

Nova's Electrical Adventure

Learning objective: To understand the components of a simple series circuit and how they function to power a bulb.

Read the passage carefully and answer the questions below using full sentences where appropriate.

Late one evening, Nova the owl perched on a branch, observing the stars. She wondered how the streetlights below stayed bright throughout the night. She decided to build a simple circuit to investigate. Nova gathered a small battery, a tiny bulb, and some copper wires. She explained to her friends that a circuit must be a complete loop for electricity to flow. If there is a gap, the circuit is broken, and the bulb will not glow. She placed the wire against the positive and negative ends of the battery, connecting them to the bulb's base. Suddenly, the filament inside the glass glowed brightly! Nova noted that the battery acts as the power source, pushing the energy around the loop. If she added a switch, she could easily break and close the circuit without disconnecting the wires. Nova realized that electricity is like a busy river; it needs a clear, unbroken path to travel along. By using metal wires, which are excellent conductors, she ensured the energy could reach the bulb efficiently. For safety, she reminded everyone never to experiment with mains electricity from wall sockets, as it is much too powerful.

Word bank: circuit · component · cell · conductor · insulator · filament · switch

1. Identify two materials or items Nova used to create her simple circuit. (2 marks)

2. What happens to the flow of electricity if there is a gap in the circuit? (2 marks)

3. Why does Nova suggest adding a switch to her circuit design? (2 marks)

4. Why are metal wires used in circuits instead of materials like plastic or wood? (2 marks)

5. Nova warns against using mains electricity for experiments. Do you think this is a sensible rule? Explain your reasoning. (2 marks)

Draw: Draw a labelled diagram showing a simple circuit with a battery, a bulb, and a switch. Use arrows to show the direction in which electricity flows.



Extension challenge: Research what happens to the brightness of the bulb if you add a second battery to the circuit. Write a short paragraph explaining your prediction.