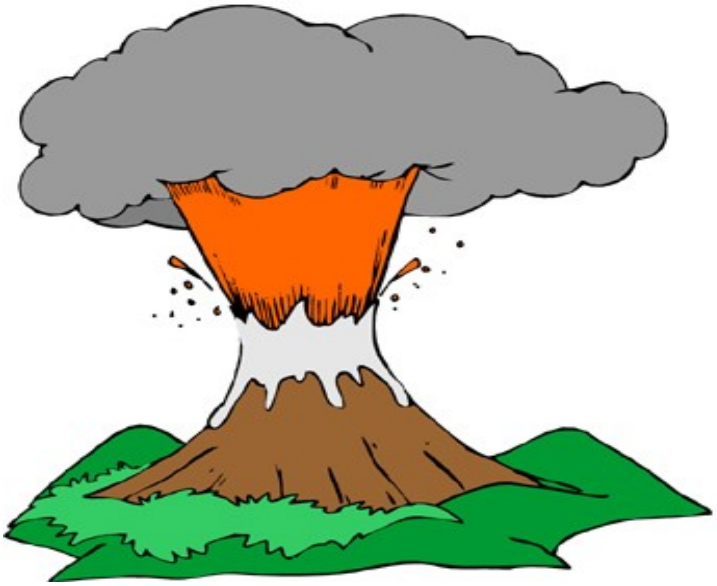
Name: _____

Volcanoes: Fire Under the Surface

by Kelly Hashway

Have you ever dropped a sealed bottle of soda and then tried to open it? The pressure inside the bottle combined with the carbonation of the soda makes it come shooting out of the opening, much like an erupting volcano.



A volcano is a mountain that opens inward to molten rock below the earth's surface. This molten rock is also called magma, and it is found in the layer of earth known as the mantle. The temperature in the mantle is extremely high. Because heat rises, the magma tries to find a way to rise to the earth's surface. Since the magma is escaping from a small space, it releases a lot of energy. This energy can produce gas and dust, but it also causes pressure to build. The magma rises and shoots out the opening of the volcano, just like a soda that's been shaken.

Not all eruptions are the same. Some volcanoes erupt with lava and others erupt with hot ash. This is because volcanoes come in different shapes and sizes.

- **Ash and cinder volcanoes** have steep sides but aren't very tall. When they erupt, small solid fragments of rock and ash come out of the volcano.
- **Acid lava cone volcanoes** are full of magma, which we call lava once it reaches the surface. These volcanoes erupt with very slow moving, thick lava that doesn't travel far. As the lava cools and hardens, it forms new soil and rock, giving the volcano its cone shape.
- **Shield volcanoes** are also made of hardened lava. When they erupt, their lava flows are very thin and runny. The lava spreads out and becomes new soil, making these volcanoes very large with gentle sloping sides.
- **Composite cone volcanoes** are the most common. They are very tall, and they erupt with runny lava followed by explosive thick lava. They also have a lot of ash. These volcanoes have very steep sides because the ash and thick lava cools and becomes part of the surface.

Volcanoes can be very dangerous and can do a lot of damage. Volcanic eruptions have caused mudslides, avalanches, and floods. They can also trigger other things, like tsunamis, earthquakes, and rockfalls. In the United States, the most active volcanoes are in Alaska, Washington, Oregon, California, and Hawaii. In fact, the Hawaiian islands were actually created by volcanoes under the ocean.

The location of volcanoes has to do with the surface of the earth. The surface, or the crust, is broken up into large pieces called tectonic plates. Tectonic plates lie on top of the hot, liquid mantle. The mantle can flow and move the tectonic plates. Volcanoes occur at hot spots under these plates, where the mantle is pushing to the surface. These volcanoes are usually the most active. Volcanoes that have not erupted for some time are considered dormant. Because the tectonic plates shift, one volcano can become dormant while another volcano is formed.

Whether volcanoes are creating new soil and beautiful islands like in Hawaii or causing damage to people's homes, they are the earth's way of reminding us that our planet is actually a hot, fiery ball of molten rock underneath the surface.

More Interesting Volcano Facts

Do you know the difference between lava and magma?

Magma is molten rock found beneath the Earth's surface. When it reaches the surface, it is called lava.

There are about 1,500 active volcanoes on the earth's surface. There may be 10,000 or more under the ocean.

The biggest volcano on Earth is Mauna Loa, in Hawaii. It is over 13,000 feet above sea level.

The biggest volcano in the solar system isn't on planet Earth - it's on Mars!

Olympus Mons is a large shield volcano on the surface of Mars. It is three times taller than the tallest mountain on Earth.

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1. Where is magma found?

a. at the top of a volcano
b. on the sides of a volcano
c. in the air
d. inside the Earth

2. What is the difference between magma and lava?

_____

_____

3. What is a dormant volcano?

a. a volcano that has never erupted
b. a volcano that has not erupted in a long time
c. a volcano that will never erupt again
d. a newly-formed volcano

4. Where would you find the most active volcanoes in the United States?

a. in the eastern part of the country
b. in the central part of the country
c. in the western part of the country
d. There are no volcanoes in the United States.

5. List two ways an **ash and cinder volcano** is different from a **composite cone volcano**.

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ANSWER KEY

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1. Where is magma found? **d**

   a. at the top of a volcano
   b. on the sides of a volcano
   c. in the air
   d. **inside the Earth**

2. What is the difference between magma and lava?

   Magma is molten rock found inside the Earth. When it reaches the surface, it's called lava.

3. What is a dormant volcano? **b**

   a. a volcano that has never erupted
   b. **a volcano that has not erupted in a long time**
   c. a volcano that will never erupt again
   d. a newly-formed volcano

4. Where would you find the most active volcanoes in the United States? **c**

   a. in the eastern part of the country
   b. in the central part of the country
   c. **in the western part of the country**
   d. There are no volcanoes in the United States.

5. List two ways an **ash and cinder volcano** is different from a **composite cone volcano**.

   1. When an ash and cinder volcano erupts, it lets out ash. When a composite cone volcano erupts, lava pours out.

   2. Ash and cinder volcanoes aren't very tall. Composite cone volcanoes are tall.