



How Computers Connect Together in Networks

KS4 COMPUTER SCIENCE

Ages 11-14 ⌚ 3 min read

What is a Computer Network?

A **computer network** is simply a group of computers connected together so they can share information and resources. Just like your friends might pass messages or share snacks, computers pass data back and forth. Networks can be tiny (just two computers) or enormous (billions of devices connected worldwide).

Wired Networks: Connected by Cable

The oldest way to connect computers is using **cables**. **Ethernet cables** look like thick telephone wires and plug directly into computers and routers. These wired connections are very fast and reliable because data travels through a physical path. Banks and hospitals often use wired networks because they need super-secure, speedy connections.

Think of it like a garden hose: water flows directly through the pipe from the tap to the flowers. A wired network is the same—data flows directly through the cable.

Wireless Networks: Freedom Without Wires

Wi-Fi lets computers connect without any cables. Instead, data travels through the air as invisible radio waves. A **wireless router** sends out these signals, and your laptop, tablet, or phone picks them up. Wi-Fi is convenient and lets you move around, but it's slightly slower than wired networks and the signal gets weaker the further away you go.

Think of it like a radio broadcast: the station sends signals into the air, and your radio picks them up anywhere you go. Wi-Fi works the same way with computers.

Mobile Networks: Connecting On The Go

Mobile networks use **cellular technology** (like **4G** and **5G**) to connect phones and tablets to the internet. These networks use towers spread across towns and cities.

Your phone connects to the nearest tower, allowing you to browse the internet almost anywhere.

The Internet: The Biggest Network

The **internet** itself is a network of networks. It connects millions of smaller networks together using undersea cables, satellites, and wireless signals. This worldwide system lets you video-call a friend on another continent or watch videos instantly.

Choosing the Right Connection

Different networks suit different purposes. Offices use wired networks for security. Homes use Wi-Fi for convenience. Mobile phones need cellular networks for portability. Many devices today use a mix of all three, switching between them depending on what's available and what you're doing.