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**The Bourne Academy**

**Knowledge Organiser: Year 10 Spring Term - ICT**

**3. Connectivity**

**Connectivity** is the ability for devices to transmit data through wired or wireless communication methods.

**Wi-Fi** is a technology that enables devices to connect to the internet or a local network without cables.

**Bluetooth** is a wireless technology used for short-range communication between devices.

**NFC** is a wireless technology allowing two devices to communicate over very short distances, like contactless payments.

**RFID** is a technology that uses radio waves to transmit data between a reader and a tag.

**Mobile data** is a wireless connection that transmits data between mobile devices and cellular networks.

**Satellite** is a long-range wireless connection that uses satellites in space to transmit data.

**USB** is a standard interface for connecting devices like keyboards to computers.

**Ethernet** is a protocol for wired local area networks allowing devices to exchange data.

**2. Protocols**

**Protocol** is a set of rules that controls how data is sent and received over a network.

**HTTP** is a protocol used to access web pages.

**HTTPS** is a protocol used to access encrypted web pages for secure communication.

**FTP** is a protocol used to transfer files between a client and a server.

**TCP** is a protocol responsible for breaking data into packets before sending them over a network.

**IP** is a protocol that identifies the source and destination of data packets.

**SMTP** is a protocol used to send emails over a network.

**IMAP** is a protocol used to receive and manage emails stored on a server.

**POP** is a protocol used to receive emails, usually storing them on a device and removing them from the server.

**Packet sniffers** are used to intercept data packets on a network where sensitive data such as logins and passwords can be stolen.

**1. Network types**

**Network topology** is the layout or structure of how devices in a network are connected.

**Star topology** is where all devices are connected to a central device, like a switch.

**Ring topology** is where data travels in one direction around a ring, passing through each device until it reaches its destination.

**Bus topology** is where all devices are connected to a single cable, and data is transmitted in both directions.

**Mesh topology** is where each device acts as a router, forwarding data to other devices.

**LAN** is a network that covers a small geographical area, such as a single building.

**WAN** is a network that covers a large geographical area, often connecting multiple LANs.

**Intranet** is a private network accessible only to users within an organization.

**Extranet** is a network that allows external users, such as customers, to access an organization’s private network.