

# Homemade Lava Lamp

## Overview:

This craft reuses plastic soda bottles to create a lava lamp while teaching about the various properties of water.

## Links to Iowa Core:

Physical Science (Grades 3-5): Students will understand and apply knowledge of how to describe and identify substances based on characteristic properties. Students will understand and apply knowledge of the states of matter and changes in states of matter.

Physical Science (Grades 6-8): Students will understand and apply knowledge of elements, compounds, mixtures, and solutions based on the nature of their physical and chemical properties.

Time: 30 minutes

## Materials:

- Clean plastic soda bottle or glass jar with cap/lid
- Vegetable oil
- Food Coloring
- Alka-Seltzer Tablet
- Flashlight
- Water

## Procedure:

1. Start by listing the various properties of water (what states of matter do we find it in, how dense is it, what is it made out of, etc...)
2. Fill the bottle  $\frac{3}{4}$  full with vegetable oil.
3. Fill the rest of the bottle with water. (Almost to the top but not overflowing)
4. Add about 10 drops of food coloring. Be sure to make the water fairly dark in color. Does the food coloring color the oil?
5. Divide the Alka-Seltzer tablet into 8 pieces.
6. Drop one of the pieces of Alka-Seltzer into the oil and water mixture. Watch what happens. When the bubbling stops, add another chunk. It's just like a Lava Lamp!
7. If you want to make it even more lava like, put your bottle on a flashlight and turn off the room lights.
8. When you have used up all of the Alka-Seltzer and bubbling has completely stopped, screw on the cap/lid. Tip the bottle back and forth and watch the wave appear.

## Discussion:

How does it work?

The molecules of water do not mix with the molecules of oil. Even if you try to shake up the bottle, the oil breaks up into tiny little drops, but the oil does not mix with the water. Food coloring also only mixes with the water, not the oil.

When you pour the water into the oil, it sinks to the bottom and the oil floats to the top, similar to when oil from a ship spills in the ocean. Oil floats on the surface because water is heavier than water. We say that water is denser than oil.

When we add the Alka-Seltzer, it reacts with the water to make bubbles of carbon dioxide. (How do we know a reaction took place?) The carbon dioxide bubbles attach to the blobs of colored water and cause them to float to the surface. When the bubbles pop, the blob sink back to the bottom.

