

<b>PHYSICS SYLLABUS_ACHIEVER PLUS (session 2025-26)</b>			
<b>Subject</b>	<b>Class</b>	<b>Unit</b>	<b>Chapter's Name</b>
PHYSICS	XI	<b>Vectors</b>	Scalars and Vectors, Vector. Addition and subtraction, scalar and vector products, Unit Vector, Resolution of a Vector
PHYSICS	XI	<b>PHYSICS AND MEASUREMENT</b>	Units of measurements, System of Units, , S I Units, fundamental and derived units, least count,significant figures, Errors in measurements , Dimensions of Physics quantities, dimensional analysis and its applications.
PHYSICS	XI	<b>GRAVITATION</b>	The universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth. Kepler's law of planetary motion. Gravitational potential energy; gravitational potential. Escape velocity, Motion of a satellite, orbital velocity, time period and energy of satellite.
PHYSICS	XI	<b>THERMAL PHYSICS</b>	Heat, temperature, thermal expansion; specific heat capacity, calorimetry; change of state, latent heat. Heat transferconduction, convection, and radiation. Thermal equilibrium, zeroth law of thermodynamics, the concept of temperature. Heat, work, and internal energy. The first law of thermodynamics, isothermal and adiabatic processes. The second law of thermodynamics: reversible and irreversible processes.Equation of state of a perfect gas, work done on compressing a gas, Kinetic theory of gases - assumptions, the concept of pressure. Kinetic interpretation of temperature: RMS speed of gas molecules: Degrees of freedom. Law of equipartition of energy and applications to specific heat capacities of gases; Mean free path. Avogadro's number.

PHYSICS	XII	<b>ELECTROMAGNETIC WAVES</b>	Displacement current. Electromagnetic waves and their characteristics, Transverse nature of electromagnetic waves, Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet. X-rays. Gamma rays), Applications of e.m. waves.
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**CHEMISTRY SYLLABUS\_ACHIEVER PLUS (session 2025-2026)**

Subject	Class	Unit	Chapter's Name
CHEMISTRY	XI	<b>SOME BASIC CONCEPTS IN CHEMISTRY</b>	Matter and its nature, Dalton's atomic theory: Concept of atom, molecule, element, and compound:: Laws of chemical combination; Atomic and molecular masses, mole concept, molar mass, percentage composition, empirical and molecular formulae: Chemical equations and stoichiometry.
CHEMISTRY	XI	<b>ATOMIC STRUCTURE</b>	Nature of electromagnetic radiation, photoelectric effect; Spectrum of the hydrogen atom. Bohr model of a hydrogen atom - its postulates, derivation of the relations for the energy of the electron and radii of the different orbits, limitations of Bohr's model; Dual nature of matter, de Broglie's relationship. Heisenberg uncertainty principle. Elementary ideas of quantum mechanics, quantum mechanics, the quantum mechanical model of the atom, its important features. Concept of atomic orbitals as one-electron wave functions: Variation of $\psi$ and $\psi^2$ with r for 1s and 2s orbitals; various quantum numbers (principal, angular momentum, and magnetic quantum numbers) and their significance; shapes of s, p, and d - orbitals, electron spin and spin quantum number: Rules for filling electrons in orbitals – Aufbau principle. Pauli's exclusion principle and Hund's rule, electronic configuration of elements, extra stability of half-filled and completely filled orbitals.
CHEMISTRY	XI	<b>REDOX REACTIONS</b>	Electronic concepts of oxidation and reduction, redox reactions, oxidation number, rules for assigning oxidation number, balancing of redox reactions.

CHEMISTRY	XI	EQUILIBRIUM	<p>Meaning of equilibrium, the concept of dynamic equilibrium.</p> <p><b>Equilibria involving physical processes:</b> Solid-liquid, liquid - gas and solid-gas equilibria, Henry's law. General characteristics of equilibrium involving physical processes.</p> <p><b>Equilibrium involving chemical processes:</b> Law of chemical equilibrium, equilibrium constants (<math>K_p</math> and <math>K_c</math>) and their significance, the significance of <math>\Delta G</math> and <math>\Delta G^\circ</math> in chemical equilibrium, factors affecting equilibrium concentration, pressure, temperature, the effect of catalyst; Le Chatelier's principle.</p>
CHEMISTRY	XI	CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES	<p>Modern periodic law and present form of the periodic table, s, p, d and f block elements, periodic trends in properties of elements atomic and ionic radii, ionization enthalpy, electron gain enthalpy, valence, oxidation states, and chemical reactivity.</p>
CHEMISTRY	XI	PURIFICATION AND CHARACTERISATION OF ORGANIC COMPOUNDS	<p><b>Purification</b> - Crystallization, sublimation, distillation, differential extraction, and chromatography - principles and their applications.</p> <p><b>Qualitative analysis</b> - Detection of nitrogen, sulphur, phosphorus, and halogens.</p> <p><b>Quantitative analysis</b> (basic principles only) - Estimation of carbon, hydrogen, nitrogen, halogens, sulphur, phosphorus. Calculations of empirical formulae and molecular formulae: Numerical problems in organic quantitative analysis,</p>
CHEMISTRY	XI	SOME BASIC PRINCIPLES OF ORGANIC CHEMISTRY	<p>Tetravalency of carbon: Shapes of simple molecules - hybridization (s and p): Classification of organic compounds based on functional groups: and those containing halogens, oxygen, nitrogen, and sulphur; Homologous series: Isomerism - structural and stereoisomerism.</p> <p><b>Nomenclature (Trivial and IUPAC)</b> Covalent bond fission - Homolytic and heterolytic: free radicals, carbocations, and carbanions; stability of carbocations and free radicals, electrophiles, and nucleophiles.</p>

CHEMISTRY	XII	<b>BIOMOLECULES</b>	<p>General introduction and importance of biomolecules.</p> <p><b>CARBOHYDRATES</b> - Classification; aldoses and ketoses: monosaccharides (glucose and fructose) and constituent monosaccharides of oligosaccharides (sucrose, lactose, and maltose).</p> <p><b>PROTEINS</b> - Elementary Idea of • -amino acids, peptide bond, polypeptides. Proteins: primary, secondary, tertiary, and quaternary structure (qualitative idea only), denaturation of proteins, enzymes.</p> <p><b>VITAMINS</b> – Classification and functions.</p> <p><b>NUCLEIC ACIDS</b> – Chemical constitution of DNA and RNA.</p> <p>Biological functions of nucleic acids.</p> <p><b>Hormones (General introduction)</b></p>
CHEMISTRY	XII	<b>PRINCIPLES RELATED TO PRACTICAL CHEMISTRY</b>	<p>Detection of extra elements (Nitrogen, Sulphur, halogens) in organic compounds; Detection of the following functional groups; hydroxyl (alcoholic and phenolic), carbonyl (aldehyde and ketones) carboxyl, and amino groups in organic compounds.</p> <ul style="list-style-type: none"> <li>• The chemistry involved in the preparation of the following: Inorganic compounds; Mohr's salt, potash alum. Organic compounds: Acetanilide, p-nitro acetanilide, aniline yellow, iodoform.</li> </ul> <p>The chemistry involved in the titrimetric exercises – Acids, bases and the use of indicators, oxalic acid vs <math>\text{KMnO}_4</math>, Mohr's salt vs <math>\text{KMnO}_4</math></p> <p>Chemical principles involved in the following experiments:</p> <ol style="list-style-type: none"> <li>1. Enthalpy of solution of <math>\text{CuSO}_4</math></li> <li>2. Enthalpy of neutralization of strong acid and strong base.</li> <li>3. Preparation of lyophilic and lyophobic sols.</li> <li>4. Kinetic study of the reaction of iodide ions with hydrogen peroxide at room temperature.</li> </ol>

**BIOLOGY SYLLABUS\_ACHIEVER PLUS (Session 2025-26)**

Subject	Class	Unit	Chapter's Name
BIOLOGY	XI	UNIT 1: Diversity in Living World	<b>What is living? ; Biodiversity;</b> Need for classification;; Taxonomy & Systematics; Concept of species and taxonomical hierarchy; Binomial nomenclature;
			<b>Five kingdom classification:</b> salient features and classification of Monera; Protista and Fungi into major groups: Lichens, Viruses and Viroids. .
			<b>Salient features and classification of plants</b> into major groups- Algae, Bryophytes, Pteridophytes, Gymnosperms (three to five salient and distinguishing features and at least two examples of each category);
			<b>Salient features and classification of animals-</b> nonchordate up to phyla level and chordate up to classes level (three to five salient features and at least two examples).
BIOLOGY	XI	UNIT 2: Structural Organisation in Plants	<b>Morphology and modifications;</b> Tissues; <b>Anatomy</b> and functions of different parts of flowering plants: Root, stem, leaf, inflorescence- cymose and recemose, flower, fruit, seed and Family (malvaceae, Cruciferae, leguminoceae, compositae, gramineae).
BIOLOGY	XI	UNIT 3: Cell Structure and Function	Chemical constituents of living cells: <b>Biomolecules</b> - structure and function of proteins, carbohydrates. lipids, nucleic acids; <b>Enzymes</b> - types, properties, enzyme action, classification and nomenclature of enzymes.
			<b>Cell division:</b> Cell cycle, mitosis, meiosis and their significance.

BIOLOGY	XI	UNIT 4: Plant Physiology	<p><b>Photosynthesis:</b> Photosynthesis as a means of Autotrophic nutrition; Site of photosynthesis take place; pigments involved in Photosynthesis (Elementary-idea); Photochemical and biosynthetic phases of photosynthesis; Cyclic and non cyclic and photophosphorylation; chemiosmotic hypothesis; photorespiration C3 and C4 pathways; Factors affecting photosynthesis.</p>
			<p><b>Respiration:</b> Exchange gases; cellular respiration-glycolysis. fermentation (anaerobic), TCA cycle and electron transport system (aerobic); Energy relations- Number of ATP molecules generated; Amphibolic pathways; Respiratory quotient.</p>
			<p><b>Plant growth and development:</b> Seed germination; phases of plant growth and plant growth rate; Conditions of growth; Differentiation, dedifferentiation and redifferentiation; Sequence of developmental process in a plant cell; Growth regulators, auxin, gibberellin, cytokinin, ethylene, ABA;</p>
BIOLOGY	XII	UNIT 6: Reproduction	<p><b>Human Reproduction:</b> Male and female reproductive systems; Microscopic anatomy of testis and ovary; Gametogenesis-spermatogenesis &amp; oogenesis; Menstrual cycle; Fertilisation, embryo development upto blastocyst formation, implantation: Pregnancy and placenta formation (Elementary idea); Parturition (Elementary idea); Lactation (Elementary idea).</p>
			<p><b>Reproductive health:</b> Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control-Need and Methods, Contraception and Medical Termination of Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (Elementary idea for general awareness).</p>
BIOLOGY	XII	UNIT 7: Genetics and Evolution	<p>Heredity and variation: <b>Mendelian Inheritance;</b> Deviations from Mendelism Incomplete dominance, Co-dominance, Multiple alleles and Inheritance of blood groups, Pleiotropy; Elementary idea of polygenic inheritance; Chromosome theory of inheritance; Chromosomes and genes; Sex determination-In humans, birds, honey bee; Linkage and crossing over; Sex linked inheritance- Haemophilia colour blindness; Mendelian disorders in humans- Thalassaemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.</p>
			<p><b>Molecular basis of Inheritance:</b> Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; Transcription, genetic code, translation; Gene expression and regulation- Lac Operon; Genome and human genome project; DNA finger printing, protein biosynthesis.</p>

			<b>Evolution:</b> Origin of life; Biological evolution and evidences for biological evolution from Paleontology, comparative anatomy, embryology and molecular evidence; Darwin's contribution, Modern Synthetic theory of Evolution; Mechanism of evolution, Variation (Mutation and Recombination) and Natural Selection with examples, types of natural selection; Gene flow and genetic drift; Hardy-weinberg's principle; Adaptive Radiation; Human evolution.
BIOLOGY	XII	UNIT 8: Biology and Human Welfare	<b>Health and Disease;</b> Pathogens; parasites causing human diseases (Malaria, Filariasis, Ascariasis. Typhoid, Pneumonia, common cold, amoebiasis, ring worm, dengue, chikungunya); Basic concepts of immunology-vaccines; Cancer, HIV and AIDS; Adolescence, drug and alcohol abuse.Tobacco abuse
BIOLOGY	XII	UNIT 9: Biotechnology and its Applications	<b>Principles and process of Biotechnology:</b> Genetic engineering (Recombinant DNA technology).
			<b>Application of Biotechnology in health and agriculture:</b> Human insulin and vaccine production, gene therapy Genetically modified : organisms-Bt crops: Transgenic Animals; Biosafety issues-Biopiracy and patents
BIOLOGY	XII	UNIT 10: Ecology and Environment	<b>Organisms and environment</b> Population interactions- mutualism, competition.predation, parasitism Population attributes-growth. birth rate and death rate, age distribution.
			<b>Ecosystem:</b> Patterns, components; productivity and decomposition: Energy flow: Pyramids of number, biomass. energy
			<b>Biodiversity and its conservation:</b> concept of Biodiversity; patterns of Biodiversity: Importance of Biodiversity; Loss of Biodiversity, Biodiversity conservation; Hotspots, endangered organisms. extinction; Red Data Book. biosphere reserves, National parks and sanctuaries, Sacred Groves.