Ormiston Victory Academy

Subject: Science

Victory Vitals

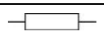
Electrical circuits

Electricity is a flow of **charges**. Electricity can flow through **conductors** but not through **insulators**. Metals are good conductors of electricity. Plastics are good insulators.

For current to flow in a circuit, you need:

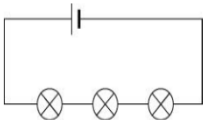
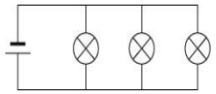
- a complete circuit with no gaps
- a cell or power supply.

Symbols

Component	Symbol	Component	Symbol	Component	Symbol
cell		bulb		ammeter	
switch		resistor		voltmeter	

Series and parallel circuits

Circuits can be **series** or **parallel** circuits.

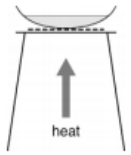
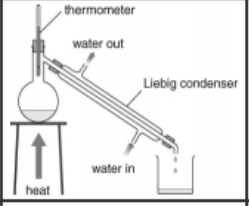
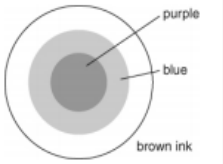
Series circuit	Parallel circuit
	
If one bulb breaks, all the others go off. The current is the same everywhere. If you put more bulbs in they will be dimmer, because it is harder for the electricity to get through. The resistance of the circuit is higher with more bulbs.	If one bulb breaks, the bulbs in the other branches stay on. The current splits up when it comes to a branch. The current in all the branches adds up to the current in the main part of a circuit. If you add more bulbs, they stay bright. It is easier for the current to flow with more branches, because there are more ways for the charges to go.

Mixtures

A **mixture** contains two or more substances jumbled together. There are different kinds of mixture:

- suspension: the solids settle out of the mixture over time.
- colloid: the solid pieces are smaller so they don't settle out, and the mixture looks cloudy or opaque.
- solution: the solids break up into such small pieces that they are not visible, and the mixture is transparent.

Mixtures and solutions can be separated using different methods:

Method	Used to separate	Apparatus used	Examples
filtering (filtration)	solids from a suspension (i.e. large pieces of solids that have not dissolved in a liquid)		• sand from a mixture of sand and water
evaporation	solid substances from a solution or colloid		• salt from a salt solution
distillation (evaporation followed by condensation)	liquid from a mixture		• pure water from a salt solution
chromatography	individual solutes from a mixture of solutes in a solvent		• colours found in ink

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Key vocabulary:

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Solid – one of the states of matter. Has a fixed volume and shape
Liquid – one of the states of matter. Has a fixed volume but not shape.
Gas- one of the states of matter. No fixed volume/shape, easy to squash.
Solvent – The liquid in which a substance dissolves to make a solution.
Solute – The substance that has dissolved in a liquid to make a solution.
Solution – When a substance has dissolved in a liquid.
Soluble – a substance that can dissolve in a liquid
Saturated – A solution that contains so much dissolved solute that no more solute can dissolve in it.
Distillation – Process of separating a liquid from a mixture by evaporating the liquid and condensing it.
Chromatography – A method that separates out dissolved substances in a mixture using a gas or a liquid solvent. The different substances are carried different distances by the solvent.
Evaporation - When a substance changes from liquid to gas state.
Condensation – When a substance changes from gas to liquid state.

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Current – the flow of electricity around a circuit.
Ammeter – Equipment that measures how much electricity is flowing around a circuit.
Parallel circuit – a circuit with two or more branches that split apart and join up again.
Series circuit – a circuit with only one loop of wire.
Resistance – How difficult it is for electricity to flow through something.
Voltage – How much energy is transferred by a current.
Resistor – A component that makes it difficult for electricity to flow.
Qualitive – something described with words
Quantitative – something described with numbers.
Component – Something in a circuit – like a bulb or motor.
Battery – two or more cells used together.
Amp – Unit for measuring current.
Filament – thin piece of wire inside a lightbulb that glows when light is on.
Insulator – material that does not conduct electricity well.
Conductor – material that conducts electricity well.

Videos

Quizzes