



Key Knowledge

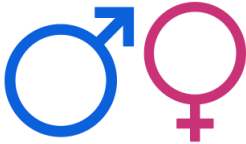
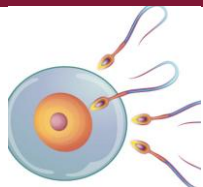
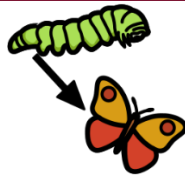
Need to know

- Plants can reproduce sexually and a-sexually.
- There are two types of fertilisation in sexual reproduction of animals: internal fertilisation and external fertilisation.
- Mammals have a gestation period.
- Birds have an incubation period.
- There are similarities and differences between the life cycles of mammals, birds, insects and amphibians.
- Amphibians and some insects go through metamorphosis where their bodies transform.

Neat to know

- There are advantages and disadvantages to plants reproducing sexually and asexually.
- All mammals have a different length of gestation period.
- Different birds have different incubation periods.
- Some insects have incomplete metamorphosis.
- There are similarities and differences between the life cycles of mammals, birds, insects and amphibians.

Vocabulary

sexual reproduction	Reproduction that needs a male and a female.	
asexual reproduction	Reproduction that only needs one parent.	1
internal fertilisation	Fertilisation happens inside the mother's body with usually one egg.	
external fertilisation	Fertilisation happens outside the mother's body with multiple eggs.	
metamorphosis	Where a creature completely physically changes.	
gestation period	The period of development during the carrying of an embryo, and later foetus.	
incubation period	The period from the laying of the last egg until that egg hatches.	

Working Scientifically

- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.

Key Text





Key Knowledge

Need to know

- The human gestation period is nine months. Throughout this time, the sperm and egg turn into an embryo, foetus and then a baby.
- All humans go through puberty throughout childhood. Throughout this time, they go through physical and emotional changes.
- When a human reaches an elderly age, their bodies change once again.

Neat to know

- The foetus develops throughout the gestation period and changes rapidly such as their lungs and limbs developing.

Working Scientifically

- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
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Vocabulary

embryo

an unborn or unhatched offspring in the process of development during the period from approximately the second to the eighth week after fertilisation



foetus

an offspring of a human or other mammal in the stages of prenatal development that follow the embryo stage



puberty

The time when kids grow into young adults through physical and emotional changes.



elderly

being past middle age





Key Knowledge

Need to know

- Aristotle, Isaac Newton and Galileo were scientists that explored forces.
- Water resistance is the force on objects floating on or moving in water.
- Gravity is the pulling force acting between the Earth and a falling object, for example when you drop something. Gravity pulls objects to the ground.
- Surface resistance is the force on objects moving across a surface, such as an ice-skater skating on ice.
- Air resistance is the force on an object moving through air, such as a plane moving through the sky. Air resistance affects how fast or slowly objects move through the air.
- Levers, pulleys and gears allow a smaller force to have a greater effect.

Neat to know

- Aristotle believed that objects fell to the ground to land in their natural place. Newton discovered gravity. Aristotle then thought heavier objects of the same size fell to the ground faster before Galileo proved him wrong and proved that air resistance affected the speed in which things fall. However, in a vacuum, there is no air resistance.
- Thrust works against friction to make objects move.
- Buoyancy acts against gravity to make objects float.

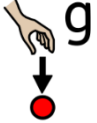
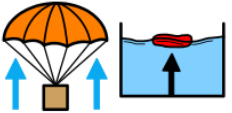
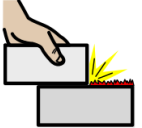
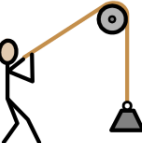
Working Scientifically

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Use test results to make predictions to set up further comparative and fair tests.
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas or arguments.

Key Scientists



Vocabulary

gravity	A force which tries to pull two objects towards each other.	
resistance	Resistance is a type of friction.	
friction	A force between two surfaces that are sliding, or trying to slide, across each other.	
lever	A long rigid body with a fulcrum along its length.	
pulley	A simple machine and comprises of a wheel on a fixed axle, with a groove along the edges to guide a rope or cable.	
gear	Wheels with teeth that slot together. When one gear is turned the other one turns as well.	



Key Knowledge

Need to know

- Solids, liquids and gases are states of matter.
- Everyday materials can be grouped together on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.
- Some materials will dissolve in liquid to form a solution, and some substances can be recovered.
- Filtering, sieving and evaporating can be used to separate solids, liquids and gasses.
- Some changes are reversible and some changes are irreversible.
- Some changes result in the formation of new materials, and that this kind of change is not usually reversible.

Neat to know

- A solvent and a solute makes a solution. When a solution becomes saturated, no more solute can dissolve.

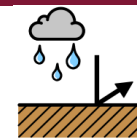
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Vocabulary

impermeable

If something is impermeable, it does not allow liquid or gases to pass through it.



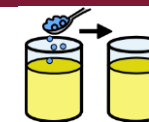
permeable

If something is permeable, it allows liquid or gases to pass through it.



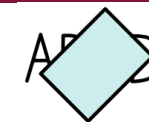
solubility

Solubility is the ability to dissolve into (become a part of) another substance.



opaque

Opaque objects do not allow light to pass through them, in most cases creating a shadow.



transparent

In general, transparency is the quality of being easily seen through.



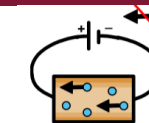
translucent

If something is transparent it allows some light to pass through it.



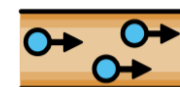
insulator

Materials that do not conduct heat or electricity are known as insulators.



conductivity

Conductivity defines a material's ability to conduct electricity.





Key Knowledge

Need to know

- The planets in the solar system are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune.
- In the past, people believed the Earth was flat instead of a sphere, and scientists had different theories.
- In the past, there were different theories about heliocentric and geocentric models. The Earth's rotation on its axis causes day and night.
- There are eight phases of the moon.

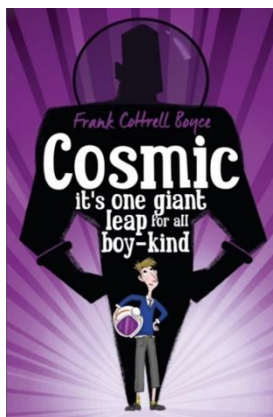
Neat to know

- Each planet has its own characteristics. Different temperatures, different moons, different amounts of gravity.

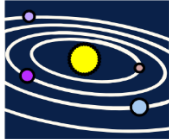
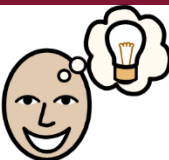
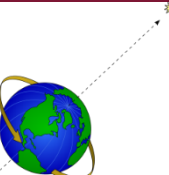
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- identify scientific evidence that have been used to support or refute ideas or arguments.

Text



Vocabulary

Solar System	Eight planets and their moons in orbit round the Sun.	
heliocentric	The theory that planets orbit around the Sun.	
geocentric	The theory that planets orbited around Earth.	
moon	A large natural object that orbits, or travels around, Earth. Other planets have moons too.	
theory	A system of ideas intended to explain something	
axis	An imaginary straight line around which an object spins.	
Aristotle	An ancient Greek philosopher who proved that the Earth is a sphere.	