

Nova's Circuit Challenge: Building Bright Ideas

Learning objective: To identify and name the basic components of a simple series circuit and predict whether a bulb will light up based on the circuit's completeness.

Nova the Owl is setting up a stargazing lamp! Look at the descriptions of different circuits below. Use the word bank to fill in the blanks, then decide if the bulb will light up (Yes/No) and explain why using your knowledge of complete circuits.

Word bank: battery · wire · switch · bulb · circuit · conductive · complete

1. 1. A circuit must be a _____ loop for electricity to flow. If there is a break in the path, the _____ will not glow. Why is this? (2 marks)

2. 2. Nova has a battery, a bulb, and a metal paperclip. If she connects them all using a _____, will the bulb light up? Explain your reasoning. (2 marks)

3. 3. If Nova adds a _____ to her circuit, she can turn the light on and off without disconnecting the wires. Is this component an insulator or a conductor? (2 marks)

4. 4. Imagine a circuit has two batteries instead of one. Predict what will happen to the brightness of the bulb and explain why. (2 marks)

5. 5. Why would using a piece of plastic string instead of a copper wire prevent the bulb from lighting up? (2 marks)

Draw: Draw a scientific diagram of a simple series circuit. Include a battery, a bulb, a switch (in the 'on' position), and clearly labelled wires connecting them all together.



Extension challenge: Nova wants to add a buzzer to her circuit. Research or think about how you could change the circuit to include both a light and a sound. Draw a new diagram showing where the buzzer would sit in the series.