

Nova's Electric Adventure: Year 4 Science Quiz

Learning objective: To identify common appliances that run on electricity, construct a simple series circuit, and understand how to keep safe when using electrical items.

Join Nova the owl for a flight through the world of electricity! Read each question carefully. Some require a tick, some a true/false answer, and some need a quick word. Good luck, young scientist!

Answer Key: 1. A, 2. True, 3. Switch, 4. B, 5. Insulator, 6. True, 7. C, 8. Battery, 9. False, 10. A. Higher-order notes: For question 4, pupils should identify that a gap in the circuit prevents current flow. For the extension, pupils should justify their choices based on conductivity and safety.

Word bank: Circuit · Battery · Conductor · Insulator · Switch · Appliance · Electricity · Voltage

1. 1. Which of these is a source of electricity? A) A battery* B) A piece of string C) A wooden stick D) A plastic cup (1 mark)

2. 2. True or False: A simple circuit must be a complete, unbroken loop for a bulb to light up. (1 mark)

3. 3. What component do we use to open and close a circuit to turn a light on or off? (1 mark)

4. 4. Why does a bulb stop glowing if there is a gap in the wires? A) The bulb gets cold. B) The electricity cannot flow around the circuit.* C) The battery runs out instantly. D) The wire disappears. (1 mark)

5. 5. What do we call a material that does not allow electricity to pass through it, like plastic or rubber? (1 mark)

6. 6. True or False: Metals like copper are used in wires because they are good conductors of electricity. (1 mark)

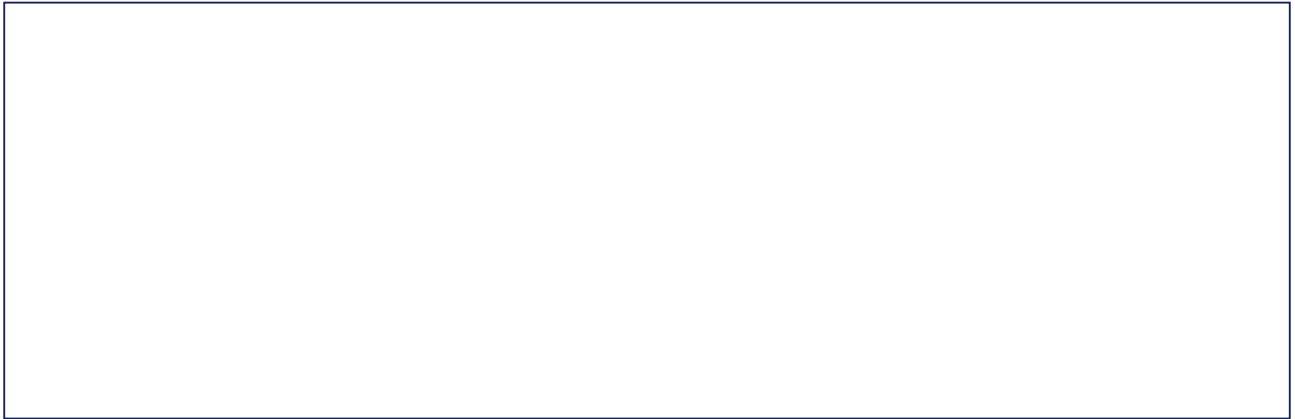
7. 7. Which of these uses mains electricity? A) A wind-up toy B) A battery-operated torch C) A fridge* D) A solar-powered calculator (1 mark)

8. 8. If you have a circuit with one cell, one bulb, and one switch, what is the 'power' source? (1 mark)

9. 9. True or False: It is safe to touch electrical sockets with wet hands. (1 mark)

10. 10. Which of these would be the best material to use as an insulator to cover a copper wire? A) Rubber* B) Steel C) Iron D) Aluminium (1 mark)

Draw: Draw a simple circuit that includes a battery, a bulb, and a switch. Label the 'conductor' (the wire) and the 'insulator' (the plastic coating on the wire).



Extension challenge: Greater Depth Challenge: 1. Explain why your home appliances use mains electricity rather than batteries. 2. What might happen if you replaced the metal wire in a circuit with a piece of cotton thread? Justify your answer. 3. Compare and contrast a battery-powered torch with a mains-powered lamp. 4. If you were designing a new electrical gadget, how would you ensure it is safe to handle? 5. Why is it important that switches are made from hard-wearing materials? 6. Propose a way to test if an unknown object is a conductor or an insulator using a simple circuit.