Year 6 Geography: Earthquakes and Volcanoes

Some of the content is from Chris Quigley Education's Curriculum Companion for Geography.

Earthquakes and Volcanoes – Plate Tectonics

Planet Earth is made up of an inner and outer core, a mantle and a crust.
Crust = rocky surface (makes up the surface of the Earth) and floats on top of the mantle. The crust has cracks in it, which means that it is in pieces. These pieces are called plates. The plates move slightly – no more than a few centimetres a year. When the plates do move, earthquakes occur and volcanoes form or erupt.

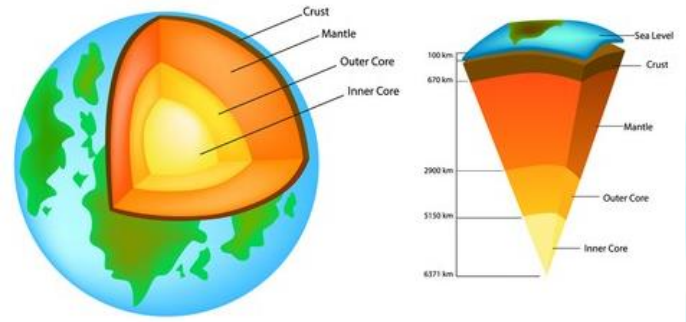
Physical Processes

We call the boundaries of plates 'fault lines'. When there is movement along these lines, it causes earthquakes and volcanoes.

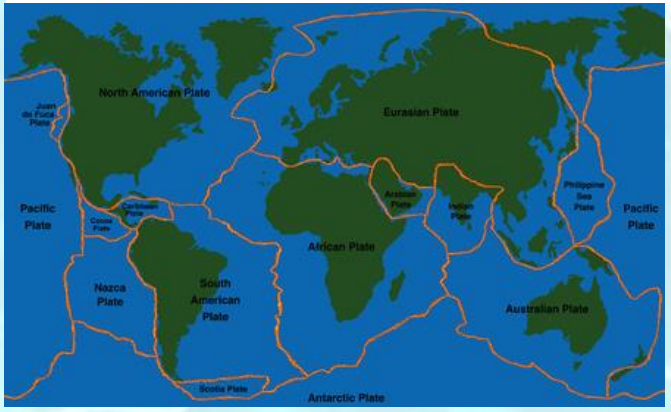
The plates move in three different ways:

- They can move away from each other, which forms ridges
- They can move towards each other, which causes earthquakes and forms volcanoes and mountains
- They can move side by side, which causes earthquakes.

Physical Features



The structure of the Earth



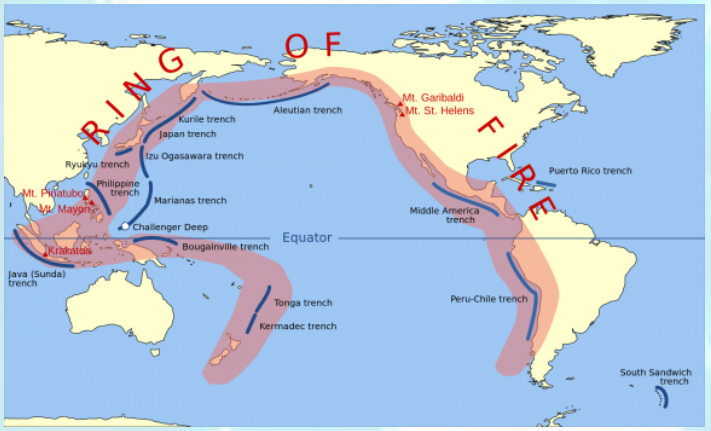
The main plate boundaries

Key Vocabulary

earthquakes: shaking of the ground caused by movement of the Earth's crust
volcanoes: mountains from which lava, gas, steam and ash from inside the Earth sometimes burst
erupt: to start suddenly or violently with great force

Earthquakes and Volcanoes – The Pacific Ring of Fire

The "Pacific Ring of Fire" is a 40,000 km horseshoe-shaped basin that is associated with a nearly continuous series of ocean trenches, volcanic arcs, and volcanic belts and plate movements. This ring accounts for 452 volcanoes (active and dormant), stretching from the southern tip of South America, up along the coast of North America, across the Bering Strait, down through Japan, and into New Zealand – with several active and dormant volcanoes in Antarctica closing the ring.



The Pacific Ring of Fire is a result of plate tectonics: plates are colliding with each other.

This causes a process called subduction where one plate is pushed below another. The heat and the pressure forms mountains and volcanoes.

Key Vocabulary

volcano: a mountain from which lava, gas, steam and ash from inside the Earth sometimes burst
earthquake: shaking of the ground caused by movement of the Earth's crust
dormant: not active, but capable of becoming active in the future
collision: when one moving object hits another

Earthquakes and Volcanoes - Impact

Earthquakes and volcanoes cand be very different when it comes to their magnitude and the impact that they have. To measure the magnitude of earthquakes, a scale called the 'Richter Scale' is used. Earthquakes that measure less than 2.0 on the scale are called micro earthquakes, whereas those that measure 10 or above are named meteoric earthquakes.

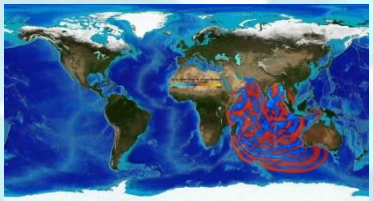
Examples of natural disasters caused by earthquakes and volcanoes

The 2004 Boxing Day earthquake measured 9.3 on the Richter scale. The earthquake shook the earth's crust for eight minutes. It unleashed enormously powerful waves that hit Sumatra within 15 minutes and crossed the Indian Ocean at nearly 500 miles an hour. The waves reached the East African coastline seven hours later, some 3,100 miles away from the earthquake's epicentre.

The 1906 San Francisco earthquake was the biggest earthquake that has ever hit San Francisco. It was felt from Los Angeles to Oregon and Nevada. The earthquake was about a 7.8 on the Richter scale. Around 3,000 people were killed and between 227,000 and 300,000 people were left homeless.

In 79 CE, Mount Vesuvius in Italy erupted with tremendous force. It sent a deadly cloud of gas into the air and ejected ash, rocks and lava which fell on the nearby Roman towns of Pompeii and Herculaneum. Thousands of people were killed by the falling ash and rocks, and some were killed instantly as the deadly gas suffocated them.

Location of the 2004 Boxing Day tsunami



Key Vocabulary

magnitude: the size or scale of something
meteoric: sudden and extremely strong
intensity: magnitude
tsunami: a very large wave, caused by an earthquake