

DETAILED CONTENTS

Each chapter of the book consists of the following exercises in various forms

BE PROMPT

- Filling in the blanks
- True or False
- Multiple choice questions (MCQs)
- Identifying the error(s) in the given statements
- Matching the columns

SHORT AND PRECISE

- Flowcharts
- Giving reasons
- Short answer questions

AT LENGTH

- Explaining the terms
- Differentiating between concepts
- Long answer questions
- Identifying the error(s)

Chapter Name	Details of Contents	Activities	Some More Assessment Tools
1. Matter	<ul style="list-style-type: none"> • MATTER • KINETIC MOLECULAR THEORY OF MATTER — Postulates of Kinetic Molecular Theory of Matter • STATES OF MATTERS BASED ON KINETIC MOLECULAR THEORY — Solids, Liquids, Gases • STATES OF MATTER — Solids, Liquids, Gases • CHANGE OF STATE OF MATTER — Terms Related to Change of State of Matter • LAW OF CONSERVATION OF MASS 	1.1 To observe change when ice melts 1.2 To show that the total mass remains same during a physical change 1.3 To show that the total mass remains same during a chemical change 1.4 To show that total mass of reactants is equal to the total mass of products in a chemical reaction between barium chloride and sodium sulphate	<ul style="list-style-type: none"> • Observe and Perform: Observing the image and answering the questions • Apply Your Learning: Questions based on thinking skills • Life Skills: Questions based on life skills (observational skills) • Integrate Your Learning: Integrating learning with Physics • Projects and Activities: Creating a presentation and making a chart • Review Your Learning: Worksheet
2. Physical and Chemical Changes	<ul style="list-style-type: none"> • CHANGES — A REVIEW • CLASSIFICATION OF CHANGES • REVERSIBLE AND IRREVERSIBLE CHANGES • PERIODIC AND NON-PERIODIC CHANGES • DESIRABLE AND UNDESIRABLE CHANGES • SLOW AND FAST CHANGES • NATURAL AND MAN-MADE CHANGES • PHYSICAL AND CHEMICAL CHANGES — Physical Changes, Chemical Changes • CHANGES INVOLVING ENERGY CHANGES — Changes in which Energy is Absorbed, Changes in which Energy is Released 	2.1 To write five examples of reversible changes and five examples of irreversible changes 2.2 To identify the changes 2.3 To understand that cutting of paper is a physical change 2.4 To understand that melting of ice is a physical change 2.5 To understand that dissolution of sugar in water is a physical change 2.6 To show that sublimation of camphor is a physical change 2.7 To show that change of colour occurs during a chemical change	<ul style="list-style-type: none"> • Observe and Perform: Observing the image and answering the questions • Apply Your Learning: Questions based on thinking skills • Life Skills: Questions based on life skills (observational skills) • Integrate Your Learning: Integrating learning with Geography, Biology and Language • Projects and Activities: Creating a presentation and making a chart • Review Your Learning: Worksheet
3. Elements, Compounds and Mixtures	<ul style="list-style-type: none"> • ELEMENTS, COMPOUNDS AND MIXTURES — A QUICK RECALL • PURE SUBSTANCES — Characteristics of Pure Substances, Elements, Compounds • MIXTURES — Characteristics of Mixtures, Classification of Mixtures, Formation of Mixtures • SEPARATION OF MIXTURES — Principle of Separation of Mixtures, Separating Solid-Solid Mixtures, Separating Solid-Liquid Mixtures, Separating Liquid-Liquid Mixtures • COMBINING METHODS FOR SEPARATING MIXTURES Separating a Mixture of Iron Filings, Sand and Iodine; Separating Salt, Sand and Grain 	3.1 To separate the components of a mixture by sieving 3.2 To separate the components of a mixture by winnowing 3.3 To separate the components of a mixture of calcium carbonate and sodium chloride 3.4 To separate a mixture of kerosene and water	<ul style="list-style-type: none"> • Observe and Perform: Observing the image and answering the questions • Apply Your Learning: Questions based on thinking skills • Life Skills: Questions based on life skills (observational skills) • Integrate Your Learning: Integrating learning with Biology • Projects and Activities: Creating a presentation and making a chart • Review Your Learning: Worksheet

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4. Atomic Structure	<ul style="list-style-type: none"> • ANCIENT VIEWS ON ATOMIC STRUCTURE — Maharishi Kanada's View on Atom, Democritus and Atoms • DALTON'S ATOMIC THEORY • SUBATOMIC PARTICLES AND THEIR DISCOVERY — Discovery of Electron, Discovery of Proton, Thomson's Model of an Atom, Discovery of Nucleus, Discovery of Neutron • MODERN CONCEPT OF AN ATOM • STRUCTURAL STABILITY OF AN ATOM • ATOMIC NUMBER • MASS NUMBER — Symbolic Representation of an Element • RELATIVE ATOMIC MASS • ISOTOPES — Properties of Isotopes • ELECTRONIC CONFIGURATION • VALENCY — Why Do Atoms and Elements Combine or React?, Variable Valency, Radicals 	4.1 To find out and write the isotopes of given elements.	<ul style="list-style-type: none"> • Observe and Perform: Observing the image and answering the questions • Apply Your Learning: Questions based on thinking skills • Life Skills: Questions based on life skills (teamwork and cooperation) • Integrate Your Learning: Integrating learning with Physics • Projects and Activities: Creating a presentation and making a chart • Review Your Learning: Worksheet
5. Language of Chemistry	<ul style="list-style-type: none"> • ELEMENTS AND THEIR SYMBOLS • COMPOUNDS AND THEIR FORMULAE — Valency, Chemical Formulae of Compounds • CHEMICAL EQUATIONS (FROM WORD EQUATIONS) — Steps to Write a Chemical Equation, Need for Balancing a Chemical Equation • BALANCING CHEMICAL EQUATIONS — Applying Atomic Theory, Applying the Law of Conservation of Mass • INFORMATION GATHERED FROM A CHEMICAL EQUATION • LIMITATIONS OF A CHEMICAL REACTION — Pure State or Solution, Physical States of Reactants and Products, Heat and Temperature, Light, Electricity, Pressure, Catalyst, Reversibility, Endothermic or Exothermic 		<ul style="list-style-type: none"> • Observe and Perform: Observing the table and answering the questions • Apply Your Learning: Questions based on thinking skills • Life Skills: Questions based on life skills (teamwork and cooperation) • Integrate Your Learning: Integrating learning with Mathematics and Physics • Projects and Activities: Creating a presentation and making valency cards • Review Your Learning: Worksheet
6. Chemical Reactions	<ul style="list-style-type: none"> • CHEMICAL REACTIONS — Characteristics of a Chemical Reactions, Conditions Necessary for Chemical Reactions, Catalyst and Enzyme • TYPES OF CHEMICAL REACTIONS — Combination or Synthesis Reaction, Decomposition Reaction, Displacement Reaction, Double Displacement Reaction, Redox Reaction • REACTIVITY OR ACTIVITY SERIES OF METALS • DECOMPOSITION REACTIONS TO FORM OXIDES — Calcination, Roasting • CLASSIFICATION OF OXIDES — Acidic Oxides, Basic Oxides, Neutral Oxides, Amphoteric Oxides 	<p>6.1 To observe the evolution of gas when zinc granules are added to dilute sulphuric acid</p> <p>6.2 To observe colour change during a chemical reaction</p> <p>6.3 To show the formation of a precipitate during a chemical reaction</p> <p>6.4 To demonstrate a combination reaction</p> <p>6.5 To show thermal decomposition of ammonium chloride</p> <p>6.6 To show neutralisation reaction</p>	<ul style="list-style-type: none"> • Observe and Perform: Observing the image and answering the questions • Apply Your Learning: Questions based on thinking skills • Life Skills: Questions based on life skills (critical-thinking, observation, interpretation and analysis) • Integrate Your Learning: Integrating learning with Mathematics and Physics • Projects and Activities: Creating a presentation and making a chart • Review Your Learning: Worksheet

Chapter Name	Details of Contents	Activities	Some More Assessment Tools
7. Hydrogen	<ul style="list-style-type: none"> • OCCURRENCE OF HYDROGEN • DISCOVERY OF HYDROGEN • PREPARATION OF HYDROGEN — Activity Series of Metals, Preparation of Hydrogen by Action of Water on Metals, Preparation of Hydrogen by Action of Dilute Acids on Metals, Preparation of Hydrogen by Action of Alkalis on Metals, Preparation of Hydrogen by Electrolysis of Water, Laboratory Preparation of Hydrogen, Bosch's Process: Industrial Production of Hydrogen • PROPERTIES OF HYDROGEN — Physical Properties of Hydrogen, Chemical Properties of Hydrogen, Tests for Hydrogen • OXIDATION AND REDUCTION • USES OF HYDROGEN 	<p>7.1 To show that hydrogen gas is lighter than air</p> <p>7.2 To show that hydrogen gas is combustible</p> <p>7.3 To show the formation of hydrogen chloride gas</p> <p>7.4 To show that hydrogen gas is a strong reducing agent</p>	<ul style="list-style-type: none"> • Observe and Perform: Observing the activity series and answering the questions • Apply Your Learning: Questions based on thinking skills • Life Skills: Questions based on life skills (teamwork) • Integrate Your Learning: Integrating learning with Mathematics and Physics • Projects and Activities: Creating a presentation and making a chart • Review Your Learning: Worksheet
8. Water	<ul style="list-style-type: none"> • WATER — A REVISION Uses of Water, Sources of Water, Water Cycle, Potable Water, Purification of Water • PHYSICAL PROPERTIES OF WATER Effects of Anomalous Expansion of Water • DISSOLUTION OF SALTS IN WATER Water — A Universal Solvent, Solubility • TRUE SOLUTION, SUSPENSION AND COLLOID True Solution, Suspension, Colloid • WATER OF CRYSTALLISATION • CHEMICAL PROPERTIES OF WATER — Nature, Stability, Reactivity with Metals • HARD WATER AND SOFT WATER — Causes of Hardness of Water, Disadvantages of Hard Water, Removal of Hardness of Water (Softening of Water) 	<p>8.1 To show that rainwater does not contain any dissolved impurities, but well water has impurities</p> <p>8.2 To determine the boiling point of water</p> <p>8.3 To observe the effect of changing pressure on the freezing point of water</p> <p>8.4 To show that ice is lighter than water</p> <p>8.5 To show that many substances can be dissolved in water</p> <p>8.6 To show that stirring, heating and the small size of particles of a solute increase the rate of formation of a solution</p> <p>8.7 To show that copper sulphate crystals contain water of crystallisation</p> <p>8.8 To test the quality of tap water and distilled water</p> <p>8.9 To observe the formation of scum in hard water and soft water</p>	<ul style="list-style-type: none"> • Observe and Perform: Observing the image and answering the questions • Apply Your Learning: Questions based on thinking skills • Life Skills: Questions based on life skills (teamwork) • Integrate Your Learning: Integrating learning with Biology • Projects and Activities: Creating a presentation and making a chart • Review Your Learning: Worksheet
9. Carbon and Its Compounds	<ul style="list-style-type: none"> • OCCURRENCE OF CARBON • COMPOUNDS OF CARBON — Some Useful Carbon Products • CHEMICAL PROPERTIES OF CARBON • ALLOTROPES OF CARBON — Crystalline Forms of Carbon, Amorphous Forms of Carbon • CARBON DIOXIDE — Preparation of Carbon Dioxide, Tests for Carbon Dioxide, Properties of Carbon Dioxide, Uses of Carbon Dioxide, Greenhouse Effect, Global Warming • CARBON MONOXIDE — Properties of Carbon Monoxide, Poisonous Nature of Carbon Monoxide, Precautions to be Taken to Avoid Carbon Monoxide Poisoning, How is Carbon Monoxide Added to the Atmosphere? 	<p>9.1 To show the presence of carbon in sugar</p> <p>9.2 To show that graphite is a good conductor of electricity</p> <p>9.3 To show that wood charcoal is a good adsorbent</p> <p>9.4 To show that charcoal is a good reducing agent</p> <p>9.5 To observe that charcoal is a decolouring agent, i.e., it absorbs colouring matter</p> <p>9.6 To show the formation of sugar charcoal</p> <p>9.7 To prepare kajal from vegetable oil</p> <p>9.8 To show that carbon dioxide is heavier than air and does not support combustion</p> <p>9.9 To observe the use of carbon dioxide in cooking</p>	<ul style="list-style-type: none"> • Observe and Perform: Observing the image and answering the questions • Apply Your Learning: Questions based on thinking skills • Life Skills: Questions based on life skills (teamwork and care for environment) • Integrate Your Learning: Integrating learning with Geography and Biology • Projects and Activities: Creating a presentation and making a chart • Review Your Learning: Worksheet