

Max's Circuit Challenges: Introduction to Electronics

Learning objective: To understand how a simple electrical circuit functions and identify the components required to make a bulb light up.

Read each question carefully and use your knowledge of circuits to answer. Think like Max the monkey—look for the logical path that electricity must take to make the circuit work!

A simple circuit is a loop that allows electricity to flow. To light a bulb, you need a power source, wires, and a bulb. If there is a break in the path, the circuit is 'broken' and the electricity stops flowing. We use conductors, like metal, to let electricity pass through, and insulators, like plastic, to keep us safe.

Word bank: Circuit · Battery · Conductor · Insulator · Switch · Component · Filament · Complete

1. Max is building a circuit but the bulb will not light up. Name two things Max should check to make sure his circuit is complete. (2 marks)

2. Explain the difference between a conductor and an insulator. Give one example of each material. (3 marks)

3. What is the purpose of a switch in an electrical circuit? (2 marks)

4. If you add a second battery to a simple circuit with one bulb, what do you think will happen to the brightness of the bulb? Why? (2 marks)

5. Look at these items: a wooden ruler, a metal paperclip, a plastic straw, and a copper coin. Which two would be the best to use as wires in a circuit? (2 marks)

Draw: Draw a diagram of a simple circuit. Include a battery, a bulb, and a switch. Use arrows to show the direction the electricity flows around the loop.



Extension challenge: Imagine you are designing a toy that lights up. If you had £5.00 to spend, and a battery costs £1.50 and a bulb costs £0.75, how many of each could you buy? Show your working out.