

Plate Tectonics

Brief #4: Earthquakes and Volcanoes

Focus

Earthquakes and volcanoes are natural forces that occur in the Earth's crust and mantle.



Earthquakes

Earthquakes are caused by the movement of the Earth's tectonic plates. When plates slide past each other, bump into each other, or move away from each other, pressure builds up in the Earth's crust.

Eventually, that pressure will be released in the form of an earthquake.

The place beneath the ground where the earthquake begins is called the focus. The area above the focus on the crust of the Earth is called the epicenter.

Vocabulary

1. focus
2. epicenter

When an earthquake happens, the energy from it is carried out away from the epicenter. The seismic waves can make the ground move back and forth. Other seismic waves can make the ground move up and down, like a wave in the ocean.

Earthquake strength is measured in magnitude on the Richter scale. The scale measures magnitude from 1 to 10. Each increase of one number on the Richter scale means that the earthquake releases about 31 times more energy. So an earthquake with a magnitude of 7.0 is 31 times more powerful than an earthquake with a magnitude of 6.0.



Volcano

Volcanoes are openings in the surface of the Earth's plates where hot magma rises and overflows out onto the crust of the Earth. Many volcanoes occur at the boundaries of plates. For example, as convergent plates crash into each other, one can slide underneath the other. That crust can melt and become magma, which can then explode through the crust as a volcano. (See page 97 for a diagram of a volcano's parts.)



Earthquake and Volcano Safety

Even though earthquakes and volcanoes are natural events, they can cause a lot of damage. Earthquakes can destroy whole cities, and the hot lava that flows from volcanoes can destroy all living things in its path.

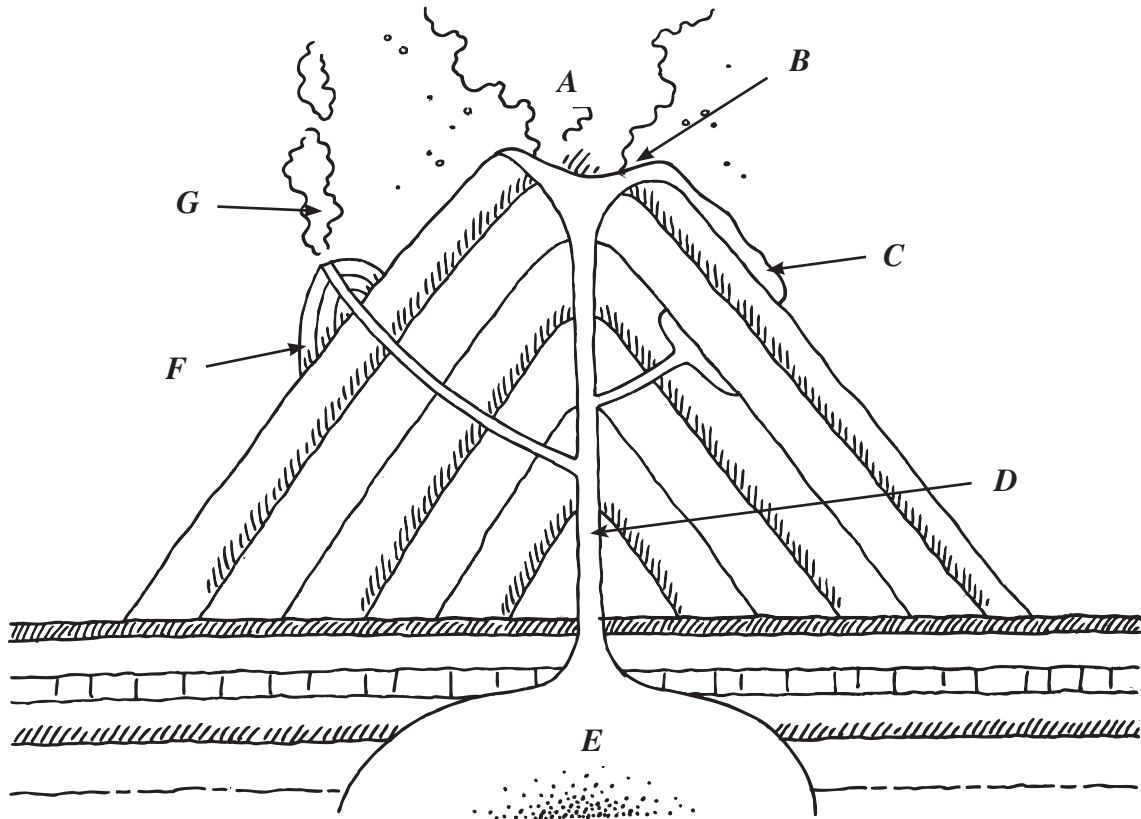
Fortunately, there are tools that scientists can use to better our understanding about when these natural events may happen. Seismographs are instruments that can detect tremors in the ground. A tiltmeter can show changes in the slope of land. Tremors and a change in the land can be an indication of a volcano or an earthquake.

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Brief #4: Earthquakes and Volcanoes (cont.)



Parts of a Volcano



- A. **ash cloud:** bits of rock that are spewed out from the volcano upon eruption
- B. **crater:** bowl-shaped depression at the top of a volcano
- C. **lava flow:** magma that has erupted out of the volcano and is flowing down the side
- D. **conduit:** a pipe that leads from the reservoir to the crater
- E. **magma reservoir:** area where a large amount of magma is located
- F. **parasitic cone:** a smaller cone that forms on the side of a volcano
- G. **side vent:** an opening on the side of a volcano out of which lava flows