

## Boys' High School and College, Prayagraj

Class: VII

Subject: Chemistry

Book: Chemistry for ICSE Schools Book-7 (Kriti Prakashan Pvt. Ltd)

Chapter 1: Matter and its Composition (CPT-1)

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### Explanation of Matter

In science, matter is the term for any type of material. Matter is anything that has mass and takes up space. All matter is made up of substances called elements, which have specific chemical and physical properties and cannot be broken down into other substances through ordinary chemical reactions.

### Explanation of Element

Elements are chemically the simplest substance and hence cannot be broken down using chemical reactions. Or we can say an element is a substance that is made entirely from one type of atom. Currently, scientists know of 118 different elements. All known elements are arranged on a chart called the periodic table of elements.

### Explanation of Atom

Atoms are the basic building blocks of ordinary matter. Atoms can join together to form molecules, which in turn form most of the objects around you. Atoms are composed of particles called protons, electrons and neutrons. Atoms are the smallest units of matter that still retain the fundamental chemical properties of an element.

### Explanation of Molecule

Molecules are made up of atoms that are held together by chemical bonds. It doesn't matter if the atoms are the same or are different from each other.

So, in summary:

**Element-** a basic substance that can't be simplified (hydrogen, oxygen, gold, etc.)

**Atom-** the smallest amount of an element

**Molecule-** two or more atoms that are chemically joined together ( $H_2$ ,  $O_2$ , etc.)

**Compound-** a substance that contain more than one element ( $H_2O$ ,  $C_6H_{12}O_6$ ).

## Worksheet - I

Note: To be done in the notebook

### A. Fill in the blanks with the correct words:

- i. Matter exists in three states.
- ii. The intermolecular space is minimum in solids.
- iii. Matter has mass and occupies space.
- iv. An atom is the tiny particle of which everything around us is made.
- v. The word ATOM is derived from the Greek word ATOMOS which means "that which cannot be divided".

### B. Answer the following questions in short:

- i. What are the various states of matter?  
Answer: The various states of matter are- solid, liquid and gas.
- ii. How would you explain sublimation?  
Answer: Sublimation is the process of conversion of a solid directly into gaseous state. In sublimation, solid do not pass through liquid state. Example- naphthalene balls
- iii. Why do solids have any number of free surfaces?  
Answer- Solids are those substances which have a definite shape and volume. They are non-compressible, cannot flow and therefore can have any number of free surfaces.
- iv. Why can't solids flow?  
Answer- Solids can't flow due to strong intermolecular force of attraction.

### C. Define the following:

- i. **Deposition-** It is the process in which a gas changes directly to a solid without going through the liquid state.
- ii. **Intermolecular force-** The force of attraction between the molecules is called intermolecular force of attraction.
- iii. **Intermolecular space-** The space between any two molecules is called intermolecular space.
- iv. **Molecule-** The simplest unit of some elements and compounds which displays the characteristic physical and chemical properties of the element or compound.
- v. **Solid-** (Write answer from Lesson at a glance)
- vi. **Liquid-** (Write answer from Lesson at a glance)
- vii. **Gas-** (Write answer from Lesson at a glance)

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## Worksheet - II

Note: Exercises to be done in the notebook

### A. Match the Following:

Column A	Column B
1. Molecules	a) Space occupied by matter
2. Free surface	b) As many as possible in solids
3. Intermolecular force of attraction	c) Least in gases
4. Volume	d) Have independent existence

### B. State True or False for the following statement:

- Solids have a definite shape and occupy indefinite space.
- Solids are incompressible.
- Gases have a very high attraction between their molecules.
- Molecules of liquid are compact and so they have no fixed shape.

### C. Answer the following questions in detail:

- Explain the differences between solid, liquid and gas on the basis of their properties.
- Why can liquids and gases flow?
- Explain briefly why gases are highly compressible?

### D. Define the following:

- Compound
- Pure substance
- Matter
- Element

### E. Draw and color intermolecular spaces in solid, liquid and gas.

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