Cross Section VOLCANO MODEL

Made of durable Soft Foam!

Explore the mystery of volcanoes through hands-on investigation!
Explore the mystery and power of volcanoes with this Cross-section Foam Volcano model. The model is a representation of a composite volcano or strato volcano and allows students to learn about volcanoes through hands-on experience. The model also is a good introduction for teaching the different types of volcanoes and their impact on the environment. This guide includes some general facts about volcanoes, details on the different types of volcanoes, and an explanation about each part of a volcano as represented by the model.
Parts of a Volcano
(as represented by the model)

A. Vent – the opening in which the volcanic material is released

B. Conduit – the passage that the magma uses to flow through a volcano

C. Sill – magma that pushes through layers of rock, but does not cut across it

D. Strata – layers of rock that lay parallel on top of each other

E. Dike – sheet-like bodies of magma that cut through layers of rock

F. Crust – outer layer of Earth that lies beneath the oceans and continents

G. Upper Mantle – layer of Earth that lies beneath the crust; it is the largest layer composed of hot, dense rock

H. Magma Chamber – where the magma is collected before a volcano erupts

I. Lower Mantle – layer of Earth that lies beneath the upper mantle
Types of Volcanoes

There are three main types of volcanoes; Composite Cone, Cinder Cones, and Shield Cones. Each type is different because of the way they erupt or the types of materials they eject when they erupt.

Composite Cone volcanoes (strato volcanoes) have some of the most explosive eruptions. The volcano is built up by the lava, cinders and ash causing the overall size of the volcano to usually increase in size after an eruption. These volcanoes have very steep sides and are a type of transportation system for magma to rise up from deep within Earth’s crust. Sometimes, as in the case of Mount St. Helens in Washington, the eruption can be so powerful that part of the volcano can be blown away causing the mountain to be reshaped.

Cinder Cone volcanoes are named because they were made by lava fragments called cinders. Unlike Composite and Shield volcanoes, this type of volcano only has one vent in which the magma can flow. Lava fragments burst into the air and then fall around the vent of the volcano since there is only one vent for the magma to escape. Cinder cones also have steep sides, but they are not as large as Composite or Shield volcanoes.

Shield Cone volcanoes look like shields due to the gentle sloping sides caused by their eruptions. They received their name because they look like shields. Shield volcano eruptions usually have fluid lava flows, causing the lava to spread slowly over great distances. The lava flows not only from the top of the volcano, but also through cracks on the ground. Since the lava travels so slowly when these volcanoes erupt, there is usually enough time for animals and people to evacuate. Shield volcanoes are often some of the largest volcanoes in the world because of the way erupt.

Additional types of volcanoes include; Lava Dome, Caldera, and Submarine.
Volcano Formation

There are many layers inside the Earth. The Mantle is one layer that lies between the core and crust. It is made of solid rock, however sometimes high temperatures and pressure cause the mantle to melt and become magma. When a large quantity of magma collects, it moves to the surface through the crust and then releases pent-up gas and pressure that makes the volcano erupt. Once the magma escapes to Earth’s surface, air or water turns the magma into lava.

Types of Lava

There are many different types of magma. These produce different types of lava ranging from fluid, fast moving basalt, to slower and much thicker lava. Since rocks are made of different minerals that melt at different temperatures, the type of rock that is melted in the mantle influences the type of magma and lava that results.
Interesting Volcano Facts

- There are over 500 volcanoes that are active throughout the world.
- The “Ring of Fire” is a name given to a region that circles the Pacific Ocean where over half of Earth’s active volcanoes are located.
- The largest volcano in our Solar System is found on Mars and named Olympus Mons.
- The largest volcano on Earth is Mauna Loa, located in Hawaii. It is also one of the most active volcanoes.
- Indonesia has the most volcanoes out of all the countries.
- Ash from a volcano eruption that covers the ground is rich in minerals and makes the soil good for farming.
- When Mount St. Helens erupted in the state of Washington on May 18, 1980 it produced a very large landslide covering approximately 14 miles (22.5 km) in about 10 minutes.
- Shield volcanoes received their name from Icelandic people because the dome of these volcanoes resembles the shape of a warrior’s shield.
Volcano Worksheet

Directions: Label the parts of a volcano.

Name: ____________________
Suggested Activities

• Allow students to hold the volcano model. Ask them what observations they can make about the model and discuss what they already know about volcanoes.

• Using the letters on the one-half of the volcano model, quiz students on the different parts of a volcano. Make photocopies of page 7 to use as a quiz.

• Encourage students to do research on the Internet or at the library to find out more about volcanoes. Have them share their findings with the rest of the class.

• Have the students sit in a circle and start passing the two halves of the model in opposite directions. When one student receives the two halves at once, that student needs to say one fact about volcanoes or name a part of a volcano. After the fact is determined to be correct, that student tosses the halves to two different students to start again. Facts or volcano parts should not be repeated more than once.