



101

SIMPLE SCIENCE ACTIVITIES

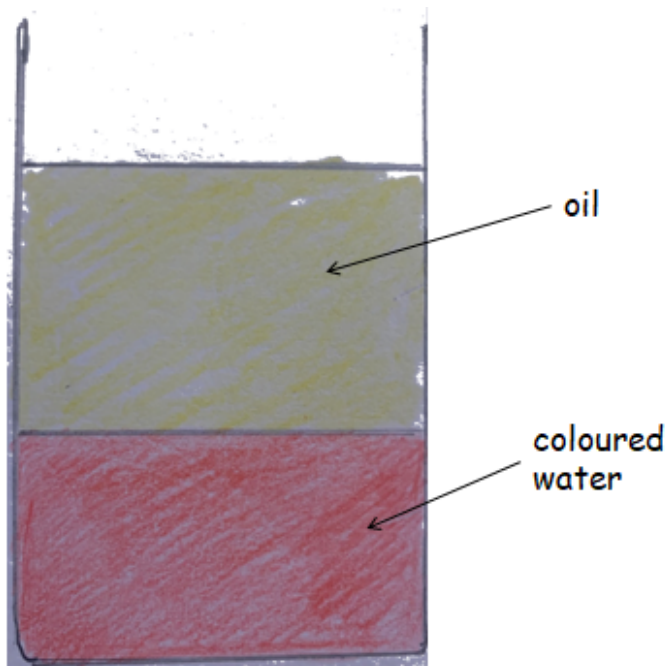
with



LIVELY LAVA LAMPS

You will need:

- a straight sided bottle or jar with a lid
- vegetable or sunflower oil
- water
- jug or funnel
- liquid food colouring
- effervescent vitamin tablets
- a torch or other small light
- messy tray to work in



KEY VOCABULARY

lava	magma	heat
bubbles	mantle	effervescent
carbon dioxide		tectonic plates
Earth	wax	light
convection current		core
volcano	earthquake	
bubbles	carbon dioxide	
density	torch	

METHOD

Making our own 'safe' lava lamp

1. Make sure your container is in your messy tray.
2. Now half fill your container with oil.
3. Next carefully pour in water until the container is $\frac{3}{4}$ (three quarters) full.
4. Now add some liquid food colouring (a few drops or about half a teaspoon).
5. Very gently stir to mix in the food colouring.
6. Break up one of your effervescent tablets into pieces.
7. Add one piece to the mixture.
8. You can add another piece and put on your lid and (as long as the bottom is clean and dry) shine a torch from underneath to light up your lava lamp.

Key Questions:

- What happens when you add the water to the oil?
- Why do you think this happens?
- What happens when you add the food colouring?
- Why do you have to stir gently? What will happen if you stir vigorously?
- What happens when you drop in the tablet?
- Can you explain this?

Fun Facts:

- Electric lava lamps are inspired by the behaviour of magma underground. The core of the Earth is as hot as the surface of the sun and this makes the magma (molten rock) rise up towards the crust and as it cools falls back down - this movement is called a convection current. It's these convection currents that cause the movement of the tectonic plates that form the Earth's surface leading to earthquakes, volcanoes and even the formation of mountain ranges.
- Electric lava lamps work by the light bulb at the bottom heating up wax which then heats up as bubbles and rises to the top of the lamp which then cool down and sink back down to be heated up again.
- In our safe version we use the chemical reaction caused when the effervescent tablet dissolves to mimic this effect. Carbon dioxide bubbles are formed when the tablets dissolve which rise to the top pushing through the oil carrying coloured water with them. When they get to the top they pop and the coloured water returns to the bottom of the lamp.

ACTIVITY TIME: 30 MINS