



Knowledge is Power...

Ivington CofE Primary and Preschool

Reaching together... stand firm in your faith, be courageous and strong - 1 Corinthians 16:13



Key Vocabulary

Electricity	The flow of an electric current through a material, e.g. from a power source through wires to an appliance.
Battery	A device that stores electrical energy as a chemical.
Appliances	A piece of equipment or a device designed to perform a particular job, such as a washing machine or mobile phone
Circuit	A pathway that electricity can flow around. It is based around wires and a power supply. Examples of components (parts) you can add in to a circuit are bulbs, switches, buzzers and motors.
Mains electricity	Electricity supplied through wires to a building.
Electrical conductor	A conductor of electricity is a material that will allow electricity to flow through it.
Electrical insulator	Materials that are electrical insulators do not allow electricity to flow through them.

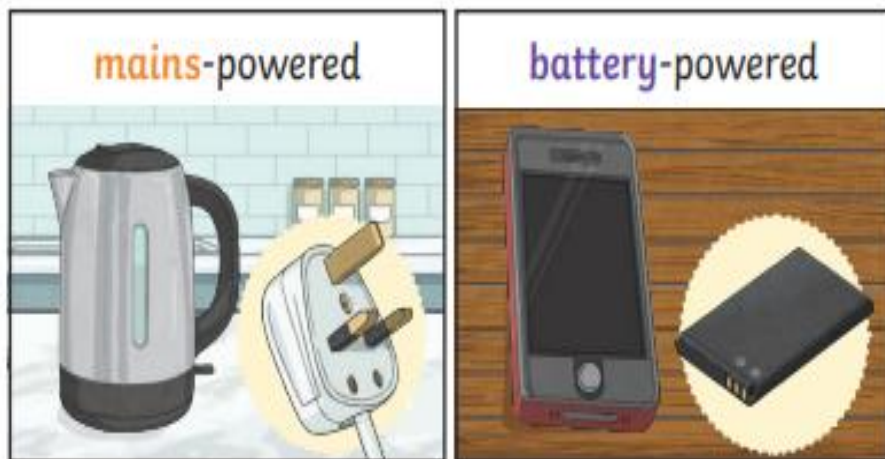
ELECTRICITY

Prior Knowledge

A familiarity with the components of a circuit; to know that a complete and properly attached circuit is needed for electricity to flow.

Aims

- To classify and present data, identifying common appliances that run on electricity.
- To identify circuit components and build working circuits
- To investigate whether circuits are complete or incomplete.
- To investigate which materials are electrical conductors or insulators.
- To explain how a switch works in a circuit, build switches and report my findings.
- To discuss and solve problems about electricity using reasoning skills.



Components (Parts) Vocabulary

cell: Normally, we would call this a **battery** but scientifically, this is a cell. Two or more cells joined together form a **battery**.



bulb: Lights up in a complete **circuit**.



buzzer: Makes a noise in a complete **circuit**.



wires: Used to connect the different components in the **circuit** together.



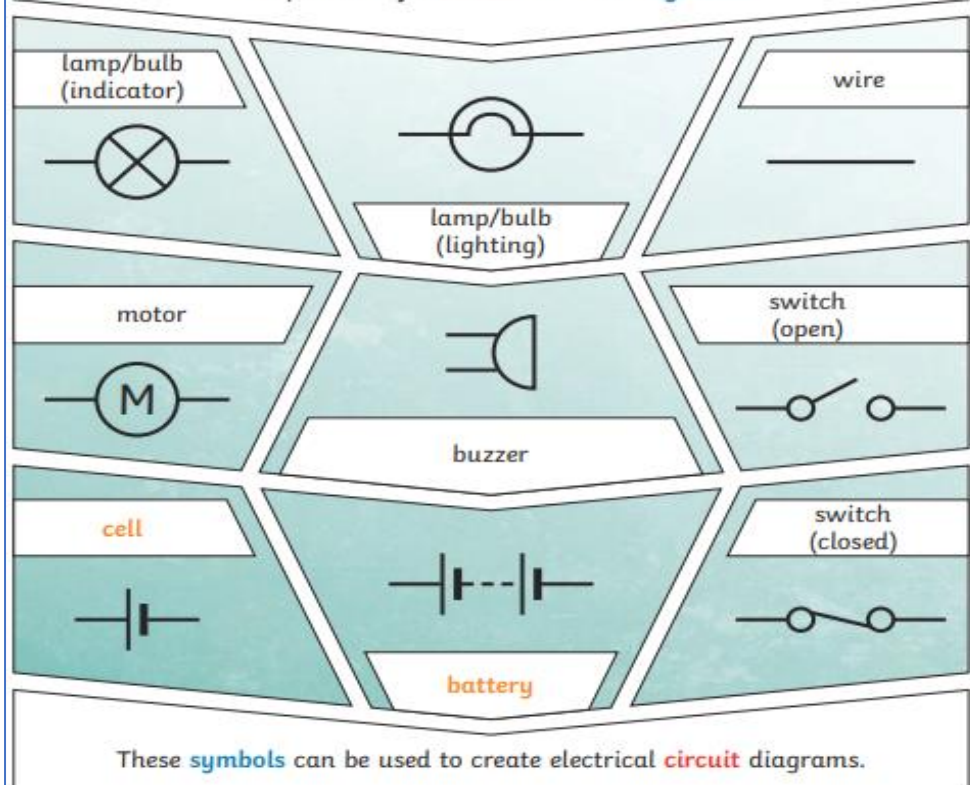
motor: Produces movement in a complete **circuit**.



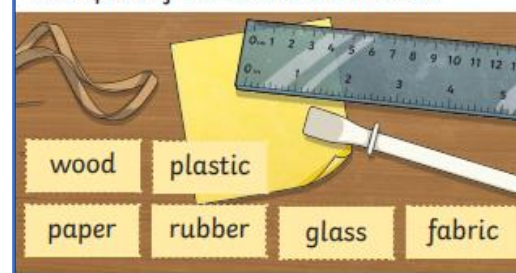
switch: Used to turn other components in the **circuit** on or off.



Components of a **Circuit** and Their **Symbols**



Examples of **Electrical Insulators**



Examples of **Electrical Conductors**

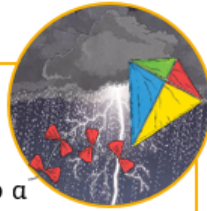




Benjamin Franklin

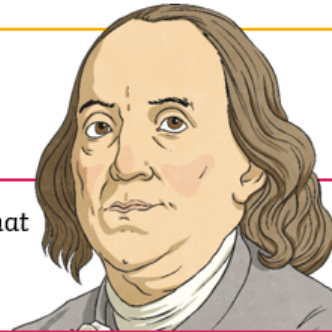
1752

Benjamin Franklin was the first person to investigate electricity in depth. In his famous kite experiment, conducted in 1752, he aimed to prove that lightning was electrical. Franklin attached a key to a kite and flew it into a thunderstorm. When the kite was struck by lightning, he observed sparks coming from the key.



Warning!

This was an extremely dangerous experiment that should not be repeated. Franklin was extremely lucky that he was not electrocuted!



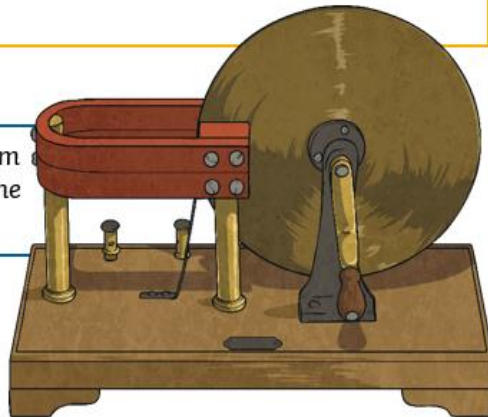
Electromagnetism

1831

Michael Faraday was able to produce an electric current from a magnetic field by using a magnet inside a coil of wire. This discovery, known as electromagnetic induction, is the process used by modern power stations today.

Did You Know...?

Faraday's work on electromagnetism eventually led to the invention of the radio.



Early Discoveries

3100 BC

The ancient Egyptians did not understand electric currents but were aware that they could get a shock from some electric fish, which they called 'Thunderer of the Nile'.



600 BC

The ancient Greeks discovered that rubbing amber made light objects attract to it. They thought that this happened because the rubbing was making the amber magnetic but they were actually observing static electricity.

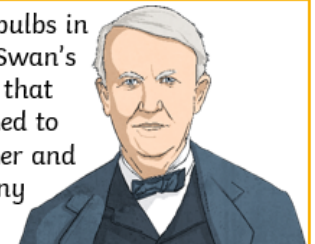
Did You Know...?

It wasn't until the 1600s that William Gilbert made the distinction between static electricity and magnetism. He introduced the word 'electricus' which means 'like amber' in Latin.

Electric Light – Thomas Edison

1879

While Joseph Swan was experimenting with light bulbs in England, Thomas Edison was working to improve Swan's initial basic design, in the United States. Believing that he had developed the modern light bulb, Edison tried to sue Swan. Eventually, they decided to work together and formed the Edison and Swan Electric Light Company Limited to improve on their designs.



Lewis Latimer worked for Thomas Edison and developed the **filaments** which enabled the light bulbs to stay lit for a long time. Lewis also did all the legal work to ensure Edison got the credit for the design.

filaments – A filament in a lightbulb is a metal wire that conducts electrical currents. The electrical currents cause the filament to glow.