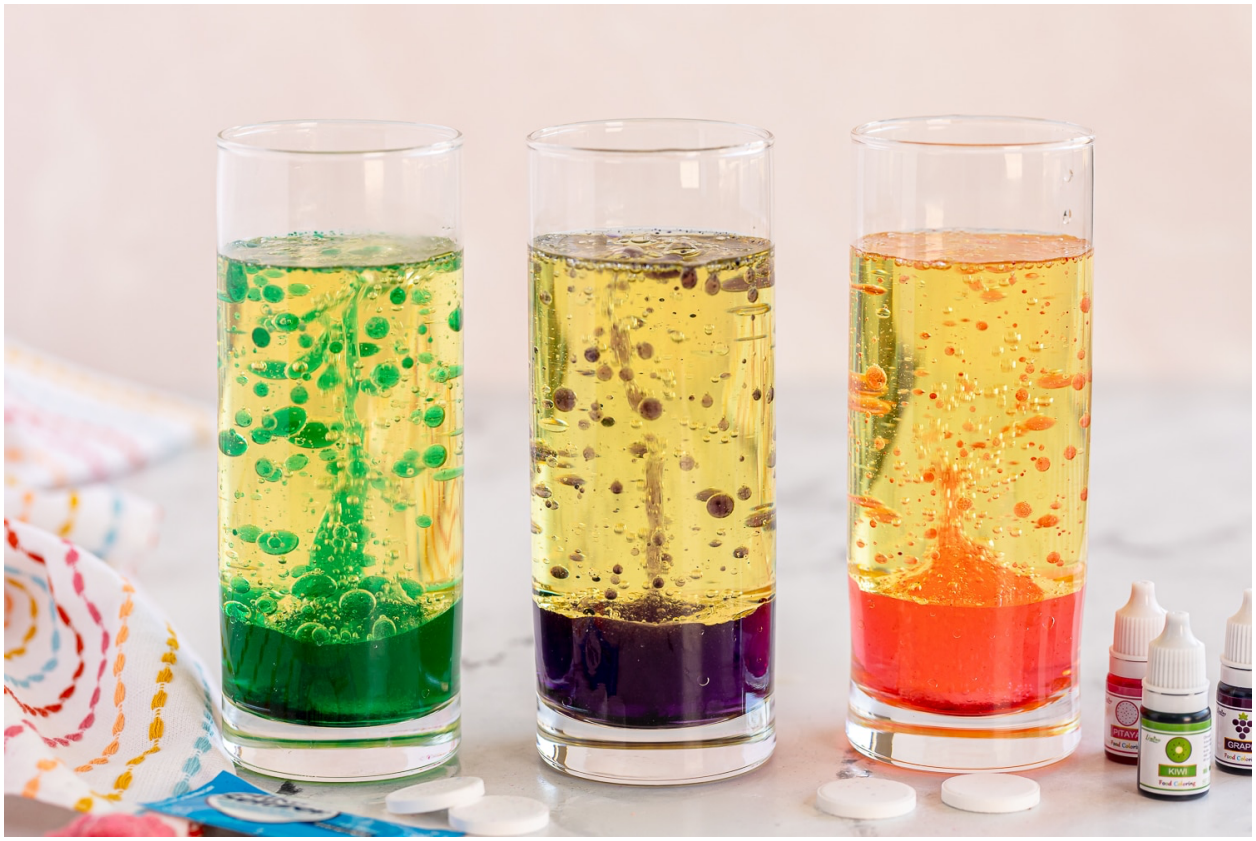
Lava Lamp



Experiment!

Materials:

1) Empty plastic bottle (or any cylindrical-shaped bottle)
2) Water
3) Vegetable oil
4) Fizzing tablets (Alka Seltzer)
5) Food coloring

Preferred Location: Kitchen, bathroom, or an outdoor space that can tolerate spills of hydrogen peroxide and food coloring

Procedure:

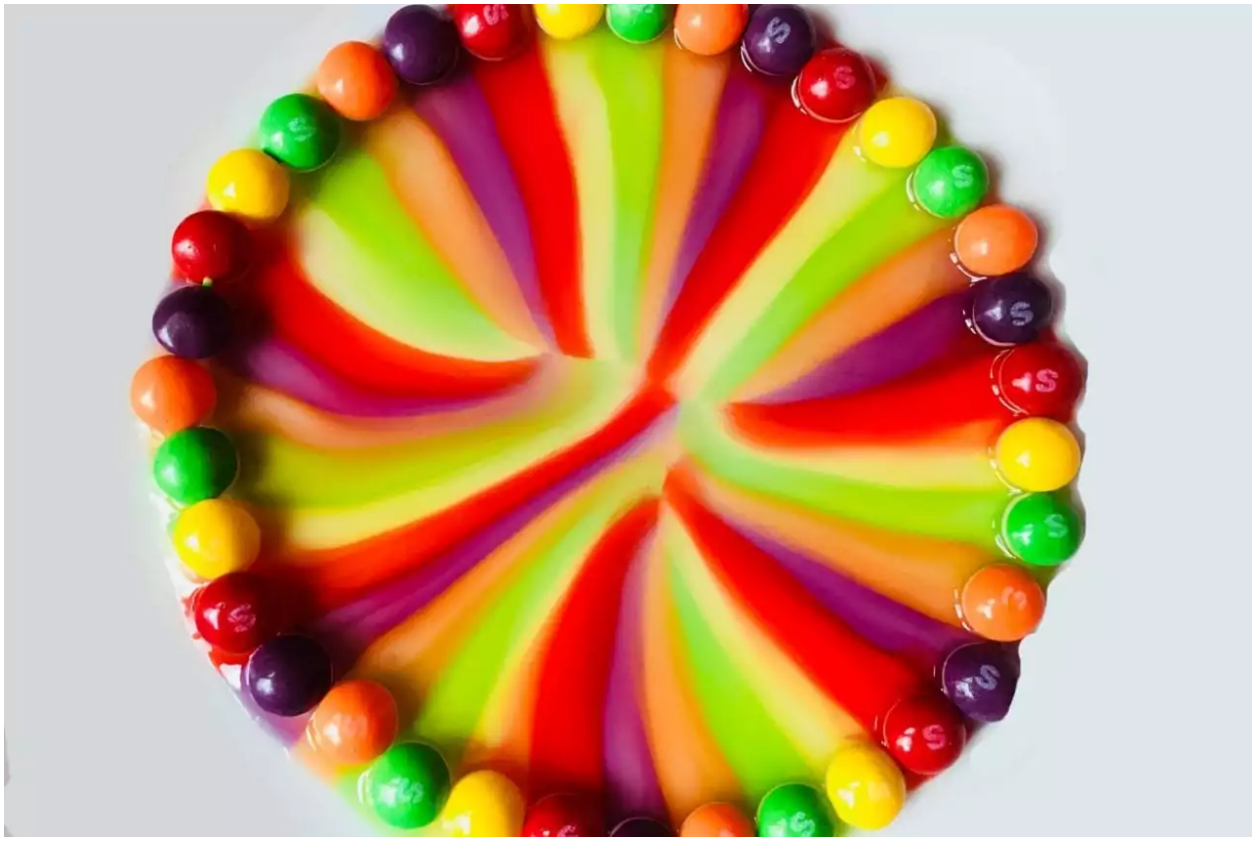
1) Fill the bottle up about 1/4th with water.
2) Pour the vegetable oil in the bottle until it is almost full (you can use a funnel for less mess). Wait a couple of minutes for the oil and water to separate.
3) Add a few drops of your favorite food coloring. Watch as the color sinks through the oil.

4) Break your fizzy tablet in half and drop part of it into the bottle. Get ready… Here come the bubbly blobs!
5) You can even get a flashlight, turn off the lights and drop in another half tablet. This time shine the flashlight through the lava lamp while the blobs are bubbling!

Clean up: Throw the plastic bottle away

How it works: The oil floats on top of the water because it is less dense/lighter than water. The food coloring has a slightly greater density compared to the water, so it sinks through the oil and mixes with the water. When you add the Alka Seltzer tablets, they sink to the bottom and then start to dissolve, making a gas: carbon dioxide (the stuff we exhale!). Since carbon dioxide is denser than water, it floats to the top. The air bubbles carry some colored water to the top. When the air is released from the colored water blob, however, the water becomes more dense and sinks. It does this over and over again until the tablet is completely dissolved!

Diffusing Skittles!



Experiment!

Materials:

1) Skittles
2) Warm Water
3) A Plate

Preferred Location: Kitchen, bathroom, or an outdoor space that can tolerate spills of sugary water

Procedure:

1) You want to empty out your skittles and check out the colors.
2) Lay out your plates in an area where they won't be disturbed.
3) Now's the fun part, make patterns! Make a rainbow or arrange the colors in any sort of pattern you'd like. (A rainbow looks coolest!)
4) Gently begin pouring warm water in the middle of the plate until it reaches all the candies and just barely covers them.
5) Wait for about 15 seconds and watch the rainbow reaction occur!

Cleanup: Just throw it away! No mess :)

How it works: Skittles are made with colorful dyes and sugar. The warm water dissolves the dye and sugar and they move towards a place with less dye and sugar: the middle of the plate. The process is called diffusion: the movement of particles (sugar) from a space of higher concentration (the outer curve of the plate where the skittles are) to a place of lower concentration (the middle of the plate with plain water). **Why don't the colors mix?** This is because the concentration of sugar in each skittle is about the same. Instead of mixing with each other, they are too busy trying to move from the high concentration of the outer edge of the plate to the low concentration of the middle. **Why should we use hot water?** The particles of hot water move much faster than cold water, so when warm water mixes with the dye from the skittles, they will take less time to "drag" the dye into the middle of the plate.

Questions to ponder:

- Could this skittles science experiment work with another type of candy? (M&Ms? Gobstoppers?)
- What would happen if you tried a different liquid and compared the results? (Milk? Juice?)
- Why do the colors start to separate and blend together after a few minutes?
- Try the experiment again, but before you pour the water, place a tablespoon of sugar in the middle of your circle of skittles. Watch what happens when you pour the warm water. Do the colors reach the middle? Why not?

Magic Soap and Pepper

Experiment!

Materials:

1) A plate
2) Liquid dish soap
3) Water
4) Black pepper

Preferred Location: Kitchen, bathroom, or an outdoor space that can tolerate spills

Procedure:

1) Fill the plate with water almost to the edge
2) Sprinkle some black pepper over the water. Does the pepper float or sink on the water?
3) Dip your finger in the center of the plate. Did you notice any change? Not really, right? You may have just got some pepper flakes stuck to your finger
4) Add a little dish soap residue onto your finger and stick it into the bowl. See anything different this term?

Cleanup: Just wash the plate like any other dish

How it works: **Why do the pepper flakes float on the water?** The water molecules have a property called surface tension, in which the molecules have strong attraction between each other. This upward force exerted by the water allows for the pepper flakes to float on the surface. **What happened when we touched the water with a little dish soap?** The dish soap breaks the surface tension of the water, but since the molecules want to keep surface tension intact, they pull away from the soap, bringing the pepper flakes along with them. This experiment can be used to show how germs are removed from hands with soap (the pepper flakes "germs" needed to be chased away by soap)!