

Nova's Night-time Electricity Investigation

Learning objective: To identify, construct, and explain simple series circuits, including the function of components and how to represent them using standard symbols.

Read each question carefully and use your knowledge of electrical circuits to answer. Remember to use scientific vocabulary to explain your reasoning.

Word bank: cell · battery · bulb · switch · conductor · insulator · circuit · component

1. Nova wants to build a circuit to help her see the stars. List the three essential components she needs to make a simple complete circuit that will light a bulb. (3 marks)

2. Explain the difference between a conductor and an insulator. Give one example of each material that you might find in your classroom. (2 marks)

3. Max adds a second bulb to the circuit. He notices that both bulbs are dimmer than before. Suggest a reason why this might have happened. (2 marks)

4. Draw the standard circuit symbol for a closed switch and a bulb. Why is a switch important in a circuit? (3 marks)

5. If you were to replace the wire in a circuit with a piece of string, what would happen to the bulb? Use the word 'circuit' in your answer. (2 marks)

Draw: Draw a circuit diagram using standard scientific symbols that includes one cell, one closed switch, and one bulb. Label each component clearly.



Extension challenge: Imagine Nova wants to create a torch that can switch on and off. Write a short paragraph explaining what would happen to the flow of electricity if there was a break in the wire.