Year 4: Electricity

WHAT IS ELECTRICITY?:

Electricity is one of many forms of energy.

Some of the particles in a material carry electric charges

Some of the charges are negative charges and some are positive charges.

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

When we get a small electric shock, this is because of static electricity.

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

ELECTRIC CURRENT & CONDUCTIVITY:

Some electricity flows around a circuit, and this is called an electrical current.

Electricity flows poorly through some materials, called insulators.

Electricity current flows well through some materials, called conductors.

Conductors have free electrons (tiny, negatively charged particles) and that when electrical current flows around a conductor, the electrons move.

Electrical conductivity (how well a material conductivity is an example of a property

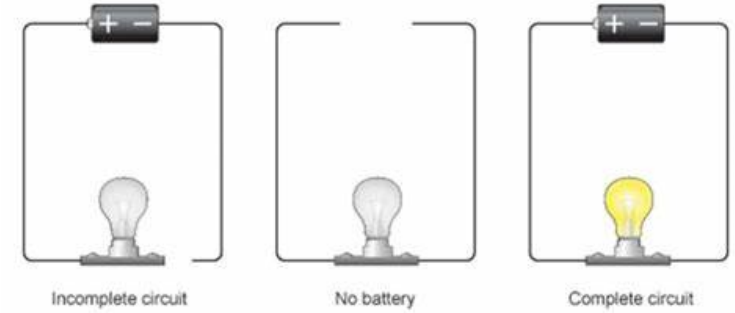
Rubber is a good example of a good electrical insulator.

Metals are examples of good electrical conductors.

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

Exposure to high levels of electrical current can be dangerous.

CIRCUITS:



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

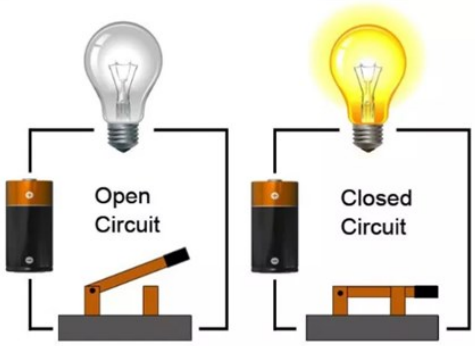
More than one cell lined up to work together is called a battery.

Cells, batteries ands mains are all sources of electrical energy.

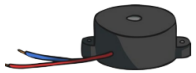
A switch functions by completing or breaking a circuit.

When the switch it 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.




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

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.

CELL: a single unit that converts chemical energy into electrical energy

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.

CONDUCTOR: a substance or material that allows electricity to flow through it

CURRENT ELECTRICTY: 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

STATIC ELECTRICTY: 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