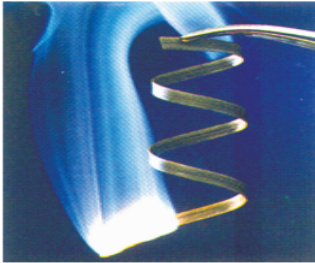


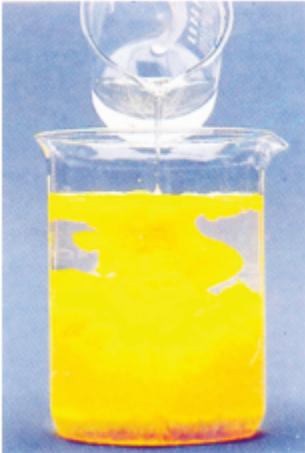
**Vidya Pratishthan's
Dr. Cyrus Poonawalla School (CBSE)**

Sub – Science (Chemistry)

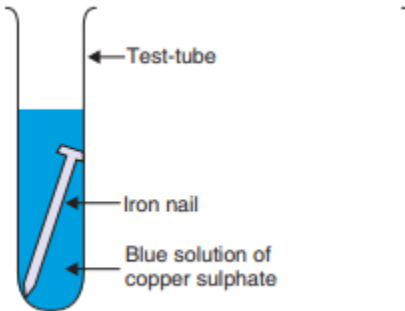
Annual Planning 2024-25

Std - X

Sr. No	Month	Topic/Teaching Content	Objectives	Learning Outcomes	Activity/Practical	21st Century Skills/Assessment
1.	March/ April	March				
		<p>Chemical Reactions and Equations Introduction(15Periods)</p> <p>Chemical Equations</p>	<p>-Compare the characteristics of initial & final substances in order to check whether the change is physical or chemical</p> <p>Relate the substances taking part in the chemical reaction & substances formed in the chemical reaction in order to classify them as reactants & products..</p> <p>Use chemical symbols & chemical formulae correctly in order to acquire the skill of writing chemical equations.</p> <p>Apply Law of Conservation of Mass in order to balance chemical equations</p> <p>Categorize the given reactions as (combination/ decomposition) based on the reactants & products of a chemical reaction</p>	<p>Draws conclusion</p> <p>Uses scientific conventions to represent units of various quantities / symbols / formulae / equations, such as balanced chemical equation by using symbols and physical states of substances, etc.</p> <p>Calculates using the data given, such as number of atoms in reactants and products to balance chemical equation,</p>	<p>1. Burning of magnesium ribbon</p>  <p>2. Reaction of zinc and sulphuric acid</p> <p>3. Reaction of lead nitrate and</p>	<p>Critical Thinking and Problem Solving</p> <p>Class Test MCQ Test</p> <p>Concept Maps Quiz Worksheet</p>


		<p>Types of Chemical Reactions</p> <p>Effects of Oxidation</p> <p>Rancidity</p>	<p>Classify the given reaction as displacement or double displacement based on the type of reactants used & formed.</p> <p>Predict the reaction as Oxidation or Reduction based on the addition/ removal of oxygen/ hydrogen/ electrons to the reactants to form products Observe colour change in iron, copper and silver articles over time in order to outline the effects of corrosion in our surroundings (real life situations, stating any two).</p> <ul style="list-style-type: none"> ▪ Detect changes in smell, colour, taste of food items overtime, in order to explain effects of oxidation on food items 		<p style="text-align: center;">potassium iodide</p> <div style="text-align: center;">  </div> <ol style="list-style-type: none"> 4. Formation of slaked lime 5. Decomposition of ferrous sulphate 6. Heating of lead nitrate 7. Photolysis of silver chloride 8. Displacement of copper from copper sulphate solution by iron 9. Double displacement reaction between sodium sulphate 	<p>MCQ- Multiple assesment</p> <p>Unit test-1</p>
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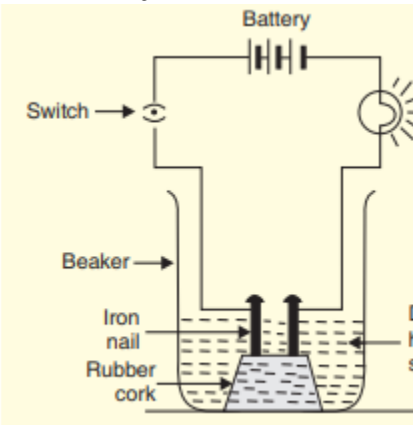
					<p>and barium chloride</p> <p>Oxidation of copper to copper oxide PRACTICAL-1 Performing and observing the following reactions and classifying them into:</p> <p>A. Combination reaction</p> <p>B. Decomposition reaction</p> <p>C. Displacement reaction</p> <p>D. Double displacement reaction</p> <p>(i) Action of water on quicklime</p> <p>(ii) Action of heat on ferrous sulphate crystals</p> <p>(iii) Iron nails kept in copper sulphate</p>	
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					<p>solution</p>  <p>(a)</p> <p>(iv) Reaction between sodium sulphate and barium chloride solutions</p>	
2	May/June	<p>Acids, Bases and Salts(15 Periods)</p> <p>Introduction</p> <p>Action of acids and bases on indicators</p> <p>Acid/ base + metal = salt + hydrogen gas</p>	<p>Introduction: Recall the tastes of acids and bases in order to point out if given food items contain an acid or a base</p> <p>Observe the action of given substances with various indicators, in order to categorize them as acids or bases</p> <p>Detect the formation of hydrogen gas when a metal reacts with an acid or a base, in order to confirm the presence of an acid/base given an unknown compound</p> <p>Detect the formation of carbon dioxide when a metal carbonate/bicarbonate reacts with acid, in order to detect the</p>	<p>Classifies materials , processes, based on, properties / characteristics, such as metals and non-metals on the basis of their physical and chemical properties, acids and bases on the basis of their chemical properties, etc.</p> <p>Plans and conducts investigations /experiments to arrive at and verify the</p>	<ol style="list-style-type: none"> 1. Acids and Bases in the Lab 2. Reaction of Zinc with acid 3. Reaction of metal carbonates with acids 4. Neutralisation reaction 5. Preparation of HCl gas <p>Removing water of crystallisation PRACTICAL A. Finding the pH of the following samples by using pH</p>	<p>Collaboration</p> <p>Portfolio Activity about chemicals in kitchen</p> <p>Worksheet MCQ -Multiple assessment</p>

		<p>acid + metal carbonate s/ bicarbonates = salt + water + CO₂</p> <p>acid + base = salt + water</p> <p>Acid & base in water Solution</p> <p>How strong are acid or base solutions?</p> <p>Importance of pH in</p>	<p>presence of acid given an unknown compound</p> <p>Analyse the reaction taking place between an acid and a base(alkalis, metal oxides) using an indicator</p> <p>Write down the ions present in aqueous solution of an acid or a base, in order to explain why aqueous acid/ base conduct electricity</p> <p>Detect the strength of given substances based on their position in the pH scale.</p>  <p>Explain the effect of pH change in animals, plants and environment in order to learn suitable pH range for survival</p> <p>Identify the positive and negative radicals present in a salt, in order to predict a salt's family and pH range</p>	<p>facts, principles, phenomena or to seek answers to queries on their own, such as investigates conditions necessary for rusting, tests the conductivity of various solutions</p> <p>Relates processes and phenomena with causes / effects, such as tooth decay with pH of saliva, growth of plants with pH of the soil, survival of aquatic life with pH of water</p> <p>Differentiates materials / objects /organisms /</p>	<p>paper/universal indicator:</p> <p>(i) Dilute Hydrochloric Acid</p> <p>(ii) Dilute NaOH solution</p> <p>(iii) Dilute Ethanoic Acid solution</p> <p>(iv) Lemon juice</p> <p>(v) Water</p> <p>(vi) Dilute Hydrogen Carbonate solution</p> <p>B. Studying the properties of acids and bases (HCl & NaOH) on the basis of their reaction with:</p> <p>a) Litmus solution (Blue/Red)</p> <p>b) Zinc metal</p> <p>c) Solid sodium carbonate</p>	
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	everyday life	Outline the process of formation of sodium hydroxide in order to explain its manufacture using common salt	phenomena / processes, based on, properties / characteristics, various types of reactions, strong and weak acids and bases, acidic, basic and neutral salts		
	More about salts	List the properties & explain the preparation/ manufacture some important compounds of Sodium. (bleaching powder, baking soda and washing soda) in order to explain their manufacture using common salt			
	Sodium Hydroxide	Demonstrate the activity of heating copper sulphate crystals and change in colour, in order to detect the presence of water of crystallisation			
	Bleaching Powder, Baking Soda & Washing Soda		Classifies materials / objects / processes, based on, properties / characteristics, such as metals and non-metals on the basis of their physical and chemical properties, acids and bases on the basis of their chemical properties, etc..		
	Water of crystallisation	Observe various substances and their physical properties in order to classify them as metals or non-metals			

3.	July/ August	<p>Metals and Non-metals (15 period) Physical Properties</p> <p>Chemical Properties of Metals Metal + oxygen/ water/ dilute acid</p>	<p>Predict the products when metals & non-metals react with oxygen, water, dilute acids in order to write a balanced chemical equation</p> <p>Identify the product formed when a metal reacts with a metal salt, in order to list the metals in order of their reactivity</p> <p>Discuss the process of how metals react with non-metals, in order to explain formation & properties of ionic compounds</p> <p>Analyse the process of getting metals from their oxides, sulphides, carbonates in order to extract them from their ores</p>	<p>Explains processes and phenomena such as extraction of metals from ores, placement of elements in modern periodic table, displacement of metals from their salt solutions on the basis of reactivity series</p> <p>Analyses and interprets data / graph / figure, such as melting and boiling points of substances to differentiate between covalent and ionic compounds, pH of solutions to predict the nature of substances, etc.</p>	<p>ACTIVITY</p> <ol style="list-style-type: none"> 1. Metals are good conductor of heat 2. Metallic lustre 3. Malleability  <ol style="list-style-type: none"> 4. Metals are good conductor of 	Periodic Test-1
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	<p>Reaction of metals with other metal salts</p> <p>Ionic compounds</p> <p>Occurrence of metals</p> <p>Refining of metals</p> <p>Corrosion & prevention</p>	<p>Explain the process of electrolytic refining in order to assess how to obtain pure metals from impure samples.</p> <p>Observe corrosion in metal articles & its process in order to develop ways to prevent corrosion by forming alloys, painting, Galvanising.</p>	<p>Draws labelled diagrams / flow charts / concept map / graphs, such as electrolysis of water, electron dot structure of atoms and molecules, flow chart for extraction of metals from ores etc.</p>	<p>electricity</p>  <p>5.corrosion PRACTICAL</p> <p>Observing the action of Zn, Fe, Cu and Al metals on the following salt solutions:</p> <ol style="list-style-type: none"> i) $\text{ZnSO}_4(\text{aq})$ ii) $\text{FeSO}_4(\text{aq})$ iii) $\text{CuSO}_4(\text{aq})$ iv) $\text{Al}_2(\text{SO}_4)_3(\text{aq})$ <p>Arranging Zn, Fe, Cu and Al (metals) in the decreasing order of reactivity based on the above result.</p>	
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4.	August-Sept	<p>Carbon and It's Compounds(12 Periods)</p> <p>Bonding in Carbon</p> <p>Saturated and Unsaturated carbon Compounds</p>	<p>Write down electron shell configuration of carbon in order to predict formulae of carbon compounds and illustrate the structure of molecules of carbon compounds with chain, branched & ring structure.</p> <p>Draw structures of carbon compounds in order to classify them as saturated or unsaturated</p> <p>Draw structures of carbon compounds and show types of bonds (single/ double/ triple) in order to classify them as alkanes/alkenes/ alkynes</p>		<p>ACTIVITY</p> <ol style="list-style-type: none"> 1. Burning of carbon compound 2. Observation of Bunsen burner 3. Oxidation of alcohol 4. Formation of ester 5. Effect of soap in cleaning 6. Action of soap in hard water <p>PRACTICAL</p> <p>Study of the following properties of acetic acid (ethanoic acid):</p> <ol style="list-style-type: none"> i) Odour ii) solubility in water iii) effect on litmus iv) reaction with Sodium Hydrogen Carbonate 	Half Yearly Exam

	October	<p>Chains branches and rings</p> <p>Functional groups</p> <p>Homologous Series</p> <p>Nomenclature of Carbon compounds</p> <p>Chemical properties</p>	<p>Draw structures of carbon compounds with functional groups, in order to predict their properties due to functional groups and type of bonding present</p> <p>Classify carbon compounds in homologous series in order to predict their properties</p> <p>Identify the functional group, type of bonding, number of C atoms present in a carbon compound, in order to correctly name them</p> <p>Observe how carbon compounds burn in oxygen, in order to classify them as saturated or unsaturated</p> <p>Illustrate the chemical properties of carbon compounds (like combustion, oxidation, addition & substitution) along with balanced chemical reaction.</p> <p>Identify how carbon compounds react with hydrogen in the presence of</p>	<p>Uses scientific conventions to represent units of various quantities / symbols / formulae / equations, such as balanced chemical equation by using symbols and physical states of substances, etc.</p>	<p>Study of the comparative cleaning capacity of a sample of soap in soft and hard water.</p>	
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		of carbon compound s Combustion Oxidation Addition Substitution Ethanol & ethanoic Acid	nickel catalyst, in order to write a balanced chemical reaction Identify how carbon compounds react with chlorine in the presence of sunlight, in order to write a balanced chemical reaction Perform physical and chemical tests in order to distinguish between Ethanol & Ethanoic acid based on their properties(reaction with other substances) Describe the process of micelle formation in order to understand how soaps work	Differentiates materials / objects / organisms / phenomena / processes, based on, properties / characteristics, such as various types of reactions, strong and weak acids and bases, acidic, basic and neutral salts etc Plans and conducts investigations / experiments to arrive at and verify the facts, principles, phenomena or to seek answers to queries on their own, such as investigates conditions necessary for rusting, tests the conductivity of various solutions, compares the foaming capacity of different types of soap samples		
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		Soaps and detergents				
	November - Revision	Revision	.	.	.	Periodic test -2
	December	Preboard Exam.				