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Earthquakes

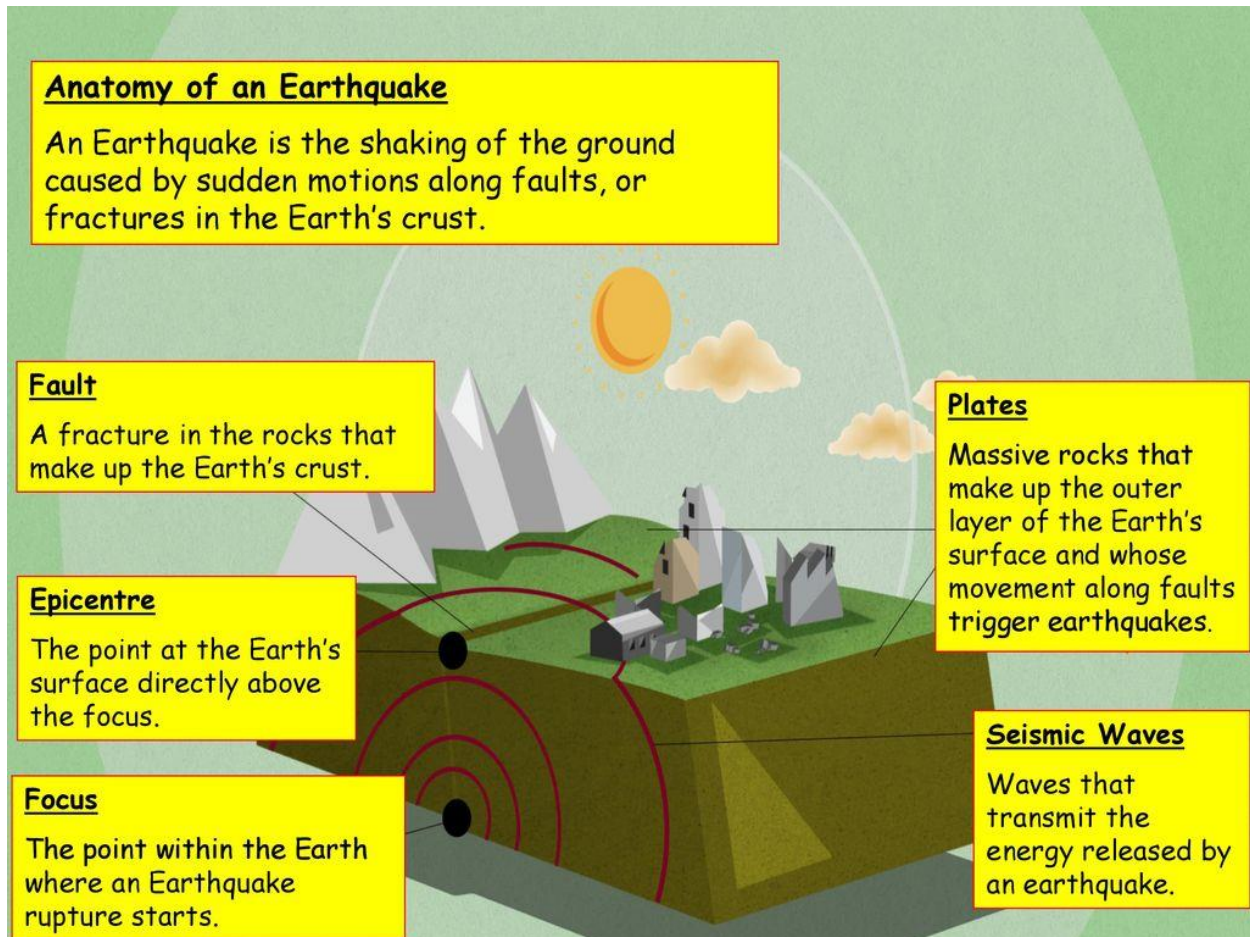
An earthquake is a weak to violent shaking of the ground produced by the sudden movement of rock materials below the earth's surface. The earthquakes originate in tectonic plate boundary.



Earthquakes can result in the ground shaking, soil liquefaction, landslides, fissures, avalanches, fires and tsunamis.



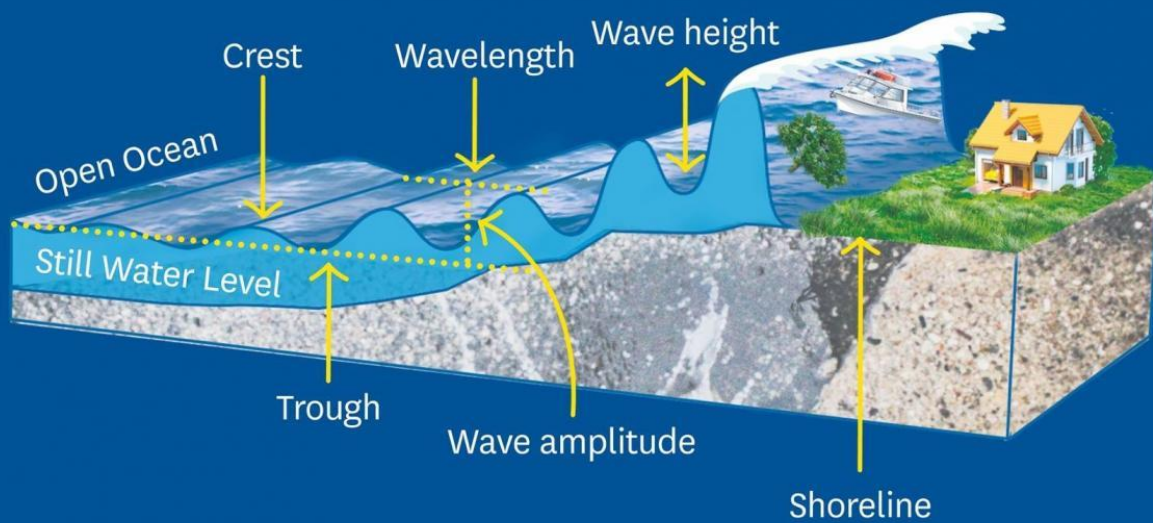
The tectonic plates are always slowly moving, but they get stuck at their edges due to friction. When the stress on the edge overcomes the friction, there is an earthquake that releases energy in waves that travel through the earth's crust and cause the shaking that we feel.



A tsunami is a series of long waves generated by a large and sudden displacement of the ocean. Large earthquakes below or near the ocean floor are the most common cause, but landslides, volcanic activity, certain types of weather, and near earth objects (e.g., asteroids, comets) can also cause a tsunami.



HOW A TSUNAMI WORKS

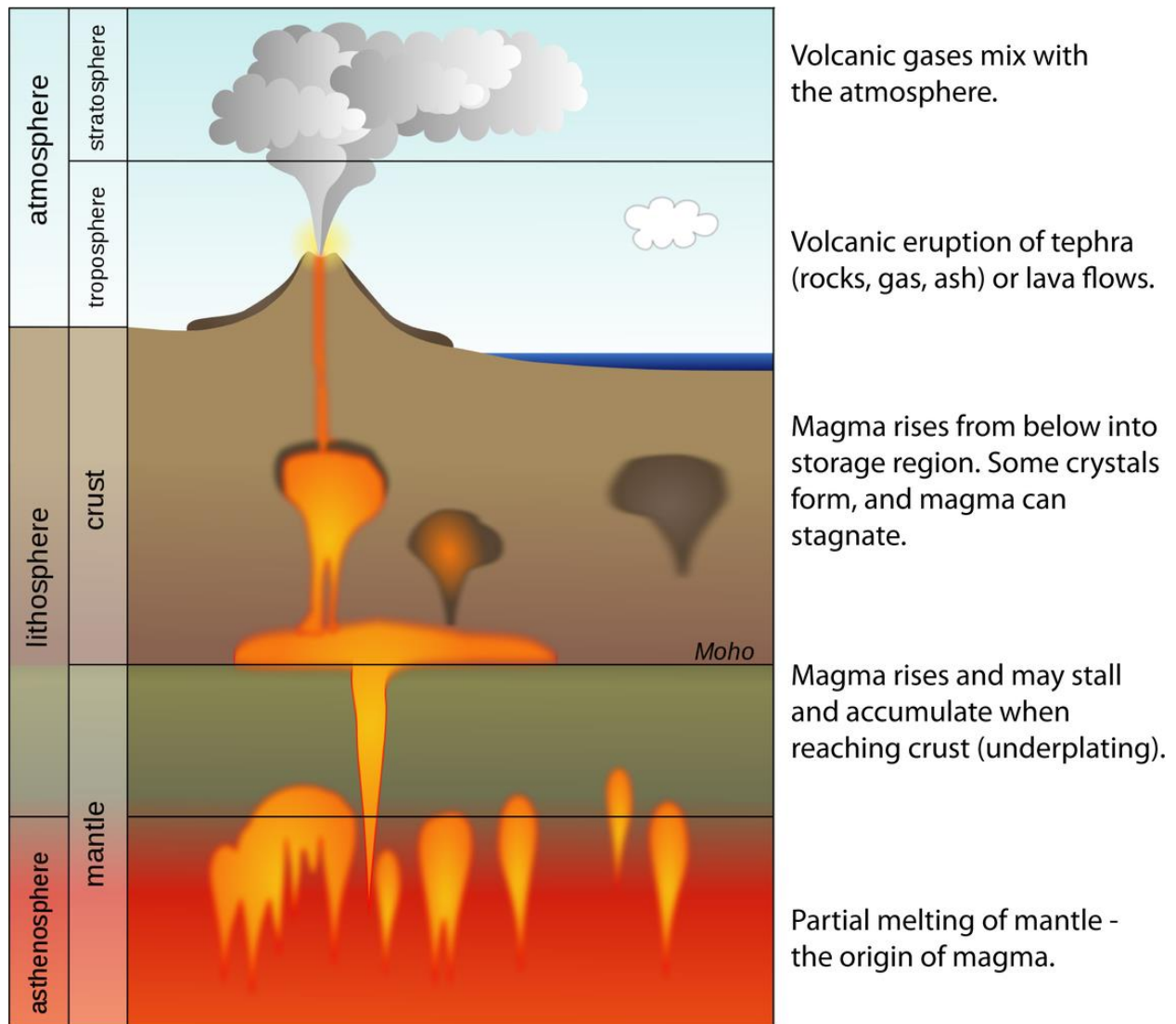


Volcanic

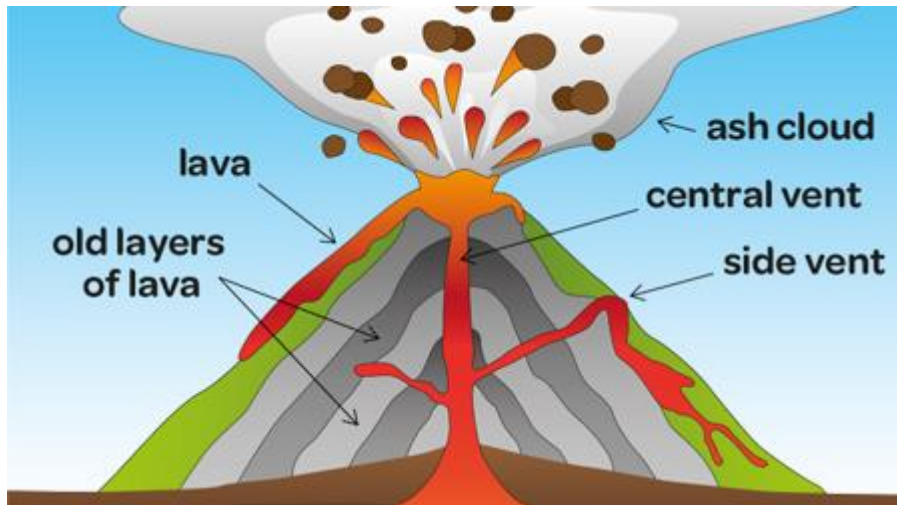
A volcanic eruption is when gas and/or lava are released from a volcano—sometimes explosively. Volcanoes provide a number of environmental benefits, for example: fertile soils, hydrothermal energy, and precious minerals.



A volcanic eruption is the expulsion of gases, rock fragments, and/or molten lava from within the Earth through a vent onto the Earth's surface or into the atmosphere. Illustration of the basic process of magma formation, movement to the surface, and eruption through a volcanic vent



Volcanic mountains are a special class of mountains. A volcano is a vent or opening through which magma, ash, gases, and water vapour are ejected out. Volcanic mountains consist of – Magma chamber, Vent, Lava, Crater, and pyroclastic flow. Volcanic soil or the soil around a volcanic mountain is very fertile.



Forecasting volcanic behavior

Scientists monitoring an active volcano will often measure the tilt of the slope and track changes in the rate of swelling. An increased rate of swelling, especially if accompanied by an increase in sulfur dioxide emissions and harmonic tremors is a high probability sign of an impending event.

Scientists use a wide variety of techniques to monitor volcanoes, including seismographic detection of the earthquakes and tremor that almost always precede eruptions, precise measurements of ground deformation that often accompanies the rise of magma, changes in volcanic gas emissions, and changes in gravity and ...



How can we tell when a volcano will erupt?

**An increase in the frequency and intensity of felt earthquakes.
Noticeable steaming or fumarolic activity and new or enlarged areas of hot ground.**

Subtle swelling of the ground surface.

Small changes in heat flow.

Changes in the composition or relative abundances of fumarolic gases.

The warning time preceding volcanic events typically allows sufficient time for affected communities to implement response plans and mitigation measures.