

## TRB 5:2 - Activity 2: Volcanoes

### Summary

Students will learn many things about volcanoes, including what causes them to erupt, the dangers that they pose, the benefits that they provide.

### Materials

Option A:

Salt Dough Volcanoes:

Mix:

1 cup of salt

2 cups of flour

3/4 cup of water

Add food coloring to simulate mountains and forests. Shape the salt dough into a volcanic mound with a central tube or cylinder to facilitate eruption. Pour 1/2 box of baking soda into the cylinder.

When you are ready to simulate an eruption, add a cup of vinegar to the baking soda.

Option B:

Shake an ordinary pop bottle. Discuss what will happen when you take the lid off. Take off the lid when you are ready for the activity.

Option C.

You could also use a video or CD of a volcano erupting.

Additional Resources:

"Volcano Alert," Weekly Reader, March 8, 2002, Issue 20 ([www.weeklyreader.com](http://www.weeklyreader.com))

Why do Volcanoes Blow Their Tops? Questions and Answers About Volcanoes

Video: Savage Earth [pbs.org](http://pbs.org) 1-800-336-1917

### Background for Teachers

Volcanoes usually occur in predictable places. What a volcano looks like and exactly what will come pouring out of it depends on where and how it forms. On the mid-Atlantic ridge, a very liquid type of lava called basalt, oozes out of undersea volcanoes. This basalt hardens into "pillows" and flat sheets of new crust. In some places, the lava is much thicker and often creates violent eruptions as trapped gases explode and shatter the pasty lava to bits. This is what happened to Mount St. Helens in May of 1980. Although the eruption of a volcano can be one of the most destructive forces on Earth, volcanoes also build new land, and produce mineral-rich ash that helps fertilize the soil, and produce gases that are important to life on Earth.

### Intended Learning Outcomes

1-Use science process and thinking skills.

2-Manifest scientific attitudes and interests.

3-Understand science concepts and principles.

5-Demonstrate awareness of social and historical aspects of science.

### Instructional Procedures

Invitation to Learn:

Take the students out to the playground. If you are using a salt dough volcano, have it ready. Have students line up, then place a marker 100 feet (30 meters) away. Explain that they will be trying to run faster than the hot mud and ash that flowed down Mount St. Helens' slopes after its 1980 eruption. As soon as you activate the volcano, give the signal to the students to run to the marker.

When they catch their breath, tell them that the volcanic avalanche beat them all. It sped down the mountain at about 100 miles (160 kilometers) per hour and would have finished the race in less than 1 second! (Point out that not all lava, mud, and other material ejected from volcanoes flows this fast.)

Instructional Procedures:

After students have returned to class, ask students what they know about volcanoes. Ask them how far away from their town or city it is to the nearest volcano? Ask students why they think people continue to live in areas where volcanoes are active, such as Hawaii, Washington State, and Central Africa.

Explain that in real volcanoes, the pressure is created by heat, steam, and movements beneath Earth 's surface. Discuss the similarities and differences between the model and a real volcano. If available, show the video: Savage Earth Part 1–The Restless Earth

Discuss the following points:

What causes volcanoes?

What are the positive effects of volcanic eruptions (mountains, valleys, new lakes, canyons, fertile soil)?

A seismograph is a device used to measure wave movement through Earth 's crust. What can it predict? How is prediction helpful?

How have lava flows affected geologic formations in the state of Utah (specifically Southern Utah and Topaz Mountain near Delta)?

## Extensions

Literature Connections:

“Big Books ” about Volcanoes

The Secrets of Vesuvius by Sara C. Bisel

The Buried City of Pompeii: What It Was Like When Vesuvius Exploded by Shelley Tanaka

## Assessment Plan

Ask students to write three essays about the unit.

What are some of the dangers posed by volcanoes?

Discuss some of the positive effects of volcanoes.

Discuss the use of models in science instruction and why models are helpful.

## Bibliography

This lesson is part of the Fifth Grade Science Teacher Resource Book (TRB3)

<http://www.usoe.org/curr/science/core/5th/TRB5/>. The TRB3 is designed to be your textbook in teaching science curriculum to your students. This book covers all the objectives of each standard and benchmark. If taught efficiently, a student should do well on the End-of-Level (CRT) tests. The TRB3 is designed for teachers who know very little about science, as well as for teachers who have a broad understanding of science.

## Authors

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