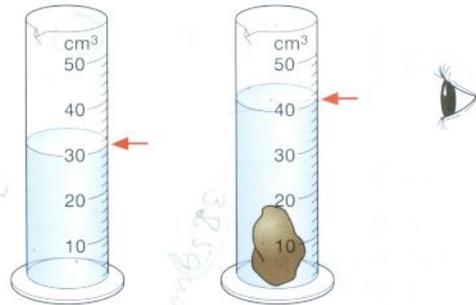


## ► Measuring density

### Experiment 12.1

Find the density of a **solid** in three stages:

1. Find the mass of the solid (for example, a stone) by using a top-pan balance.
2. Find the volume of the solid by using a measuring cylinder. Remember to put your eye at the right level, and to read the **bottom** of the meniscus.
3. Use the formula:  $\text{density} = \frac{\text{mass}}{\text{volume}}$



What is the density of the stone shown here?

Geologists need to measure the density of rocks. It helps them to identify the kind of rock, and where it comes from.

Milk inspectors and beer inspectors measure the density of the liquid to see if it has been watered down.

### Experiment 12.2

Find the density of **water** in five stages:

1. Find the mass of a dry empty beaker using a beam balance or a top-pan balance.
2. Use a measuring cylinder to pour exactly 100 cm<sup>3</sup> of water into the beaker.
3. Now find the mass of the beaker with the water in it.
4. Work out the mass of the water from the results of steps 1 and 3.

5. Use the formula:

$$\text{density} = \frac{\text{mass}}{\text{volume}} \quad \text{to calculate the density of water.}$$

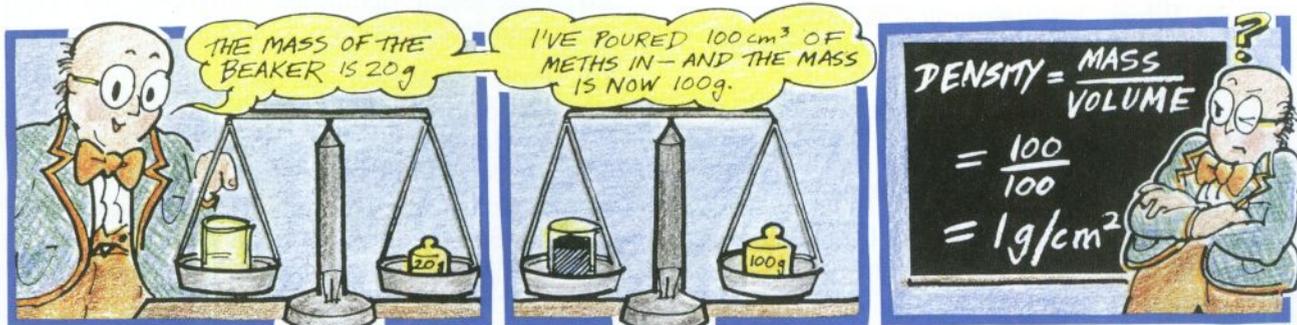
What unit is your result measured in?

How does your result compare with the value shown opposite?

What would your result be in units of kg/m<sup>3</sup>?

### Experiment 12.3

Repeat experiment 12.2 to find the density of another liquid.



Can you find Professor Messer's mistake? What is the correct answer?