

DISCOVERY WEEK

DO TRY THIS AT HOME!

MAKE A LAVA LAMP

This experiment is easy to do at home – explore different liquids, densities and a fun chemical reaction in this quick and simple activity! Remember to make sure you have an adult with you while you're doing this experiment.

YOU'LL NEED

- A clear plastic bottle or jar
- Some water
- Food colouring or poster paint
- Vegetable or sunflower oil
- Alka-Seltzer tablets (or just baking powder)

STEP 1

Put some water in the bottom of the bottle with a few drops of food dye or a squirt of paint

STEP 2

Carefully, add the oil, stopping at least 3cm from the top of the bottle

STEP 3

Allow the oil and water to settle into two separate layers

STEP 4

Ask your adult to help you break an Alka-Seltzer tablet into pieces (or use a teaspoon of baking powder), and start adding them to the bottle. Remember to leave the lid off!

STEP 5

Watch as the coloured bubbles rise through the oil and sink back down – like wax in a lava lamp!

STEP 6

Once it stops bubbling, you can repeat the experiment immediately, or put the lid on the bottle and keep it for later!

TOP TIP

If you use baking powder rather than a tablet, it helps if you push the powder down into the water using a spoon.

THE SCIENCE!

- Oil and water don't mix – the fancy science word for this is 'immiscible'
- Oil floats on top of the water because it has a lower density
- The Alka-Seltzer and baking powder react in the water to create bubbles of carbon dioxide gas
- The carbon dioxide that is produced has the smallest density and rises to the top, carrying some of the coloured water with it – as if the water temporarily has a buoyancy jacket
- When the water and carbon dioxide reach the surface of the oil, the bubble pops, releasing the carbon dioxide to the atmosphere and the water sinks back below the oil.

Remember that when it's time to clean up, keep the oil in the container, put on the lid and then throw it all straight in the bin. Don't pour oil down your sink or your pipes will get blocked!

DID YOU KNOW?

If we added a different material to our experiment and found it settled between the oil and the water, we would know that its density was somewhere between that of these two liquids.

Crick scientists use this method to investigate viruses. Pieces of virus are placed in a tube containing a liquid that is spun at over 20,000 rpm! This makes the liquid dense at the bottom of the tube and less dense at the top. Where the virus settles within this density gradient, tells the scientists how dense it is, and from this they can work out how big the piece of the virus is. Understanding how viruses are made up, is key to finding ways of targeting them with drugs.