

Lab report | Lower Secondary Stage (6-8)

1st Semester | 2023-2024

Subject: CHEMISTRY

Chapter: Periodic trends/ Density Answer key

Objectives:

- To investigate the density of solids and liquids

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: Is density a property of a material like wood, or of an object like a wooden chair?

Density is a property of a material

Regular Solids

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

1. Start by calculating the volume of the different samples by recording the length, width and height of each sample. **Record the readings in table 1.**
2. Use the balance to measure the mass of each shape. **Record the reading in table 2.**
3. Use the Density Formula to calculate the density.

Observation: What data did you collect in this experiment?

Table 1

Specimen	Length (cm)	Width (cm)	Height (cm)	Volume (cm ³)
1	Different Values will be taken but, in the end, to find the volume you follow the rule: $V = l \times w \times h$			
2				

Table 2

Specimen	Mass of the specimen (g)	Volume of the specimen (cm ³)	Density of the specimen (g/cm ³)
1	Different Values will be taken but, in the end, to find the density you follow the rule: $D = \frac{m}{V}$		
2			

Irregular Solids

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

1. Measure the mass of each shape. **Record the results in table 4**
2. Measure the volume of the samples **Record the results in table 3**
 - I. Use a measuring cylinder filled with 50cm³ of water.
 - II. Drop the object into the graduated cylinder.
 - III. Record the level of the fluid with the object.
 - IV. Subtract the original reading from the new reading to get the volume of the solid.
3. Use the Density Formula to calculate the density.

Observation: What data did you collect in this experiment?

Table 3

Specimen	Initial Volume (ml)	Final Volume (ml)	Volume of specimen (ml)
1	Different Values will be taken but, in the end, to find the volume you follow the rule: $V = V_{Final} - V_{Initial}$		
2			

Table 4

Specimen	Mass of the specimen (g)	Volume of the specimen (cm ³)	Density of the specimen (g/cm ³)
1	Different Values will be taken but, in the end, to find the density you follow the rule: $D = \frac{m}{V}$		
2			

Liquids

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

1. Use the measuring cylinder to measure the volume of each liquid.
2. Measure the mass of each liquid. Record the results in table 5
 - I. Find the mass of the empty cylinder.
 - II. Fill the cylinder with the required volume.
 - III. Use the balance to measure the mass of the filled cylinder.
 - IV. Subtract the mass of the empty cylinder from the filled cylinder to find the mass of the liquid.
3. Use the Density Formula to calculate the density.

Observation: What data did you collect in this experiment?

Table 5

Specimen	Initial mass (g)	Final mass (g)	Mass of specimen (g)
1	Different Values will be taken but, in the end, to find the mass you follow the rule: $m = m_{Final} - m_{Initial}$		
2			
3			

Table 6

Specimen	Mass of the specimen (g)	Volume of the specimen (cm^3)	Density of the specimen (g/cm^3)
1	Different Values will be taken but, in the end, to find the density you follow the rule: $D = \frac{m}{V}$		
2			
3			

Conclusion:

- 1) What conclusion or theory can you state regarding this experiment?

We see that each material had a different density based on its own physical properties

Critical thinking:

If the mass of an object was doubled, what would happen to the density of it?

It will be doubled (for the same volume of samples)