

## VBS 2020 Science Experiments

### Day 1 - Make a Lava Lamp

[https://www.youtube.com/watch?time\\_continue=8&v=utc5gjSD\\_AY&feature=emb\\_logo](https://www.youtube.com/watch?time_continue=8&v=utc5gjSD_AY&feature=emb_logo)

You will need: A wide bottle (or a fancy drinking glass or wide glass vase), food coloring, vegetable oil, water, and an Alka-Seltzer tablet.

#### Step 1: The Oil

Fill the container about 3/4 with vegetable oil. You can choose the size of the container based on how much vegetable oil you have to spare.

#### Step 2: The Water

Fill the rest of the container with water, leaving 2-3 inches at the top. Watch the water fall through the vegetable oil and settle at the bottom. Can you believe that water is more dense than oil? Water molecules are "polar" and oil molecules are "non-polar", so they are not attracted to each other in the least.

#### Step 3: The Color

What color would you like the "lava" in your lava lamp to be? After the water has settled for a minute or so, add your food coloring. We added about 10 drops. Watch as each drop falls through the oil and sits on top of the water layer. Wait until all of the water droplets break through the oil/water line and burst into the water.

#### Step 4: The Bubbles

Drop your Alka-Seltzer tablet in and let the games begin! The Alka-Seltzer water reaction produces carbon dioxide gas bubbles which stick to the water droplets. The water/gas combo is less dense than the vegetable oil, so they rise to the top. The gas bubbles then break and are released into the air and the water sinks back down to the bottom to start over again!

#### Science Involved

The oil floats on top of the water because it is less dense or lighter than water. The food coloring has the same density as the water so it sink through the oil and mixes with the water. When you add the tablet it sinks to the bottom then starts to dissolve. As it dissolves it makes gas, carbon dioxide. Gas or air, is lighter than water so it floats to the top. The air bubbles bring some colored water with them to the top. When the air comes out of the colored water blob, the water gets heavy again and sinks. It does this over and over again until the tablet is completely dissolved.

#### Bible Connection

After Noah's flood, the rock layers were laid down in layers called strata, according to the densities, just like your lava lamp works because of different densities between the oil and the water.

