

# Just How Powerful is the Earth?

## Enquiry Questions:

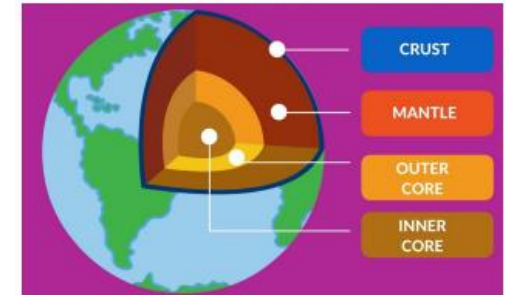
1. What does the Earth look like on the inside?
2. Has our planet always looked the same?
3. What happens along the boundaries of the Earth's plates?
4. What are volcanoes and what happens when they erupt?
5. What are earthquakes and what happens when they occur?



Fagradalsfjall volcano in Grindavik, Iceland

## Golden Threads

Environment  
Maps  
Change  
settlement



The Layers of the Earth

## Volcanoes

The Earth is made up of several different layers. Underneath the crust is the mantle which is made up of semi-molten rock. Sometimes this rock becomes so pressurised that it turns into a liquid called magma. When the pressure becomes too great, the magma explodes through vents in the crust as lava. Toxic gas and ash are also released. These vents are volcanoes. They can be active, dormant or extinct.

## Key Vocabulary:

**Continent** - any of the world's main continuous expanses of land (Europe, Asia, Africa, North and South America, Australia, Antarctica).

**Equator** - a line notionally drawn on the earth equidistant from the poles, dividing the earth into northern and southern hemispheres and constituting the parallel of latitude 0°.

**Pangea** - The Earth is 4.5 billion years old. Pangea was the single continent, which over time broke up into the continents we have today.

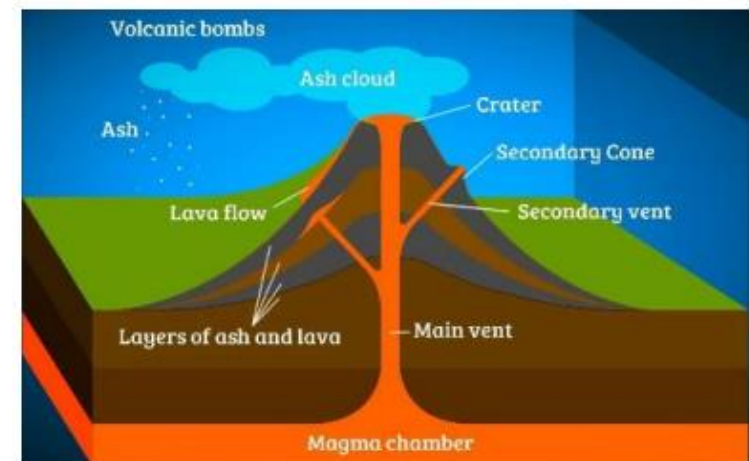
**Volcano** - a mountain or hill, typically conical, having a crater or vent through which lava, rock fragments, hot vapour, and gas are or have been erupted from the earth's crust

**Lava** - hot molten or semi-fluid rock erupted from a volcano or fissure, or solid rock resulting from cooling of this.

**Earthquake** - a sudden violent shaking of the ground, typically causing great destruction, as a result of movements within the earth's crust or volcanic action

**Seismograph** - an instrument that measures and records details of earthquakes, such as force and duration.

**Tsunami** - a long, high sea wave caused by an earthquake or other disturbance



Inside a Volcano



Tectonic Plates

**Earthquakes and Tsunamis**

The crust of the Earth is made up of plates of rock that fit together like a jigsaw. These are called tectonic plates. These plates are constantly moving, a few centimetres each year. Sometimes they get forced together, judder past each other then fall back to their original shapes. This causes seismic waves which create earthquakes. Earthquakes can be felt anywhere in the world, but most earthquakes happen along faults, where tectonic plates meet. They are measured using the Richter Scale. Tsunamis occur when an earthquake happens underwater. This causes shockwaves which disturb the water and create a giant wave or series of waves.



A damaged road which was caused by an earthquake



The above photograph was taken in Japan in 2011. The tsunami was triggered by an 9.0 earthquake of the north eastern coast. Approximately 20,000 people were killed.

AMAZING FACTS	
<b>The most powerful volcano</b>	Mount Tambora, Indonesia was so powerful it blocked out the sun for almost a whole year, and killed crops 1000s of miles away.
<b>The most powerful earthquake</b>	The most powerful quake was the 9.5-magnitude Valdivia Earthquake that struck in <b>Chile</b> in 1960. It killed an estimated 5,700 people.
<b>The most powerful tsunami</b>	A tsunami with a record run-up height of 1720 feet hit <b>Lituya Bay</b> , Alaska. On the night of July 9, 1958. Millions of trees were swept away.
<b>The most powerful tornado</b>	The widest tornado was in <b>El Reno, Oklahoma</b> on May 31, 2013 with a width of 2.6 miles (4.2 km) at its peak and wind speeds of up to 296 mph.



A powerful tornado in Florida, USA.