



SCIENCE MUSEUM GROUP



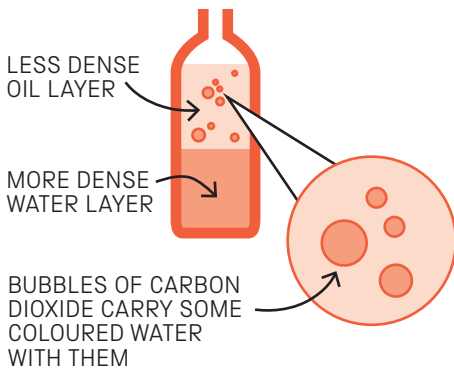
LIQUID LAVA LAYERS

MAKING 	Age 7-11 11-14	Topic MATTER, MATERIALS	 20 MIN
	Skills used MAKING OBSERVATIONS • CURIOSITY		

Overview for adults

Oil and water do not mix, but that can sometimes have its advantages. In this activity these properties are used to investigate density and create a home-made lava lamp effect.

What's the science?



This lava lamp effect works for two reasons. The first is that oil and water don't mix. This is because water molecules are attracted to each other but not to oil. The other reason is because of density, which is how compact a substance is. Water is denser than oil, so the oil layer stays on top.

The vitamin tablet falls through the oil, and when it reacts with the water it produces bubbles of carbon dioxide gas. This gas floats to the surface because it is less dense than both the water and the oil, carrying some coloured water with it. When the bubbles pop, the gas is released, and the denser water sinks back down again.

Science in your world

The density of objects is really important in our everyday lives. Floats help prevent swimmers sinking because they are a lower density than water and so remain buoyant.

Did you know...?

Some websites are secured using unbreakable codes generated by cameras looking at the unpredictable blobs and swirls inside lava lamps.

You will need...



Plastic bottle



Fizzy
vitamin
tablet



Water



Food colouring



Funnel



Vegetable oil

Think and talk about...

- What can you see happening?
- What directions are the bubbles moving in?
- Why does the water not mix with the oil?

Investigate...

- Try using a straw to blow bubbles into the layers. What happens?
- What effect does adding another vitamin tablet have?
- Try changing the order you put the water and oil in the bottle. Does it make any difference?

Follow these steps...



1 Use the funnel to pour water into a clean bottle until it is one-third full. Add a few drops of red food colouring.



2 Fill the rest of the bottle with vegetable oil.



3 Break the vitamin tablet in half and add it to the bottle. Watch the lava bubbles!

Science in your world

Floats you might use at a swimming pool don't sink because they are a lower density than the water around them, meaning they help you stay at the surface.

