Name Key Date

Applying Knowledge
Section 7.2

Use textbook pages 264–265.

Density detective

Use your detective skills to find the identity of the mystery objects. First calculate the density of the object. Then use the Table of Densities to decide what the object is made of.

Table of Densities

Solids	Density (g/cm^3)	Solids	Density (g/cm^3)
marble	2.56	copper	8.92
quartz	2.64	gold	19.32
diamond	3.52	platinum	21.4

1. 

While digging in the backyard, you find an old coin. Its mass is 26.76 g and its volume is 3 cm^3. What is the density of the coin?

Calculation:

What is the coin made of? copper

2. 

You think you have found a diamond. Its mass is 5.28 g, and its volume is 2 cm^3. What is the density of the object?

Calculation:

What did you find? quartz

3. 

You find a ring with a mass of 107 g. You fill a graduated cylinder up with 10 mL of water and put the ring into the cylinder. The water rises up to the 15 mL mark. What is the density of the ring?

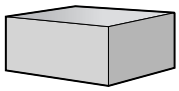
Calculation:

m = 107 g

V = 5 mL (water went from 10 mL to 15 mL)

$D = \frac{m}{V} = \frac{107\,g}{5\,mL} = 21.4\,\frac{g}{mL}$

What is the ring made of? platinum

4. 

There is a block on your desk that acts as a paperweight. Its measurements are: 3 cm by 4 cm by 6 cm. The block has a mass of 184.32 g. What is the density of the block?

Calculation:

m = 184.32 g

V = 72 cm^3 ($V = l \cdot w \cdot h = 6\,cm \cdot 4\,cm \cdot 3\,cm = 72\,cm^3$)

$D = \frac{m}{V}$

$D = \frac{184.32\,g}{72\,cm^3} = 2.56\,\frac{g}{cm^3}$

What is the block made of? marble