What is a volcano?

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TOP: Mount Etna volcano spews lava during an eruption near the Sicilian town of Catania, Italy, December 15, 2013. Courtesy of Associated Press. BOTTOM: Volcanoes on Earth form from rising magma. NASA.

A volcano is a special kind of opening on the surface of a planet or a moon. It allows material warmer than its surroundings to escape from its interior. When this material escapes, it causes an eruption. An eruption can be explosive, sending material high into the sky. Or it can be calmer, with gentle flows of material.

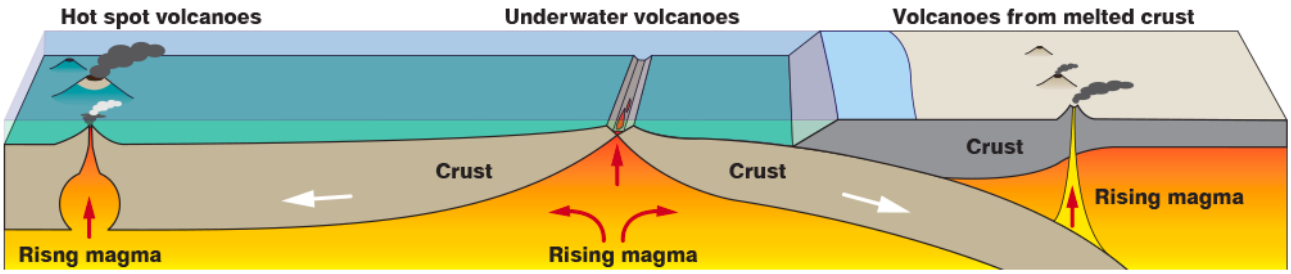
These volcanic areas release lava, ash, gas, steam, rocks and other material. Over time those materials build up into mountains around the volcanic openings.

Volcanoes can be active, dormant or extinct. Active volcanoes are volcanoes that have had recent eruptions or are expected to erupt in the near future. Dormant volcanoes are inactive. They no longer produce eruptions, but might again sometime in the future. Extinct volcanoes will likely never erupt again.

What Causes Volcanoes?

Volcanoes occur when material warmer than its surroundings is erupted onto the surface of a planet or moon. On Earth, the erupted material can be liquid rock, ash, cinders or gas. When liquid rock is on the surface, it's known as "lava." When it's underground, it's known as "magma."

There are three reasons why magma might rise and cause eruptions.



First, magma can rise when pieces of Earth's crust called tectonic plates slowly move away from each other. The magma rises up to fill in the space. When this happens underwater volcanoes can form.

Magma also rises when these tectonic plates move toward each other. When this happens, part of Earth's crust can be forced deep into its interior. The high heat and pressure cause the crust to melt and rise as magma.

A final way that magma rises is over hot spots. Hot spots are exactly what they sound like. They are hot areas inside of the Earth that heat up magma. When this happens, the magma becomes less dense and rises.

Are There Volcanoes Elsewhere In The Solar System?

There have been a lot of volcanoes on other planets in the past. Some places in the solar system have active volcanoes erupting right now. Venus and Mars are covered with extinct volcanoes. Some of the moons of Jupiter, Saturn and Neptune actually have eruptions happening right now. NASA spaceships have taken pictures of some of them.

Quiz

1 Select the paragraph from the section "What Causes Volcanoes?" that explains how tectonic plates spreading apart can cause volcanoes.

2 Read the section "What Causes Volcanoes?" Which piece of evidence BEST explains a cause of volcanoes?

(A) On Earth, the erupted material can be liquid rock, ash, cinders or gas.

(B) There are three reasons why magma might rise and cause eruptions.

(C) Magma also rises when these tectonic plates move toward each other.

(D) They are hot areas inside of the Earth that heat up magma.

3 Read the following paragraph.

> *Volcanoes occur when material warmer than its surroundings is erupted onto the surface of a planet or moon. On Earth, the erupted material can be liquid rock, ash, cinders or gas. When liquid rock is on the surface, it's known as "lava." When it's underground, it's known as "magma."*

Why does the author include this paragraph in the article?

(A) to discuss the effects of liquid rock, ash, cinders and gas on the Earth's atmosphere after a volcano erupts

(B) to describe the differences between volcanoes with lava and volcanoes with magma

(C) to compare and contrast two different kinds of volcanoes found on Earth

(D) to provide information about the circumstances that make it possible for volcanoes to occur

4 Why does the author include the section "Are There Volcanoes Elsewhere In the Solar System?"

(A) to explain how volcanoes form on other planets

(B) to describe how Earth is unique in the solar system

(C) to point out that volcanoes occur on many planets

(D) to summarize the information given in earlier sections