Make Your Own Lava Lamp | Grades 1 to 3 – Mix It Up

Post-activity Lesson Plan

Cross Curricular	Math - Measurement
Safety Notes	None

Big Ideas

Materials have specific properties. (Grade 1)

Materials that exist as liquids and solids have specific properties. (Grade 2)

Liquids and solids interact in different ways. (Grade 2)

Specific Expectations

Describe the properties of solids.
Describe the characteristics of liquid water.
Identify conditions in which the states of liquids and solids remain constant and conditions that can cause their states to change.

Description

After participating in our school program, "Mix It Up!" students will have the opportunity to make their own lava lamp using different liquids and solids.

Materials

Colourless, transparent bottle or flask
Vegetable oil
Water
Food colouring
Alka-Seltzer

Accommodations/Modifications

You can use measuring cups to precisely measure the volumes of liquids you add to the bottle or flask.

You can also substitute coloured fizz tablets for Alka-Seltzer and food colouring.

Food colouring can stain.

Introduction

Density is a measure of how compact a material is. It measures how much of a substance fits into a certain space. Something that is more dense is more tightly packed. We often say it is heavier. Something that is less dense is less tightly packed. We will describe this substance as lighter. Less dense substances will float on top of more dense substances.

Action

1. Put vegetable oil in your bottle about 2/3s of the way.
2. Fill the rest of the bottle with water. Observe what happens to the water.
3. Add a few drops of food colouring to the two liquids. Observe what happens to the food colouring. What do you think the food colouring is made of?
4. Place an Alka-Seltzer tablet into the bottle and observe what happens. If you break up the Alka-Seltzer tablet into smaller pieces, does something different happen?
5. Note: keep the bottle open at the top.
6. Be careful not to spill the contents of the bottle.

Consolidation/Extension

Questions:

1. Why does the water sink below the oil? (Water is more dense than oil.)
2. What happens to the food colouring? (It sinks.) What is the main ingredient in the food colouring? (Water)
3. Do water and oil mix together? (No.)
4. What is happening when you put the Alka-Seltzer in the bottle? (Bubbles start forming when Alka-Seltzer touches the water.)
5. What is formed when you mix the Alka-Seltzer tablet in the water? (A gas.)
6. Are gases usually more dense or less dense than liquids? (Usually less dense.)

Extension:

Can you think of different ways to make a lava lamp? This method uses the different densities of liquids and gases. Do you need to have the vegetable oil? Do you need to have the water?

Assessment

Do your students understand that different substances have different properties? – Oil does not dissolve substances like sugar, salt and Alka-Seltzer, but water does.

Can your students come up with a way to show that different liquids have different properties? – Density Column

Can your students show that sometimes solids are less dense than liquids? – Ice floats on liquid water. Styrofoam floats.