e 2-3 shows the combination of fundamental
used to obtain derived units.
ome combination units are given their own names.
example, pressure expressed in base units is the
wing.

$$kg/m \cdot s^2$$

name *pascal,* Pa, is given to this combination.
will learn more about pressure in Chapter 10.
xes can also be added to express derived units.
can be expressed in cm^2, square centimeters,
m^2, square millimeters.

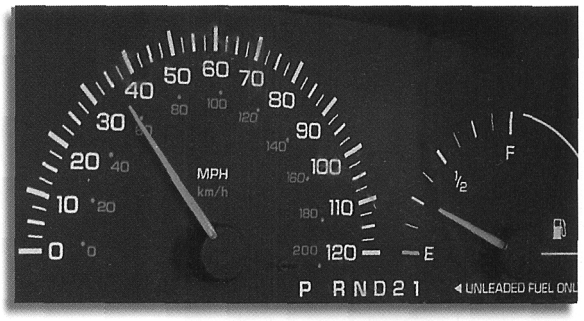

FIGURE 2-5 The speed that registers on a speedometer represents distance traveled per hour and is expressed in the derived units kilometers per hour or miles per hour.

ume

me *is the amount of space occupied by an object.* The derived SI unit
lume is cubic meters, m^3. One cubic meter is equal to the volume
ube whose edges are 1 m long. Such a large unit is inconvenient for
ssing the volume of materials in a chemistry laboratory. Instead, a
er unit, the cubic centimeter, cm^3, is often used. There are 100 centi-
rs in a meter, so a cubic meter contains 1 000 000 cm^3.

$$1\ m^3 \times \frac{100\ cm}{1\ m} \times \frac{100\ cm}{1\ m} \times \frac{100\ cm}{1\ m} = 1\ 000\ 000\ cm^3$$

hen chemists measure the volumes of liquids and gases, they often
non-SI unit called the liter. The liter is equivalent to one cubic
neter. Thus, a liter, L, is also equivalent to 1000 cm^3. Another non-SI
the milliliter, mL, is used for smaller volumes. There are 1000 mL in
Because there are also 1000 cm^3 in a liter, the two units—milliliter
ubic centimeter—are interchangeable.

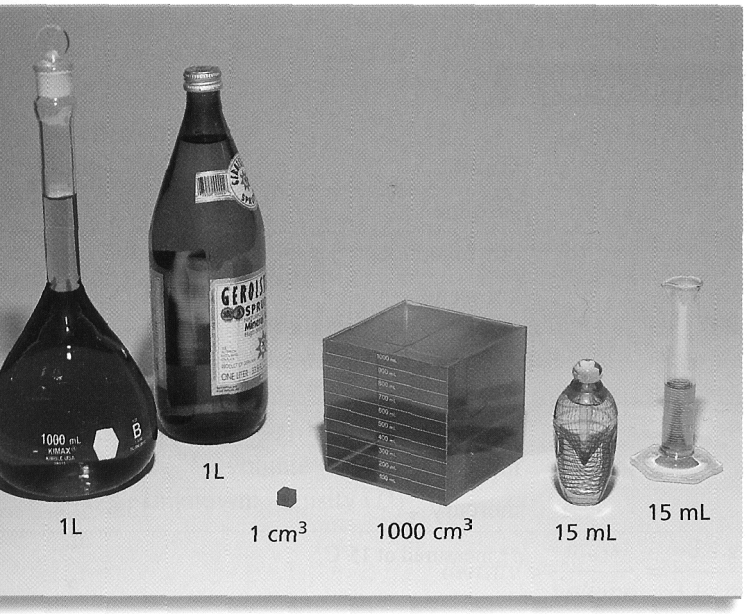

FIGURE 2-6 The relationships between various volumes are shown here. One liter contains 1000 mL of liquid, and 1 mL is equivalent to 1 cm^3. A small perfume bottle contains about 15 mL of liquid. The volumetric flask and graduated cylinder are used for measuring liquid volumes in the lab.