



SCIENCE

CHAPTER 6 -MATTER AND ITS CHANGES

LESSON 2– MEASUREMENT

PART -1



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HOW DO WE MEASURE MATTER?

- ❖ To measure, we use standard units.
- ❖ **STANDARD UNIT**-It is a measurement on which all people agree.

METRIC SYSTEM

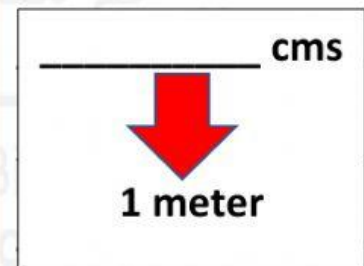
To measure smaller or larger quantities, we use units derived from the metric units.

Length	Weight	Capacity
cm and m	g and kg	ml and l
		
		

Metric Units	Amount	Estimated Length
1 centimeter	$\frac{1}{100}$ of a meter	the width of your thumbnail
1 decimeter	10 cm $\frac{1}{10}$ of a meter	the length of a crayon
1 meter	10 dm 100 cm	the length of a baseball bat
1 kilometer	1,000 m 100,000 cm	the distance you walk in 10 to 15 minutes

Read a Table

How many centimeters are in a meter? '



Length and Width

An object's **length** is the number of units that fit from one end to the other. *Width* is the number of units that fit across.

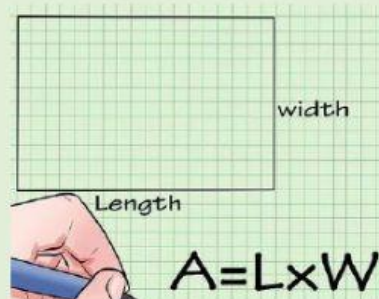
Measure to the nearest inch!

		in.
		in.
		in.

AREA

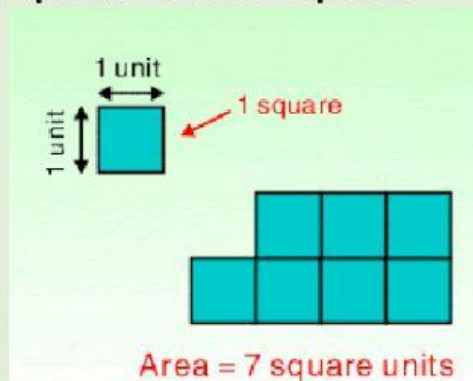
There are 2 ways to calculate area-

1. **Using formula** – Multiply length x width



2. **Counting unit squares**- Divide the shape into smaller square.

Count the number of unit squares.
You might need to estimate some parts of the shapes.



PRACTICE QUESTIONS:



5cm

3cm

Area = _____ square cm



4cm

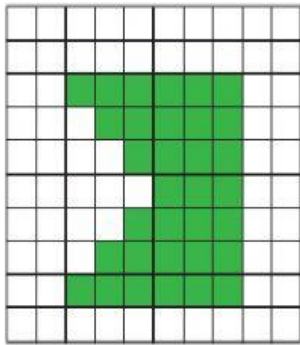
4cm

Area = _____ square cm

Find the area of each shape.

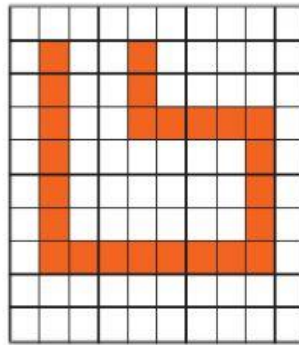
 = 1 square unit

1)



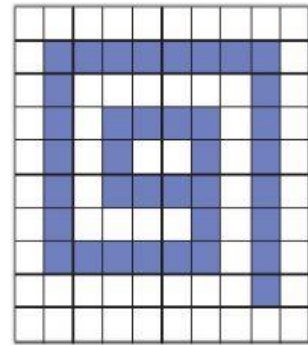
Area = square units

2)



Area = square units

3)



Area = square units

VOLUME

There are 3 ways to calculate volume-

1. Using formula for rectangular shape-

Multiply length x width x height

Volume of a box



$$V_{\text{box}} = \text{length} \times \text{width} \times \text{height}$$

$$V_{\text{box}} = l \times w \times h$$

2. For liquids-

Use measuring cup, graduated cylinder, beaker

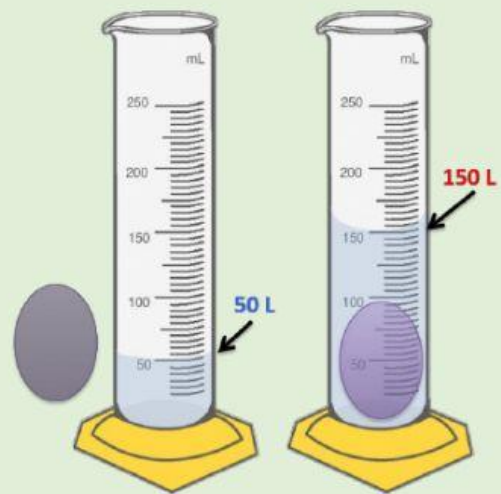


3. For irregular shape-

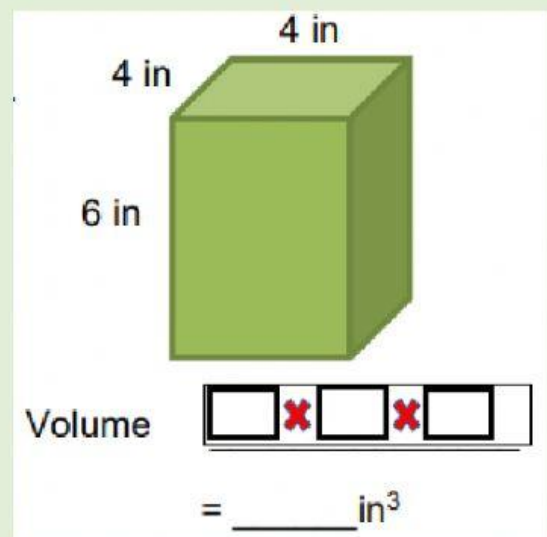
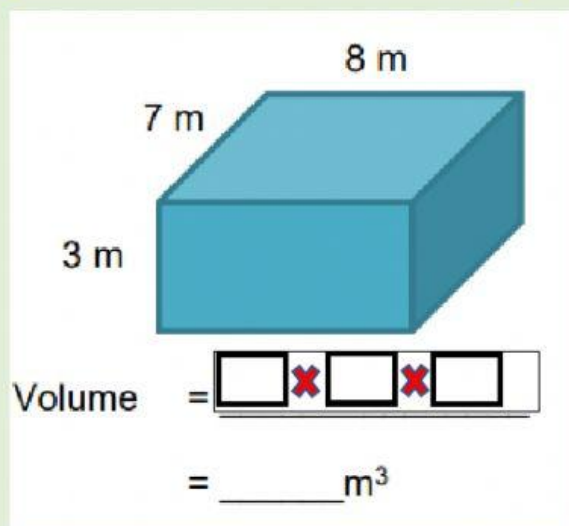
First, measure the amount of water in a container. Then, submerge the entire object below the water. Subtract the original water level from the new water level. The result is the volume of the object.

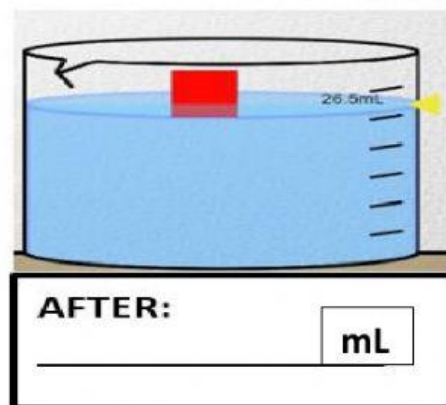
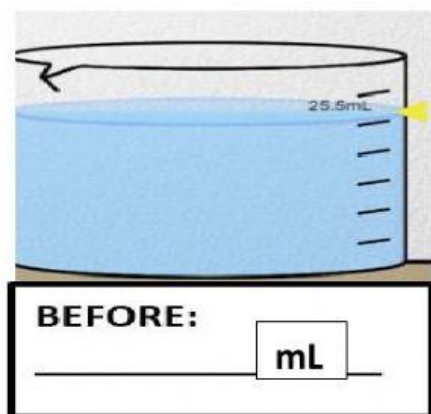
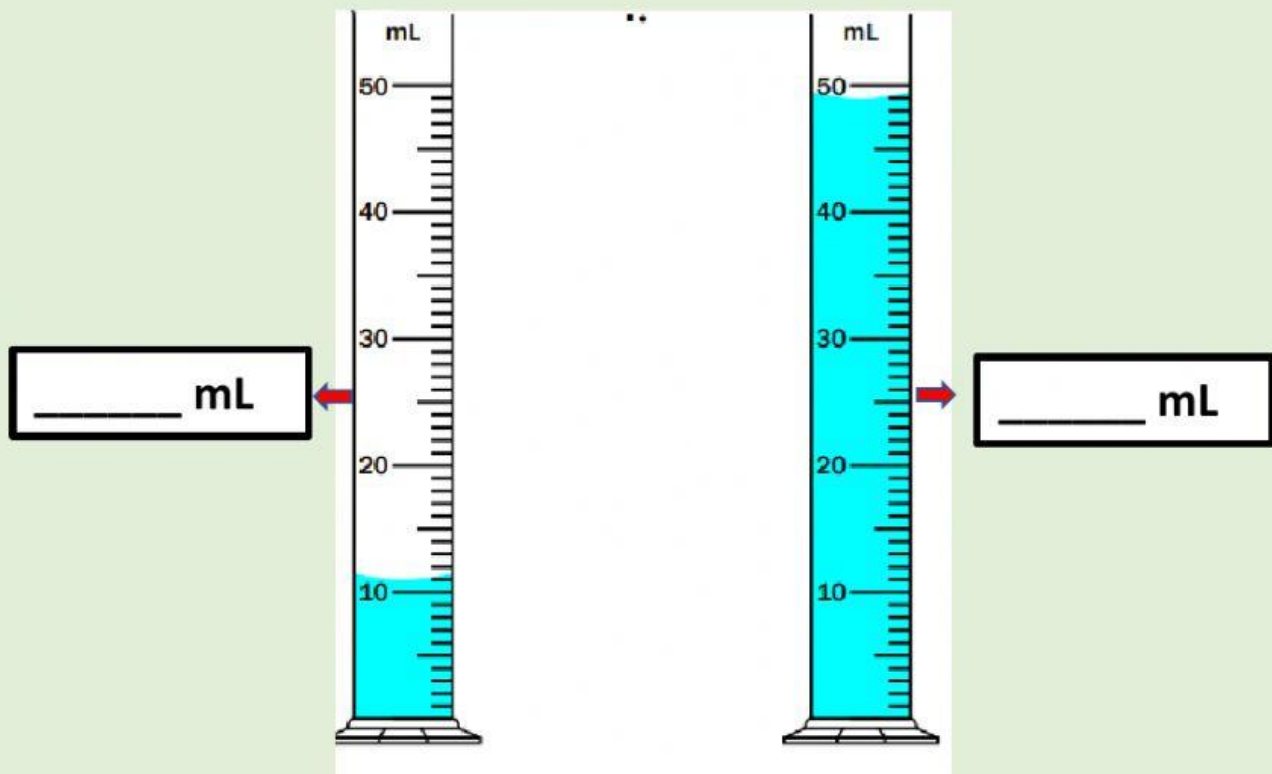
Finding Volume:

$$150 \text{ L} - 50 \text{ L} = 100 \text{ L}$$

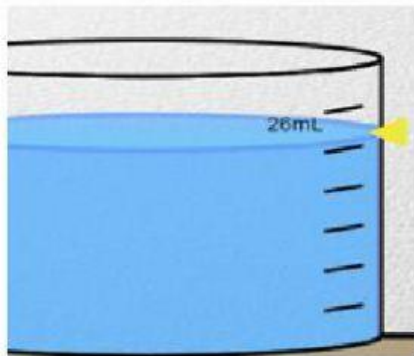


PRACTICE QUESTIONS:



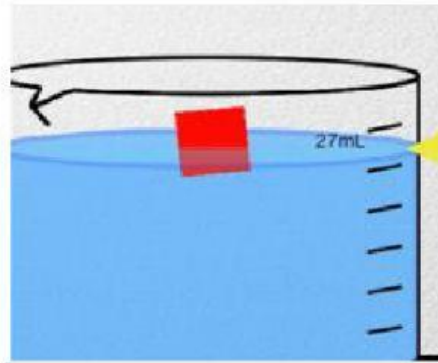


**VOLUME OF THE
OBJECT:** _____ mL



BEFORE:

mL



AFTER:

mL

**VOLUME OF THE
OBJECT:**

mL

QUESTIONS FROM BOOK

1. **Vocabulary.** The number of unit squares that cover a surface describes its

2. Which unit would be used to measure the length of your desk?

- A meters
- B grams
- C centimeters
- D g/cm^3

3. How can you measure the volume of the gas inside this balloon?



- A Submerge the balloon in water. Subtract the original water level from the new water level.
- B Measure the length and width of the balloon. Multiply the two numbers.
- C Empty the contents of the balloon into a beaker. Record the volume.
- D The volume cannot be measured.

4

Which of the following is a metric unit of measurement?

- A meter
- B mass
- C weight
- D color