

Which factors link to today's learning?  
Social / Economic / Environmental

## KS4 Geography - Y10: The challenge of natural hazards - Tectonic Hazards Knowledge Organiser

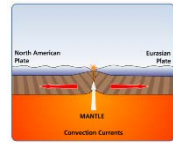


Here are some key words from this topic. Can you add anymore?



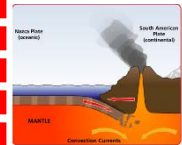
### The Big Picture

- What are natural hazards?
- Where do earthquakes and volcanoes occur?
- What happens at plate margins?
- What happened in the Nepal earthquake 2015?
- What happened in the Christchurch earthquake 2011?
- Why were the earthquake events different?
- Why live in tectonic zones?
- How can we reduce the risk of earthquakes?
- How can we reduce the risk of volcanic eruptions?



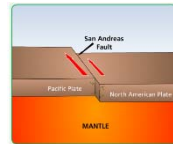
#### Constructive Plate Margin

Convection currents in the mantle are moving away from each other. This causes the two plates above to move away from each other. A gap is created between the two pieces of crust and magma from the mantle rises to fill the gap. The magma rises to the surface as lava during a volcanic eruption, where it cools and solidifies.



#### Destructive Plate Margin

Convection currents in the mantle are moving towards each other. This causes the two plates above to move towards from each other. The oceanic crust is denser than the continental crust, so it sinks. As it sinks into the mantle earthquakes may happen. The sinking crust melts due to friction and heat from the mantle, and this melted rock (magma) is added to the magma chamber. Pressure in the magma chamber increases and eventually the magma is forced to rise through the vent of a volcano, causing an eruption.



#### Conservative Plate Margin

Convection currents in the mantle are moving in such a way that the two plates above are moving in the same direction, but at different speeds, causing one plate to try to push past the other one. Because the two plates are made of jagged rock, they get stuck and pressure builds up. Eventually the pressure is released and the plates slip past each other, causing an earthquake.

#### Why live in tectonic zones?

**Volcanoes:** Living close to volcanoes means people benefit from living on more fertile soils. Farmers can grow more crops, and better quality crops, making more money in these regions compared to regions further away from a volcano.



**Earthquakes:** Many people are unaware that they are at risk from earthquakes. There may not have been one in living memory so they do not know about it being a threat. In Nepal, the last serious earthquake, before the one in 2015, in 1934 (81 years prior), which was out of living memory for most people.



#### Monitoring, prediction, protection and planning for earthquakes



**Monitoring & Prediction:** Scientists keep records of earthquakes that happen on a daily basis. They monitor the exact location and sizes of earthquakes, which can be dozens each day. By looking at patterns of earthquake events in the past, scientists can guesstimate when, where and how big future earthquakes could be.



**Protection:** This is when buildings are made to withstand the damage that earthquakes cause and, therefore, protect the people inside them. Some examples include interlocking steel frames, rubber or flexible foundations, shutters that close over windows to reduce glass shattering and rolling weights on roofs to counteract the shock waves.



**Planning:** This is done by preparing the authorities, the emergency services and individuals in what to do when an earthquake happens. For example: evacuation procedures can be put in place, drills can be taught in schools and places of work.

natural hazard (n)	natural hazard (n) – a natural process which could cause death, injury or disruption to humans or destroy property and possessions.
hazard risk (v)	the chance or probability of being affected by a natural hazard.
Convection (n)	the movement caused within a liquid by hotter material to rise, and colder material to sink, causing the liquid to move around.
geological (adj)	hazards caused by land and tectonic processes e.g. earthquakes, volcanoes, tsunamis, landslides, rockfall
effect (n/v)	cause (something) to happen; bring about.
response (n)	a reaction to something.
Subsistence (n)	maintaining or supporting oneself, especially at a minimal level.
prepare (v)	make (someone or something) ready or able to do or deal with something.
protect (v)	keep safe from harm or injury.

#### CEIAG Link: For this topic we can make links to a variety of professions:

- Geologist
- Seismologists
- Volcanologists
- Emergency Management
- Emergency Service Worker
- Aid Worker
- Educator
- Armed Forces
- Architect
- Environmental Analyst
- Natural Disaster Researcher



**If you are interested in the above careers, don't forget you can do some research and speak to Mrs Ackroyd.**