

TheCamfordInternationalSchool

ANNUALLESSONPLAN2023-2024

GRADE: 11 SUBJECT:CHEMISTRY(043)

MONTH	CHAPTERNO. AND NAME	DETAILCONCEPTSTOBECOVERED	PRACTICALS
APRIL 19 days	SOME BASIC CONCEPTSOF CHEMISTRY	GeneralIntroduction:Importanceandscopeofchemistry. Nature of matter, laws of chemical combination, Dalton's atomictheory:conceptofelements, atoms and molecules. Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry.	PREPARATIONOF INORGANIC CRYSTALS
MAY 8 days	CLASSIFICATION OF ELEMENTS	Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii Ionizationenthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100.	VOLUMETRIC ANALYSIS (OXALIC ACID VS NaOH)

JUNE 23 days	STRUCTUREOF ATOM	Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberguncertaintyprinciple, conceptof orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half filled and completely filled orbitals.	VOLUMETRIC ANALYSIS (Na ₂ CO ₃ VS HCl) ANALYSIS OF ELEMENTS IN THE ORGANIC COMPOUND
	CHEMICAL BONDINGAND MOLECULAR STRUCTURE	Valence electrons, ionic bond, covalent bond; bond parameters, Lewis structure, polar character of covalent bond, covalent characterofionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving s,p and d orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules (qualitative idea only), hydrogen bond	SALTANALYSIS
JULY 24 days	ORGANIC CHEMISTRY:BASIC PRINCIPLES AND TECHNIQUES	General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions.	
	REDOXREACTIONS	Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number, applications of redox reactions.	DETERMINATION OF pHOFGIVEN SAMPLES

i			
		ClassificationofAliphaticHydrocarbons:	
AUGUST 23 days	HYDRO CARBONS	Alkanes - Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis.	
		Alkenes - Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markownikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition.	
		Alkynes-Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidiccharacterofalkynes, addition reaction of hydrogen, halogens, hydrogen halides and water. Aromatic Hydrocarbons: Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution. nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of functional group in monosubstituted benzene. Carcinogenicity and toxicity.	DETERMINATION OF MELTING AND BOILINGPOINTOF SUBSTANCE
SEPTEMBER 28 days	EQUILIBRIUM	Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium - Le Chatelier's principle, ionic equilibrium-ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionizationofpolybasicacids, acidstrength, conceptofpH, Henderson Equation, hydrolysis of salts (elementary idea), buffersolution, solubilityproduct, commonioneffect (with illustrative examples).	

OCTOBER 17 days	THERMODYNAMICS	Concepts of System and types of systems, surroundings, work,heat,energy,extensiveandintensiveproperties,state functions. Firstlawofthermodynamics-internalenergyandenthalpy, heat capacity and specific heat,measurement of ΔU and ΔH, Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution. Second law of Thermodynamics (brief introduction) Introductionofentropyasastatefunction,Gibb'senergy change for spontaneous and non-spontaneous processes, criteria for equilibrium. Thirdlawofthermodynamics (briefintroduction).	
NOVEMBER 22 days		REVISION	
DECEMBER 20 DAYS		REVISION	
JANUARY 21days		REVISION	