Density

Name _____ Class _____ Date _____

Density tells you how much mass is packed into a certain volume. The particle model explains why solids, liquids and gases have different densities.

KEY EQUATION

$$\rho = m \div V$$

ρ = density (kg/m³)
m = mass (kg)
V = volume (m³)
In the lab you'll often use g and cm³, giving g/cm³.

WORKED EXAMPLE

A block has a mass of 540 g and a volume of 200 cm³.
ρ = 540 ÷ 200 = **2.7 g/cm³**

Section A · Recall and calculate

Grade 4–5

1 Calculate the density of a 2 kg object with a volume of 0.0005 m³. [2]

2 Use the particle model to explain why gases are much less dense than solids. [2]

3 Complete the table. [3]

Mass	Volume	Density
600 g	200 cm³	
50 kg		1000 kg/m³
	0.002 m³	800 kg/m³

Section B · Required practical

Grade 5–6

4 Describe how to find the density of a regular-shaped block. [3]

5 Describe how to find the volume of an irregular stone. [3]

Section C · Stretch

Grade 7+

6 A 1.5 cm × 2 cm × 4 cm block has a mass of 108 g. Calculate its density in g/cm³ and in kg/m³. [3]

Exam-style question

AQA style

7 A student finds the density of a liquid using a measuring cylinder and a balance.

a Describe the method. [3]

b The student measures 50 cm³ of liquid with a mass of 40 g. Calculate its density. [2]

c Suggest how the student could make the result more accurate. [1]

Total: _____ / 22

How confident am I?	Not yet	Nearly	Got it
I can use ρ = m ÷ V with different units	☐	☐	☐
I can describe how to find density of regular and irregular objects	☐	☐	☐
I can explain density using the particle model	☐	☐	☐