**Finding the densities of tap water and salt water**

**Earth Science**

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A) Determining the density of tap water:

1. Measure the mass (in grams) of the empty 100 ml graduated cylinder. Record the mass.
2. Fill the cylinder with water to the 100 ml line (until the bottom of the water “line” is level with the 100 ml line). This (100 ml) is the volume.
3. Using the scale, measure the mass of the cylinder with the water in it.
4. Subtract the mass of the empty cylinder from the mass of the filled cylinder.
5. Divide the mass of the water by the volume of the water. This will yield the density of the tap water, in grams per milliliter. Record your result.

B) Determining the density of salty tap water:

1. Use an eyedropper to remove 1.00 gram of water from the cylinder.
2. SLOWLY add salt to the cylinder until the level of the water rises back to the 100 ml line. Use a plastic spatula to gradually add salt to the cylinder, and notice how the reading on the scale changes as the salt moves through the cylinder.
3. After the level of the salt water is back to 100 ml, place the cylinder back on the scale and record the new mass of the cylinder/water/salt.
4. Subtract the mass of the cylinder from the mass of the cylinder/water/salt.
5. Divide the mass of the salt water inside the cylinder by its new volume. This is the density of the salt water. Record your result.
6. Compare the densities of the salt water and the fresh water.

***Show your work below--***

**Part A)**

Tap Water: Mass of empty cylinder \_\_\_\_\_\_ g Mass of cylinder w/ 100 ml water \_\_\_\_\_\_ g

Volume of tap water = \_\_\_\_\_\_\_ ml

Mass of 100 ml of water =

Density of tap water = (mass of 100 ml tap water)/ (volume of 100 ml tap water)

Density of tap water = \_\_\_\_\_\_\_\_\_\_ g/ml

**Part B) Salt Water:**

Mass of empty cylinder \_\_\_\_\_\_ g Mass of cylinder w/ 100 ml salt water \_\_\_\_\_\_ g

Volume of 100 ml salt water = \_\_\_\_\_\_\_\_\_ ml

Mass of 100 ml of salt water =

Density of salt water = (mass of 100 ml salt water)/ (volume of 100 ml salt water)

Density of salt water = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ g/ml

Questions:

Which density was greater, the density of tap water, or of salty water?

What does “density” mean? Describe how a substance with a high density differs from a substance with a lower density.

Since density describes how much mass is in a certain volume, why do you think that the salty water had a higher density than the tap water?

As you added solid salt (sodium chloride) to the water, what do you think happened to the sodium atoms and chlorine atoms as the salt started to dissolve?