ARMY PUBLIC SCHOOL, MUMBAI (2019-2020)
STANDARD CURRICULUM

CLASS:XI SUB: CHEMISTRY

MONTH	NAME OF THE LESSON	METHODOLOGY	VALUES AND SKILLS / CORE VALUES	LEARNING OUTCOMES
JUNE	**Organic Chemistry- Some Basic Principles and Techniques**	• Lecture • Demonsration • Numerical solving • Diagram • Worksheet • Activity--- To prepare Lassaigne Extract and check presence of Nitrogen/ Halogen in it.	**Values:**Caring and sharing, Capability, Challenge **Skills:**Decision making, Togetherness, Analytical skill Team work and Environmental awareness	The student will be able to- • Classify organic compound into aliphatic,open chain, cyclic, aromatic etc. • Write IUPAC names • Understand concept of formation of reaction intermediates • Explain stability of carbocations, carboanions,free radical etc.
JULY	**Hydrocarbons**	• Explanation • Discussion • Root maps for reactions • Assignment sheet • Activity--- To check whether the given unknown organic compound is Saturated or Unsaturated with the help of chemical tests.	**Values:**Right choices, Optimism,Long term Vision **Skills:** Analytical skills, Decision making, Care for the environment Environmental Awareness	The student will be able to- • Name hydrocarbons according to IUPAC system • Understand methods of preparation of alkanes, alkenes, alkynes and aromatic hydrocarbons • Draw and differentiate conformations of ethane • Explain geometrical isomerism in alkenes • Explain Aromaticity • Identify electron releasing & withdrawing groups and their directive influence on

				electrophilic substitution reactions
AUGUST	**Some Basic Concepts in Chemistry**	• Explanation and Discussion • Numerical solving • Assignment questions for practice • Activity--- To prove Law of Conservation of Mass by reacting $AgNO_3$ with Na_2SO_4	**Values:**Decisiveness, Challenge **Skills:** Reasoning, Logical Thinking	The students will be able to- • Understand the role of chemistry in our daily life • Classify the given substance as element, mixture and compound • Differentiate between percision and accuracy • Explain different laws • Understand concept of molar mass & mole • Define limiting reagent • Calculate empirical and molecular formula
	Atomic Structure	• Explanation • Discussion • Diagrams • Power point presentation related to Models of Atom • Numerical solving • Worksheet	**Values:**Integrity, Dependence, Freedom **Skills:**Awareness, Decision making, Organisational skills	The student will be able to- • Describe different models of atoms • Understand electromagnetic spectrum, absorption & emmission spectrum, hydrogen spectrum • Explain dual nature of radiations and matter

		• Activity--- To draw diagrams of: i)Discovery of Cathode and Anode ray ii)Rutherford Model of atom iii)Radioactivity		• Understand values and importance of quantum numbers • Write electronic configurations of atoms
	Classification of Elements and Periodicity in properties	• Lecture • Discussion • Explanation • Chart of periodic table • Teach Next Module(relted to periodic table) • Activity---- To draw rough sketch of Periodic Table and label it.	**Values:**Dependability, Caring, Accountability **Skills:**Critical Thinking, Togetherness, Discipline	The students will be able to- • Understand modern periodic law • Locate position of elements according to electronic configuration • Discuss variations of properties along period& group
SEPTEMBER	**Thermodynamics**	• Explanation • Discussion • Interaction • Numerical solving • Table for all formulae involved	**Values:** Dependability, Positive attitude, Accountability **Skills:**Teamwork, Decision making	The students will be able to- • Define commonly used terms in thermodynamics • Explain internal energy, entropy, enthalpy, Gibb's free energy • Solve numericals related to these concepts • Identify spontaneous and non-spontaneous reactions
	Chemical Bonding and Molecular Structure	• Explanation and Discussion • Diagrams • Power point presentation(relat		The students will be able to- • Write Lewis structure and electron dot structures

		ed to formation of different types of bonds) • Chart (related to hybridisation) • Assignment sheet for practice • Explanation of MO diagrams by the students on the Black Board	**Values:**Integrity, Caring and Sharing, Positive Attitude, Reliability **Skills:**Interpersonal skills, Leadership, Constructive, Long term Vision Discipline and Diligence	• Explain octet rule • Describe VSEPR theory and perdict shapes of molecules • Explain hybridisation • Draw molecular orbital diagrams and calculate bond order • Explain concept of hydrogen bond
OCTOBER	**Chemical Bonding and Molecular Structure** **States of Matter** **Chemical Equilibrium**	• Class test • Explanation • Discussion • Numericals • Check for understanding (by giving concept based questions on the spot) • Discussion • Interaction	**Values:** Innovative mindset, Global outlook, Integrity **Skills:**Scientific Temperament, Knowledge, spirit of enquiry. **Values:**Commitment, Sincerity	• Differentiate between inter and intramolecular hydrogen bonding The student will be able to- • Describe properties of gaseous state • Understand gas laws and to apply them in real life situations • Explain kinetic theory of gases • Differentiate between ideal and real gases • Describe conditions for liquifcation of gases • Explain different types of speeds • Explain properties of liquids. The students will be able to- • List and explain characterisitics

		• Numerical solving • Activity--- To study Le- Chatlier principle(Effect of concentration) by using KCl, FeCl3 & $Fe(SCN)_3$ and note down the observations	**Skills:** Curiosity, Discipline, Teamwork **Values:**Selflessness, Reliability, Dependability **Skills:** Adaptability, Teamwork Diversity and Togetherness	of equilibrium state • State and explain law of mass action • Apply law of chemical equilibrium and write exppressions • Differentiate between strong and weak electrolytes • Explain various concepts of acids and bases • Explain ionisation constant and strength of acids and bases • Define pH • Define buffer action and common ion effect
NOVEMBER	**Chemical Equilibrium** **Redox Reactions**	• Numericals related to pH. • Explanation • Checking of previous knowledge • Discussion • Numericals • Diagrams • Worksheet • Activity--- To find EMF of Zn-Cu cell.	**Values:** Comparison, Recognition **Skills:**Logical Thinking, Curiosity **Values:**Dependability, Commitment **Skills:**Scientific skills, Decision making, Curiosity	• Explain hydrolysis of salt • Calculate solubility products The students will be able to- • Define and identify oxidation, reduction, oxidising and reducing agent • Calculate oxidation number • Balance equations by oxidation no.method • Understand electrochemical cell • Explain role of salt bridge

	Hydrogen	• Explanation & Discussion • Diagrams • Teach Next Module • Activity-- To compare Hard water and Soft water and to find the reason for the same.	**Values:**Comparison, Efficiency, Commitment **Skills:** Interdependence, Spirit of enquiry, Knowledge Gender sensitivity	• Write redox reactions • Calculate EMF of cell The student will be able to- • Explain position of hydrogen in the periodic table • Write equations for preparation of hydrogen • Explain properties of hydrogen • Explain structure of water • Expain hard water, its types and process for removal of hardness of water • Understand structure, preparation , properties and uses of H_2O_2
DECEMBER	**s-Block Elements**	• Discussion • Interaction • Comparative study of s and p block elements • Activity--- To perform the Flame test of some elements and identify them	**Values:** Comparison, Interdependence, Commitment **Skills**: Reasoning, Logical thinking Perseverance	The student will be able to- • Write electronic configuration of group 1 and 2 elements • Explain variations of different properties • Compare properties of both groups • Explain anomalous behaviour of Li • Explain preparation & propertie of their compounds

	Some p-Block Elements	• Explanation • Discussion • Diagrams		The students wil be able to- • Write electronic configuration of group 13 and 14 elements
JANUARY	**Some p-Block Elements** **Environmental Chemistry**	• Chart of periodic table for comparative study • Assignment sheet • Interaction • Discussion • power point presentation on different topics related to Environmental chemistry.(by students) and discussion for the same	**Values**: Recognition, Comparison, Reliability **Skills**: Curiosity, Critical thinking, Caring and sharing **Values:**Team work, Environmental awareness, Decision making **Skills:**Commitment, Discipline Effective Communication	• Explain physical and chemical properties • Explain anomalous behaviour of B, C, N • Explain preparation, structure and properties of B2H6, Boric acid, Borax, CO_2, SiO_2, Silicates and Silicones. • Define allotropy and its examples The student will be able to- • Explain meaning of environmental chemistry • Explain different types of pollutions, causes, effects and prevention • Descibe phenomenon of Global warming, Green House effect and Acid rain • Explain importance of Green Chemistry.