Computer Science — Networking

Year 8 Term 4 and 5

Trinity Academy Bradford

Key Terms Networking

Network	A group of devices connected together, either wirelessly or with a network cable.
Protocol	A set of rules.
Network cable	Used to connect different devices together. They are often made up of a number of wires.
Hub	Connects a number of computers together. Ports allow cables to be plugged in from each connected computer.
Server	A powerful computer which provides services to a network.
Router	Used to connect two separate networks together across the internet.
Wired	Wired networks send data along cables.
Wireless	Wireless networks send data through the air using radio waves.
3G /4G /5G	Wireless communications standards designed to provide different speeds for mobile devices, such as smartphones, tablets, and wireless hotspots .
WiFi	A facility allowing computers, smartphones, or other devices to connect to the internet or communicate with one another wirelessly within a particular area.
Bandwidth	Bandwidth is the amount of data that can be moved from one point to another in a given time.
Broadband	A high-capacity transmission technique using a wide range of frequencies, which enables a large number of messages to be communicated simultaneously.
Data capacity	How much data the storage type can hold, measured in bits.
Buffering	In streaming audio or video from the internet, buffering refers to downloading a certain amount of data before starting to play the music or

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Key Terms Internet

Internet	The internet is a network of networks.
Internet Protocol	A set of rules governing the format of data sent over the internet or other network.
IP address	A unique string of numbers separated by full stops that identifies each computer using the internet Protocol to communicate over a network.
VoIP	Voice Over Internet Protocol - the set of rules that makes it possible to use the Internet for telephone or videophone communication.
IoT	A network of internet connected objects able to collect and exchange data.
Spam	Irrelevant or unsolicited messages sent over the internet, typically to a large number of users, for the purposes of advertising, phishing, spreading malware, etc.
WWW (World Wide Web)	Part of the internet that contains websites, web pages, and the links between them.
Web browser	A browser is a software application used to locate, retrieve and display content on the World Wide Web, including webpages, images, video and other files for example; Chrome / FireFox
Web server	A web server is a computer that runs websites. The basic objective of the web server is to store, process and deliver web pages to the users.
Web page	A hypertext document connected to the World Wide Web.
Search engine	A type of website that allows you to look up information on the World Wide Web.
URL	Uniform Resource Locator (URL) is another name for a web address.
HTTPS	Stands for Hypertext Transfer Protocol Secure. This encrypts messages between a browser and the website so the messages cannot be understood by other devices.
HTTP	Stands for Hypertext Transfer Protocol. Messages are sent between a browser and a website in plain text and can be read and understood by other devices.
Domain Name	A domain name is a unique name that identifies a website.

Wired versus Wireless Networks

Advantages of a wired network	Disadvantages of a wired network
Faster connection (little to no interference)	Cables can be a trip hazard and look unpleasant
Higher bandwidth	More expensive and time-consuming to add devices, as each device needs cables
Better security	Devices are in fixed positions

Advantages of wireless network	Disadvantages of wireless network
No trailing/trips/hazards	Lower bandwidth
It is quick and cheap to connect to new devices	Wireless connections can be weakened by walls and ceilings
Allows portability	Less secure

Network Protocols

Layer	Protocols in this layer cover	Protocol Examples
1	Passing data (as electrical signals) over the physical network	**Ethernet**
2	Making connections between networks and directing data	**IP** (Internet Protocol)
3	Controlling data flow e.g. checking data is sent and delivered	**TCP** (Transmission Control Protocol)
4	Turning data into websites and other applications and vice versa	**HTTP / FTP / SMTP**

Parts of a URL address

Wired versus Wireless Networks