**The National Orthodox School/ Shmessani**

**Subject: Science/ Physics**

**Name: Haya Bataineh Lab report: Density Assignment**

**Date:10-11-2022 Grade-Section: 8 D… 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?**

*The density of the material depends on the mass of the particles.*

**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.**

1. **Measure the mass of all materials using a scale**
2. **Measure the volumes of all the materials in measuring cylindar.**
3. **Divide mass by volume to calculate the density.**
4. **Compare density with table to find what each material is.**

*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) |
| A1 | 19.30 Kg | 105.5-100=5.50 L | 19.30/5.50=3.51 kg/L | Diamond |
| B1 | 0.40 Kg | 101-100=1L | 0.4/1=0.40 kg/L | Wood |
| C1 | 19.32 Kg | 101-100=1L | 19.32/1=19.32 kg/L | Gold |
| D1 | 5.0 Kg | 105-100=5L | 5/5=1kg/L | Water |
| E1 | 2.80 Kg | 107-100=7L | 2.80/7=0.4 kg/L | 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 | 1.23/3.14= 0.4kg/l | wood |
| 2. | 03.60 | 3.91 | 3.6/3.91= 0.92kg/l | Ice |
| 3. | 10.00 | 3.703 | 10/3.703= 2.7kg/l | glass |
| 4. | 02.69 | 0.3 | 2.69/0.3= 8.96kg/l | copper |

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

1. The more the mass the more the density.
2. An object will float on a liquid if it has a density that is less than that of that liquid and will sink if its density is higher.