Grade 08 - Science

Assignment 04 – Changes in Matter

Q : Define what is a physical change?
Q : Define what is a chemical change ?
Q : Write examples for physical changes and chemical changes.
Q : Do the assignment 8.1 on page 108.

Changes of state as physical changes

The transition of a substance from the solid state to the liquid state is called melting or fusion.

Ice (solid) boiling ⟶ Water (liquid)

The transition of a substance from the liquid state to solid state is called freezing.

Water (liquid) cooling ⟶ Ice (solid)

The change of a liquid state into a gas state is called Vaporization.

Water (liquid) boiling ⟶ steam (gas)

The conversion of a substance that exists in the gaseous state into liquid state is called condensation.

Steam (gas) cooling ⟶ Water (liquid)

The turning of a solid into vapor without passing through the liquid state is called as Sublimation.

Iodine (solid) heating ⟶ Iodine vapor (gas)

During a change of state, no new substances are formed by changing the composition. These changes are known as Physical changes.

Q : Copy down the figure 8.4

Chemical changes

Q : Read carefully the 4 activities 8.4, 8.5, 8.6, 8.7 .Copy down the table 8.2 and write your observations.

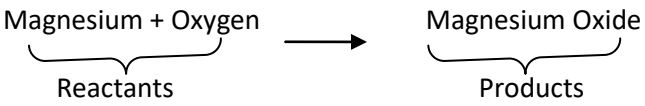
The formation of a new substance having a different composition or several new substances by one or more substances undergoing change is known as a chemical change or a chemical reaction.

Eg: Copper Sulphate + Ferrous (iron) ⟶ Ferrous Sulphate + Copper

Magnesium + Oxygen ⟶ Magnesium Oxide

The substances that get subjected to change during a chemical reaction are called **Reactants**.

The new substances formed by chemical reactions are known as **Products**.



Q : Give some examples for chemical changes that occur in day today life.
Q : Name 6 evidences to support that a chemical reaction has taken place.

Law of Conservation of mass

The French scientist Antoine Lavoisier who conducted experiments on chemical reactions and revealed that the total mass of the substances taking part in a chemical reaction(reactants) is equal to the total mass of the products obtained after the reaction(products).

During chemical reactions the total mass does not change. That means the mass is conserved.

This is the Law of conservation of mass.

Q : What are open systems and closed systems ?
Q : Draw the diagram of activity 8.10. Write your observation & conclusion
Q : Draw the diagram of activity 8.11. Write your observation & conclusion.

Combustion

Q : What are the 3 factors needed for combustion?
Q : What are the combustible substances and non-combustible substances?
Q : Give some examples for combustible & non-combustible substances.
Q : What is “fire Triangle “? Draw it.
Q : What are Fuels ?
Q : There are 3 types of fuels. Name them giving 2 examples for each.
Q : Draw and write the activity 8.13 .
Q : What are the main products of combustion of fuels?
Q : Tabulate a table to show the differences of complete combustion and incomplete combustion of fuels.
Q : Draw a candle flame & label it.(fig. 8.10)
Q : Draw a Bunsen flame & label it.(fig 8.11)

Tarnishing of metals

Q : Draw the diagrams of activities 8.14, 8.15, 8.16. (Leave some spaces to write the observations & conclusions in each activity)
Q : Name 3 methods to protect iron from rusting.

Neutralization

When an acid is added to a base or base is added to an acid, their acidic properties and the basic properties decrease and at a certain point acidic and basic properties totally disappear. This is known as Neutralization.

Eg : When Sodium hydroxide reacts with Hydrochloric acid, Sodium Chloride and water are produced.

Sodium hydroxide + Hydrochloric acid ⟶ Sodium Chloride + Water

Sodium Chloride is a neutralizing substance. Therefore, pH value of it is 7.

Q : Write some examples for neutralization in day today life.
Q : Do the exercise at the end of the lesson.