Autumn Term	Extreme Earth (Geography)	YEAR 4

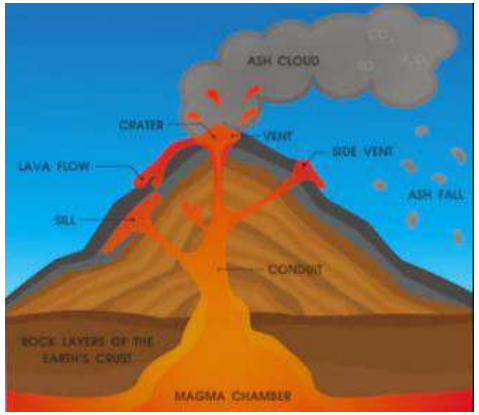
Vocabulary	
Volcano	A vent in the earth's crust where lava, steam and ash is ejected during an eruption.
Magma	The name used for lava before it leaves the volcano, magma is the name given to molten rock that has collected in chambers below the earth's crust.
Lava	Molten, fluid rock that is ejected from a volcano and solidifies as it cools.
Crater	A cup-shaped depression in the surface of the earth caused by volcanic activity.
Eruption	The ejection of rock and gas from a volcano.
Earthquake	Movements, fractures and vibrations in the earth's crust as tectonic plates move.
Tectonic plate	A massive slab of rock that 'floats' on top of the mantle (and inner layer) of the earth.
Tsunami	A series of waves of water caused by the movement of tectonic plates below the surface.
Epicentre	The epicentre of an earthquake is place on the surface of the earth directly above where the earthquake begins.
Active volcano	A volcano that has had an eruption in the last 10,000 years and it is possible that it may erupt again in the future.
Dormant volcano	A volcano that has not erupted in the last 10,000 years, but it is possible that it will erupt again in the future.
Extinct volcano	A volcano that has not had an eruption in the last 10,000 years, and will not erupt again in the future.
Richter scale	A scale to measure the magnitude (strength) of a volcano.

Knowledge

Vesuvius: Mount Vesuvius is one of the world's most dangerous volcanoes. It is in southern Italy, on the Gulf of Naples. It is the only volcano on the European mainland that has erupted during the last century and is still active. It has erupted 50 times during the last 2000 years.
The eruption in A.D.79 destroyed the cities of Pompeii and Herculaneum. The eruption spewed 1.5 million tons of lava per second.
This volcano is thought to be about 17,000 years old.

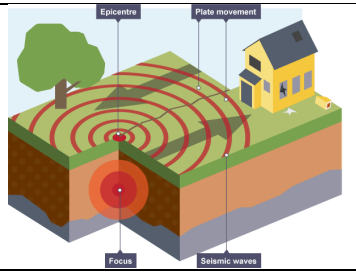
Volcanoes
How are Volcanoes formed?

1. Magma rises through cracks or weaknesses in the Earth's crust.
2. Pressure builds up inside the Earth.
3. When the pressure is released e.g. as a result of plate movement, magma explodes to the surface causing an eruption.
4. The lava from the eruption cools to form a new crust.
5. Over time, after several eruptions, the rock build up and a volcano forms.



Earthquakes
What causes an earthquake?

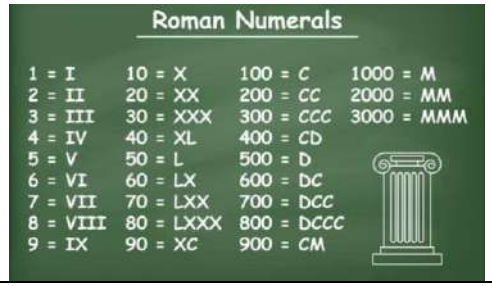
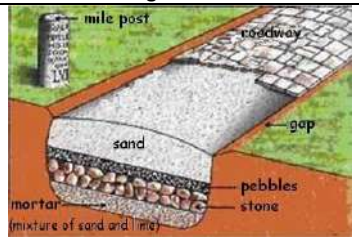
- An earthquake is the shaking and vibration of the Earth's crust due to movement of the Earth's plate (plate tectonics).
- Earthquakes can happen along any type of plate boundary.
- Earthquakes occur when tension is released from inside the crust.
- Plates do not always move smoothly alongside earth other and sometimes get stuck.
- When this happens, pressure builds up.
- When this pressure is eventually released, an earthquake tends to occur.



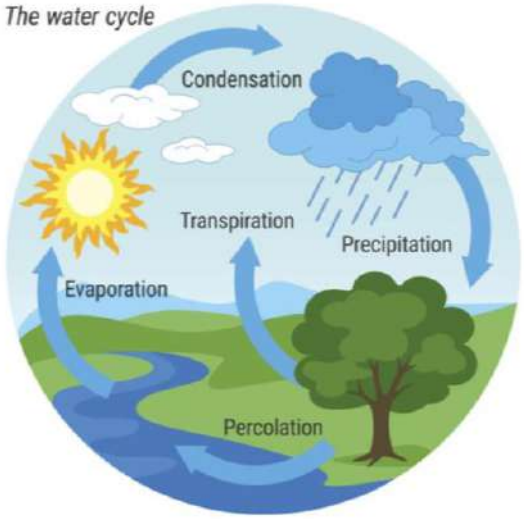
Why do people live near volcanoes?
Many people depend on volcanoes for their everyday survival. The steam from volcanoes is used to produce energy in some power stations e.g. in New Zealand and Iceland.
Volcanoes attract tourists and therefore there are jobs in hotels, restaurants and gift shops.

Does anything useful come from a volcano?
Once cooled, lava can be mined and can contain precious metals or stones e.g. gold, silver and diamonds
Pumice is a unique volcanic rock that can float on water. Pumice is used in lots of different things from dental products to concrete to potting soils and to filter water!
Volcanoes are mineral rich so the area around it is usually very fertile and good for growing food.

The Ring of Fire
The Pacific Ring of Fire is an arc around the Pacific Ocean where many volcanoes and earthquakes are formed. About three quarters of the world's dormant and active volcanoes are here. The Ring of Fire is a result of plate tectonics and the movement and collisions of tectonic plates.

Autumn Term		The Romans	YEAR 4
Vocabulary		**Knowledge**	**People**
Aqueduct	Long stone waterways that delivered fresh water to cities, flowing into a holding tank (castellum).		**Julius Caesar (100BC-44BC)** His defining moment was when he crossed the Rubicon, a river that bordered Rome, and led an army into Rome to take over the government. He won many battles but was only emperor for a year until he was killed by his enemies on the Ides of March (15th March). He invaded Britain twice but did not set up any forts.
Basilica	A type of church given special privileges by the pope. Also used for public meetings and a law court.		
Baths	Using a central heating system, the Romans would create public bathing areas using terracotta bricks.		**Caesar Augustus (63BC-14AD)** Seen as the first real Roman Emperor when he took over power in 27BC, he was Julius Caesar's adopted son. That's why 27BC is seen as the true date of the start of the Roman Empire.
Britannia	The name the Romans used for island of Great Britain that was governed by the Empire from 43 to 410 AD.	**Towns** These were all laid out in the same way with straight streets shaped in a grid pattern, with buildings like a bath house, temple, aqueducts and an amphitheatre. They also had forums, which were big open squares where people could set up stalls to sell things.	
Colchester	The Roman capital of Britannia until it was destroyed under Boudicca's rebellion.		**Claudius (10BC-54)** Led the successful invasion of Britain and was responsible for building lots of new roads and aqueducts throughout the Empire.
Colosseum	A huge oval shaped amphitheatre built in Rome which held about 60,000 people who would go to watch gladiators battle.	**Roads** 	
Empire	Controlled from Rome, the Empire included most of Europe, the Mediterranean and North Africa.		**Constantine (272-337)** The first Christian Emperor who tried to unite a split Empire.
Gladiator	An armed combatant who entertained audiences in violent battles with other gladiators, criminals and animals.		
Hadrian's Wall	A defensive wall separating England and Scotland with forts every 5 miles, stretching for 80 miles.	**Boudicca (33AD-61AD)** Boudicca was a queen of the Iceni tribe in Britain who led an uprising against the Romans in Britain in 60or 61AD. She died shortly after its failure and was said to have poisoned herself. She is considered a British folk hero.	**The Roman Army** The Roman army was the largest and meanest fighting force in the ancient world. One of the main reasons Rome became so powerful was because of the strength of its army. It conquered a vast empire that stretched from Britain all the way to the Middle East. The army was very advanced for its time. The soldiers were the best trained, they had the best weapons and the best armour.
Legionary	A soldier in the Roman army.		
Roads	The Romans built the first roads in Britain (over 9000km of them) which were distinctively straight.	**The Iceni Tribe** The Iceni were a British tribe who lived in the area of East Anglia between the 1st century BC and the 1st century AD. They felt betrayed by the Emperor Nero and led a rebellion, attacking the city of Colchester, London and the St Albans.	
Toga	Romans often wore large, white woollen pieces of fabric carefully draped over their bodies.		

Timeline								
753 B.C.	**264-146 B.C.**	**58-51 B.C.**	**54 B.C.**	**43**	**61**	**122**	**200**	**480-550**
Rome was founded	Three Punic Wars between the Romans and Carthaginians	The Gallic Wars take place	Julius Caesar attempts to invade Britain	Invasion ordered by Claudius is successful	Iceni revolt lead by Boudicca in Britain	Hadrian's Wall built to separate Scotland and England	Christianity introduced	Arrival of the Anglo-Saxons in Britain

Autumn Term		States of Matter (Science)	YEAR 4
Vocabulary		**Knowledge**	
Precipitation	When water falls from the sky in the form of rain, sleet, hail or snow.	**Gas**: **Gases** are air-like substances that can move around freely or they might flow to fit a container. They don't have a shape. Similar to liquids, gases can flow, but gases won't stay put as solids or liquids do. They move around all the time.	
State	The condition of a person or thing.	**Examples of gases** Oxygen steam Carbon dioxide Hydrogen	
Melting point	When a solid turns into a liquid it is called melting. There is a temperature at which this happens called the melting point. As the energy in the molecules increases from a rise in temperature, the particles move faster.	Gases escape from an unsealed container and fill the entire space that they have.	
Temperature	How hot or cold something is.	When a gas is cooled, the particles lose energy and vibrate less. The particles get closer together, and bonds form. The gas turns into a liquid.	
Evaporation	A process when liquid turns into vapour (gas).	Gases have no fixed shape.	
Condensation	A process when a gas or vapour turns to liquid.	**Liquid**: Liquid has an almost-fixed volume, but no set shape. Every force makes a liquid change its shape by flowing. Because of that, gravity makes liquids take the shape of the container. The particles can freely move among themselves.	**Solid**: Solids are objects that keep their own shape and do not flow in a given temperature. Solids are made up of particles which group together and don't move around.
Freezing	When a liquid turns into a solid when it passes it's freezing point.	**Examples of liquids** Water Milk Washing up liquid Nail varnish	**Examples of solid** Ice Wood Glass Diamonds
Melting	When something turns from a solid into a liquid because of heat.	Liquids form a pool, not a pile!	Solids hold their shape (salt, sand and sugar are all tiny solids so they pour like a liquid but they pile up and are not wet).
Boiling point	When a liquid becomes a gas it is called boiling. At a certain temperature called the boiling point, the particles gain enough energy to break free and become a gas.	When a liquid is cooled, the particles loose energy and vibrate less. They move closer to other particles and bonds are formed.	When a solid is heated, the regularly spaced, low movement particles gain energy, vibrate more and begin to move further apart. The bonds are weakened and a liquid is formed.
Particles	Particles are tiny bits of matter that make up everything in the universe	When a liquid is heated, particles gain energy. They vibrate more quickly , bonds weaken and they move away from the bulk of the liquid – they become a gas.	Solids keep their shape.
Water cycle	The **water cycle** is the continuous journey water takes from the sea, to the sky, to the land and back to the sea .		

Autumn Term		Sound (Science)	YEAR 4
Vocabulary		**Knowledge**	
Sound	Sound is made up of vibrations, or sound waves, that we can hear. These sound waves are formed by objects vibrating. Sound waves travel through air, water, and solid objects as vibrations. The size and shape of sound waves determines the kind of sound heard.	**What is a sound?** A thing that can be heard. The object that makes the sound is called the **source.**	**How do we hear sounds?** • When an object **vibrates**, the air around it **vibrates** too. This **vibrating** air can also be known as **sound waves**. • The **sound waves** travel to the ear and make the **eardrums vibrate.** • Messages are sent to the brain which recognises the **vibrations** as sounds.
Vibrate	To move or cause to move back and forth or from side to side very quickly.		
Faint	Lacking strength a faint attempt a faint.	**How is a sound made?** • When objects **vibrate**, a sound is made. • The **vibration** makes the air around the object **vibrate** and the air **vibrations** enter your ear. These are called **sound waves**. • If an object is making a sound, a part of if is **vibrating**, even if you cannot see the **vibrations.** 	
Loud	A full, powerful sound or sounds.		
Insulation	Insulation is the process of keeping heat, sound, or electricity from spreading. It's also the material used to do so. If you can hear your neighbor snoring at night, ...		
Pitch	How high or low a sound is.	**How does sound travel?** • **Sound waves** travel through a **medium** (such as air, water, glass, stone and brick). • For example, if somebody is playing music in the room next door, the sound can travel through the bricks in the wall.	**How do we measure sound?** • **Amplitude** measures how strong a **sound wave** is. • **Decibels** measures how **loud** a sound is. • **Frequency** measures the number of times per second that the **sound wave** cycles.
Sound waves	Invisible waves that travel through air, water, and solid objects as vibrations.	**How do sounds change?** **Pitch**: • The **pitch** of a sound is how **high** or **low** it is. **Volume** • The **volume** of a sound is how **loud** or **quiet** it is. • When a sound is created by a little amount of **energy**, a weak **sound wave** is created which doesn't **travel** far. This is a **quiet** sound. • A **vibration** with lots of **energy** makes a powerful **sound wave** and therefore a **loud** sound. 	**Pitch** • **High pitch** sounds are created by **short** sound waves. • **Low pitched** sounds are created by long **sound waves.**
Source	Where something comes from.		**Volume** • The closer you are to the **source** of the sound, the **louder** the sound will be. • The further away you are from the **source** of the sound, the **quieter** the sound will be.
Travel	How something moves around.		
Vibrations	Invisible wave that move quickly.		
Volume	How loud or quiet a sound is.		