Density of Solids and Liquids Lab

Part 1: Density of Liquids

1. Using your scale, find the mass of the empty 10 mL graduated cylinder (before you add any liquids to it!). Record this number in your data table.
2. Fill the graduated cylinder with 10 mL of water
3. Use the scale to find the mass of the cylinder with the water in it. Record this number in your data table.
4. Find the mass of the water only by subtracting the mass of cylinder from the mass of the cylinder + water. Record this in your data table.
5. Calculate the density of water using the formula D = M ¸ V. Watch the units – remember that 1 mL = 1 cm^3

Volume of Water (mL)	**Mass of Water + Cylinder (g)**	**Mass of Empty Cylinder (g)**	**Mass of Water Only (g)**	**Density of Water (g/cm^3)**

6. Repeat steps 1 through 5 using oil and record your data in the table below

Volume of Water (mL)	**Mass of Water + Cylinder (g)**	**Mass of Empty Cylinder (g)**	**Mass of Water Only (g)**	**Density of Water (g/cm^3)**

Analysis

1. What do you notice about the relationship between the mass of water and the volume of water?

2. Explain how your data supports the statement “oil floats on water”.

Part 2: Density of Solids

1. Use the 1 cm dot paper to draw a cube net that has side lengths of 1 cm. Cut it out and use tape to form it into an open topped cube.
2. Calculate the volume of your cube and record this information in the data table.
3. Using your scale, find the mass of the empty cube. Record this number in your data table.
4. Fill the cube with baking soda. Use the scale to find the mass of the cube with the baking soda in it. Record this number in your data table.
5. Find the mass of the baking soda by subtracting the mass of cube from the mass of the cube + baking soda. Record this in your data table.
6. Calculate the density of baking soda using the formula D = M ¸ V.

Volume of Cube (cm^3)	**Mass of Baking Soda + Cube (g)**	**Mass of Empty Cube (g)**	**Mass of Baking Soda Only (g)**	**Density of Baking Soda (g/cm^3)**

7. Repeat steps 1 through 5 using cornstarch and record in the data table below

Volume of Cube (cm^3)	**Mass of Cornstarch + Cube (g)**	**Mass of Empty Cube (g)**	**Mass of Cornstarch Only (g)**	**Density of Cornstarch (g/cm^3)**

Analysis

1. Would cornstarch float on water? Why or why not?

2. Would baking soda float on water? Why or why not?

3. Would cornstarch float on oil? Why or why not?

4. Would baking soda float on oil? Why or why not?