



Prior Learning:

Year 4

- Identify common appliances that run on electricity.
- Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.
- Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.
- Recognise some common conductors and insulators, and associate metals with being good conductors.

Circuit symbols:

cell	
battery	
wire	
bulb	
buzzer	
motor	
switch	

Significant scientist

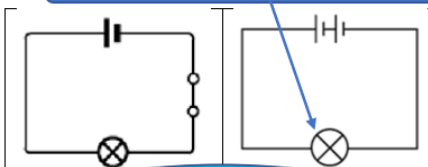
Nikola Tesla
(1856-1943)



Nikola Tesla was a Serbian-American engineer and physicist. He invented the first alternating current (AC) motor and developed AC generation and transmission technology. He worked for Thomas Edison when he first moved to New York.

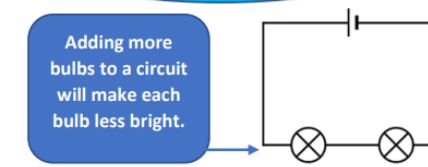
Adjusting components in a circuit:

The bulb in this circuit will be brighter.



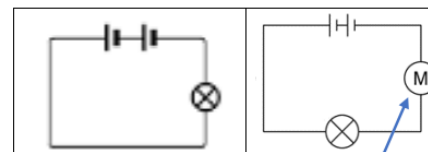
If you use a battery with a higher voltage, the bulb would also be brighter.

Adding more bulbs to a circuit will make each bulb less bright.



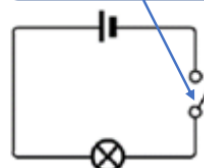
If we add a motor into a circuit with a single bulb, the bulb will be less bright.

If we then add more motors to the circuit, each motor will spin more slowly.



Switches:

Switch turned off (open).



This breaks the circuit so it is not complete and electricity cannot flow. The bulb will turn off.

Key Vocabulary:

circuit	A complete path that an electric current can flow around. It flows from the battery, through wires and devices before returning to the battery. If the circuit is not complete the electric current cannot flow.
circuit symbol	A symbol used to represent various electronic components or functions in a diagram of a circuit.
circuit diagram	A visual representation of an electrical circuit using symbols to represent the electrical components.
cell	A single electrical energy source.
battery	A device consisting of one or more cells.
switch	An electrical component that can make or break an electrical circuit. When a switch is open (off), there is a gap in the circuit and electricity cannot flow around the circuit.
voltage	Volts are a measure of the energy of a flow of electricity. Mains electricity carries a voltage of 210-240 volts. A typical cell in school has 1.5 volts.

Can I answer:

- How does the brightness of a lamp or the volume of a buzzer change with the number and voltage of cells used in the circuit?
- Can you give reasons for variations in how bulbs, buzzers and motors work?