

Lava Lamp Reactions

Meet Ciara. She is a nuclear engineer. She became interested in engineering after learning about atoms in her high school chemistry class. Now she works on projects involving radiation detection and modeling. Today we're going to explore chemical reactions by making our own "lava lamps" - hopefully you have as much fun as Ciara did.

"I hope you join me in the field of engineering. We together can solve problems and inspire the next generation of female scientists."

- CIARA SIVELS



MATERIALS:

- Empty water bottles, glass jars, or other plastic containers with a lid
- Translucent cooking oil (canola or vegetable oil work best)
- Food coloring (the brighter the better!)
- Antacid tablets (Alka Seltzer)
- Water

INSTRUCTIONS:

1. Fill your bottle or container with oil $\frac{3}{4}$ of the way to the top.

2. Mix some drops of food coloring into a cup of water until the water changes color.



Lava Lamp Reactions Continued

- 3.** Fill the rest of your bottle with the colored water, leaving a little space at the top for fizzing.



- 4.** Drop an antacid into the mixture and watch the colorful reaction begin! If you want less fizzing, you can break each tablet into smaller pieces and add them slowly.
Tip: To avoid mess, this part can be done on a baking sheet.



- 5.** Repeat this step for more colorful "lava" bubbles.



A **chemical reaction** takes place when one or more substances are converted into a different substance or substances. In this activity, the antacids (sodium bicarbonate and citric acid) react with the water to create bubbles of carbon dioxide. Water and oil do not create a chemical reaction and do not mix. When the bubbles are released, the colored water is carried to the top. When the bubbles pop, the colorful water falls back down.