

The Awesomely Amazing WHIZZ POP BANG! Science club

Teacher-led activity FIREWORKS ON A PLATE

You will need:

- Full fat milk (room temperature)
- Gel-based food colouring
- Cotton bud
- Liquid soap
- Plate

What you do:

1. Pour milk onto the plate.
2. Add several drops of gel-based food colouring.
3. Put liquid soap onto the end of a cotton bud.
4. Touch the drops of food colouring with the soapy cotton bud.



You should find:

Liquids with high surface tensions pull strongly on the surrounding molecules. Liquids with weak surface tensions pull less strongly. This means that liquids flow away from weak surface tensions towards strong surface tensions, which is what happens in the fireworks on a plate and whooshing pepper activities. Water and milk have higher surface tensions than soap so fluid pulls away from the lower surface tension of the soap, taking the food colouring and pepper with it! This is called the Marangoni effect.



Whooshing pepper...

Sprinkle some ground pepper onto the surface of a bowl of water. The surface tension allows the pepper to sit on the surface. Now try touching the surface with a soapy cotton bud and watch the pepper zoom away!

Pupil activity



MAKE YOUR OWN VOLCANO

You will need:

- The volcano template
- A small container – a spice jar is ideal
- 1 tablespoon of bicarbonate of soda or baking powder

- Sticky tape
- Two tablespoons of vinegar
- Red and yellow food colouring
- Uncoloured soap or washing-up liquid
- Tray to contain the mess (or go outside)

What you do:

1. Cut out the volcano template.
2. Curve it around to make a cone shape and adjust the opening at the top so that it fits neatly around the top of your small container. You might need to trim the paper to size. Fix the cone to the top of your container with sticky tape all around.
3. Pour several drops of red and yellow food colouring into the container. Add the vinegar and a squirt of soap or washing up liquid and then stir.
4. Put the volcano on a tray or take it outside.
5. Tip the bicarbonate of soda or baking powder into your volcano. Give it a quick stir and watch what happens!

You should find...

Your volcano erupts! The acidic vinegar reacts with the bicarbonate of soda, which is a base. The reaction produces a gas called carbon dioxide. This gas gets trapped inside bubbles, which are held together with the help of the soap. The bubbles force themselves up to the surface, along with some of the liquid, mimicking the way that lava erupts from a volcano.



Fiery Fact

Lava can reach a whopping 1,250 °C – hot enough to melt most metals!

Fiery Fact

Volcanoes don't just occur on land, there are also lots of volcanoes underneath the Earth's oceans.

Fiery Fact

The world's tallest volcano, measured from its base (6,000 m below sea level) to its summit (4,205 m above sea level), is Mauna Kea on the island of Hawaii.

**VOLCANO
TEMPLATE**

