

Year 7 Topic 3 – Networks: from semaphores to the internet

Lesson	Can you?
Lesson 1: Computer networks and protocols	Define what a computer network is Explain how data is transmitted Define 'protocol'
Lesson 2: Networking hardware	List examples of the hardware necessary for connecting devices to networks
Lesson 3: Wired and wireless networks	Compare wired to wireless connections Define 'bandwidth and discuss familiar examples where bandwidth is important
Lesson 4: The internet	Define what the internet is Explain how data across the internet Describe key words: 'protocols', 'packets', and 'addressing'
Lesson 5: Internet services	Explain the difference between the internet and the World Wide Web Describe how services are provided over the internet List some of these services and the context in which they are used Describe how internet-connected devices can affect me
Lesson 6: The World Wide Web	Describe components (servers, browsers, pages, HTTP and HTTPS protocols, etc.) and how they work together

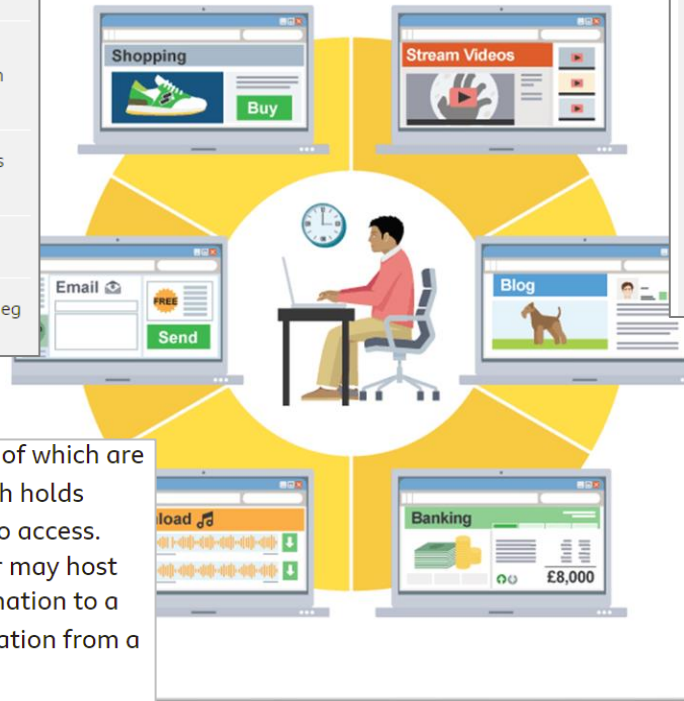
Useful websites

- www.bbc.co.uk/bitesize/guides/z36nb9q/revision/2
- www.nibusinessinfo.co.uk/content/benefits-computer-networks
- www.speedtest.net
- www.youtube.com/watch?v=Dxcc6ycZ73M
- www.submarinecablemap.com
- www.youtube.com/watch?v=ewrBa1T_eBM
- www.lifehacks.io/facts-about-the-internet
- www.youtube.com/watch?v=ZTM9GA-4nBA
- www.seotribunal.com/blog/google-stats-and-facts
- www.bbc.co.uk
- www.lifewire.com/most-common-tlds-internet-domain-extensions-817511
- www.yougetsignal.com/tools/network-location/



HTTP	Hypertext Transfer Protocol - a request/response standard. Web browsers send requests and websites or servers respond to requests.
hyperlinks	A link in a document or webpage that connects to another location.
internet	A global network connecting millions of computers.
network	A group of interconnected computers/devices.
online	Connected to and using the internet.
phishing	An attempt to gain personal information about someone by way of deception, eg sending an email pretending to be from their bank asking them for their bank details.
protocol	A set of rules for how messages are turned into data packets and sent across networks.
spam	Unsolicited (junk) email.
streaming	Data that is sent in pieces. Each piece is viewed as it arrives, eg a streaming video is watched as it downloads.

The internet is a global **network** of computers. All computer devices (including PCs, laptops, games consoles and smartphones) that are connected to the internet form part of this network. Added together, there are billions of computers connected to the internet, all able to communicate with each other.



bandwidth	Bandwidth measures the amount of data that can transfer through a communications channel over a given period of time.
browser	An application used to view web pages, eg Internet Explorer or Google Chrome.
client	The computer on a network that request data from a server.
data packet	A piece of data sent over a network. Messages have to be broken down into binary data packets before they are transferred.
downloading	To copy a file from the internet onto your computer or device.
email	Electronic mail. A method for sending messages and files to other people.
file formats	The way that a specific file type is saved, eg. a picture file is different from a text document. Different file formats have different file extensions, eg. *.jpg or *.txt).
HTML	HyperText Markup Language. The language used to write and display web page documents.

The internet is a global network of computers, some of which are called **web servers**. A web server is a computer which holds websites for other computers linked to the internet to access. Holding a website is known as 'hosting'. A web server may host one or many websites and webpages. Sending information to a web server is known as **uploading**. Receiving information from a web server is known as **downloading**.

When we connect to the internet, we are said to be **'online'**. Today the internet has many online facilities, for example:

- communication via **email** and **VoIP**
- sharing of information such as text, images, sounds and videos
- storage of information
- streaming television programmes, films, videos, sounds and music
- playing online games
- shopping
- social networking
- banking

A website's address is known as its **URL**. A website can be visited by typing its URL into a web browser. Each address contains the prefix 'http:' which tells the computer to use the **hyper text transfer protocol** for communicating with the website. The browser then connects to the internet, finds the website at its address and **downloads** the information stored there onto our computer for us to view.

In the 1970s, a **protocol** was developed. Called TCP/IP, this protocol allowed the separate networks to communicate with each other. The joining of these individual networks created a huge **wide area network** (WAN) which came to be known as the internet.