

10-04-2022

CLASS-1

## Matter and Structure of Atom

Matter



\* Anything in our surrounding.

\* Wider term

Gold



Lustre.



shiny

Metal



\* Narrower term

\* Part of matter



Quality of matter.

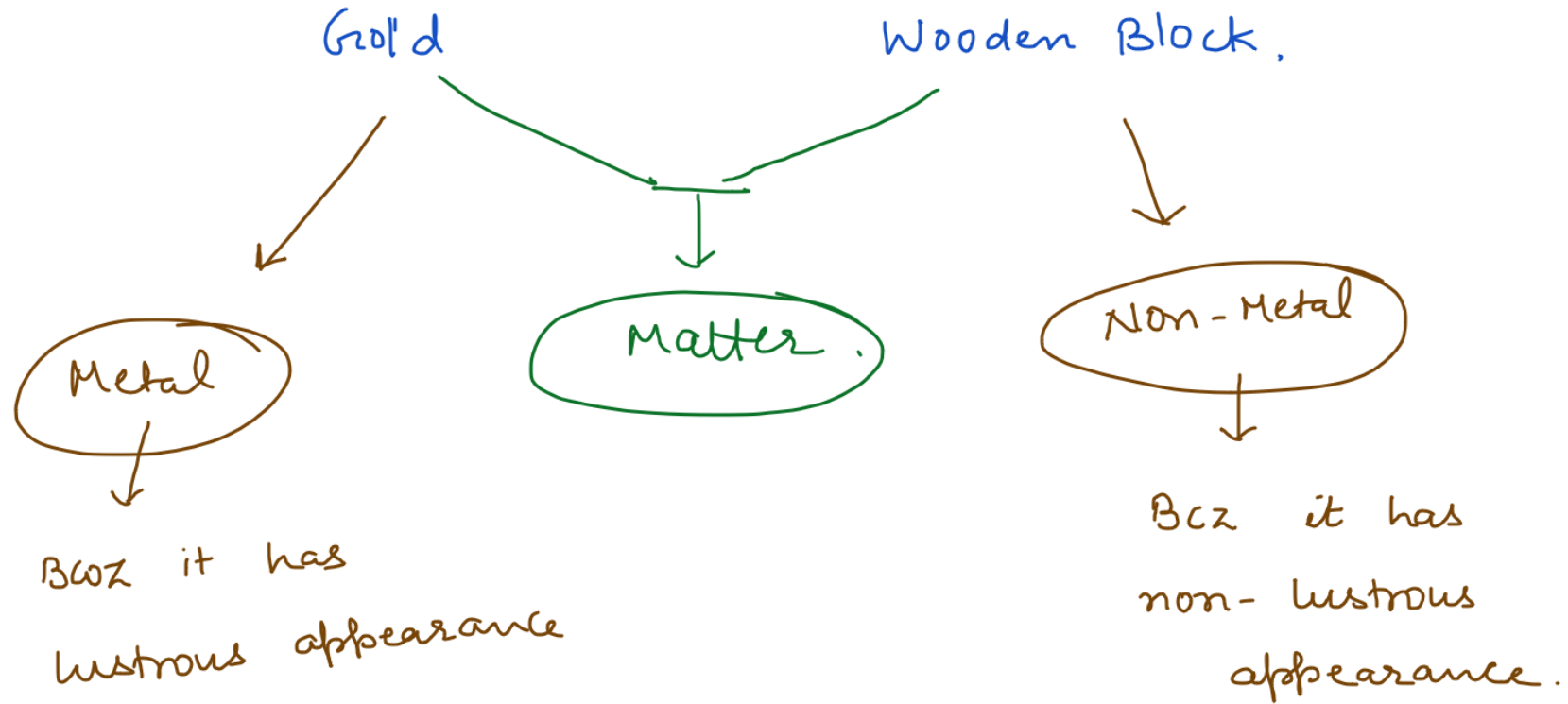


Lustrous in nature.

Wooden



non-shiny.



\* Matter : Anything in our surrounding which has mass & occupy space.

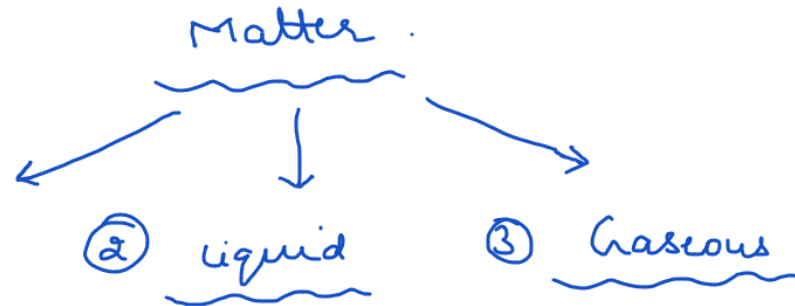
Eg - Pen ; Paper ; Air ✓

Why? Evidence → inflation of Balloon.

States

①

Solid.



④ Plasma.

⑤ Bose - Einstein  
- condensate.  
(BEC)

Properties

Solid

Liquid

Gas

① Example .

Book ; Pen ;

Water ; Milk .  
Soft drink .

Air ; Oxygen ;  
Carbon dioxide .

② Hardness

Hard

Not Hard .

Not Hard

But it will flow

But it will flow .

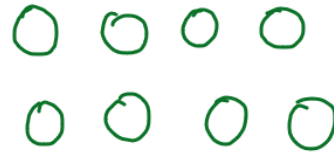
slowly .

fast .

③ Particles Packing .



Tightly  
Packed



loosely



v. loosely

④ Interparticle  
space .

lowest .

Moderate .

Highest .



② Void . (empty space)

⇒ why sponge is solid . ?

① Definite shape & volume .

② Compressible ?

Properties	Solid	Liquid	Gas
⑤ Interparticle forces of attraction	Strongest	Moderate.	Lowest.
⑥ Shape & Volume.	Fixed.	Fixed Volume & Not fixed Shape.	Neither fixed Shape nor fixed Volume.
⑦ Compressibility.	Negligible.	Almost Compressible	Highly.
⑧ <u>Kinetic Energy</u> ↓ Motion.	Lowest	Moderate.	Highest. ∴ fast movement of particles.

Salt Solution



Salt  
(less  
Quantity)  
SOLUTE

+

H<sub>2</sub>O

(higher Quantity)

SOLVENT

{ ∴ salt is }  
soluble }

↳

Miscible



Solute is  
soluble in  
solvent.

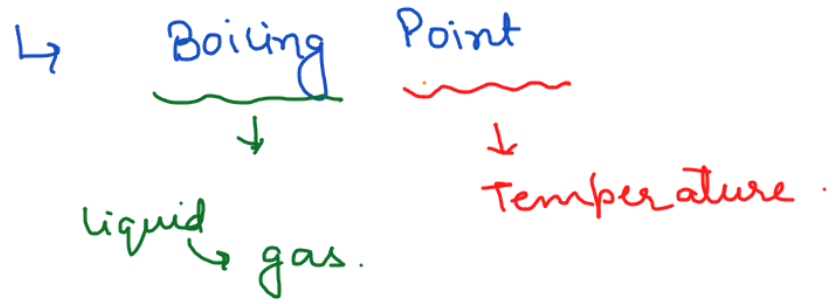
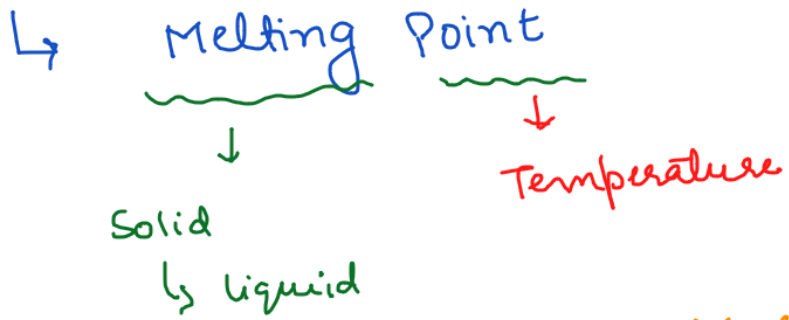
Eg- salt  
solution

Immiscible.



Solute is not soluble in  
solvent.

Eg-  
oil in  
H<sub>2</sub>O.



The temperature at which the solid starts converting into liquid.



Sugar Cube.



whole.

Start





↳ Vaporisation.



at any temperature.

↳ Evaporation.



Phenomenon when the liquid is converting into gas at its boiling point.

## Element



\* Group of similar kind of atoms.

\* { which doesn't }  
have any }  
subscript in  
formula.

H, O, Ca, C,  
↓ ↓  
Calcium Carbon.

N etc.

## Compound



\* Group of atoms which are bonded (attached) with each other.

\* It can be similar or different.

\* Present in definite (fixed) proportion.

## Mixture

\*

same



\*

same

\*

Not present in definite proportion.

↳



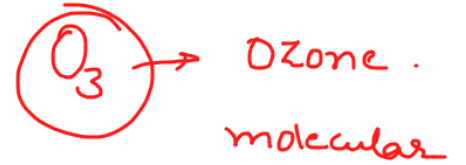
\* elemental oxygen .

\* Not exist in atmosphere .



\* Molecular oxygen .

\* exist in atmosphere .





No subscript ✓

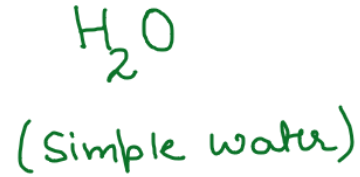
different kind of atom ↓

Compound ✓



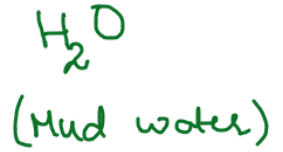
- \* 2 atoms ✓
- \* similar ✓
- \* definite proportion ✓

Compound ✓



- \* 3 atoms ✓
- \* different ✓
- \* fixed proportions

Compound ✓



- \* 3 atoms + Mud ✓
- \* different ✓
- \* No fixed quantity ✓
- No fixed proportion ✓

Mixture ← Not compound

C

Element :

CO<sub>2</sub>

3 atoms .

(2C + 1O)

✓  
Compound .

Air .

(Combination of gases)

\* ✓

\* H<sub>2</sub> CO<sub>2</sub> .

Both similar & different ✓

\* Not present in  
fixed proportion .

↙  
mixture ✓✓