



STEM Activity Idea:

LAVA LAMP

Suggested Program Level: Brownie

Create your own lava lamp with a few simple materials and a little bit of science.

Supplies (1 set for each girl):

- water
- vegetable oil
- antacid tablets
- clear plastic bottle
- food coloring
- funnel (optional)

Instructions:

1. Let the girls fill their bottles until they are about one quarter full. Depending on your work area, a funnel might be useful to prevent spills.
2. Help the girls pour vegetable oil into the bottle until it is almost full.
3. Ask the girls to watch what happens as the oil and water separate.
4. Once the oil and water have separated, let the girls add about a dozen drops of food coloring. The girls can watch how the food coloring drops through the oil and mixes with the water.
5. Show the girls how to break an antacid tablet into five or six pieces and add them to the bottle. They can put the cap on their bottles and watch what happens.
6. When they want to lava lamp to move again, they will just need to add another antacid tablet.

Why?

Oil has a lower density than water, and food coloring is primarily water. When the food coloring was put on the oil, the food coloring sank to the level with the water because they had similar densities. When you drop the antacid tablet into the bottle, they sink to the bottom because they are heavier than the oil and the water. As the tablet interacts with the water, tiny carbon dioxide bubbles form. Those bubbles rise to the top of the bottle to escape into the atmosphere, and as they rise, they take some of the colored water with them. When the carbon dioxide escapes, the water sinks back to the bottom of the bottle.