Knowledge Organiser

Subject: Geography Unit: Where and why do Earthquakes occur?

Overview:

During this sequence of learning, pupils will look at the distribution of earthquakes in New Zealand and explain the causes of these. They will also compare earthquakes in different locations and explain why the largest earthquakes do not always cause the most damage. Pupils will also look at why volcanoes often occur at the same location as earthquakes and how a volcano actually forms.

What should I already know?

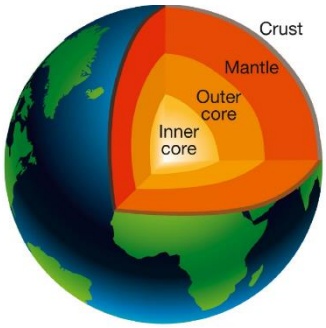
- The seven continents of the world and be able to locate them on a map.
- How to use an atlas to find the location of different countries.
- Physical features include those that are naturally occurring e.g. rivers, mountains and volcanoes.

What will I know by the end of the unit?

Knowledge

- An earthquake is a sudden, violent, shaking of the ground which often causes massive destruction.
- Destruction caused by an earthquake can include: buildings collapsing, landslides and even loss of lives.

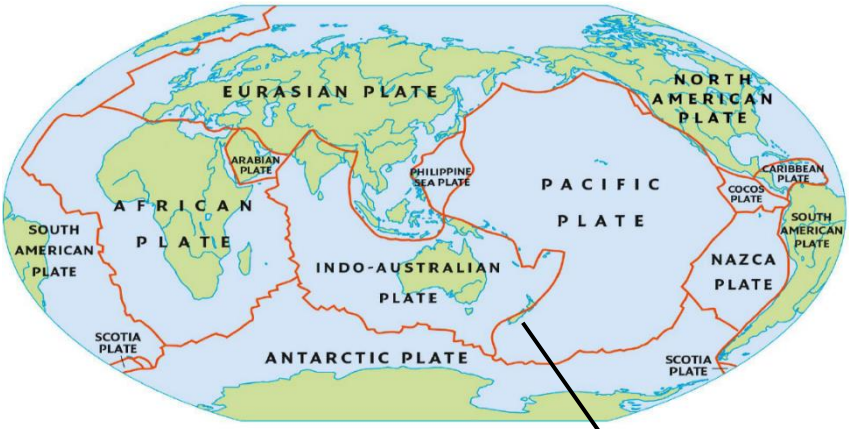
- New Zealand has had many earthquakes over the last 200 years.
- Some areas are more prone to earthquakes than others. This is because of the location near to plate boundaries.



- The Earth has an outer layer which is known as the crust. This is split into huge blocks which are known as plates. Earthquakes tend to occur along these plate boundaries where one plate meets another.
- Geographers call these cracks – 'faults'.
- These plates are constantly moving very slowly in different directions. When one plate gets stuck below another plate this causes a huge amount of pressure to build up until they eventually slip apart. When they slip apart this causes a huge amount of pressure to be released which is the cause of the earthquake.
- In New Zealand the Indo-Australian Plate and the Pacific Plate are crashing against each other which is the reason for so many earthquakes.

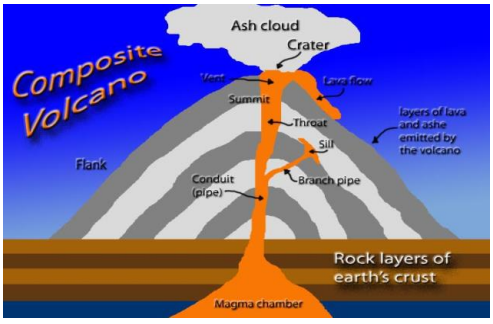
Vocabulary:

Earthquake	A sudden violent shaking of the ground caused by the movement of plates on the Earth's surface.
Volcano	An opening in the Earth's crust which allows magma to reach the surface.
Epicentre	The location or place on the Earth's surface directly above where an earthquake happens.
Magnitude	The size or power of an earthquake.
Richter scale	The scale used to describe the magnitude of an earthquake.
Plate	A massive slab of rock which makes up the Earth's surface.
Eruption	This occurs when magma is released from a volcano.
Dormant volcano	A volcano that has not erupted for a long time but may erupt again.
Active volcanoes	A volcano that has erupted within living memory and is expected to erupt again.
Magma	Molten rock within the earth.



Location of New Zealand

- Earthquakes are very common but many of them only measure 1 or 2 on the Richter Scale meaning they do not cause much damage. The effects of an earthquake can be devastating however but this is not always down to the magnitude.
- There are three main factors affecting how devastating an earthquake is: where it happens e.g. below a city or in an area where very few people live, the time of day or night it happens and how rich or poor the country is.
- A magnitude 7.5 earthquake will probably do more damage if it occurred below a city compared to in the middle of the ocean even though it is the same size. Earthquakes that happen in the middle of the night when everyone is at home are often more serious than if it happens in the middle of the day. Rich countries tend to suffer less from earthquakes than poorer countries because they can often afford to build buildings that are stronger and can resist the shaking. This was seen when comparing earthquakes that happened in Haiti and Chile, where Haiti suffered devastation far worse than Chile.
- New Zealand also has a high number of active volcanoes. Volcanoes are located in very similar locations to where earthquakes occur. This is because red hot liquid called magma bubbles up from the Earth's surface and comes out through the cracks in the rocks which are located where one plate meets another. As a volcano continues to erupt it gets bigger and bigger.



Skills

- Compare two countries using geographical language.
- Look at a range of maps to identify where volcanoes can be found.
- Collect information from a range sources about Earthquakes and volcanoes.

Lava	Hot, liquefied rock that flows from a volcano or other opening in the surface of Earth
Distribution	To disperse through a space or over an area
Southern hemisphere	The area of Earth that is south of the Equator.
Northern hemisphere	The half of the Earth that is north of the Equator.
Infrastructure.	Describe the facilities which support modern human life.

<u>Damage caused by the earthquake in Haiti</u>

<u>Map showing the location of volcanoes in North Island, New Zealand</u>

<u>Mount Ngauruhoe and Mount Ruaphehu in New Zealand</u>