The National Orthodox School/ Shmessani

Subject: Science/ Physics

Name: Isaiah Miles **Lab report: Density Assignment**

Date: 30/10/2022 **Grade-Section: 8 H CS**

Title: in a 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 objects with larger masses and lower volumes will have a larger density than the objects with smaller masses and higher volumes.

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

*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**	105.50 - 100 = **5.5**	19.30 ÷ 5.5 = **3.51**	**Diamond**
B	**0.40**	101 - 100 = **1**	0.40 ÷ 1 = **0.40**	**Wood**
C	**19.32**	101 - 100 = **1**	19.32 ÷ 1 = **19.32**	**Gold**
D	**5**	105 - 100 = **5**	5 ÷ 5 = **1**	**Water**
E	**2.80**	107 - 100 = **7**	2.80 ÷ 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	01.23 ÷ 3.14 = **0.39**	**Wood (The one it's closest to)**
2.	03.60	3.91	03.60 ÷ 3.91 = **0.92**	**Ice**
3.	10.00	3.703	10.00 ÷ 3.703 = **2.70**	**Glass**
4.	02.69	0.3	02.69 ÷ 0.3 = **8.97**	**Copper**

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

Objects with larger masses and lower volumes have larger densities than Objects with smaller masses and higher volumes.