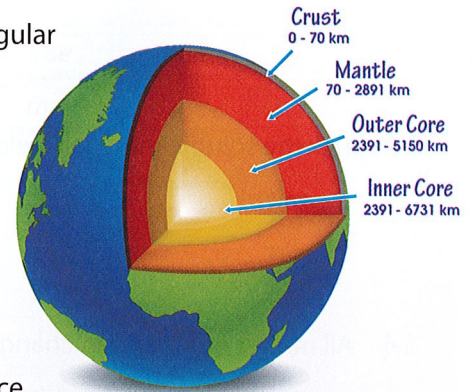


## What Causes Volcanic Eruptions?

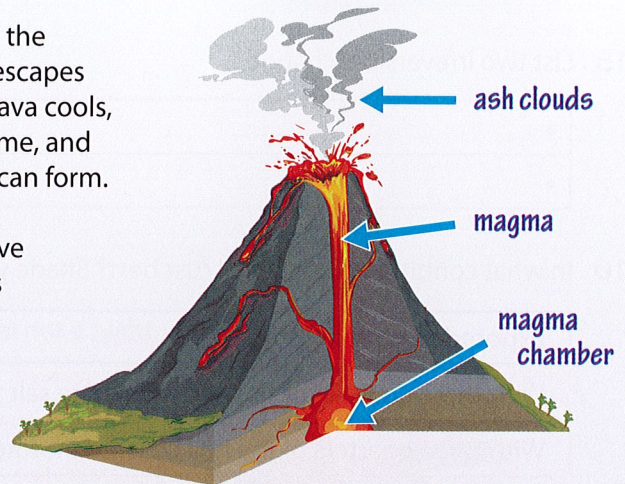
Earth's thin outer layer is called the **crust** and it fits together like an irregular jigsaw puzzle. The puzzle is predominately made up of eight large tectonic plates that are all odd shapes and sizes. Volcanic eruptions most commonly occur at tectonic plate boundaries.

Below the crust is a thick layer of earth referred to as the **mantle**. **Magma** is a mixture of molten and semi-molten rock and gases formed in the upper part of the mantle. It forms due to factors such as extreme heat, changes in pressure or the presence of water. The magma works its way up through cracks and weaknesses in the Earth's crust, often pooling in a magma chamber beneath the surface.



When enough pressure builds and the gases expand, the magma is forced upwards towards Earth's surface. It escapes through a vent, released as lava. The nutrient-dense lava cools, forming new rock and altering the landscape. Over time, and after a number of eruptions, a mountainous volcano can form.

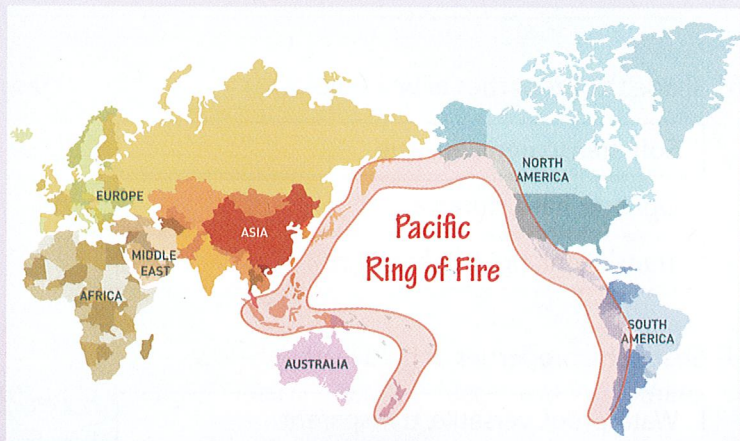
When a volcano erupts, massive ash clouds form above the volcano's crater (opening) and immense amounts of water vapour, carbon dioxide and sulphur dioxide are released into the atmosphere. Eruptions are a natural way for Earth to cool off and release internal pressure.



### Pacific Ring of Fire

Approximately 75% of all volcanoes and 90% of all earthquakes occur along the Pacific Ring of Fire. The ring stretches roughly 40 000 km and hugs the coasts of North America, South America, Russia, China, Japan, some Pacific Islands, New Zealand and New Guinea. Not surprisingly, the ring occurs at the locations where tectonic plates, including the Pacific Plate, move and collide with each other.

One active volcano that lies on the Pacific Ring of Fire is Mount St Helens, situated in the Cascade Mountain Range in the state of Washington in the United States. In 1980, Mount St Helens experienced a devastating volcanic eruption.



An earthquake that triggered a landslide was the cause of the explosive eruption. Seconds after the landslide began, a huge flow of magma was released. It is believed the force was equal to the power of 500 atomic bombs.

The lava from the volcano flowed down the mountain and mixed with pulverized rock, mud and ice. The flowing mixture consumed everything in its path for 30 km. The eruption resulted in 57 people losing their lives.