

**Water Density**

**K-2**

# **Materials:**

* 5 Glasses
* Warm Water
* Sugar
* Spoon
* Food Coloring
* Syringe

# **Instructions:**

1. Fill four glasses with ¼ cup of warm water each.
2. Add sugar and food coloring. Each color will have different amount of sugar in it.
   1. Glass 1- Add 1 tbsp of sugar and 2 drops of red food coloring. Stir vigorously to completely dissolve the sugar
   2. Glass 2: Add 2 tbsp of sugar and 2 drops of yellow food color. Stir vigorously
   3. Glass 3: Add 3 tbsp of sugar and 2 drops green food color. Stir vigorously.
   4. Glass 4: Add 4 tbsp of sugar and 2 drops of food coloring. Stir vigorously.

NOTE: Stirring to completely dissolve the sugar is very important; without the sugar fully incorporated into the water, you’ll have trouble getting the colors to separate. Heat up your water more if it’s not working – 5 to 10 seconds in the microwave and an extra stirring session should help.

1. Use the syringe to transfer about half of the blue water into the empty glass. This is where you will make your rainbow.
2. Still using the syringe, transfer half the green water into the rainbow glass. Add it slowly on top of the blue water. It should sit on top.
3. Add yellow, and then the red. You’ll see a beautiful rainbow!

# **The Science:**

Density measures the amount of mass in a particular space. For example, oil molecules are packed less tightly than water molecules, making oil less dense than water and causing it to float on top when the two are combined. Water can have different densities as well. An easy way to change water density is with sugar. When you mix sugar with water, the sugar molecules occupy the space in between the water molecules, making the solution more tightly packed (denser). The more sugar you add, the denser the solution.

* Why is density important?
  + Density helps us predict if something will sink or float. Density is super important to consider when building things like ships or submarines.
* Where can I find density in action?
  + Think about swimming. Did you know that it’s easier to float in the ocean than in a pool? That’s because ocean water is denser than pool water, due to the high salt concentration.