

## LN : 1 MATTER AND ITS COMPOSITION

### ANSWERS

1. Define matter.

**Ans:** Anything that has mass and occupies space is called matter.

2. What is the difference between mass and weight?

**Ans:** Mass is the “quantity of matter” and weight is “the force with which the earth pulls a body towards itself”. The mass of a body does not change but its weight changes from place to place.

3. If an object weighs 6N on earth what will be its weight on moon? What will be the change in its mass?

**Ans:** Weight of body on moon =  $\frac{1}{6}$  th of its weight on earth.

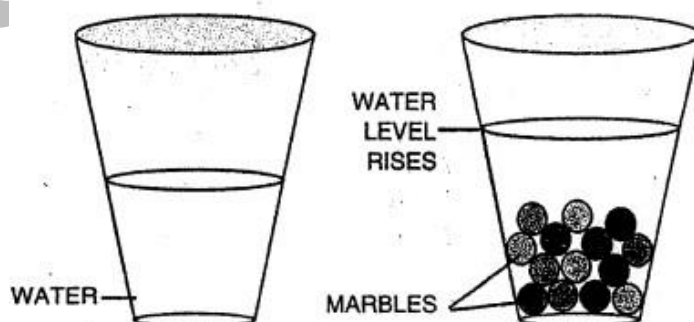
$\therefore$  Body will weigh  $\frac{1}{6}$  of 6 =  $\frac{1}{6} \times 6 = 1$  N on moon

Mass of a body does not change with change in gravity. So mass of a body will remain the same on moon.

4. Write your observation and conclusion for the following

- a. When few marbles are put in a glass half filled with water

**Ans:** Take some marbles and put them into the water of glass tumbler one by one. After some time you will notice that water level crosses the mark and rises. This is because the marbles occupy space. Again weigh the glass with the marbles. You will find that this second mass is greater than the first one. This proves that, marbles have mass.



- b. Ice is kept at room temperature.

**Ans:** Ice when kept at room temperature again changes back into liquid water.

5. State three main characteristics of the particles of matter

- It can neither be created nor destroyed.
- It is composed of a particular material which can either be Homogeneous or Heterogeneous.
- Matter has, volume, mass and weight as per their state.

6. Differentiate between an atom and a molecule.

Atom	Molecule
It is the smallest part of an element. It does not have independent existence.	It is the smallest part of a compound. It has an independent existence.

7. Define :

**a. Solid**

**Ans:** A solid is that state of matter which has a fixed shape, mass and volume. It suffers very small changes in volume by changing the temperature. It cannot be compressed.

e.g. – Sand, Wood, Copper, Ice, etc.

**b. Liquid**

**Ans:** It has a definite mass and volume but lacks a shape of its own. It takes up the shape of the containing vessels. It can be compressed to extents.

e.g. – Milk, water, ink, etc.

**c. Gas**

**Ans:** It is a state of matter which has only definite mass but no definite shape and volume. It takes up the shape of the container

e.g. – Carbon dioxide, oxygen, etc.

8. Why are liquids and gases called as fluid.

**Ans:** The particles are free to move in any direction i.e. they can flow because all substances that can flow are called fluids. Liquids and gases are fluids.

9. Answer the following.

a. Define inter conversion of states of matter.

**Ans:** The process by which matter changes from one state to another and back to original state, without any change in its chemical composition.

b. Why do solids, liquids and gases differ in the physical state?

**Ans:** Intermolecular forces of attraction Intermolecular spaces are two important properties of matter that account for the different states of matter.

c. Under what condition do solids, liquids and gases change their state.

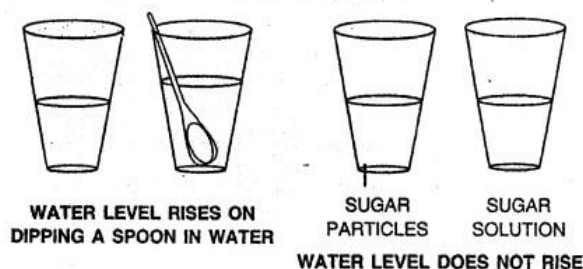
**Ans:** Matter can change from one state to another on changing temperature and pressure.

10. Give reason

a. When a stone is dipped in a glass containing some water the level of water rises but when a spoon of sugar is added to it and stirred, the water level does not rise?

**Ans:** Take half a glass of water. Dip a spoon in it. What do you observe? The water level rises, indicating that spoon occupies space.

Now remove the spoon, water comes down to its original level. Now add a spoon of sugar to it and stir well. The sugar disappears but the level of water in the glass does not rise, that means the volume of water has not increased. But where did the sugar particles disappear? The sugar particles being smaller get adjusted between the water molecules. This shows that there are intermolecular space in water.



b. A drop of ink added to water in a glass turns whole water blue.

**Ans:** This is because, water as well as ink particles (molecules) are in continuous random motion. Due to motion, the blue coloured particles of the ink spreads all over and give blue colour to the water.

**11. Fill in the blanks:**

1. Air is a matter because it has \_\_\_\_\_ and \_\_\_\_\_ and it can be \_\_\_\_\_
2. The molecules are made up of \_\_\_\_\_
3. The quantity of matter in an object is called its \_\_\_\_\_
4. The state of matter with definite volume and definite shape is called \_\_\_\_\_
5. The substances which can flow are called \_\_\_\_\_

**Ans: 1. Mass , space and compressed 2. Atom 3. Mass 4. Solid & 5. Fluid**

**12. Name the terms for the following:**

1. The change of a solid into liquid. \_\_\_\_\_
2. The force of attraction between the molecules of matter. \_\_\_\_\_
3. The particles of matter which may or may not have independent existence. \_\_\_\_\_
4. The process due to which a solid directly changes into its vapours. \_\_\_\_\_
5. The change of vapour into a liquid. \_\_\_\_\_

**Ans: 1. Melting. 2. Intermolecular force of attraction. 3. Solid. 4. Sublimation 5. Condensation.**

**13. Classify the following into solid, liquid and gas:**

**Coal, kerosene, wood, oxygen, sugar, blood, water vapour, milk, wax.**

**Solid**

coal

wood

wax

sugar

**Liquid**

kerosene

milk

blood

**Gases**

oxygen

water vapour

### Additional questions

1. What is volume?

**Ans:** The amount of space occupied by a matter is called its volume.

2. What is mass?

**Ans:** Mass is the quantity of matter contained in the body.

3. What are molecules?

**Ans:** Molecules are made of atoms. Molecules exhibit the properties of that kind of matter and has independent existence.

4. What happens when solid is heated?

**Ans:** When a solid is heated, its molecules gain energy and vibrate faster. A stage comes when they overcome intermolecular force of attraction and start moving from each other. This results in melting of solid.

5. Give reasons: Electricity is not considered matter.

**Ans:** Electricity neither has mass nor it occupies space. Beside it cannot be seen by our eyes. This is why electricity is not considered matter.