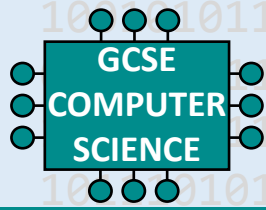# Star Network Topology

"Computers connected to a central switch. If one computer fails no others are affected. If the switch fails all connections are affected."

Mesh Network Topology

"Switches (LAN) or routers (WAN) connected so there is more than one route to the destination. e.g. The Internet More resilient to faults but more cable needed."

WiFi

"Wireless connection to a network. Requires a wireless access point or router. Data is sent on a specific frequency. Each frequency is called a channel."

Frequency

"The number of occurrences of a repeating event per unit of time. Data is set on a specific frequency over a WiFi connection."

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Network topologies, protocols & layers

Channels

"Each given signal frequency on a WiFi connection is known as a channel."

Encryption

"Encoding readable data called plaintext into unreadable data called ciphertext. Only the intended recipient can decode the data using a key. Protects communications from hackers."

Ethernet

"A standard for networking local area networks using protocols. Frames are used to transmit data. A frame contains the source and destination address, the data and error checking bits. Uses twisted pair and fibre optic cables. A switch connects computers together."

IP Address

"Internet Protocol Address"

"A unique string of numbers separated by full stops that identifies each computer using the Internet Protocol to communicate over a network."

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MAC Address

"Media Access Control Address"

"A unique identifier assigned to network interfaces for communications at the data link layer of a network segment. MAC addresses are used as a network address for most network technologies, including Ethernet and Wi-Fi."

Protocol

"A set of rules that allow two devices to communicate."

Network topologies, protocols & layers

TCP/IP

"Transmission Control Protocol / Internet Protocol"

"TCP provides an error free transmission between two routers. IP routes packets across a wide area network."

HTTP

"Hypertext Transfer Protocol"

**"A client-server method of requesting and delivering HTML web pages.
Used when the information on a web page is not sensitive or personal."**

HTTPS

"Hypertext Transfer Protocol Secure"

"Encryption and authentication for requesting and delivering HTML web pages. Used when sensitive form or database data needs to be transferred. e.g. passwords and bank account details."

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FTP

"File Transfer Protocol"

**"Used for sending files between computers, usually on a wide area network.
Typically used for uploading web pages and associated files to a web server for hosting."**

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POP

"Post Office Protocol"

"Used by email clients to retrieve email from an email server."

IMAP

"Internet Message Access Protocol"

"Used by mail clients to manage remote mail boxes and retrieve email from a mail server."

SMTP

"Simple Mail Transfer Protocol"

"Sends email to an email server."

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Packet Switching

"TCP splits data into smaller packets. Each packet takes its own route. Packets are assembled back into the correct order when they arrive at the destination. Maximises the use of the network. More secure as the full data stream is not sent in the same direction."

Data Representation

"The way in which different types of data (images, sound, text) are stored in a digital format."

Binary Data Representation

"The patterns of 1's and 0's used to represent all forms of data in a digital format."

Logic Diagram

"A method of expression Boolean Logic in a diagrammatic form using a set of standard symbols representing the various Logic Gates such as AND NOT OR NAND etc."

Computational logic

AND

"A logical operator used within a program. AND works by only returning TRUE if both values being compared are TRUE."

OR

"A logical operator used within a program. OR works by returning TRUE as long as either value being compared is TRUE."

Computational logic

NOT

"A logical operator used within a program. NOT works by returning FALSE if the input is TRUE, and returning TRUE if the input is FALSE."

Truth Table

"A notation used in Boolean algebra for defining the output of a logic gate or logic circuit for all possible combinations of inputs."

Computing-Related Mathematics: +

"One of the standard operators you can use in virtually all programming languages to carry out computing-related mathematics: + is the standard symbol used for addition."

Computational logic

Computing-Related Mathematics: -

"One of the standard operators you can use in virtually all programming languages to carry out computing-related mathematics: - is the standard symbol used for subtraction."

Computing-Related Mathematics: *

"One of the standard operators you can use in virtually all programming languages to carry out computing-related mathematics: * is the standard symbol used for multiplication."

Computing-Related Mathematics: /

"One of the standard operators you can use in virtually all programming languages to carry out computing-related mathematics: / is the standard symbol used for real division."

Computing-Related Mathematics: ^

"One of the standard operators you can use in virtually all programming languages to carry out computing-related mathematics: ^ is the standard symbol used for exponent."

Computing-Related Mathematics: MOD

"One of the standard operators you can use in virtually all programming to carry out integer division: MOD gives you remainder left over e.g. 10 MOD 3 would give you 1."

Computing-Related Mathematics: DIV

"One of the standard operators you can use in virtually all programming to carry out integer division: DIV gives you the number of times a number fits into another number e.g. 10 MOD 3 would give you 3."