The Network Detective: Connecting the Village

1. Switch (1 mark)

Working: A switch connects devices within a network and directs data packets to the specific device that requested them.

Accept 'Switch'.

2. Data Packet (1 mark)

Working: Data is broken down into smaller, manageable chunks called packets to travel across a network efficiently.

Accept 'Data Packet'.

3. Wireless Access Point (1 mark)

Working: A Wireless Access Point (WAP) allows devices to connect to a wired network using radio waves instead of cables.

Accept 'Wireless Access Point'.

4. A network allows multiple devices to share a single resource, like a printer, without needing to move the computer or use physical storage devices. (2 marks)

Look for: The student should mention sharing resources (the printer) across multiple locations.

Good: It is better because you can all use the same printer from different rooms.

Better: A network is better because you can share one printer between three rooms instead of needing three separate printers.

Best: A network allows multiple devices to share a single resource, such as a printer, which saves money and space compared to having a stand-alone computer in every room.

What moves an answer up: Moving from 'good' to 'best' involves explaining the efficiency of resource sharing rather than just stating the action.

5. The entire network would fail because all devices rely on that central switch to communicate. (2 marks)

Look for: The student must identify that the central switch is a 'single point of failure' in a star topology.

Good: The network would stop working.

Better: The network would fail because all the tablets connect to that one central switch.

Best: In a star topology, the central switch is the hub for all connections; if it stops working, no devices can send or receive data, so the whole network goes down.

What moves an answer up: Moving from 'good' to 'best' requires identifying the specific role of the switch in a star topology.

What a secure answer looks like

A secure answer demonstrates an understanding that network components have specific, distinct roles and that central hubs are critical to the stability of a star topology.

If your child is stuck

Ask the child to imagine the network as a post office: the switch is the sorting office, and the data packets are the letters being delivered to specific houses.

Common mistakes to watch for

Children often confuse the Router (which connects networks together) with the Switch (which connects devices within a network). They may also assume that if one device fails, the whole network fails, which is only true for the central hub in a star topology.