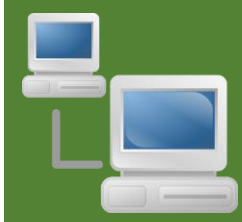
Computing Y7 Unit 2 From Semaphores to the internet

Key words

Network
Protocol
Hub
Router
Server
Wired
Wireless
Bandwidth
IOT
Spam
Network cable
Search engine
HTTP
HTTPS
URL
Domain name
Domain name system

Lesson 1

Computer networks and protocols

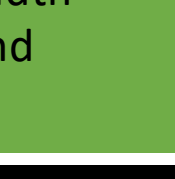


- A network is 2 or more computers joined together.
- Networks allow you to send emails view the weather, access stored files print to a shared printer.
- A mail server passes an email message onto its destination.
- For the message to travel successfully it follows a set of rules.
- Rules in computer language are called Protocols.

Lesson 2 Networking hardware

- For computers to work they must be connected to each other. A network cable does this job.
- A hub allows computers to be connected more efficiently using less cables.
- Some networks have a server, this is a large computer which acts as a place where items can be stored and **accessed** by all computers on the network, even if some computers are turned off.
- A router connects a network to a network such as your home devices to the internet

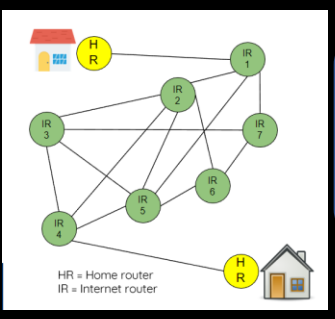
Lesson 3 – Wired and Wireless networks



- Some devices are wired into the network such as a router or a PC.
- Wired networks send the data along the cable.
- Some devices are wireless such as a tablet or smartphone - this allows portability.
- Wireless networks send the data through radio waves.
- Wireless technologies can be WIfi, Bluetooth, 3g and 4g.
- Bandwidth is the amount of data that can be moved from one point to another in a given time. Higher bandwidth = more data per second

- Bandwidth is measured in Bits per Second.
- Some online activities use more data than others so require more bandwidth.
- Wired networks have faster connection and higher bandwidth but are not portable like wireless.

Packet header	
Sender IP	192.1.5.8
Receiver IP	205.9.4.3
Sequence	1 of 3
Payload	“How”



TCIP = Transmission internet protocol

Lesson 4 The Internet

- The Internet has many uses including cloud storage, surfing, shopping, gaming, social networking.
- Oceanic cables connect under the seas to join counties together.
- Internet data uses these cable to travel/transmit.
- Networks send and receive messages in small units of data known as ‘packets’.
- A single message may be too large to fit in one packet. It is often split into many packets.
- Each packet contains a part of the message, an address of where it came from, and an address of where it is going. These addresses are known as ‘IP addresses’, and they are unique.
- An IP address is made up of 4 groups of numbers between 0 and 255, each separated by a full stop.
- Routers join networks together across the internet
- They help the packets find their way from start to finish.
- Packet may arrive in the wrong order the packet header ensures they are ordered correctly once received.

Lesson 5 Internet Services

- The internet is a vast network of computers joined together.
- The WWW is a service on the internet.
- Email, VoIP are all part of internet services.
- Spam emails are unwanted emails, like junk mail.
- The Internet of things IOT are taking everyday appliances, devices and connecting them to the internet.
- Although they make life easier, they may also collect personal data and pose security risks.

Lesson 6 The world wide web

- Web browsers are software they obtain their code from the website server.
- The protocols are HTTP and HTTPS (secure)
- Webpages are written in programming language HTML
- A search engine allows you to find information on the web. It works be matching your key phrases.
- A URL is a web address it means Uniform Resource Locator
- A domain name is an easy-to-remember address used to access websites. DNS = Domain name system
- .Com / .Edu are top level domains