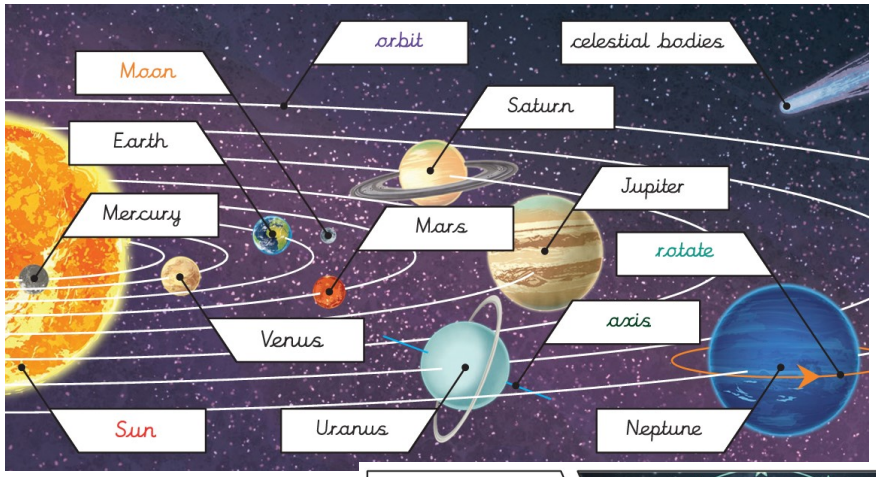
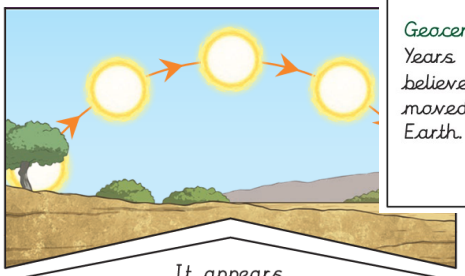
Year 5, Term 1, Out of this World

Vocabulary

sun	A huge star that Earth and the other planets in our solar system orbit around.
star	A giant ball of gas held together by its own gravity.
moon	A natural satellite which orbits Earth or other planets.
planet	A large object, round or nearly round, that orbits a star.
sphere	A round 3D shape in the shape of a ball.
spherical bodies	Astronomical objects shaped like spheres.
satellite	Any object or body in space that orbits something else. For example: the Moon is a satellite of the Earth.
orbit	To move in a regular, repeating curved path around another object.
rotate	To spin. E.g., Earth rotates on its own axis.
geocentric model	A belief people used to have that other planets and the Sun, orbited around the Earth.
heliocentric model	The structure of the Solar System where the planets orbit around the sun,
astronomer	Someone who studies or is an expert in astronomy (space science).

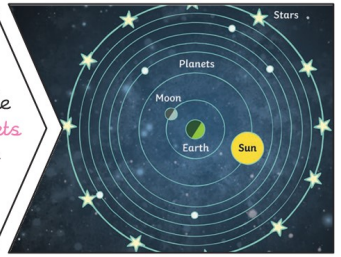
Our Solar System (NOT to scale)



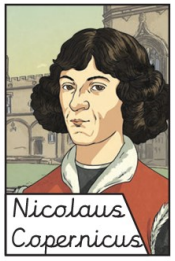


It appears to us that the Sun moves across the sky during the day but the Sun does not move at all. It seems to us that the Sun moves because of the movements of Earth.

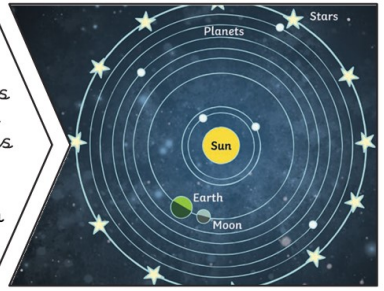
Geocentric model
Years ago people believed that planets moved around the Earth.



Fun fact: Pluto used to be known as a planet but it was down-graded to a dwarf planet in 2006 because it is too small!



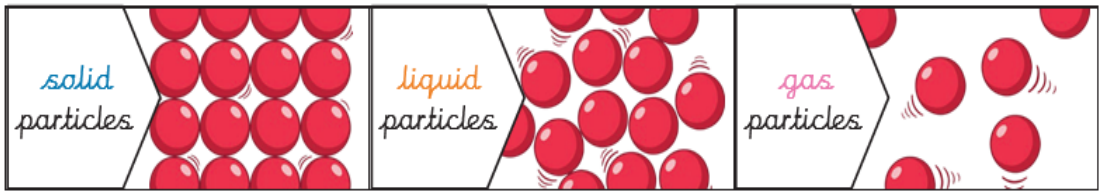
The work and ideas of many astronomers (such as Copernicus and Kepler) helped form the idea of the heliocentric model. Galileo's work on gravity allowed astronomers to build on this to understand how planets then stayed in orbit.



Year 5, Term 2, Material World

Vocabulary

materials	The substance that something is made out of e.g. wood, plastic, metal.
solids	One of three states of matter. Solid particles are very close together, meaning solids, such as wood and glass, hold their shape.
liquids	One of the three states of matter. This state of matter can flow and take the shape of the container because the particles are more loosely packed than solids and can move around each other. Examples of liquids include water and milk.
gases	One of the three states of matter. Gas particles are further apart than solid or liquid particles and they are free to move around. Examples of gases are oxygen and helium.
melting	The process of heating a solid until it changes to a liquid.
freezing	When a liquid cools and turns into a solid.
evaporating	When a liquid turns into a gas or vapour.
condensing	When a gas, such as water vapour, cools and turns into a liquid.



Key Knowledge

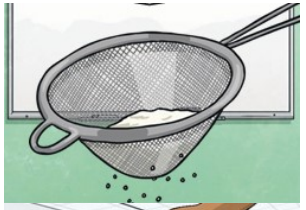
Some changes to materials are reversible (we can change them back to their original). Some changes to materials are irreversible (once we have changed it, we cant change it back).

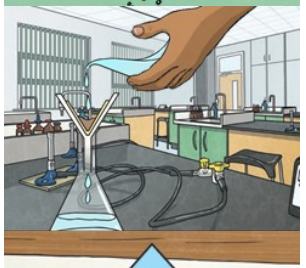
You could reserve a change by:

Sieving: smaller materials are able to fall through the holes in the sieve, separating them from the larger particles.

Filtering: The solid particles will get caught in the filter paper but the liquid will be able to get through.

Evaporating: The liquid changes into a gas, leaving the solid particles behind.





Irreversible changes often result in a new product being made from the old materials. For example, burning wood produces ash. Mixing vinegar and milk produces casein plastic.

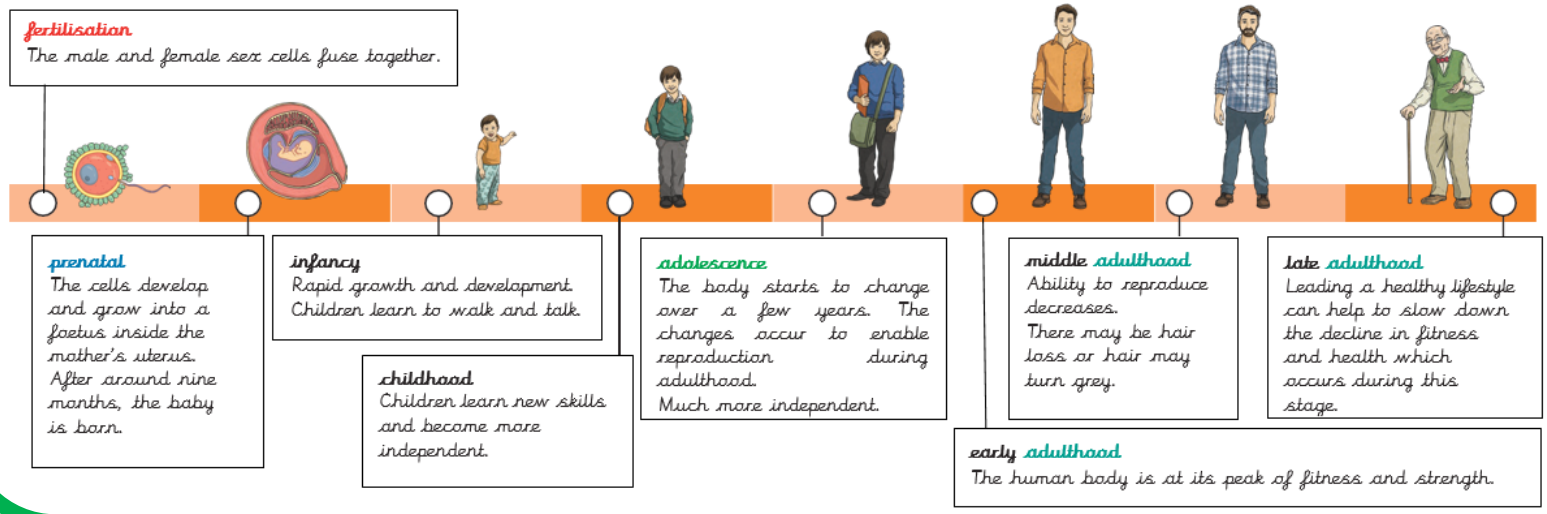
Year 5, Term 3, Circle of Life

Vocabulary

fertilisation	The process of the male and female sex cells fusing together.
prenatal	The stage of development from the time of fertilisation to the time of birth.
gestation	The process or time when prenatal development takes place before birth.
reproduce	To produce young.
asexual reproduction	A process where one parent produce new life.
sexual reproduction	A process where two parents- one male and one female—are required to produce new life.
life cycle	The changes a living thing goes through, including reproduction.

Changes as we grow up.

Boys	Girls
• skin becomes oiler • grow facial hair • grow hair under the armpits and on arms and legs • scrotum, testes and penis develop • grow pubic hair • grow hair on chest • larynx (voice box) grows ('Adam's Apple) • become more muscular	• larynx (voice box) grows • grow hair under arm-pits • start to menstruate • grow pubic hair • skin becomes oilier • grow breasts • gain hair on arms and legs



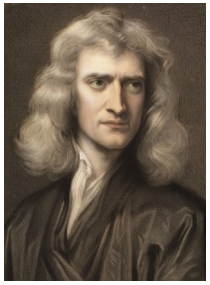
Both sexes will grow taller, their sweat glands will produce more sweat and all parts of the body will grow. These are all completely natural!

Year 5, Term 4, Let's Get Moving

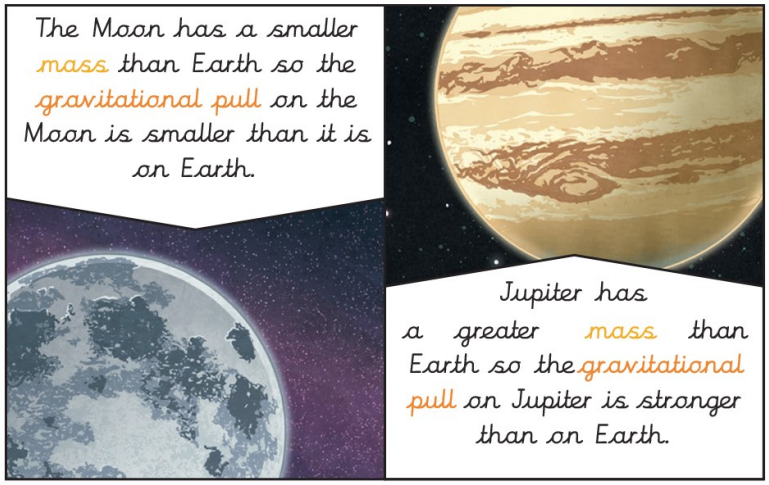
Vocabulary

forces	Pushes or pulls.
gravity	A pulling force exerted by the Earth (or anything else which has mass).
Earth's gravitational pull	The pull that Earth exerts on an object, pulling it towards the Earth's centre. It is the Earth's gravitational pull which keeps us on the ground.
weight	The measure of force of gravity on an object.
mass	A measure of how much matter (or 'stuff') is inside an object.
friction	A force that acts between two surfaces or objects that are moving, or trying to move, across each other.
air resistance	A type of friction caused by air pushing against any moving object.
water resistance	A type of friction caused by water pushing against any moving object.
streamlined	When an object is shaped to minimise the effects of air or water

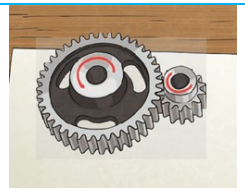
Sir Isaac Newton made some of the world's most important scientific discoveries. His most important for this topic was the discovery of gravity! Apparently his thoughts were inspired by an apple falling on his head as he snoozed under a tree!



Key Knowledge



Pulleys	Gears and Cogs	Levers
Pulleys can be used to make a small force lift a lighter load. The more wheels in a pulley, the less force is needed to lift a weight.	Gears or cogs can be used to change the speed, force or direction of a motion. When two gears are connected, they always turn in the opposite direction to each other.	Levers can be used to make a small force lift a lighter load. A lever always rests on a pivot.

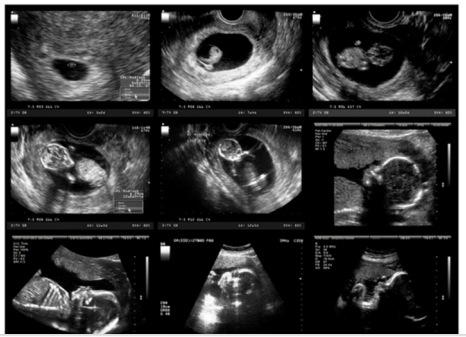


Year 5, Term 5, Growing Up and Growing Old

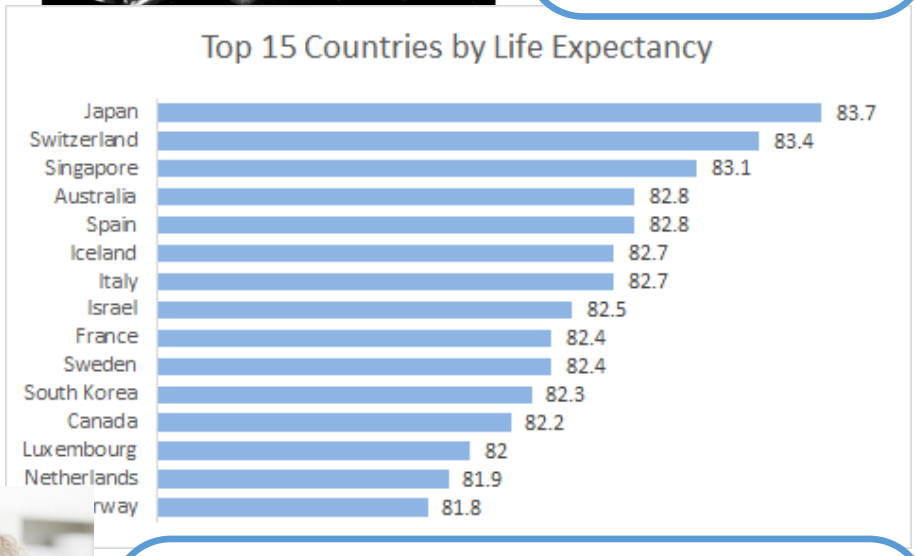
Vocabulary

pregnant	The condition of a female animal where there is a baby growing inside her womb.
gestation period	The amount of time that a baby spends inside its mother's womb before it is born.
adolescence	The time in a young persons life when physical and emotional changes leading to adulthood are happening.
puberty	The first part of adolescence, when physical changes begin to happen to the body.
menstruation	A monthly cycle in women. Each month an egg is released, and if it is not fertilised by a sperm, the female has her period.
arthritis	A disease that cause joints to become swollen and painful.
life expectancy	How many years humans are expected to live. This changes and has lengthened over time.

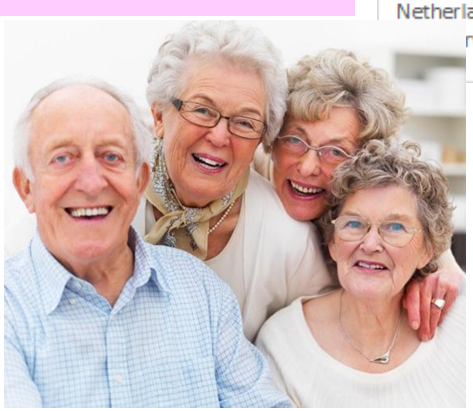
Key Knowledge



Babies grow in a females womb. A human gestation period is about 39 weeks.



The older generation may be faced with poor physical health, discrimination, poverty, mental health struggles, be unable to work and have to deal with their friends and family dying.



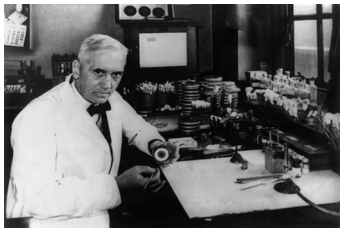
Life expectancy varies between countries. These are the top countries in the world for having the longest life expectancy. This is due to lifestyle and medical facilities on offer to them.

Year 5, Term 6, Super Scientists

Vocabulary

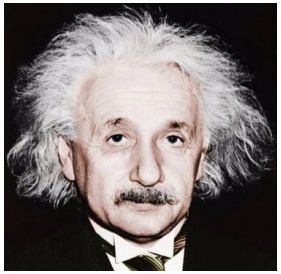
scientist	A person who studies science using scientific methods.
analyse	To weigh up evidence.
pattern	A regular arrangement.
classify	To put information in groups.
fair test	A way of carrying out a scientific investigation by changing one variable at a time.
survey	To gather information about opinions in a systematic way.
forensic	Based on scientific evidence that is usable in a court of law.
DNA	A long molecule in the body that contains the genetic code.
chromatography	A scientific process which separates out different parts of a chemical mixture.
microscopes	An instrument with lenses that makes small objects look bigger.

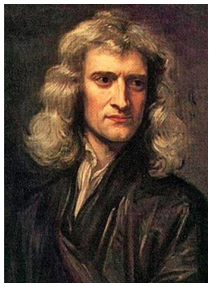
Scientists



Alexander Fleming invented Penicillin in 1928. It was originally called 'Mould Juice.'

Albert Einstein developed the theory of relativity and created the famous equation, $E=MC^2$.





Sir Isaac Newton developed the theory of gravity and the laws of motion, which became the basis of Physics.

Fingerprints

The unique marks made on a surface by moisture from a person's fingers every time they touch something with their bare hand.