

Volcano



Volcano

**Do you need an idea for a scientific study?
Try out one of our ideas or make one of your own.**

Start learning right now about the wonders of volcanoes. Take the following brief quiz to see how much you already know about tectonic plates and volcanoes. See the bottom of page 4 to check your answers.

1. Which is the *tallest* from base to summit volcano on Earth?
 - a. Mauna Kea
 - b. Mauna Loa
 - c. Mount Everest
 - d. Mount St. Helens
2. About what fraction of people on Earth live in the danger zone of an active volcano?
 - a. 1 in 5
 - b. 1 in 20
 - c. 1 in 100
 - d. 1 in 2,000
3. Where is the *most* distant point on the surface of Earth from the actual center of Earth?
 - a. Mount Everest
 - b. Mount Vesuvius
 - c. Mount Denali
 - d. Mount Chimborazo
4. About how many active volcanoes currently on Earth are likely to erupt again?
 - a. 10
 - b. 20
 - c. 800
 - d. 1,600
5. About what percentage of volcanoes erupt under water in the ocean?
 - a. 10%
 - b. 30%
 - c. 60%
 - d. 80%



Underwater Volcano

Since most volcanoes erupt under the ocean, here is an experiment that lets you simulate what happens when a molten material moves up through a solid and then a liquid.

Materials

Clear 500-mL Pyrex beaker
About 250 grams Sand
About 200 mL Water

Small Colored Wax Bar
Hot Plate
Safety Glasses

Directions

1. Make sure to get proper permission before you do this experiment. It can get messy.
2. Put on your safety glasses.
3. Place the small, colored wax bar in the bottom of the empty beaker.
4. Pour all of the sand into the beaker, covering the wax bar.
5. Add water to the beaker, filling the beaker to near the top, but do not fill exactly up to the top of the beaker.
6. Carefully place the beaker and contents on the hot plate.
7. Turn the hot plate onto Medium-High.
8. Carefully observe what happens as the wax melts. Record your observations in Table 1.
9. Turn off the hot plate and let the beaker cool completely before cleaning up the beaker and contents.

Table 1

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Questions

1. Why did the melted wax move as it did?

2. How does this model what happens during an underwater volcano?

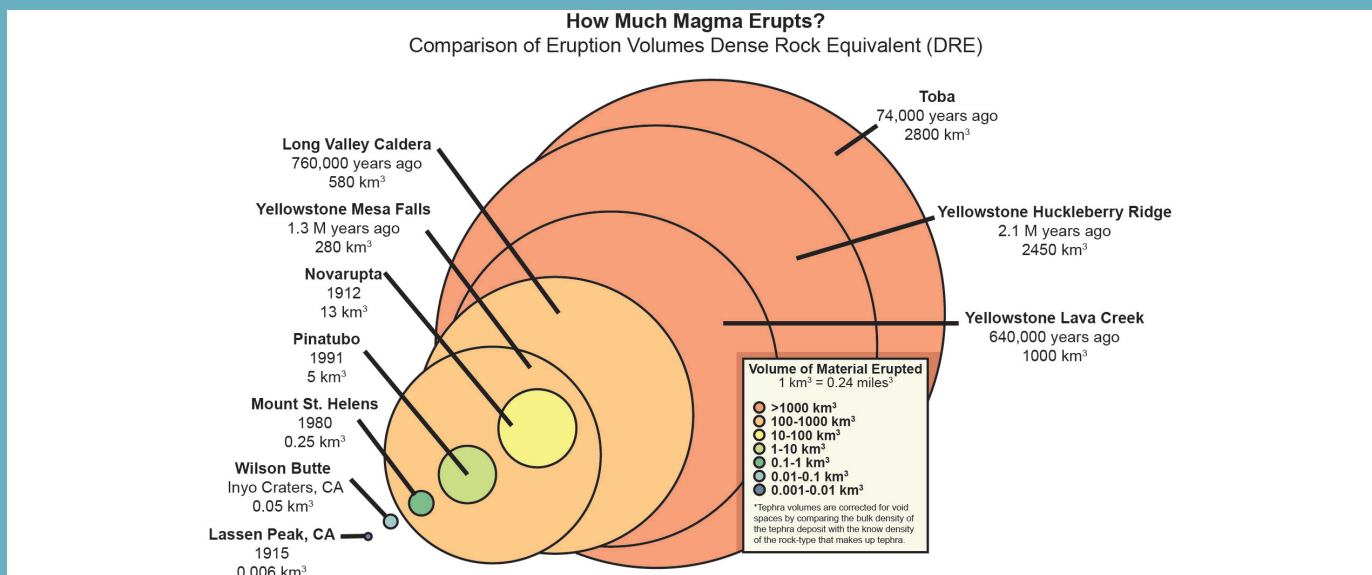
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Super Volcano!

Just like it sounds, a super volcano is one that erupts with a huge amount of material from the volcano spreading out over a very large area. Scientists rate volcanic eruptions using a scale called the Volcano Explosivity Index (VEI). The scale ranges from “0” being non-explosive to an “8” being the most explosive. All super volcanoes have a VEI of 8. The Mount St. Helens eruption back in 1980 was only rated between a 4 and 5, yet it caused the most property damage and loss of life of any volcano in the United States.



The image below shows a comparison of the volume of material generated by the eruption for past super volcanoes. Yellowstone National Park, located in parts of Wyoming, Montana, and Idaho has experienced three separate super volcano eruptions in the past. The largest was 2.1 million years ago, with the most recent occurring around 640,000 years ago. The bad news is that when Yellowstone again erupts, it will cause serious problems for most of the United States. The good news is that this eruption is not likely to happen anytime soon.



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Answers: Page 2 Answers: (1) a, (2) b, (3) d, (4) d, (5) d. Page 3 Underwater Volcano Answers: (1) The melted wax because it is less dense than the surrounding rock and moves through small spaces in the sand and then moves upward until it reaches the cooler water where it is again

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