KOTHARI INTERNATIONAL SCHOOL

ANNUAL ACADEMIC PLAN

SUBJECT: CHEMISTRY SESSION: 2023-24

GRADE: IGCSE IX

NAME OF THE TEACHER: Lakshmi Prabha

MONTH	Topic	Concept	Learning Objectives
April	States of matter Atomic Structure	Fundamental ideas The inside of the atom	Students understand the definition of chemistry and its importance Fundamental building blocks of the universe, definitions and explanation Classification as solids, liquids and gases Classification as elements,compounds and mixtures Diffusion and kinetic theory Students understand the subatomic particles, isotopes and the arrangement of electrons and electronic classification
MAY	Chemical Formula and Equations Chemical Calculations	Chemical Formula writing, Mole concept Stoichiometry and the "Mole"	Students learn to write Symbols and chemical formulae taking various examples understanding the concept of valency, atomic number, ions and radicals, atomic mass, molecular mass Understanding the concept of "Mole", Avogadro number, mole –mass, mole molecules or atoms and mole volume relationships Stoichiometry (contd) Quantitative chemistry Balencing of equations Emperical formula, concentrations of solutions Numerical calculations involving quantitative chemistry
JUNE SUMMER VACATION			
JULY	Separation techniques Chemical Bonding	Separation of mixtures Types of bonding based on the nature of elements forming compounds	Common Laboratory techniques used in separation of mixtures Such as filtration, distillation and chromatography Students learn about the ionic bonding, covalent bonding and metallic bonding giant macromolecular, alloys examples

	The Periodic table	**Classifying the elements** **Trends in groups and periods**	**Periodic classification:** **General trends along a group and period** **Group I, Group VII, Noble gases, transition metals** **Chemical Bonding (contd) – ionic, covalent, metallic,**
AUGUST	**Chemical reactions** **Electrochemistry**	**Types of Reactions** **Understanding the difference between an electrochemical cell and an electrolytic cell**	**Understanding of the different types of reaction such as redox, combination, neutralisation, displacement using various examples** **Electrolysis (contd)** **Manufacture of Aluminium(Hall Herault s process)** **Chlor alkali process** **The reactivity series** **The elements**
SEPTEMBER	**Electrochemistry**	**Electrolysis**	**Products of electrolysis** **Uses of electrolysis** **Electrochemical cell** **Fuel cells** **Alternative sources of energy** **Corrosion and rusting and methods of its prevention** **Acids, Bases and Salts** **Chemical analysis and investigation**
OCTOBER	**Chemical Analysis**	**Qualitative Analysis** **And Quantitative Analysis**	**Understanding the difference between qualitative and quantitative analysis** **Experimental methods used in qualitative analysis of cations and anions**
NOVEMBER	**Chemical Energetics** **Rates of Reactions**	**Physical and chemical changes** **Factors affecting Rate and Collision Theory**	**Understanding exothermic and endothermic reactions** **Students perform experiments to learn Factors: temperature, concentration, catalyst** **Students also understand the importance of kinetic theory and collision theory in determining rate**
DECEMBER	**Reversible Reactions**	**Haber ‘s process**	**Inorganic Chemistry** **Manufacturing processes:**

		And Contact process	**1. Manufacture of ammonia and nitric acid – emphasis on Le Chattelier s principle**
JANUARY	**Manufacturing Processes**	**Extraction of metals And Fertilizers**	**Manufacturing processes(contd)** **2. Ammonia(contd) and the fertilizer industry and the drawbacks of use of excess of fertilizers** **3. Extraction of iron** **4. Manufacture of steel**
FEBRUARY	**Environmental Chemistry**	**Air and water**	**Pollution in air and water and methods of its prevention** **Revision**