

# A Poor Man's Lava Lamp

## **The Action**

Using the properties of liquids to make a lava lamp.

## **Grade Level**

Grade 8 - Solutions

Grade 9 - Fluids and Pressure

## **Materials**

- Tall, clear drinking glass
- Salt
- Vegetable oil
- Water
- Food colouring
- Flashlight

## **Instructions**

- Fill the glass about 3/4 full with water. Pour in a layer of vegetable oil about 1cm thick and add 2 drops of food colouring
- Turn out the lights and turn on the flashlight and setting it behind the glass
- Shake salt on your lava lamp. As salt is added it will sink to the bottom of the glass carrying food colouring and oil along with it. Continue to add food colouring and salt as you wish; creating more colour will allow the students to see more bubbles as they float up and down.

## **Safety**

No safety concerns.

## **Hints**

If you have couple of colours of food colouring you can have a lot more fun with this. Add salt using different methods: sprinkle for small blobs and pour in a steady stream for bigger blobs.

The food colouring is to colour the water and is meant to diffuse throughout the water. The colour makes it easier to see the rising and falling blobs of oil.

## **Science Principle**

Oil floats on water because the density of oil is less than the density of water. Oil and water will not mix because they are immiscible liquids. Salt is heavier than water, so when it's poured onto the oil, it carries a blob of oil down as it sinks below the water. As salt dissolves in the water it releases the blob of oil and the oil floats back up to the top of the water. The food colouring is water based and therefore is immiscible in oil. When it reaches the water, diffusion occurs causing the food colouring particles to evenly disperse throughout the water particles.