

ACADEMIC PLAN: 2023-24

CARMEL CONVENT SR SEC SCHOOL, RATANPUR, BHOPAL.

STD: X

SUBJECT: Chemistry

Month / No of Working Days	Name of the Unit / Chapter/Topic	Learning Outcomes	Suggested Activities/ Projects under Internal Assessment/PRACTICALS	Assignment	Assessment
APRIL	<p><u>Chapter -1 Chemical reactions and equations</u> Chemical reactions: Chemical equation, Balanced chemical equation, implications of a balanced chemical equation, types of chemical reactions: combination, decomposition, displacement, double displacement, precipitation, endothermic exothermic reactions, oxidation and reduction.</p>	<ul style="list-style-type: none"> • Understanding the concept of chemical reactions and equations • Writing balanced chemical equations for given reactions • Identifying different types of chemical reactions, including combination, decomposition, displacement, and double displacement reactions • Understanding the importance of chemical equations in predicting the products of a reaction • Balancing chemical equations using the law of conservation of mass • Interpreting and predicting the outcomes of chemical reactions based on knowledge of reactants and products • Demonstrating practical knowledge of chemical reactions and 		Work sheet based on competency based questions	ORAL & WRITTEN CLASS TEST

		<p>equations through experiments and observations</p> <ul style="list-style-type: none"> Applying knowledge of chemical reactions to real-life situations, such as in industries and everyday life. 			
JUNE	<p><u>Chapter -1</u> <u>Chemical reactions and equations</u></p>		<p>1. Performing and observing the following reactions and classifying them into:</p> <p>A. Combination reaction B. Decomposition reaction C. Displacement reaction D. Double displacement reaction</p> <p>(i) Action of water on quicklime (ii) Action of heat on ferrous sulphate crystals (iii) Iron nails kept in copper sulphate solution (iv) Reaction between sodium sulphate and barium chloride solutions.</p>		
JULY	<p><u>Chapter – 2</u> <u>Acids, Bases and Salts</u></p> <p>Their definitions in terms of furnishing of H⁺ and OH⁻ ions, General properties, examples and uses, neutralization, concept of pH scale (Definition relating to logarithm not required), importance of pH in everyday life;</p>	<ul style="list-style-type: none"> Understand the concept of acids, bases, and salts, and distinguish between them based on their physical and chemical properties. Understand the pH scale and its importance in measuring the acidity or basicity of a solution. Explain the ionization of acids and bases in water, and their reactions with water to form hydronium and hydroxide ions. 	<p>2. Finding the pH of the following samples by using pH paper/universal indicator: (i) Dilute Hydrochloric Acid (ii) Dilute NaOH solution (iii) Dilute Ethanoic Acid solution (iv) Lemon juice (v) Water (vi) Dilute Hydrogen Carbonate solution</p>	<ul style="list-style-type: none"> To create a pH indicator chart using common household materials and understand the concept of pH scale and pH indicators 	PT-1 (Ch. 1)

	<p>preparation and uses of Sodium Hydroxide, Bleaching powder, Baking soda, Washing soda and Plaster of Paris.</p>	<ul style="list-style-type: none"> • Understand the role of indicators in identifying the nature of a given solution as acidic, basic or neutral. • Understand the common laboratory preparation methods of acids, bases, and salts. • Understand the properties of acids and bases, and their reactions with metals, non-metals, and metal carbonates. • Understand the concept of neutralization, and the chemical equation for the reaction between an acid and a base. • Understand the uses of acids, bases, and salts in everyday life, including in food preservation, cleaning, and medicine. • Understand the environmental impact of acid rain, and its causes and effects. • Apply the knowledge gained to solve numerical problems based on the concept of 			
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		acids, bases, and salts.			
AUGUST	<p><u>Chapter – 3</u> <u>Metals and non – metals</u> Properties of metals and non-metals; Reactivity series; Formation and properties of ionic compounds. Basic metallurgical processes; Corrosion and its prevention.</p>	<ul style="list-style-type: none"> • Understand the physical and chemical properties of metals and non-metals. • Describe the reactions of metals with oxygen, water, acids, and bases. • Understand the reactivity series of metals and their importance in metallurgy. • Understand the extraction of metals from their ores and their purification. • Understand the properties and uses of alloys. • Understand the formation and properties of ionic compounds. 	<p>3. Studying the properties of acids and bases (HCl & NaOH) on the basis of their reaction with: a) Litmus solution (Blue/Red) b) Zinc metal c) Solid sodium carbonate</p>	Create a 3D model displaying the formation of ionic bond & covalent bond.	ORAL & WRITTEN CLASS TEST
SEPTEMBER			<p>4 A. Observing the action of Zn, Fe, Cu and Al metals on the following salt solutions: (i) $ZnSO_4(aq)$ (ii) $FeSO_4(aq)$ (iii) $CuSO_4(aq)$ (iv) $Al_2(SO_4)_3(aq)$ B. Arranging Zn, Fe, Cu and Al (metals) in the decreasing order of reactivity based on the above result.</p>		PT-2 (Ch. 1, 2 & 3)
OCTOBER	<p>Chapter – 4 Carbon and its compounds Covalent bonding in carbon compounds. Versatile nature of carbon. Homologous series. Nomenclature of carbon compounds containing functional groups (halogens, alcohol, ketones, aldehydes, alkanes, alkenes and alkynes)</p>	<ul style="list-style-type: none"> • Understanding the bonding in carbon compounds - covalent bonding, multiple bonds, and its effect on the physical properties of the compound. • Identifying and naming 	<p>5. Study of the following properties of acetic acid (ethanoic acid): i) Odour ii) solubility in water iii) effect on litmus iv) reaction with Sodium Hydrogen Carbonate</p>	3D model of a carbon molecule and its compounds.	ORAL & WRITTEN

	<p>difference between saturated hydrocarbons and unsaturated hydrocarbons. Chemical properties of carbon compounds (combustion, oxidation, addition and substitution reaction). Ethanol and Ethanoic acid (only properties and uses), soaps and detergents.</p>	<p>different types of organic compounds such as alkanes, alkenes, alkynes, and their derivatives.</p> <ul style="list-style-type: none"> • Understanding the physical and chemical properties of different types of organic compounds and the factors that affect their reactivity. • Learning about the different methods of preparation of organic compounds and their practical applications in everyday life. • Understanding the concept of homologous series and the trends in physical and chemical properties of the members of the series. • Chemical properties of carbon compounds (combustion, oxidation, addition and substitution reaction). • Ethanol and Ethanoic acid (only properties and uses), soaps and detergents. 			
NOVEMBER			6. Study of the comparative cleaning capacity of a sample of soap in soft and hard water.		
DECEMBER					PT-3 (Ch. 1, 2, 3 &4)

JANUARY					Pre-Board
FEBRUARY					FINAL BOARD EXAM
MARCH					FINAL BOARD EXAM

NAME OF THE SUBJECT TEACHER: Mrs Bindu Dalal

SIGNATURE OF THE SUBJECT COORDINATOR: