

Homemade Lava Lamp

What you need:



- ½ cup of any type of cooking oil (Canola Oil, Rice Bran Oil, Olive Oil)
- ½ cup of water
- ¼ of an effervescent tablet eg, Berocca
- 10 drops of food colouring

Instructions:



- Pour the water into a glass
- Add the food colouring
- Add the oil
- Break a Berocca or similar tablet into quarters
- Once the oil and water have settled into two distinctive layers, drop the tablet into the cup and watch!
- Once this experiment has finished and the tablet has fully dissolved you can repeat with the other pieces of the Berocca tablet.

Results:



- Can you see what is happening?
- Describe this to an adult, film your result or write it down in a notebook.
- WHY do you think it is doing this?

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What happens and why:

Water and oil do not mix. You will have seen that the oil is the top layer and this isn't because it was poured in last! Oil is less dense than water and therefore lighter. This means the oil will always rise to the top. To prove this point you can try and do the experiment the other way around ie, put the oil in first and notice how it rises to the top of the glass every time. The science behind oil being less dense than water is a bit tricky but here goes Basically, water molecules are polar molecules, which means one end of the molecule has a positive charge and the other end has a negative charge. This allows water molecules to bond together. Oil molecules, on the other hand, are non-polar. Polar molecules are attracted to other polar molecules, and non-polar molecules are attracted to other non-polar molecules. When you mix a polar molecule like water with a non-polar molecule like oil they do not mix! Food colouring and water are both polar molecules and therefore the food colouring mixes in with the water and not the oil.

When you add the Berocca or similar tablet, it sinks to the bottom as it is denser than oil and water. It then starts to dissolve and creates a gas, with the gas bubbles rising to the surface. As they transfer through the oil layer they take with them some of the coloured water. Once at the surface the gas escapes from the top of the cup and the coloured water, then sinks down again. This is because without the gas it is less dense than the oil. And so it continues around and around until the tablet has fully dissolved.

Act Like a scientist:

Good scientists like to ask and explore questions!

Repeat this experiment and watch

1. What happens with 2/3 oil and 1/3 water?
2. What happens with 1/3 oil and 2/3 water?
3. What happens if you use hot water?
4. Would a different shape cup make a difference?