Part 2 Properties of Matter Name:

Part 2 Mass and Volume Lesson 1

Mass: The amount of _____ in an object. Weight has to do with gravity. On earth, mass and weight are the _____.

The standard unit of mass in the metric system is the _____.

Special Relationships

1 cubic meter of water has a mass of one ton, thus…

1 liter of water weighs 1 kilogram.

1 milliliter of water is one cubic centimeter.

Metric Ton: A cubic meter filled with _____ or 1,000 kilograms.

Area of Focus: Volume, Liter, l

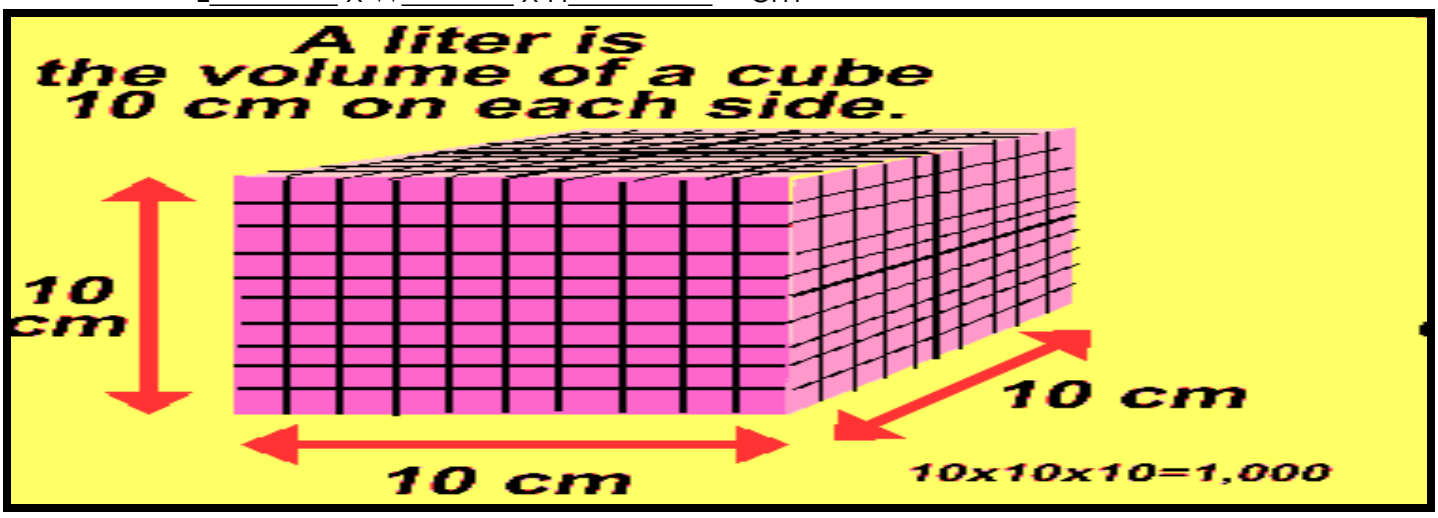
Volume: The three-dimensional _____ an object occupies.

Volume is also the space that matter occupies.

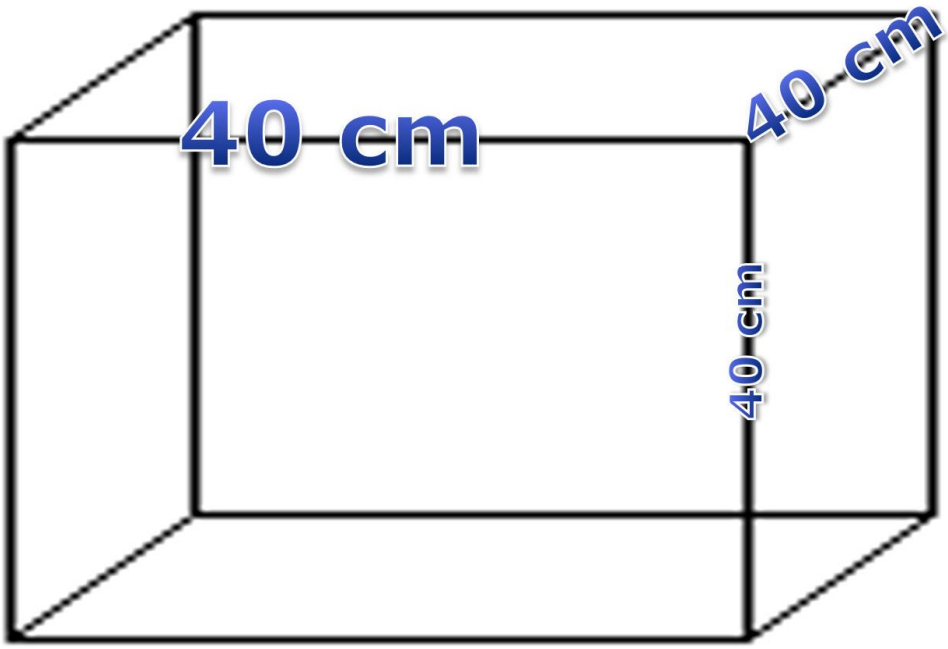
- Always measure a liquid at the bottom of the m_____ curve.

How to find the volume of a cube?

- L_____ x W_____ x H_____ = cm³

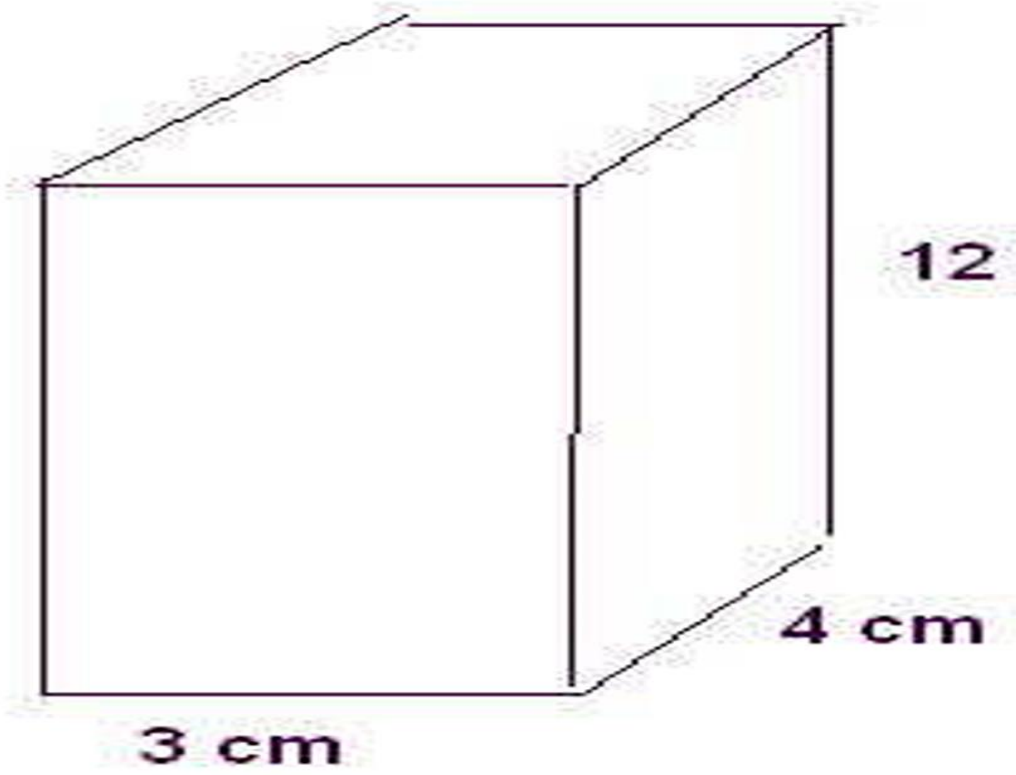


Find the volume of this cube?



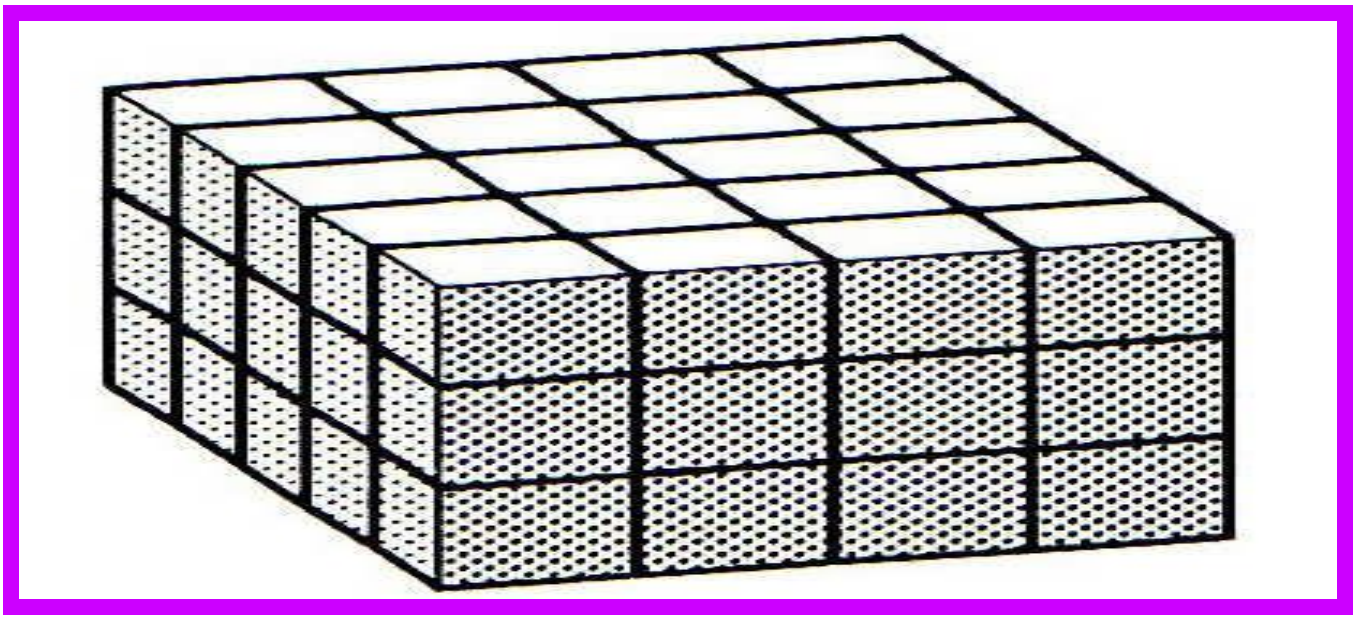
Answer = ____ cm^3

Find the volume of this rectangle?



Answer= cm^3

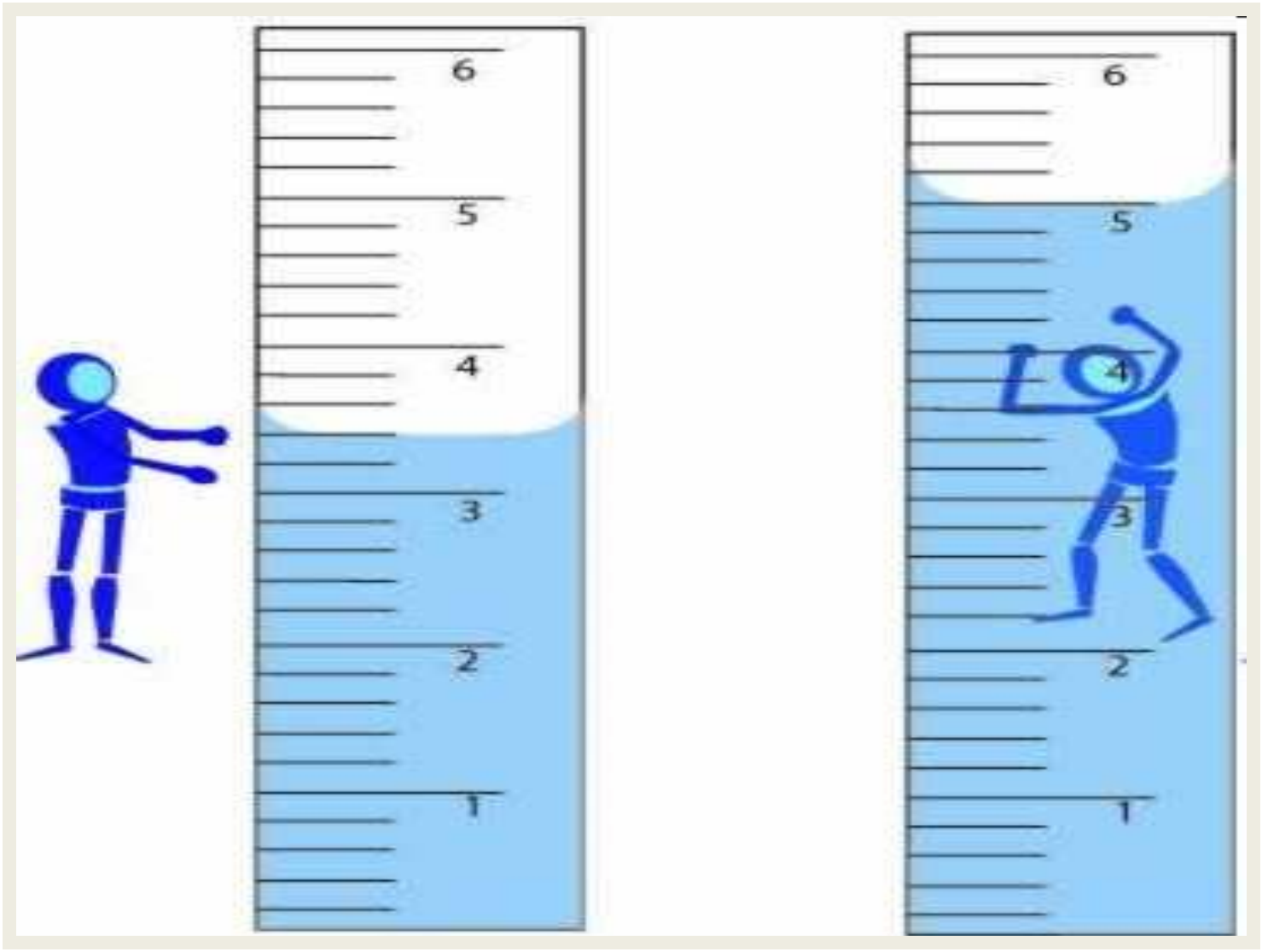
Find the volume of this rectangle? Each unit is 1cm^3



Answer= cm^3

How many milliliters is the toy scuba diver by using water displacement?

Answer= ml



End Lesson 2 Mass and Volume

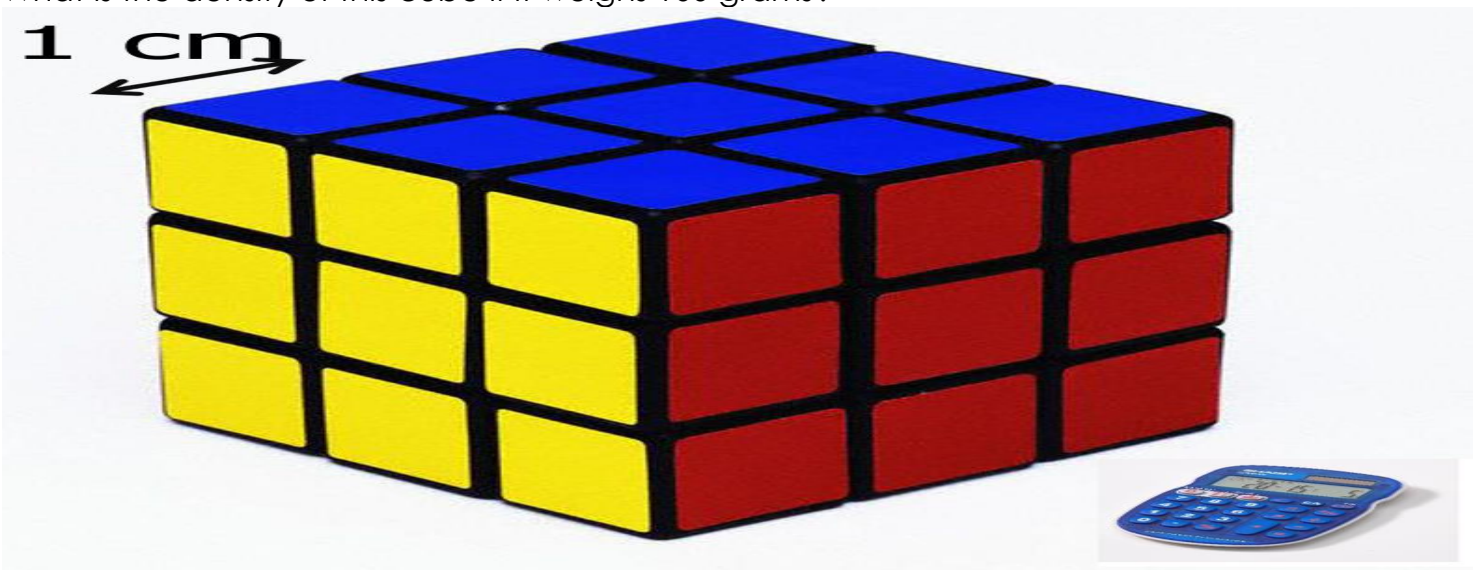
Part 2 Density Lesson 2

Density: How much _____ is contained in a given _____. We use grams/cm³ (grams per cubic centimeter)

Density – mass d_____ volume

$$D = \frac{\text{Mass}}{\text{Volume}} = \text{grams/cm}^3$$

What is the density of this cube if it weighs 100 grams?



Answer = g/cm³

Please determine the densities of the following characters. Who is most dense?

Donkey Kong= g/cm³	Yoshi= g/cm³	Goomba= g/cm³	Mario= g/cm³

Answer= Who is the most dense?

An object will float in _____.

Density of less than one = _____.

Density of more than one = _____

What is the density of an objects whose mass is 500 grams and displaces 250 ml of water? M Density = ---------- = V Will the object float in water? Yes / No	What is the density of an objects whose mass is 200 grams and displaces 250 ml of water? M Density = ---------- V Will the object float in water? Yes / No

End Lesson 3 Density -Lesson 4 has no .doc component

Part 2 Lesson 4 Density Continued

Density is defined as mass per unit V_____. It is how much the mass is confined in a substance. It helps show if a_____ are packed closely together or spread far apart. To measure density, measure the mass on a balance, calculate volume and d_____ the two. This process does not involve a chemical c_____ and is thus a p_____property. Another way to measure density is by using its displacement of I____.

Part 2 Lesson 5 Density Quiz, Lesson 7 is answers

Volume and Density Quiz 1-10 From Slideshow / Video

Score out of 10_____

1)	**2)**	**3)**
4)	**5)**	**6)**
7)	**8)**	**9)**
10)	***11) bonus**	

What soda should we bring rafting and why?

Brand of Soda	Sodium mg	Calories	Sugar g	Mass g	Volume. ml	5
					Can you find?	

Part 2 Properties of Matter

Part 2 Mass and Volume Lesson 1

Mass: The amount of matter in an object. Weight has to do with gravity. On earth, mass and weight are the same.

The standard unit of mass in the metric system is the gram.

Special Relationships

- 1 cubic meter of water has a mass of one ton, thus…
  - 1 liter of water weighs 1 kilogram.
  - 1 milliliter of water is one cubic centimeter.

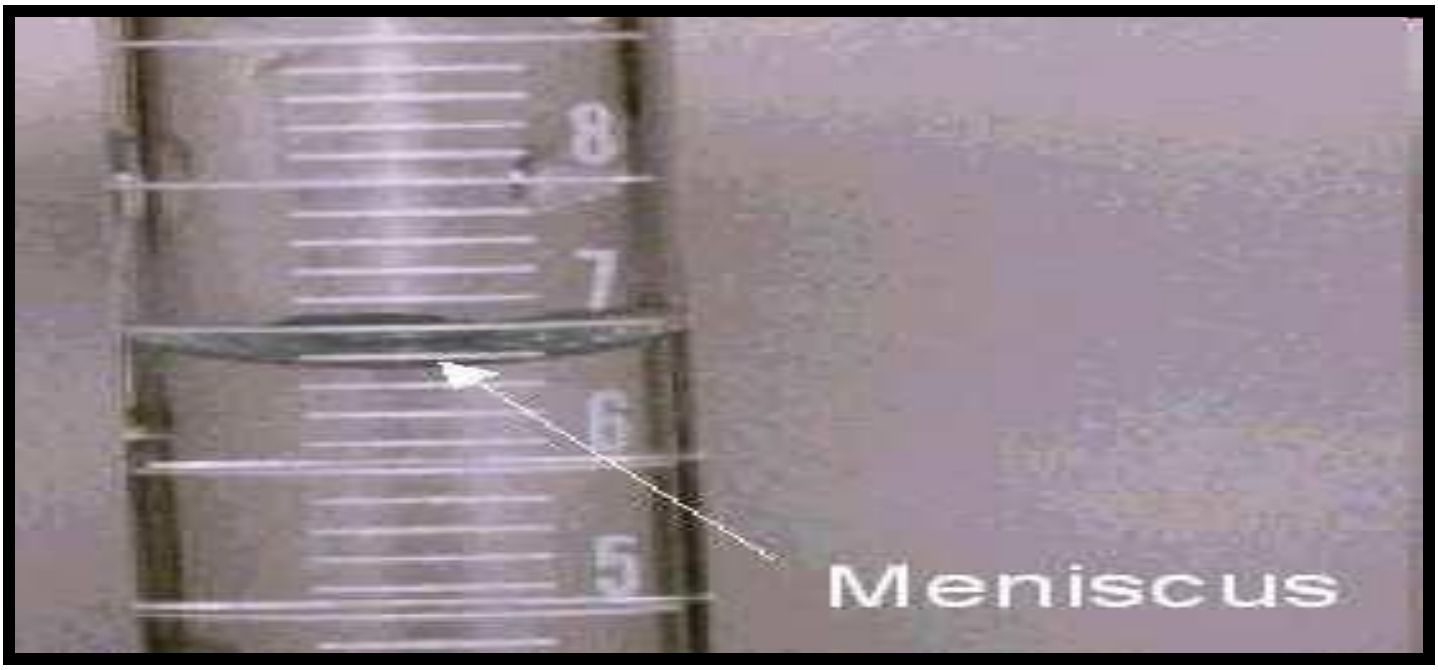
Metric Ton: A cubic meter filled with water or 1,000 kilograms.

Area of Focus: Volume, Liter, l

Volume: The three-dimensional space an object occupies.

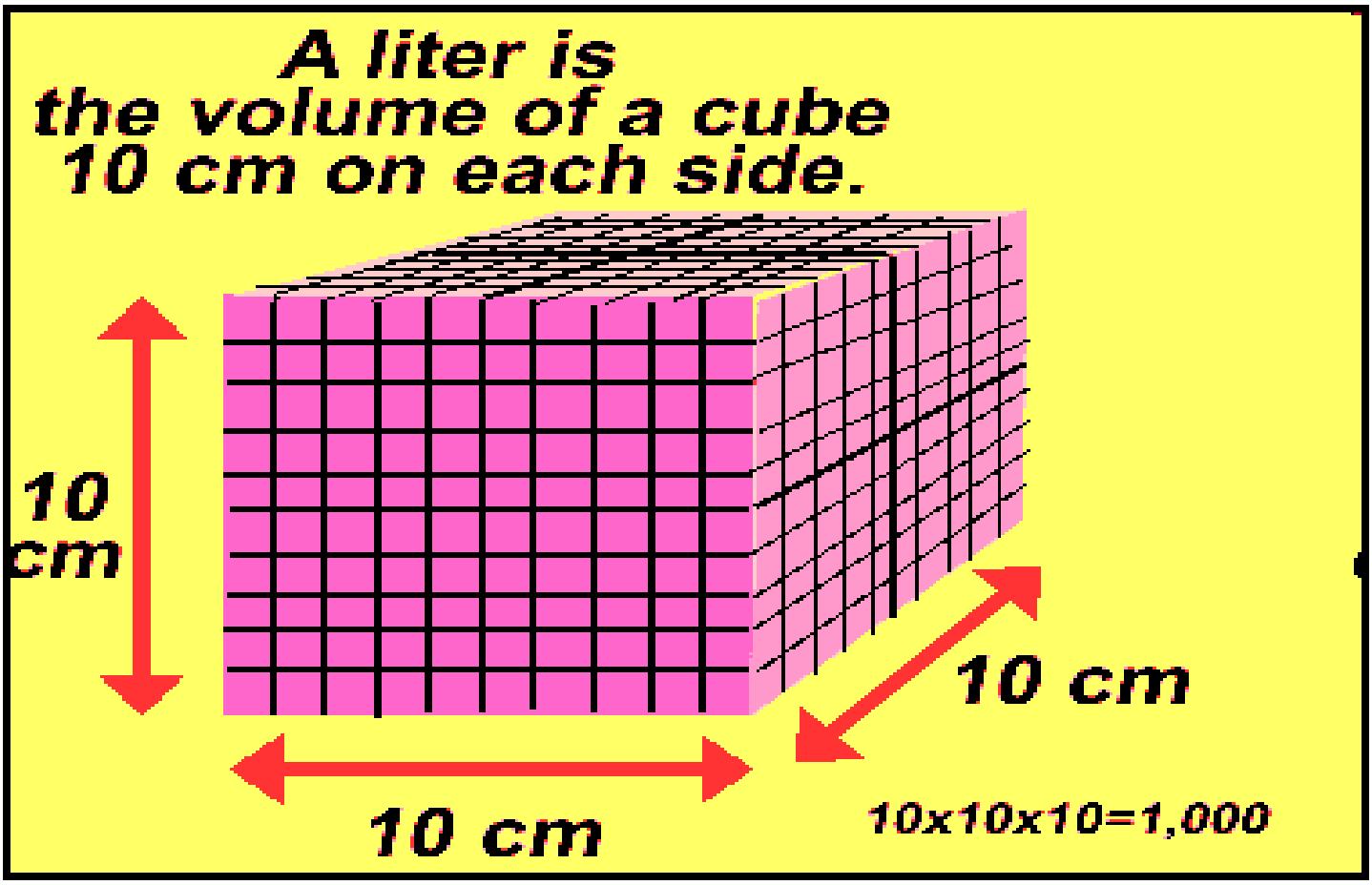
Volume is also the space that matter occupies.

- Always measure a liquid at the bottom of the meniscus curve.

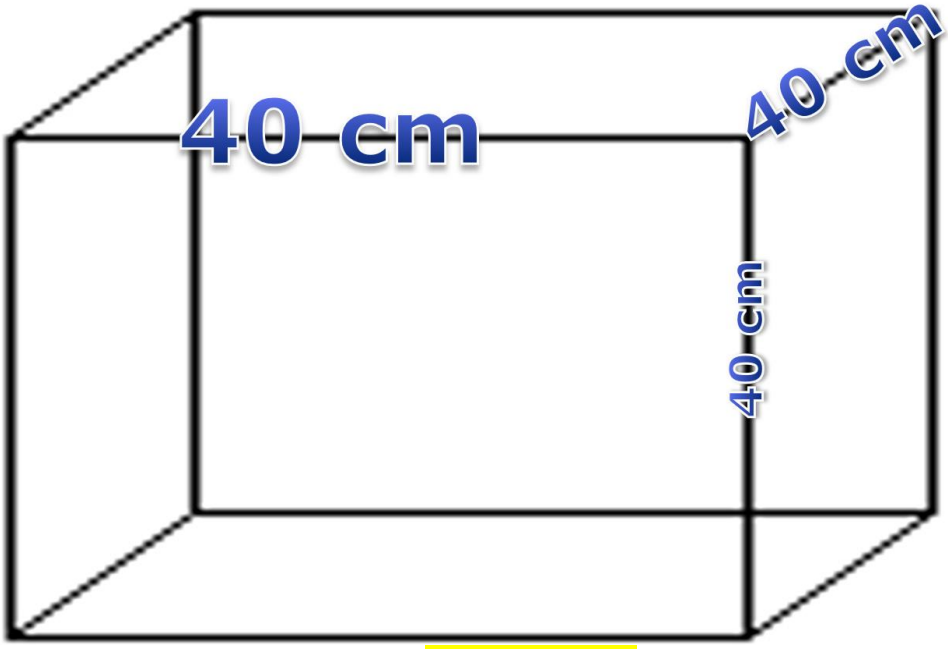


How to find the volume of a cube?

- Length x Width x Height = cm^3

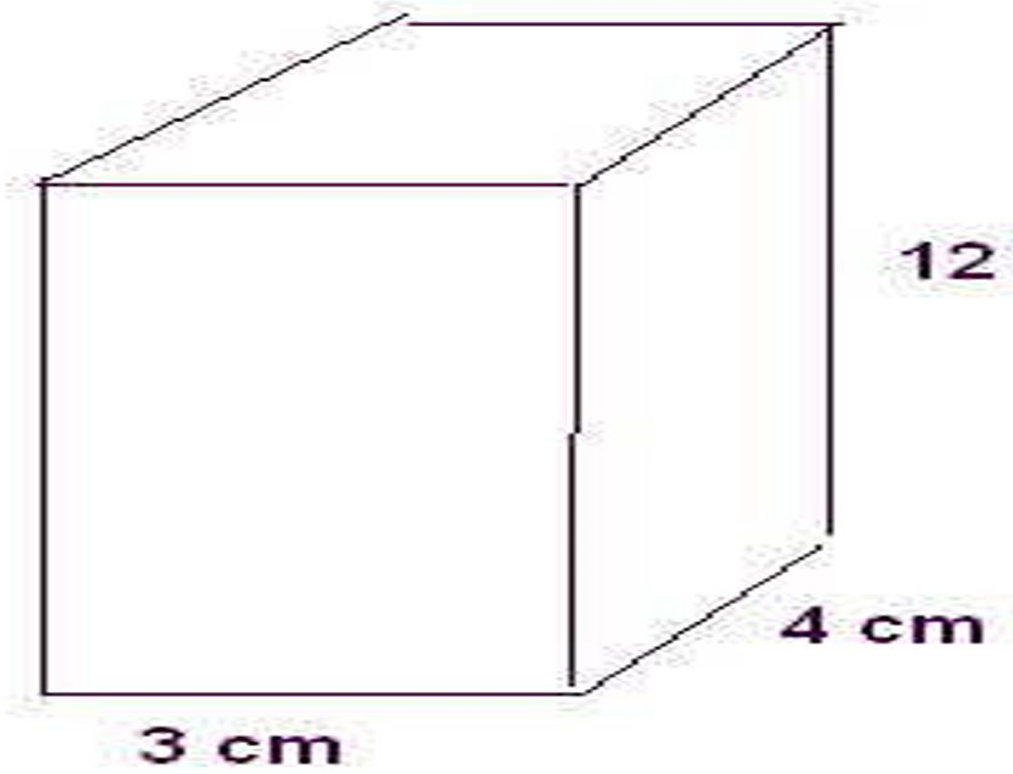


Find the volume of this cube?



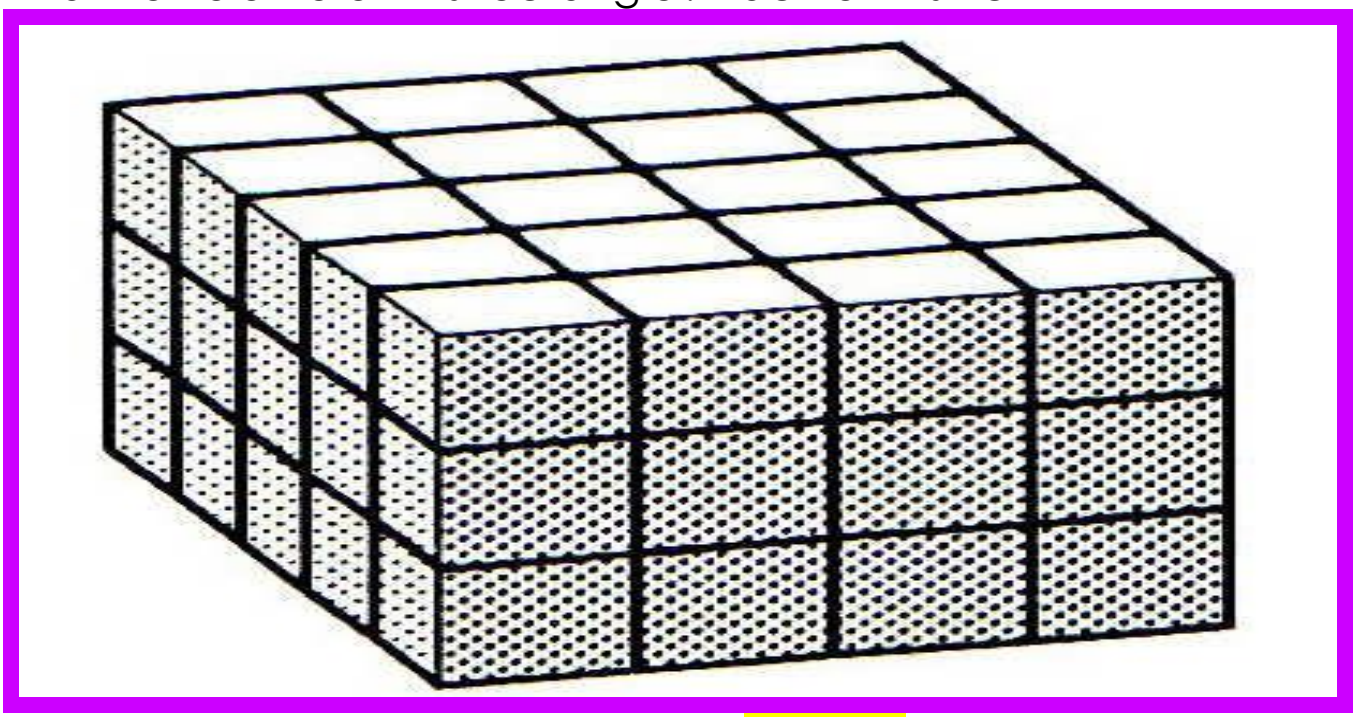
Answer = 40x40x40 = 64,000cm^3

Find the volume of this rectangle?



Answer = 3cm x 4 cm x 12 cm = 144 cm^3

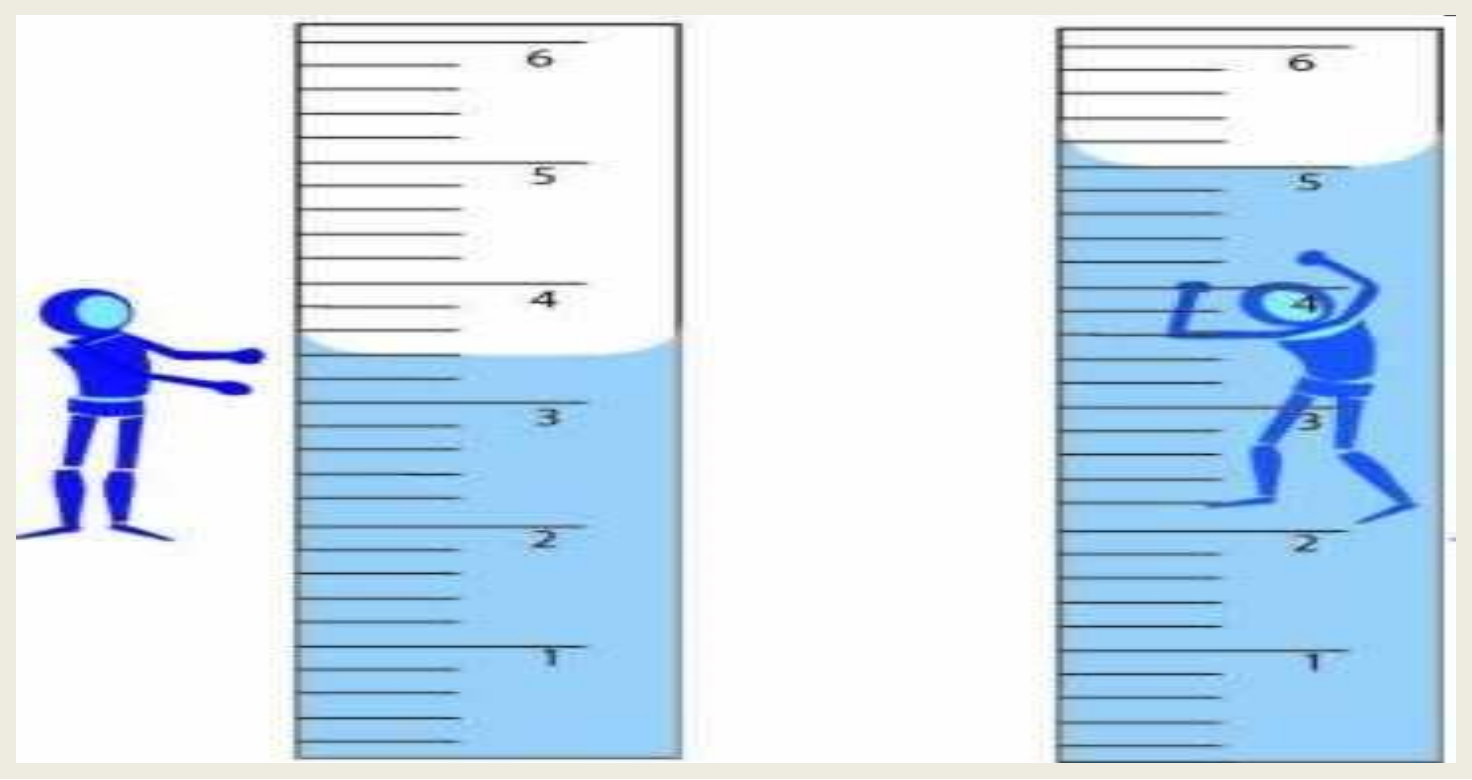
Find the volume of this rectangle? Each unit is 1cm^3



Answer= 3cm x 4cm x 5cm = 60 cm^3

How many milliliters is the toy scuba diver by using water displacement?

Answer= 5ml – 3.4ml Answer 1.6 ml



End Lesson 2 Mass and Volume

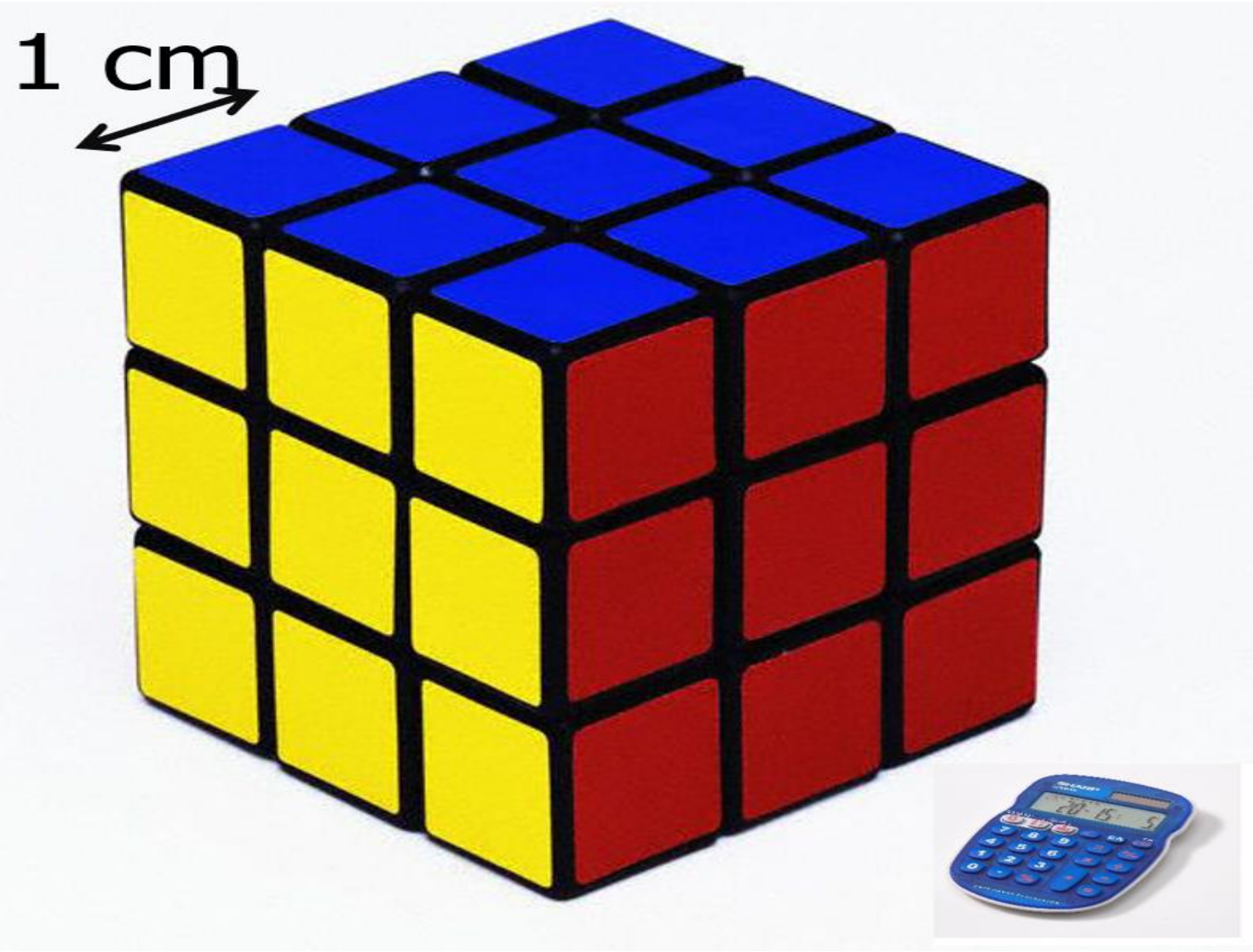
Part 2 Density Lesson 2

Density: How much space is contained in a given volume. We use grams/cm³ (grams per cubic centimeter)

- Density – mass divided volume

$$D = \frac{\text{Mass}}{\text{Volume}} = \text{grams/cm}^3$$

What is the density of this cube if it weighs 100 grams?



3^3 = 27 cm^3 for volume

D = m/v
Mass = 100g
100g/27cm3
Answer = Density = 3.7 g/cm^3

Please determine the densities of the following characters. Who is most dense?

Donkey Kong= g/cm^3 .5g/cm3	Yoshi= g/cm^3 1.625 g/cm3	Goomba= g/cm^3 1.3 g/cm3	Mario= g/cm^3 .8 g/cm3

Answer= Who is the most dense?

An object will float in water

- Density of less than one = will float in water
- Density of more than one = will sink in water

What is the density of an objects whose mass is 500 grams and displaces 250 ml of water? M 500g Density = ---------- = 2g/cm^3 V 250ml Will the object float in water? No	What is the density of an objects whose mass is 200 grams and displaces 250 ml of water? M 200g Density = ---------- = .8 g/cm^3 V 250ml Will the object float in water? Yes / No

End Lesson 3 Density -Lesson 4 has no .doc component

Part 2 Lesson 4 Density Continued

Density is defined as mass per unit Volume. It is how much the mass is confined in a substance. It helps show if atoms are packed closely together or spread far apart. To measure density, measure the mass on a balance, calculate volume and divide the two. This process does not involve a chemical change and is thus a physical property. Another way to measure density is by using its displacement of liquid.

Part 1B Lesson 6 Density Quiz, Lesson 7 is answers

Volume and Density Quiz 1-10 From Slideshow / Video

Score out of 10_____

1) **1 gram**	**2)** **1,000 gram or 1kg**	**3)** **53 ml**
4) **24cm³**	**5)** **3 Liters or 3,000 ml**	**6)** **4 ml**
7) **mass** **D = -----= grams/cm³** **volume**	**8)** **Less than 1 g/cm³**	**9)** **145 g / 125 cm³ = 1.16 g/cm³**
10) **Edible oil less dense, Honey, dishwashing more dense**	***11) bonus** **Animal Jam**	