

S.D.Public School, Pitam Pura, New Delhi
Academic Planner
Session (2026-27)
Class-XI
Subject- Chemistry

| Month/Days | Content | Learning Outcome | Assignment/Class Work | Interdisciplinary Aspect/SDG | Lab. Activity/Practical |
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| April(16-30) 13 Days | Recapitulation of Basic concepts of X class- Laws of chemical combination, Classification of matter(physical and chemical), Mole concept(IX class), balancing of chemical equations, Ionic and covalent bond. | Bridge Course Program | | Self Learning. | |
| May(1-15) 6 Days | Some Basic Concepts of Chemistry Importance and scope of chemistry, Nature of matter, laws of chemical combinations, Dalton's atomic theory. Mole concept, Atomic and Molecular mass. | <ol style="list-style-type: none"> 1) Understand and appreciate the role of chemistry in different spheres of life. 2) Classify different substances into elements, compounds and Mixtures 3) Define SI base units. 4) Use scientific notations and perform simple mathematical operations. 5) Differentiate between precision and accuracy. 6) Conversion of units from one system to another. 7) Explain various laws of chemical combinations. 8) Describe the terms- Mole and molar mass. | Examples and Intext Questions discussion in the class. | Physics Aspect(Conversion of units), SI system of units. | |
| July (1-15) 12 Days | Percentage Composition, Stoichiometry and calculations based on Stoichiometry. | <ol style="list-style-type: none"> 1) Determine empirical and molecular formula of the compound from the data provided.(% composition) 2) Perform stoichiometric calculations. | Assignment based on Numericals (Stoichiometry, Limiting reagent and molecular formula) | Mathematical Learning. | |
| | Structure of Atom:- Brief Discovery of electron, proton and neutron. Thomson's model, Rutherford's model and limitations, Bohr's model, concept of shells and subshell. | <ol style="list-style-type: none"> 1) Know about the contribution of scientists in the discovery of fundamental particles. 2) Describe Thomson, Rutherford and Bohr atomic models. 3) Understand nature of electromagnetic radiation and Planck's quantum theory. | Examples and Intext Questions discussion in the class. | Meeting the special needs of every individual student. | Weighing on Physical Balance |

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| July(16-31) 14 Days | Dual nature of matter and light, De Broglie relationship, shapes of s, p and d orbitals, Quantum Mechanics, Electronic configuration. Stability of half filled and completely filled orbitals. | 1) Understand the important features of quantum mechanical model of an atom. 2) Define an atomic orbital in terms of quantum numbers. 3) State de Broglie relation and Heisenberg Uncertainty principle. 4) Write electronic configuration of atom. | Assignment based on Conceptual questions , graphs and mathematical data. | Mathematical Aspect | Weighing on Physical Balance |
| August (1-15) 11 Days | Classification of elements:- Significance of classification, brief history of development of periodic table. | 1) Appreciate how the concept of grouping elements according to their properties led to the development of periodic table. 2) Understand the periodic law. | | | |
| | Modern Periodic law, periodic trends in the properties of elements, Nomenclature of elements with atomic number greater than 100. | 3) Understand the significance of atomic number and electronic configuration as the basis of classification. 4) Classify elements into s,p,d and f block and learn their main properties. 5) Recognise the periodic trends in the physical and chemical properties of elements. 6) Explain the relationship between ionisation enthalpy and metallic character 7) Use scientific vocabulary appropriately to communicate ideas related to important properties of atom. | Assignment based on position of elements in the table | Mathematical Learning (interpretation of data and numerical values) | Acid-Base titration |
| August (16-31) 11 Days | Chemical Bonding and Molecular structure:- Ionic bond, Covalent bond, Bond parameters, Lewis structures, polar nature of covalent bond. | 1) Explains the octet rule and its limitations. 2) Explain the formation of different types of bonds. | Assignment based on properties of ionic and covalent compounds. | Psychology Based Learning (Interpersonal relationship) | Acid-Base titration |
| | Valence bond theory, VSEPR theory, Hybridisation, shapes of some simple molecules. | 3) Describe the VSEPR theory and predict the geometry of simple molecules. 4) Explain the formation of covalent bond using VBT. 5) Predict the directional properties of covalent bond. 6) Explain different types of hybridisation and draw shapes of simple covalent molecules. | NCERT Examples and Intext questions discussion. | Psychomotor Skill. | Acid-Base titration |
| September (1--15) | Molecular orbital theory, Hydrogen bond. | 7) Describe the molecular orbital theory of homonuclear diatomic molecules. 8) Explain the concept of H-bond. | Assignment based on hybridisation and configuration. | | |

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| 11 Days | Chemical Thermodynamics:- Concept of system, surroundings, work, heat, energy, Extensive, Intensive properties, state functions, First law of thermodynamics, Internal energy, enthalpy, heat capacity. | 1) Explain various thermodynamic terms. 2) Distinguish between different types of systems. 3) Explain internal energy, work, heat and enthalpy. 4) Explain First law of thermodynamics and express it mathematically. 5) Explain state functions and correlate enthalpy change and internal energy change 6) Define standard states for enthalpy.. | Discussion of NCERT examples and Intext Que. | Mathematical learning | Acid-Base titration |
| September(16-30) | Half Yearly Examination | | | | |
| October (1-15) | Enthalpy of phase transition, combustion, atomization, formation, enthalpy of solution. | 7) Calculate enthalpy changes for various types of reactions. 8) State and apply Hess's law of constant heat summation. 9) Differentiate between extensive and intensive properties. | Assignment based on numericals from Enthalpy of formation | Mathematical learning | Acid-Base titration |
| 11 Days | Second Law of thermodynamics, Entropy, Gibb's energy change, Criteria for equilibrium. Brief idea of third law of thermodynamics. | 10) Define spontaneous and non spontaneous processes. 11) Explain entropy as a thermodynamic state function and apply it for spontaneity. 12) Explain Gibbs energy change and relate it with equilibrium constant. | Assignment based on conceptual questions. | Concept Building | |
| October (16-31) 9 Days | Equilibrium:- In physical and chemical process, nature of dynamic equilibrium, law of mass action. Equilibrium constant, Le Chatelier's principle, Acid-Base concept, ionization of weak acid and base, degree of dissociation. | 1) Identify dynamic nature of equilibrium involved in physical and chemical processes. 2) State the law of equilibrium. 3) Explain characteristics of equilibria involved in physical and chemical processes. 4) Write expressions for equilibrium constants. 5) Explain various factors that affect the equilibrium state of a reaction. 6) Classify substances as acids or bases according to Arrhenius, Bronsted-Lowry and Lewis concepts. 7) Classify acids and bases as weak or strong in terms of their ionization constants. | Assignment based on Case based questions from Le Chatelier's principle and equilibrium constant. | Learning Enhancement in group. | Copper Sulphate Crystal preparation |

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| <p>November (1-15 9 Days</p> | <p>Acid strength, polyprotic acids, concept of pH, Hydrolysis of salt, buffer solution, solubility product, common ion effect. The Gaseous state- Qualitative treatment of gas laws, Ideal gas equation and deviations from it. (Part of Formative Assessment only)</p> | <p>8) Explain the dependence of degree of ionization on concentration of the electrolyte. 9) Describe pH scale for representing hydrogen ion concentration. 10) Describe ionic product (K_w) and pK_w for water. 11) Appreciate use of buffer solutions. 12) Calculate solubility product constant.</p> | <p>1. Assignment based on Reasoning Based questions from sample papers. Formative assesment 1. Class test from Gas laws 2. Numericals based on ideal gas equation.</p> | | <p>Copper Sulphate Crystal preparation</p> |
| <p>November (16-30 12 Days</p> | <p>Redox Reactions:- Concept of oxidation, reduction, Oxidation number concept, Types of Redox reactions.</p> | <p>1) Identify redox reactions in day to day life phenomena. 2) Define the terms oxidation, reduction, oxidising and reducing agent. 3) Explain the mechanism of redox reactions by electron transfer process. 4) Classify redox reactions into combination, decomposition, displacement and disproportionation.</p> | <p>Practice of writing Oxidation and Reduction reactions</p> | <p>Chemistry in everyday life.</p> | <p>Qualitative Analysis</p> |
| | <p>Redox Reactions Balancing of Redox reactions, Applications of Redox reactions in chemistry.</p> | <p>5) Balance chemical equations using oxidation number and half reaction method. 6) Understand application of redox reactions in chemistry.</p> | <p>Assignment based on Balancing of redox reaction.</p> | <p>Mathematical Learning</p> | <p>Qualitative Analysis</p> |
| <p>December (1-15 Days- 12</p> | <p>Organic Chemistry- Some Basic principles:- Classification of organic compounds, IUPAC nomenclature, Isomerism,</p> | <p>1) Understand reasons for the tetravalency of carbon and shapes of organic molecules. 2) Write structures of organic molecules in various ways. 3) Classify the organic compounds. 4) Name the compounds according to IUPAC system of nomenclature.</p> | <p>Assignment based on IUPAC nomenclature and isomerism.</p> | | <p>Qualitative Analysis</p> |
| | <p>Electron displacement effects, Homolytic and heterolytic cleavage. Method of Purification of Organic compounds, Qualitative and Quantitative analysis of organic compounds.</p> | <p>5) Understand the concept of organic reaction mechanism. 6) Explain the effect of electron displacements on reactivity of organic compounds. 7) Learn the techniques of purification of organic compounds. 8) Understand the principles involved in qualitative and quantitative analysis.</p> | <p>Assignment based on Quantitative analysis.</p> | <p>Concept mapping</p> | <p>Qualitative Analysis</p> |

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| <p>December (16-31) 12 Days</p> | <p>Hydrocarbons:- Classification, Alkanes- Nomenclature, isomerism, preparation, physical and chemical properties of alkanes, alkenes, alkynes .</p> | <p>1) Recognise and write structures of isomers of alkanes, alkenes, alkynes and benzene. 2) Learn about various methods of preparation of hydrocarbons. 3) Distinguish between alkanes, alkenes, alkynes and aromatic hydrocarbons on the basis of physical and chemical properties. 4) Appreciate the role of hydrocarbons as sources of energy and for industrial applications.</p> | <p>Assignment based on Conversion reactions and Reasoning based questions.</p> | | <p>Qualitative Analysis</p> |
| <p>January(16-31) 12 Days</p> | <p>Benzene :- Nomenclature, preparation, isomerism, physical and chemical properties. Carcinogenicity s and p-Block elements Electronic configuration, atomic and ionic radii, Ionization and Hydration enthalpy, general trends in physical and chemical properties of s and p block. (For Formative Assessment)</p> | <p>5) Comprehend the structure of benzene, explain aromaticity and understand mechanism of electrophilic substitution reactions. 6) Learn about carcinogenicity and toxicity. Formative Assessment 1.MCQ from electronic configuration of s and p block elements. 2.Class test from general trends.</p> | <p>Assignment based on structure based problems.</p> | <p>Self learning</p> | <p>Qualitative Analysis</p> |

| <p align="center">Examination Schedule</p> | |
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| <p align="center">Unit Test-1</p> | <p align="center">Some Basic concepts of chemistry</p> |
| <p align="center">Term-1 Examination (Half Yearly Examination) Some basic concepts of chemistry , Structure of atom, Classification of elements</p> | |
| <p align="center">Unit Test-2</p> | <p align="center">Chemical Bonding, Thermodynamics</p> |
| <p align="center">Term-2 Examination Complete Syllabus</p> | |