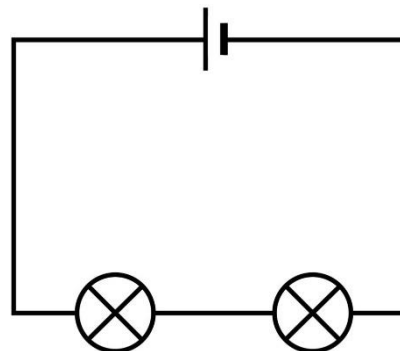




Key Vocabulary

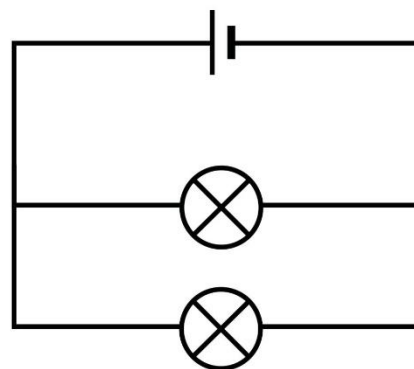
Word	Meaning
Cell	A device that stores chemical energy until it is needed. A cell is a single unit. A battery is a collection of cells.
Voltage	The force that makes the electric current move through the wires. The greater the voltage, the more current will flow.
Current	The flow of electrons, measured in amps.
Resistance	The difficulty that the electric current has when flowing around a circuit.
Charge	Electric charge is a basic property of electrons, protons and other subatomic particles. Electrons are negatively charged while protons are positively charged.
Circuit Diagram	A circuit diagram is a simplified conventional graphical representation of an electrical circuit.
Parallel Circuit	A parallel circuit comprises branches so that the current divides and only part of it flows through any branch.
Series Circuit	A series circuit comprises a path along which the whole current flows through each component.
Voltmeter	An instrument for measuring electric potential in volts.
Ammeter	An instrument for measuring electric current in amps.
Electrons	Very small particles that travel around an electrical circuit which have a negative charge.
Component	A piece of equipment that makes up a circuit. Bulbs, motors and buzzers, for example.

Series Circuits



A **series circuit** is a circuit that has only one route for the current to take. If more bulbs or buzzers are added, the power has to be shared and so they will be dimmer or quieter. If just one part of this series circuit breaks, the circuit is broken and the flow of current stops.

Parallel Circuit

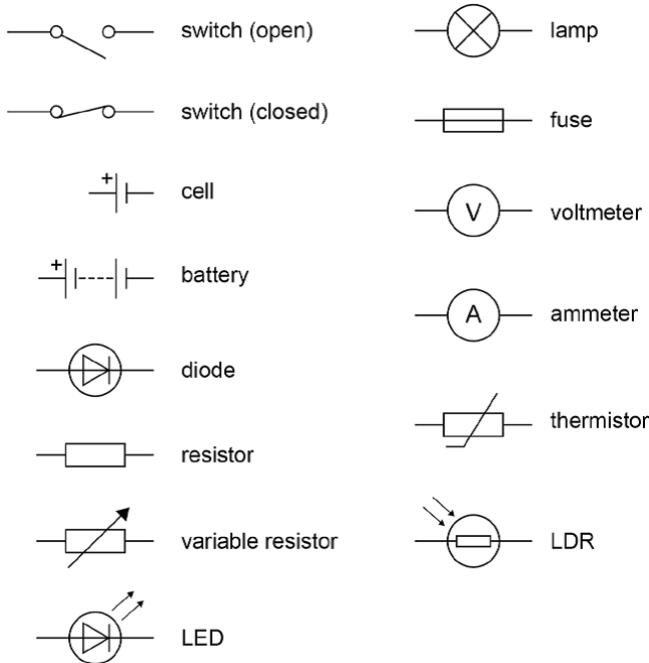


A **parallel circuit** is a way of connecting components on separate branches, so the current can take different routes around the circuit. If one branch of the circuit breaks, the current continues to flow across the other branches.



Circuit Diagrams

When drawing a scientific circuit diagram, we use symbols to represent each **component**.



Bulbs and Buzzers

What will make a bulb brighter or a buzzer louder?

- More batteries or a higher voltage create more power to flow through the circuit.
- Shortening the wires means the electrons have less resistance to flow through.

What will make a bulb dimmer or a buzzer quieter?

- Fewer batteries or a lower voltage create more power to flow through the circuit.
- More buzzers or bulbs mean the power is shared by more components
- Lengthening the wires means the electrons have to travel through more resistance.

Conductors and Insulators

Some materials let electricity pass through them easily. These materials are known as electrical **conductors**.

Many metals are good electrical conductors. That is why the parts of electrical objects that need to let electricity pass through are always made of metal.

Some materials do not allow electricity to pass through them. These materials are known as electrical **insulators**.

Plastic, wood, glass and rubber are good electrical insulators. That is why they are used to cover materials that carry electricity.

Andre-Marie Ampere

Ampere (1775-1836) showed how to measure the amount of electric current flowing through a circuit. Thus, the current is measured in units called amperes, or amps for short. One amp is a flow of about 6 million, million, million electrons per second.

Extending your Learning

1. Visit Energy Hall at the Science museum.
2. Make a fruit battery.
3. Explore BBC Bitesize

<https://www.bbc.co.uk/bitesize/topics/zj44jxs>