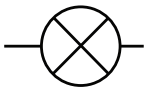
Electricity

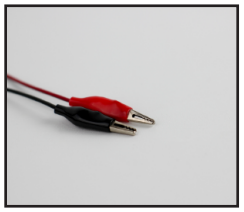
Knowledge organiser

Year 6

Components and symbols

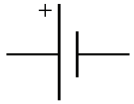
bulb

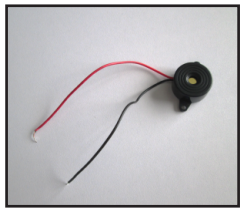




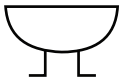
wires

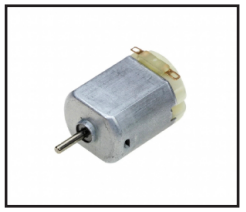
cell



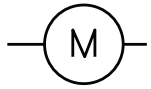


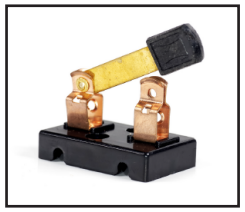
buzzer



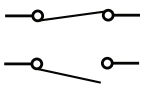


motor





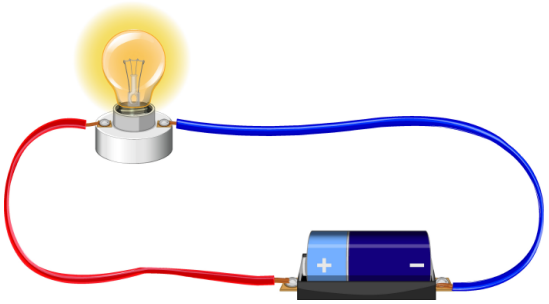
switch



Connecting a circuit and making it work

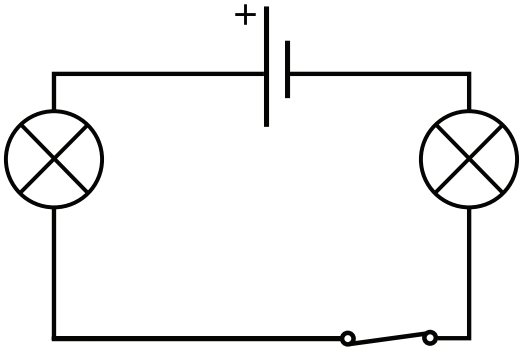
To make a simple series circuit work, you need a **cell, wires** and at least one **component** like a bulb. The wires must connect the **positive and negative terminals of the cell** to the component in a complete loop.

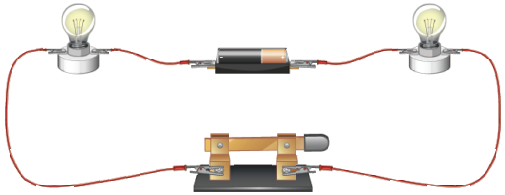
This allows **electric current** to flow through the circuit and power the component. If any part is disconnected, the circuit is **broken** and the component won't work.



Circuit diagrams

Circuit diagrams are simplified drawings that use **symbols** to show how electrical components are connected. Each part - like a **cell**, **bulb** or **switch** - has its own symbol, making it easy to understand how the circuit works.





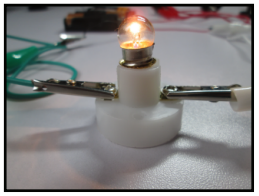
Changing voltage

Adding more cells to a circuit increases the **voltage**, which gives a stronger push to the **electric current**. This means the energy supplied to components like bulbs or buzzers becomes greater.

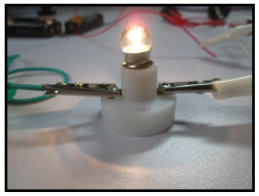
1.5 V + 1.5 V = 3 V

As voltage increases, more **electrons flow** through the wires each second, making the current stronger. This faster flow can make bulbs brighter or buzzers louder.

1.5 V



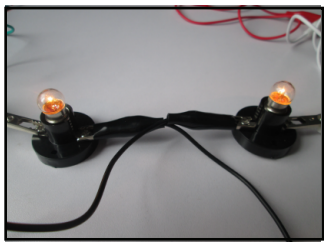
3 V



4.5 V

Varying circuits by changing components

Changing components in a circuit - like swapping a bulb for a buzzer or adding a second bulb - can affect how electricity flows. Each component you add makes it harder for electricity to travel through the circuit.



If you add more components in series, the **flow of electricity slows down** because it has more parts to pass through. This can make bulbs dimmer or buzzers quieter.

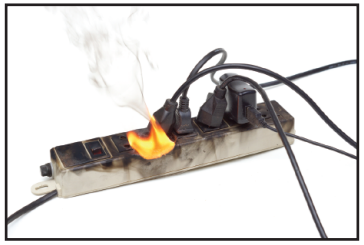
Removing a component allows **electricity to move more easily**.

Key vocabulary

- **dependent variable** – the thing that is measured
- **brightness** – how light something looks
- **battery** – two or more cells which are connected together
- **switch** – something that can open or close a circuit
- **appliance** – an electrical device designed to perform a specific task e.g. fridge
- **component** – part of an electrical circuit that helps it function e.g. light bulb
- **circuit** – an electrical **circuit** is a pathway (normally wires) through which electricity flows

Electricity safety

Electrical safety at home means using appliances and sockets carefully. Overloaded adaptors and wet hands near plugs or cables can cause shocks, fires or even death. Always keep devices dry and avoid plugging too many things into one socket.



Battery disposal

Used or damaged batteries can leak **corrosive chemicals** that are harmful to skin, eyes and the environment.

Batteries should always be **disposed of safely** at recycling points.