

Kit's Network Explorer: Investigating Digital Connections

Learning objective: To understand the fundamental components of computer networks and how data is transmitted between devices.

Kit the fox needs your help to map out how devices communicate! Use this fact-file template to define key networking terms and explain how information travels across the globe. Use your research skills to fill in the boxes below.

Word bank: Server · Client · Router · Packet · Wi-Fi · Broadband · Internet · Network · Protocol · Data

1. The Basic Network: Explain the difference between a 'client' and a 'server' in a network. Why is this relationship essential for sharing information? (3 marks)

2. The Role of the Router: What is the primary function of a router? Describe how it directs traffic like a digital traffic warden. (2 marks)

3. Data in Pieces: Information is often broken down into 'packets' to be sent across a network. Why do you think it is more efficient to send data in small pieces rather than one large file? (3 marks)

4. Wireless vs. Wired: Compare and contrast Wi-Fi and wired connections (Ethernet). Justify which one you would choose for a high-speed gaming server and why. (4 marks)

5. Network Security: What might happen if a network did not have a firewall or protective protocols? Explain the potential consequences for a user's private data. (3 marks)

6. Reflective Analysis: Imagine you are designing a brand new network for our school. What hardware would you need to ensure every classroom could access the internet simultaneously? (4 marks)

Extension challenge: Creative Challenge: Create a visual diagram showing the path an email takes from your home computer to a friend's tablet on the other side of the world. Label the 'nodes' (routers, switches, or servers) the data must pass through to arrive at its destination.