

# Volcanoes: volcano and lava acidic lava assignment



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A volcano is an opening, or rupture, in a planet's surface or crust, which allows hot magma, volcanic ash and gases to escape from below the surface. The lifespan of a volcano can be about from a few months to a million years. A very popular way of classifying the volcanoes based on the frequency of their eruptions. Magma is molten rock within the earth's crust. When magma erupts through the earth's surface it is called lava. Lava can be thick and slow-moving or thin and fast-moving.

Rocks also come from volcanoes in other forms, including ash (finely powdered rock that looks like dark smoke coming from the volcanoes), cinders (bits of fragmented lava), and pumice (light-weight rock that is full of air bubbles and is formed in explosive volcanic eruptions - this type of rock can float on water). The largest volcano on the earth is Mauna Loa located in Hawaii. This volcano is about 10, 000m from the sea floor to the summit. It rises 4000m above sea level. The most active volcano is Mount St. Helens located in Washington state. TYPES OF VOLCANOES 1. Active volcanoes . Dormant volcanoes 3. Extinct volcanoes ACTIVE VOLCANOES Volcanoes which erupt frequently are called active volcanoes. Active volcanoes are those which erupted lava, gases, pumice, cinder etc in the recent historic periods. Presently there are about 500 active volcanoes around the earth of which most of them are located in the pacific ring of fire. E: g Mauna Loa which erupted recently in Hawaii in the year 1984. Augustine volcano which is located in Alaska and erupted in the year 1991. Mount St. Helens in Washington which erupted from 1980-1986 and again in the year 2004.

PACIFIC RING OF FIRE WHERE MAJORITY OF THE EARTH'S VOLCANOES ARE LOCATED. DORMANT VOLCANOES It is normally difficult to distinguish  
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dormant and extinct volcanoes from each other. Dormant volcanoes are those which erupted in the past and are likely to erupt again after remaining inactive for fairly long periods. These volcanoes are also called sleeping volcanoes which may become active once again. Volcanoes are becoming dormant because the earth's plates are continuously shifting above volcanic hotspots. Each time the hotspot reaches the surface, it creates a new volcano.

The tectonic plate continues to shift above the hotspot, and eventually the volcano is shut off from the magma chamber beneath. And so the magma finds a new source to the surface, creating a new active volcano. The older volcano stops erupting and becomes dormant. E: g Mount Rainer in Washington, Mount Fujiyama on Honshu, in Japan and Mount Etna in Greece. Mount Fujiyama, Japan

### EXTINCT VOLCANOES

Extinct volcanoes are ones which scientists consider unlikely to erupt again, because the volcano has no lava supply. Extinct volcanoes are those which were active in the remote geological periods.

It's very hard to differentiate between extinct and dormant volcanoes. For example Mount Vesuvius hadn't erupted in a very long that the Romans of the 79 A. D. had no warning of its eruption, and no defense against its destruction of the towns of Herculaneum and Pompeii. E: g Mount Kilimanjaro in Tanzania, Mount Warning in Australia, Elburus in Russia. Mount Kilimanjaro, Tanzania

### TYPES OF ERUPTIONS

1. CONICAL VOLCANO
2. SHIELD VOLCANO

Conical Volcanoes The most common type of eruption takes at a point on the earth's surface.

Magma and other materials get erupted through a narrow conduit or pipe and get accumulated around the point of eruption. Such accumulation of erupted materials leads to formation of a conical hill. Shield Volcanoes A second type of eruption takes place along a narrow fissure in the crust. Large quantities of magma are erupted and these spread over a large area. The magma gets solidified as thick sheets of lava to form extensive lava plateau e. g. Deccan plateau, Idaho Plateau in the USA. LAVA Lava is the word for magma (melted rock) which comes out of the volcano onto the earth's surface.

When lava comes out, it cools and forms rocks. On the basis of composition of lava it is divided into two basic types of lava. Lava is exactly the same thing as magma, except magma is found inside the volcano. The form of the cone depends on the type of lava which comes out of that particular volcano.

TYPES OF LAVA 1. Acidic lava 2. Basic lava ACIDIC LAVA ??? Acidic lava comes from the composite cones, it is slow moving and viscous. The acid lava cone has a narrow base, but it is high with conical shape. Acidic lava is rich in Silica but poor in iron and magnesium. It has a low density but, high melting point.

When the volcano erupts with a heavy explosion, this type of lava forms high, steep-sided cones and solidifies in the vent, which in turn creates a plug through which it may erupt again. An example of an acid lava dome is Mount Lassen in California. Mount Lassen, California BASIC LAVA ??? It is the hottest lava at about 1000 degrees Celsius and is highly fluid. It is normally dark in color like basalt it is rich in iron and magnesium but poor in silica. It is not very explosive and flows quietly at about a speed of 10 ??? 20 km/hr.  
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When the lava is basic in composition it flows down the slope of land and gets solidified away from the vent.

In such cases, the volcanic cone obtains a broad summit with gentle slopes around it, these are called lava shields because the shape of the volcano looks like a shield lying on the ground. OTHER FEATURES OF VOLCANOES  
CRATERS ??? Craters are formed when a volcano erupts explosively, a portion of the summit gets blown off to form a depression called a crater, crater lakes are also results of volcanic activities. Crater Lake, Kutmai national Park CALDERA ??? In some volcanoes, the summit of the volcano blows up during a violent explosion resulting in the formation of a large depression called a Caldera.

Some calderas are occupied by large lakes. In the state of Oregon, United States, there is a large caldera which has a diameter of 9km. Calderas are normally considered to be large than a crater. INTRUSIVE VOLCANIC FORMS  
Intrusive igneous landforms result from the cooling and crystallization of magmas beneath the surface, followed by erosion of overlying rock so that the intrusive landform is exposed at Earth's surface. The study of intrusive landforms is important in that rocks contained within them provide important information about internal earth igneous processes which cannot be directly observed. . Batholiths - Typically, are composed of multiple smaller intrusive bodies containing a variety of igneous rock types. They are gigantic intrusions of coarse grained igneous mass formed when a huge reservoir of magma cools and solidifies in an irregular shape. They form the core of old mountains. They are dome-shaped with no definite base. Smaller versions of

batholiths are also called stocks or bosses. 2. Stocks ??? It is an irregular igneous intrusion of magma, usually an offshoot of a batholith. 3.

Sills ??? These are intrusions of magma/lava of horizontal shape which get solidified between layers of horizontal sedimentary rock. They form terraces or benches on hill-slopes. 4. Laccoliths ??? similar to a sill but magma collects as a lens shaped mass that arches the overlying layers upward. Magma viscosity is slightly higher than that for a sill. 5. Dykes ??? It is a sheet like intrusive body. They are normally vertical in shape. They are usually narrow but may extend several kilometers in length. Dykes are more resistant, because of their igneous origin.