

Nova's Night-Time Circuit Challenge

Learning objective: To identify, construct, and explain the function of components in a simple series circuit.

Help Nova the owl light up her stargazing map! Follow the steps below to draw a functioning circuit that allows Nova to see her charts in the dark.

Draw: Draw Nova the owl sitting on a branch holding a small paper map. Next to her, draw a simple series circuit diagram. Use straight lines for wires and clear symbols for the components (a circle with an 'X' for the bulb, two parallel lines for the cell, and a small gap for the open switch). Ensure the circuit is large enough to clearly label each part as requested in the questions.



Label words: Cell · Battery · Bulb · Switch · Wire · Closed circuit · Conductor · Insulator

Steps:

1. Step 1: Draw a circuit containing one cell, one bulb, and a switch. Label the components using the word bank.
2. Step 2: Use an arrow to show the direction of the flow of electricity. Explain why the bulb will only light up when the switch is closed.
3. Step 3: If you replaced the copper wire with a piece of string, what would happen to the bulb? Justify your answer using scientific terminology.

4. Compare and contrast the function of a cell and a battery. Why might Nova choose a battery for her portable stargazing torch?
5. Explain why adding a second bulb to your circuit might make both bulbs appear dimmer. What might happen if you added a second cell instead?
6. Identify one object in your classroom that acts as an insulator and one that acts as a conductor. Explain your choices.