KALKA PUBLIC SCHOOL

Annual Syllabus
Session : 2023-24
Class : XI

SUBJECT : ENGLISH 301		
Books Prescribed : Hornbill and Snapshot		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
July	**The portrait of a lady** **The Summer of the beautiful white horse** **A photograph** **Writing**	Presentation on A Photograph
August	We are not afraid to die if we can be together The Address The Laburnum Top **Writing**	ASL
September	Birth Discovering Tut The voice of the rain Childhood **Writing**	PPT on Discovering Tut
October	The Adventure Silk Road Father to son **Writing**	Research on Silk Road
November	Birth Mother's Day The Tale of Melon city **Writing**	Role Play
December	Revision	
January	Revision	
February	Revision	

SUBJECT :Physical Education (SUBJECT CODE : 048)		
Books Prescribed :		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
July		
August		
September		
October		
November		
December		
January		
February		

SUBJECT : Maths (041)		
Books Prescribed : NCERT (PART I AND PART II)		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
July	**Unit-I: Sets and Functions** **CH 1: Sets** Sets and their representations, Empty set, Finite and Infinite sets, Equal sets, Subsets, Subsets of a set of real numbers especially intervals (with notations). Universal set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement. **CH 2: Relations & Functions** Ordered pairs. Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the set of reals with itself (upto R x R x R). Definition of relation, pictorial diagrams, domain, co-domain and range of a	To find the number of subsets of a given set and verify that if a set has n number of elements, then the total number of subsets is $2^{\square}$.

	relation. Function as a special type of relation.	
August	**CH 2: Relations & Functions** (Cont.) Pictorial representation of a function, domain, co-domain and range of a function. Real valued functions, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum, exponential, logarithmic and greatest integer functions, with their graphs. Sum, difference, product and quotients of functions. **CH 3: Trigonometric Functions** Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity sin2x + cos2x = 1, for all x. Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs. Expressing sin (x±y) and cos (x±y) in terms of sinx, siny, cosx & cosy and their simple applications. Deducing identities like the following: $\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \tan y}$, $\cot(x \pm y) = \frac{\cot x \cot y \mp 1}{\cot y \pm \cot x}$ $\sin\alpha \pm \sin\beta = 2\sin\frac{1}{2}(\alpha \pm \beta)\cos\frac{1}{2}(\alpha \mp \beta)$ $\cos\alpha + \cos\beta = 2\cos\frac{1}{2}(\alpha + \beta)\cos\frac{1}{2}(\alpha - \beta)$ $cos\alpha - cos\beta = -2sin\frac{1}{2}(\alpha + \beta)sin\frac{1}{2}(\alpha - \beta)$ Identities related to sin2x, cos2x, tan2 x, sin3x, cos3x and tan3x.	To identify a relation and a function. To plot the graphs of sin x, sin 2x, 2sinx and sin x/2 , using same coordinate axes.
September	**Unit-II: Algebra** **CH 5: Complex Numbers and Quadratic Equations** Need for complex numbers, especially $\sqrt{-1}$, to be motivated by	To inerpret geometrically the meaning of i = $\sqrt{-1}$ and its integral powers.

	inability to solve some of the quadratic equations. Algebraic properties of complex numbers. Argand plane **CH 6: Linear Inequalities** Algebraic solutions of linear inequalities in one variable and their representation on the number line.	To verify that the graph of a given inequality, say 5x + 4y – 40 < 0, of the form ax + by + c < 0, a, b > 0, c < 0 represents only one of the two half planes.
October	**CH 7: Permutations and Combinations** Fundamental principle of counting. Factorial n. (n!) Permutations and combinations, derivation of Formulae for ^{n} P_r rand $^{n}C_r$ and their connections, simple applications. **CH 8: Binomial Theorem** Historical perspective, statement, and proof of the binomial theorem for positive integral indices. Pascal's triangle, simple applications.	To find the number of ways in which three cards can be selected from given five cards. To construct a Pascal's Triangle and to write binomial expansion for a given positive integral exponent.
November	**CH 9: Sequence and Series** Sequence and Series. Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P., infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M. **Unit-III: Coordinate Geometry** **CH 10: Straight Lines** Brief recall of two dimensional geometry from earlier classes. Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axis, point -slope form, slope-intercept form, two-point form, intercept form, Distance of a point from a line.	To demonstrate that the Arithmetic mean of two different positive numbers is always greater than the Geometric mean. To verify that the equation of a line passing through the point of intersection of two lines $a_1x + b_1y + c_1=0$ and $a_2x + b_2y + c_2 = 0$ is of the form $(a_1x + b_1y + c_1) + \lambda\ (a_2x + b_2y + c_2) = 0$.

December	**CH 11: Conic Sections** Sections of a cone: Circles, ellipse, parabola, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle. **CH 12: Introduction to Three-dimensional Geometry** Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points	To construct a parabola. To explain the concept of octants by three mutually perpendicular planes in space
January	**Unit-IV: Calculus** **CH 13: Limits and Derivatives** Derivative introduced as rate of change both as that of distance function and geometrically. Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential and logarithmic functions. Definition of derivative relate it to scope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions. **Unit-V Statistics and Probability** **CH 15: Statistics** Measures of Dispersion: Range, Mean deviation, variance, and standard deviation of ungrouped/grouped data. **CH 19: Probability** Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with other theories of earlier classes. Probability of an	To find analytically $\lim_{x\to c} f(x) = \frac{x^2-c^2}{x-c}$ To write the sample space, when a die is rolled once, twice --------

	event, probability of 'not', 'and' and 'or' events.	
February	Revision and Exams	

SUBJECT : COMPUTER SCIENCE (083)		
Books Prescribed : Computer Science NCERT Book, Computer Science with Python - Preeti Arora, Computer Science with Python - Sumita Arora		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
July	**Unit 1: Computer System and Organisation** **Chapter 1: Basic Computer Organisation** Introduction to computer system, hardware,software, input device, output device, CPU, memory (primary, cache and secondary), units of memory (Bit, Byte, KB, MB, GB, TB, PB) **Chapter 2 : Types of software:** System software (operating systems, system utilities, device drivers), programming tools and language translators (assembler, compiler & interpreter), application software	**Working of Computer Systems**
August	**Unit 1: Computer System and Organisation** **Chapter 3: Operating system (OS)** functions of operating system, OS user interface **Chapter 4 : Boolean logic** NOT, AND, OR, NAND, NOR, XOR, truth table, De Morgan's laws and logic circuits	**Working of Operating System: Salient features of various operating system**

	Chapter 5 : Number system Binary, Octal, Decimal and Hexadecimal number system; conversion between number systems. **Chapter 6: Encoding schemes** ASCII, ISCII and UNICODE (UTF8, UTF32)	
September	**Unit 2 : Computational Thinking and Programming - I** **Chapter 1: Introduction to problem solving** Steps for problem solving (analysing the problem, developing an algorithm, coding, testing and debugging). representation of algorithms using flow chart and pseudo code, decomposition **Chapter 2 : Familiarization with the basics of Python programming** Introduction to Python, features of Python, executing a simple "hello world" program, execution modes: interactive mode and script mode, Python character set, Python tokens (keyword, identifier, literal, operator, punctuator), variables, concept of l-value and r-value, use of comments **Chapter 3: Knowledge of data types** number (integer, floating point, complex), boolean, sequence (string, list, tuple), none, mapping (dictionary), mutable and immutable data types **Chapter 4 : Operators, Expressions and Errors**	**Python Programs based on the topics discussed in the class**

	arithmetic operators, relational operators, logical operators, assignment operator, augmented assignment operators, identity operators(is, is not), membership operators(in, not in) ● Expressions, statement, type conversion & input/output: precedence of operators, expression, evaluation of expression, python statement, type conversion (explicit & implicit conversion), accepting data as input from the console and displaying output ● Errors: syntax errors, logical errors, runtime errors	
October	**Unit 2 : Computational Thinking and Programming - I** **Chapter 5: Flow Control, Conditional Statements and Iterative Statements** Introduction, use of indentation, sequential flow, conditional and iterative flow control ● Conditional statements: if, if-else, if-elif-else, flowcharts, simple programs: e.g.: absolute value, sort 3 numbers and divisibility of a number ● Iterative statements: for loop, range function, while loop, flowcharts, break and continue statements, nested loops, suggested programs: generating pattern, summation of series, finding the factorial of a positive number etc	**Python Programs based on the topics discussed in the class**

	Chapter 6: Strings, Lists, Tuples Strings: introduction, indexing, string operations (concatenation, repetition, membership & slicing), traversing a string using loops, built-in functions: len(), capitalize(), title(), lower(), upper(), count(), find(), index(), endswith(), startswith(), isalnum(), isalpha(), isdigit(), islower(), isupper(), isspace(), lstrip(), rstrip(), strip(), replace(), join(), partition(), split() ● Lists: introduction, indexing, list operations (concatenation, repetition, membership & slicing), traversing a list using loops, built-in functions: len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum(); nested lists, suggested programs: finding the maximum, minimum, mean of numeric values stored in a list; linear search on list of numbers and counting the frequency of elements in a list ● Tuples: introduction, indexing, tuple operations (concatenation, repetition, membership & slicing), built-in functions: len(), tuple(), count(), index(), sorted(), min(), max(), sum(); tuple assignment, nested tuple, suggested programs: finding the minimum, maximum, mean of values stored in a tuple; linear search on a tuple of numbers, counting	

	the frequency of elements in a tuple	
November	**Unit 2 : Computational Thinking and Programming - I** **Chapter 7 : Dictionary** Introduction, accessing itemsin a dictionary using keys, mutability of dictionary (adding a new item, modifying an existing item), traversing a dictionary, built-in functions: len(), dict(), keys(), values(), items(), get(), update(), del, clear(), fromkeys(), copy(), pop(), popitem(), setdefault(), max(), min(), count(), sorted(), copy(); suggested programs : count the number of times a character appears in a given string using a dictionary, create a dictionary with names of employees, their salary and access them **Chapter 8 : Working with Python Modules** Introduction to Python modules: Importing module using 'import ' and using from statement, Importing math module (pi, e,sqrt, ceil, floor, pow, fabs, sin, cos, tan); random module (random, randint, randrange), statistics module (mean, median, mode)	**Python Programs based on the topics discussed in the class**
December	**Unit III: Society, Law and Ethics** Digital Footprints ● Digital society and Netizen: net etiquettes, communication etiquettes, social media etiquettes ● Data protection: Intellectual Property Right	Working of different Cyber techniques

	(copyright, patent, trademark), violation of IPR (plagiarism, copyright infringement, trademark infringement), open source softwares and licensing (Creative Commons, GPL and Apache) ● Cyber-crime: definition, hacking, eavesdropping, phishing and fraud emails, ransomware, preventing cyber crime ● Cyber safety: safely browsing the web, identity protection, confidentiality, cyber trolls and bullying. ● Safely accessing web sites: malware, viruses, trojans, adware ● E-waste management: proper disposal of used electronic gadgets ● Indian Information Technology Act (IT Act) ● Technology & Society: Gender and disability issues while teaching and using computers	
January	Revision	
February	Revision	

SUBJECT : CHEMISTRY (SUBJECT CODE)		
Books Prescribed : NCERT - Informatics Practices by Sumita Arora		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**

April	Unit I: Some Basic Concepts of Chemistry Nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, 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.	**Preparation of standard solution of Oxalic acid.**
May	Unit II: Structure of Atom Discovery of Electron, Proton and Neutron, atomic number, isotopes and isobars. Thomson's model and its limitations. Rutherford's model and its limitations, Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of 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. Unit VIII: Redox Reactions 09 Periods 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,	**Determination of strength of a given solution of Sodium hydroxide by titrating it against standard solution of Oxalic acid.**

	applications of redox reactions.	
July	Classification of Elements and Periodicity in Properties 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, Ionization enthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100. Unit IV: Chemical Bonding and Molecular Structure Valence electrons, ionic bond, covalent bond, bond parameters, Lewis's structure	Preparation of standard solution of Sodium carbonate.
August	Unit IV: Chemical Bonding and Molecular Structure 20 Periods Valence electrons, ionic bond, covalent bond, bond parameters, Lewis's structure, polar character of covalent bond, covalent character of ionic 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.	Determination of strength of a given solution of hydrochloric acid by titrating it against standard Sodium Carbonate solution.
September	Chemical Thermodynamics 23 Periods Concepts of System and types of systems,	1. Determination of one anion and one cation in a given salt Cation: Pb2+, Cu2+

	surroundings, work, heat, energy, extensive and intensive properties, state functions. First law of thermodynamics -internal energy and enthalpy, 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) Introduction of entropy as a state function, Gibb's energy change for spontaneous and non- spontaneous processes, criteria for equilibrium. Third law of thermodynamics (brief introduction).	As3+, Aℓ3+, Fe3+, Mn2+, Zn2+, Ni2+, Ca2+, Sr2+, Ba2+, Mg2+, NH4 + Anions: (CO3) 2- , S2- , (SO3) 2- , (NO2) - , (SO4) 2- , Cℓ- , Br- , I- , (PO4) 3- , (C2O4) 2- , CH3COO-, NO3 - (Note: Insoluble salts excluded)
October	Unit VII: Equilibrium 20 Periods 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, ionization of poly basic acids, acid strength, concept of pH, hydrolysis of salts (elementary idea), buffer solution, Henderson Equation, solubility product, common ion effect	1. Determination of one anion and one cation in a given salt Cation: Pb2+, Cu2+ As3+, Aℓ3+, Fe3+, Mn2+, Zn2+, Ni2+, Ca2+, Sr2+, Ba2+, Mg2+, NH4 + Anions: (CO3) 2- , S2- , (SO3) 2- , (NO2) - , (SO4) 2- , Cℓ- , Br- , I- , (PO4) 3- , (C2O4) 2- , CH3COO-, NO3 - (Note: Insoluble salts excluded)
November	Unit XII: Organic Chemistry - Some Basic Principles and Techniques 20 Periods General introduction,	Detection of -Nitrogen, Sulphur, Chlorine in organic compounds.

	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.	
December	Unit XIII: Hydrocarbons 18 Periods Classification of Hydrocarbons Aliphatic Hydrocarbons: Alkanes - Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis. Alkenes - Nomenclature, the structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition. Alkynes - Nomenclature, the structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of -	Both Qualitative and Quantitative Analysis

	hydrogen, halogens, hydrogen halides and water.	
January	Revision	

SUBJECT : PHYSICS **SUBJECT CODE : 042**		
Books Prescribed : NCERT , Part I and Part II **NCERT, Laboratory Manual of Physics**		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
July	**Unit I: Physical World and Measurement** **Chapter–2: Units and Measurements** Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. significant figures. Dimensions of physical quantities, dimensional analysis and its applications.	**SECTION-A EXPERIMENTS** 1.To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a give\beaker/calorimeter using Vernier Callipers and hence find its volume. 2.To measure diameter of a given wire and thickness of a given sheet using screw gauge. 3.To determine volume of an irregular lamina using screw gauge.
August	**Unit II: Kinematics** **Chapter–3: Motion in a Straight Line** Frame of reference, Motion in a straight line, Elementary concepts of differentiation and integration for describing motion, uniform and non- uniform motion, and instantaneous velocity,	4.To determine radius of curvature of a given spherical surface by a spherometer. **ACTIVITIES OF SECTION-A**

	uniformly accelerated motion, velocity - time and position-time graphs. Relations for uniformly accelerated motion (graphical treatment).	1.To make a paper scale of given least count, e.g., 0.2cm, 0.5 cm. 2.To study the variation in range of a projectile with angle of projection. 3.To plot a graph for a given set of data, with proper choice of scales and error bars
September	**Chapter–4: Motion in a Plane** Scalar and vector quantities; position and displacement vectors, general vectors and their notations; equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors, Unit vector; resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors. Motion in a plane, cases of uniform velocity and uniform acceleration,projectile motion, uniform circular motion.	**SECTION-B EXPERIMENTS** 5.To determine Young's modulus of elasticity of the material of a given wire. 6.To determine the surface tension of water by capillary rise method. 7.To study the relation between frequency and length of a given wire under constant tension using sonometer.
October	**Unit III: Laws of Motion** **Chapter–5: Laws of Motion** Intuitive concept of force, Inertia, Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications.	8.To find the speed of sound in air at room temperature using a resonance tube by two resonance positions. **ACTIVITIES OF SECTION-B** 1.To observe change of state and plot a cooling curve for molten wax.

	Equilibrium of concurrent forces, Static and kinetic friction, laws of friction, rolling friction, lubrication. Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on a banked road). **Unit IV: Work, Energy and Power** **Chapter–6: Work, Energy and Power** Work done by a constant force and a variable force; kinetic energy, work-energy theorem, power. Notion of potential energy, potential energy of a spring, conservative forces: non-conservative forces, motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.	2. To observe and explain the effect of heating on a bi-metallic strip. 3. To note the change in level of liquid in a container on heating and interpret the observations.
November	**Unit V: Motion of System of Particles and Rigid Body** **Chapter–7: System of Particles and Rotational Motion** Centre of mass of a two-particle system, momentum conservation and Centre of mass motion. Centre of mass of a rigid body; centre of mass of a uniform rod. Moment of a force, torque, angular momentum, law of conservation of angular momentum and its applications. Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions. Moment of inertia, radius of gyration,	

	values of moments of inertia for simple geometrical objects (no derivation). **Unit VI: Gravitation** **Chapter–8: Gravitation** Kepler's laws of planetary motion, universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth. Gravitational potential energy and gravitational potential, escape velocity, orbital velocity of a satellite.	
December	**Unit VII: Properties of Bulk Matter** **Chapter–9: Mechanical Properties of Solids** Elasticity, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity (qualitative idea only), Poisson's ratio; elastic energy. **Chapter–10: Mechanical Properties of Fluids** Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes), effect of gravity on fluid pressure. Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem and its simple applications. Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension ideas to drops, bubbles and capillary rise.	Investigatory Project Report
January	**Chapter–11: Thermal Properties of Matter**	

	Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity; Cp, Cv - calorimetry; change of state - latent heat capacity. Heat transfer-conduction, convection and radiation, thermal conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law . **Unit VIII: Thermodynamics** **Chapter–12: Thermodynamics** Thermal equilibrium and definition of temperature zeroth law of thermodynamics, heat, work and internal energy. First law of thermodynamics, Second law of thermodynamics: gaseous state of matter, change of condition of gaseous state -isothermal, adiabatic, reversible, irreversible, and cyclic processes. **Unit IX:Behavior of Perfect Gases and Kinetic Theory of Gases** **Chapter–13: Kinetic Theory** Equation of state of a perfect gas, work done in compressing a gas. Kinetic theory of gases - assumptions, concept of pressure. Kinetic interpretation of temperature; rms speed of gas molecules; degrees of freedom, law of equi-partition of energy (statement only) and	

	application to specific heat capacities of gases; concept of mean free path, Avogadro's number.	
February	**Unit X: Oscillations and Waves** **Chapter–14: Oscillations** Periodic motion - time period, frequency, displacement as a function of time, periodic functions and their application. Simple harmonic motion (S.H.M) and its equations of motion; phase; oscillations of a loaded spring- restoring force and force constant; energy in S.H.M. Kinetic and potential energies; simple pendulum derivation of expression for its time period. **Chapter–15: Waves** Wave motion: Transverse and longitudinal waves, speed of travelling wave, displacement relation for a progressive wave, principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, fundamental mode and harmonics, Beats.	

SUBJECT : BIOLOGY (044)		
Books Prescribed : NCERT		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
April	Chapter-1: The Living World	

May	Chapter-2: Biological Classification	Specimens/slides/models identification with reasons - Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant, one dicotyledonous plant and one lichen.
July	Chapter-3: Plant Kingdom Chapter-4: Animal Kingdom	
August	Chapter-5: Morphology of Flowering Plants Chapter-6 : Anatomy of Flowering Plants Chapter-7: Structural Organization in Animals	Study and describe a locally available common flowering plant, from any one family: Solanaceae or Liliaceae including dissection and display of floral whorls, anther and ovary to show number of chambers (floral formulae and floral diagrams) Tissues and diversity in shape and size of animal cells (squamous epithelium, smooth, skeletal and cardiac muscle fibers and mammalian blood smear) through temporary/permanent slides.

September	Chapter-8: Cell-The Unit of Life Chapter-9: Biomolecules	Spotting - Parts of a compound microscope. Mitosis in onion root tip cells and animal cells (grasshopper) from permanent slides
October	Chapter-10: Cell Cycle and Cell Division Chapter-13: Photosynthesis in Higher Plants	Study of distribution of stomata in the upper and lower surfaces of leaves.
November	Chapter-14: Respiration in Plants Chapter-15: Plant - Growth and Development Chapter-17: Breathing and Exchange of Gases	Separation of plant pigments through paper chromatography. Study of the rate of respiration in flower buds/leaf tissue and germinating seeds.
December	Chapter-18: Body Fluids and Circulation Chapter-19: Excretory Products and their Elimination Chapter-20: Locomotion and Movement	
January	Chapter-21: Neural Control and Coordination	

	Chapter-22: Chemical Coordination and Integration	
February	Revision	

KALKA PUBLIC SCHOOL

Annual Syllabus
Session : 2023-24
Class : XI

SUBJECT : Physical Education(048)		
Books Prescribed :		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
April		
May		
July	Unit 1 Unit 1.Changing trends and career in physical education Unit 2.Olympism	
August	Unit 3.Yoga Unit 4.Physical Education and sports for CWSN	
September	Unit 5.Physical fitness health and welness	
October		
November		
December		
January		

February		

SUBJECT : ENGLISH 301		
Books Prescribed : Hornbill and Snapshot		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
July	**The portrait of a lady** **The Summer of the beautiful white horse** **A photograph** **Writing**	Presentation on A Photograph
August	We are not afraid to die if we can be together The Address The Laburnum Top **Writing**	ASL
September	Birth Discovering Tut The voice of the rain Childhood **Writing**	PPT on Discovering Tut
October	The Adventure Silk Road Father to son **Writing**	Research on Silk Road
November	Birth Mother's Day The Tale of Melon city **Writing**	Role Play
December	Revision	
January	Revision	
February	Revision	

SUBJECT : Maths (041)

Books Prescribed : NCERT (PART I AND PART II)		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
July	**Unit-I: Sets and Functions** **CH 1: Sets** Sets and their representations, Empty set, Finite and Infinite sets, Equal sets, Subsets, Subsets of a set of real numbers especially intervals (with notations). Universal set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement. **CH 2: Relations & Functions** Ordered pairs. Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the set of reals with itself (upto R x R x R). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special type of relation.	To find the number of subsets of a given set and verify that if a set has n number of elements, then the total number of subsets is 2^n.
August	**CH 2: Relations & Functions** (Cont.) Pictorial representation of a function, domain, co-domain and range of a function. Real valued functions, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum, exponential, logarithmic and greatest integer functions, with their graphs. Sum, difference, product and quotients of functions. **CH 3: Trigonometric Functions** Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity sin2x + cos2x = 1, for all x. Signs of	To identify a relation and a function. To plot the graphs of sin x, sin 2x, 2sinx and sin x/2 , using same coordinate axes.

	trigonometric functions. Domain and range of trigonometric functions and their graphs. Expressing sin (x±y) and cos (x±y) in terms of sinx, siny, cosx & cosy and their simple applications. Deducing identities like the following: $\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \tan y}$, $\cot(x \pm y) = \frac{\cot x \cot y \mp 1}{\cot y \pm \cot x}$ $\sin\alpha \pm \sin\beta = 2\sin\frac{1}{2}(\alpha \pm \beta)\cos\frac{1}{2}(\alpha \mp \beta)$ $\cos\alpha + \cos\beta = 2\cos\frac{1}{2}(\alpha + \beta)\cos\frac{1}{2}(\alpha - \beta)$ $cos\alpha - cos\beta = -2sin\frac{1}{2}(\alpha + \beta)sin\frac{1}{2}(\alpha - \beta)$ Identities related to sin2x, cos2x, tan2 x, sin3x, cos3x and tan3x.	
September	**Unit-II: Algebra** **CH 5: Complex Numbers and Quadratic Equations** Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve some of the quadratic equations. Algebraic properties of complex numbers. Argand plane **CH 6: Linear Inequalities** Algebraic solutions of linear inequalities in one variable and their representation on the number line.	To inerpret geometrically the meaning of i = $\sqrt{-1}$ and its integral powers. To verify that the graph of a given inequality, say 5x + 4y – 40 < 0, of the form ax + by + c < 0, a, b > 0, c < 0 represents only one of the two half planes.

October	**CH 7: Permutations and Combinations** Fundamental principle of counting. Factorial n. (n!) Permutations and combinations, derivation of Formulae for ^{n} $\square_{\square}$ rand $^{n}\square_{\square}$ and their connections, simple applications. **CH 8: Binomial Theorem** Historical perspective, statement, and proof of the binomial theorem for positive integral indices. Pascal's triangle, simple applications.	To find the number of ways in which three cards can be selected from given five cards. To construct a Pascal's Triangle and to write binomial expansion for a given positive integral exponent.
November	**CH 9: Sequence and Series** Sequence and Series. Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P., infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M. **Unit-III: Coordinate Geometry** **CH 10: Straight Lines** Brief recall of two dimensional geometry from earlier classes. Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axis, point -slope form, slope-intercept form, two-point form, intercept form, Distance of a point from a line.	To demonstrate that the Arithmetic mean of two different positive numbers is always greater than the Geometric mean. To verify that the equation of a line passing through the point of intersection of two lines $a_1x + b_1y + c_1=0$ and $a_2x + b_2y + c_2 = 0$ is of the form $(a_1x + b_1y + c_1) + \lambda\ (a_2x + b_2y + c_2) = 0$.
December	**CH 11: Conic Sections** Sections of a cone: Circles, ellipse, parabola, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of	To construct a parabola.

	a circle. **CH 12: Introduction to Three-dimensional Geometry** Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points	To explain the concept of octants by three mutually perpendicular planes in space
January	**Unit-IV: Calculus** **CH 13: Limits and Derivatives** Derivative introduced as rate of change both as that of distance function and geometrically. Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential and logarithmic functions. Definition of derivative relate it to scope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions. **Unit-V Statistics and Probability** **CH 15: Statistics** Measures of Dispersion: Range, Mean deviation, variance, and standard deviation of ungrouped/grouped data. **CH 19: Probability** Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with other theories of earlier classes. Probability of an event, probability of 'not', 'and' and 'or' events.	To find analytically $\lim_{x \to c} f(x) = \frac{x^2 - c^2}{x - c}$ To write the sample space, when a die is rolled once, twice --------
February	Revision and Exams	

SUBJECT : ACCOUNTANCY (055)		
Books Prescribed : Accountancy (T.S Grewal)		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
April		
May		
July	**UNIT-1** Introduction to Accounting · l Accounting- concept, meaning, as a source of information, objectives, advantages and limitations, types of accounting information; users of accounting information and their needs. Qualitative Characteristics of Accounting Information. Role of Accounting in Business. · Basic Accounting Terms- Entity, Business Transaction, Capital, Drawings. Liabilities (Non Current and Current). Assets (Non Current, Current); Expenditure (Capital and Revenue), Expense, Revenue, Income, Profit, Gain, Loss, Purchase, Sales, Goods, Stock, Debtor, Creditor, Voucher, Discount (Trade discount and Cash Discount)	1. Balance Sheet working Model 2. Journal Ledger Trial balance Modal
August	Theory Base of Accounting	

	l Fundamental accounting assumptions: GAAP: Concept . l Basic accounting concept : Business Entity, Money Measurement, Going Concern, Accounting Period, Cost Concept, Dual Aspect, Revenue Recognition, Matching, Full Disclosure, Consistency, Conservatism, Materiality and Objectivity · System of Accounting. Basis of Accounting: cash basis and accrual basis · l Accounting Standards: Applicability in IndAS · l Goods and Services Tax (GST): Characteristics and Advantages. **Unit-2: Accounting Process** Recording of Business Transactions · l Voucher and Transactions: Source documents and Vouchers, Preparation of Vouchers, Accounting Equation Approach: Meaning and Analysis, Rules of Debit and Credit. ·	

	l Recording of Transactions: Books of Original Entry- Journal.	
September	Special Purpose books: · l Cash Book: Simple, cash book with bank column and petty cashbook l Purchases book · l Sales book · l Purchases return book · l Sales return book · l Journal proper Note: Including trade discount, freight and cartage expenses for simple GST calculation. · l Ledger: Format, Posting from journal and subsidiary books, Balancing of accounts Bank Reconciliation Statement: · l Need and preparation, Bank Reconciliation Statement Depreciation, Provisions and Reserves · l Depreciation: Meaning, Features, Need, Causes, factors· l Other similar terms: Depletion and Amortisation · l Methods of Depreciation: i. Straight Line Method (SLM) ii. Written Down Value Method (WDV)	

	Note: Excluding change of method · l Difference between SLM and WDV; Advantages of SLM and WDV l Method of recoding depreciation i. Charging to asset account ii. Creating provision for depreciation/accumulated depreciation account l Treatment of disposal of asset · l Provisions, Reserves, Difference Between Provisions and Reserves. · l Types of Reserves: i. Revenue reserve ii. Capital reserve iii. General reserve iv. Specific reserve v. Secret Reserve · l Difference between capital and revenue reserve	
October	Trial balance and Rectification of Errors · l Trial balance: objectives, meaning and preparation (Scope: Trial balance with balance method only) l Errors: classification-errors of omission, commission, principles, and	

	compensating; their effect on Trial Balance. · l Detection and rectification of errors; (i) Errors which do not affect trial balance (ii) Errors which affect trial balance · l preparation of suspense account.	
November	**Unit 3: Financial Statements of Sole Proprietorship** **Financial Statements** Meaning, objectives and importance; Revenue and Capital Receipts; Revenue and Capital Expenditure; Deferred Revenue expenditure. Opening journal entry. Trading and Profit and Loss Account: Gross Profit, Operating profit and Net profit. Preparation. Balance Sheet: need, grouping and marshalling of assets and liabilities. Preparation. Adjustments in preparation of financial statements with respect to closing stock, outstanding expenses, prepaid expenses	
December	accrued income, income received in advance, depreciation, bad debts, provision for doubtful debts, provision for discount on debtors, Abnormal loss	
January	Goods taken for personal use/staff welfare, interest on	

	capital and managers commission. Preparation of Trading and Profit and Loss account and Balance Sheet of a sole proprietorship with adjustments.	
February	Revision	

SUBJECT : ECONOMICS (030)		
Books Prescribed :1. Microeconomics (T.R Jain, V.K Ohri) 2. Statistics (T.R Jain, V.K Ohri)		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
April		
May		
July	**Unit 1: Introduction** What is Economics? Meaning, scope, functions and importance of statistics in Economics **Unit 2: Collection, Organisation and Presentation of data** Collection of data – sources of data – primary and secondary; how basic data is collected with concepts of Sampling; methods of collecting data; some important sources of secondary data: Census of India and National Sample Survey Organisation. **MICROECONOMICS**	Project on law of demand and supply

	Unit 4: Introduction Meaning of microeconomics and macroeconomics; positive and normative economics What is an economy? Central problems of an economy: what, how and for whom to produce; concepts of production possibility frontier and opportunity cost.	
August	**Unit 5: Consumer's Equilibrium and Demand** Consumer's equilibrium – meaning of utility, marginal utility, law of diminishing marginal utility, conditions of consumer's equilibrium using marginal utility analysis. Indifference curve analysis of consumer's equilibrium-the consumer's budget (budget set and budget line), preferences of the consumer (indifference curve, indifference map) and conditions of consumer's equilibrium. **ORGANISATION OF DATA-** Organisation of Data: Meaning and types of variables; Freque **Presentation of Data:** Tabular forms (bar diagrams and pie c and (iii) Arithmetic line graphs	
September	Demand, market demand, determinants of demand, demand schedule, demand curve and its slope, movement along and shifts in	

	the demand curve; price elasticity of demand – factors affecting price elasticity of demand; measurement of price elasticity of demand – percentage-change method and total expenditure method. **Unit 6: Producer Behaviour and Supply** Meaning of Production Function – Short-Run and Long-Run Total Product, Average Product and Marginal Product. Returns to a Factor Cost: Short run costs – total cost, total fixed cost, total variable cost; Average cost; Average fixed cost, average variable cost and marginal cost-meaning and their relationships**.**	
October	**Unit 3: Statistical Tools and Interpretation** **Measures of Central Tendency-** Arithmetic mean, median and mode	
November	Revenue – total, average and marginal revenue – meaning and their relationship. Producer's equilibrium-meaning and its conditions in terms of marginal revenuemarginal cost. Supply curve and its slope, movements along and shifts	

	in supply curve, price elasticity of supply; measurement of price elasticity of supply – percentage-change method.	
December	**Correlation-** Meaning and properties, scatter diagram; Measures of correlation – Karl Pearson's method (two variables ungrouped data) Spearman's rank correlation. **Unit 7: Forms of Market and Price Determination under Perfect Competition with simple applications.** Perfect competition – Features; Determination of market equilibrium.	
January	Effects of shifts in demand and supply. Simple Applications of Demand and Supply: Price ceiling, price floor.	
February	**Introduction to Index Numbers –** Meaning, types – wholesale price index, consumer price index and index of industrial production, uses of index numbers; Inflation and index numbers.	

SUBJECT : BUSINESS STUDIES (054)		
Books Prescribed :		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**

April		
May		
July	CHAPTER -1,NATURE AND PURPOSE OF BUSINESS	AS PER THE CBSE. PROJECT ON EXPORT AND IMPORT PROCEDURES.
August	CHAPTER-2,FORMS OF BUSINESS ORGANIZATION	
September	CHAPTER-3 PRIVATE,PUBLIC AND GLOBAL ENTERPRISES CHAPTER-4, BUSINESS SERVICES	
October	CHAPTER-5,EMERGING MODES OF BUSINESS	
November	CHAPTER-6,SOCIAL RESPONSIBILITIES OF BUSINESS AND BUSINESS ETHICS CHAPTER -7,SOURCES OF BUSINESS FINANCE	
December	CHAPTER-8, SMALL BUSINESS AND ENTERPRISES CHAPTER-9,INTERNAL TRADE	
January	CHAPTER -10,INTERNATIONAL BUSINESS	
February	REVISION OF COMPLETE SYLLABUS	

SUBJECT : POLITICAL SCIENCE ( )		
Books Prescribed :		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
April		
May		
July	Ch- 1 Constitution Ch-8 Political theory: An introduction	project work on fundamental duties and directive principles of state policy
August	Ch-2 Election and Representation Ch-3 The Legislature	make a presentation of conduction of elections
September	Ch-9 Liberty	make a project on fundamental rights and duties
October	Ch- 4 The Executive Ch-5 The Judiciary	debate on powers of permanent and temporary executives
November	Ch-6 Federalism Ch-7 Local governments Ch-10 Equality Ch-11 Justice	presentation on judicial system of India
December	Ch-12 Rights Ch-13 Citizenship Ch-14 Nationalism	Group discussion on citizenship and nationalism
January	Ch- 15 Secularism	
February		

SUBJECT : HISTORY ( )
Books Prescribed :

Month	Chapter No. and Name	Activity / Project/ Practical
April		
May		
July	Section A: Early societies 2. Introduction	project work topics *Evolutionary aspect of human beings. * The Legacy of Mesopotamia civilization with special reference town planning, *Script and Writing system, Mathematics, Astronomy, Science and their calendar. *The Roman Empire with special reference to Architecture, government and society. *The Islamic Land with special focus on religion, politics and their contribution to the world. *Role of Genghis Khan in establishing a nomadic empire. Europe from 13th to 16th century. European voyages and explorations. *The great American civilizations- Incas, Aztecs and Mayan civilizations. Case study on China and Japan. (Path to modernization)
August	3. Writing and City life	
September	Section- B : Empires 4. Introduction	

	5. An empire across three continents 6. Nomadic empires	
October	Section C: Changing Traditions Introduction 7. The Three orders 8. Changing cultural Traditions	
November	Section D : Paths to Modernization 9. Introduction 10. Displacing Indigenous people	
December	11. Paths to modernization 12. MAP WORK OF THE RELATED THEMES	
January		
February		

SUBJECT : HINDI ( )		
Books Prescribed : □□□□ □□□-1 **□□□□□** **□□□□□□□□□□ □□ □□□□□□**		
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SUBJECT : ENTREPRENEURSHIP ( )

Books Prescribed :		
Month	**Chapter No. and Name**	**Activity / Project/ Practical**
April		
May		
July	Unit 1 Entrepreneurship: Concept and Functions	
August	Unit 2 An Entrepreneur	
September	Unit 3 Entrepreneurial Journey Unit 4 Entrepreneurship as Innovation and Problem Solving	
October	Revision for SA 1	Project file as per CBSE guidelines
November	Unit 5 Understanding the Market	
December	Unit 6 Business Finance and Arithmetic	
January	Unit 7 Resource Mobilization	
February	Revision	Project file as per CBSE guidelines