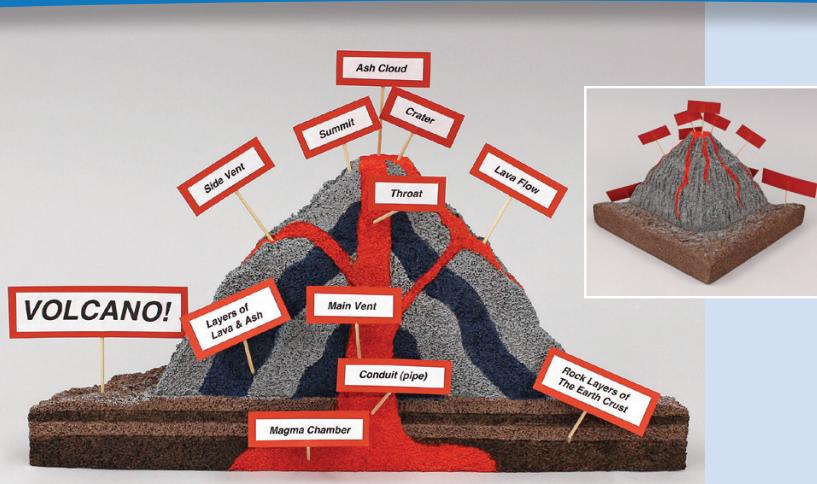


# Mountain Of Fire

## MATERIALS

**FOR STUDENT:** (one per student unless otherwise noted)

- FloraCraft® Make It: Fun® Foam Block, 2" x 12" x 36" (one per two students)
- Toothpicks, eighteen
- Paintbrushes, large and medium-small
- Plastic cups, two (one for water and one to hold parts)
- Pencil
- Ruler
- Paper towels, two
- Paint apron per student
- Pencil
- Scissors
- Plastic knife
- Glue stick
- Paper plate
- Medium size cardboard box (one per two students)
- Plastic wastebasket bag (one per two students)



## FOR TEACHER:

- FloraCraft® Make It: Fun® Foam Block, 2" x 12" x 36" (can get enough foam for two students)
- Colored cardstock paper, 8 1/2" x 11", orange to match Cadmium Orange paint approx. one sheet per two students
- Pencil
- Ruler
- Serrated knife
- Paper cutter
- Scissors
- Paintbrushes, large and medium-small
- Acrylic paint: Raw Umber (dark brown), Mississippi Mud (light brown), Slate Gray, Deep Midnight (blue) and Cadmium Orange
- Bucket of water
- Paper towels
- Old newspapers or plastic tablecloth (optional)
- Plastic-lined garbage can
- Wet wipes
- Drying area
- Glue stick
- Glue gun (for teacher only)
- Computer / printer / Internet

## TEACHER PREPARATION

*Note: Read through all the instructions first and check out the TIPS! Plan for three class sessions with drying time after the second and third ones. During the first and third session, have a glue gun plugged in and ready to use (ideally set on low temperature) but out of student reach. This can give you immediate adhesion when you're in a hurry to help students. It is also recommended that you make a model first, before preparing the materials for any others, since knowing the process might affect how you prepare.*

[1] To cut the horizontal foam block, use a ruler and pencil to divide the block into the following squares: 12", 8", 7" and 6". Inside each of those squares, draw diagonal lines to divide them into triangles. This will provide the foam needed for two student (plus there's room for one extra 6" square that can be used for other students).

On a cutting mat or stack of newspapers, use a serrated knife against the edge of a ruler to cut the foam squares with several passes of the knife. Keep the knife blade perpendicular to the table so that the foam edges are straight. Similarly, cut apart each one into triangles as marked. Continue marking and cutting enough for all the students.

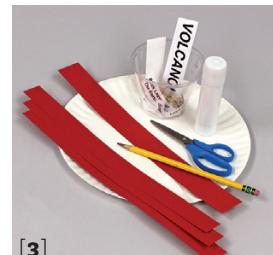
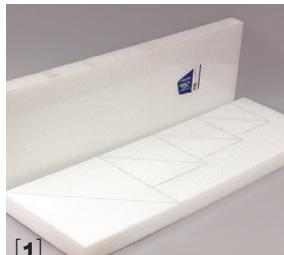
[2] Print and make a set of Volcano labels for each student. Use a paper cutter to cut them into 1/2"

wide strips (for the single line labels); 3/4" wide strips (for the double line labels) and 1" wide strip (for the title, "VOLCANO!"). Then trim each label for length.

[3] Also cut orange cardstock mounting strips (but students can cut for length): 7/8" x 12" strips (for the single line labels); 1 1/4" x 12" strips (for the double line labels); and 1 3/8" (for the title).

On a paper plate for each student, place: Orange strips, pencil, scissors, glue stick and cup with twelve toothpicks and white labels. Set aside until later.

[4] Cut apart the address labels. On a second paper plate for each student, place: Cup of water, pencil, glue stick, two paintbrushes, six toothpicks and label. Set four foam triangles next to plate. Have paint ready to go.



## SCIENCE GRADE LEVEL FOURTH – FIFTH

### COMPLETION TIME

- 60 minute session
  - 60 minute session
  - 30 minute session
- (2 hours minimum drying time after second and third sessions)



### OBJECTIVES

Students:

- Understand that everything in nature goes through change.
- Volcanoes and earthquakes are natural occurrences that cause change
- Learn the basic structure of a volcano

### STANDARDS

- Understand that the Earth's surface is constantly changing
  - Some changes happen slowly over long periods of time (weathering, erosion, and uplift) while other changes happen abruptly (landslides, volcanic eruptions, and earthquakes)
- Explain how volcanoes and earthquakes affect the Earth's surface – and how they relate to various physical land features
- Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time

### LESSON INTRODUCTION

- Show the students your model. In advance of the class, have them do research on volcanoes. Ask them to find a diagram showing the parts of a volcano and print it out or sketch it so that they have it to use for drawing and painting their model.



# INSTRUCTIONS

**[1]** Demonstrate for the students how to set their foam triangles on the long edges, lined up from smallest to largest. Show them how to apply a generous amount of glue stick to the bottom of the smallest foam triangle. Insert two toothpicks (about 3/4" apart) close to the center of the foam and press the foam triangle onto the next sized one, keeping their longest sides aligned on the table. Repeat with each foam triangle and then set the foam upright. Have the students glue their foam.



**[2]** Explain that they will be carving the edges off the foam to blend the layers into a mountain shape. Distribute plastic-lined boxes and explain that you want them to catch as many of the foam pieces in the box as possible, so that there is less clean up to do.

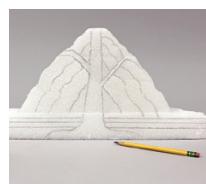
Demonstrate and for the students by starting on the back. Leave the bottom triangle with its point but carve away the points on the other three layers to curve the mountain. Then cut away the edges of each layer to shape the mountain. Have the students carve their mountains, encouraging them to keep visualizing a cone shape, underneath the edges. Remind them to leave the front completely flat and smooth since that is the cross-section of the mountain.

After they have the mountain shape, demonstrate and have them use the knife to cut two - three inch lines running irregularly down the rounded back of the mountain. Use the back of the knife to create a random texture in the top of the bottom foam triangle, which represents the rubble at the bottom of the mountain.



**[3]** Have the students clean up all their foam pieces. Distribute wet wipes for the table/

desks after all the large pieces have been discarded. Then have them look at their research to find the volcano diagram they want to use for drawing the cross section. Have them lightly sketch that diagram on the flat side of the foam. (Light pencil line errors can be covered by the paint.) When finished, have them write their name on their adhesive label and attach it to the bottom of their foam.



## SECOND SESSION

**[4]** Have the students wear their aprons and roll up their sleeves, explaining that this paint will not wash out of clothes.

Pour the orange paint onto their plates and have them use their small brush to paint the lava on the flat, front side. Then they can continue the lava streams they've drawn down the outside of the mountain. Also, they can make a couple more streams on the back of the mountain, coming down from the top.



**[5]** Next, have the students paint the light brown surface of the ground level, being careful not to smear the few places where the orange and brown meet. Then, they can paint the dark brown in the cross section.

Now, let these areas dry. Pour out the water cups, collect the brushes and put them into the bucket of water (until after class when they can be washed out). Put the volcanoes and the paint plates in the drying area.



## THIRD SESSION

**[6]** Distribute the paint materials and have the students paint the mountain and the cross section area light gray (painting around the orange). Then, explain that while they have gray on their brush, they can dry-brush the top surface of the brown ground to represent ash, as follows: Have minimal paint on the horizontally-positioned brush so that the bristles only hit the top surface of the textured ground. Have the students dry brush their ground with gray.

Last, have them paint the dark blue in the cross section area. Let the volcanoes dry and clean up the paint materials.



**[7]** Have the students use glue stick to mount their labels, trimming the orange cardstock lengths to size. Then, demonstrate and have the students cut 1/2" pieces from the remaining orange strips to go on the back of each mounted label and use as follows: Wipe the end of a toothpick on the glue stick to catch a lump of glue and then press it onto the back center of the mounted label. Apply glue stick to the 1/2" piece and press it onto the glue stick area to secure as a sign.



**[8]** After the paint is dry, insert signs into the appropriate places on the volcano.

## REFERENCES

- Volcanoes by Seymour Simon
- Time For Kids - Volcanoes by the Editors of Time For Kids
- National Geographic Kids – Everything Volcanoes and Earthquakes by Kathy Furgang
- Volcanoes! Mountains of Fire by Eric Arnold

# INSTRUCTIONS

## MODIFICATIONS

### *To simplify project:*

- Have the layers of foam already glued and ready to carve.
- Make a flat diagram of the same volcano on a 9" x 12" block.

### *To expand project:*

- Research and include more detail, making smaller labels to have room for more labels.
- Ask students to research a particular volcano and work together to show the various stages of volcanoes.

### *For multiple ages:*

- Younger and older students can work side-by-side, with younger students painting and the older ones drawing the diagram and making the flags.
- Have older students research more of the details of how an eruption occurs.

## ADDITIONAL IDEAS

- Have the older students research more on volcanoes and their effect on people – to extend the project into social studies as well as science.
- Have the students read stories of Pompeii and search for images of the artifacts that have been found from that time period.
- As a class or group, make a jumbo volcano from layers of 2" thick foam and place it in the center of the room.
- Use this technique for other cross sections of items that students are studying.
- Use the 2" thick foam to make models of earthquakes and land slides. Pebbles can be glued to the foam to create falling rocks. Twigs can become trees and moss can be used for tree leaves and ground cover.

## TIPS

- If the longest sides of the triangles are rough, use scraps of foam to sand them down, over a wastebasket.
- Prepare the painting area, covering the tables if needed. Allow for plenty of space for each student. Have a large plastic-lined garbage can ready.
- Remind the students that the lava stream gets narrower as it goes from the bottom to the top on the inside of the mountain, but that it gets narrower as it goes from the top to the bottom on the outside of the mountain.
- Suggest to the students that to paint the foam texture, they can dab at the foam with their brush, since the rough texture doesn't allow the brush to make a stroke as it does on a smooth surface.
- If the acrylic paint seems too thick, have the students add a few drops of water from their paintbrush onto their puddle of paint. A creamier consistency of paint will go down into the foam pores more easily.
- Optional: For those signs that go into the front of the cross section, if you can't see them because of the angle, decide if you want to tightly pinch and gently bend to snap the toothpick where it meets the label so that it can be bent up, without breaking it all the way off. Try it on your model first to see if you like it. If so, explain to the students how to do it. (Have extra toothpicks in case any break apart.)



## LABELS

# VOLCANO!

Labels  
Print at 100%



[makeitfuncrafts.com](http://makeitfuncrafts.com)

# VOLCANO!

*Ash Cloud*

*Crater*

*Side Vent*

*Main Vent*

*Layers of  
Lava & Ash*

*Magma Chamber*

*Lava Flow*

*Rock Layers of  
The Earth Crust*

*Conduit (pipe)*

*Summit*

*Throat*

*Ash Cloud*

*Crater*

*Side Vent*

*Main Vent*

*Layers of  
Lava & Ash*

*Magma Chamber*

*Lava Flow*

*Rock Layers of  
The Earth Crust*

*Conduit (pipe)*

*Summit*

*Throat*