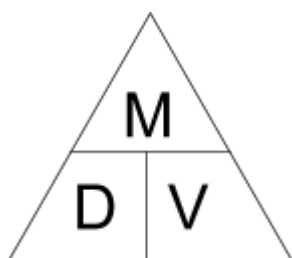


WorksheetCloud: WORKSHEET

Grade 8

Subject: Natural Sciences

Topic: Introduction to Density: Calculations



**density = mass  $\div$  volume**

**mass = density  $\times$  volume**

**volume = mass  $\div$  density**

**The units for density are:**

**grams/cubic centimeter (g/cm<sup>3</sup>) or g.cm<sup>-3</sup>**

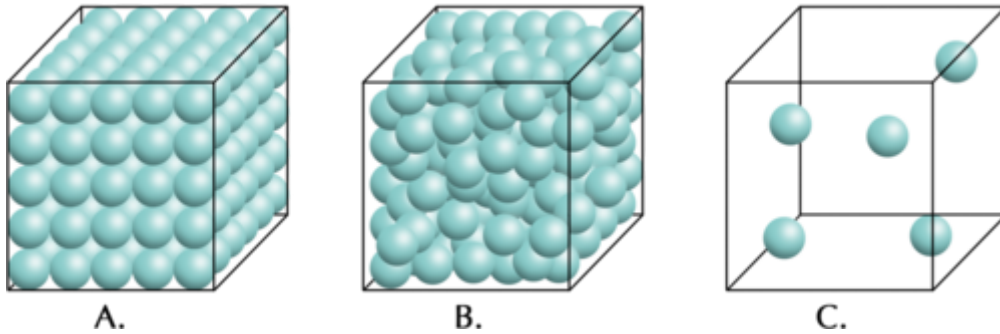
**kilograms/cubic metre (kg/m<sup>3</sup>) or g.m<sup>-3</sup>**

Substance	Density (g.cm <sup>-3</sup> )
Platinum	21,50
Gold	19,30
Mercury	13,60
Lead	11,30
Silver	10,50
Copper	8,90
Iron	7,90
Zinc	7,10
Diamond	3,50
Aluminium	2,70

Substance	Density (g.cm <sup>-3</sup> )
Glass	2,50
Magnesium	1,70
Perspex	1,20
Milk	1,03
Water	1,00
Cooking oil	0,92
Ice	0,91
Candle wax	0,87
Pine-wood	0,54
Cork	0,24

### ACTIVITY 1 Questions from the online lesson

1. Study the diagram below and answer the following questions.



- a) Which container (A, B or C) contains the greatest number of particles?
- b) Which container contains the smallest number of particles?
2. What has the greatest density a solid liquid or a gas?
3. Explain why ice, which is a solid, floats on water, which is a liquid?

### ACTIVITY 2

1. A block has a mass of 54g and a volume of  $27\text{cm}^3$ . Calculate the **density** of the block.
2. Calculate the density of a block with a mass of 125g and a volume of  $25\text{cm}^3$ .
3. Calculate the density of a block with a mass of 12,5g and a volume of  $25\text{cm}^3$
4. Calculate the density of a block with the following measurements:  
Mass = 180g  
Length = 10 cm  
Breadth (width) - 2cm  
Height = 3 cm
5. What **volume** of mercury would have a mass of 2,5g if the density of mercury is  $13,6\text{g}\cdot\text{cm}^{-3}$ ?
6. Calculate the density of a block with the following measurements:  
Mass: 180g, Length: 10cm, Breadth: 2cm, Height: 3cm.
7. What is the density of a block with a length of 15cm, breadth of 40cm, height of 30cm and a mass of 16,2kg?
8. A glass beaker has a mass of 50g. When  $10\text{cm}^3$  of oil is added to the beaker, the mass is 57g. Calculate the density of the oil.

9. What volume of mercury would have a mass of 2,5g if the density of mercury is  $13.6 \text{ g/cm}^3$ .
10. If the density of an object is  $5.4 \text{ g/cm}^3$  and its volume is  $2 \text{ cm}^3$ , what is the mass of the object?
11. A room measures  $3 \text{ m} \times 3 \text{ m} \times 5 \text{ m}$ . Calculate:
- The volume of the room in cubic metres
  - The mass of the air in the room if the density of the air is  $1.2 \text{ kg/m}^3$ .