through a cable.
- **Wireless network:** Digital devices connected to the internet wirelessly.
 - **Example:** A mobile phone or a tablet connected to Wi-Fi at home.



3.1: Networks everywhere



Wired Networks

- Use cables (e.g., Ethernet cables).
- **Advantages:**
 - Faster
 - More secure.
- **Disadvantages:**
 - Non-portable
- **Activity:** Spot the Cable: Find the Ethernet cable plugged into the classroom computer.

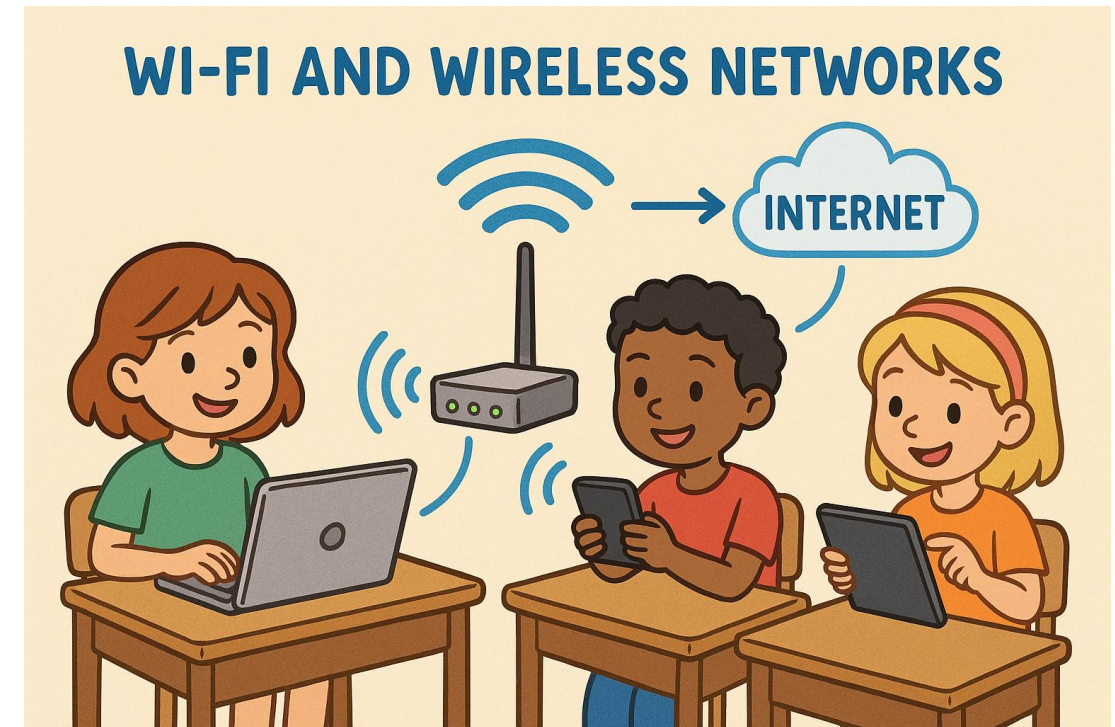


3.1: Networks everywhere



Wireless Networks

- Use Wi-Fi (no cables needed).
- **Wi-Fi Access Point:** Device that sends/receives wireless signals.
- **Advantages:**
 - Portable devices
 - easy to add new devices.
- **Disadvantages:**
 - Slower if too many devices connect.
- **Activity:** Hands Up: How many devices in your home use Wi-Fi?



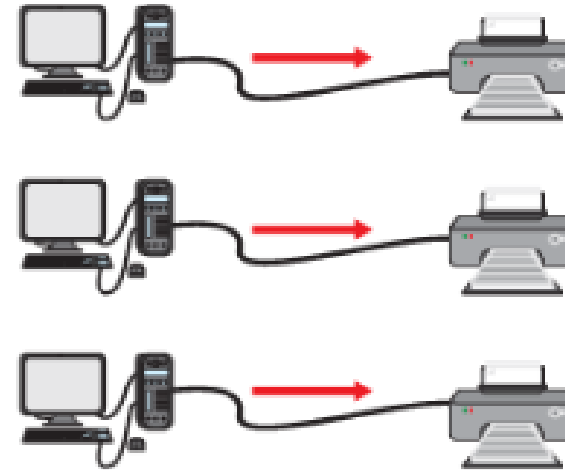
3.1: Networks everywhere



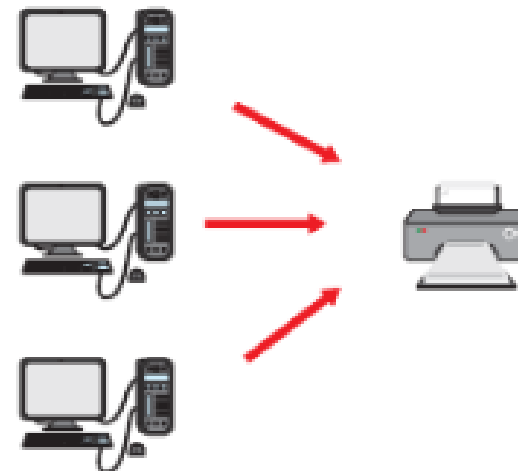
Why have a network?

- **Sharing:** You can share files, games, or printers with others easily.
- **Teamwork:** Students or teachers can work together on the same project.
- **Internet Access:** Many computers can use the same internet connection.
- **Saving Time:** Sending messages or files is faster.

If a school did not have a network, each computer would need its own printer.



But if a school has a network, all the computers can print using the same printer.

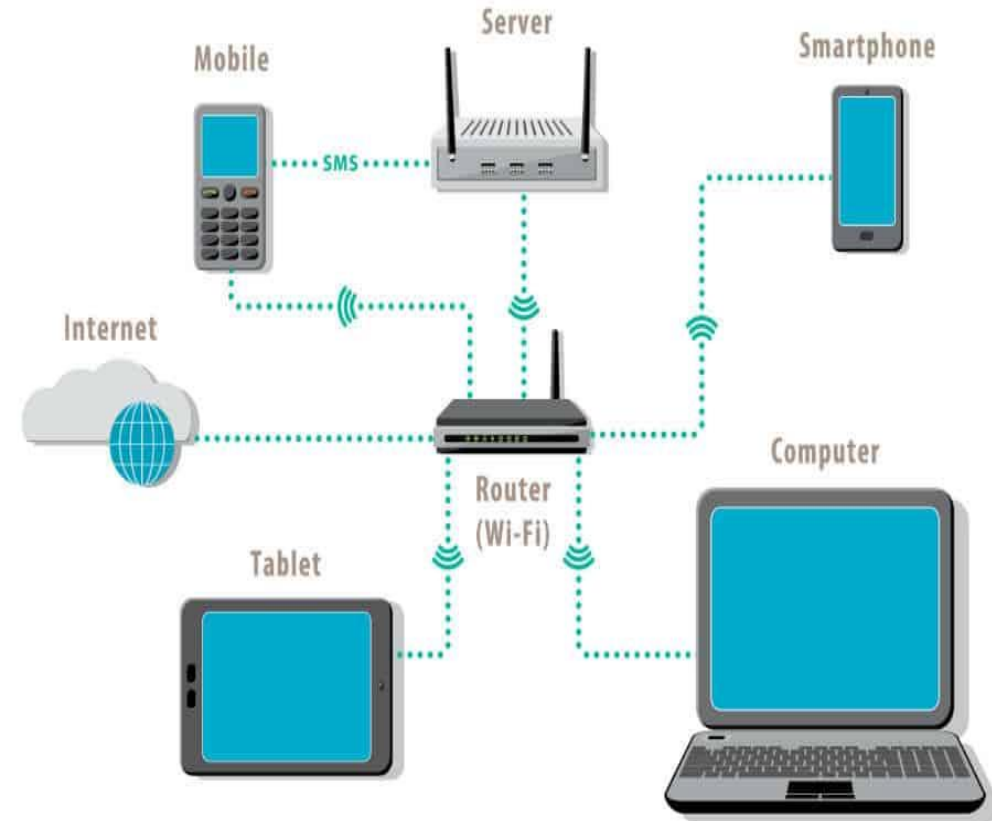




3.1: Networks everywhere

Local area Network (LAN)

- **Local Area Network:** A group of computers and devices that are connected in a small area like a home, school, or office.
 - **Example:**
 - The computers in your school's computer lab connected to one printer
 - The internet is a LAN.



3.1: Networks everywhere



Accessing the world wide web



Internet: The largest network of all(global).



WWW (World Wide Web): Service provided by the internet.

Example: Websites you visit (e.g., games, videos).



Browser: Program to access the WWW.
Example: Chrome, Safari , MS edge.

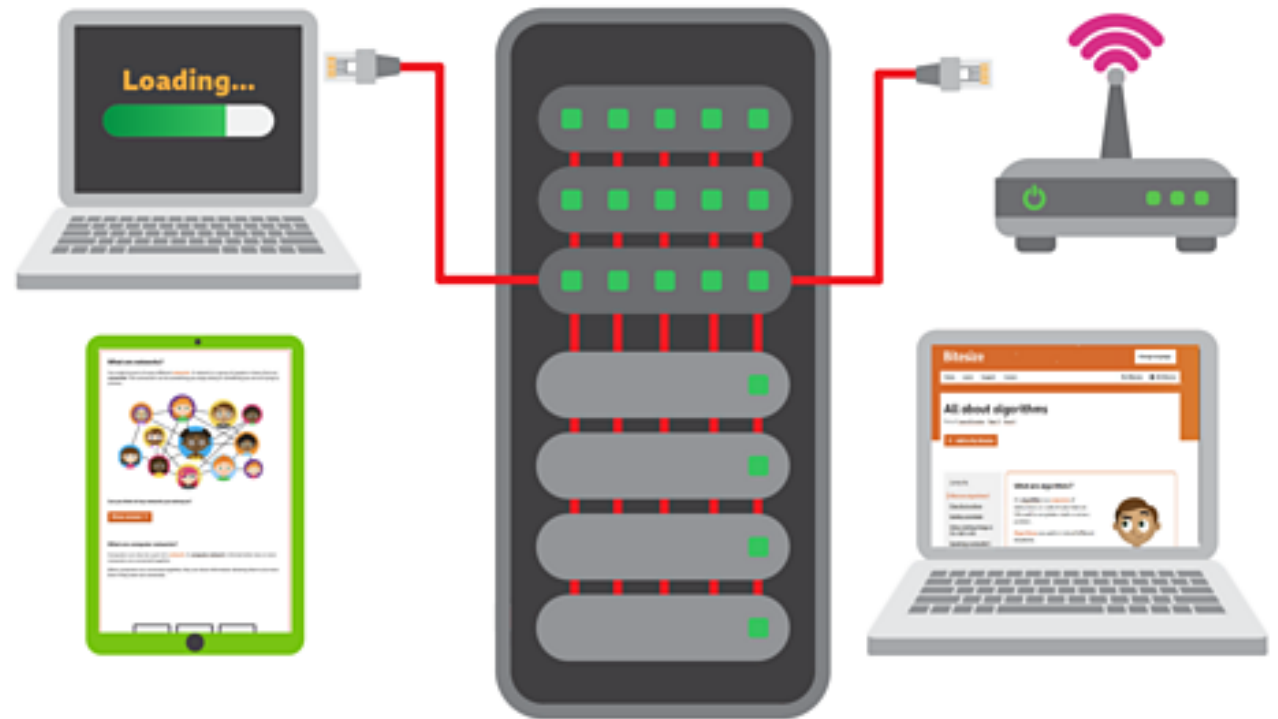


3.1: Networks everywhere



How the Internet Works?

- Information travels as pulses of light/electricity.
- Search Engines (Google, Bing) help find websites.
- ***Fun Fact:*** “The internet is like a postal service for computers!”

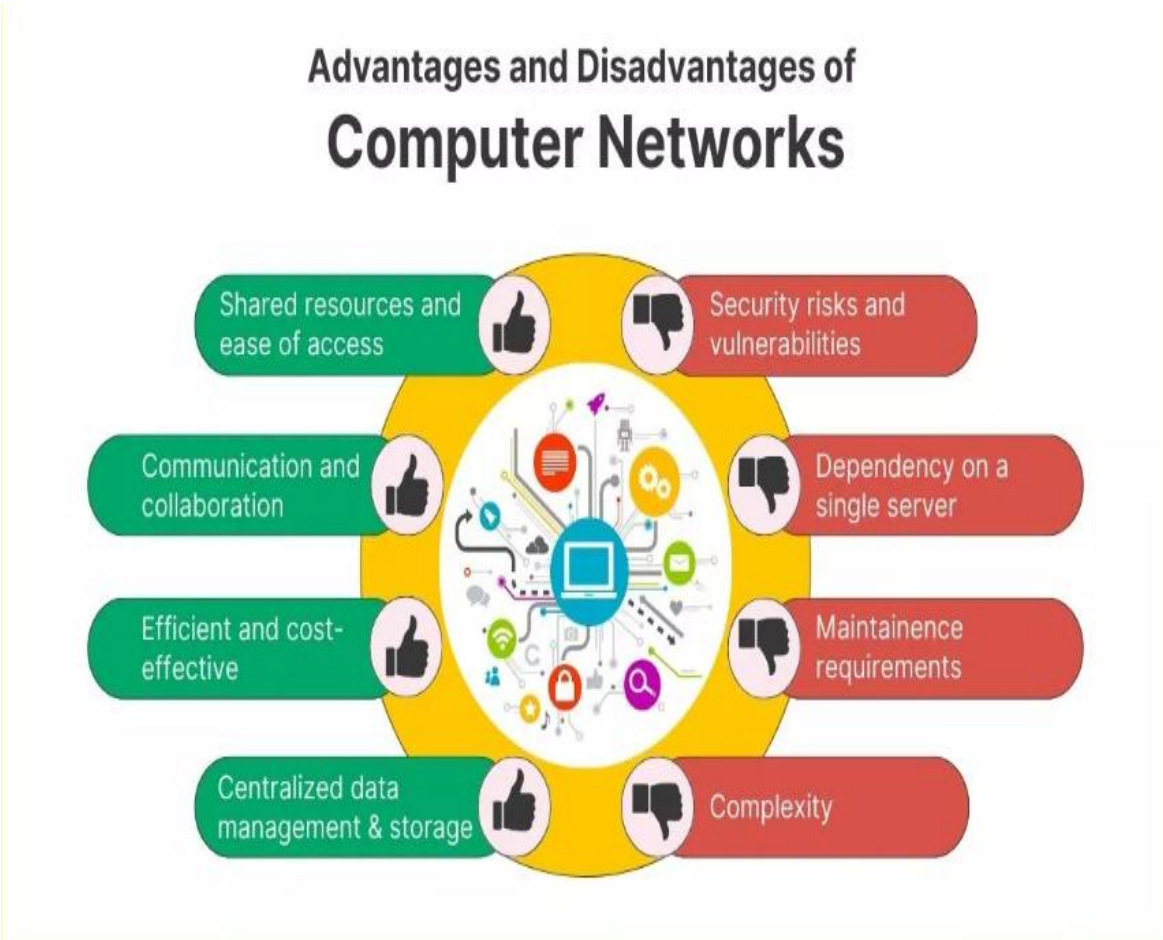




3.1: Networks everywhere

Advantages and disadvantages of network

Advantages:	Disadvantages:
Sharing files and printers: You can use the same printer or send files easily.	Viruses can spread: If one computer gets a virus, others might too.
Working together: Students can work on group projects using shared computers.	Needs internet or cables: A network won't work well without connection.
Saving time: It is faster to send messages or work online.	Can be slow: Too many users may make it slow





Staying Safe Online

- **Passwords:** Never share them (even with friends!).
- **Downloads:** Ask an adult first.
- **Private Information:** Don't share your address or phone number.
- **Role-Play:** "What would you do if a website asks for your password?"

Follow the code to stay safe online



Click Clever, Click Safe!



3.2: Secret ciphers

Where are ciphers used?

➤ History of Ciphers:

- **Ancient Egypt:** Long ago, Egyptians used symbols instead of letters to hide messages.
- **Caesar Cipher (Roman Times):** Julius Caesar used a special code where each letter was moved a few spaces in the alphabet. Example: A becomes D, B becomes E, etc.
- **Middle Ages:** People used secret writing during wars to protect important plans.
- **World War II:** A machine called the Enigma was used to send secret messages. It took a long time to crack the code.
- **Today:** Computers use very strong ciphers to keep emails, passwords, and bank accounts safe.

Arun sends a message to Sofia.



A cipher is used to disguise the information.



When Sofia opens the message, the cipher is used to decode the message.

Ciphers are also used to disguise important information kept as files on networks, such as people's usernames and passwords.

This stops anyone who gets access to a network from seeing the information.



3.2: Secret ciphers



How safe is cipher?

A cipher that is easy to guess is not very safe. Information could be decoded easily.

➤ **Example:** Simple ciphers (like Caesar cipher) can be solved quickly by guessing.

Some ciphers use complicated mathematics to make them very safe and difficult to decode.

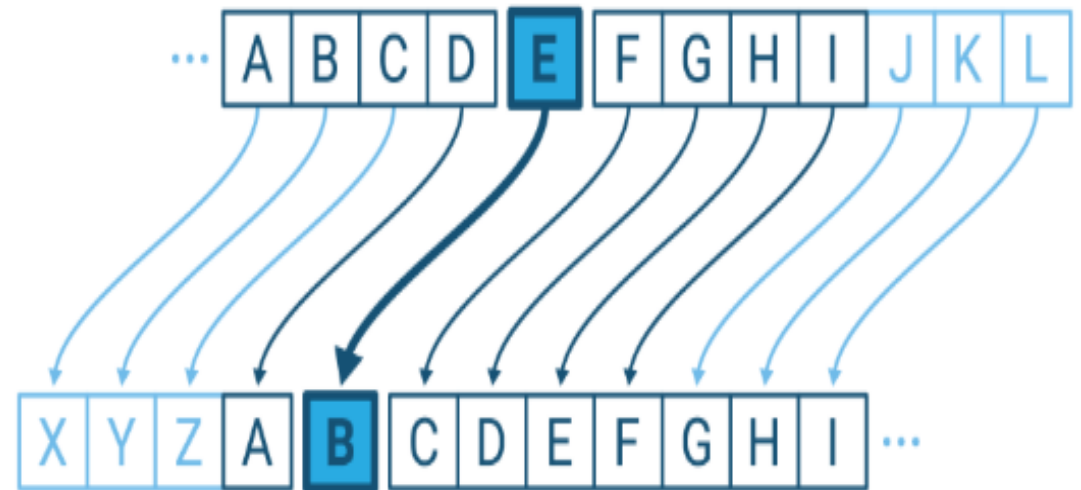
➤ **Example:** Modern ciphers, like those used in encryption software, take supercomputers years to crack, so they're very secure.

3.2: Secret ciphers



- **Activity:**

- Use cipher to write a message to a partner.
- Give your message to your partner.
- Can they decode it without the cipher?
- They probably can't.
- Now give them the cipher key so they can decode the message.





Review Quiz

Questions:

1. What does LAN stand for?
2. Name one advantage of a wired network.
3. Decode this cipher: “20 8 5 13 5 19 19 1 7 5” (Answer: “THEMESSAGE”).