WorksheetCloud: MEMORANDUM
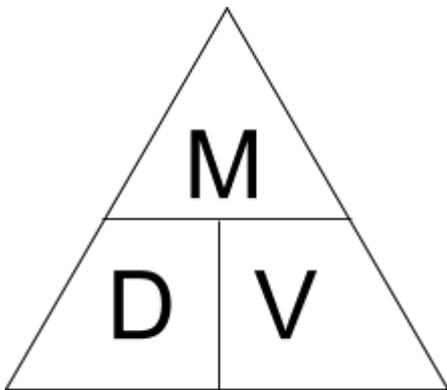**Grade 8**
Subject: Natural Sciences
Topic: Introduction to Density: Calculations

density = mass ÷ volume
mass = density × volume
volume = mass ÷ density

The units for density are:

grams/cubic centimeter (g/cm^3) or g.cm^{-3}
kilograms/cubic metre (kg/m^3) or g.m^{-3}

ACTIVITY 1

1. Calculate the density of the following. *** answers to two decimal places**

   a) Water has a mass of 1g and a volume of 1cm^3

      density   = mass ÷ volume
                  = 1g ÷ 1cm^3
                  = 1 g/cm^3

   b) Object B has a mass of 30g and a volume of 100cm^3

      density   = mass ÷ volume
                  = 30g ÷ 100cm^3
                  = 0.30 g/cm^3

   c) Object C has a mass of 100g and a volume of 10cm^3

      density   = mass ÷ volume
                  = 100 g ÷ 10 cm^3
                  = 10 g/cm^3

2. Calculate the volume of the following

   a) Object D has a mass of **1kg** and a density of 6.1**g**/cm^3

      volume   = mass ÷ density   * need to convert kg to g
                  = 1000g ÷ 6.1g/cm^3
                  = 163.93 cm^3

   b) Object E has a mass of 500g and a density of 2.1g/cm^3

      volume   = mass ÷ density
                  = 500g ÷ 2.1g/cm^3
                  = 238.09 cm^3

3. Calculate the mass of the following

Object F has a volume of **1m^3** and a density of 0.6g/cm^3

      mass = density × volume   * convert m^3 to cm^3
      mass = 0.6g/cm^3 × 1 000 000 cm^3
      mass = 600 000 g

ACTIVITY 2:

2.1. Mass is measured in the following unit
    A. cm
    B. g
    C. $g.cm^{-3}$
    D. m

2.2. The unit for volume is
    A. cm
    B. $g.cm^{-3}$
    C. kg
    D. cm^3

2.3. The formula for determining the volume of a rectangular block is
    A. l x b
    B. l + b + h
    C. l x l x l
    D. l x b x h

2.4. The SI unit for density is
    A. $kg.m^3$
    B. $cm^3.g^{-1}$
    C. $kg.cm^{-3}$
    D. $g.cm^{-3}$

2.5. The side length of a cube is 10cm. Its mass is 100g. The material's density is:
    A. $0,1g.cm^{-3}$
    B. $0,1cm^3.g^{-1}$
    C. $10g.cm^{-3}$
    D. $1g.cm^{-3}$

2.6. The density of silver is $10,5g.cm^{-3}$. Which one of the following statements is true?
    A. The mass of $2cm^3$ of silver is 5,25g
    B. 105g of silver occupies a volume of $100cm^3$
    C. $1000cm^3$ of silver has a mass of 10,5kg
    D. $1cm^3$ of silver has a mass of 1,05kg