# Matter in our Surrounding :

**DEFINITION : Every things which occupy space and has volumn called Matter.**

**Example : Book , Apple , etc.**

## *PROPERTY OF MATTER*

- **Have a intermolecular Space between them.**
- **Have a Kinetic energy in them K.E = 1/2 MV^2.**
- **Have an intermolecular Force of Attration.**

## ***TYPES OF MATTER***

**Mainly there are three types of Matter. But two more mater is included.**

**3 + 2 = 5 ;**

- **Solid**
- **Liquid**
- **Gas**
- **Plasma**
- **B.E.S**

**SOLID : Substance which has define shape and volumn.**

**Example : Ice , Box , etc...**

**LIQUID : Substance which has define volumn but not define shape.**

**Example : Water , Juice , etc.**

**Gas : Substance which has not define shape and not define volumn.**

**Example : $H_2O$,$CO_2$, etc...**

***RELATIONSHIP BETWEEN STATE :-***

**On the basis of space :**

- **Solid have minimum space, Liquid have much more space and gaseous have maximum space.**

**On the basis of movement :**

- **Solids have minimum movement, Liquid have much more than Solid and Gaseous have maximum movement.**

**On the basis of attrection :**

- **Solid have maximum force**

**of attraction, Liquid have much low than Solid and Gaseous have minimum force of attraction.**

## ***LATENT HEAT***

**A amount of energy which is required to change a one state to another. Only for Solid-Liquid , Liquid-Gas.**

**It has mainly two parts :-**

1. **Latent heat of fusion.**
2. **Latent heat of vapurasation.**

## LATENT HEAT OF FUSION:

**The amount of heat energy which is required to change a solid state into liquid.The value is $3.34 * 10^5$ kg/J.**

## LATENT HEAT OF

## VAPURASATION :

**The amount of heat energy which is required to change the liquid state into gaseous state.The value is $22.5*10^5$ kg/J.**

## *TEMPRETURE*

- **Solid-Liquid = The formations of solid state into liquid state is known as**

**Fusion (Melting).**

- **Solid-Gas = The formation of solid state into gaseous state without changing it's state into liquid state is known as Sublimation. The substance which under goes in sublimation called subline. The solid state which is formed by the cooling the vapure of solid called sublimate.**

- **Liquid-Gas = The formations of liquid state into gaseous state is known vapurasation (Boiling).**
- **Gas-Liquid = The formations of gas state into liquid state is known condensation ( Cooling).**
- **Liquid-Solid = The formations of liquid state into solid state is known solidification (Cooling).**

- **Gas-Solid = The formation of Gaseous state into Solid state without changing it's state into liquid state is known as Depositions**

## ***PRESSURE***

**By changing the pressure we can change the state of a matter.**

**By apply more pressure and decreasing the tempreture we can liquify the gas.**

**Example: L.P.G , C.N.G , etc..**

**Value of atmosphere pressure is $1_{atm} = 0.01 * 10^5$ Pa. In costal area the atmosphere pressure is $1_{atm}$ which is alos known as normal atmophere pressure.**

## ***Evapuration***

**The heat energy which is lossed by particle of matter and formed into gas is known as evapuration.**

**OR**

**The formation of liquid state into gaseous state at any tempreture.**

**Factor affecting are :-**

- **Tempreture.**
- **Surface Area.**

- **Humidity.**
- **Wind Speed.**

**<u>Tepmreture :</u> Increase in tempreture means increase the rate of evapuration.**

**<u>Surface Area :</u> Increase in surface area means increase the rate of evapuration.**

**<u>Humidity:</u> Increase in humidity means increase the rate of evapuration.**

**Wind Speed :** **Increase in wind speed means increase the rate of evapuration.**

## *Diffusion*

**When a gas goes from higher consentration to lower consentration is called diffusion.**

**The rate of diffusion increase**

**in gaseous state and decrese in solid state.**

**The liquid also under goes in diffusion because it have more intermolecular space and less force of attraction than Solid.**

## ***PLASMA***

**It is known as the $4^{th}$ state of matter. It can be seen in**

**flucent tube and neon tube.**

**it is a mixture of free electron and ions. It is naturaly present in stars and core. It can be created in earth by passing electricity in tube at very low pressure.**

## ***B.E.C***

**It is known as $5^{th}$ state of matter and was discovered by**

**Albert Einstein and Indian physicist Satyendra Nath Bose in $1920_s$ . And formed by Cornell , Ketterle , and Wieman of U.S.A by cooling a gas at extremely low density and at super low tempreture and in 2001 they got Novel Prize for that discovery.**