



Why do volcanoes erupt?

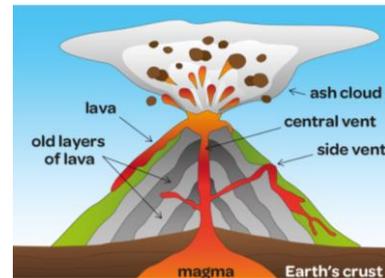
Background Information

A natural disaster is a natural event that causes great damage to property or loss of life. Unfortunately, four countries — the Philippines, China, Japan and Bangladesh — are the targets of more natural disasters than anywhere else on Earth. One example of a natural disaster is a volcanic eruption. Did you know the word volcano originally comes from the name of the Roman god of fire, Vulcan? Also, volcanic eruptions can send ash high into the air, over 30km (17 miles) above the Earth's surface. Another example of a natural disaster is an earthquake. Both of these disasters can be linked to the movement of the earth's tectonic plates (see below). This occurs when the earth's tectonic plates rub together and cause vibrations through the earth. Scientists use the different speeds of seismic waves to locate the epicentre (the point on the surface directly above where the earthquake originated) of earthquakes. The most powerful earthquake ever recorded on Earth was in Valdivia, Chile.

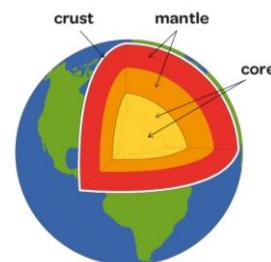
In this unit the children will learn:

- About the structure of the Earth, especially the different layers leading to the Earth's core.
- How movements and vibrations in the Earth's structure can lead to volcanic eruptions and earthquake tremors.
- The effect that these events have on communities.

Structure of a Volcano



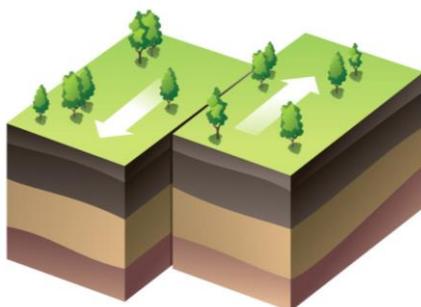
Structure of the Earth



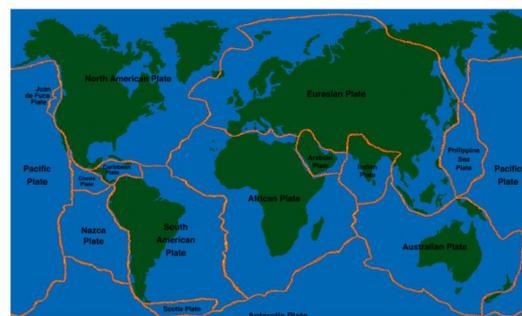
Geography Skills and Concepts

- To describe and understand key aspects of physical geography, including volcanoes and earthquakes.
- To understand why people live near volcanoes.
- To understand geographical similarities and differences through the study of human and physical geography.

Earthquakes – Plate Movement



The Earth's Plates





Key facts

- The Earth is made up of layers. The top layer, the Earth's crust, consists of large slabs of rocks, called plates. The other layers are the upper mantle, the inner mantle and the core.
- The plates move as the hot mantle flows beneath them. The movement of the plates causes earthquakes and leads to volcanoes erupting.
- Earthquakes are measured on the Richter scale, they can cause devastating damage to buildings, roads and land. An earthquake can last for just a few seconds – and might not do too much damage – but could last for several minutes. Violent shaking for several minutes, or a series of shorter, more powerful shakes, can cause even the tallest skyscraper, or strongest bridge, to collapse in a pile of rubble.
- Volcanoes erupt when molten rock called magma rises to the surface. Magma is formed when the earth's mantle melts. Melting may happen where tectonic plates are pulling apart or where one plate is pushed down under another.
- A volcano is a mountain formed by the eruption of molten rock from underground. Lava spews out of the crater of the volcano during an eruption. With each new eruption, over time, the volcano grows a little taller.

Key Vocabulary:

- **active** – An active volcano is a volcano that has had at least one eruption during the past 10,000 years.
- **ash** – the powdery residue left after the burning of a substance.
- **conduit** – a channel for conveying water or other fluid.
- **continents** - any of the world's main continuous expanses of land (Europe, Asia, Africa, North and South America, Australia, Antarctica).
- **crater** – a large bowl-shaped cavity in the ground.
- **crust** - a hardened layer or coating on the surface of something soft.
- **dormant** – a dormant volcano is temporarily inactive.
- **earth's core** – The Earth's core is the part of Earth in the middle of our planet. It has a solid inner core and a liquid outer core.
- **earthquake** – An earthquake is what happens when two blocks, or 'plates' of the Earth suddenly slip past one another. The surface where they slip is called the fault or fault plane.
- **epicentre** – The epicentre of an earthquake is the area on the surface, above the point where the earthquake originated.
- **equator** – An invisible line that is halfway between the North Pole and the South Pole.
- **erupt** – (of a volcano) become active and eject lava, ash, and gases
- **extinct** - (of a volcano) not having erupted in recorded history.
- **lava** - hot molten or semi-fluid rock erupted from a volcano.
- **magma** – hot fluid or semi-fluid material below or within the earth's crust from which lava and other igneous rock is formed on cooling.
- **magma chamber** - the underground space deep below the earth's surface occupied by magma that may ascend from it to or toward the surface.
- **mantle** - the part of the earth's interior beneath the crust and above the central core.
- **seismic waves** - an elastic wave in the earth produced by an earthquake or other means.
- **tectonic plates** - pieces of the rocky outer layer of the Earth known as the crust.
- **vault** - a wave that travels through the Earth, often as the result of an earthquake or explosion.
- **vibrations** – something that moves side to side or up and down very quickly.
- **volcano** - a volcano is a very deep hole in the Earth's top layer that can let out hot gasses, ash and lava. Many volcanoes are also mountains.