**JESUS AND MARY SCHOOL AND COLLEGE**

**SUBJECT – CHEMISTRY**

**CHAPTER – Matter and its Composition**

**Class – 7 Worksheet – 1**

**MATTER:**

Anything that has mass, occupies space and can be felt by our physical senses. Matter is made up of tiny particles called **atoms**. Usually, an atom cannot exist independently, thus atoms combine to form molecule. Matter is anything around you. Atoms and compounds are all made of very small parts of matter. Those atoms go on to build the things you see and touch every day. Examples: Air is surrounding you; it means it occupies space. So, air is an example of matter. Some other examples are water, books, pencil, sun, earth, moon, electron and proton etc.

***Properties of Matter:***

1. **Matter has mass:**

The measure of quantity of matter contained in a substance is called mass. Mass of the body remains same throughout the universe. The weight changes from place to place and it depends on gravity.

1. **Matter occupies space:**

Matter occupies spaces which means that the particles of matter move around in the space occupied in them. Everything occupies space.

**COMPOSITION OF MATTER**

The indivisible building block, which all matter was composed of, came to be known as the **atom**. Atoms of different elements are different and each has its own property. Atoms of the same elements combine to form **molecules**, while atoms of different elements react to form **compounds**. According to these early Greeks, matter could not be continuously broken down and divided indefinitely. Rather, there was a basic unit or building block that was indivisible and foundational to its structure.

**STATES OF MATTER:**

The change of state of matter depends on the intermolecular spaces between their molecules and intermolecular force present between the particles of solids, liquids and gases. It also depends on the collision between the molecules of the three states of matter.

***Solids:***

* Solids consist of closely packed molecules that vibrate at their own positions. They have fixed shape and volume.
* The volume of solid depends upon the size of the particles.
* They possess strong intermolecular force of attraction. Also, due to negligible movement of particles in solids, they lack kinetic energy.
* The average kinetic energy of the particles is directly proportional to the temperature of the solid.
* The intermolecular space between the molecules of solids is negligible.

***Liquids:***

* Liquids consist of closely packed molecules which are in random motion and maintain the volume
* The volume of liquid depends on the size of the particles. This in turn affects the properties of a liquid.
* The decrease in the motion of the molecules of liquids allows the inter particle force of attraction to act which significantly affect the properties of a liquid.
* Liquids have fixed volume and take the shape of the container.
* The average kinetic energy of the particles is directly proportional to the temperature of the liquid.
* The intermolecular space in liquids is more than that in solids and the molecules are less closely packed.

***Gases:***

* A gas consists of a large number of molecules moving in random directions. The intermolecular distance between the particles is larger as compared to solids and liquids.
* Since the particles are small, the volume occupied by them is also small as compared to the total volume.
* These particles neither attract nor repel each other.
* The collisions are elastic in nature, i. e. they take place within a negligible span of time and no loss of kinetic energy occurs.
* The average kinetic energy of the particles is directly proportional to the temperature of the gas.
* The intermolecular space in gases is maximum.

**Particle theory of matter:**

The particle theory of matter states that matter is made up of small particles. These particles are so small that they are not visible with naked eye. The particles are arranged different ways in the three states of matter.

There exist **intermolecular forces of attraction** between the particles and the distance between them is called **interparticle space (distance).**

**Arrangement of Particles in Solids:**

Solids have strong interparticle force of attraction that holds the particles together. The interparticle space between the particles in solids is very less.

**Arrangement of Particles in Liquids:**

The interparticle force of attraction in liquids is weaker than solids. The interparticle space between the particles in liquid is more than solids.

**Arrangement of Particles in Gases:**

The interparticle force of attraction in gases is very small, while the interparticle space is very large. Due to this the particles in gases move away from each other and travel in all directions.

**EXERCISES:**

1. **Short answer question:**
2. Define matter.
3. Write one property of solids, liquids and gases.
4. Name three states of matter.
5. Write two examples of solids, liquids, and gases.
6. What is atom?
7. **Fill in the blanks:**
8. Air is matter because it has\_\_\_\_\_\_\_
9. Anything that has \_\_\_\_\_\_\_\_ and occupies \_\_\_\_\_\_ is called matter.
10. A \_\_\_\_\_\_\_\_\_ takes up the shape of the container it is stored in.
11. The particles of matter move around in the \_\_\_\_\_\_ occupied by them.
12. It is important to understand \_\_\_\_\_\_ in order to understand to world around us.
13. **Write true or false for the following statements:**
14. The intermolecular space is very large in liquid.
15. Gases are rigid and hard.
16. The intermolecular force of attraction is strong in solids.
17. The intermolecular force of attraction is strong in liquid.
18. The measure of quantity of matter contained in a substance is called space.

**NOTE: Please do this work in your old copies which will be checked when the school reopens. Please consider this important.**