

Key Vocabulary

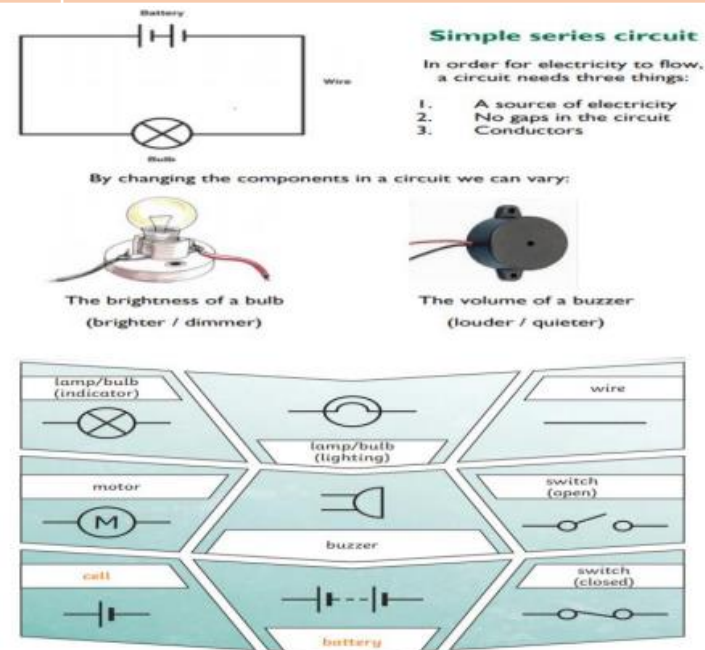
1	Filament	A conducting wire or thread with a high melting point which forms part of an electric bulb
2	Motor	A machine powered by electricity that supplies motive power for a vehicle or other moveable device.
3	Static	A stationary electric charge, typically produced by friction, which causes sparks or crackling or the attraction of dust.
4	Voltage	The force that makes electricity move through a wire . The greater the voltage, the more current will flow.
5	Ammeter	An ammeter can be used to measure amps (the size of the electrical charge).
6	Amp	How electric current is measured.
7	Resistance	The difficulty that the electric current has when flowing around a circuit.
8	Electrons	Very small particles that travel around an electrical circuit.
9	Series Circuit	An electric circuit in which the electric passes through each circuit element in order
10	Parallel Circuit	A circuit in which the electric current passes through two or more branches or connected parts at the same time
11	Current	A flow of electricity which results from the ordered directional movement of electrically charged particles.
12	Terminal	A point of connection for closing an electric circuit.
13	Volume	The amount of space that a substance or object occupies.

Sticky Knowledge

1	Many of the items that we use every day run on electricity. Electricity can be supplied from the mains (these are plugged into power supplies) or from batteries.
2	Different appliances run on different amounts of electrical charge.
3	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.
4	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.
5	A circuit will not work if the switch is open. A circuit must be complete to work. It must also always have a battery/cell
6	Electricity travels at the speed of light, about 300,000 kilometres per second.
7	Electricity causes muscle cells in your heart to contract, essentially making it beat. Electrocardiogram (ECG) machines measure the electricity going through the heart
8	Thomas Edison – 1847 – 1931. Born and lived in the state of New Jersey, in the United States of America. He is known for one of the greatest inventions in history – The Light Bulb. He came up with more than 2,000 inventions, which includes almost everything that we need to use electricity in our homes including switches, fuses, sockets and meters.
9	Benjamin Franklin - 1706-1790. Started investigating electricity in 1746. He discovered the conservation of charge and, in 1748, he constructed a type of battery out of alternating glass and lead plates. In 1750, he conducted the kite experiment to prove that lightning is electricity.
10	Michael Faraday – invented the electric motor in 1821. electricity is generated by the movement of a loop of wire, or disc of copper, between the poles of a magnet.

Key Questions

1	Which common appliances run on electricity?
2	Can you construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers?
3	Can you 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?
4	When will a simple series circuit work?
5	What are common conductors and insulators, and which metals with being good conductors?
6	How can you construct simple series circuit?
7	Can you construct a circuit to power a simple device and draw the circuit in a pictorial representation?
8	What precautions should you take to work safely with electricity?
9	Can you work scientifically to observing patterns?
10	What will make a bulb brighter or a buzzer louder?

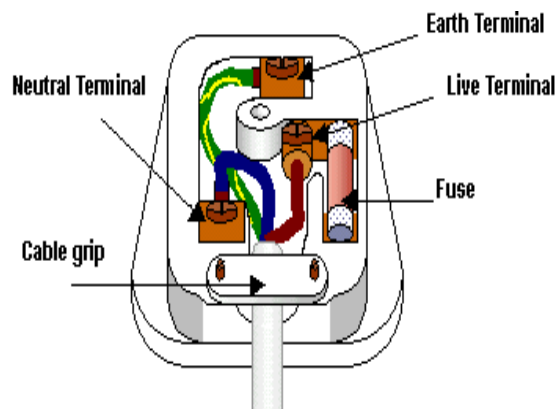


Prior Vocabulary

1	Electricity	A form of energy resulting from the existence of charged particles.
2	Appliance	A device or piece of equipment designed to perform a specific task
3	Mains	The general-purpose alternating-current electric power supply used in the world.
4	Plug	A device for making an electrical connection between an appliance and the mains
5	Components	A single electrical element used in a circuit.
6	Conductor	A material or device which allows heat or electricity to carry through. Examples include: silver, gold, copper, steel and salt water.
7	Insulator	An insulator is a material that does not allow charges to flow easily throughout the material. Examples include: rubber, glass, oil, diamond and dry wood.
8	Circuit	A complete and closed path around which a circulating current can flow.
9	Symbol	A visual picture that stands for something else.
10	Bulb	A glass bulb which provides light by passing an electrical current through a filament .
11	Battery/cell	A container consisting of one or more cells that store energy as a chemical that is used for generating current until it is needed. A cell is a single unit. A battery is a collection of cells.
12	Positive	When an object has more protons than electrons then the object is said to be positively charged.
13	Negative	When an object has more electrons than protons then the object is said to be negatively charged.

Prior Knowledge

- 1 I know of the dangers associated with electricity.
- 2 I am aware of sustainable power and may have come across wind turbines across our landscapes.
- 3 I have changed batteries in my toys and may have some awareness of positive and negative terminals.
- 4 I can identify common appliances that run on electricity.
- 5 I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.
- 6 Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (Y4 - Electricity)
Recognise some common conductors and insulators, and associate metals with being good conductors. (Y4 - Electricity)
- 7 I can 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.



Future Learning

1. Electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge (KS3).
2. Potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current. (KS3)
3. Differences in resistance between conducting and insulating components (KS3).
4. You will learn more about static electricity, it's atoms and how it flows through objects (KS3).

