

Year 4: Electricity

ELECTRICITY:

Electricity is one of many forms of energy.

Static electricity is an imbalance of charged particles on a material - it does not flow around a complete circuit.

Current electricity is the flow of charged particles called electrons around a circuit.

CONDUCTIVITY:

Conductors have free electrons and when electrical current flows around a circuit the electrons move.

Electricity flows poorly through some materials, called insulators.

Electricity current flows well through some materials, called conductors.

Electrical conductivity is a property of a material.

Metals are examples of good electrical conductors.

Rubber is a good example of a good electrical insulator.

CIRCUITS:



Incomplete circuit



No battery



Complete circuit

The bulb will only light if there is a battery and a complete circuit.

A chemical reaction occurs inside a cell that produces the charged particles to flow around a circuit.

Wires, which contain a conductor inside them, usually metal, can allow electrical current to flow around a circuit.

Electrical current can only flow if there is a complete circuit.

More than one cell lined up to work together is called a battery.



Danger of death

Exposure to high levels of electricity can be extremely dangerous.

Electrical shocks can be fatal.

You should never play near high levels of electricity.



motor



buzzer



bulb

When electrical current flows through a circuit component within a circuit - such as a motor which moves; a buzzer which makes a noise; or a bulb which emits light - it will begin to work

KEY VOCABULARY



APPLIANCE: a device or machine in your home that you use to do a job such as cleaning or cooking.



BATTERY: a small device that provides power for electrical items such as torches



BULB: the glass part of an electric lamp, which gives out light when electricity passes through it.



BUZZER: an electrical device that is used to make a buzzing sound.



CELL: a synonym for battery



CHARGE: the physical property that causes matter to experience a force



CHEMICAL REACTION: a process that involves rearranging of a structure.



CIRCUIT: a complete route which an electrical current can flow around.



CURRENT ELECTRICITY: a flow of electricity through a wire or circuit



ELECTRON: a stable particle with a charge of negative electricity



EMIT: to produce it



INSULATOR: a non-conductor of electricity or heat



MAINS: where the supply of electricity enters a building



NEGATIVE TERMINAL: the end of a battery that has more electrons than normal



POSITIVE TERMINAL: the electrode from which the electrons emerge



STATIC ELECTRICITY: a stationary electric charge, typically produced by friction which causes sparks or attraction



SWITCH: a small control for an electrical device which you use to turn the device on or off.



WIRE: a long, thin piece of metal that is used to carry electric current

A switch functions by completing or breaking a circuit.

When the switch is on (closed) the circuit is complete and electricity can flow around it.

When a switch is off, (open) the circuit is incomplete and electricity cannot flow around it.

