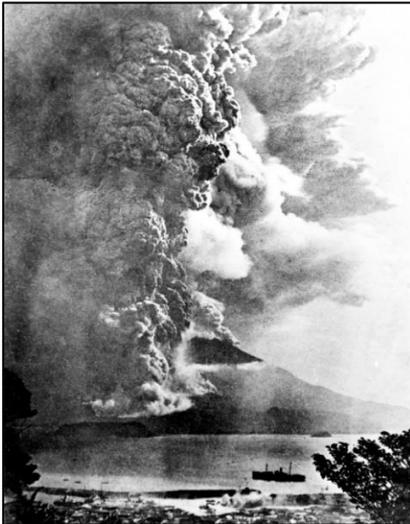




Having a Blast - Teacher's Notes

As mentioned in the Surface Landforms section, volcanic activity creates and changes surface landforms. It may do this through explosive eruptions, blowing the tops off mountains, or lava flows creating new land and perhaps changing the shape of existing landforms.

The Sakurajima volcano in the southern Japanese prefecture of Kagoshima was once an island but a large and devastating eruption in 1914 filled the narrow strait that had separated it from the mainland, forming a peninsula. Luckily, people were warned of the imminent eruption through strong tremors and were able to evacuate the island. This eruption almost completely buried a tori gate at a shrine which shows the amount of ash ejected and today the tori serves as a tourist attraction.



Photos from the eruption of Sakurajima in 1914



The tori gate buried in ash (left) compared to what a tori gate usually looks like (right)





Having a Blast - Teacher's Notes

Sakurajima, Kagoshima Pref., Japan



An aerial view of Sakurajima today showing where it has joined to the mainland

Mount St Helens in the US state of Washington erupted spectacularly in 1980. The shape of the volcano was drastically changed when the side was blown out, creating a wide horseshoe-shaped crater. The massive pyroclastic eruption caused a sizeable earthquake and the elevation of the mountain was changed from 2950m to 2549m. Sadly, 57 people were killed and lots of infrastructure in the area was destroyed.

Photos before (left) and after (right) the 1980 eruption of Mount St Helens



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Having a Blast - Teacher's Notes

This YouTube video is a timelapse showing the lava dome of Mt St Helens growing rapidly between 2005 and 2008 <https://youtu.be/h6B1myUKAS4>. This shows how active the volcano still is and it is being monitored closely by scientists who are learning a lot from it.



This current aerial shot of Mount St Helens shows the scar on the landscape from the 1980 eruption.

In this activity, students will examine the changes that happen to the shape of a volcano when it erupts using some simple, everyday materials. Depending on time constraints, you may like to build the volcanoes one lesson and test them the next.

Materials

- Small foil tray
- Scissors
- Bricks or blocks of wood to stand the foil tray on
- Clean sand
- Strong tape (gaffer or electrical works well)
- Squeezable bottle with narrow top, such as sauce bottle or pop-top drink bottle, and access to water



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Having a Blast - Teacher's Notes

Method

1. Cut a hole in the centre of the foil tray that will fit the top half of the squeezable bottle through.
SAFETY NOTE: Be careful of the sharp edges of the cut tray!
2. Tape around the bottle to keep it in place and seal the hole around it.
3. Sit the tray on the bricks or blocks, ensuring you can still reach the bottle to squeeze it.
4. Make the sand damp enough to hold together and put small handfuls around the bottle to sculpt a volcano, ensuring you don't cover the top yet.
5. Open the top of the bottle then carefully build up a peak to cover it.
6. Allow the mixture to dry and harden a little.
7. Take a photo or sketch a diagram of your volcano before testing.
8. Squeeze the bottle in one quick movement to push out a spurt of air which should blow the top off your volcano. You could also try moving the bottle a little to mimic the tremors that occur during eruptions.





Having a Blast - Teacher's Notes

9. Take a photo or sketch a diagram of your volcano after 'eruption' and make observations, comparing before and after photos.

Extension Activity

You could put either sauce, oil or other liquids in the bottle to show the effect of lava flows (sauce is roughly the same viscosity as the lava that pours out of the volcanoes in Hawaii). The squeezable bottle would have to be completely full for this to work.

