

Spring Term: 1<sup>st</sup> Half  
Geography - Rocks, Relics and Rumble

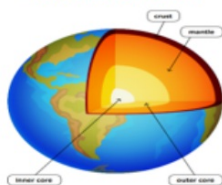


Programme of study:

- Locate countries and major cities in Europe (including Russia) on a world map concentrating on their environmental regions, key physical and human characteristics, countries, and major cities.
- Name and locate significant volcanoes and plate boundaries and explain why they are important.
- Locate significant places using latitude and longitude.
- Classify, compare and contrast different types of geographical features.
- Describe how a significant geographical activity has changed a landscape in the short or long term.
- Describe the activity of plate tectonics and how this has changed the Earth's surface over time (continental drift).
- Name and describe the types, appearance and properties of rocks.
- Describe the parts of a volcano or earthquake.
- Name and describe properties of the Earth's four layers.

# Rocks, Relics and Rumbles

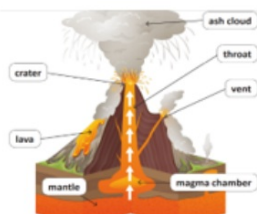
## Structure of Earth



## Plate tectonics



Sedimentary rocks	Igneous rocks	Metamorphic rocks
sandstone	granite	marble
limestone	obsidian	slate



## Key vocabulary

Human geography	How human activity affects or is influenced by the Earth's surface.
Physical geography	Natural features of the Earth's surface.
Tectonic plate	A large slow-moving piece of rock that makes up the earth's surface.
Place knowledge	Environmental regions, countries, continents, cities, and key topographical features of an area.
Location knowledge	The specific area where a place is situated. It usually has absolute coordinates.
Longitude	Imaginary lines that run around the Earth vertically (up and down) and meet at the North and South Poles.
Latitude	Imaginary lines that run around the Earth horizontally (across) parallel to the Equator.
Equator	An imaginary horizontal line around the middle of Earth halfway between the North Pole and the South Pole.
Capital city	A capital is a city where a region's government is located.



<i>Area of geography</i>	<i>Your understanding</i>
<i>Location knowledge</i>	
<i>Place knowledge</i>	
<i>Human and Physical geography</i>	
<i>Geographical skills and fieldwork</i>	



Craft supplies

200ml bottle

Thursday 6th January

L.o To know the layers of the Earth  
and that the crust is broken up into  
huge areas called Tectonic plates.

**Imagine you are digging this hole.**



What is at the bottom of the hole?

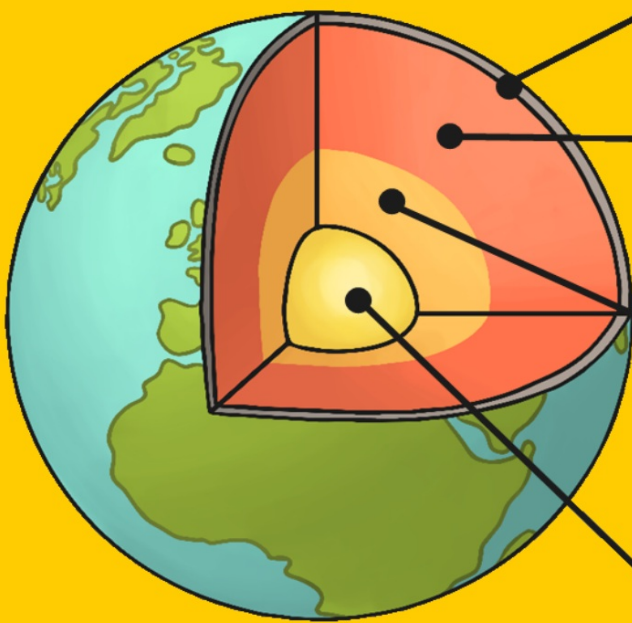
What different things might you find as you are digging?

Where would you end up?





# Layers of the Earth



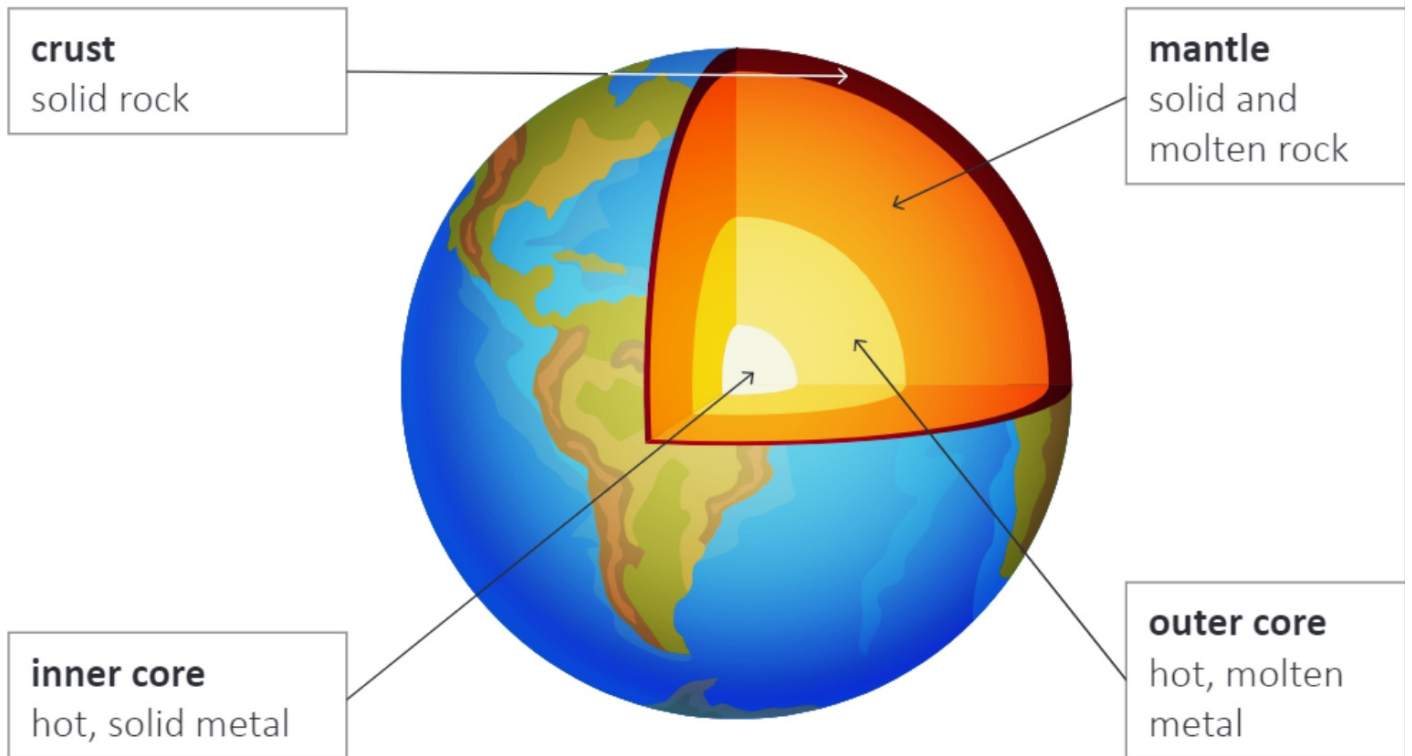
The **crust** is the thin outer layer of cold hard rock that covers the world (10km-90km thick).

The **mantle** (extremely hot rock that often flows like treacle) is 3,000 km thick.

The **outer core** is mostly made of iron with some nickel. It is over 4000°C. It is mostly liquid with some rocky parts. Because the outer core moves around the inner core, Earth's magnetism is created.

The **inner core**, which is made of iron and nickel, is the hottest layer at over 5000°C. It melts the metals in the outer core to form magma.

Earth is made up of **four** layers.

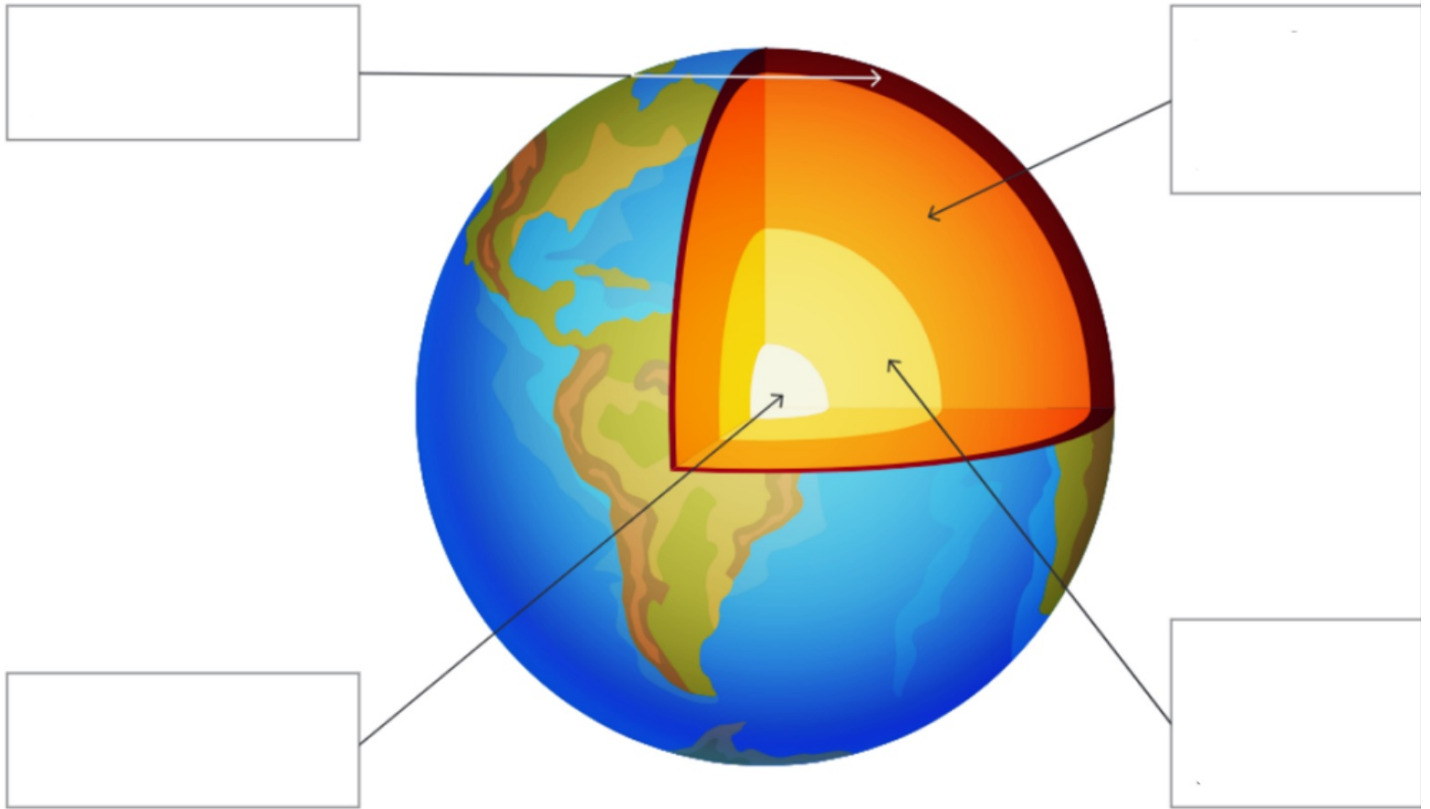


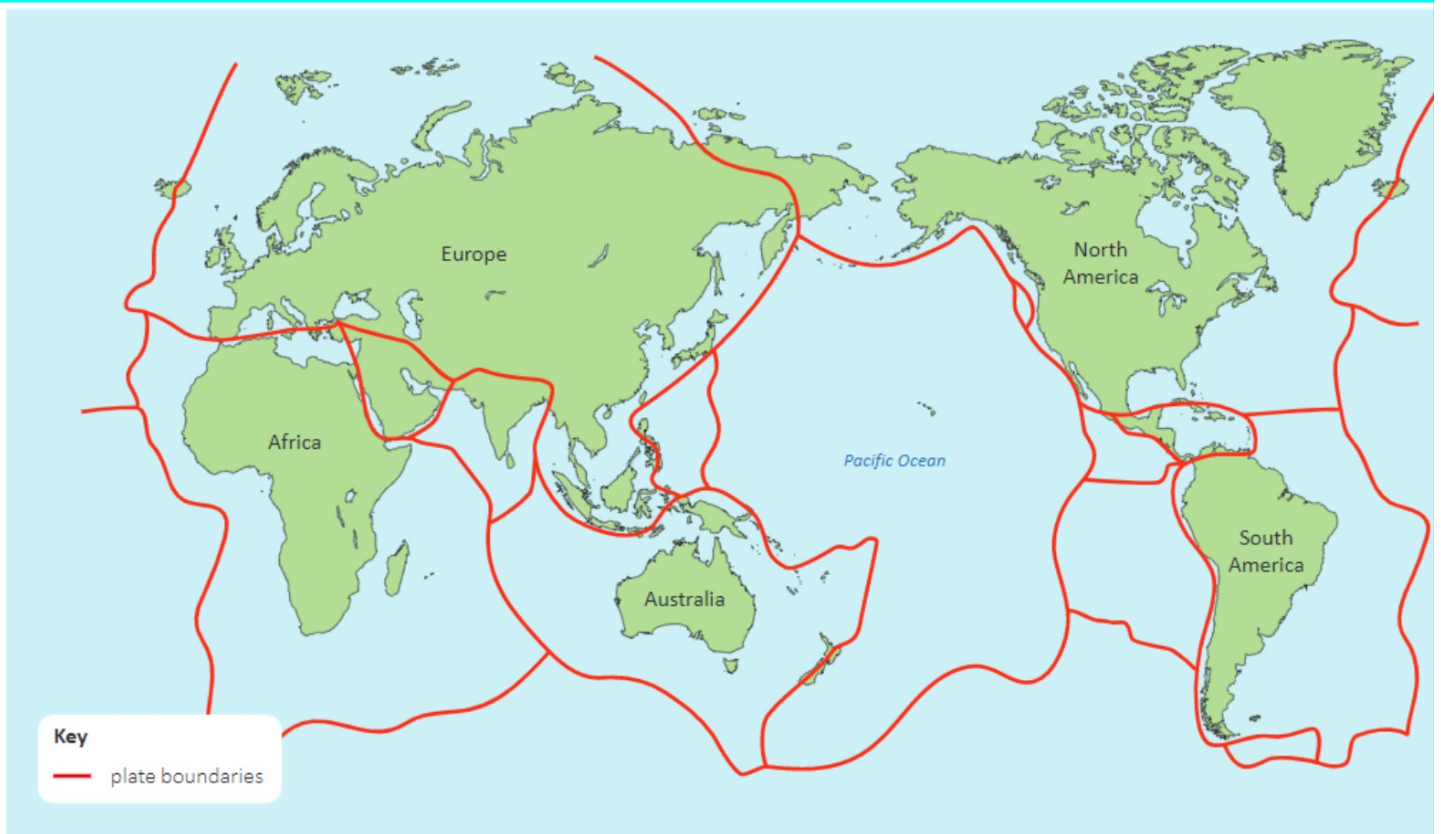


The Layers of the Earth

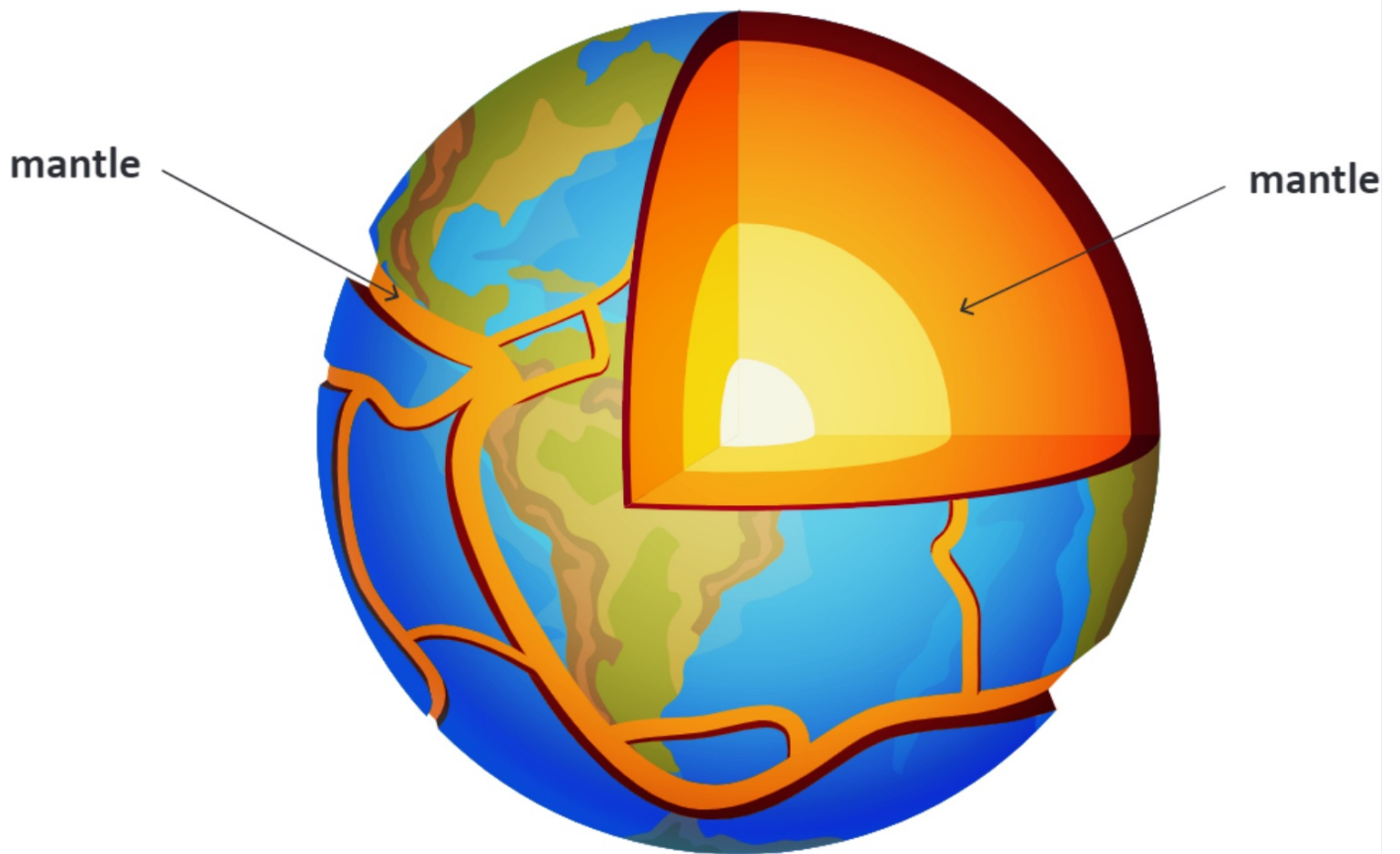


Earth is made up of **four** layers.

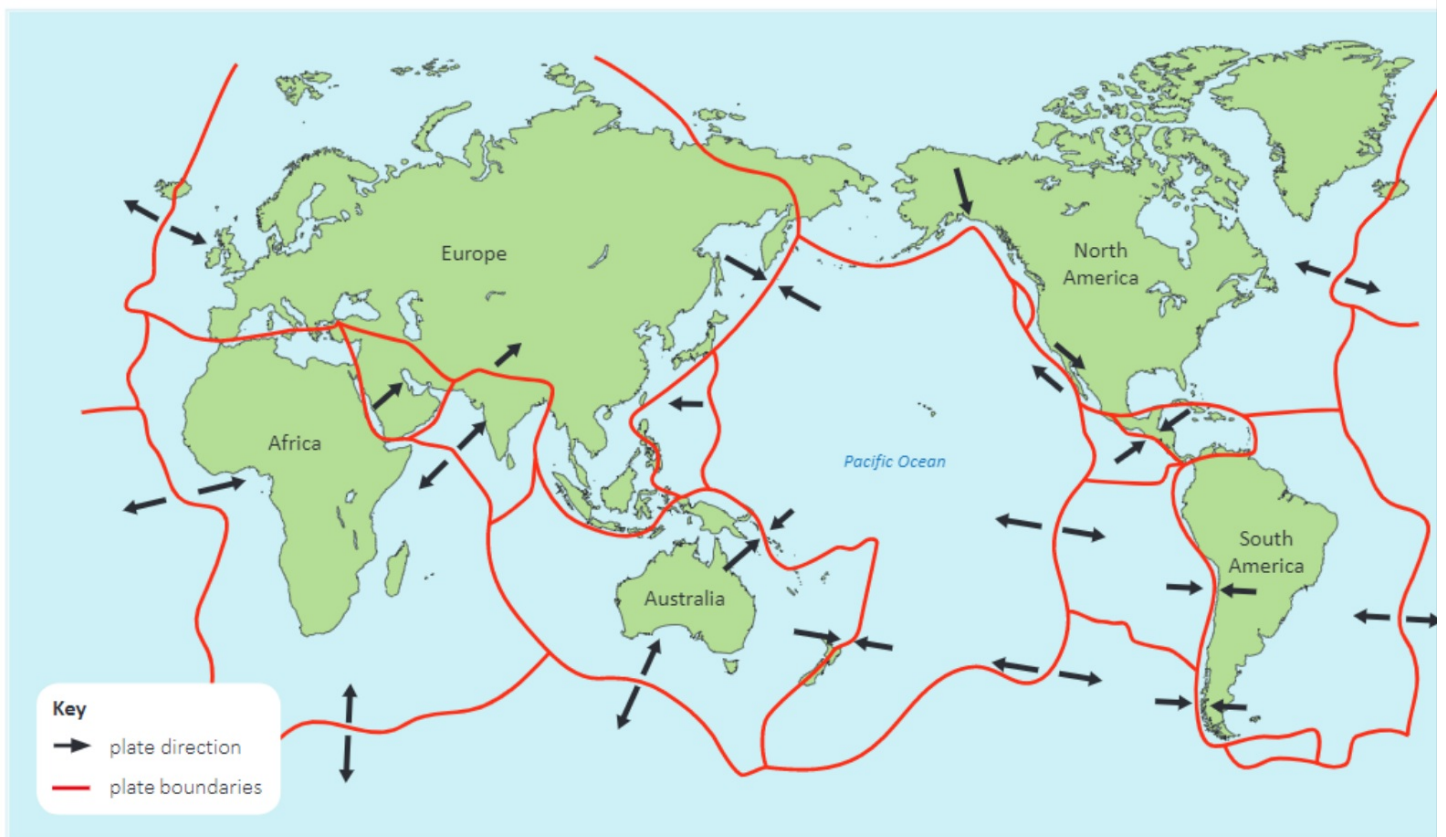




The Earth's crust is made up of different pieces called **tectonic plates**.  
Where tectonic plates meet is called a **plate boundary**.



The tectonic plates float on top of the **mantle** and are constantly moving.

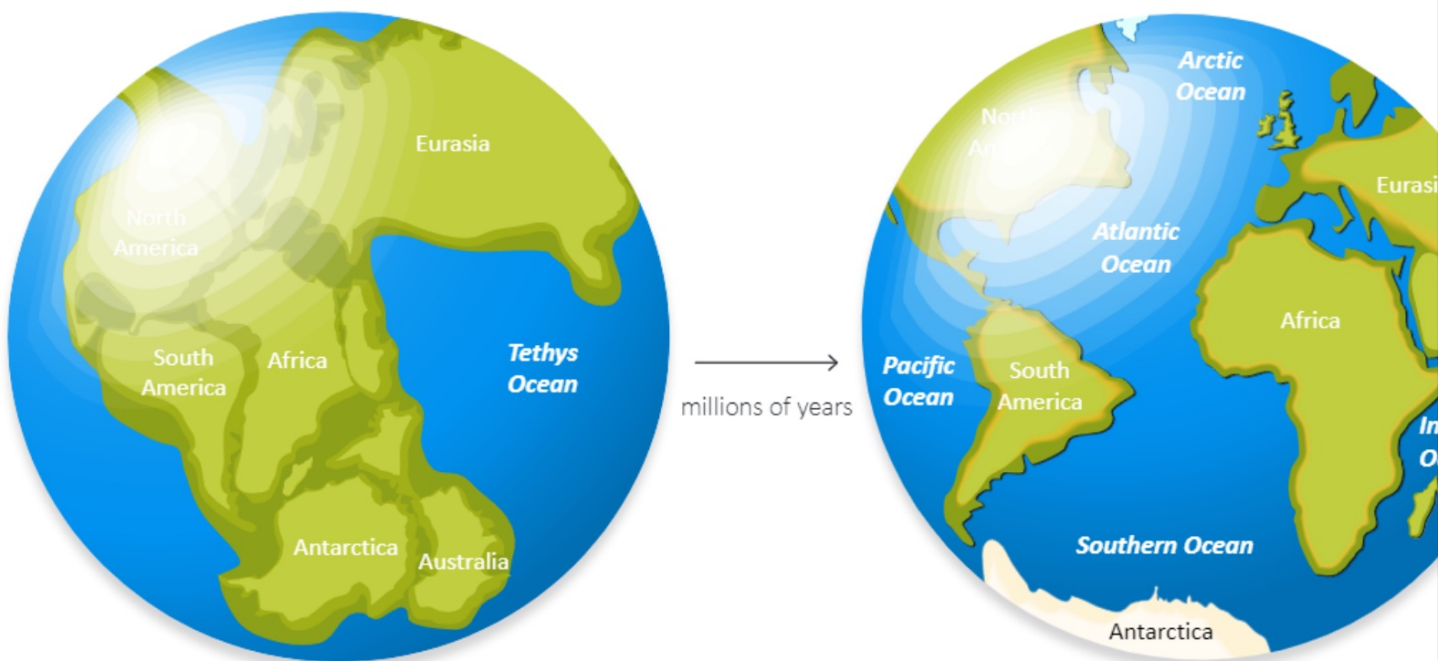


Tectonic plates move very slowly.  
They can **push** together, **pull** apart or **slide** past each other.





Over 200 million years ago, all of Earth's continents were joined together as one **supercontinent** called **Pangaea**.



Over millions of years, the supercontinent broke up and the pieces moved away from each other to form separate continents. This process is called **continental drift**.

## Examples

The Himalayas in Nepal and the Andes in Argentina were formed over millions of years by tectonic plates pushing together.

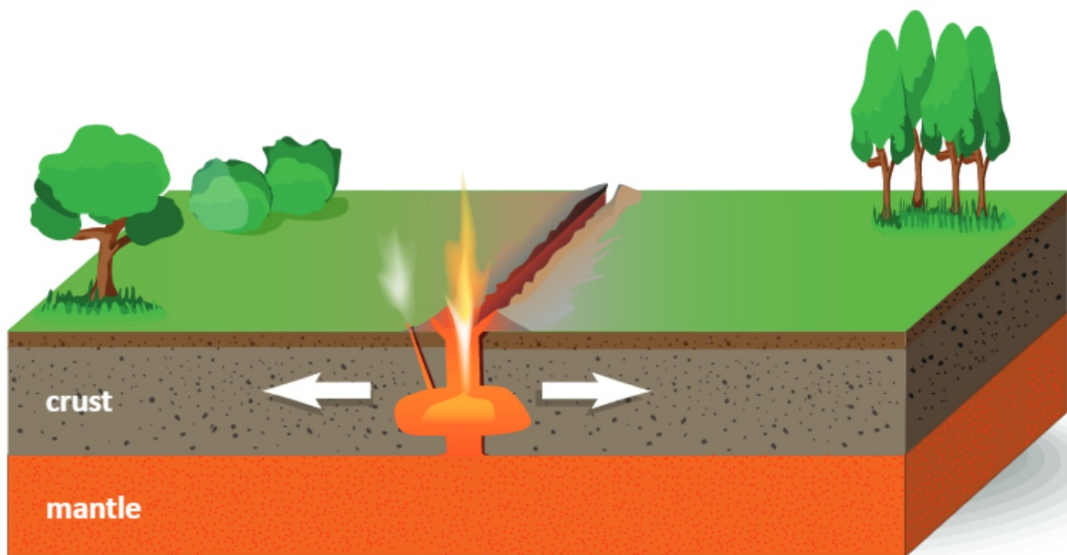


Himalayas, Nepal



Andes, Argentina

## Divergent plate boundaries



Divergent plate boundaries are when two tectonic plates pull apart. At divergent plate boundaries, a gap forms in the Earth's crust that is filled with magma rising from the Earth's mantle. Mountains and volcanoes form over millions of years along the gap.

## Examples

The Great Rift Valley in Kenya and the Thingvellir Valley in Iceland were formed over millions of years by tectonic plates pulling away from each other.

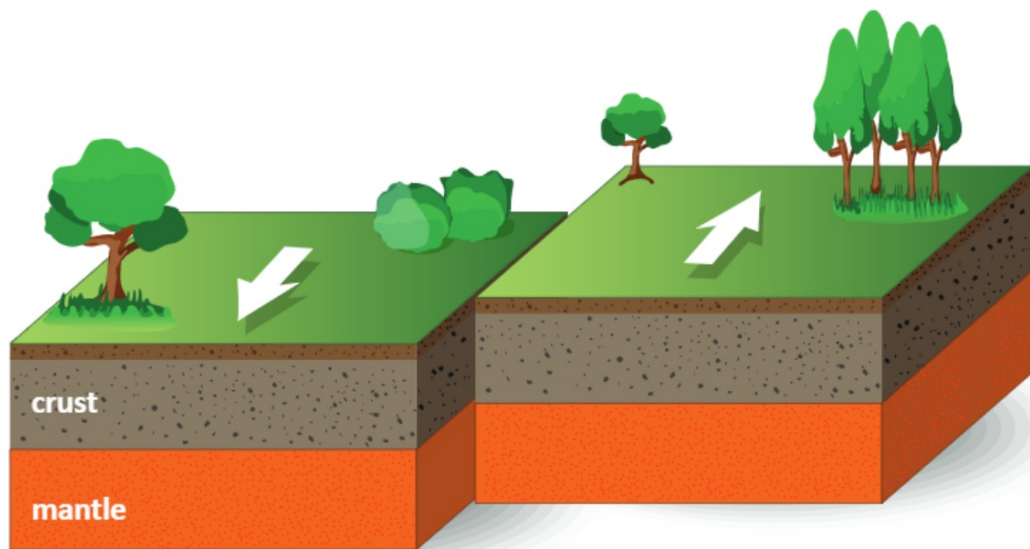


Great Rift Valley, Kenya



Thingvellir Valley, Iceland

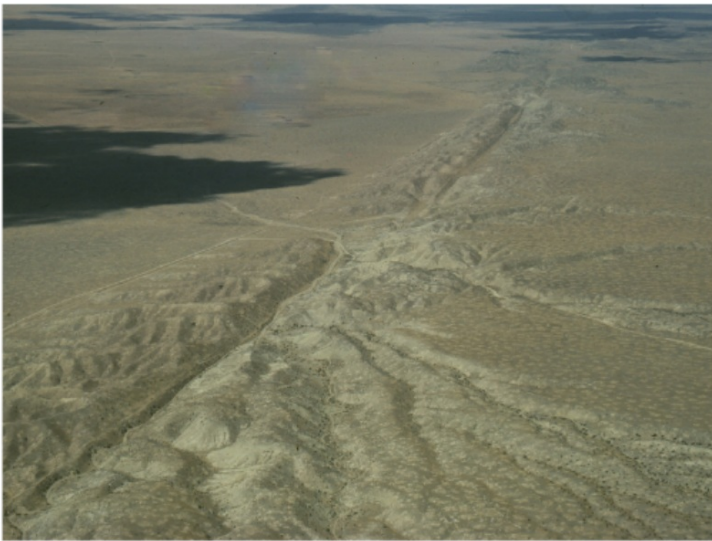
## Transform plate boundaries



**Transform plate boundaries** are when two tectonic plates slide against each other. This sliding at transform plate boundaries cause earthquakes. If the tectonic plates get stuck as they slide, pressure builds up. When they release, major earthquakes can occur.

## Examples

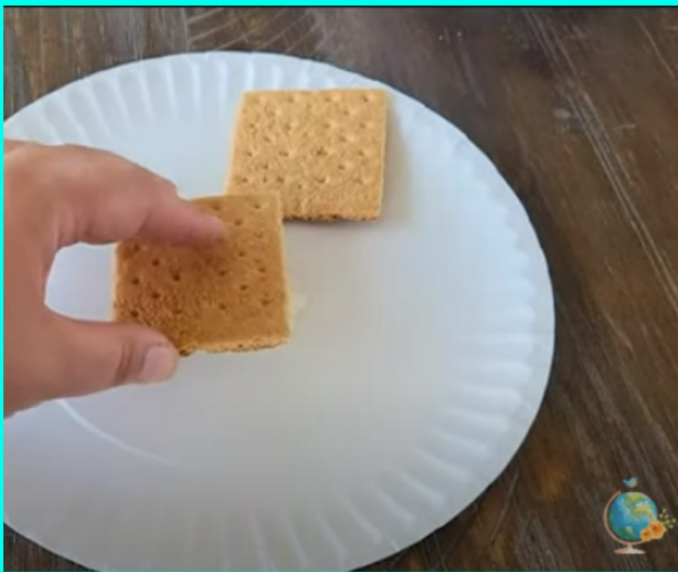
The San Andreas Fault in the United States of America and the North Anatolian Fault in Turkey were formed by tectonic plates sliding past each other.



San Andreas Fault, USA



North Anatolian Fault, Turkey





## Plenary

What are the layers of the Earth called?

What are Tectonic plates?

Friday 7th January

L.O Know that 3/4 of the world's  
volcanoes are located at the Ring of Fire



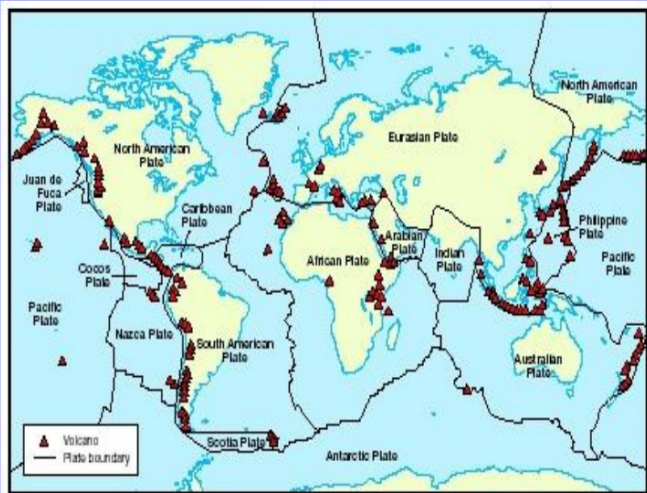
*What is a volcano?*

Watch these 2 clips on the ring of fire...



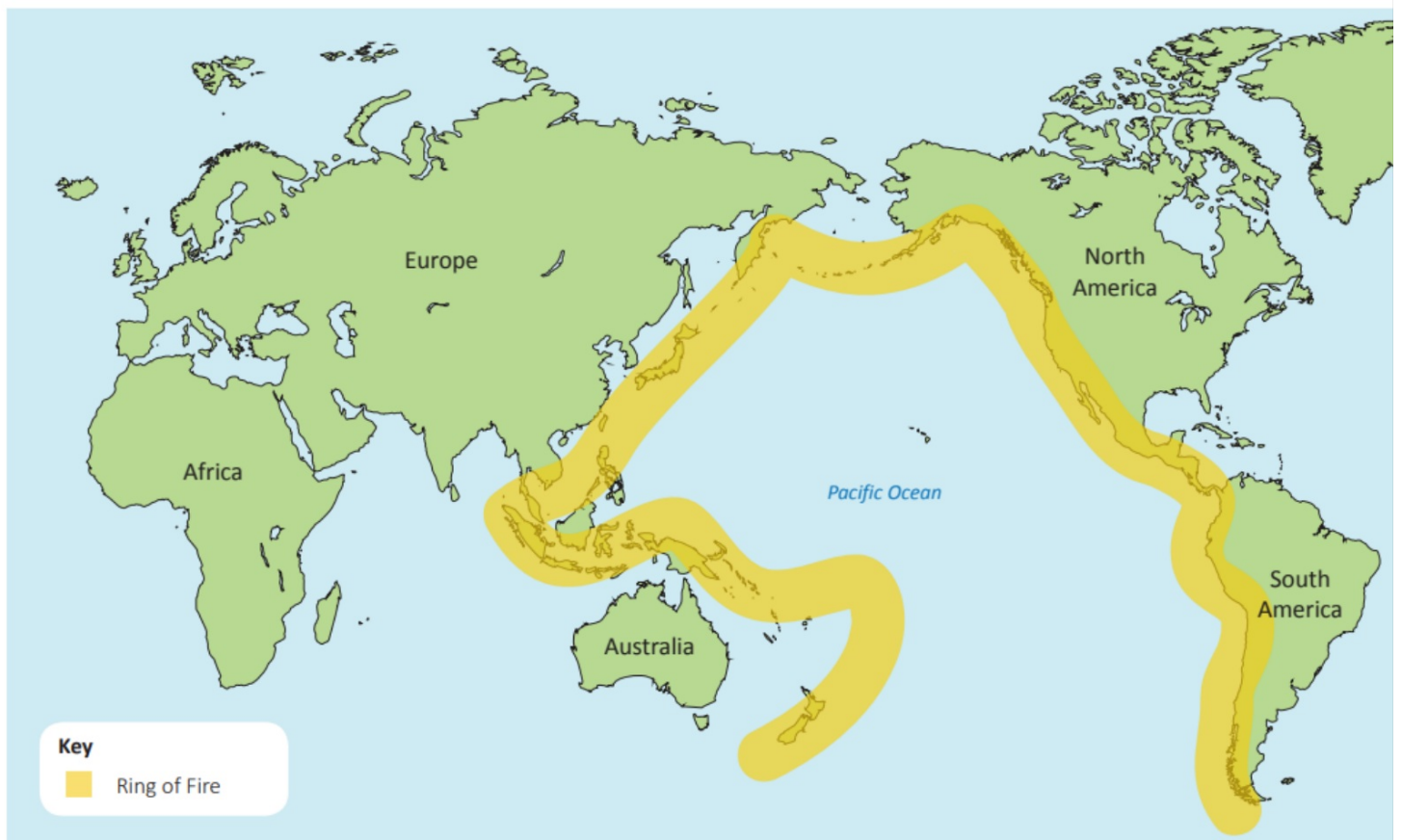
<https://www.youtube.com/watch?v=M0FfBWfOKAk>

the Ring of Fire | Nat Geo Kids Volcano Playlist - YouTube

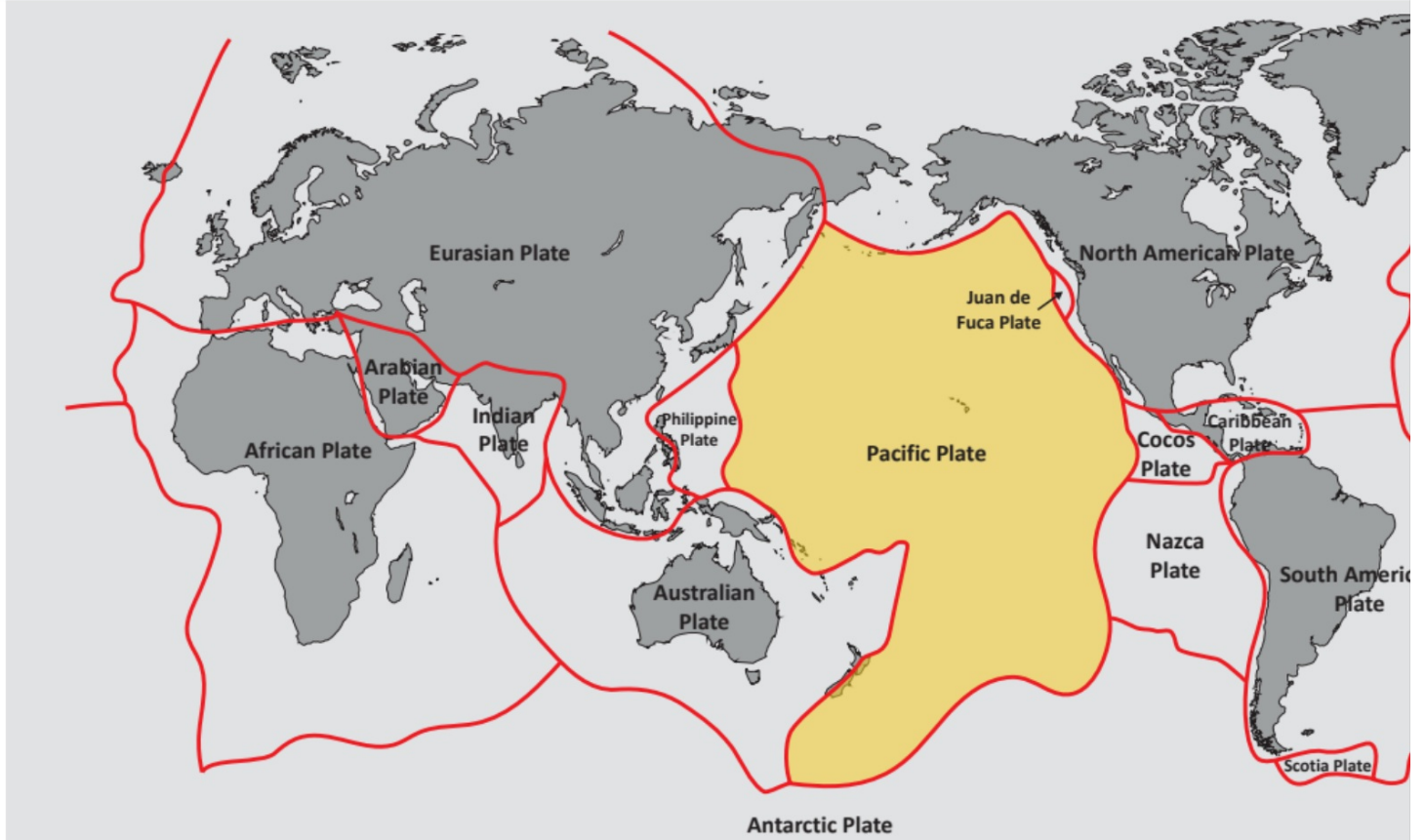


# Ring of Fire

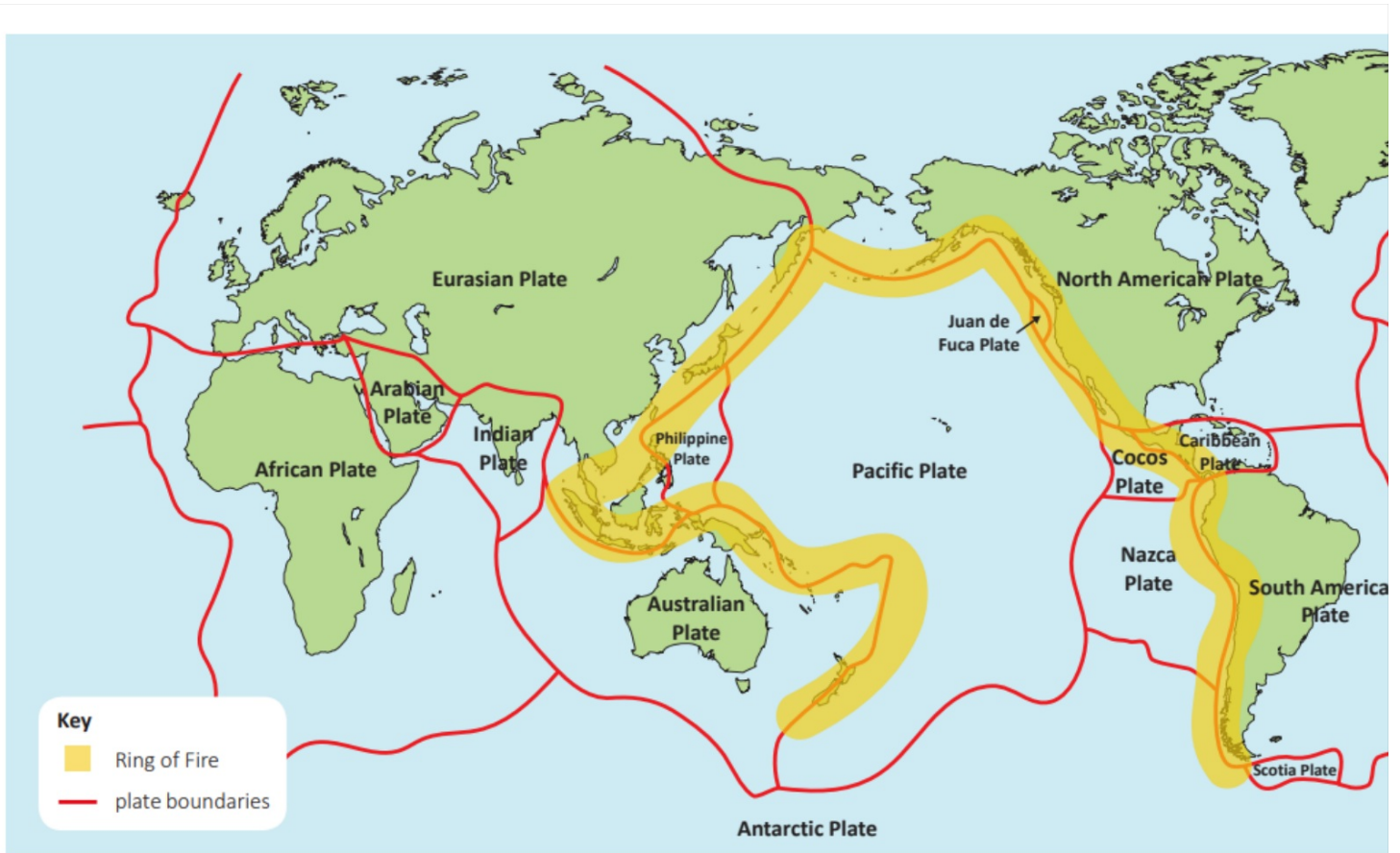




The **Ring of Fire** is a large area around the Pacific Ocean where many earthquakes and volcanic eruptions occur.

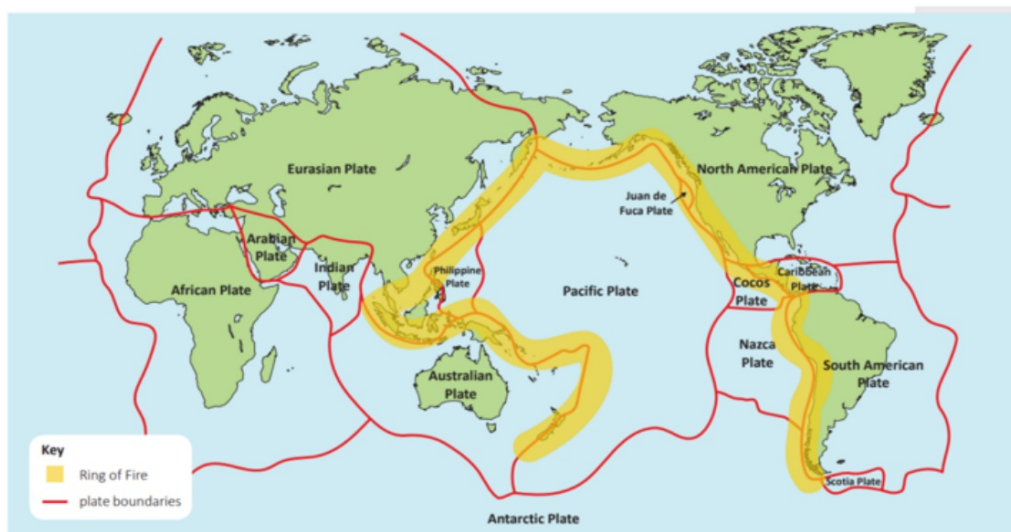


The Earth's crust is made up of different pieces of rock called **tectonic plates**.  
Most of the Ring of Fire is along the edge of the **Pacific Plate**.



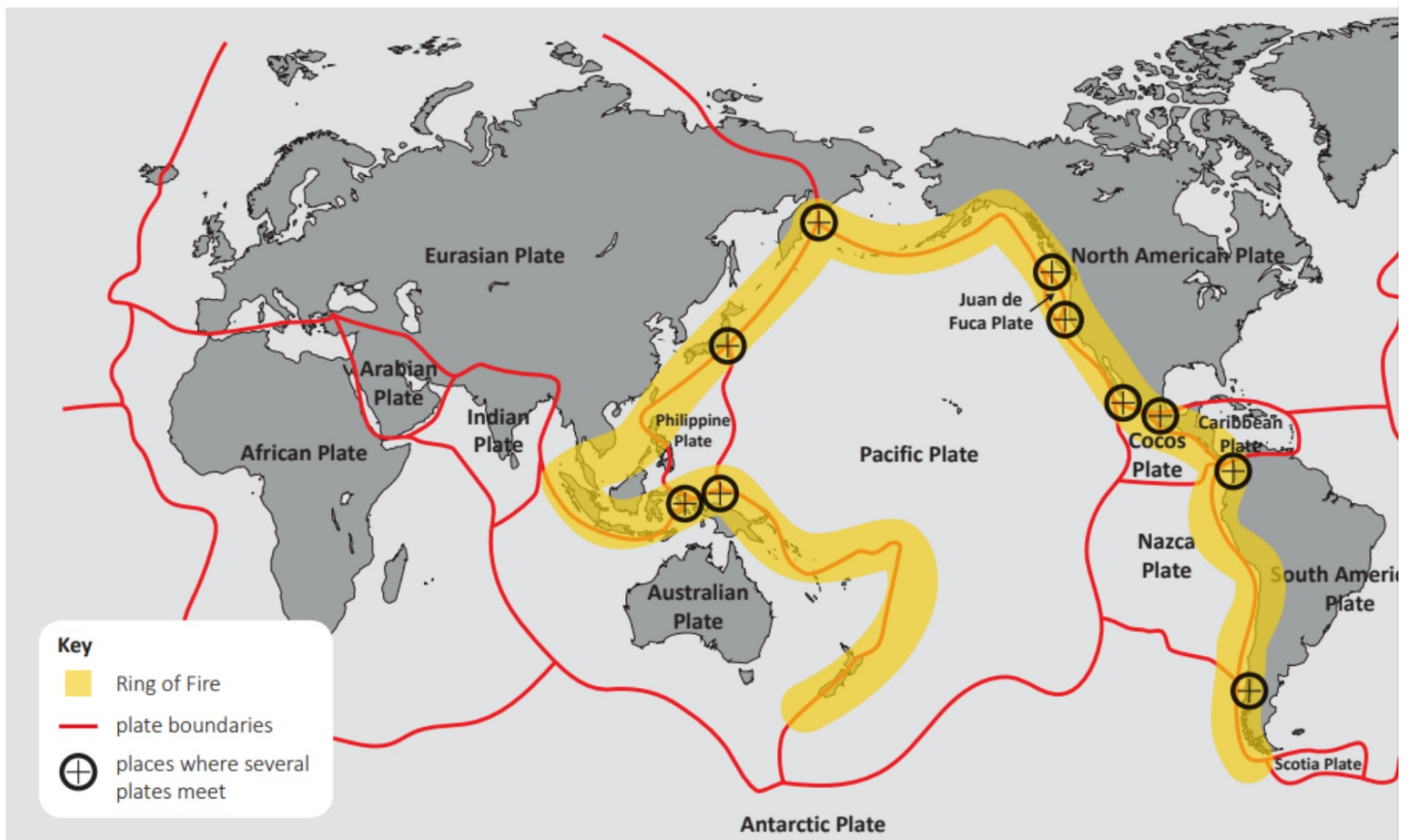
The places where tectonic plates meet are called **plate boundaries**. Movement at plate boundaries can cause earthquakes, volcanic eruptions and tsunamis.



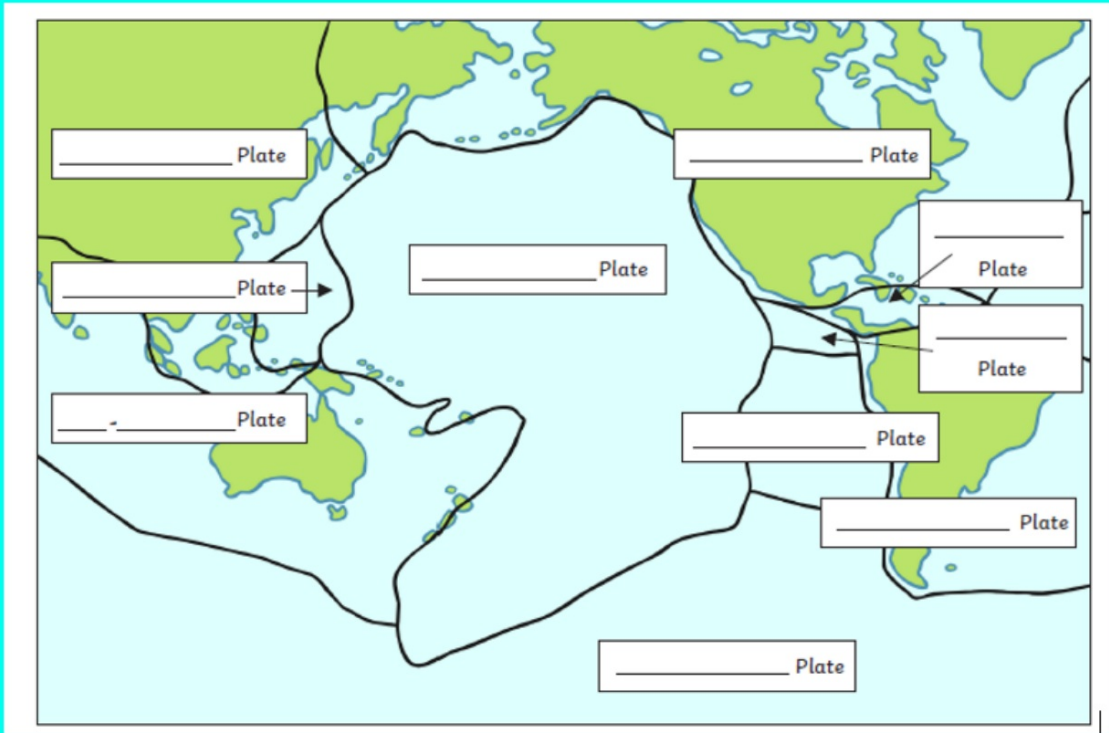


**Answer**

1. What are the places where tectonic plates meet, called?
2. What can happen when the tectonic plates move?



There are many earthquakes and volcanic eruptions along the Ring of Fire so many tectonic plates meet along it.



comple

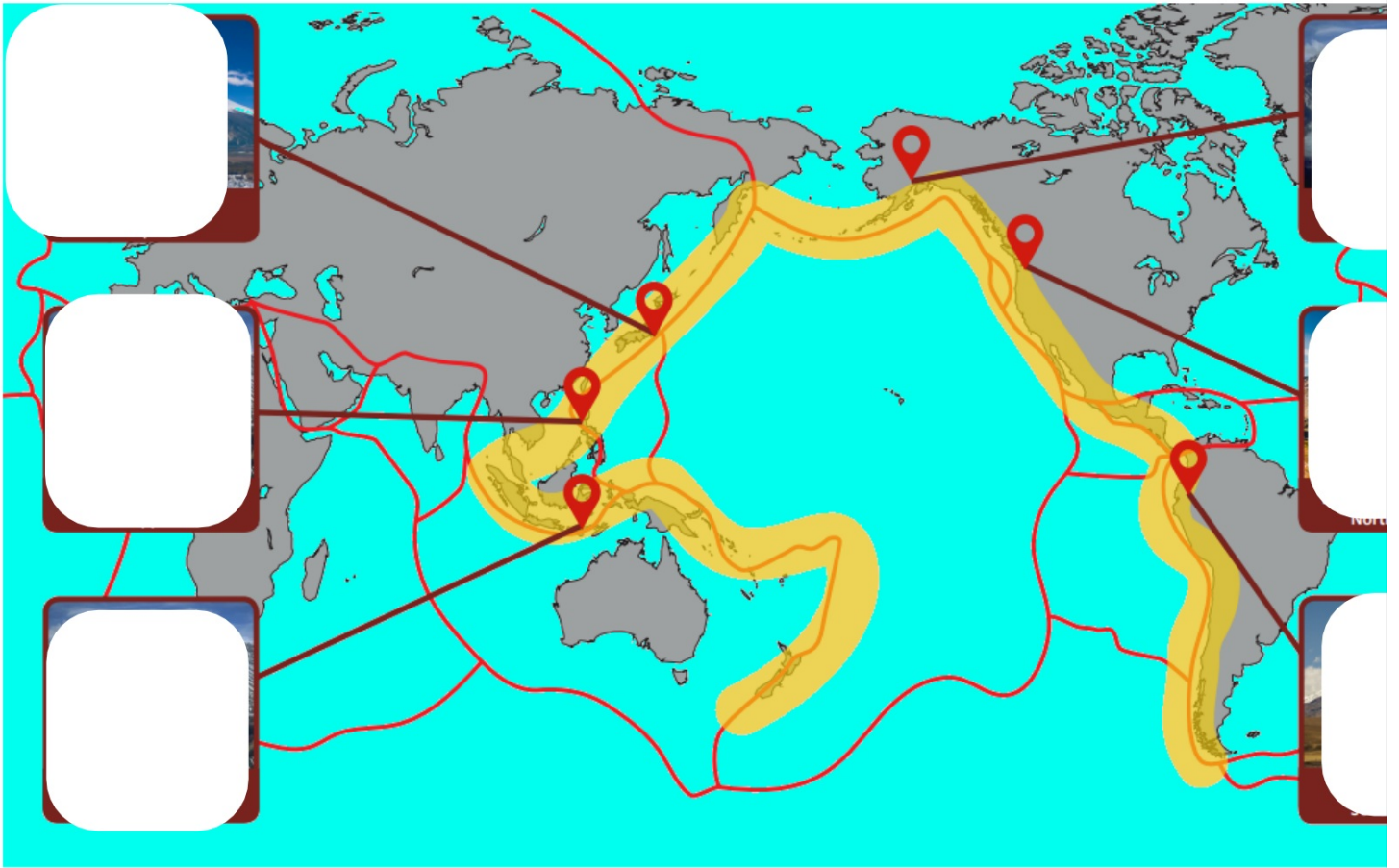


Over three-quarters of Earth's volcanoes are along the Ring of Fire and it is also where most earthquakes happen.



answer

1. Why are so many volcanoes located around the Ring of Fire?
2. How many volcanoes here?
3. What else can happen in this area and why?



There are more than **450 volcanoes** along the Ring of Fire.

True

False

The Ring of Fire is a large area where many earthquakes and volcanic eruptions occur.

Tectonic plates move very quickly.

The countries along the Ring of Fire are at a lesser risk of volcanic eruptions and earthquakes than anywhere else in the world.

All of Earth's volcanoes are found along the Ring of Fire.

## Why is it good to live near a volcano?

When volcanic rock breaks down into dirt it becomes a mineral rich soil. These minerals provide food and life for all kinds of plants. Vegetables, grapes, herbs and flowers can grow in volcanic soil. It is a great area to start a farm.



Fertile Soil





On a post-it, write 2 reasons as to *why it is good* to live near a volcano.

Advantages of living by a volcano

Disadvantages of living by a volcano

Friday 14th January

L.O. To understand that volcanoes are formed when two tectonic plates collide.

# Volcanoes



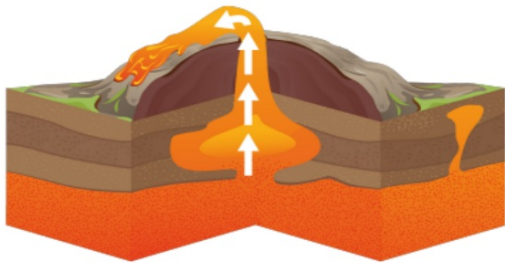
## What is a volcano?



the surface

## Types of volcanic eruption

There are two types of volcanic eruption.

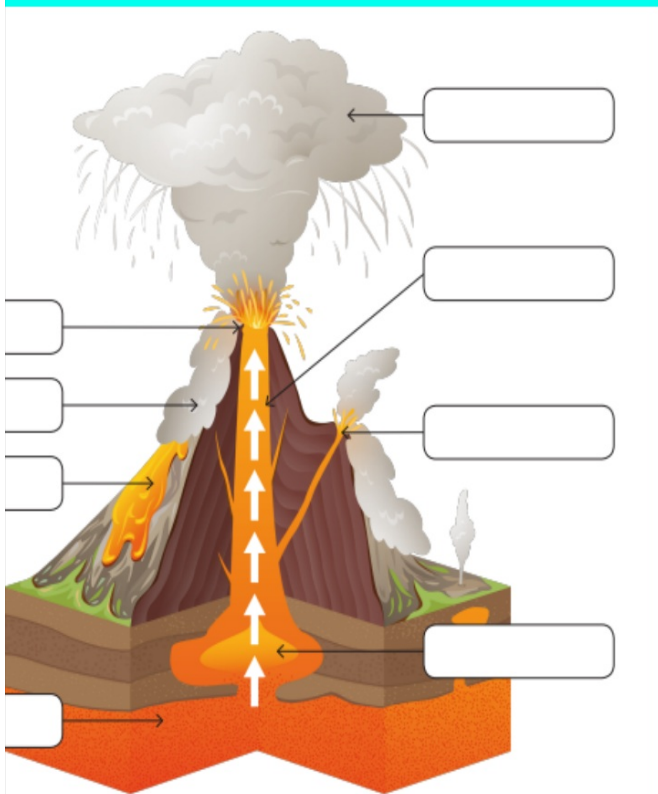


effusive



explosive

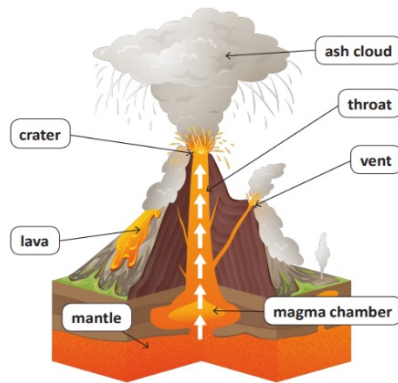
What are the two types of volcanic eruptions?



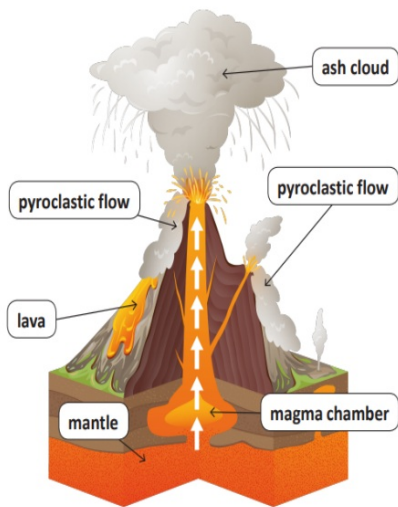
ords

- crater
- lava
- magma chamber
- pyroclastic flow
- throat
- vent

## Stages of eruption



A crater is created after the eruption blows the top off the volcano. After the explosion, ash, lava, gas and hot air shoot high into the sky and an **ash cloud** forms.



Hot air, ash and rocks rush downhill like an avalanche. This is called a **pyroclastic flow** and is extremely dangerous. Pyroclastic flow moves quickly and is so hot that it destroys anything in its path.

## Status of volcanoes

The status of volcanoes can be classified in three different ways.



active



dormant



extinct



What is active,  
doormant and  
exticnt?





## Active – Mount Etna, Sicily



What is an active volcano?

## Dormant – Mauna Kea, Hawaii



What is a dormant volcano?

## Extinct – Mount Snowdon, Wales



What is an extinct volcano?

# Types of volcano

There are four main types of volcano.



shield



stratovolcano

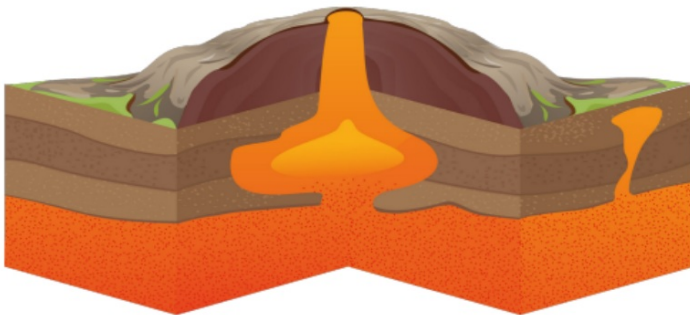


cinder cone



lava dome

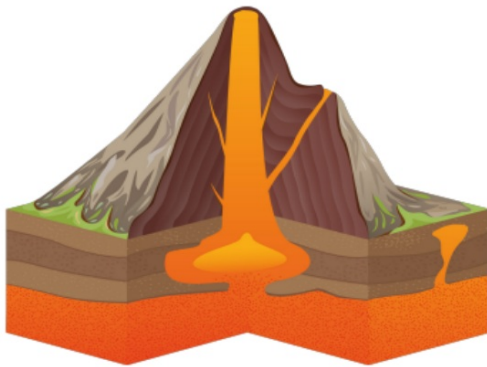
## Shield volcanoes



Shield volcanoes have low,

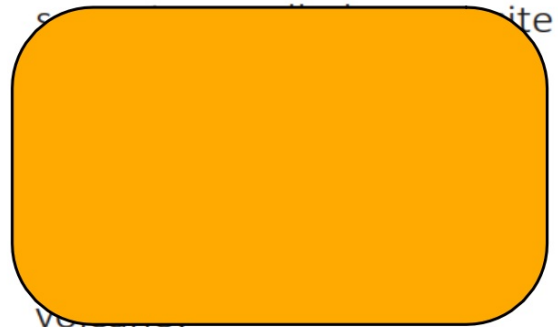


# Stratovolcanoes



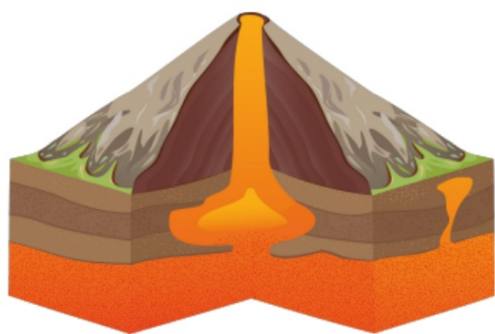
Stratovolcanoes are

symmetrical, steep-sided

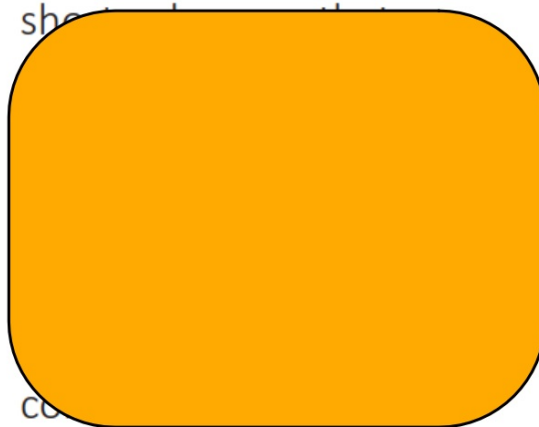


Volcanoes

## Cinder cone volcanoes

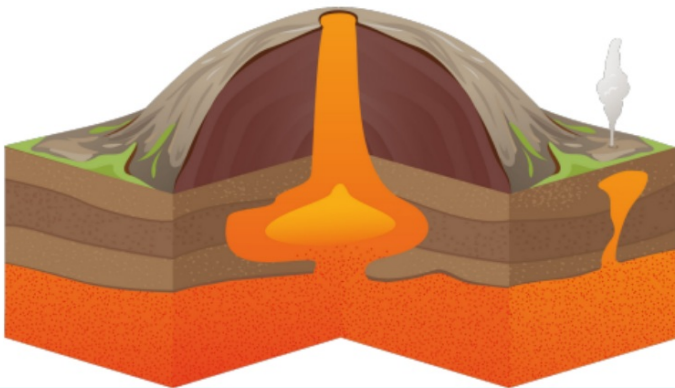


**Cinder cone** volcanoes are  
short, steep-sided volcanoes



co

## Lava dome volcanoes



**Lava dome** volcanoes are

si

cr



## Plenary

Can you explain to your partner what an active, dormant extinct volcano are?

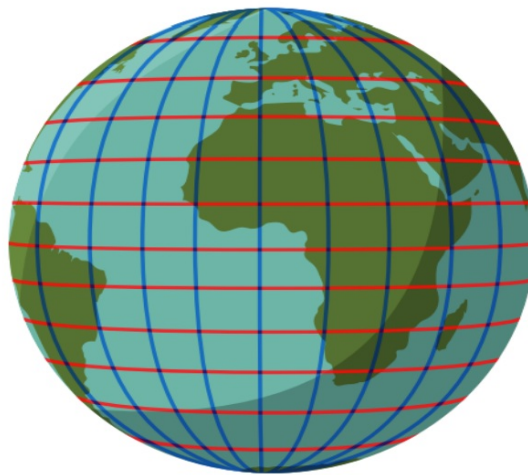
Friday 21st January

L.O. To use lines of longitude and latitude to locate volcanoes.

# Latitude and longitude



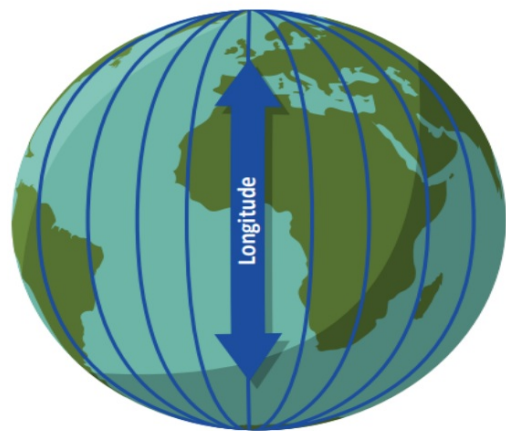
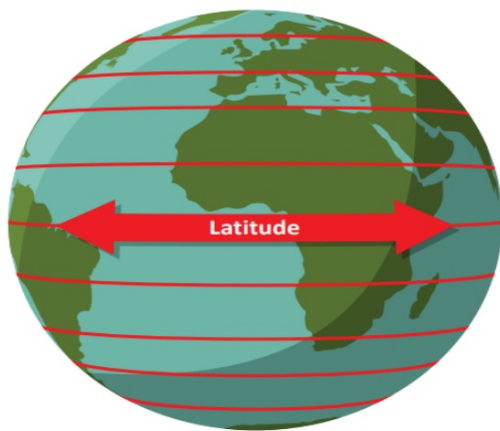
## What are the lines of latitude and longitude?



The **lines of latitude and longitude** are imaginary lines around Earth. They cross each other, forming a grid.

The lines of latitude and longitude are...

## Lines of latitude and longitude

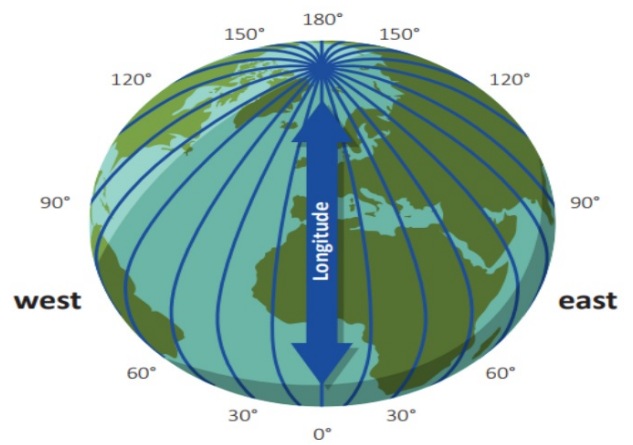
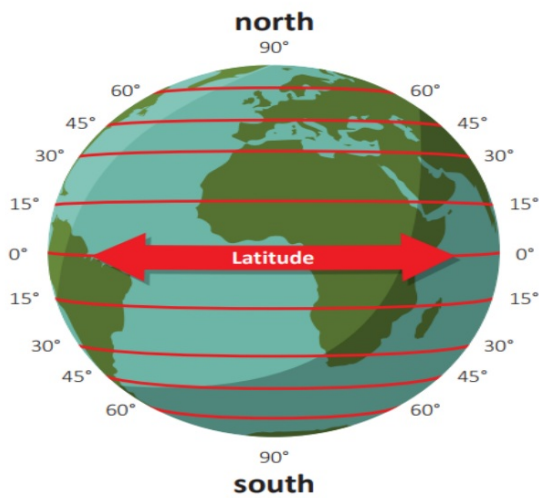


The lines of latitude run **horizontally** from east to west around Earth.  
The lines of longitude run **vertically** from north to south around Earth.

The lines of latitude run....

The lines of longitude run....

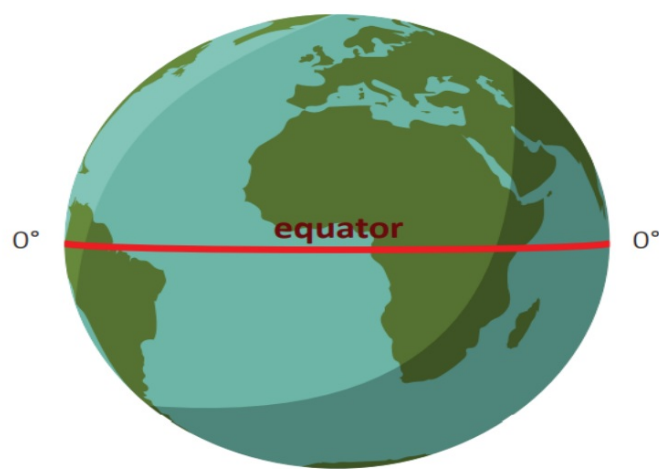
## What are their uses?



Lines of latitude and longitude are measured in **degrees**.  
They help us to pinpoint exact locations on Earth.

They help us to.....

## Equator

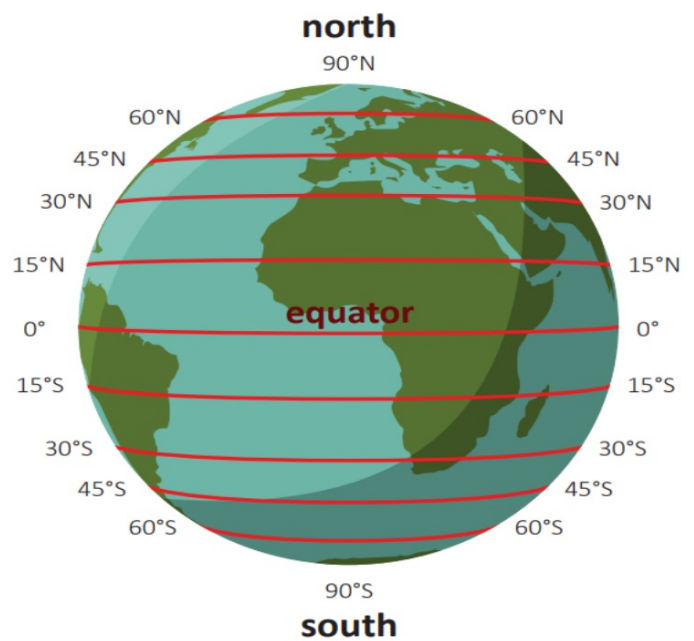


The **equator** is a special line of latitude. Its latitude is **0°**.  
The equator is halfway between the geographical North and South Poles.

The equator is.....

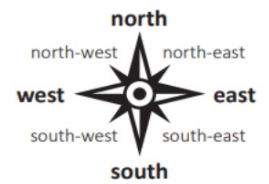
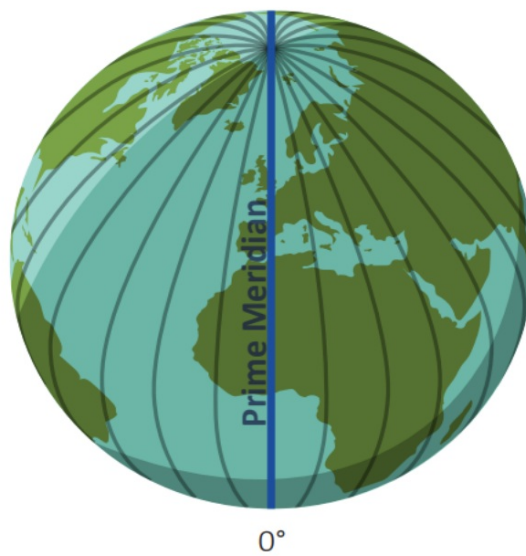
## Lines of latitude

- equal distance apart
- measure how far **north** or **south** a point is from the equator
- labelled **N** to the north of the equator
- labelled **S** to the south of the equator





## Prime Meridian



The **Prime Meridian** is a special line of longitude. Its longitude is **0°**. The Prime Meridian passes through the geographical North and South Poles.

*The Prime Meridian....*

# Use your knowledge of lines of longitude and latitude to locate volcanoes.

## Locating volcanoes

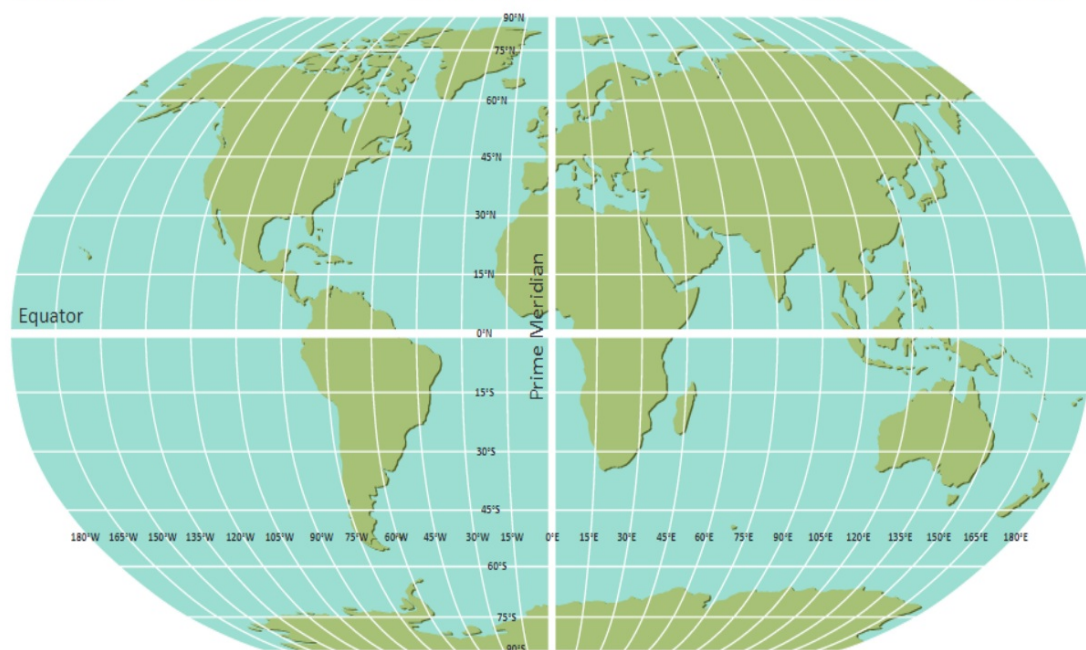


Locate these volcanoes on the world map, using the latitude and longitude coordinates.

- |   |                 |      |       |
|---|-----------------|------|-------|
| ① | Krakatoa        | 6°S  | 105°E |
| ② | Mount St Helens | 46°N | 122°W |
| ③ | Mount Fuji      | 35°N | 139°E |

- |   |                |      |       |
|---|----------------|------|-------|
| ④ | Mount Tambora  | 8°S  | 118°E |
| ⑤ | Mount Pinatubo | 15°N | 120°E |
| ⑥ | Mount Vesuvius | 41°N | 14°E  |

- |   |             |      |       |
|---|-------------|------|-------|
| ⑦ | Cotopaxi    | 1°N  | 78°W  |
| ⑧ | Mount Spurr | 61°N | 152°W |
| ⑨ | Kilauea     | 19°N | 155°W |



PL  
W  
VO

Friday 28th January

L.O. To know the consequences of a volcanic eruption.

24 AUGUST 79 AD

## Clips



**Pompeii - The Mystery of the People Frozen in Time promo**

DURATION: 00:34



**What happened when Vesuvius erupted in 79AD?**

DURATION: 06:13



**What happened at Herculaneum, the town not far from Pompeii?**

DURATION: 05:56



**How did the victims of Pompeii die?**

DURATION: 04:54



**Why weren't the clothes of the Pompeii victims destroyed by the heat of a pyroclastic current?**

DURATION: 04:19



**How were the casts of the victims of Pompeii made?**

DURATION: 03:30



**Can science reveal what two of the victims of Vesuvius actually looked like?**

DURATION: 07:15

## Days Before 24<sup>th</sup> August



Tremors were felt around the area of Mount Vesuvius but these were not considered completely unusual and many had been felt in the time leading up to the eruption.

Life in Pompeii continued as normal.

# 24<sup>th</sup> August



Morning



Mount Vesuvius' first eruption phase began with a small explosion. A tremor was felt and thin ash cloud was sent into the sky.

It is thought that the feeling in Pompeii at this point was still relatively normal as tremors often happened near to the volcano.

# 24<sup>th</sup> August



Early Afternoon (around 1 p.m.)



Vesuvius erupted violently.

A massive ash cloud was expelled up to 20km high, dominating the sky and blocking out the sun. The whole sky turned dark as the cloud was carried south-east and Pompeii was plunged into darkness.

Ash began to fall to the ground soon afterwards.



# 24<sup>th</sup> August



Afternoon (around 2 p.m.)



Ash and pumice was falling on Pompeii and panic had risen dramatically among the people of the city. Rocks and debris begin to land on buildings and build up on rooftops.

# 25<sup>th</sup> August



Midnight



The volcanic cloud reached its peak at the estimated height of over 30km in the air. This cloud began to plummet back down to earth.

A pyroclastic surge of extremely hot gas, rocks and volcanic material flowed with huge force and speed down the north-west side of the volcano into Herculaneum. Here, it killed many people.

It is thought that the pyroclastic surge travelled at an astonishing 350km per hour.

# 25<sup>th</sup> August



Early Morning (around 2 a.m.)



The eruption cloud collapsed once again.

Mount Vesuvius released a second pyroclastic surge, closely followed by a third surge, which was even stronger than the last.

The surge was growing ever closer to Pompeii.

# 25<sup>th</sup> August



Morning (around 7 a.m.)



The cloud above Mount Vesuvius collapsed again.

A fourth surge of rock and gas was released and travelled with even greater force. It reached Pompeii and killed everyone remaining and destroyed any final buildings left standing.

Darkness still hung over the Bay of Naples due to the drifting ash cloud in the air.

# 25<sup>th</sup> August



Morning (around 8 a.m.)



Additional surges followed, bringing more rock, gas and debris down onto Pompeii. By the end of the entire eruption process, the city was buried under tonnes of volcanic material.

# Volcanologist's report



Fill in the report about your chosen volcano.

Name of volcano \_\_\_\_\_ Location \_\_\_\_\_

Date of significant eruption \_\_\_\_\_ Status \_\_\_\_\_

Summary of the eruption

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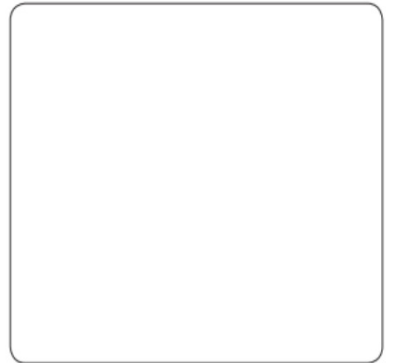


Image of volcano

Consequences for people

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Consequences for the landscape

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Now you need to create a safety poster, warning of a volcanic eruption.

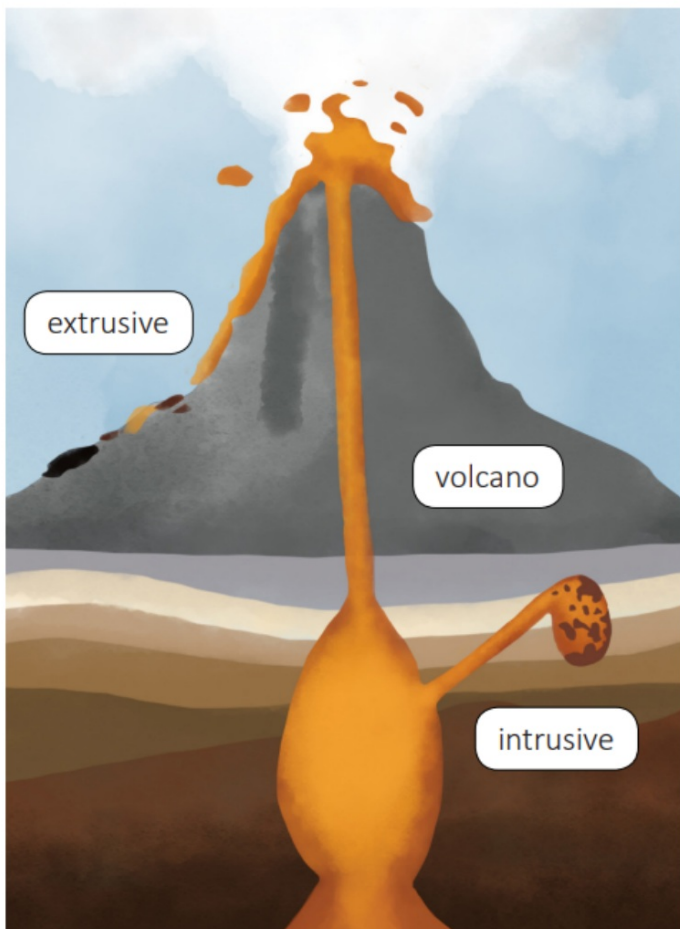
What could you include?

Friday 4th February

L.O. To know how Igneous, sedimentary and metamorphic rocks are formed.







## Igneous rocks

Igneous rocks are formed when molten (liquid) rock called magma cools and hardens.

**Extrusive** igneous rocks are formed above the Earth's surface when the magma erupts as lava from a volcano. The lava quickly cools and becomes hard rock.

**Intrusive** igneous rocks are formed when magma below the Earth's surface cools down slowly and becomes hard rock.

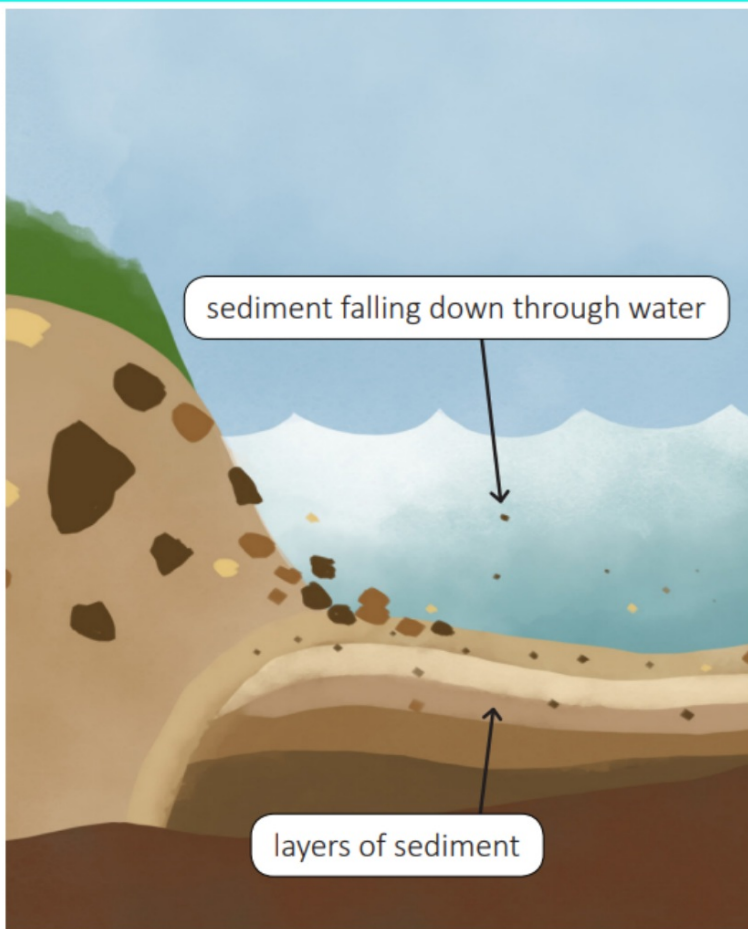
## Igneous rocks



Melting chocolate

Can look shiny and glasslike when formed quickly.

Can sometimes have small holes from the gas bubbles.



## Sedimentary rocks

Sedimentary rocks are formed from particles of sand, shells and pebbles. Together, this is called sediment. Sediment settles at the bottom of seas, lakes and rivers. Layers of sediment build up over time. The sediments on top squash the older layers underneath them. Over millions of years, the layers turn into rock.



Sedimentary  
rocks

white chocolate = animal bones and shells  
milk chocolate = mud

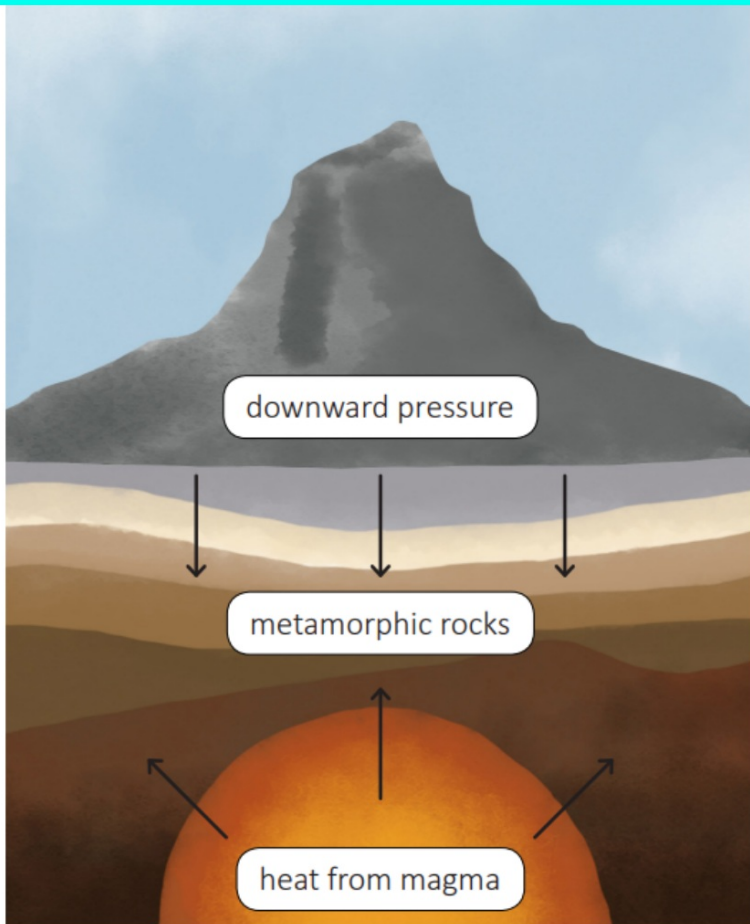
Which rock do you think is harder? Sedimentary or igneous? Why?



## Sedimentary rocks

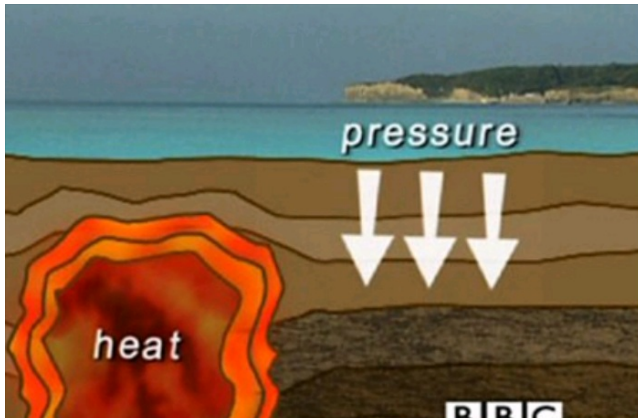
white chocolate = animal bones and shells  
milk chocolate = mud

Which rock do you think is harder? Sedimentary or igneous? Why?



## Metamorphic rocks

Metamorphose means to change into a different form. Metamorphic rocks may have been sedimentary, igneous or existing metamorphic rocks but have been changed over time due to the pressure and heat underground.



## Metamorphic rocks






















Put both of the sedimentary rocks you have just made together and apply pressure.

Often have ribbonlike layers.  
Can have crystals from forming slowly.



Friday 11th February

L.O. To know how to read and use a 4 point compass for directions.

		Volcano 		Tsunami 	
House 		EARTHQUAKE 	hospital 		
	taxi rank 		postbox 		cafe 
fire station 		toy shop 	airport 		
	school 		vet 	pool 	
theme park 		police station 			beach 
bus stop 		dentist 	Start 	supermarket 	

**Compass directions: the town**

1. From the start, go north 4 squares. Where are you now? \_\_\_\_\_
2. Go east 3 squares. Where are you now? \_\_\_\_\_
3. Go south 3 squares. Where are you now? \_\_\_\_\_
4. Go west 6 squares. Where are you now? \_\_\_\_\_
5. Go east 2 squares. Where are you now? \_\_\_\_\_
6. Start at the school. How do you get to the taxi rank? \_\_\_\_\_
7. Give directions from the dentist to the toy shop. \_\_\_\_\_





Friday 11th February

L.O. Locate cities and countries on the European map.



We're missing some countries on our European map. Can you use an atlas to find them?

## Map of Europe

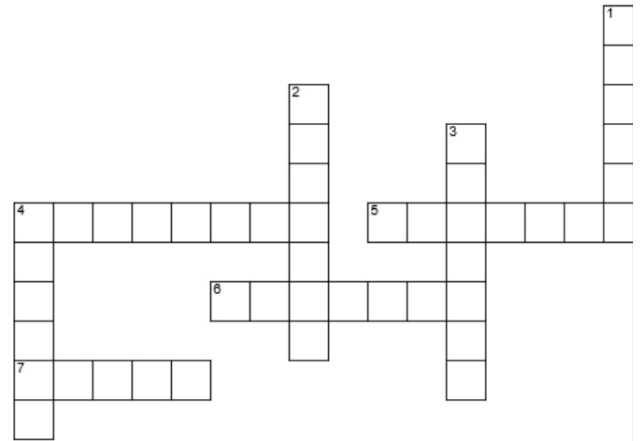
Can you use a map of Europe to fill in the gaps of Europe's neighbouring countries?





## Neighbouring countries in Europe

Using a map, find the neighbouring countries using the clues help you!



### ACROSS

- 4 What country is south of Romania?
- 5 What country is north east across the border of Sweden?
- 6 What country is across the border of Algiers?
- 7 What country is south east of France?

### DOWN

- 1 What country is north of Slovakia?
- 2 What country is south of Belarus?
- 3 What country is across the border north of Berlin?
- 4 What country is west of Poland?

Finding the neighbouring countries in Europe.  
In your partners, can you complete the crossword?

Friday 18th February

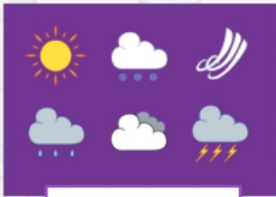
L.o. To understand Human and Physical Geography

# Geography



Are these examples of human or physical geography?

Can you explain why?



weather



rainforests



rivers



towns and cities



farming



population



volcanoes



# Human and Physical Geography

## Human Geography

Human geography relates to human activity or something that is humanly-constructed.

It studies the interaction between human activity and the planet.

Human geography might answer questions like:

- What is the largest city in Africa?
- Why is the UK population growing?
- Why do we experience global warming?



## Physical Geography

Physical geography relates to geography that is naturally occurring.

It studies the natural environment and landscapes of our planet.

Physical geography might answer questions like:

- What happens when a volcano erupts?
- Why does a river flood?
- How are mountains formed?



# Quiz Challenge

Look at the photo.

- Is this an example of human or physical geography?
- What aspect of physical geography might you be learning about? It could be more than one!



# Quiz Challenge

Look at the photo.

- Is this an example of human or physical geography?
- What aspect of human or physical geography might you be learning about? It could be more than one!



el the photographs below with a) the physical features and  
nan features



Trees  
House  
Fields/  
River  
Roads  
Tennis

;- Physical geography is the study of natural features of earth  
deserts, weather etc. Human geography is the study of  
le fatures of earth e.g. buildings, towns, people, industries etc

ow  
cal  
atures



Human  
Features



Human Features

Physical features



### Wembley Stadium



Location:

London

twinkl.com

### Tower Bridge



Location:

London

twinkl.com

### The Angel of the North



Location:

Gateshead

twinkl.com

### Edinburgh Castle



Location:

Edinburgh

### London Eye



Location:

London

twinkl.com

### Houses of Parliament



Location:

London

twinkl.com

### Roman Baths



Location:

Bath

twinkl.com

### Kings College



Location:

Cambridge

### Durdle Door



Location:

The Jurassic Coast,  
Dorset

twinkl.com

### Flamborough Head



Location:

Flamborough, North  
Yorkshire

twinkl.com

### Ben Nevis

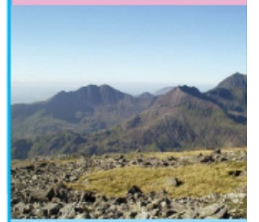


Location:

Scottish Highlands

twinkl.com

### Mount Snowdon



Location:

Location: Snowdonia  
Wales

### The Peak District

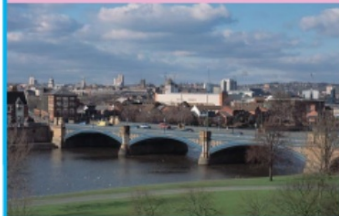


Location:

Derbyshire

twinkl.com

### River Trent



Location:

Nottinghamshire

twinkl.com

### Loch Ness



Location:

Scottish Highlands

twinkl.com

### Fistral Beach



Location:

Newquay, Cornwall

### The Eden Project



Location:

St Austell, Cornwall

twinkl.com

### Stonehenge



Location:

Amesbury, Wiltshire

twinkl.com

### Giant's Causeway



Location:

County Antrim,  
Northern Ireland

twinkl.com

### Windsor Cas



Location:

Windsor

### Valley



twinkl.com

### Hill



twinkl.com

### Bay



twinkl.com

### Coastline





Beach



Cliff



Mountain



River



Stream



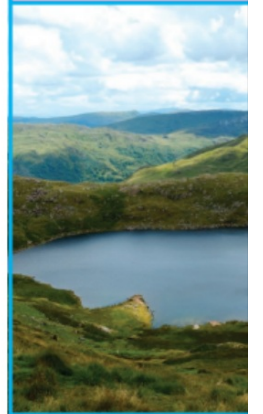
Waterfall



Sea



Lake



Moorland



Gorge







