

# Rainy Day Activity (5/17/2020 version)

This version uses less food coloring than the earlier versions. Too much food coloring appears to make the ice cubes too dense to float on the oil.



You will need:

- Ice cube tray
- Toothpick
- Blue or green food coloring\*
- Vegetable or corn oil
- Clear drinking glass

\*Red food coloring does not seem to work as well. Apparently, it makes the ice cube too dense. Yellow food coloring works, but it is difficult to see.

Step 1:



Add two drops of food coloring to about one cup of water.



Pour the colored water into an ice cube tray and freeze.

### Step 2:



Once the ice cube has frozen, fill a clear glass with about 2-3" of warm-to-hot tap water from your sink. (It doesn't have to be scalding, just hot.) Then pour about 2 - 2/5" of corn or vegetable oil on top of the water.

### Step 3:



Carefully set the dyed ice cube on top of the oil. Check to make sure the ice cube is floating above the water. If the ice touches the water, try adding a little more oil until you can see a layer of oil about 1/4" to 1/2" thick between the bottom of the ice cube and the top of the water.

Wait a few minutes and then watch what happens. (It might be fun to add the ice cube as you sit down to dinner and watch it as you eat.) Notice the shape of the drops of water from the melting ice cube as they fall through the oil. What happens to the drops as they reach the surface of the water under the oil? Why do you think this is happening?

### ***If, after a few minutes, you want to be a little more adventurous:***

- 1) Add an extra drop or two of food coloring to the glass. Try adding one drop directly onto the oil and one drop directly onto the ice cube. Wait a few minutes to see what happens.
- 2) Break an Alka-Seltzer tablet into 3 or 4 pieces. After the water has darkened a little from the melting ice cube, drop one or two of the Alka-Seltzer pieces into the glass. (Save one or two pieces for later.) Describe the reaction.
- 3) Once the Alka-Seltzer has run its course, add a few drops of dishwashing liquid to the glass. Watch what happens very closely. Can you see the soap circulating through the liquids? What has happened to the shape of the water droplets from the melting ice cubes.
- 4) Finally, after watching all the changes that the soap has made to the water falling from the melting ice cube, drop the last remaining piece(s) of Alka-Seltzer into the glass. How is this reaction different from the first?

### Comments:

As I said, the blue and green dyes work best, and I recommend that you start with one of these. But there is no reason that you can't also test red or yellow ice cubes, too. You might

want to try these other colors and compare the results. What you want is a layer of oil separating the ice cube from the water below. If the ice cube is touching the water, the results are BORRRR-ing.

I have tested this with both vegetable (soybean) oil and corn oil. I have not tested canola, peanut, or olive oil.

If you test any other colored ice cubes, or any other types of cooking oil, let me know your results, and I will share them with the rest of the 3<sup>rd</sup> grade.

Send your observations and/or comments to [gsimonelli@leffellschool.org](mailto:gsimonelli@leffellschool.org) and I will pass them along to your classmates.