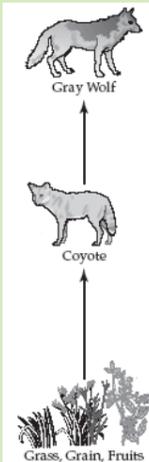
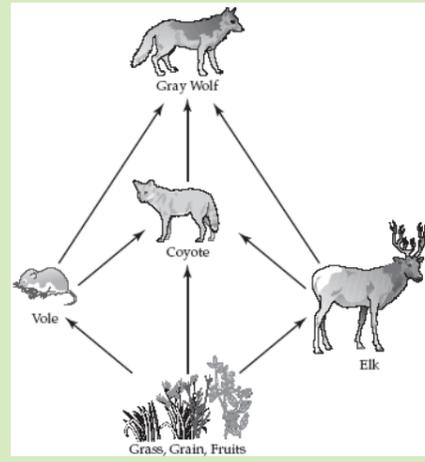


1. Biology

Food chain



Food Web

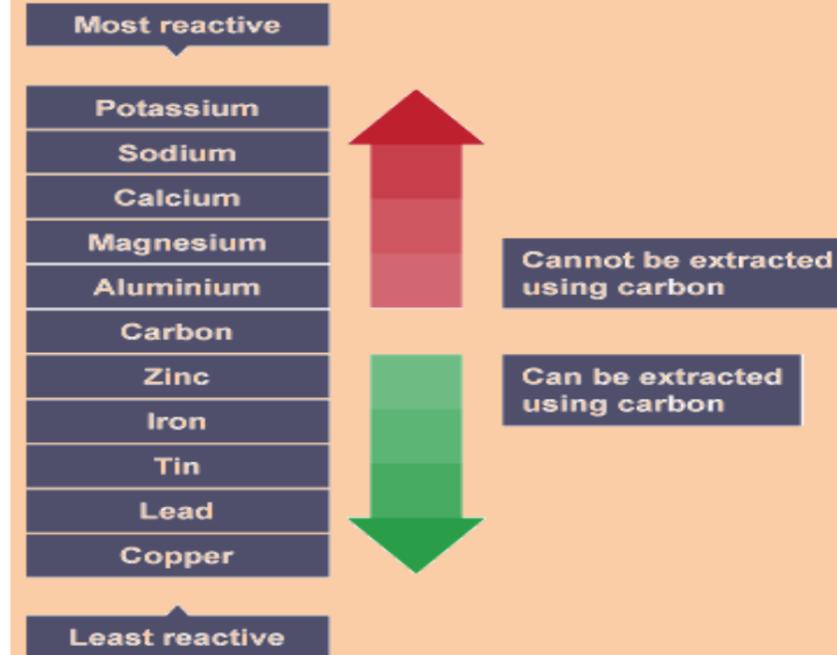


Shows direction of energy transfer

If **toxins or pollutants** are taken in by an organism at the start of a food chain this causes **bioaccumulation** meaning that animals at the top of the food chain are affected.

Food Chain	Shows the transfer of energy through different trophic levels .
Food web	Shows the interaction of different food chains in an ecosystem .
Producer	An organism that produces its own food (plant.)
Primary consumer	An organism that eats a producer.
Secondary consumer	An organism that eats a primary consumer.
Tertiary consumer	An organism that eats a secondary consumer.
Trophic level	A level in a food chain.
Carnivore	An organism that only eats animals.
Herbivore	An organism that only eats plants.
Omnivore	An organism that eats both plants and animals.
Predator	An animal that hunts, kills and eats other animals for food.
Prey	Organisms that predators kill for food.
Interdependence	When one organism depends on another organism for survival.
Ecosystem	Where organisms interact with their physical surroundings.
Habitat	Where an organism lives.
Population	The number of one species of organism.
Community	The number of all species in an area.

2. Chemistry



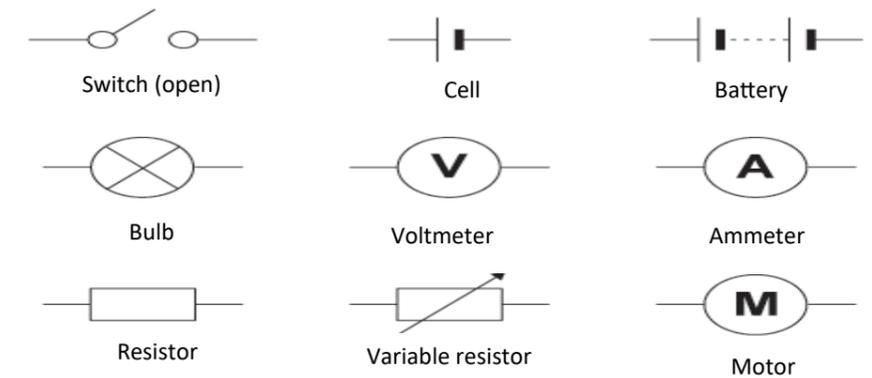
Metals **less reactive** than carbon can be extracted from their **ores** by **heating them with carbon**. The general equation for this reaction is:



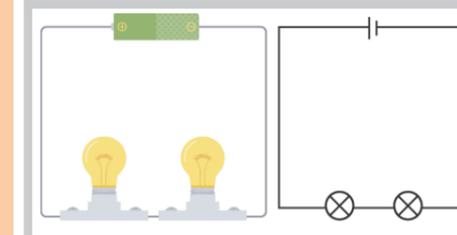
Metal extraction from an ore can be very expensive, sometimes this means it's not done.

Reactive	Easily takes part in chemical reactions.
Unreactive	Does not easily take part in chemical reactions.
Reactivity series	A list of elements in order of reactivity from most reactive to least reactive.
Displacement reaction	When a more reactive element takes the places of a less reactive element in a compound.
Ceramics	Solid, tough materials made by baking a starting material in a hot oven or kiln e.g. bricks and pottery.
Polymers	A long chained molecule made from monomers e.g. plastics.
Composites	Made from two or more different types of materials e.g. MDF, fibreglass and nylon.
Recycling	Converting waste materials into usable products.

3. Physics



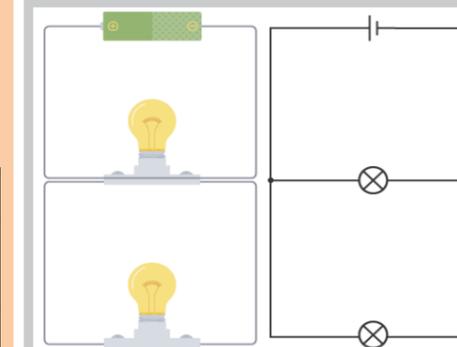
Series circuit



Current is the same at all points in the circuit.

Potential difference is shared between components.

Parallel circuit



Current is shared across the branches.

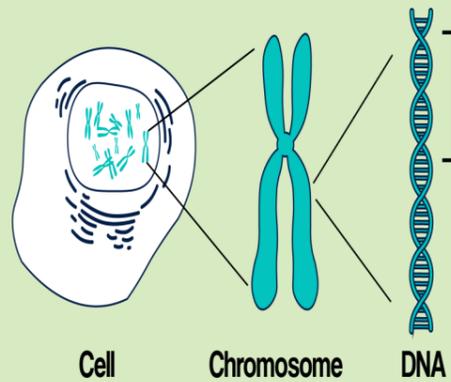
Potential difference is the same at all points in the circuit.

As the wire gets longer the resistance increases.

$$\text{Resistance } (\Omega) = \text{Potential Difference (V)} \div \text{Current (A)}$$

Potential difference (V)	Difference in energy between two points in a circuit.
Resistance (Ω)	Difficulty of current flow.
Current (A)	Rate of flow of electric charge.

1. Biology



Gene **DNA has a structure called a 'double-helix'. This was discovered by Watson and Crick in the 1950s.**

Individuals within a species show **genetic variation** because of **mutations** in their DNA.

Organisms that are **best adapted to their environment will survive** and can then **pass on their genes to their offspring**. This is natural selection and sometimes known as the **'survival of the fittest'**.

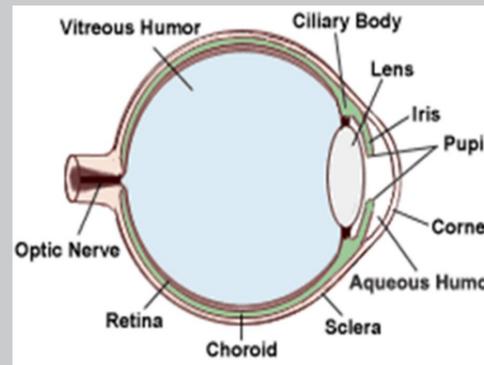
To prevent species from going extinct scientists keep records of genetic information known as **'gene banks'**.

Inheritance	When genes are passed on from parents to offspring.
Characteristic	How an organism looks or behaves.
DNA	A chemical which carries genetic information.
Gene	A section of DNA which codes for a particular characteristic.
Chromosome	Coiled strands of DNA which are stored in the nucleus of cells.
Mutation	A change in the DNA.
Natural selection	The process of how organisms change over time (evolution).
Extinction	When there are no more individuals of a plant or animal species alive anywhere in the world.

3. Physics

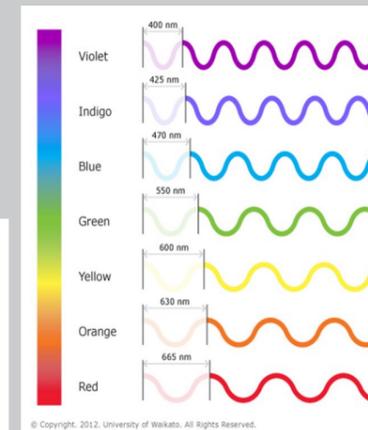
The Eye

The **retina** is the light sensitive part of the eye. It absorbs light waves and turns these into an **electrical impulse** which travels to the brain along the optic nerve.



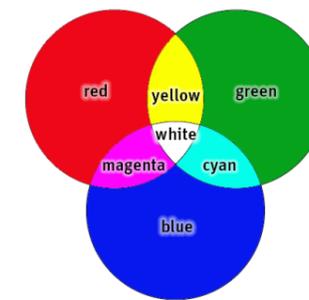
Light and Colour

Light is a **transverse wave** that travels in straight lines at a speed of **300 000 000m/s**. Light does not need particles to travel and so it can travel through a **vacuum**.



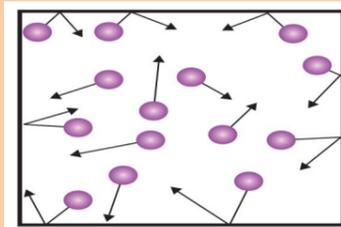
White light is made up of a **spectrum of colours** from high frequency violet to low frequency red.

The **'primary colours'** of light are **red, green and blue**. These can be mixed together to form the **'secondary colours'**; **yellow, cyan and magenta**.



Objects appear different colours because they **reflect different colours of light**. E.g. red objects reflect red light, cyan objects reflect both green and blue light all other wavelengths of light are absorbed.

2. Chemistry

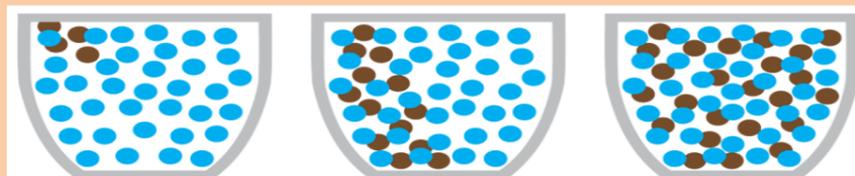


Gas pressure

This is caused by particles of gas **colliding and exerting a force** on a surface, e.g. the inside of a container.

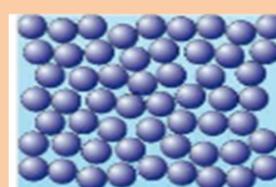
Diffusion

This is when particles **spread** from an area of **high concentration** to an area of **low concentration** along a **concentration gradient**.



Brownian Motion

This is the random movement of particles of a liquid or gas (fluids).



Density

Density is a measure of how much space (volume) particles take up. When a liquid evaporates, **particles move further apart** from one another. Because **the same number of particles will now take up a larger amount of space**. This means that the density has decreased.

