



What should I already know?

- In order to work, a circuit must be complete and the switch must be closed
- Changing the number of devices in a circuit affects the output of the devices e.g. adding an extra bulb to a circuit will make each bulb dimmer
- Lots of appliances run on electricity, like a fridge, TV and computer.
- Mains electricity is dangerous.
- Metals are good conductors of electricity.
- Electrical wires are made of metal.
- Renewable energy is much better for the environment as it is sustainable and less polluting (Examples of renewable energy are solar, wind and hydro electricity)

There are two types of electric currents that can be generated – direct current and alternating current.

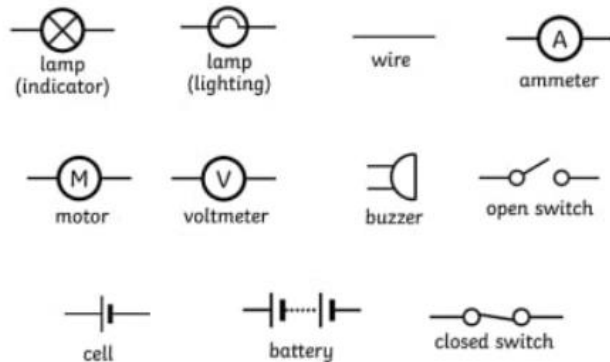


Alternating Current (AC)
The electric charge changes direction periodically.



Direct Current (DC)
The electric charge flows in one direction.

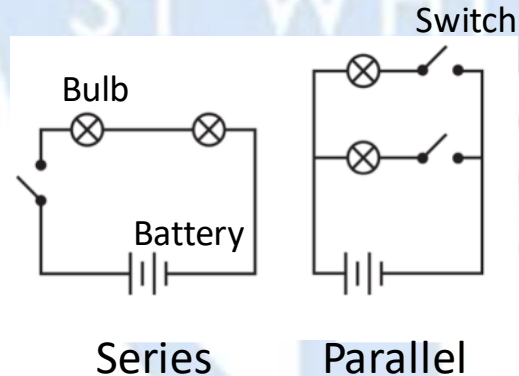
Electrical Circuit Symbols



Circuits

A series circuit only has 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.

A parallel circuit has more than one path for the electricity to flow around. If one branch breaks the rest would still work because there is a remaining complete circuit.



Technical vocabulary

electricity	A form of energy that is carried by wires and is used for heating, lighting and to power appliances
circuit	A complete route which electricity can flow around
cell/battery	A device that stores energy as a chemical until it is needed. A cell is a single unit. A battery is a collection of cells.
appliance	A device or piece of equipment designed to perform a specific task.
lamp	Lights up when powered by electricity
bulb	The glass part of a lamp
conductors	A conductor is a material that electricity can easily travel through. Most metals are electrical conductors (they conduct electricity).
symbol	Visual picture that stands for something else
current	The flow of electrons (electricity), measured in amps
voltage	The force that makes the electric current move through wires.
resistance	The difficulty that the electric current has when flowing around a circuit.

Circuits

- We use scientific symbols to represent the components (parts) of a circuit.
- The brightness of a bulb or the loudness of a buzzer is affected by the number of cells in a circuit.
- The brightness of a bulb or the loudness of a buzzer is affected by the voltage of cells in a circuit.
- The number of components in a circuit can affect how they function.
- The arrangement of components in a circuit can affect how they function.
- The length of wires in a circuit can affect how the components function.

High Degree of Trust

Because we act on scientific data, we need to have a high degree of trust in the results.

To do this we consider a number of things;

- Being objective – have we resulted the reports honestly?
- Accuracy – have we use accurate measuring equipment?
- Reproducibility – can the investigation be repeated?
- Consensus – do the majority of investigations show results that are the same.
- Sample size – did we do enough samples to show the 'real' picture?