

Lava Lamp Experiment

OBJECTIVE:

Show density and polarity using simple household ingredients.

MATERIALS:

1 Clear Plastic Bottle with Cap

Vegetable Oil

Water

Water-based Food Coloring

Alka-Seltzer Tablets (broken into pieces)

PROCEDURE:

1. Fill $\frac{1}{4}$ of the bottle with water
2. Fill the remainder of the bottle with the vegetable oil
3. Add 5-8 drops of food coloring to the bottle
4. Drop 2-3 Alka-Seltzer pieces into the bottle
5. Replace the bottle cap
6. Watch as the lava lamp comes to life

WHY IT WORKS:

1. The oil stays above the water because the oil is lighter than the water. This is called density. The oil and water do not mix because of something called intermolecular polarity. Molecular polarity means that water molecules are attracted to other water molecules and can form little drops. This is like how magnets are attracted to each other. Oil molecules are attracted to other oil molecules. But the structures of the two molecules, water and oil, do not allow them to bond together.
2. When you added the Alka-Seltzer, it sank to the bottom and started dissolving and creating a gas. As the gas bubbles rose because they are less dense than the water and oil, they took some of the colored water with them. When the drop of water reached the top, the bubble popped and the colored water returned to the bottom!



WORD BANK

density,
intermolecular
polarity,
molecular
polarity

5 - 8 DROPS
FOOD
COLORING

2 - 3
ALKA-SELTZER
TABLETS
BROKEN

$\frac{3}{4}$ OIL

$\frac{1}{4}$ WATER

