

## Pragati Education notes Matter in our surroundings

Q. 1. What is a matter?

Answer: Anything that occupies space and has mass is called a matter. For example:- Chalk, Milk, Sugar etc.

Q. 2. Sodium chloride and sugar have same appearance. Are they same or different?

Answer: They have different physical and chemical properties. So, they are different

Q. 3. All substances around us are alike. How?

Answer: All substances can occupy space and have weight.

Q. 4. How can we say that air is a matter?

Answer: Air occupies space and have weight. Hence air is a matter.

Q. 5. State the characteristics of matter?

Matter has mass, weight and occupies space.

Q. 6. What are the intensive properties of matter?

Answer: Density, colour, melting point, boiling point, refractive index etc. are the intensive properties of matter as it does not depend upon the amount of matter contained in it

Q. 7. What are the extensive properties of matter?

Answer: The properties which depends upon the amount of matter contained in a substance is called extensive properties of matter. For example mass, weight, volume, energy etc.

. 8. State the characteristics of particles of matter

Answer:

(i) There is enough space between the particles of matter.

(ii) The particles of matter are continuously moving about their mean position.

(iii) The particles of matter attract each other.

Q. 9. What is the effect of temperature on a matter?

Answer: Particles of matter possess kinetic energy. As the temperature rises, kinetic energy increases.

Q. 10. The smell of hot sizzling food reaches us several metres away. Why?

Answer: As the rate of diffusion increases with the increase in temperature.

Q. 11. What is diffusion?

Answer: When two gases are mixed, their molecules mix with each other due to their speed and random motion. This phenomenon is known as diffusion.

Q. 12. If a bottle of perfume is opened in one corner of a room, it immediately spreads throughout the room. Why?

Answer: The molecules of a gas are free to move in a chaotic motion at a greater speed throughout the vessel in which it is contained. When the bottle of perfume is opened in one corner of the room, the molecules of perfume move at random motion in all directions and mix with the molecules of air and reach us.

. 13. Name the three states of matter with examples.

Answer: The three states of matter are:

(i) **Solid:** - A solid has definite shape and volume. **Example** – wood, metal, rubber.

(ii) **Liquid:** - A liquid has definite volume and its shape is the shape of the container. **Example** – water, oil, petrol.

(iii) **Gas:** – A gas has neither a definite volume nor a definite shape. **Example** – air, hydrogen, oxygen.

Q. 14. State the characteristics of solids.

Answer: Solids are rigid. The molecules of solids are packed closely and remain fixed at their position. The molecules of solids are packed closely and remain fixed at their position. The force of attraction between the molecules are very strong and hence they resist any change in their shape or volume.

Q. 15. What are the characteristics of liquids?

Answer: Liquids have definite volume but not a definite shape. They take the shape of a container in which they are stored. The molecules have weaker force of attraction than solids, and hence can flow easily.

Q. 16. What are the characteristics of gases?

Answer: Gases have neither definite volume nor definite shape. The molecules have very weak force of attraction and low density. They can be compressed to liquid state and flow in any direction.

Q. 17. What are fluids?

Answer: Substances having tendency to flow are called fluids. Liquids and gases are fluids.

Q. 18. Give one similarity between a liquid and a gas and one dissimilarity.

Answer:

**Similarity:** - Both liquids and gases are fluids and they take the shape of the container.

**Dissimilarity:** - A gas can be compressed easily to a desired volume. A liquid can not be compressed easily. A small volume of gas occupies the whole space of the container. But the volume of liquid is fixed. A large volume of gas can be stored in a container of very small volume.

Q. 20. What property of gas is utilized when natural gas is supplied for vehicles.

Answer: High compressibility of gas is utilized and compressed it for supply for the vehicles in the name of CNG.

Q. 21. What are 'intermolecular forces'? How are these related to the three states of matter ?

Answer: The force operating between the atoms or molecules of a matter is called intermolecular

force. The intermolecular force in solid are strong. This keeps the constituent particles very close to each other.

Due to this solids are rigid and incompressible. This also give ordered arrangement of the particles giving regular geometrical shape to the solid.

In liquid, inter molecular force is weak to give definite shape.

In gas, intermolecular force is negligible and so its constituents particles are free to move and occupy the available space.

Q. 22. Separate the following substances in groups of high and low intermolecular force: Ice, sulphur vapour, nitrogen, sugar, copper, air, salt, plastic.

Answer:

**High intermolecular forces :-** Ice, sugar, copper, salt, plastic

**Low intermolecular forces :-** Sulphur vapour, nitrogen, air

Q. 23. Which of the following substances you expect strongest and in which weakest intermolecular force: Water, alcohol, sugar, sodium chloride, carbon dioxide.

Answer:

Sodium chloride – Strongest

Carbon dioxide – Weakest

Q. 24. Why are gases compressible but liquids not ?

The molecules of a gas are separated very far and there is a lot of empty space between them.

Hence

gases can be compressed easily. In liquids molecules are closer to each other and can be brought further closer only under very high pressure.

Q. 25. Compare the process of boiling and vaporization.

Answer:

Boiling	Vapourisation
(i) It is a process of changing liquid into vapour.	(i) It is a process of changing liquids into vapour.
(ii) Molecules of liquids escape from all parts of the liquids into atmosphere.	Molecules of liquids escape from upper surface of the liquid into atmosphere.
(iii) It is a fast process.	(iii) It is a slow process.
(iv) It takes place only at a fixed temperature called boiling point.	(iv) It takes place at all temperature, even at melting point.
(v) In boiling, the vapour pressure of liquids is equal to the atmospheric	(v) In evaporation the vapour pressure of liquid is less than the atmospheric
pressure.	pressure.