DELHI WORLD PUBLIC SCHOOL RAJKOT
Annual Syllabus Breakup 2023-24
CLASS: 12 Science

Subject: English

1st Term

Month	Topics
April & May	**Literature Reader:** The Last Lesson – a war time story about a boy attending his last French Lesson The Lost Spring – a story about how underprivileged children are exploited at several places My Mother at Sixty-Six - a heart touching poem about a lady leaving her mother for her responsibilities **Supplementary Reader:** The Tiger King – a story about a dominating king who kills tigers for his personal cause
June & July	**Literature Reader:** Deep Water – a self-experience description about how the author got rid of his water phobia The Rattrap – a story of a paddler who sells rattraps An Elementary School Classroom in a Slum – a poem putting burning issues of under privileged children Keeping Quiet – a poem depicting importance of remaining quiet Poets and Pancakes – a descriptive article about the film world **Supplementary Reader:** The Enemy – a war time extract of a Japanese doctor and his wife Third Level – time travel story where the protagonist experiences a historical event
August	**Literature Reader:** Indigo – Gandhi's effort to relieve native farmers from growing indigo A Thing of Beauty – a poem describing about the ever lasting beauty of a flower The Interview – an article about a how to interrogate people **Supplementary Reader:** Should Wizard Hit Mommy – a story about a girl and her father telling her bed time stories On the Face of It – a skit of a boy and a handicapped man Journey to the End of the Earth – a travelogue from the pen a young girl about her experience at Antartica

September	**Literature Reader:** Going Places – an excerpt showing different places to visit **Supplementary Reader:** Evans Tries an O Level – a suspense story of a criminal who runs away frequently from jails Revision for Half Yearly Exam

2nd Term

October	**Literature Reader:** Aunt Jennifer's Tigers – a poem about feminism and its effect on the society Roadside stand – a poem about the importance of a road side stand
November	Supplementary Reader : Memories of Childhood REVISION and Solving Previous Years' Board Exam Papers
December	REVISION and Solving Previous Years' Board Exam Papers+ Pre- Board Exam

Suggested Reading List for Class XII

1. Father Brown – G K Chesterton
2. Pay It Forward
3. Uncle Tom's cabin – Harriet Beecher Stowe
4. To kill a Mocking Bird – Harper Lee
5. Animal Farm – George Orwell
6. Nineteen eighty four-George Orwell
7. Short Story Collections By Indian Authors
8. Books by Jane Austen
9. Books by George Elliot
10. Books by Charlotte Bronte
11. Books by Emily Bronte
12. Pickwick Papers – Charles Dickens
13. The Diary of a Young Girl – Anne Frank
14. Three men in a Boat - Jerome K Jerome
15. My Family and Other Animals – Gerald Durrell
16. Rosie is my Relative – Gerald Durrell
17. One Flew Over the Cuckoo's Nest

Other Books and Authors suggested:

1. Satyajeet Ray
2. R K Narayan
3. Sudha Murthy
4. IsmatChugtai
5. Vikas Swaroop
6. APJ Abdul Kalam
7. Mark Twain
8. Guy de Maupassant
9. O'Henry

Subject : Biology

1st Term

MONTH	Topics
March-April – May	**Ch : 2 Sexual Reproduction in Flowering Plants** ➢ Flower structure; development of male and female gametophytes ➢ pollination - types, agencies and examples; out breeding devices; pollen-pistil interaction; ➢ double fertilization; post fertilization events ➢ development of endosperm and embryo, development of seed and formation of fruit ➢ special modes- apomixis, parthenocarpy, polyembryony; Significance of seed dispersal and fruit formation. ➢ Activity : Chart preparation **Ch : 3 Human Reproduction** ➢ Male and female reproductive systems ➢ microscopic anatomy of testis and ovary; gametogenesis - spermatogenesis and oogenesis; ➢ menstrual cycle; fertilisation, embryo development upto blastocyst formation ➢ implantation; pregnancy and placenta formation (elementary idea); parturition (elementary idea); lactation (elementary idea). ➢ Activity : Demonstration of different models, chart and specimens **Ch : 4 Reproductive Health** ➢ Need for reproductive health and prevention of Sexually Transmitted Diseases (STDs) ➢ 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).
June – July	**Ch : 5 Principles of Inheritance and Variation** ➢ Heredity and variation: Mendelian inheritance; 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 and honey bee; linkage and crossing over; sex linked inheritance - haemophilia, colour blindness ➢ Mendelian disorders in humans - thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes. **Ch : 6 Molecular basis of Inheritance** ➢ 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 8 expression and regulation ➢ lac operon; Genome, Human and rice genome projects; DNA fingerprinting. **Ch : 7 Evolution** ➢ Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences) ➢ 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.
August	**Ch : 8 Human Health and Disease** ➢ Pathogens; parasites causing human diseases (malaria, dengue, chikungunya, filariasis, ascariasis, typhoid, pneumonia ➢ common cold, amoebiasis, ring worm) and their control ➢ Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse. ➢ Activity : Demonstration of different models, chart and specimens **Ch : 10 Microbes in Human Welfare** ➢ Microbes in food processing, industrial production ➢ sewage treatment, energy generation andmicrobes as bio-control agents and bio-fertilizers. Antibiotics; production and judicious use. **Ch : 11 Biotechnology Principles and Processes** Genetic Engineering (Recombinant DNA Technology). **Ch : 12 Biotechnology and its Applications** ➢ Application of biotechnology in health and agriculture ➢ Human insulin and vaccine production, stem cell technology ➢ gene therapy; genetically modified organisms ➢ Bt crops; transgenic animals; biosafety issues, biopiracy and patents.
September	Revision

2nd Term

October	**Ch : 13 Organisms and Populations** ➢ Population interactions - mutualism, competition, predation, parasitism ➢ population attributes - growth, birth rate and death rate, age distribution. (Topics excluded ➢ Organism and its Environment, Major Aboitic Factors, Responses to Abioitic Factors, Adaptations) **Ch : 14 Ecosystem** ➢ Ecosystems: Patterns, components; productivity and decomposition ➢ energy flow; pyramids of number, biomass, energy (Topics excluded: Ecological Succession and Nutrient Cycles) **Ch : 15 Biodiversity and Ecosystem** ➢ Biodiversity-Concept, patterns, importance; loss of biodiversity ➢ biodiversity conservation; hotspots, endangered organisms, extinction ➢ Red Data Book, Sacred Groves, biosphere reserves, national parks, wildlife, sanctuaries and Ramsar sites.
November	Revision
December	Revision + Solving model papers +Pre-Board

Subject : chemistry

1st Term

MONTH	Topics
April	Chapter : 2 Solution • Types of solution • Concentration of solid in liquid • Solubility of gas in liquid • Raoults law • Colligative properties • Abnormal molar mass • Van't hoff factor
June	Chapter : 3 Electrochemistry • Redox reaction • Emf of the cell • Standard electrod potential • Nernst equation • Conduction of electrolytes • Specific and molar conductivity • Variation of conductivity with concentration • Kohlrausch's law • Dry cell and galvanic cell • Lead accumulator • Fuel cell • Corrosion

	Chapter : 4 Chemical Kinetics • Rate of reaction • Factors affecting rate of reaction • Order and molecularity of a reaction
July	• Rate law and specific rate constant • Intigrated rate equation and half life • Concept of collision theory Chapter : 10 Haloalkanes and haloarenes • Nomenclature • Nature of C-X bond • Physical and chemical properties • Optical activities • Poly halogen compounds Chapter : 11 alcohols, phenols and ethers • Nomenclature • Method of preparation • Physical and chemical properties • Identification of primary, secondary and tertury alcohols • Mechanism of dehydration • Methanol and ethanol • Ring substitution reactionsUses of phenol • Ethers: • Nomenclature • Physical and chemical properties • Method of preparation • Uses of ether
August	Chapter : 8 d and f block element • General introduction • Electronic configuration • Transition metals • General trend in first raw • Alloy formation • Preparation and properties of K2Cr2O7 and KMnO4 • Lanthanoid contraction and its consequences Chapter : 9 Coordination compound • Ligands • Coordination number • Colour • Magnetic properties and shape • IUPAC name of coordination compounds • Werner's theory • VBT , CFT • Structure and stereo isomers • Importance of coordination compounds
September	Revision

2nd Term

October	Chapter : 12 Aldehyde, ketone and Carboxylic Acid • Nomenclature • Method of preparation • Physical and chemical properties • Reactivity of alpha hydrogen • Mechanism of nucleophilic addition reaction • Acidic nature of carboxylic acid Chapter : 13 Amines (half) • Nomenclature • Classification • Structure • Method of preparation • Physical and chemical properties • Identification of amines
November	Chapter : 13 Amines (continue) • Diazonium salt and its importance Chapter : 14 Bio-molecule • Carbohydrates: • Classification • Monosaccharides • D-L configuration of oligosaccharides • polysaccharides • Importance of carbohydrates • Proteins: • Elementary idea of amino acids • Peptide bond • Poly peptide • Protein structure • Denaturation of protein • Enzymes • Hormones • Vitamins: • Classification and functions • Nucleic acids: • DNA and RNA
December	Revision for pre-board exam

Subject: Physics

1st Term

Month	Topics
April	**Chapter–1: Electric Charges and Fields Electric charges** • Conservation of charge, Coulomb's law-force between two point charges Forces between multiple charges; superposition principle and continuous charge distribution. • Electric field, electric field due to a point charge, electric field lines, electric dipole, electric field due to a dipole, torque on a dipole in uniform electric field.

	• Electric flux, statement of Gauss's theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside). **Chapter–2: Electrostatic Potential and Capacitance Electric potential** Potential difference, electric potential due to a point charge, a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two-point charges and of electric dipole in an electrostatic field. • Conductors and insulators, free charges and bound charges inside a conductor. • Dielectrics and electric polarization, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor (no derivation, formulae only). **Chapter–3: Current Electricity** • Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current • Ohm's law, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity, 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 rules, Wheatstone bridge
June – July	**Chapter–4: 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 solenoid (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields. • 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 • Current loop as a magnetic dipole and its magnetic dipole moment, • Moving coil galvanometer its current sensitivity and conversion to ammeter and voltmeter. **Chapter–5: Magnetism and Matter** • Bar magnet, bar magnet as an equivalent solenoid (qualitative treatment only), magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only) • Torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitative treatment only), magnetic field lines. • Magnetic properties of materials- Para-, dia- and ferro - magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties. **Chapter–6: Electromagnetic Induction** • Electromagnetic induction • Faraday's laws • Induced EMF and current; Lenz's Law • Self and mutual induction **Chapter–7: Alternating Current** • Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance

	• LCR series circuit (phasors only), resonance, • Power in AC circuits, power factor, wattless current. AC generator, Transformer
August	**Chapter–8: Electromagnetic Waves** • Basic idea of displacement current • Electromagnetic waves, their characteristics, their transverse nature (qualitative idea only). • Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses. **Chapter–9: Ray Optics and Optical Instruments** • Reflection of light, spherical mirrors, mirror formula, refraction of light • Total internal reflection and 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. Optical instruments: Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.
September	• Revision

2nd Term

October	**Chapter–10: 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 (No derivation final expression only) Coherent sources and sustained interference of light, diffraction due to a single slit, width of central maxima (qualitative treatment only) **Chapter–11: Dual Nature of Radiation and Matter** • Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations • Einstein's photoelectric equation-particle nature of light. • Experimental study of photoelectric effect Matter waves-wave nature of particles, de-Broglie relation.
November	**Chapter–12: Atoms** • Alpha-particle scattering experiment • Rutherford's model of atom • Bohr model of hydrogen atom • Expression for radius of nth possible orbit, velocity and energy of electron in his orbit, of hydrogen line spectra (qualitative treatment only).
December	**Chapter–13: Nuclei** • Composition and size of nucleus • nuclear force Mass-energy relation • mass defect; binding energy per nucleon and its variation with mass number nuclear fission, nuclear fusion **Chapter–14: Semiconductor Electronics** • Materials, Devices and Simple Circuits Energy bands in conductors • Semiconductors and insulators (qualitative ideas only) Intrinsic and extrinsic semiconductors- p and n type, p-n junction Semiconductor

	diode - I-V characteristics in forward and reverse bias, application of junction diode -diode as a rectifier.

Subject: Informatics Practices (065)

Month	Topic
1st Term	
April	Unit-1 Data Visualization ✓ Purpose of plotting; drawing and saving following types of plots using Matplotlib – line plot, bar graph, histogram ✓ Customizing plots: adding label, title, and legend in plots.
June – July	Unit-1 Data Handling using Pandas I ✓ Introduction to Python libraries- Pandas, Matplotlib. ✓ Data structures in Pandas - Series and Data Frames. Unit-1 Data Handling using Pandas II ✓ Series: Creation of Series from – ndarray, dictionary, scalar value; mathematical operations; Head and Tail functions; Selection, Indexing and Slicing. ✓ Data Frames: creation - from dictionary of Series, list of dictionaries, Text/CSV files; display; iteration; Operations on rows and columns: add, select, delete, rename; Head and Tail functions; Indexing using Labels, Boolean Indexing. ✓ Importing/Exporting Data between CSV files and Data Frames.
August	Unit-2 Societal Impacts ✓ Digital footprint, net and communication etiquettes, data protection, intellectual property rights (IPR), plagiarism, licensing and copyright, free and open source software (FOSS), cybercrime and cyber laws, hacking, phishing, cyber bullying, overview of Indian IT Act. ✓ E-waste: hazards and management. ✓ Awareness about health concerns related to the usage of technology.
September	Revision
2nd Term	
October	Unit-3 Database Query using SQL ✓ Revision of database concepts and SQL commands covered in class XI ✓ Math functions: POWER (), ROUND (), MOD (). ✓ Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/SUBSTR (), ✓ LENGTH (), LEFT (), RIGHT (), INSTR (), LTRIM (), RTRIM (), TRIM (). ✓ Date Functions: NOW (), DATE (), MONTH (), MONTHNAME (), YEAR (), DAY () ✓ Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); using COUNT (*). ✓ Querying and manipulating data using Group by, Having, Order by. ✓ Working with two tables using equi-join

November	Unit-4 Computer Networks ✓ Introduction to networks, Types of network: PAN, LAN, MAN, WAN. ✓ Network Devices: modem, hub, switch, repeater, router, gateway ✓ Network Topologies: Star, Bus, Tree, Mesh. ✓ Introduction to Internet, URL, WWW, and its applications- Web, email, Chat, VoIP. ✓ Website: Introduction, difference between a website and webpage, static vs dynamic web page, web server and hosting of a website. ✓ Web Browsers: Introduction, commonly used browsers, browser settings, add-ons and plug-ins, cookies.
December	Revision

Subject: Mathematics

Month	Topics
April–May	1. Matrices 2. Determinants 3. Inverse Trigonometric Functions
June –July	1. Relation and Functions 2. Continuity and Differentiability 3. Application of Derivatives
August	1.Integrals 2. Applications of Integrals
September	1. Differential Equations 2. Linear Programming Problems
October	1. Vector 2. 3D
November	1. Statistics
December	1. Revision
January	Pre-Board Exam
February	

Subject: Physical Education

1st Term

MONTH	Topic
April	**Unit I Management of Sporting Events** ● Functions of Sports Events Management (Planning, Organising, Staffing, Directing & Controlling) ● Various Committees & their Responsibilities (pre; during & post)

	● Fixtures and its Procedures – Knock-Out (Bye & Seeding) & League (Staircase & Cyclic)
June- July	**Unit II Children & Women in Sports** ● Common Postural Deformities - Knock Knee; Bow Legs; Flat Foot; Round Shoulders; Lordosis, Kyphosis, and Scoliosis and their corrective measures ● Special consideration (Menarche & Menstrual Dysfunction) ● Female Athletes Triad (Osteoporosis, Amenorrhea, Eating Disorders) **Unit III Yoga as Preventive measure for Lifestyle Disease** Obesity: Procedure, Benefits & Contraindications for Tadasana, Katichakrasana, Pavanmuktasana, Matsayasana, Halasana, Pachimottansana, Ardha – Matsyendrasana, Dhanurasana, Ushtrasana, Suryabedhan pranayama. Diabetes: Procedure, Benefits & Contraindications for Katichakrasana, Pavanmuktasana,Bhujangasana, Shalabhasana, Dhanurasana, Supta-vajarasana, Paschimottanasana, Ardha-Mastendrasana, Mandukasana, Gomukasana, Yogmudra, Ushtrasana, Kapalabhati. Asthma: Procedure, Benefits & Contraindications for Tadasana, Urdhwahastottansana, UttanMandukasana, Bhujangasana, Dhanurasana, Ushtrasana, Vakrasana, Kapalbhati, GomukhasanaMatsyaasana, Anuloma-Viloma. Hypertension: Procedure, Benefits & Contraindications for Tadasana, Katichakransan, Uttanpadasana, ArdhaHalasana, SaralaMatyasana, Gomukhasana, UttanMandukasana, Vakrasana, Bhujangasana, Makarasana, Shavasana, Nadi-shodhanapranayam, Sitlipranayam. **Unit IV Physical Education & Sports for CWSN (Children with Special Needs - *Divyang*)** ● Organizations promoting Disability Sports (Special Olympics; Paralympics; Deaflympics) ● Advantages of Physical Activities for children with special needs. ● Strategies to make Physical Activities assessable for children with special needs.
August- September	**Unit V Sports & Nutrition** ● Concept of balance diet and nutrition ● Macro and Micro Nutrients: Food sources & functions ● Nutritive & Non-Nutritive Components of Diet **Unit VI Test & Measurement in Sports** ● Fitness Test – SAI Khelo India Fitness Test in school: o Age group 5-8 yrs/ class 1-3: BMI, Flamingo Balance Test, Plate

	Tapping Test o Age group 9-18yrs/ class 4-12: BMI, 50mt Speed test, 600mt Run/Walk, Sit & Reach flexibility test, Strength Test (Abdominal Partial Curl Up, Push-Ups for boys, Modified Push-Ups for girls). ● Computing Basal Metabolic Rate (BMR) ● Rikli& Jones - Senior Citizen Fitness Test I. Chair Stand Test for lower body strength II. Arm Curl Test for upper body strength III. Chair Sit & Reach Test for lower body flexibility IV. Back Scratch Test for upper body flexibility V. Eight Foot Up & Go Test for agility VI. Six Minute Walk Test for Aerobic Endurance **Unit VII Physiology & Injuries in Sports** ● Physiological factors determining components of physical fitness ● Effect of exercise on Muscular System ● Effect of exercise on Cardio-Respiratory System ● Sports injuries: Classification (Soft Tissue Injuries -Abrasion, Contusion, Laceration, Incision, Sprain & Strain; Bone & Joint Injuries - Dislocation, Fractures - Green Stick, Comminuted, Transverse Oblique & Impacted)

2nd Term

October	**Unit VIII Biomechanics & Sports** ● Newton's Law of Motion & its application in sports • Equilibrium – Dynamic & Static and Centre of Gravity and its application in sports ● Friction & Sports ● Projectile in Sports
November	**Unit IX Psychology & Sports** ● Personality; its definition & types (Jung Classification & Big Five Theory) ● Meaning, Concept & Types of Aggressions in Sports ● Psychological Attributes in Sports – Self Esteem, Mental Imagery, Self Talk, Goal Setting **Unit X Training in Sports** ● Concept of Talent Identification and Talent Development in Sports ● Introduction to Sports Training Cycle – Micro, Meso, Macro Cycle. ● Types & Method to Develop – Strength, Endurance and Speed ● Types & Method to Develop – Flexibility and Coordinative Ability

विषयहिन्दी (३०२)
पाठ्यपुस्तक आरोह – २
वितान–२
प्रथम सत्र

माह	पाठ्यक्रम
अप्रैल–मई	पधं : १ : हरिवंशराय बच्चन १. आत्मपरिचय २. एक गीत पधं : २ : आलोक धन्वा – पतंग गधं : ११ : महादेवी वर्मा भक्तिन, संचार माध्यम, फीचर लेखन वितान : २ पाठ : १ श्याम मनोहर जोशी – सिल्वर वैडिंग
जून–जुलाई	पधं :२ : कुँवर नारायण– १. कविता के बहाने ,२. बात सीधी थी पर गधं : १२ : जैनैन्द्रकुमार – बाजार दर्शन गधं : १३ : धर्मवीर भारती – काले मेघा पानी दे संचार माध्यम, आलेखन, पत्र लेखन
अगस्त	पधं : ४ : रघुवीर सहाय – कैमरे में बंद अपाहिज गधं : १४ : फणीश्वर नाथ रेणु – पहलवान की ढोलक वितान : २ पाठ : २ आनंद यादव – जूझ निबंध देखन, फीचर लेखन, कार्यलायी लेखन
सितम्बर	संचार माध्यम

द्वितीय सत्र

अक्टूबर नवम्बर	पधं : ६ शमशेर बहादुर सिंह – उषा
दिसम्बर	पधं : ८ तुलसीदास – १. कवितावली , २. लक्ष्मण – मूर्छा..... गधं : १७ हजारी प्रसाद द्विवेदी – शिरीष के फूल वितान : २ पाठ ३ : ओम थानवी – अतीत में दबे पाँव आलेख , निबंध लेखन
जनवरी	पधं : ९ फिराक गोरखपुरी – १. रूबाइयाँ , २. गजल पधं : १० उमाशंकर जोशी – १. छोटा मेरा खेत, २बगुलो के पंख गधं : १५ बाबा साहेब भीमराव आंबेडकर १. श्रम विभाजन और जातिप्रथा २. मेरी कल्पना का आदर्श समाज वितान : २
फरवरी – मार्च	पुनरावर्तन

Subject Teacher: Dr. Nilesh

Subject In-charge:_____ Principal:_____