

#3581

BILL NYE THE SCIENCE GUY: VOLCANOES

Grade Levels: 6-12

24 minutes

DISNEY EDUCATIONAL PRODUCTIONS 1997

DESCRIPTION

How are volcanoes formed? What is a lava tube? A stone wind? Where do volcanoes usually develop? As Bill Nye answers these questions, he also discusses types of volcanoes, shows their different shapes, and uses experiments to demonstrate volcanoes erupting. Includes many examples of volcanic activity.

ACADEMIC STANDARDS

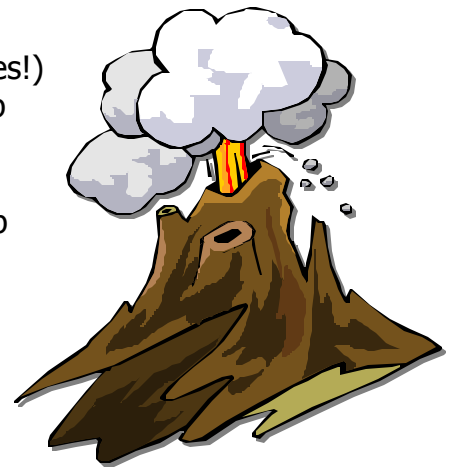
Subject Area: Science

- ◆ Standard: Understands the basic processes of the earth
 - Benchmark: Knows how features on the earth's surface are constantly changed by a combination of slow and rapid processes (e.g., weathering, erosion, and deposition of sediment caused by waves, wind, water, and ice; sudden changes in the landscape caused by landslides, volcanic eruptions, and earthquakes)

AFTER SHOWING

Discussion Items and Questions

1. Where did some of the oldest land come from? (Volcanoes!)
2. How are volcanoes formed? (When hot molten rock deep inside the earth finds its way to the surface.)
3. Do all volcanoes always explode when they erupt? (No! Some ooze thousands of tons of molten rock and build up the earth's surface.)
4. Where do volcanoes usually develop? (Along fault lines; where two tectonic plates run into each other.)



Applications and Activities

1. Under Pressure

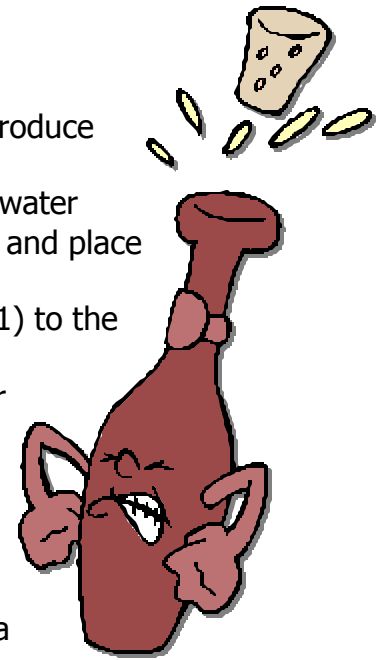
Objective: To observe the reaction of gas at different temperatures.

- a. Use two bottles of club soda, one very warm and one cold.
- b. Shake slightly and release pressure. Observe the reaction of the club soda and compare to volcanoes.

2. Gas It Up!

Objective: To cause a reaction when mixing a solution that will produce gas.

- Fill a skinny-necked bottle or a test tube with 6 ounces of water (may vary; more or less depending on size of bottle used) and place in a large bowl.
- Add 3 ounces of vinegar (size dependent; proportion is 2:1) to the water in the bottle.
- Place 3 ounces of baking soda onto a piece of tissue paper big enough to make a closed packet. Fold the tissue paper to make a packet.
- Drop it into the bottle and place a balloon over the opening of the bottle.
- Shake slightly for a few seconds. Observe the balloon inflating with the gas produced by the vinegar-baking soda mixture. This is similar to the gas produced by volcanic action.
- Try adding baking soda directly to the bottle without the tissue paper (remember to place the bottle in a large bowl).



3. Sweet Lava

Objective: To demonstrate how a substance would react under extreme heat and pressure causing rocks and minerals to form and change shape.

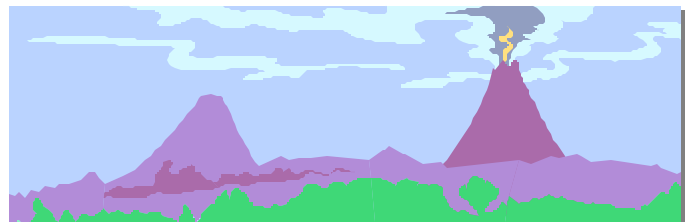
- In a saucepan, combine 1 cup of sugar and $\frac{1}{2}$ cup of water.
- Bring to a gentle boil and stir continually (you may need to add more water or sugar to the solution). Develop a thick solution of liquid sugar (lava) and pour into Styrofoam cups.
- Tie a toothpick to one end of a long string and wedge the toothpick into the cup, leaving the string trailing out. Let it stand until crystals (igneous rock) start to appear (three or more days). Remove the crystals and enjoy!

RELATED RESOURCES



Captioned Media Program

- Fire and Ice #3607
- Geology: Our Restless Planet #3037
- The Pacific Edge #2420



World Wide Web



The following Web sites complement the contents of this guide; they were selected by professionals who have experience in teaching deaf and hard of hearing students. Every effort was made to select accurate, educationally relevant, and "kid-safe" sites. However, teachers should preview them before use. The U.S. Department of Education, the National Association of the Deaf, and the Captioned Media Program do not endorse the sites and are not responsible for their content.

- **BILL NYE LABS**

<http://nyelabs.kcts.org/openNyeLabs.html>

From the famous and wacky Bill Nye the Science Guy. "Teacher's Lounge," "Home Demos," "Demo of the Day," "Ask Bill Nye," and a searchable "T.V. Guide" section. Locate the "Ocean" episodes within the "T.V. Episodes" pull-down menu.

- **BRAIN POP SCIENCE**

<http://www.brainpop.com/science/ecology/watercycle/index.weml>

An award-winning site designed to give kids' brains a workout full of fun. Many animated health, science, and technology movies to choose from. Long movie load time but well worth the wait! Play the content-based quiz while you wait.

- **VOLCANO WORLD**

<http://volcano.und.edu/>

Billed as the place that offers "everything you'd ever want to know about volcanoes."

- **FALLOUT: EYE ON THE VOLCANO**

<http://www.nationalgeographic.com/volcanoes/>

From the National Geographic Society.

- **OUT OF THE INFERNO: VOLCANOES**

<http://www.pbs.org/wnet/savageearth/volcanoes/index.html>

From PBS to support their televised series of documentaries.