

# WONDERFULLY WAXY VOLCANO IN A CUP

## Igneous Intrusions

Hot magma beneath a volcano always wants to move up towards the surface. This is because it is a hot liquid and is less dense than the surrounding rock and so rises upwards. But as magma rises it cools and eventually turns into solid rock...

In this experiment you will see what happens when melted wax moves through layers of sand and water, just like magma moves through layers of rock to reach the earth's surface.

### What you'll need:

- A chunk of candle wax (red looks the best, but any colour will do)
- A handful of sand
- A clear 500ml volume glass container (a mug, jug or beaker may work well)
- A hotplate/Bunsen burner as a heat source
- An adult who can handle the heat



### Instructions

Ask your adult to melt the candle wax into the bottom of the beaker to make a 1cm thick layer at the bottom, then let it cool and set. Once the wax layer is solid cover it with a layer of sand about 1 cm thick. Finally top your beaker up with very cold water (or chill in the fridge for 15 minutes) until it is about  $\frac{3}{4}$  full. Now place your beaker on your heat source and turn to a medium-high temperature, wait, watch and see what happens...



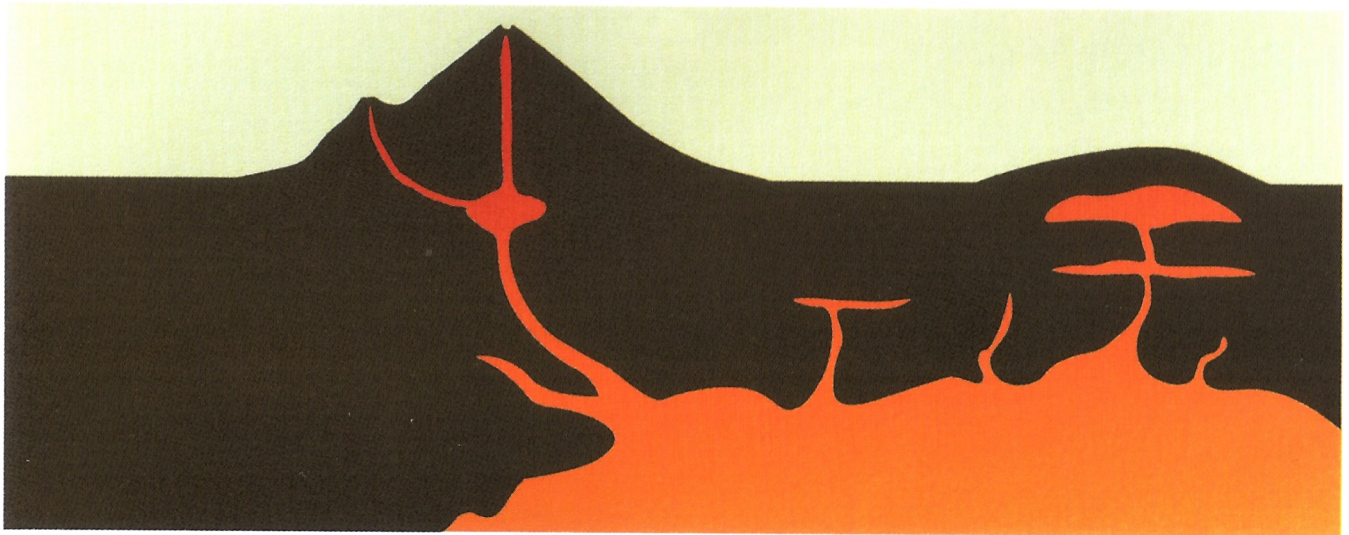


## What's happening?

When you warm up the beaker the solid wax is heated up and melts. The molten wax is less dense than the sand and water, so it travels upwards towards the surface. But as it rises the cold water cools the wax down and it solidifies in the water layer, sometimes it reaches the surface of the water and spreads out on top, sometimes it doesn't.



This happens in volcanoes too. As magma rises through the earth's crust it cools down. Sometimes, if it cools enough, it doesn't reach the surface at all and there is no eruption. Instead it solidifies. This is called an igneous intrusion.



## KEY POINTS

- Molten rock (magma) underground is hotter and less dense than the surrounding rock so moves upwards.
- Sometimes magma doesn't reach the surface to make an eruption, but cools down and solidifies inside the earth's crust, forming an igneous intrusion.

## INFO FOR INTERESTED ADULTS

What types of igneous intrusions are there?



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