



Key Vocabulary

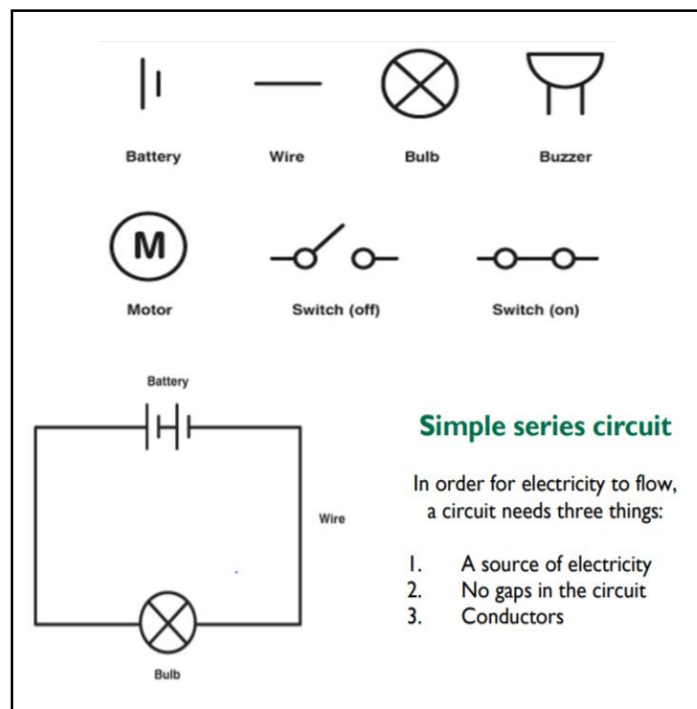
1	electricity	The flow of an electric current or charge through a material, e.g. from a power source through wires to an appliance
2	component	a part or element of a larger whole, especially a part of a machine or vehicle.
3	renewable	A source of electricity that will not run out. These include solar, nuclear, geothermal, hydro and wind.
4	non-renewable	This source of energy will eventually run out and so will no longer be able to be used to make electricity. These include fossil fuels – coal, oil and natural gas.
5	appliances	A piece of equipment or device designed to perform a particular job, such as a washing machine or mobile phone
6	conductor	A device that stores electrical energy as a chemical.
7	circuit	A pathway that electricity can flow around. It includes wires and a power supply and may include bulbs, switches or buzzers.
8	electron	A particle that becomes charged with electricity and moves around an electrical.
9	Static electricity	A stationary electric charge, typically produced by friction, which causes sparks or crackling or the attraction of dust.
10	voltage	The force that makes electricity move through a wire.
11	cell	unit structure used to generate an electrical current by some means other than the motion of a conductor in a magnetic field.

Key Facts

1	Electricity can only flow around a complete circuit that has no gaps.
2	There must be wires connected to both the positive and negative end of the power supply/battery for a circuit to work.
3	Switches can be used to open or close the circuit. When off, a switch 'breaks' the circuit to stop the flow of electrons. When the switch is on, the circuit is complete and the electrons are able to flow around the circuit.
4	A conductor of electricity is a material that electricity is able to pass through, such as metal.
5	An electrical insulator is a material that electricity cannot pass through, such as wood, plastic or glass.
6	Coal, oil and natural gases are fossil fuels which, when burnt, produce heat which can be used to generate electricity.
7	Electricity can be generated from wind power used to turn windmills and hydroelectric power from water used in dams.
8	The Sun's rays can be converted into electricity by solar panels.
9	Geothermal energy is heat from the Earth that is converted into electricity.
10	Many everyday appliances rely on electricity for them to work. Some appliances need to be plugged into a socket (mains electricity) and others have a battery to make them work.
11	Mains electricity: power stations send an electric charge through wires to transformers and pylons. Then, underground wires carry the electricity into our homes via wires in the walls and out through plug sockets.
12	Battery electricity: batteries store chemicals which produce an electric current. Eventually, even rechargeable batteries will stop producing an electric current.
13	The A flow of electricity which results from the ordered directional movement of electrically charged particles.

Key Questions for the Topic

1	What are the best materials to use as an insulator?
2	What are the best materials to use as a conductor?
3	How many things can you find in your house that run on mains power and battery power?
4	What would be a good material to make a switch with? And why?
5	How could you make the bulbs brighter in a circuit?
6	How do we keep safe when using electricity?





Prior Vocabulary

1	electrical	concerned with, operating by, or producing electricity.
2	device	a thing made or adapted for a particular purpose, especially a piece of mechanical or electronic equipment.
3	plug	a device for making an electrical connection between an appliance and the mains, consisting of an insulated casing with metal pins that fit into holes in a socket.
5	mains	electricity, water, or gas supplied to a building through wires or pipes.
6	generate	To make or produce.
7	appliances	a device or piece of equipment designed to perform a specific task.
8	bulb	a small and simple light source that uses a wire filament to glow on the application of electricity.
10	switch	a device for making and breaking the connection in an electric circuit.
11	buzzer	an electrical device that makes a buzzing noise and is used for signalling.
12	connection	any structure that allows electricity to flow through it
13	open	an electrical circuit that is not complete.
14	closed	a circuit without interruption, providing a continuous path through which a current can flow.
15	positive	the electricity present in a body or substance that has an excess of electrons,
16	negative	less than zero and opposite in sign to a positive
17	terminal	a class of electrical connector which are used to transfer electrical current from a power or grounding source to a use.

Prior Knowledge

1	Explore how things work. (Nursery - Electricity)	
2	Pupils will have knowledge of electricity through their daily life. For example, most will have used a switch to light up a room, will know what a plug looks like and will have toys and gadgets operated by battery	
3	Some may have experimented with lighting up a small electric bulb (using a simple circuit)	
18	crocodile clip	a sprung metal clip with long, serrated jaws, used attached to an electric cable for making a temporary connection to a battery or other component.
19	symbol	a graphical representation of basic electrical and electronic devices or components.
20	battery	A device that stores electrical energy as a chemical.

Future Learning

1	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. (Y6 - Electricity)
2	Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. (Y6 - Electricity)
3	Use recognised symbols when representing a simple circuit in a diagram. (Y6 - Electricity)
4	Know the difference between a conductor and an insulator; giving examples of each
5	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
6	Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
7	Use recognised symbols when representing a simple circuit in a diagram.
8	Building on their work in year 4, pupils should construct simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors.
9	Pupils might work scientifically by: systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit

Electrical Circuit Components

