

# Volcanic eruption

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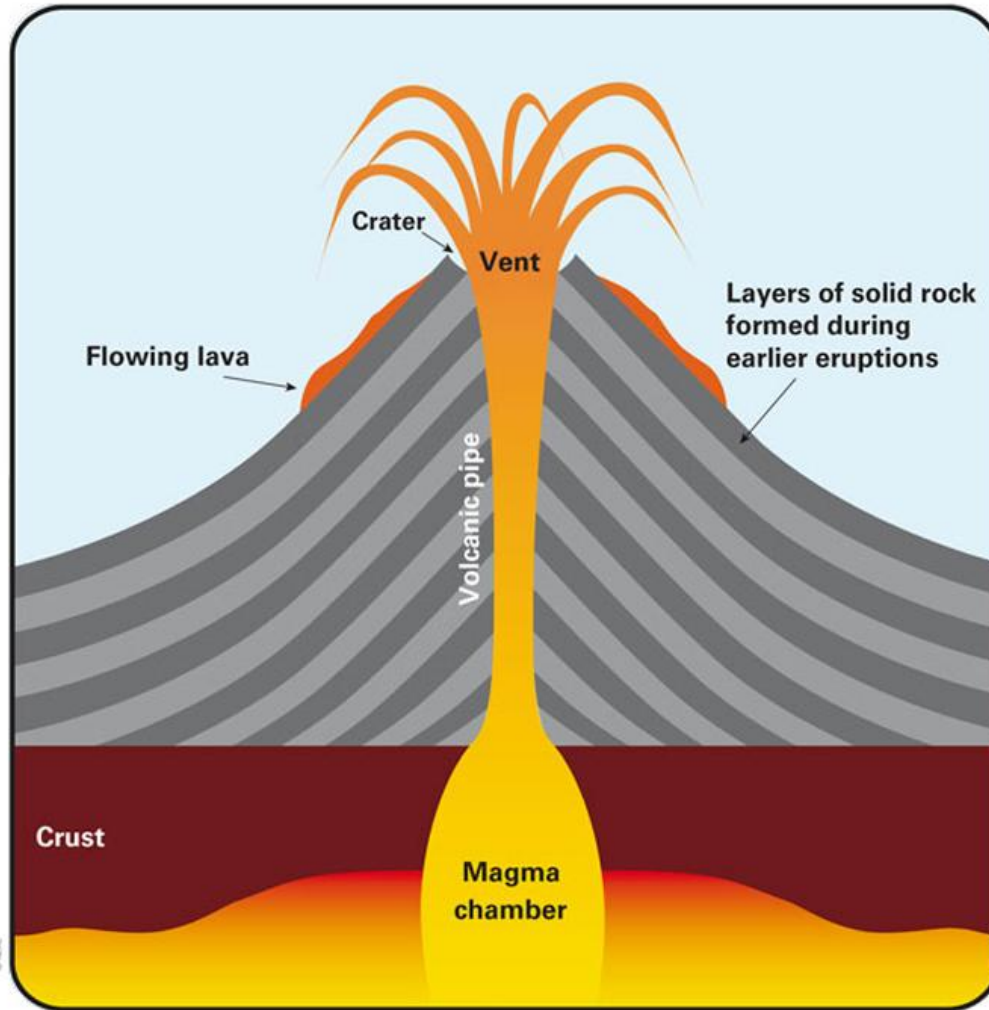
# What is volcano?



- ▶ A **volcano** is a rupture in the crust of a planetary-mass object, such as Earth, that allows hot lava, volcanic ash, and gases to escape from a magma chamber below the surface.
- ▶ On Earth, volcanoes are most often found where tectonic plates are diverging or converging, and most are found underwater. Volcanoes can also form where there is stretching and thinning of the crust's plates. Volcanism away from plate boundaries has been postulated to arise from upwelling diapirs from the core-mantle boundary, 3,000 kilometers (1,900 mi) deep in the Earth. This results in hotspot volcanism, of which the Hawaiian hotspot is an example. Volcanoes are usually not created where two tectonic plates slide past one another.

# How do volcanoes erupt?

- ▶ Deep within the Earth it is so hot that some rocks slowly melt and become a thick flowing substance called magma. Since it is lighter than the solid rock around it, magma rises and collects in magma chambers. Eventually, some of the magma pushes through vents and fissures to the Earth's surface. Magma that has erupted is called lava.
- ▶ Some volcanic eruptions are explosive and others are not. The explosivity of an eruption depends on the composition of the magma. If magma is thin and runny, gases can escape easily from it. When this type of magma erupts, it flows out of the volcano. Lava flows rarely kill people because they move slowly enough for people to get out of their way. If magma is thick and sticky, gases cannot escape easily. Pressure builds up until the gases escape violently and explode. Also the magma blasts into the air and breaks apart into pieces called tephra. Tephra can range in size from tiny particles of ash to house-size boulders.
- ▶ Explosive volcanic eruptions can blast out clouds of hot tephra from the side or top of a volcano. These fiery clouds race down mountainsides destroying almost everything in their path. Ash erupted into the sky falls back to Earth like powdery snow. If thick enough, blankets of ash can suffocate plants, animals, and humans. When hot volcanic materials mix with water from streams or melted snow and ice, mudflows form. Mudflows have buried entire communities located near erupting volcanoes.





Thank you for  
your attention!