Electricity comes in two forms: static electricity and electricity in circuits.

Static Electricity

Happens when:
two object rubs against each other

Because:
the positive and negative charge in a material become unbalanced

Discharge:
is when the charge jumps from one object to another to balance out again

Examples:

Rubbing a balloon on hair

Socks rubbing on a trampoline

Clothes spinning in a dryer

Storm clouds leading to lightning

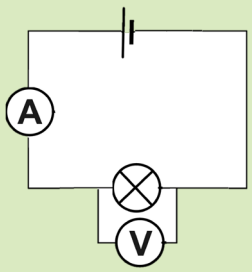
Rules for building circuits

1. There must be at least one cell
2. There must be a complete loop for electricity to flow
3. The wires must be plugged in to each component on one side and come out of the component on the other side
4. The switch must be closed to make it work

Taking measurements in a circuit

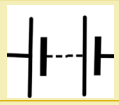
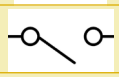
Current tells us how quickly electricity is flowing and is measured using an Ammeter.

Voltage tells us the amount of energy each component uses and is measured using a Voltmeter



When we want to show the parts of a circuit (known as components) we use a circuit diagram

which shows the main features of a circuit in a simplified form.

Cell		What is commonly known as a 'battery' is a cell. Provides the power to make electricity flow.
Battery		When two or more cells are used together
Bulb		Produces light when electricity flows through it
Buzzer		Produces sound when electricity flows through it
Switch (open)		Creates a gap in the circuit to stop the flow of electricity
Switch (closed)		Closes the gap in the circuit to allow electricity to flow

Electrical insulators and conductors

Electrical insulator – an object or material that will not allow electricity to pass through itself easily.

Examples: plastic, wood, rubber, glass and oil

Electrical conductor – an object or material that will allow electricity to pass through itself easily.

Examples: include silver, gold, copper, graphite and sea water

Adding cells or bulbs to a circuit

Adding more BULBS to a circuit:

- Bulbs are less bright
- Current is lower
- Voltage for each bulb is less

Adding more CELLS to a circuit:

- Bulbs are brighter
- Current is higher
- Voltage for each bulb is more

Uses of buzzers

Buzzers enable sound to be made from electricity.

This can be useful for:

- Alarms - buzzers that go off when something is touched
- Electric doorbells - release a ringing sound when a button is pressed
- Shop door sensor - makes a noise when someone opens the door