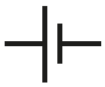
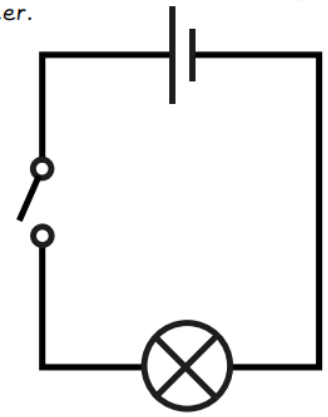
Science - Circuits, batteries and switches

A **component** is a device in an electrical circuit. Symbols are often used to represent the components so they are easier to draw and easily recognised.

 **Cell** - a single unit of power.	 **Battery** - more than one cell.	**Wire** - connects components in a circuit.	 **Open switch** - breaks a circuit.
Closed switch - completes a circuit.	 **Bulb** - gives out light.	 **Buzzer** - makes sound.	 **Motor** - moves.

A **circuit diagram** is a simple line drawing that represents how the components in an appliance join together.



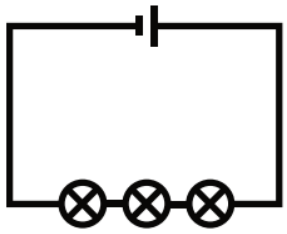
A complete circuit must have a **power supply**, a **complete loop** and at least one **component**.

Electrical safety

Do not use wet hands when using electrical appliances or switches.	Do not put anything other than a plug in an electrical socket.	Let an adult know if electrical appliances or wires appear damaged.	Do not leave electrical wires across the floor or hot surfaces.

Investigating bulb brightness and resistance

The more bulbs, the dimmer their brightness.

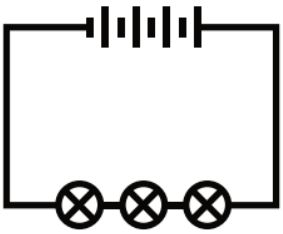


Or the more buzzers, the quieter the sound.

- The more components added to a circuit, the greater the resistance.
- This makes it harder for the current (charge) to flow.
- Less energy is transferred so the bulbs are dimmer.

Investigating bulb brightness and voltage

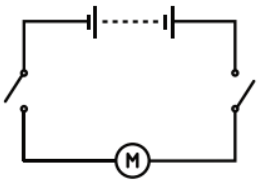
The more cells, the higher the voltage and the brighter the bulbs.



Or the more cells, the louder the buzzer.

- The more cells added, the higher the voltage.
- The higher the voltage, the more 'push' there is of the current.
- More energy is transferred so the bulbs are brighter.

If more than one switch is used in a circuit, both need to be closed for it to work. These are often used to keep people safe with dangerous appliances.



Switches need materials that are **electrical conductors** to complete the circuit.

current	A measure of how much electrical charge flows through a circuit.
resistance	Something that slows the flow of current/electrical charge in a circuit.
voltage	The measure of how much energy is carried by electrical charge; the 'push' from the power source.