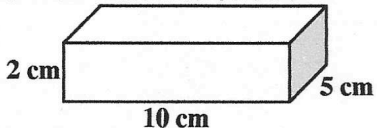## Calculate density, and identify substances using a density chart.

Density is a measure of the amount of mass in a certain volume. This physical property is often used to identify and classify substances. It is usually expressed in grams per cubic centimeters, or g/cm^3. The chart on the right lists the densities of some common materials.

Equation: **Density** = $\dfrac{mass}{Volume}$ or $D = \dfrac{m}{V}$

Substance	Density (g/cm^3)
Gold	19.3
Mercury	13.5
Lead	11.4
Iron	7.87
Aluminum	3.7
Bone	1.7-2.0
Gasoline	0.66-0.69
Air (dry)	0.00119

Problem Statement	Formula	Define Variables	Substitution	Answer
Sample: What is the density of a billiard ball that has a volume of 100 cm^3 and a mass of 250 g?	$D = \dfrac{m}{V}$	M = 250 g V = 100 cm^3	$D = \dfrac{250\ g}{100\ cm^3}$	2.5 g/cm^3
1. A loaf of bread has a volume of 2270 cm^3 and a mass of 454 g. What is the density of the bread?				
2. A block of wood has a density of 0.6 g/cm^3 and a volume of 1.2 cm^3. What is the mass of the block of wood?				
3. A 800g boulder has a density of 8 g/cm^3. What is the volume of the boulder?				
4. What is the mass of the block of iron illustrated below? 2 cm 5 cm 10 cm				

Use the data below to calculate the density of each unknown substance. Then use the density chart above to determine the identity of each substance.

Mass (g)	Volume (cm^3)	D = m/v Variable Substitutions	Density (g/cm^3)	Substance
4725	350	$D = \dfrac{4725}{350}$	D = 13.5	Mercury
171	15			
148	40			
475	250			
680	1000			