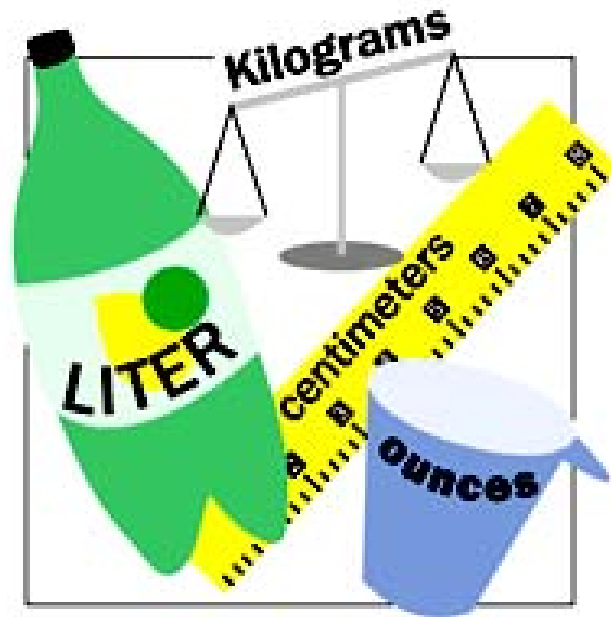


Measurement-A Common Language



Volume

Volume

Volume

- The amount of space an object takes up

Volume

Volume of Liquids

When measuring the volume of a liquid, scientists use a unit known as the...

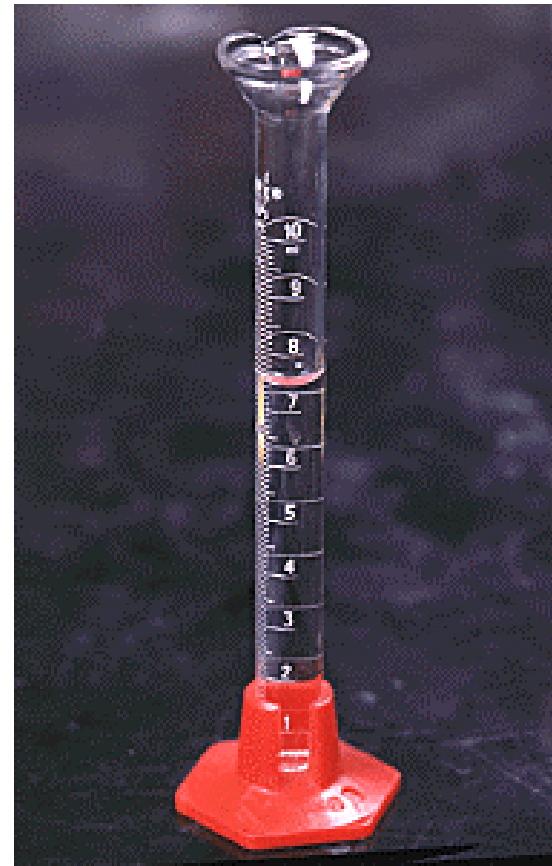
- Liter (L).

To measure the volume of smaller liquids, the _____ is used.

- Milliliter (mL)

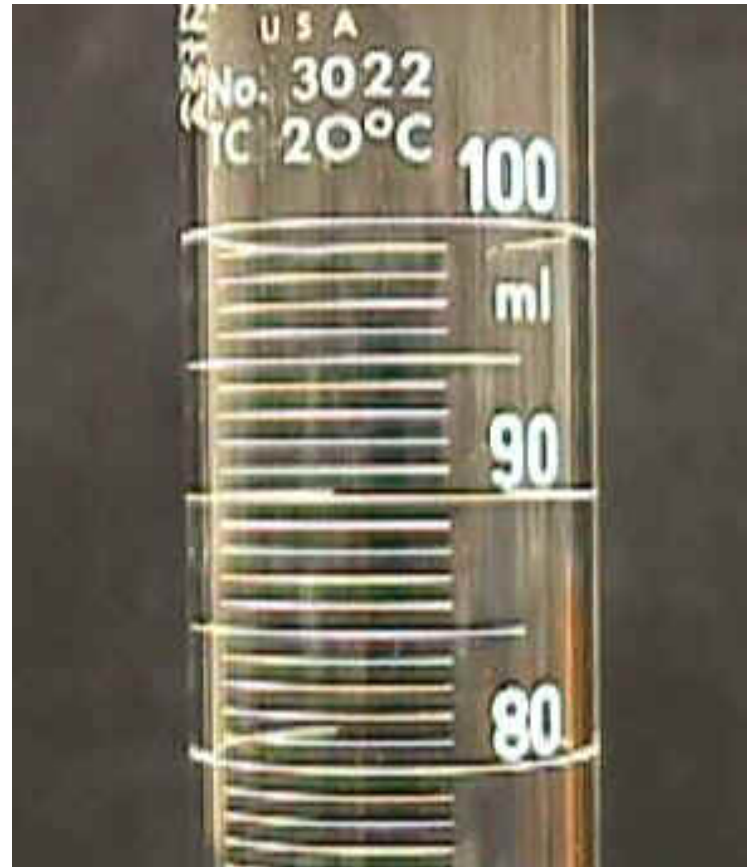
The instrument used to measure the volume of liquids is called the...

- Graduated cylinder.



This instrument has markings that are in increments of...

- 1 milliliter (mL)

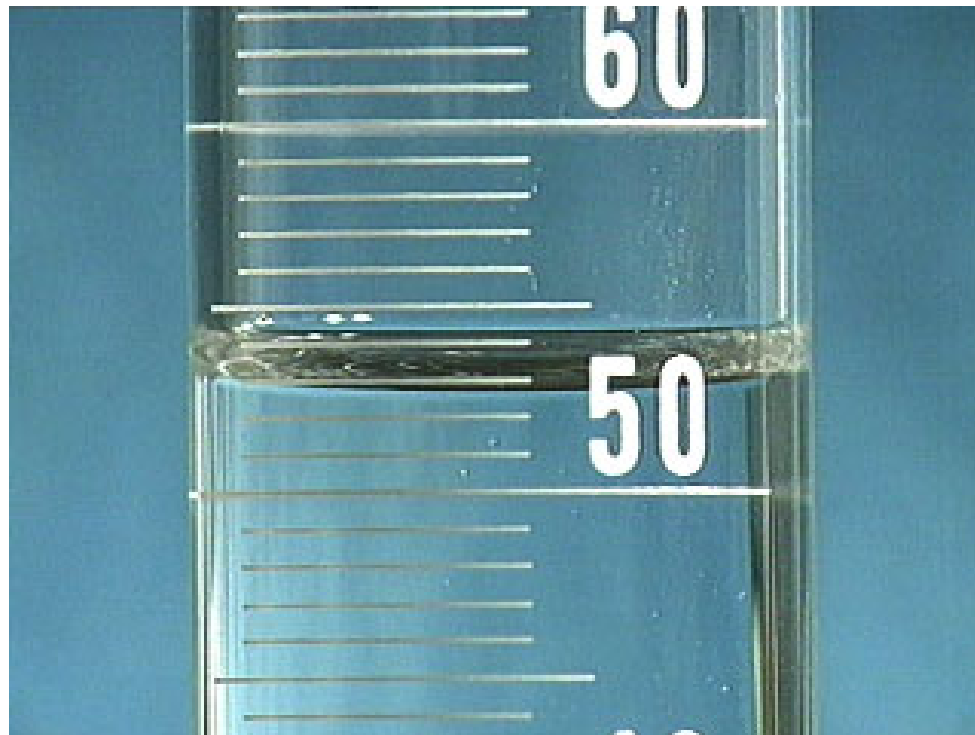


Meniscus

- The curve in the top surface of water in the graduated cylinder

Figure 4: **Observing** - What is the proper way to read a meniscus?

- Read the milliliter marking at the bottom of the curve



Volume

Volume of Rectangular Solids

Common Conversions For Volume

1 L	=	
	=	1,000 cm ³
1 mL	=	

Common Conversions For Volume

1 L

=

1,000 mL

=

1,000 cm³

1 mL

=

Common Conversions For Volume

1 L

=

1,000 mL

1 L

=

1,000 cm³

1 mL

=

Common Conversions For Volume

1 L

=

1,000 mL

1 L

=

1,000 cm³

1 mL

=

1 cm³

How can the volume of a solid object such as a shoebox be measured?

- To measure a solid objects that are regular shaped, a formula for volume can be applied
- To measure a rectangular object such as a shoebox, multiply the object's length, width, and height

The SI unit known for measuring solids with a larger volume is known as the...

- Cubic meter (m^3).

The formula for calculating the volume of a rectangular object is:

$$\text{Volume} = \text{Length} \times \text{Width} \times \text{Height}$$

Why is the unit cm^3 used when calculating the volume of a rectangular object?

- When multiplying the object's length, width and height, the cm units are also multiplied

$$\text{cm} \times \text{cm} \times \text{cm} = \text{cm}^3$$

Suppose a cereal box is 10 centimeters long, 4 centimeters wide, and 20 centimeters high. What would be the volume of the box?

Volume = Length x Width x Height

Volume = 10 cm x 4 cm x 20 cm

Volume = 800 cm³

✓ Reading Checkpoint (page 51): What is a cubic meter?

- The SI unit used to measure solids with a larger volume
- A cubic meter is equal to the volume of a cube that measures 1 meter on each side

Volume

Volume of Irregular Solids

How is the volume of an irregular solid such as a rock measured?

- To measure the volume of an irregular solid, immerse the object in water, and measure how much the water level rises
- Water displacement method

How does the water displacement method work?

- Record the volume of water in the graduated cylinder
- Carefully place the irregular solid into the water. Record the volume of the water plus the object
- Subtract the volume of the water alone from the volume of the water plus the object