

# Matter

1. Define matter and name its three states.

Ans: Matter is defined as anything which occupies space and has mass. It can be perceived by our senses.

The three states of matter are as follows:

- Solid
- Liquid
- Gas.

2. Write briefly about the fourth state of matter?

Ans: Plasma is the fourth state of matter which is found at a very high temperature, when a gas occurs in the form of positive ions and free electrons.

3. State the characteristics of the particles of matter.

Ans: The particles of matter show the following characteristics:

- They are very small in size
- They have spaces between them called “Intermolecular space”.
- They are in constant random motion.
- They have a force of attraction between its constituent particles called “Intermolecular force of attraction”.

4. State the characteristics of matter which determines its state(Solid, Liquid or gas)?

Ans: The characteristics of matter which determines its state are as follows:

- Intermolecular space
- Intermolecular force of attraction
- Random motion.

5. State 4 differences between solids, liquids and gases?

Ans: 4 differences between solids, liquids and gases are as follows:

Solids	Liquids	Gases
<ul style="list-style-type: none"><li>• Intermolecular space is least</li><li>• Intermolecular force of attraction is highest.</li><li>• Random motion is reduced to vibrational motion.</li><li>• Solids have a definite shape and size.</li></ul>	<ul style="list-style-type: none"><li>• Intermolecular space is moderate</li><li>• Intermolecular force of attraction is moderate.</li><li>• Random motion is moderate.</li><li>• Solids have a definite volume but not a definite shape.</li></ul>	<ul style="list-style-type: none"><li>• Intermolecular space is highest</li><li>• Intermolecular force of attraction is least.</li><li>• Random motion is highest.</li><li>• Solids have a neither have a definite volume nor a definite shape.</li></ul>

6. Distinguish between solids, liquids and gases on the basis of their following properties.

a. Density

- b. compressibility
- c. fluidity
- d. rigidity
- e. expansion on heating.

	Solids	Liquids	Gases
a. Density	Highest	Medium	Lowest
b. Compressibility	Not compressible	Negligible compression	High compression
c. fluidity	Does not flow	Can flow	Can flow
d. rigidity	Highly rigid	Less rigid	Not rigid.
e. Expansion on heating	Shows less expansion	Expands more than solids	Expands more than liquids.

7. Define the following:

- a. **Monoatomic molecule:** A molecule consisting of one atom is called a monoatomic molecule. Ex- Neon, Argon.
- b. **Diatomic molecule:** A molecule having two atoms is called a polyatomic molecule. Ex- Hydrogen molecule, Oxygen molecule
- c. **Polyatomic molecule:** A molecule having more than two atoms is called a polyatomic molecule. Ex- Water molecule, Ammonia molecule.
- d. **Cohesive force:** The force of attraction between the particles of same substance is called the force of cohesion.
- e. **Adhesive force:** the force of attraction between the particles of two different substances is called the force of adhesion.
- f. **Nanoparticle:** a molecule or a cluster of several molecules is called a nanoparticle.
- g. **Melting or fusion:** The process of change of a substance from the solid state into a liquid state on absorption of heat at a particular temperature called the melting point is called melting or fusion.
- h. **Boiling or vaporization:** The process of change of a substance from the liquid state to its gaseous state at a particular temperature, called the boiling point, is called boiling or vaporization.