

**English**

Month	Syllabus
April	The last lesson Lost spring The third level My mother at sixty six
May	The tiger king Journey to the end of earth Deep water An elementary school.
July	The Rattrap Indigo Should wizard hit mommy Keeping quiet
August	The Enemy On the face of it Poets & pancakes A thing of beauty
Sept	Evans tries an O level A road side stand
Oct	The interview Going places Memories of childhood Aunt Jennifer's Tigers

**Chemistry**

Month	Syllabus
April	Coordination compounds. Haloalkanes and Haloarenes. Alcohols, phenols and ethers.
May	Aldehydes, ketones and carboxylic acids Bio-molecules
July	Solutions, Electrochemistry, Chemical kinetics.
August	Surface chemistry

	p- block elements Polymers
September	d- and f- block elements Chemistry in everyday life
October	Organic compounds containing nitrogen. General principles and isolation of elements.

### Biology

Month	Chapters	Activity / Practical
March	1. Reproduction in organisms 2. Sexual Reproduction in Flowering plants	Propagation practical
April	3. Human reproduction 4. Reproductive health 5. Principles of inheritance and variation 6. Molecular basis of inheritance 7. Evolution	Video lecture
May	8. Human health and diseases 9. Strategies for enhancement in food production	Slides for spotting
July	10. Microbes in human welfare 11. Biotechnology :principles and processes 12. Applications of biodiversity. 13. Organisms and populations	
August	14. Ecosystems 15. Biodiversity and conservation 16. Environmental issues.	Practical related with soil/water

### Mathematics

Month	Topic
March	Matrices
April	Determinants, Relation and function.
May	Inverse Trigonometric functions, Continuity.
June	Summer Vacation

July	Differentiability & Applications of Derivative.
August	Integral & Application of Integral.
September	Differential Equations & Vectors
October	Three Dimensional Geometry, Linear Programming & Probability.

### Physics

MONTH	TOPICS
MARCH	<p><b>Unit-VII Dual Nature of Radiation and Matter:-</b> Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light. Matter waves-wave nature of particles, de-Broglie relation, Davisson-Germer experiment.</p> <p><b>Unit IX: Electronic Devices : Semiconductor Electronics:</b> Materials, Devices and Simple Circuits Energy bands in conductors, semiconductors and insulators (qualitative ideas only) Semiconductor diode - I-V characteristics in forward and reverse bias, diode as a rectifier; Special purpose p-n junction diodes: LED, photodiode, solar cell and Zener diode and their characteristics, zener diode as a voltage regulator.</p>
APRIL	<p><b>Unit II: Current Electricity :</b> Current Electricity Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, electrical resistance, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity, Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors; temperature dependence of resistance. Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel, Kirchhoff's laws and simple applications, Wheatstone bridge, metre bridge. Potentiometer - principle and its applications to measure potential difference and for comparing EMF of two cells; measurement of internal resistance of a cell.</p>

	<p><b>Unit IV: Electromagnetic Induction and Alternating Current:</b> Electromagnetic Induction Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Eddy currents. Self and mutual induction.</p> <p>Alternating Current Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LC oscillations (qualitative treatment only), LCR series circuit, resonance; power in AC circuits, power factor, wattles current. AC generator and transformer.</p>
MAY	<p><b>Unit VI: Optics : Ray Optics and Optical Instruments</b> Ray Optics: Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and its applications, optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lens maker's formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism. Scattering of light - blue colour of sky and reddish appearance of the sun at sunrise and sunset. Optical instruments: Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.</p> <p>Wave optics: Wave front and Huygen's principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle. Interference, Young's double slit experiment and expression for fringe width, coherent sources and sustained interference of light, diffraction due to a single slit, width of central maximum, resolving power of microscope and astronomical telescope, polarisation, plane polarised light, Brewster's law, uses of plane polarised light and Polaroids.</p> <p><b>Unit V: Electromagnetic waves:</b> Basic idea of displacement current, Electromagnetic waves, their characteristics, their Transverse nature (qualitative ideas only). Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.</p>

JULY	<p><b>Unit VIII: Atoms and Nuclei:</b> Atoms Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum.</p> <p>Nuclei: Composition and size of nucleus, Radioactivity, alpha, beta and gamma particles/rays and their properties; radioactive decay law. Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.</p> <p><b>Unit I: Electrostatics :</b> Electric Charges and Fields Electrostatic Potential and Capacitance</p>
AUGUST	<p><b>Unit III: Magnetic Effects of Current and Magnetism:</b> Moving Charges and Magnetism Concept of magnetic field, Oersted's experiment. Biot - Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinitely long straight wire. Straight and toroidal solenoids (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields, Cyclotron. Force on a current-carrying conductor in a uniform magnetic field, force between two parallel current-carrying conductors-definition of ampere, torque experienced by a current loop in uniform magnetic field; moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.</p> <p>Magnetism and Matter Current loop as a magnetic dipole and its magnetic dipole moment, magnetic dipole moment of a revolving electron, magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis, torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent solenoid, magnetic field lines; earth's magnetic field and magnetic elements. Para-, dia- and ferro - magnetic substances, with examples. Electromagnets and factors affecting their strengths, permanent magnets.</p>
SEP.TO FEB.	REVISION SESSION

## Physical education

Month	Syllabus
April	<b>Unit I Planning in Sports</b> Meaning & Objectives Of Planning Various Committees & its Responsibilities (pre; during & post) Tournament – Knock-Out, League Or Round Robin & Combination Procedure To Draw Fixtures – Knock-Out (Bye & Seeding) & League (Staircase & Cyclic) Intramural & Extramural – Meaning, Objectives & Its Significance Specific Sports Programme (Sports Day, Health Run, Run For Fun, Run For Specific Cause & Run For Unity) <b>Unit II Sports &amp; Nutrition</b> Balanced Diet & Nutrition: Macro & Micro Nutrients Nutritive & Non-Nutritive Components Of Diet Eating For Weight Control – A Healthy Weight, The Pitfalls of Dieting, Food Intolerance & Food Myths
May	<b>Unit III Yoga &amp; Lifestyle</b> Asanas as preventive measures Obesity: Procedure, Benefits & contraindications for Vajrasana, Hastasana, Trikonasana, Ardh Matsyendrasana Diabetes: Procedure, Benefits & contraindications for Bhujangasana, Paschimottasana, Pavan Muktasana, Ardh Matsyendrasana Asthma: Procedure, Benefits & contraindications for Sukhasana, Chakrasana, Gomukhasana, Parvatasana, Bhujangasana, Paschimottasana, Matsyasana Hypertension: Tadasana, Vajrasana, PavanMuktasana, ArdhaChakrasana, Bhujangasana, Sharasana Back Pain: Tadasana, ArdhMatsyendrasana, Vakrasana, Shalabhasana, Bhujangasana
July	<b>Unit IV Physical Education &amp; Sports for CWSN (Children With Special Needs - Divyang)</b>

	<p>Concept of Disability &amp; Disorder</p> <p>Types of Disability, its causes &amp; nature (cognitive disability, intellectual disability, physical disability)</p> <p>Types of Disorder, its cause &amp; nature (ADHD, SPD, ASD, ODD, OCD)</p> <p>Disability Etiquettes</p> <p>Advantage of Physical Activities for children with special needs</p> <p>Strategies to make Physical Activities assessable for children with special need</p>
August	<p><b>Unit V Children &amp; Women in Sports</b></p> <p>Motor development &amp; factors affecting it</p> <p>Exercise Guidelines at different stages of growth &amp; Development</p> <p>Common Postural Deformities - Knock Knee; Flat Foot; Round Shoulders; Lordosis, Kyphosis, Bow</p> <p>Legs and Scoliosis and their corrective measures</p> <p>Sports participation of women in India</p> <p>Special consideration (Menarche &amp; Menstrual Dysfunction)</p> <p>Female Athletes Triad (Osteoporosis, Amenoria, Eating Disorders)</p>
Sept	<p><b>Unit VI Test &amp; Measurement in Sports</b></p> <p>Motor Fitness Test – 50 M Standing Start, 600 M Run/Walk, Sit &amp; Reach, Partial Curl Up,</p> <p>Push Ups (Boys), Modified Push Ups (Girls), Standing Broad Jump, Agility – 4x10 M Shuttle</p> <p>Run</p> <p>General Motor Fitness – Barrow three item general motor ability (Standing Broad Jump, Zig Zag Run, Medicine Ball Put – For Boys: 03 Kg &amp; For Girls: 01 Kg)</p> <p>Measurement of Cardio Vascular Fitness – Harvard Step Test/Rockport Test -</p> <p>Computation of Fitness Index: Duration of the Exercise in Seconds x 100</p> <p>5.5 x Pulse count of 1-1.5 Min after Exercise</p> <p>Rikli &amp; Jones - Senior Citizen Fitness Test 1. Chair Stand Test</p>

	<p>for lower body strength</p> <ol style="list-style-type: none"><li>2. Arm Curl Test for upper body strength</li><li>3. Chair Sit &amp; Reach Test for lower body flexibility</li><li>4. Back Scratch Test for upper body flexibility</li><li>5. Eight Foot Up &amp; Go Test for agility</li><li>6. Six Minute Walk Test for Aerobic Endurance</li></ol>
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