**The National Orthodox School/ Shmessani**

**Subject: Science/ Physics**

**Name: Lab report: Density Assignment**

**Date: Grade-Section: 8 … CS**

**Title: in few words, write a title that describes what you are aiming to determine with this experiment.**

*Investigating the density of different materials.*

**Objective: why are you conducting this experiment?**

*To find the density of all the objects by finding their volume and mass.*

**Hypothesis: what do you think the results will be when you conduct the experiment?**

**If there are different densities for different materials, then this will be shown in this experiment**

**Materials: write down the items you will need to conduct this experiment.**

1. *Mass Balance or Scale*
2. *Volumetric Cylinder*
3. *Ruler*
4. *Water*

*These are what we would usually use in the lab but since we are doing this remotely the simulation will have everything you need.*

**Procedure: list the steps will you take to conduct this experiment.**

*Visit the website by using the link below to use the simulation to solve the following.*

[Simulation Link](https://phet.colorado.edu/sims/html/density/latest/density_en.html)

<https://phet.colorado.edu/sims/html/density/latest/density_en.html>

*By using the toolbox on the top right-hand side, play around with* ***“same mass, same volume and same density”****, feature to get familiar with it.*

*After getting familiar with it, change the toolbox on the right-hand side, to the* ***mystery option.***

*Try* *to find the density of all the objects by finding their volume and mass. Use the table below the toolbox on the right-hand side to figure out which object with each letter was which material. Write the results in table 1*

*Note:*

*To interact with the blocks, you just have to click and drag them, be careful not to stack them on top of each other.*

*Also, if the blocks float on water you can keep pressing them and just pull them all under the water in order to find the volume*

**Observation: What data did you collect in this experiment?**

(5 marks)

Table 1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Letter | Mass of the object (kg) | Volume of the object (L) | Density of the object (kg/L) | Material of the object (use the table given) |
| A | 19.30 | 5.5 | 3.50 | diamond |
| B | 0.4 | 1 | 0.4 | wood |
| C | 19.32 | 1 | 19.32 | gold |
| D | 5 | 5 | 1 | water |
| E | 2.8 | 7 | 0.40 | Wood |

(5 marks)

Table 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Mass of the object (kg) | Volume of the object (L) | Density of the object (kg/L) | Material of the object |
| 1. | 01.23 | 3.14 | 0.39 | wood |
| 2. | 03.60 | 3.91 | 0.92 | ice |
| 3. | 10.00 | 3.703 | 2.7 | glass |
| 4. | 02.69 | 0.3 | 8.96 | copper |

**Conclusion: What conclusion or theory can you state regarding this experiment?**

The major conclusion is that there are different densities for different materials in these following categories:

1. When the object is floating above water, density is less than 1 kg/L
2. When the object is not floating, it has density more than 1 kg/L

Also it is being noticed that to get correct volume for any floating object, it must be totally immersed inside water to get correct complete volume