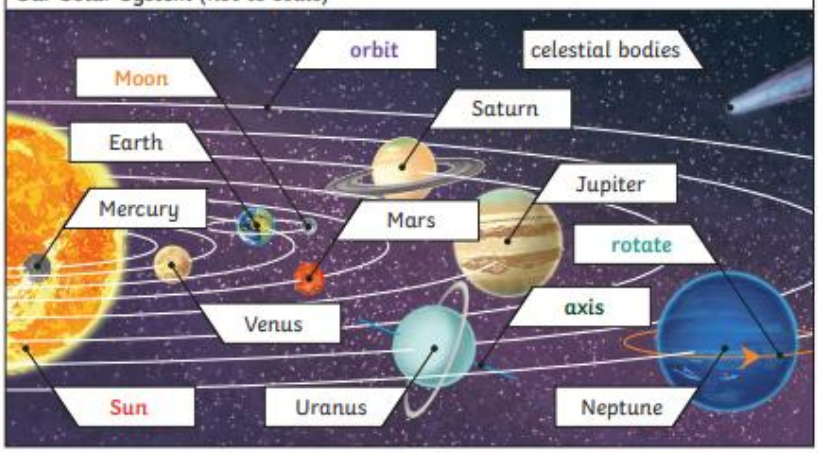
Earth and Space — Year 5

Key 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 shapes like spheres.
satellite	Any object or body in space that orbits something else, for example: the Moon is a satellite of Earth.

Key Knowledge

Mercury, Venus, Earth and Mars are rocky planets. They are mostly made up of metal and rock. Jupiter, Saturn, Uranus and Neptune are mostly made up of gases (helium and hydrogen) although they do have cores made up of rock and metal.

Our Solar System (not to scale)



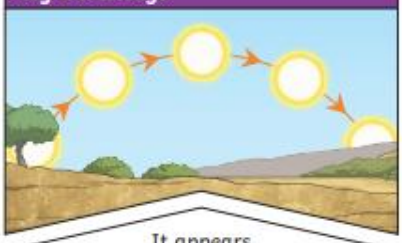
Pluto used to be considered a planet but was reclassified as a dwarf planet in 2006.

The Moon orbits Earth in an oval-shaped path while spinning on its axis. At various times in a month, the Moon appears to be different shapes. This is because as the Moon rotates round Earth, the Sun lights up different parts of it.

Earth and Space — Year 5

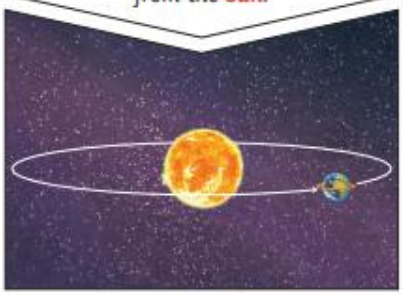
Key Vocabulary	
orbit	To move in a regular, repeating curved path around another object.
rotate	To spin. E.g. Earth rotates on its own axis.
axis	An imaginary line that a body rotates around. E.g. Earth's axis (imaginary line) runs from the North Pole to the South Pole.
geocentric model	A belief people used to have that other planets and the Sun orbited around 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).

Key Knowledge

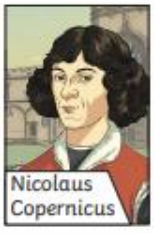


It appears to us that the Sun moves across the sky during the day but the Sun does not move at all. It seems to us that the Sun moves because of the movements of Earth.

Earth rotates (spins) on its axis. It does a full rotation once in every 24 hours. At the same time that Earth is rotating, it is also orbiting (revolving) around the Sun. It takes a little more than 365 days to orbit the Sun. Daytime occurs when the side of Earth is facing towards the Sun. Night occurs when the side of Earth is facing away from the Sun.

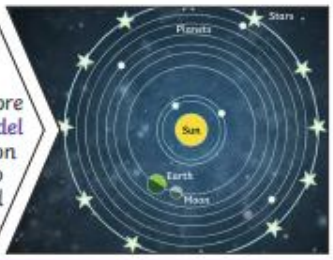


Geocentric model
Years ago people believed that planets moved around the Earth.



Nicolaus Copernicus

The work and ideas of many astronomers (such as Copernicus and Kepler) combined over many years before the idea of the heliocentric model was developed. Galileo's work on gravity allowed astronomers to understand how planets stayed in orbit.

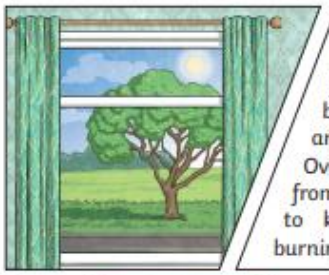


Properties and Changes of Materials — Year 5

Key Vocabulary	
material	The substance that something is made out of, e.g. wood, plastic, metal.
solid	One of the three states of matter. The particles in solids are very close together, meaning solids, such as wood and glass, hold their shape.
liquid	One of the three states of matter. A liquid can flow and take the shape of its container. Examples of liquids include water and milk.
gas	One of the three states of matter. The particles in gases are further apart than those in solids or liquids and they are free to move around. A gas fills its container, taking both the shape and the volume of the container. Examples of gases are oxygen and helium.
melting	The process of heating a solid until it changes into 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.

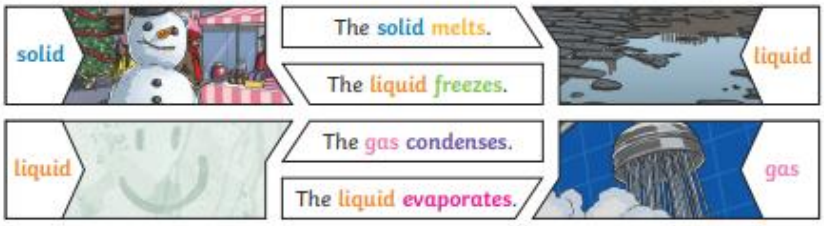
Key Knowledge

Different materials are used for particular jobs based on their properties: electrical conductivity, flexibility, hardness, **insulators**, magnetism, solubility, thermal conductivity, **transparency**.



For example, glass is used for windows because it is hard and **transparent**. Oven gloves are made from a thermal **insulator** to keep the heat from burning your hand.

Changes of State



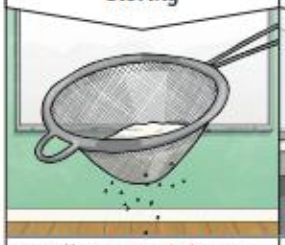
Properties and Changes of Materials — Year 5

Key Vocabulary	
conductor	A conductor is a material that heat or electricity can easily travel through.
insulator	An **insulator** is a material that does not let heat or electricity travel through it.
transparency	A **transparent** object lets light through so the object can be looked through, for example glass or some plastics.

Key Knowledge

Reversible changes, such as mixing and dissolving solids and liquids together, can be reversed by:

Sieving



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

Filtering

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

Evaporating

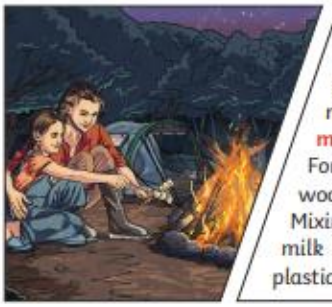
The liquid changes into a gas, leaving the solid particles behind.

Dissolving

A solution is made when solid particles are mixed with liquid particles. Materials that will dissolve are known as soluble. Materials that won't dissolve are known as insoluble. A suspension is when the particles don't dissolve.

Sugar is a soluble material.

Sand is an insoluble material.



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

Geography knowledge organiser—Year 5 - Volcanoes and Earthquakes

DUNALLEY PRIMARY SCHOOL

What should I already know?

- The location of some countries, including the UK and those in South America
- The location of the Equator, Tropics of Capricorn and Cancer.
- The location of the Arctic and Antarctica.

Volcanoes

- A **volcano** is a very deep hole in the Earth's top **layer** that can let out hot **gasses**, ash and **lava**. Many **volcanoes** are also **mountains**.
- **Volcanoes** have long **vents** that go all the way down through the Earth's first **layer**, the **crust**, to **magma** in between the **crust** and the **mantle** (the Earth's second **layer**). It's so hot there that rocks **melt** into liquid. This is called **magma**, which travels up through **volcanoes** and flows out as **lava**.
- There are three ways to describe a **volcano** and explain what it's doing –**active**, **erupting**, and **dormant**
- When a **volcano erupts**, **magma** comes up and out through the **vents**. **Magma** is called **lava** when it's outside the **volcano.**
- Some **volcanoes** are underwater.
- There are no **volcanoes** in the UK. The largest **volcano** in Europe is Mount Etna in Sicily (Italy)

Vocabulary

active	An active volcano has erupted recently or is expected to erupt quite soon
climate	the general weather conditions that are typical of a place
continent	a very large area of land that consists of many countries. Europe is a continent.
core	the central part of the earth, beneath the mantle
crust	The Earth's crust is its outer layer
dormant	not active but is capable of becoming active later on
earthquake	a shaking of the ground caused by movement of the Earth's crust
erupt	When a volcano erupts, it throws out a lot of hot, melted rock called lava, as well as ash and steam
fault lines	a long crack in the surface of the earth. Earthquakes usually occur along fault lines
gas	something that is neither liquid nor solid. A gas rapidly spreads out when it is warmed and contracts when it is cooled.
lava	the very hot liquid rock that comes out of a volcano
magma	molten rock that is formed in very hot conditions inside the earth
mantle	the part of the earth between the crust and the core
molten	molten rock, metal, or glass has been heated to a very high temperature and has become a hot, thick liquid
peak	the highest point of a mountain, Also known as a summit.
pressure	force that you produce when you press hard on something
range (mountains)	A range of mountains or hills is a line of them
summit	the highest point of a mountain, Also known as a peak.
tectonic plates	any of the several segments of the Earth's crust that move
vent	the part of a volcano through which lava and gases erupt

Volcanoes around the world

Kilauea, Hawaii

Mauna Loa, Hawaii

Mount Etna, Italy

Fagradalsfjall, Iceland

Pacific 'Ring of Fire'

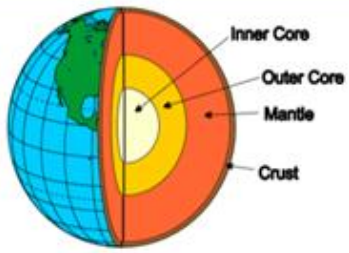
The Pacific 'Ring of Fire' is a region around much of the rim of the Pacific Ocean where many volcanic eruptions and earthquakes occur. It is a horse-shoe shaped belt about 40,000km

Geography knowledge organiser—Year 5 - Volcanoes and Earthquakes

DUNALLEY PRIMARY SCHOOL

The Earth

- The Earth has three **layers** – the **crust** at the very top, then the **mantle**, then the **core** at the very middle of the planet.
- The Earth's **crust** is made up of huge slabs called **tectonic plates**, which fit together like a jigsaw puzzle.
- These **tectonic plates** slowly move over a long period of time.



Earthquakes

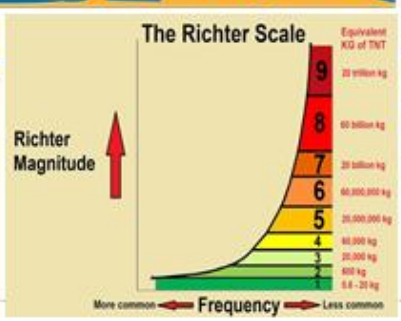
- The **tectonic plates** have edges and sometimes the edges, which are called **fault lines**, can get stuck, but the **plates** keep moving. This creates shaking and vibrations in the Earth's crust.
- **Pressure** slowly starts to build up where the edges are stuck and, once the **pressure** gets strong enough, the **plates** will suddenly move causing an **earthquake**.

Tectonic Plates

Why do people live on fault lines?

Around 500 million people live near volcanoes. People live in these areas because;

- Fertile land.
- Bigger cities are well prepared for hazards.
- Tourism.
- Job opportunities.
- Cheap geothermal power.



Famous Earthquakes

Haiti, 2010

Japan, 2011

Chile, 2010

San Francisco, 1989

Indian Ocean, 2004

Pakistan, 2005

The Richter Scale

The Richter Scale is the measure of strength of an earthquake and was developed by Charles Francis Richter in 1935. Each 'jump' up the Richter Scale is ten times stronger than the previous, e.g. an earthquake measuring 6 on the Richter Scale would be ten times stronger than an earthquake measuring 5.

Geography knowledge organiser—Year 5 - A journey from North to South America

DUNALLEY PRIMARY SCHOOL

The Americas

- The Americas are two separate continents consisting of North America and South America.
- North America consists of 23 different countries.
- The Americas cover a huge area of the globe, extending over several lines of latitude and longitude as well as having many time zones.
- The characteristics of different countries and regions vary significantly, including weather, biomes and human and physical features.

Vocabulary

Continent—A large land mass made up of many countries.

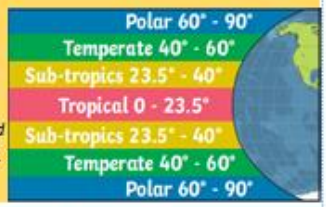
Country—An area which is controlled by its own government.

Physical geography—The natural places of a place or environment.

Human geography—Features of an environment which have been shaped by humans.

State—A place which holds government power over a defined geographical area.

Climate—The usual or average weather conditions over a long period of time.



The four main climate zones, determined by latitude.

Human Features

Christ the Redeemer, Rio de Janeiro	Machu Picchu, Peru	Chichen Itza, Mexico	The Statue of Liberty, New York	Golden Gate Bridge, San Francisco	CN Tower, Toronto	Mount Rushmore, South Dakota

Physical Features

Grand Canyon, Arizona	Niagra Falls, Ontario/New York	Angel Falls, Venezuela	Yosemite Valley, California	Kilauea Volcano, Hawaii	Great Blue Hole, Belize	Amazon Rainforest, Brazil

Geography knowledge organiser—Year 5 - Latitude and Longitude

DUNALLEY PRIMARY SCHOOL

Overview

Latitude and longitude are a system of lines that are used to describe the location of any place on Earth.

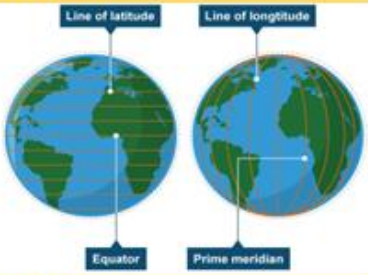
Latitude

-Lines of latitude run in an east-west direction across the Earth.

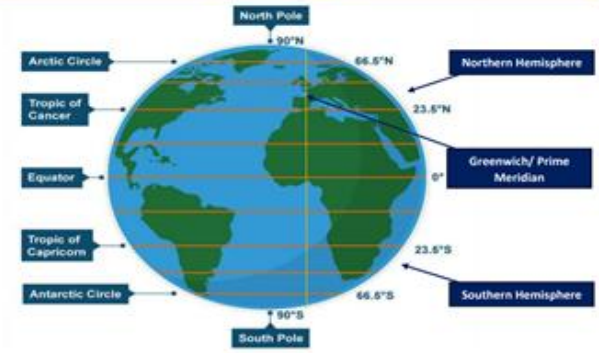
Longitude

-Lines of longitude run in a north-south direction.

Although lines of longitude and latitude are only imaginary, they exist on maps and atlases to help to show us where different places are.



Labelled Diagram



Latitude

-Lines of latitude circle the Earth parallel to the Equator.
-Lines of latitude run in an east-west direction all of the way around the Earth.
-Latitude is measured in degrees. The Equator is located at 0°.
-Anything north of the Equator is in the northern hemisphere and is labelled °N.
-Anything south of the Equator is in the southern hemisphere and is labelled °S.

Equator		-The Equator is an imaginary line of latitude which circles the Earth. It lies halfway between the North/ South Poles. -It splits Earth into the Northern/ Southern Hemispheres. The distance around the Equator is about 24,900 miles.
Tropic of Cancer		-The Tropic of Cancer is an imaginary line of latitude which circles the Earth. It lies at 23 degrees north (23°N). -It is the latitude where the Sun is overhead on June solstice (middle of summer in the northern hemisphere).
Tropic of Capricorn		-The Tropic of Capricorn is an imaginary line of latitude which circles the Earth. It lies at 23 degrees south (23°S). -It is the latitude where the Sun is overhead on December solstice (middle of summer in the southern hemisphere).
Northern Hemisphere		-The Northern Hemisphere is the section of the Earth that is north of the Equator. -About 68% of land is in the Northern Hemisphere. -Countries include the UK, USA, and Russia.
Southern Hemisphere		-The Southern Hemisphere is the section of the Earth that is south of the Equator. -Only About 32% of land is in the Northern Hemisphere. -Countries include Brazil, Australia, and New Zealand.
Arctic Circle		-The Arctic Circle is the area north of an imaginary line of latitude situated at around 66°N. -In the Antarctic Circle, all places have 24 hours of daylight during the December solstice.
Antarctic Circle		-The Antarctic Circle is the area south of an imaginary line of latitude situated at around 66°S. -In the Antarctic Circle, all places have 24 hours of daylight during the December solstice.

Longitude

-Lines of longitude run between the North and South Poles. These lines are called meridians.
-Like latitude, longitude is measured in degrees. The Greenwich (or Prime) Meridian is at 0°C
-Anything east of the Greenwich Meridian is in the eastern hemisphere and is labelled °E.
Anything west of the Greenwich Meridian is in the western hemisphere and is labelled °W.

Greenwich/ Prime Meridian		-The Greenwich Meridian is an imaginary line of longitude that divides Earth into the Eastern/Western hemispheres. -It is the start point for measuring longitude & time zones. -Greenwich was chosen because its Royal Observatory was used as a major navigational base at the time.
Time Zones		-Time zones give the time at different places on Earth (it is day/night at different times in different places). -Time zones run longitudinally and are measured in relation to the time in Greenwich (Greenwich Mean Time). -There are 24 time zones across the world.

Key Vocabulary

Latitude
Longitude
North
East
South
West
Equator
Tropic of Cancer
Tropic of Capricorn
Hemisphere
Arctic Circle
Antarctic Circle
Time Zone
International Date Line
Meridian
Greenwich/ Prime Meridian

Time Zones

-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1	GMT	+1	+2	+3	+4	+5	+6	+7	+8	+9	+10	+11	+12
Niue	Hawaii	Alaska	Los Angeles	Denver	Mexico City	New York	Manaus	Rio de Jan.	Sandwich Is.	Cape Verde	London	Berlin	Cairo	Moscow	Mauritius	Maldives	Omsk	Bangkok	Perth	Tokyo	Brisbane	Sydney	Kiribati