ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION
27, Ballygunge Circular Rd, Kolkata- 700019

Term: First

Date: **27.08.20**

Subject: Science **Class: 4**
Lesson: Matter- Solid, Liquid and Gas
Topic: Change of State, Solution

ANSWER WORKSHEET – 11

Answer the following questions in detail:-

1. Can matter change from one state to another?
   Ans: All matter exists as solids, liquid or gases. These are called the states of matter. Matter can change from one state to another if heated or cooled. If ice (a solid) is heated it changes to water (a liquid). This change is called melting. If water is heated, it changes to steam (a gas). This change is called boiling. The particles of ice, water and steam are identical, but arranged differently.
   - **Solid Particles- When solid, the particles of a substance are tightly packed together, making it rigid. A substance can change from a solid state to a liquid state and from a liquid state to a solid state.**
   - **Liquid Particles- The particles in a liquid can move past one another. This allows the liquid to flow. A substance in a liquid state can change to solid state and also to gaseous state.**
   - **Gas Particles- Particles in a gas are spread out and free to move around. This is why gases fill all the space around them. A substance that is a gas can change to a liquid and a liquid substance can change to a gas.**

2. Explain the following terms- Evaporation, Condensation, Freezing
   Ans: Evaporation: Evaporation is the process of a substance in a liquid state changing to a gaseous state due to an increase in temperature or pressure. Evaporation is a fundamental part of the water cycle and is constantly occurring throughout nature.
   Condensation: Condensation is the process where water vapour becomes liquid. It is the reverse of evaporation, where water becomes vapour. Condensation happens one of two ways: Either the air is cooled to its dew point or it becomes so saturated with water vapour that it cannot hold anymore water. Condensation can also produce water droplets on the outside of soda cans or glasses of cold water. When warm air hits the cold surface, it reaches its dew point and condenses. This leaves droplets of water on the glass or can.
   Freezing: Freezing is the process when a liquid turns into a solid. Freezing occurs when heat is lost from an object which causes the molecules to slow down and form tighter bonds. One example of freezing is when water turns into ice. Freezing is the opposite of melting, and two steps away from evaporation. Freezing occurs at below 0 degrees Celsius with water.

3. What is a solution?
   Ans: When we think about solutions, the first thing we think about is a substance dissolved in water. This is natural because after all, water is the universal solvent. When a solid dissolves in a liquid, it forms a solution. A solution is a type of homogeneous mixture that is made up of two or more substances with the same composition. This means that the substances cannot be distinguished (separated) easily from one another. Some examples of solutions are salt water and sugar dissolved in water. When we look closely upon mixing salt with water, we cannot see the salt particles anymore, making this a homogeneous mixture.

4. What is solute and solvent?
   Ans: A *solute* is a substance that dissolves in a liquid. It is defined as the substance that is dissolved in a solution. For solutions of liquids, the solvent is present in greater amount than the solute. Usually, a solute is a solid that is dissolved into a liquid. An everyday example of a solute is salt in water. Salt is the solute that dissolves in water (the solvent) to form a saline solution.
   A *solvent* is a liquid that dissolves a solute. The solvent is the component of a solution that is present in greater amount. Perhaps the most common solvent in everyday life is water.

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