

## Make and Map a Volcano

Object: to discover that many planets have things in common with each other.

*Volcanoes and/or lava flows are prominent features on all large rocky planetary bodies. Even some asteroid fragments show evidence of lava flows. The largest volcano we know about is found on the planet Mars. Olympus Mons is over 20 km high and would cover the entire state of Arizona.*

This activity comes in two parts, building a volcano and then mapping a volcano. Give the groups 10 minutes to build a volcano and then another 10 to map out another groups volcano. Split the group into two smaller groups and have each smaller group make a volcano. Then the two groups trade volcanos and map out each others volcano.

### Part 1: Lava Layering - building a shield volcano

Supplies for each volcano:

1 screw on pop bottle cap	2 paper cups 4-6 oz size
1 cardboard, approx. 45 cm. square	3-4 fist sized balls of playdough, each a different color
spoon	vinegar (1/2 c.)
baking soda (approx. 1/4 cup)	marker
paper towels	colored pencils, crayons, or markers
paper and pencil	

1. Glue the pop bottle cap onto the center of the cardboard with so it forms a small cup. Do this ahead of time for the girls.
2. Have the girls mark north, south, east, and west on the board. Tell the girls that the cap is the eruption source and the cardboard is the original land.
3. Place one heaping spoon of baking soda in the bottle cap. Slowly pour vinegar into the bottle cap and watch the eruption of simulated lava.
4. When the lava stops, quickly draw around the flow edge with a marker. Wipe up the fluid with paper towels.
5. As best you can, use a thin layer of playdough to cover the entire area where lava flowed.
6. On a separate sheet of paper record information about the flow. Indicate the color and shape. Use the colored pencils (etc.) to make a map of the flows.
7. Repeat steps 3-6 two or three more times. Record which flow is the largest and the smallest. Record the order of the colors of the flows (ie. red first, blue second, etc.). Be sure to mark

where the lava flows go over previous flows as well as on the cardboard. Cover the entire area of each succeeding flow. You may need to remove excess vinegar from the cup.

## Part 2: Mapping the volcano

### Supplies:

volcano from earlier  
8 tooth picks  
plastic knife  
mapping worksheet

crayons, colored pencils, or markers  
metric ruler  
eight 5 cm pieces of clear straw  
paper

1. Make sure the girls are mapping a volcano they did not make.
2. The girls can examine the volcano using the following.
  - I. Make one river bed by cutting a “V” shaped channel that is no more than 10 cm. long with the plastic knife.
  - II. Make one road cut by cutting a vertical channel that is no more than 10 cm. long with the plastic knife.
  - III. Make up to 8 core samples using the clear straw pieces. Use a tooth pick to stick the straw next to it’s core hole.
3. Have the girls try to figure out the following questions.
  - I. The order of the flows.
  - II. Which flow is the smallest.
  - III. Which flow is the largest.
4. After the girls are finished working let them check with the volcano makers notes to see if they correct the information the gathered was.