

# Matter

## Exercise-1

1) Anything that has mass occupies space is called matter.

2) The two main types of matter are -

i) Living matter - The earth is home to all kinds of plants and animals. They can grow, move and reproduce on their own. Ex - Plant, ~~lotus~~ <sup>lotus</sup> etc - human etc -

ii) Non-Living matter - Most of the matter in the universe is non-living. It means that it doesn't grow, move or reproduce on its own. Ex - plastic, soaps, glass etc.

3) Natural matter - Wood, silk, coal, water, fruits  
Man-made matter - ~~glass~~, medicine, cotton, nylon, ceramic.

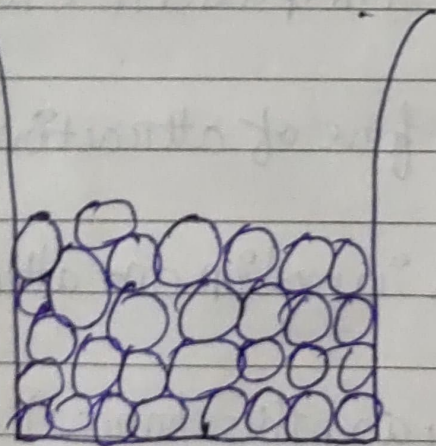
## Exercise II

- 1) The smallest particle from which matter is made up of atom.
- 2) Molecules are the smallest unit of matter. They exhibit all the properties of that kind of matter and is space capable of independent existence.
- 3) Atoms may or may not have independent existence. While molecules have independent existence.
- 1) a) ~~The~~ Intermolecular force of attraction - The molecules of matter ~~are~~ are always in motion and attract<sup>ed</sup> each other with a force, and this force is called intermolecular force of attraction.

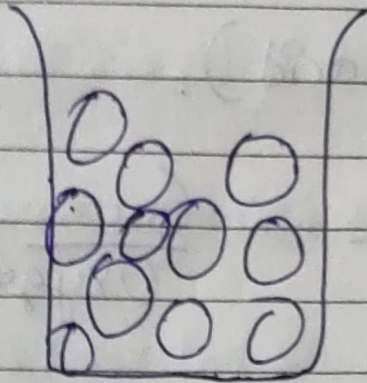
b) Intermolecular space - The molecules can move only when there are gaps or spaces between them, this space is called intermolecular space.

5) The three states of matter are -

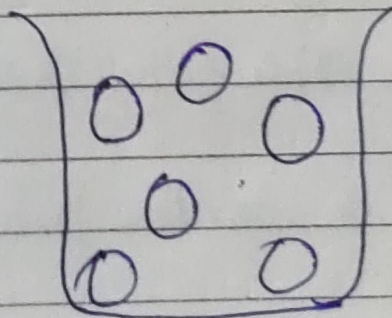
(i) Solid state - The molecules are very close to each other hence intermolecular spaces are small and intermolecular force is greater.



(ii) Liquid state - The molecules are very close to each other hence intermolecular spaces are small and intermolecular force is strong.



(iii) Gases state - The molecules in the gases are with weakest force far apart from each other of attraction. Hence gas have <sup>er</sup> neither definite volume nor definite shape but easily compressible.



6) Substances that can flow are called fluids.

Both gases and liquids are fluids, e.g. gases

(carbon dioxide, hydrogen), liquids (water, petrol and sulphuric acid).

7) <u>Solid</u>	<u>Liquid</u>	<u>Gas</u>
Common salt	Milk	Oxygen

Wax

Mercury

L.P.G

Stone

Blood

Carbon dioxide

Sugar

Coconut oil

Coal

kerosene

Butter

Copper

8. a) The molecules of liquids and gases are far apart i.e.

have more gaps, intermolecular attraction force

is

very less as compared to solid, hence <sup>liquids and gases</sup> can flow

but solids do not have gaps, in solid molecules is less

and molecular force of attraction is very strong.

b) Intermolecular force of attraction is least and

intermolecular spaces are very large, hence gases

can fill up the space available to them.

c) Scent fumes (molecules) being gases fill in the

spaces between air molecules and the molecules

of air fill the spaces between scent molecules due

to diffusion, fumes spread into a room.

d) The molecules of air are far apart i.e. large gaps and we can walk through air easily.

e) The molecules of liquid are loosely packed and intermolecular force of attraction is small but number of molecules in it remain the same. Hence liquids have definite volume but not definite shape.

f) When a teaspoon of sugar is added to half a glass of water and stirred, the water level in the glass remains unchanged because the sugar particles are adjusted between the water molecules as intermolecular gaps are more in liquids.

g) This is because gases can diffuse in all direction.

h) When we put a drop of red ink in a glass of water, its particles diffuse with particles of water slowly but continuously and the water turns red.

9) a) Cohesive force - The force of attraction between particles of the same substance is called cohesive force.

b) Diffusion - The phenomenon of intermixing of particles of one kind with another kind is called diffusion.

c) Brownian movement - The zig-zag motion of



particles suspended in a medium is called

Brownian movement.

10) When we invert the bottle and blow air into the bottle through the side opening. It creates high pressure inside the bottle and the egg is kicked out of the bottle.

### Exercise - 11

1) When a substance is heated, it can cause

(i) Interconversion of states of matter.

(ii) Thermal expansion of the substance.

(iii) Chemical change

2) a) The process by which matter changes from one state to another <sup>and</sup> state back to original state, without any changes in its chemical composition.

b) Two conditions are:-

(i) ~~Changing~~ Change in temperature.

(ii) By applying pressure.

3) a) Fusion - The heating process by which a solid changes into the liquid state is called fusion.

b) Vaporis<sup>ation</sup> - The heating process by which a liquid changes into its vapour state is called vaporis<sup>a</sup>tion.

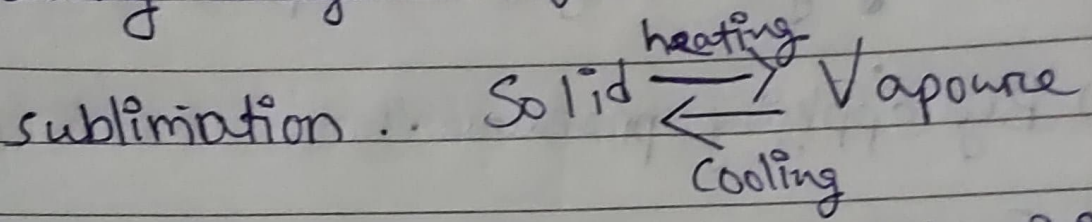
c) Condens<sup>a</sup>tion - The process by which a substance

in gaseous state changes into its

liquid state is called condensation.

d) <sup>ma</sup> Sublimation - The ~~is~~ change of solid on heating to vapours directly and vice-versa without

passing through the liquid state is called



e) Diffusion - The phenomenon of intermixing or

spreading of gaseous molecules is called

diffusion.

f) Melting point - The fixed temperature at which

a solid changes into a liquid at a given <sup>pressure</sup> temperature

is called its melting point. The temperature

remains constant as long as the conversation is going on.

g) boiling point - The fixed temperature at which a liquid starts changing into gaseous state is its boiling point. The temperature remains constant till the whole of the liquid changes into gaseous state.

h) Liquefaction - Change of vapour on cooling to liquid is called liquefaction.

4) a) Solidification - The process of changing liquid into a solid state by cooling is known as solidification.

Condensation - The process of changing a gas state to a liquid state by cooling is known as condensation.

b) Melting - The fixed temperature at which a solid changes into a liquid at a given pressure is called its melting point.

Boiling - The fixed temperature at which a liquid starts changing into gaseous state is called its boiling point.

Q5) a) During interconversion of state of matter composition of substance remains the same matter changes from one state to another and

back to the original state, while chemical reaction involves re-arrangement of the molecular substance.

b) In solid there is a strong force of attraction between the molecules and the space between them is very negligible. The molecules are therefore, not free to move. They merely vibrate about their mean position. But in the case of liquid, the molecules are not very closely packed. They do not attract each other. Thus the intermolecular are larger and the molecules <sup>are able</sup> ~~sp~~ ~~about~~ to move freely.

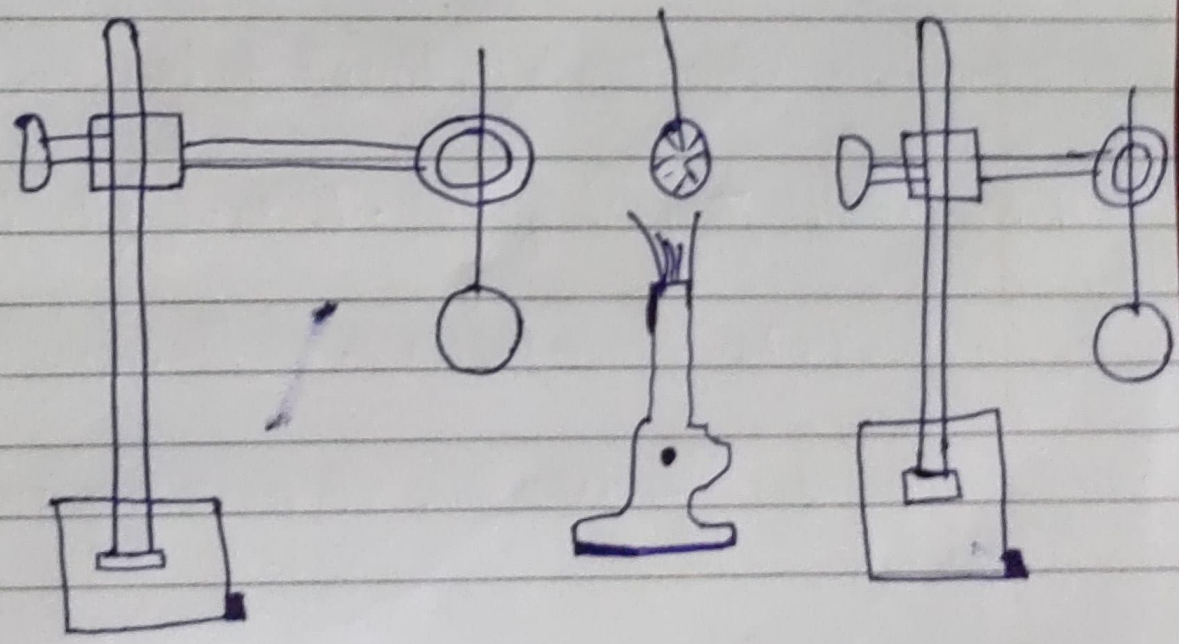


6) As a liquid is heated, its particles <sup>starts</sup> ~~standing~~ gaining energy and move more vigorously which increase the gaps between the particles and decreasing the force attractive.

7) Water from oceans, river, lakes from leaves of trees changes into <sup>vapours</sup> ~~water~~ when temperature increases and enters the atmosphere as clouds when temperature falls the vapour change into water and hails and this continues.

87) When metal ball is heated, it expands. This can be proved by following experiment:

Take a metallic ring and ball. Try to pass the metal ball through the ring. Now heat the metal ball for 5-6 mins. The hot ball is not able to pass through the ring. This shows that a liquid a solid contracts on cooling.





Q7 On heating, candle wax melts, then  
 turns into vapour which reacts with  
 air to produce new substance, carbon dioxide  
 and water.

