



# HOW TO MAKE A VOLCANO - FOR KIDS -

Building a homemade volcano for kids can be easy and fun! This timeless and well-loved science experiment is easier and less messy than you may think.

## Building volcanoes is fun indoors and outdoors!

Take advantage of a beautiful afternoon outdoors and build a volcano outside. An indoor volcano is just as fun. Building your model volcano in a large cake pan or on a large cookie sheet with an old towel underneath to soak up any overflow lava makes cleanup a breeze.

## How to make exploding lava

The same basic lava recipe can be used in all three volcanoes. Here are the basic proportions, but there's definitely wiggle room to play around with different amounts of ingredients.

### Lava Recipe:

- 1/3 cup baking soda
- 1 teaspoon dish soap
- 1/2 - 1 cup vinegar
- Food coloring or washable paint

Note: do not premix

## Three Best Homemade Volcanoes for Kids

### #1 - Dough Volcano

Our favorite dough volcano uses these two dough recipes—one for lava and one for ash.

### Dough Recipe:

- 3 cups flour
- 1 cup salt
- 1 cup water
- 2 tablespoons vegetable oil

Mix all the ingredients in a large mixing bowl until the texture and stickiness are to your liking. If it is too wet, add a spoonful of flour. If it is too dry, add a spoonful of water. This dough will represent your lava layer.

### **Sand Dough Recipe:**

2 cups flour  
1 cup sand  
1 cup salt  
½ cup water  
2 tablespoons vegetable oil

Mix all the ingredients in a large mixing bowl until the texture and stickiness are to your liking. If it is too wet, add a spoonful of flour. If it is too dry, add a spoonful of water. This dough will represent your ash layer.

### **Other ingredients needed for this volcano:**

#### **Volcano Supplies:**

Bottle with a narrow opening  
Plastic straw  
Masking tape

#### **Lava Ingredients:**

Baking soda  
Food coloring  
Dish soap  
Vinegar

After making both types of dough, gather the other necessary supplies and ingredients. A 20-ounce soda bottle and a straw work well to form a magma chamber. A larger bottle could be used if you don't mind mixing more dough and creating more lava.

Poke two holes randomly on the sides of your bottle, just big enough to fit a straw into. Cut your straw in half and stick one end of each piece into each of the holes; then secure them with masking tape. These straws will serve as side vents for your volcano. Set your bottle in the middle of your pan or directly on the ground if you are outside.

Now it's time to create your layers. Roll out each type of dough and start to build up your volcano around the bottle, alternating the regular (lava) dough and the sand (ash) dough. The thickness of each layer is up to you; be creative! Be sure to leave your straw pieces sticking out for now. Once you've formed your cone-shaped volcano all the way to the rim of your bottle, trim the straw pieces so that the ends are flush with the sides of the volcano.

Now it's time for the eruption!

First, add 1/3 cup baking soda to your magma chamber (bottle). Then add about a teaspoon of dish soap for an extra foaming effect and top it off with several drops each of red and yellow food coloring. Last, when you are ready for the action, pour in ½ to 1 cup of vinegar and watch the eruption.

The different textures on this volcano provide a great teaching opportunity to explain the composition of real-life volcanoes. The straw vents also add some extra excitement that can be used in any of these volcanoes.

## #2 - Clay Volcano

Next, we built a more basic volcano using air-dry clay. We built this one up around an eight-ounce disposable plastic cup, and we found it worked just as well as the bottle magma chamber. Use whatever you have on hand! We didn't wait for it to dry before our eruption, but if you want to make yours look a bit fancier and more realistic, let it dry first and then paint it.

### Volcano Supplies:

- Bottle or cup
- Plastic straw (Optional for side vents)
- Masking tape (Optional for side vents)
- Air-dry clay

### Lava Ingredients:

- Baking soda
- Food coloring (or washable paint)
- Dish soap
- Vinegar

We also put a slightly different twist on the lava this time. We used the same basic recipe, but we substituted roughly two ounces of a combination of red, yellow, and orange washable paints for the food coloring. The result was very pretty, richly colored lava.

Using washable paint is a great idea if you are building your volcano indoors since it won't stain like food coloring.

## #3 - Dirt Volcano

The easiest and least expensive volcano to make is a dirt volcano. For this one all you'll need to have on hand are the lava ingredients and a bottle or cup for the magma chamber because the rest is built from nature.

### Volcano Supplies:

- Bottle or cup
- Plastic straw (Optional for side vents)
- Masking tape (Optional for side vents)
- Dirt, mud, or sand

### Lava Ingredients:

- Baking soda
- Food coloring
- Dish soap
- Vinegar

Find a small area of dirt or sand that you don't mind digging in. We chose an empty spot in our flower bed and lightly sprayed it with a water hose. Then we dug down just deep enough to make a cozy little spot for our bottle to sit in. We built up the dirt all the way up to the rim of the bottle, rewetting it as needed to help it stick together. Don't let winter stop you—build your volcano out of snow!

Real volcanoes come in different shapes and sizes, and yours can too! Kids enjoy searching for backyard plants, sticks, and rocks to decorate the volcano. With so many variations to choose from, make your volcano unique to your family. It can be as small and simple as taping duct tape all the way around the rim of a cup diagonally down to the base it sits on or as large and detailed as using a two-liter bottle, painting your own homemade dough, and creating an elaborate scene around it. Get creative!

## PARTS OF A VOLCANO

- Instructions: Find these parts on your homemade volcano.
- Then label the parts on the diagrams on the following pages.

### #1 Magma Chamber:

This hollowed-out cavity lies deep beneath the earth and contains magma and gases. The magma feeds into the volcano.

### #2 Conduit:

This is the main pathway taken by the magma to reach the top of the volcano.

### #3 Dike:

Pressure builds up in the crust and in the volcano. When a crack forms and cuts across the rock, magma fills the crack, creating a dike.

### #4 Main Vent:

This is the main opening that comes directly up from the conduit from which lava, gas, ash, and other volcanic materials are expelled.

### #5 Crater:

A crater is a bowl-shaped, steep-sided opening at the top of the volcano surrounding the main vent. Craters form from explosive eruptions.

### #6 Ash Cloud:

During an eruption water vapor, gas, dust, rock, minerals, volcanic glass, and other debris get emitted into the air like a cloud.

### #7 Lava:

Whether molten rock (lava) oozes or explodes out of the volcano's vents depends on the lava's viscosity and type.

### #8 Side Vent:

When cracks or dikes branch off from the main conduit and then open at the surface of the side of a volcano, a side vent forms. Some volcanoes have many side vents, creating several layers of hardened lava.

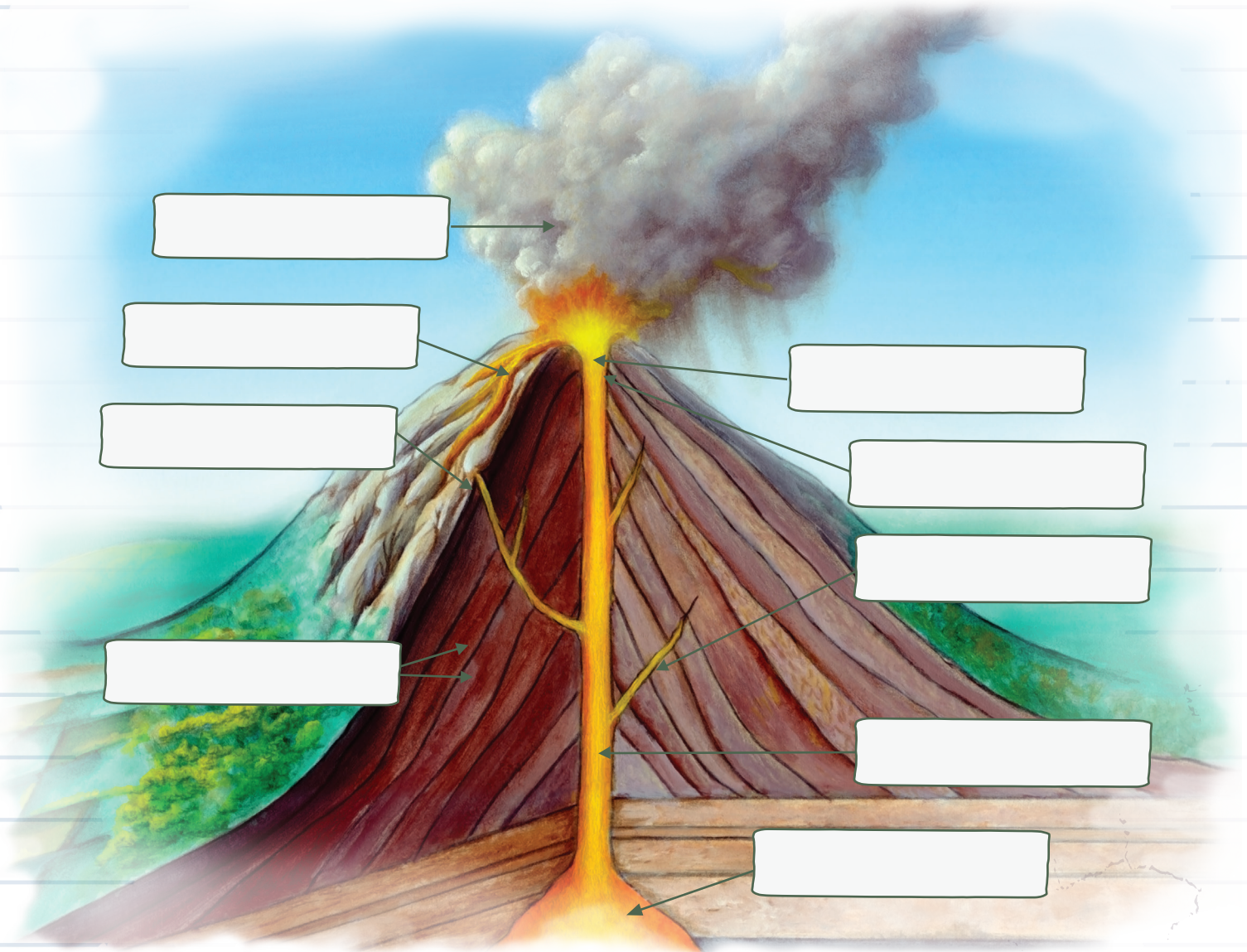
### #9 Layers of Ash and Lava:

As a volcano experiences multiple eruptions, ash and lava layers accumulate, growing the volcano.



# STRUCTURE OF A VOLCANO

Use the word bank to label the volcano.



## Word Bank

magma chamber

conduit

dike

main vent

crater

ash cloud

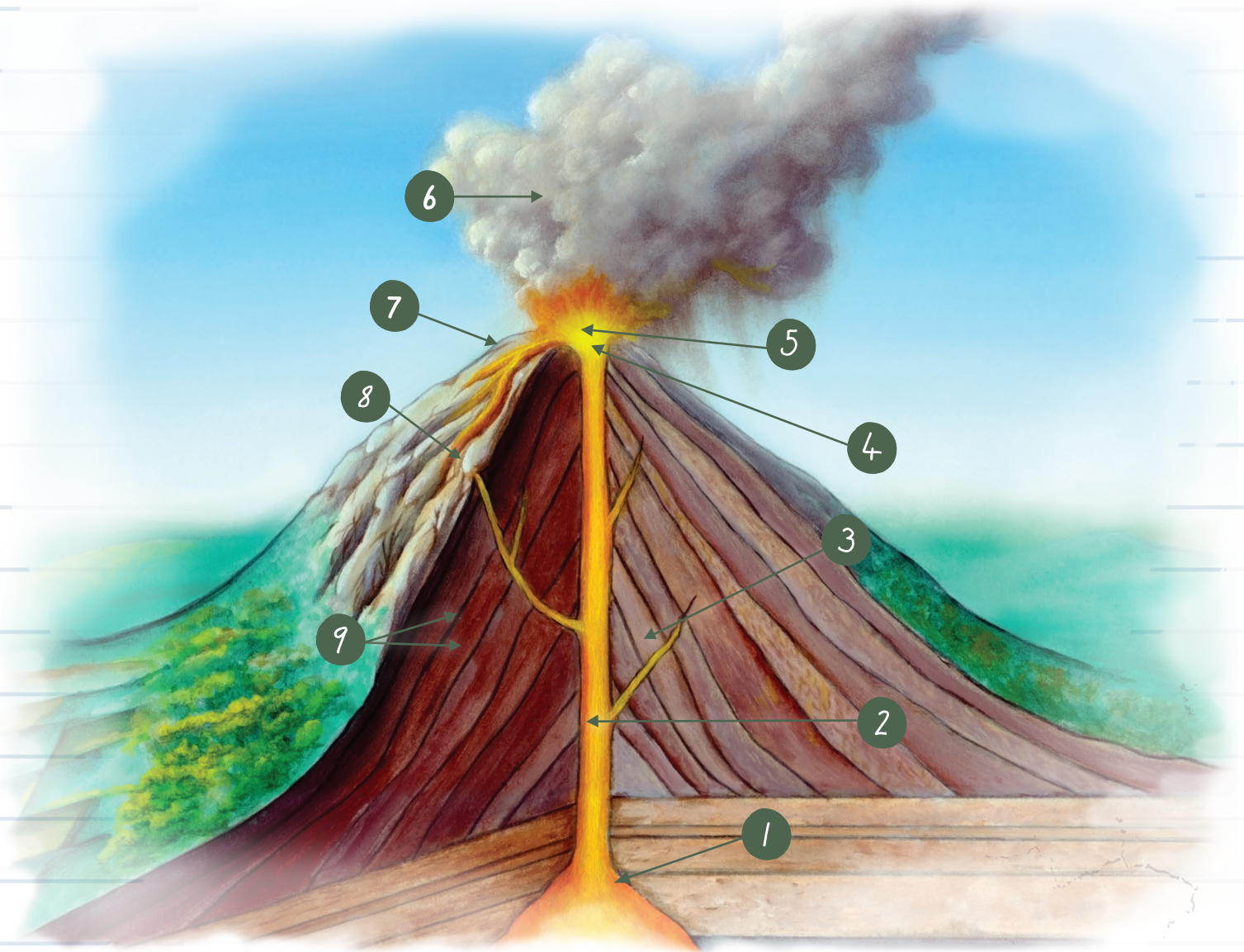
lava

side vent

layers of ash and lava

# STRUCTURE OF A VOLCANO

Draw a line to connect each word to the correct part of the volcano.



magma chamber

side vent

conduit

dike

lava

layers of ash and lava

ash cloud

main vent

crater