

# Manor Primary School Knowledge Organiser –UKS2 Geography



Topic: Earthquakes and volcanoes.

Phase: Upper Key Stage 2

Strand: Physical Geography

What should I already know?

- The seven continents and five oceans of the world.
- The location of some countries, including the UK
- What climate means and how it effects the vegetation in an area.

What you will know by the end

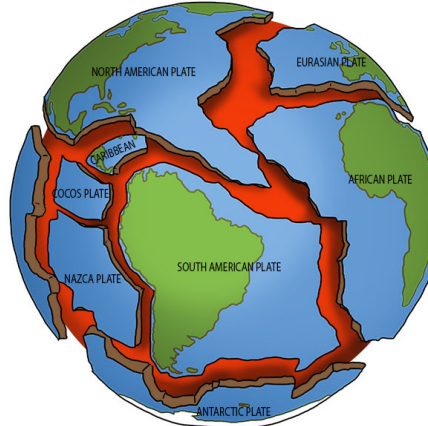
- Describe the layers of the earth using key vocabulary.
- Locate tectonic plates on a map.
- Locate key mountain ranges around the world.
- Locate volcanoes around the world.
- Locate where earthquakes have happened.
- Discuss what you notice about the location of volcanoes and earthquakes and the edges of tectonic plates.

## Key Knowledge

The rigid outermost shell of the Earth (called the 'crust' and 'upper mantle') is broken up into 7 or 8 major interlocking 'tectonic plates', and numerous smaller plates.

Converging plates (plates moving towards each other) are associated with mountain building and/or volcanoes, such as the Himalayas (where India meets Asia).

Subduction is when one plate is forced underneath another when they meet. At depth, the rocks in the sunken plate melt and lava is forced up through cracks, to erupt as volcanoes.



The 'Ring of Fire', with all three types of plate boundary, is by far the world's most active earthquake and volcanic zone. See the next page for more information.

## We are MANOR! As Geographers we will ...

### Manners

Develop a respect and understanding for the ways other cultures and nationalities live. Share ideas, celebrate good work, value others' contributions, or discussions and debates.

### Aspiration

Learn by being challenged in a series of well-designed geographical enquiry tasks linked to meaningful contexts and develop a knowledge of geography based causes and careers and broaden our horizons around the world.

### Nurture

To recognise that we live in a wonderful world made up of many different people with different beliefs, values, appearances, life situations and abilities. We will develop an appreciation and respect for the diverse society and environment in which we live, showing care and compassion for the environment and others around us.

### Open-Mindedness

Develop our understanding of different cultures by looking at how different cultures and beliefs can impact on the environment and human issues. We will be open-minded when learning about customs and traditions allowing us to develop our humility and an understanding of the world as a global community.

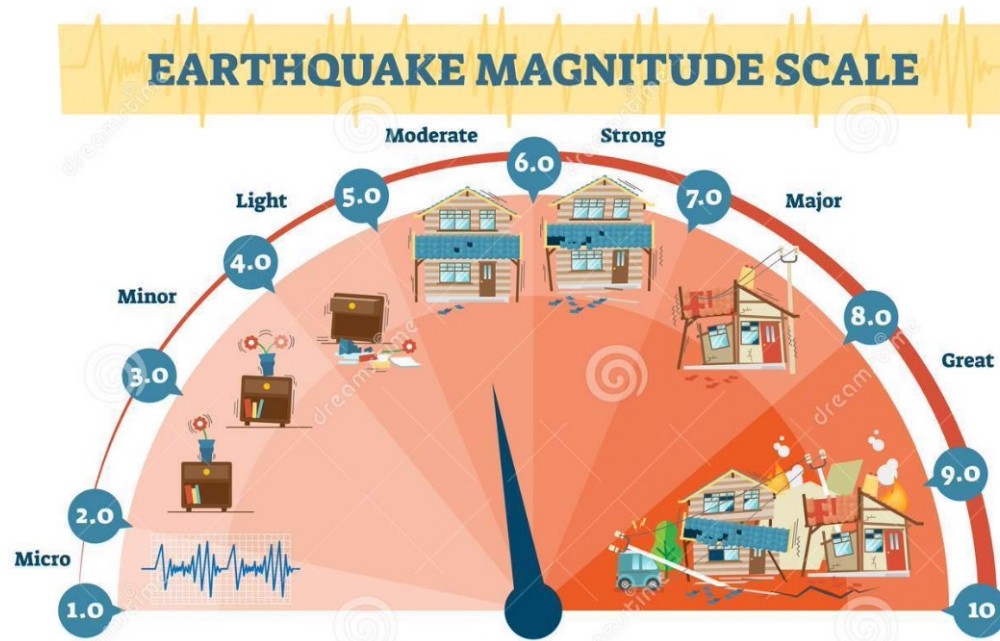
### Resilience

Understand how to make connections with the world around us and challenge ourselves to be persistent and learn more through investigations which stimulate and motivate us. We will develop our geography skills with patience and care.

## Earthquakes

Earthquakes involve the powerful movement of rocks in the Earth's crust. The rapid release of energy creates seismic waves that travel through the earth. The damage caused by earthquakes also depends on their depth and fault type. Seismometers are used to measure the magnitude of earthquakes. You are unlikely to feel a magnitude 3 earthquake but a magnitude 6 earthquake could potentially cause large damage.

The Richter scale is used to measure the strength of an earthquake using a number from 1 to 10, with 1 being the weakest and 10 being the most powerful. Scientists use the different speeds of seismic waves to locate the epicentre (the point on the surface directly above where the earthquake originated) of earthquakes.



The most powerful earthquake ever recorded on Earth was in Valdivia, Chile. Occurring in 1960, it had a magnitude of 9.5.

## Volcanoes

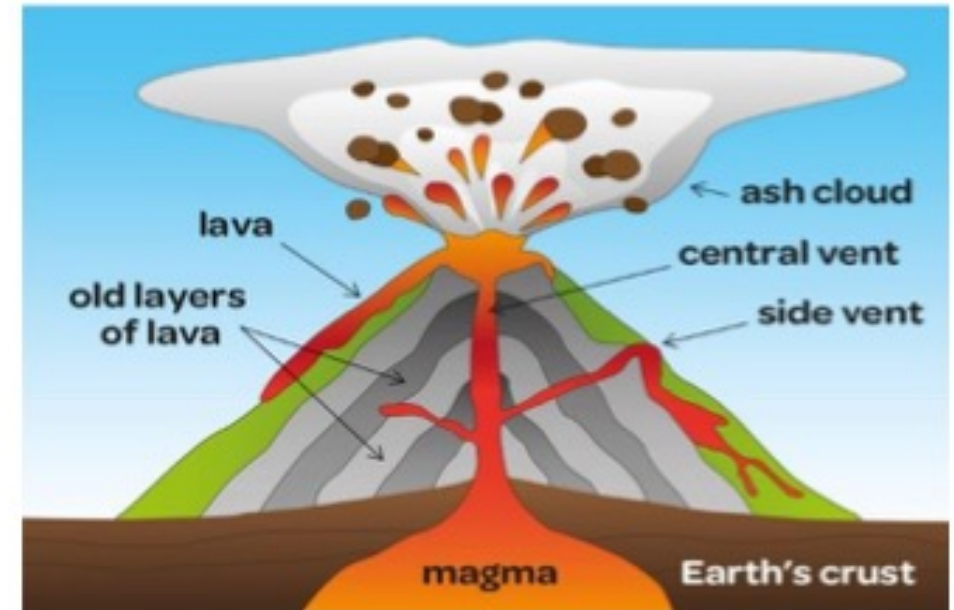
Volcanoes are openings in the Earth's surface. When they are active they can let ash, gas and hot magma escape in sometimes violent and spectacular eruptions.

The word volcano originally comes from the name of the Roman god of fire, Vulcan. Volcanoes are usually located where tectonic plates meet. This is especially true for the Pacific Ring of Fire, an area around the Pacific Ocean where over 75% of the volcanoes on Earth are found.

While most volcanoes form near tectonic boundaries, they can also form in areas that contain abnormally hot rock inside the Earth. Known as mantle plumes, these hotspots are found at a number of locations around the globe with the most notable being in Hawaii.

Hot liquid rock under the Earth's surface is known as magma, it is called lava after it comes out of a volcano.

Volcanic eruptions can send ash high into the air, over 30km (17 miles) above the Earth's surface.

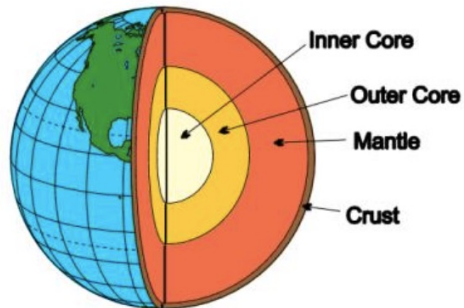
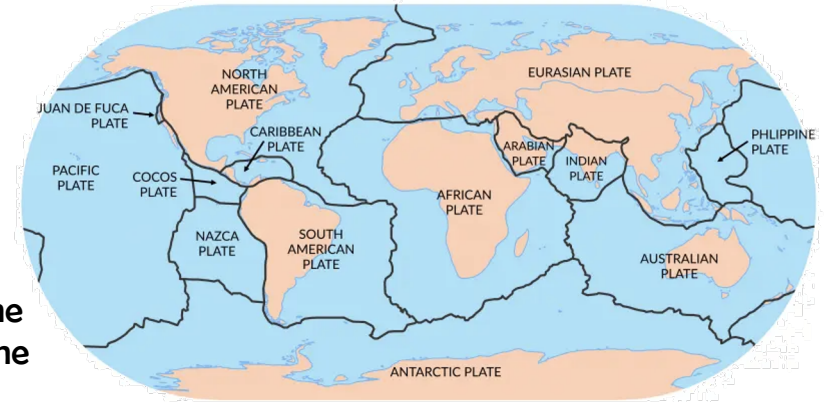


# Useful Diagrams



To the left you can see “The ring of fire” – the most active area of volcanoes and earthquakes in the world.

To the right the map shows the main tectonic plates around the world.

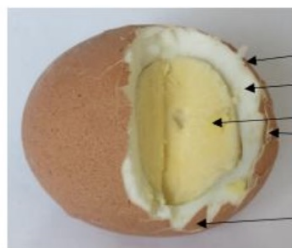


Core, extremely hot, inner core solid, outer core molten. Represented by egg yolk

Mantle is semi-molten rock and very hot. Represented by egg white.

Crust (continental and oceanic) is solid rock, broken into tectonic plates. Represented by egg shell.

Here you can see the basic layers of the Earth



Shell represents crust

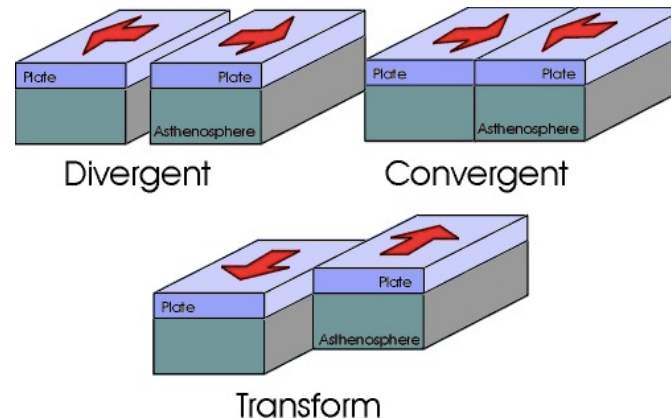
White represents mantle

Yolk represents core

Cracks represent (tectonic) plate boundaries

Fragments of shell represent (Tectonic) plates

Below are the 3 types of plate boundaries – where tectonic plates meet



Diverging is when two plates go in opposite directions an example of diverging plates is the mid-Atlantic ridge, where the Eurasian plate and the North American plate are moving apart. Magma from the earth’s mantle rises to create new crust in the gap – Iceland sits on this ridge and is very actively volcanic.

The San Andreas Fault, San Francisco, is an example of plates sliding past each other e.g. one going North and the other going South. Tension increases along faults in the earth’s crust as the plates grind together, and which sudden movement – an earthquake – relieves.



## Key vocabulary

Active Volcano	A volcano which has erupted within the last 10,000 years.
Dormant Volcano	A volcano which has not erupted for a while but which could possibly erupt again. Extinct Volcano: A volcano which has not erupted for the last 10,000 years and is not expected to erupt again
Magnitude	Magnitude is used to describe the size of the earthquake
Fault Plane	A fault is a weak point within a tectonic plate where pressure from beneath the surface can break through and causing shaking in an earthquake. Epicentre: The epicentre of an earthquake is the point on the surface of Earth directly above the epicentre.
Tectonic plate	A massive slab of rock that 'floats' on top of the mantle and inner layer of the earth.
Vent	The part of a volcano through which lava and gasses erupt.

## Earthquakes and Volcanoes Quiz

1) What is a volcano called if it hasn't erupted for a long time but could still erupt any time?

2) The highest point of a mountain is called the...

3) The Earth's crust is divided into sections called...

4) What are the main layers of the Earth?

5) Which two plates colliding caused/causes the Himalaya mountain range to be formed?

6) Explain where is the Ring of Fire located?

7) Explain why there are so many volcanoes along the tectonic plate boundaries.

8) Describe what the climate is like at the peak of a mountain