

# Electricity

Science Knowledge Organiser Year 6 Term 5



## Key vocabulary

- Amps** – measure the number of electrons.
- Battery/cell** – a device that stores energy as a chemical until needed. A cell is a single unit: a battery is a collection of cells
- Circuit** - a route through which electricity flows.
- Components** - the parts of a circuit.
- Conductor** - allows electricity to flow through it.
- Current** – the flow of electrons, measured in amps
- Electrons** – very small particles that travel around an electrical circuit
- Fossil fuels** – remains of organisms that lived long ago, converted to oil, coal and gas.
- Generator** – a machine/mechanism which makes electrical energy.
- Insulator** - doesn't allow electricity to flow through it.
- Mains power** - electricity provided by power stations.
- Non-renewable energy** – burning fossil fuels to create energy
- Pylon** - a tower used for keeping electrical wires above the ground.
- Renewable energy** – a natural source of energy.
- Voltage** – force that makes current move through wires. The greater the voltage, the more current will flow.

## Key Questions

- What will make a bulb brighter or a buzzer louder?
- What will make a bulb dimmer or a buzzer quieter?
- What is a series circuit?
- What happens if more bulbs or buzzers are added to a circuit?

## Key People

**Michael Faraday** – (1791 – 1867) discovered electromagnetic induction in 1831.

**Benjamin Franklin** – (1706 – 1790) many credit Franklin for discovering electricity due to his famous kite experiment, flying a kite during a thunderstorm with a metal key tied to the string.

## Useful web links

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

<http://www.learningcircuits.co.uk/>

[https://phet.colorado.edu/sims/html/circuit-construction-kit-dc/latest/circuit-construction-kit-dc\\_en.html](https://phet.colorado.edu/sims/html/circuit-construction-kit-dc/latest/circuit-construction-kit-dc_en.html)

Fewer **batteries** or a lower **voltage** give less power to 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**.

## Key Knowledge

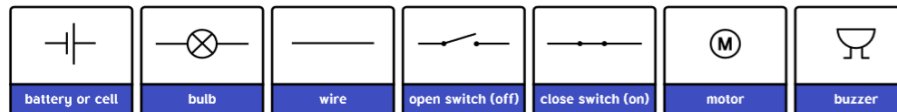
### What I should already know...

#### Year 4

- Identify common appliances that run on electricity
- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery
- recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- recognise some common conductors and insulators, and associate metals with being good conductors.

### What I will know by the end of the unit...

- You can brighten a bulb or make a buzzer louder by adding more batteries or by using batteries with a higher voltage
- The more bulbs you add, the dimmer the light
- If you added more buzzers to a circuit, then the noise they make would be quieter
- In a series circuit there is only one path for the current to flow through
- When scientists draw electrical circuits, they use scientific symbols to show the different components:



## More Key Knowledge...

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.

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.

