

AT HOME!

PROJECT NO.7

Lava Lamp

As family days out are put on hold, we've been thinking how we can make your family days in as much fun as possible.

Eureka! is the UK's only hands-on museum just for children aged 0-11. Full of exhibits to explore, helpful staff to engage with, activities to do and buttons to press. Based in West Yorkshire, we have brought smiles to the faces of over 8 million visitors since 1992. As families can't come to us, we are keen to bring a sample of the Eureka! experience to you.

Our expert staff have come up with a series of experiments that can be done at home, all designed to inspire children to get hands-on, have fun, and learn about themselves and the world around them.

Get experimenting and send us or share your pictures and videos using #EurekaAtHome and we'll share on our social media feeds too.

WE'RE ALL IN THIS TOGETHER!





This experiment takes inspiration from 70s favourite the lava lamp. Can be attempted with children of any age but with adult supervision.

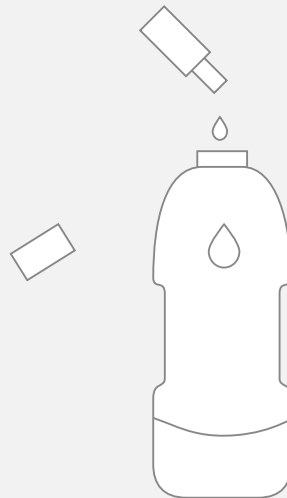
YOU WILL NEED:

- 1 x plastic pop bottle
- Cooking oil
- Water
- Food colouring
- 1 x Alka seltzer tablet



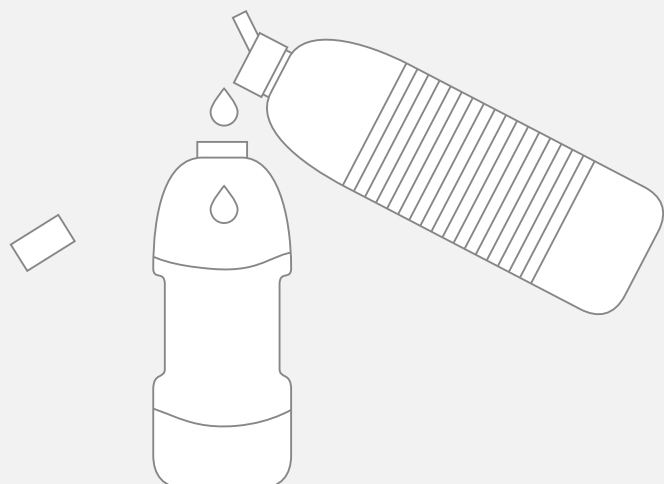
STEP 1:

Pour some water into a plastic bottle up to about $\frac{1}{4}$ full, and then add a couple of drops of food colouring. Mix it well so the water is well coloured.



STEP 2:

Fill the bottle with cooking oil.

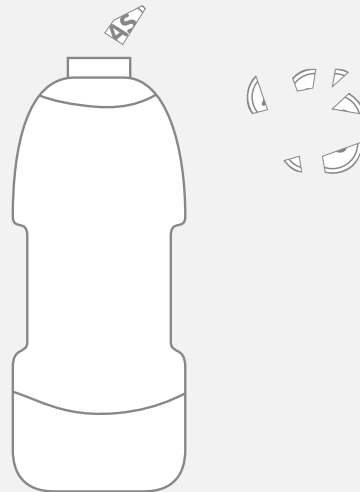


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STEP 3:

Break up the Alka seltzer tablet and add them about $\frac{1}{4}$ tablet at a time.



What is happening?

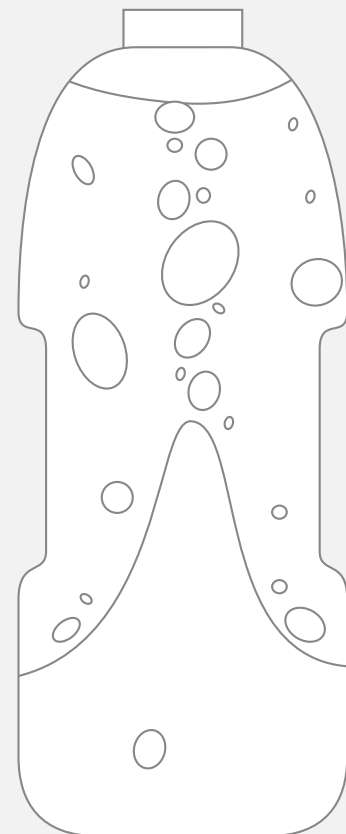
Oil and water are immiscible, that means they won't mix together. You can see this just by putting a small amount of oil in water. It stays in a small blob in the water, sitting on the surface.

The oil is also less dense than water, so when you add it to the water in the bottle it will float on top of the water.

When the Alka Seltzer tablet pieces are added, they don't react with the oil, so they sink all the way down to the water layer. The important ingredients in Alka Seltzer tablets are bicarbonate of soda and citric acid. Both these powders combine in the tablet, but don't react without water. The Alka Seltzer doesn't react with oil so it sinks straight through that layer with no effects. When the tablet reaches the water, it starts the chemical reaction between the bicarbonate of soda and citric acid, producing a gas, carbon dioxide.

The carbon dioxide is less dense than both water and oil, so it rises through both layers to the surface. The best thing about these lava lamps though is that as the gas rises up through the bottle, it pulls with it a little bit of the coloured water.

Once the gas reaches the surface, it escapes into the air, leaving the coloured water to drop back down through the oil to re-join the water layer



CREDIT:

Josie Curran, Bumper Book of Summer, published by Sainsburys

