

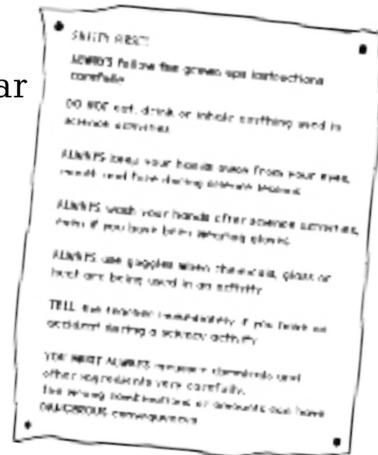


Anisha's school is hosting the National Schools Science Fair and whoever has the **best experiment** wins an **amazing prize**. Actually, not just amazing, it's an intergalactic prize – a trip to a national space centre! And the winner gets to meet a **REAL-LIFE ASTRONAUT!** How cool is that?

Anisha, Milo and Govi's project, **THE VOLCANO DEMONSTRATION**, has been picked to represent their school. Have a go at making a volcano at home, here's how...

You will need:

- An empty plastic bottle with a wide neck or a clean glass jar
- White vinegar
- Washing-up liquid
- Food dye (red and yellow works well for lava)
- Bicarbonate of soda

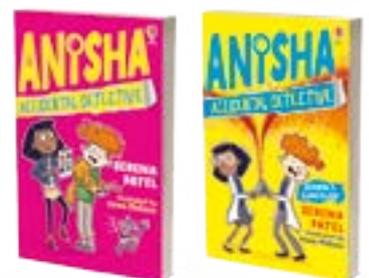


Instructions:

1. Half fill the glass jar or bottle with white vinegar.
2. Add a good squirt of washing-up liquid, and a few drops of food dye.
3. Gently swirl the bottle or jar to mix the contents.
4. Place the bottle or jar onto a baking tray or dish...or this could get very messy.
5. Now add a heaped teaspoon of bicarbonate of soda to the bottle or jar and wait for the volcano to erupt!

What's going on?

When you mix vinegar and bicarbonate of soda, it makes a gas called carbon dioxide. This forms bubbles in the vinegar. The bubbles of gas react with the washing-up liquid to make foam. The whole combination reacts so much that foam pours out – just like a volcano!





HOW TO MAKE GLOOP

Anisha's school is hosting the National Schools Science Fair and whoever has the **best experiment** wins an **amazing prize**. Actually, not just amazing, it's an intergalactic prize – a trip to a national space centre! And the winner gets to meet a **REAL-LIFE ASTRONAUT!** How cool is that?

Here's an idea for an experiment you could make at home, but first grab an apron as this can get messy!

You will need:

- Cornflour
- Water
- Food dye
- A big bowl
- A cup
- An apron to wear, as this can get messy!

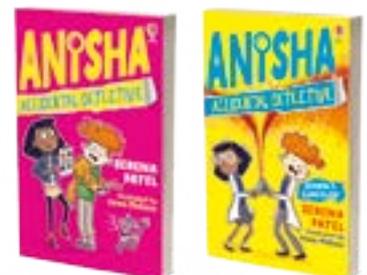
Instructions:

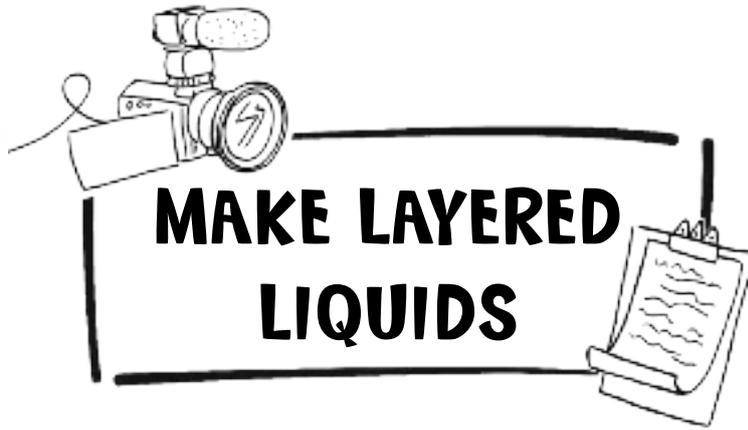
1. To make gloop, put two cups of cornflour into a big bowl. Add a cup of water and two drops of food dye.
2. Mix the cornflour, dye and water with your hands. It will take a few minutes to blend them all together.
3. Roll some of the mixture between your hands. What happens when you stop rolling?
4. Punch the mixture. How does it feel? Hold it up and let it dribble through your fingers. How does it feel now?



What's going on?

Cornflour is made of lots of long, stringy particles. They don't dissolve in water, but they do spread themselves out. This allows the gloop to act both like a solid and a liquid. When you roll the mixture in your hands or apply pressure to it, the particles join together and the mixture feels solid. But if it is left to rest or is held up and allowed to dribble, the particles slide over to each other and it feels like liquid.





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Here's an idea for an experiment you could try at home to find out how liquids separate into layers, and how you can mix them together.

You will need:

- An apron to wear
- Runny honey or golden syrup
- A glass or clear cup
- Vegetable or sunflower oil
- Water
- Washing up liquid
- Food dye

Instructions:

1. Put four tablespoons of water in a tall glass and add a few drops of food dye.
2. Add four tablespoons of oil to the glass. Don't stir the oil and water!
3. Squeeze or spoon some runny honey or golden syrup into the glass. Don't stir it, and watch what happens.
4. Admire your liquid rainbow!

What's going on?

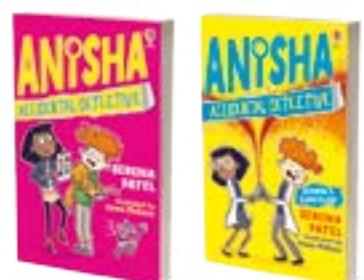
When water, oil and honey or syrup are put together, they separate into layers. The layers form according to how dense the liquids are. Density means how much "stuff" there is in something. Not its weight or size, but how many atoms it has in it. Oil is less dense than water or syrup, so it sits on the top. Syrup is denser, so it sinks to the bottom. Whatever you do, don't try drinking it!

STIR IT UP

Repeat the activity above, but this time, stir the oil, water and syrup or honey well with a spoon. Leave the mixture for five minutes. What happens?

DIFFERENT ORDER

Add the liquids in a different order. Does it make any difference to the end result?



MAKE YOUR OWN LAVA LAMP

You will need:

- A clear plastic bottle or jar
- Vegetable or sunflower oil
- Some water
- Baking powder
- Food dye or paint

Instructions:

1. Put some water in the bottom of the bottle along with a few drops of food dye or a squirt of paint.
2. Carefully add the oil, stopping at least 3cm from the top of the bottle.
3. Add a heaped teaspoon of baking powder to the bottle. Remember to leave the lid off!
4. Watch as the coloured bubbles rise through the oil and sink back down — like wax in a lava lamp!
5. Once it stops bubbling, you can repeat the experiment immediately, or put on the lid and keep it for later.

What's going on?

Oil and water don't mix — the scientific word for this is "immiscible". The oil floats on top of the water because it has a lower density.

The carbon dioxide produced by the baking powder has the lowest density and rises to the top, carrying some of the coloured water with it — as if the water is wrapped up in a life jacket!

When the water and carbon dioxide reach the surface of the oil, the bubble pops, releasing the carbon dioxide into the atmosphere and the water then sinks back below the oil.

