

Start with a Book: Space Rangers

Eruption! Olympus Mons, the Mars Volcano



Introduction

Mars has the largest volcano in our solar system! Astronomers believe that the volcano called Olympus Mons last erupted 25 million years ago, and that it may still be an active volcano. Olympus Mons is as big around as the state of Arizona (about 400 miles) and rises 16 miles above the Martian surface — almost three times taller than Mt. Everest.

Get kids thinking

Volcanoes can be found on Earth, but did you know that there are volcanoes all around our solar system? Io, one of the large moons orbiting around Jupiter, is covered with active volcanoes, and scientists have found evidence of volcanoes on our Moon as well as the moons of Saturn and Neptune.

ASK KIDS: Have you ever watched a movie of a volcano eruption? What does it look like? Describe what is coming out of the top of the volcano. What would the air feel like if you got too close to a volcano? What sounds might you hear?

Images from Mars orbiters and rovers show us what Olympus Mons looks like.

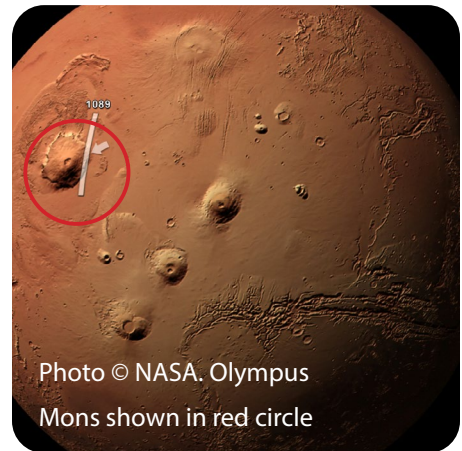


Photo © NASA. Olympus Mons shown in red circle

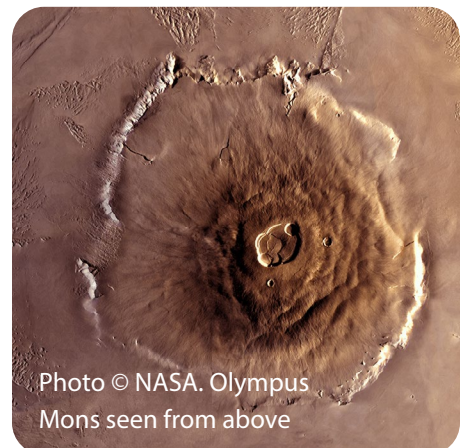


Photo © NASA. Olympus Mons seen from above





Supplies

- Deep baking dish
- 2-liter plastic bottle
- Large mixing bowl
- Spoon(s) for mixing
- Drop cloth or place where volcano can erupt and make a mess

FOR THE VOLCANO “CONE”

- 6 cups flour
- 2 cups salt
- 2 cups warm water (more if needed)
- 4 tablespoons cooking oil
- Food coloring: mixture of red and black to make brown (optional)

FOR THE VOLCANO “LAVA”

- Hot tap water
- Funnel
- 2 tablespoons baking soda
- 2 cups white vinegar
- Red food coloring (optional)
- 6 drops of dish detergent
- Smart phone to videotape eruption (optional)





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Let's get started!

FIRST, MAKE THE "CONE" OF THE VOLCANO

Mix 6 cups flour, 2 cups salt, 4 tablespoons cooking oil, and 2 cups of water. Add food coloring to make the dough brown, if you like. The resulting mixture should be smooth and firm (add more water if needed).

Then, stand the soda bottle in the baking pan and mold the dough around it into a volcano shape. Don't cover the hole or drop dough into it.

NOW FOR THE LAVA!

Fill the soda bottle most of the way full with warm water and a bit of red food coloring. Next, add 6 drops of detergent to the bottle contents. The detergent helps trap the bubbles produced by the reaction so you get better lava. Then add 2 tablespoons of baking soda to the liquid.

Slowly pour vinegar into the bottle. Watch out — eruption time!

You can make your volcano erupt over and over by adding more baking soda. Pour in more vinegar to trigger the reaction. You may need to pour off some of the "lava" between eruptions.





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ASK KIDS: what's happening? The cool red lava is the result of a chemical reaction between the baking soda and vinegar. Carbon dioxide gas is produced, which is also present in real volcanoes. As the carbon dioxide gas is produced, pressure builds up inside the plastic bottle, until the gas bubbles out of the volcano.

Share the infographic on the next page that shows how a volcano erupts. If you have Internet access, you can also watch videos of volcano eruptions.

VOLCANOES 101 (National Geographic) shows videos of real volcanic eruptions and lava flow, as well as an animation explaining how and why volcanoes erupt.

video.nationalgeographic.com/video/101-videos/00000144-0a2c-d3cb-a96c-7b2d221d0000

More activities

VIDEO: DIY VOLCANO (PBS PARENTS)

pbs.org/parents/crafts-for-kids/diy-volcano

SPACE VOLCANOES! (NASA SPACE PLACE)

spaceplace.nasa.gov/volcanoes/en

EXPLORE VOLCANOES (NATIONAL GEOGRAPHIC KIDS)

kids.nationalgeographic.com/explore/youtube-playlist-pages/youtube-playlist-volcano





Diagram of a Volcano Eruption

