**The National Orthodox School/ Shmessani**

**Subject: Science/ Physics**

**Name:** Hala Abu Baida **Lab report: Density Assignment**

**Date:** 30/10/2022 **Grade-Section: 8 C 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?**

*When we put Materials with a density lower than one in water, they will float. while others with a density higher than one will sink.*

**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 | 19.3 | 5.5 | 3.51 | diamond |
| B | 0.4 | 1 | 0.4 | wood |
| C | 19.32 | 1 | 19.32 | gold |
| D | 5 | 5 | 1 | water |
| E | 2.8 | 7 | 0.4 | wood |

(5 marks)

Table 2

Calculating the density using the formula: density=mass/volume

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 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 | 0.4 | 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?**

*If the mass increases when the volume is the same the density will increase since the mass and density are directly proportional, but if the mass remains the same and the volume increases then the density will decrease, because volume and density and inversely proportional.*