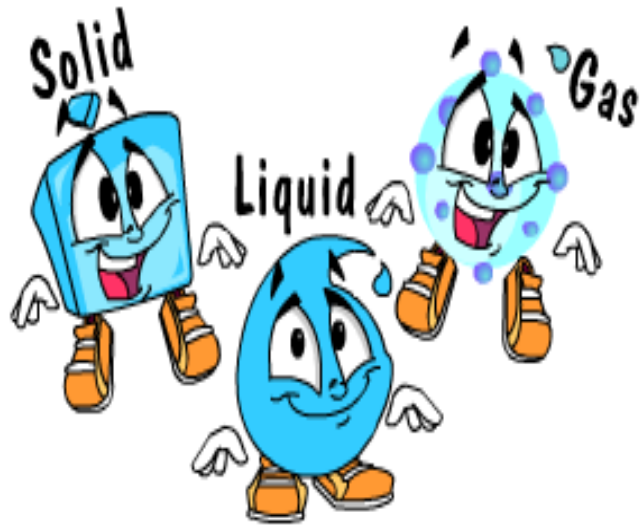


TOPIC 14: THE STATES OF MATTER



Full name:
Date:
Class:
School:
Teacher:

- Contents:
- 0.- Pictogram
 - 1.- Definition of matter and mass
 - 2.- Solids, liquids and gases. General characteristics.
 - 3.- Kinetic Theory.
 - 4.- Changes of state.

Vocabulary

A

- a bit: un poco
- amount: cantidad
- anything: cualquier cosa
- apply: aplicar

B

- be: ser
- become: convertirse en
- boiling point: punto de ebullición

C

- can: poder
- change: cambiar
- close together: juntos/as
- coal: carbón
- container: contenedor, recipiente
- cotton: algodón

F

- fast: rápido
- faster: más rápido
- fire: fuego

G

- glass: cristal
- gold: oro

H

- heat: calor
- high: alto/a
- however: sin embargo

L

- low: bajo

M

- made of: hecho de
- matter: materia
- measured: medido
- melting point: punto de fusión
- motion: movimiento
- move: moverse

P

- particle: partícula
- place: lugar

Q

- quickly: rápidamente

S

- sand: arena
- scientists: científicos
- shape: forma
- space: espacio
- steam: vapor
- stone: piedra
- substance: sustancia

T

- take: tomar, adoptar

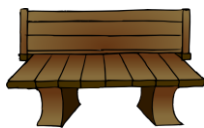
W

- when: cuando
- wood: madera
- wool: lana

made of



We use **MADE OF** to show the material of things



The bench is made of wood

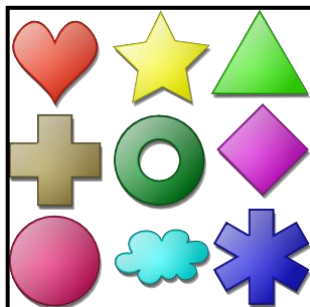


A can is made of aluminium



The bottle is made of glass

VO CABULARY



shapes



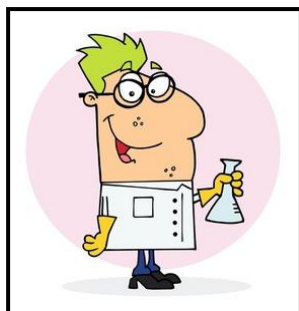
mass



volume



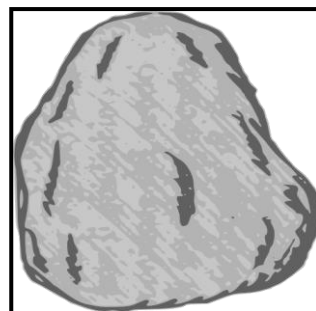
to measure



scientist



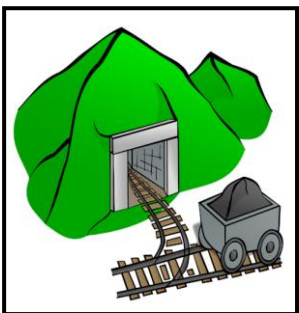
wood



stone



glass



coal



steam



melting point



boiling point

density = $\frac{\text{mass}}{\text{volume}}$

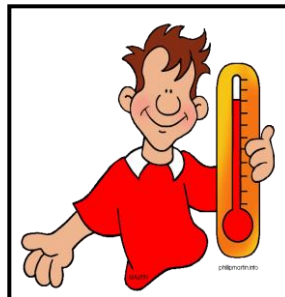
or, in short form:

$$d = \frac{m}{v}$$

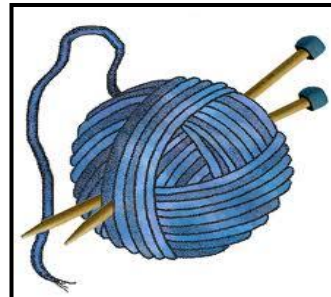
density



cotton



temperature



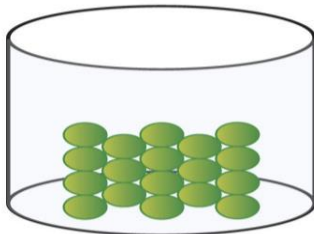
wool

1.- Definition of matter and mass.

Everything is made of matter. Matter refers to anything that has mass and occupies a place in space. It can be measured. Remember that mass is the amount of matter. It has three states: solid, liquid and gas.

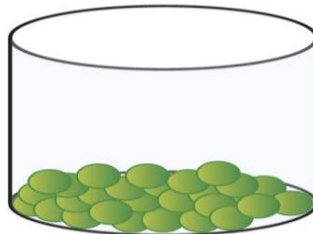
2.- The three states of matter

Water is a natural substance that we can find in the three states of matter.



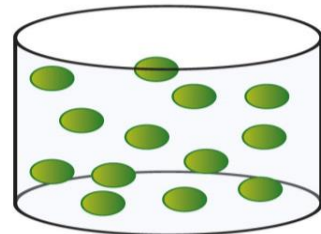
Solids have:

- A definite shape
- A fixed volume
- Particles are close together and they don't move. There is no separation between them.



Liquids have:

- An indefinite or variable shape (they take the shape of the container)
- A fixed volume
- Particles are a bit separated. They can move faster.



Gases have:

- An indefinite or variable shape
- Indefinite volume (they take the volume of the container)
- Particles are separated. They can move very quickly.

-Examples of **solids** are: ice, wood, stone, diamond, coal, iron, plastic, salt, sand and glass.

-Examples of **liquids** are: water, milk, orange juice, rain, mercury and coffee.

-Examples of **gases** are: air, oxygen, carbon dioxide, hydrogen, nitrogen, steam and helium

Activity one: Fill in the gaps with the adjectives definite or indefinite

State of matter	Shape of substance	Volume of substance
Solid		
Liquid		
Gas		

Activity two. Write the number of the material. Then write sentences

- | | | | | | |
|-----------|-------------|------------|-----------|------------|----------|
| 1.- metal | 2.- plastic | 3.- rubber | 4.- paper | 5.- cotton | 6.- wool |
| 7.- wood | 8.- glass | 9.- gold | | | |



- 1.- The key is made of metal
- 2.- The three bottles
- 3.- The boots.....
- 4.- The three books
- 5.- The jumper
- 6.- The gloves
- 7.- The bench.....
- 8.- The green bottle
- 9.- The medal.....

3- Kinetic theory

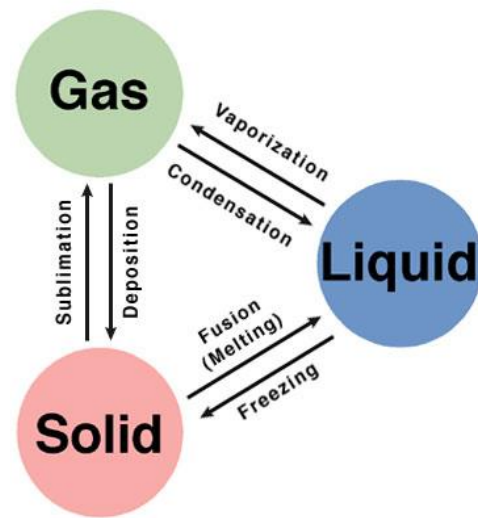
Kinetic theory says that matter is made of small particles that are in motion.

4.- Changes of matter

When we apply heat or thermal energy, there is a change of state. Scientists say that there is low temperature in solids because the particles don't move. However, gases have high temperature because the particles move very quickly.

There are six types of changes:

- 1.-**Freezing:** when a liquid becomes a solid. Water freezes at 0°C
- 2.-**Melting:** when a solid becomes a liquid
- 3.-**Vaporization:** when a liquid becomes a gas. Water boils at 100°C
- 4.-**Condensation:** when a gas becomes a liquid.
- 5.-**Sublimation:** when a solid becomes a gas.
- 6.-**Deposition:** when a gas becomes a solid.



A change of state means a change in the volume and density of the substance. A change of state doesn't mean a change in the mass of the substance

Activity three. Complete the sentences in a logical manner:

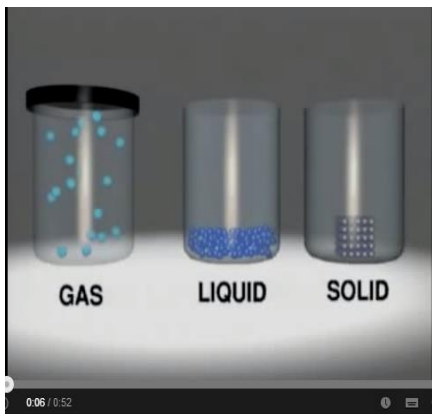
- A diamond is a solid substance because
- Helium and oxygen are gases because
-
- Mercury is a metal. It is liquid because
- Scientists say that matter is made of particles that are This is the so called theory.
- Solids have temperature because their particles don't move.
- Gases have temperature because
- The change from to is called freezing.
- The change from a solid to a liquid
- The change from a gas to a liquid

Activity four. <http://www.youtube.com/watch?v=s-KvoVzukHo>

Listen and write the words that you can understand

.....

Listen again and fill in the gaps with the words in the box. Then check the mistakes and correct yourself. /10 😊😊😊😞😞



each other
 separated
 asume
 particles
 shape
 change
 volumen
 containers
 fixed
 motion



The states of matter are gas, liquid and solid. Gases assume the shape and volume of their containers. Particles of a gas are 1.-.....from each other moving straight lines and in a completely random manner. They 2.-..... direction only when they collide with 3.-..... or the container.

Liquids have a definite volume and 4.-.....the shape of their 5.-..... . The particles of a liquid are closely spaced and so their 6.-.....is too random but much more limited. The 7.-..... slipped past and collide with new neighbours.

Solids have a definite 8.-.....and 9.-..... . Particles of a solid are in 10.-..... position and collide only with new neighbours.