

# Year 3 Geography: Earthquakes and Volcanoes



## What impact do natural disasters have on the world around us?

### Key Vocabulary

**Volcano:** A volcano is a mountain or hill with an opening. When a volcano erupts, magma is pushed up through the opening with great force. When magma reaches the Earth's surface, it is called lava.

**Earthquake:** An intense shaking of Earth's surface. The shaking is caused by movements in Earth's outermost layer.

**Erupt:** to burst forth: Molten lava erupted from the top of the volcano.

**Magma:** molten rock that is found below the earth's surface

**Tectonic Plates:** The outermost layer of the earth is called the crust and it is broken into large pieces called tectonic plates.

**Natural Disaster:** disasters caused by nature, such as tornadoes, ice storms, severe weather and flooding.

**Richter Scale:** a scale of numbers used to tell the size of earthquakes.

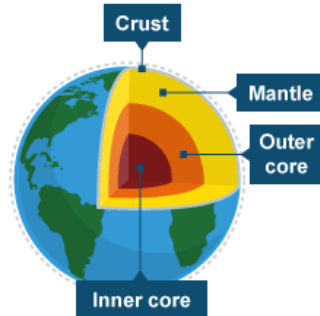
**Aftershock:** a smaller earthquake which comes after a large earthquake (called the main shock) in the same area.

**Epicentre:** the part of the earth's surface directly above the starting point of an earthquake.

**Magnitude:** a measure of the amount of energy released during an earthquake.

### Key Questions and Facts

#### What is the earth made of?



The Earth's structure consists of three parts: the crust, mantle and core. The crust is on the outside, while the mantle is in the middle and the core is the inner section.

#### What happens during an earthquake?

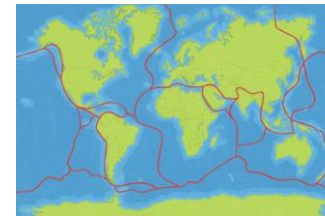
As the tectonic plates move in different directions over long periods of time, friction causes energy to build up. It becomes so great that the energy is released, which creates a shock wave - an earthquake. If an earthquake is beneath the ocean, it can create a series of huge waves, called a tsunami.



There are thousands of earthquakes across the world each day.

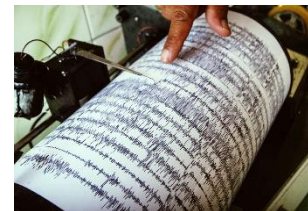
#### What are plate tectonics?

The Earth's surface is called the crust. It is made up of different rocky sections called tectonic plates, which fit together like a puzzle covering earth. The plates that are below the continents (land) are known as continental plates. The plates that are covered by the ocean are called oceanic plates.

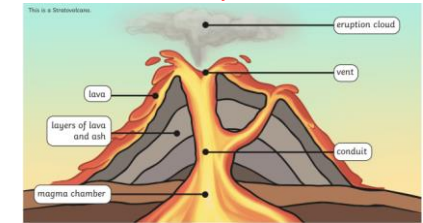


#### How are earthquakes measured?

Earthquakes are measured by scientists using a seismometer machine which detects vibrations in Earth. The earthquake's size and strength are then measured using the Richter scale. The Mercalli scale measures the physical impact of the earthquake within a given location.



#### What happens when a volcano erupts?



During a volcanic eruption, pressure builds up underground due to the formation of magma, which is molten rock mixed with gas. The pressure causes gases and rock to shoot up through the opening and spill over with lava fragments.

#### What can Naples do to prepare and protect people for future eruptions?

**Predict:** Countries can try to reduce the risk of damage from volcanic eruptions by attempting to predict when they may occur.

**Protect:** There is little that can be done to protect buildings or land from a volcanic eruption, but it may be possible to restrict what can be built in at-risk areas.

**Prepare:** One of the most effective ways of reducing the risk of a volcanic eruption is having an evacuation plan. By training people on what to do in the event of an evacuation, people can prepare for an eruption. This may involve drills in schools or advising people to pack survival kits.

**Seismograph:** a machine that records shaking. (**Seismologist:** someone who studies what is under the surface of the Earth by measuring vibrations on the Earth's surface.)

**Tremor:** a shaking movement of the ground before or after an earthquake.

**Crater:** an opening in the earth from which sand and water are erupted during an earthquake.

**Dormant:** Dormant volcanoes have not erupted for a very long time but may erupt at a future time.

**Etna:** one of the world's most active volcanoes and is in an almost constant state of activity.

**Volcanologist:** scientists who watch, record, and learn about volcanoes.

**Inner Core:** the deepest and hottest layer of our planet.

**Outer Core:** the outer layer of the core that is made of liquid iron and nickel.

**Mantle:** the mostly solid bulk of Earth's interior. The mantle lies between Earth's dense, super-heated core and its thin outer layer, the crust.

**Crust:** the outer layer of the Earth. It is a thin layer between 40 – 60 km thick. The crust is the solid rock layer upon which we live.

### Why do people live near volcanoes?



Although there are over 500 active volcanoes in the world, many people choose to live on, or near to, active volcanoes.

Many believe that the positives outweigh the negatives. Positives include:

- Fertile soil – good for agriculture
- Minerals – magma contains large range of precious metals and minerals.
- Geothermal energy – cheap and environmentally friendly way to generate electricity.
- Tourism – volcanoes attract millions of visitors every year

## Further information

### Why does Italy have earthquakes and volcanoes?



Tectonic plates are great slabs of the Earth's crust that move slowly, creating mountains, volcanoes and earthquakes. Many volcanoes are located in the 'Ring of Fire'.

Italy is on the boundary of different tectonic plates and, as a result, Italy has mountains, volcanoes and frequent earthquakes.

### Useful Websites



[BBC Bitesize: Explore Earthquakes](#)  
[BBC Bitesize: Explore Volcanoes](#)  
[Geography: School Learning Zone](#)  
[National Geographic Kids - Earthquakes](#)  
[National Geographic Kids: Volcano Facts](#)