A. SCIENCE		
I. (CHEMISTRY)		
S. No.	**Chapter**	**Topics**
1.	**Atoms and Molecules**	➢ Law of Chemical combination ➢ Law of Conservation of mass ➢ Law of Constant proportions ➢ Atom, Atomic mass, Atomicity ➢ Modern day symbols of atoms of different elements ➢ What is a molecule? ➢ Differences between Molecules of elements and Molecules of compounds ➢ Ion-Cation,anion.Name and symbol of some ions(including polyatomic ions). ➢ Writing chemical formulae-formulae of simple compounds. ➢ Molecular Mass and calculations. ➢ Formula unit mass and calculations.
2.	**Structure of Atom**	➢ Charged particles in matter ➢ The structure of atom ➢ Thomson,s model ➢ Drawbacks of Rutherford,s model ➢ Bohr,s modelof an atom-postulates ➢ Schematic structural representation of first 18 elements ➢ Neutrons ➢ Electronic distribution in shells ➢ Valency ➢ Atomic number and mass number ➢ Isotopes,its applications. ➢ Isobars
3.	**Chemical Reactions and Equations**	➢ Writing chemical equations, balanced chemical equation ➢ Types of chemical reactions: a) Combination b) Decomposition c) Displacement d) Double displacement e) Oxidation, reduction ➢ Endothermic and exothermic reactions ➢ Corrosion ➢ Rancidity
4.	**Acids, Bases and Salts**	➢ Understanding the chemical properties of acids and bases in the laboratory ➢ Reaction acids and bases with metals ➢ Reaction of carbonates and metal hydrogen carbonates with acids, ➢ Reaction of acids and bases with each other, ➢ Reactions of metallic oxides with acids. ➢ Reactions of nonmetallic oxides with base ➢ What do all acids and all bases have in common? ➢ What happens to an acid or base in a water solution? ➢ Strength of acid or base in solution. ➢ Importance of pH in everyday life. ➢ Types of salts [Family of salts] ➢ pH of salts ➢ Chemicals from common salt NaOH, NaCl, $CaOCl_2$, $NaHCO_3$, Na_2CO_3

		➢ Salt Crystals [anhydrous salts and hydrated salts]
Reference Books: 1. Science textbook for class X (Karnataka) 2. Science textbook for class IX (Karnataka) 3. Concise Chemistry ICSE by Selina Publishers (IX) 4. Discovery's Chemistry ICSE by Kriston Publication (X) 5. 1. Foundation course in chemistry by Disha publications (Class 9, 5th edition) 6. Together with science by Rachna Sagar (Class 9) 7. Foundation course by mtg (Class 10, 2025-26) 8. Pearson IIT foundation chemistry (Class 10)		
II. BIOLOGY		
5.	**Nutrition in plants and animals**	Life Processes- Introduction to Life Processes, Characteristics of Living Organisms, Need for Nutrition. Nutrition- Definition of Nutrition, Modes of Nutrition, Autotrophic Nutrition, Heterotrophic Nutrition. Autotrophic Nutrition- Photosynthesis, Chloroplast and Chlorophyll, Raw Materials for Photosynthesis, Process (Events) of Photosynthesis, Stomata and Guard Cells, Factors Required for Photosynthesis, Importance of Photosynthesis. . Heterotrophic Nutrition- Holozoic Nutrition, Saprophytic Nutrition, Parasitic Nutrition. Nutrition in Amoeba. Nutrition in Human Beings- Human Digestive System, Alimentary Canal, Digestion in Mouth, Digestion in Stomach, Digestion in Small Intestine, Liver, Pancreas, Intestinal Glands, Digestive Enzymes, Absorption, Assimilation, Egestion, Dental Caries.
6.	**Transport in plants**	Transportation- Need for Transportation, Transport in Unicellular and Multicellular Organisms. Transport in Plants- Transport of Water, Transport of Minerals, Transport of Food. Plant Transport Tissues- Xylem, Phloem. Water Transport- Root Hairs, Osmosis, Ascent of Sap, Transpiration- Definition, Mechanism, Role of Stomata, Importance of Transpiration, Factors Affecting Transpiration
7.	**Circulation in animals**	Transportation in Human Beings- Blood, Composition of Blood, Plasma, Red Blood Cells, White Blood Cells, Platelets. Blood Vessels- Arteries, Veins, Capillaries. Human Heart- Structure of Heart, Double Circulation, Pulmonary Circulation, Systemic Circulation. Lymph- Composition, Functions.
8.	**Excretion in plants and animals**	Excretion. Human Excretory System- Kidneys, Ureters, Urinary Bladder, Urethra. Nephron- Structure, Function. Formation of

		Urine- Ultrafiltration, Selective Reabsorption, Tubular Secretion. Artificial Kidney (Dialysis). Excretion in Plants- Removal of Gaseous Wastes, Storage of Wastes, Shedding of Leaves, Excretion through Resins and Gums.
9.	**Control and cordination in plants and animals**	Control and Coordination. Coordination in Animals- Nervous System, Neuron, Synapse, Reflex Action, Reflex Arc, Human Brain, Forebrain, Midbrain, Hindbrain, Spinal Cord, Peripheral Nervous System. Endocrine System in Animals- Hormones, Pituitary Gland, Thyroid Gland, Adrenal Gland, Pancreas, Reproductive Hormones. Coordination in Plants- Plant Movements, Tropic Movements, Phototropism, Geotropism, Hydrotropism, Thigmotropism, Chemotropism, Nastic Movements. Plant Hormones- Auxins, Gibberellins, Cytokinins, Abscisic Acid.
Reference Books: 1. NCERT Science textbook for Class IX 2. NCERT Science textbook for Class X 3. Selina ICSE Concise Biology Class IX 4. Selina ICSE Concise Biology Class X		
III. PHYSICS		
10.	**Force, Work, Power and Energy**	Turning forces concept; moment of a force; forces in equilibrium; centre of gravity. Uniform circular motion ,Work, energy, power and their relation with force ,Different types of energy (e.g., chemical energy, Mechanical energy, heat energy, electrical energy, nuclear energy, sound energy, light energy). load, effort, mechanical advantage, velocity ratio and efficiency; simple treatment of levers, Principle of conservation of energy
11.	**Sound**	Reflection of Sound Waves; echoes: their use; simple numerical problems on echoes, Natural vibrations, Damped vibrations, Forced vibrations and Resonance - a special case of forced vibrations. Loudness, pitch and quality of sound.
12.	**Reflection and Refraction of Light**	Reflection, Spherical Mirrors, Image formation by spherical mirrors, Sign convention for spherical mirrors, Mirror formula , Magnification , Refraction, Reflection by spherical lenses , Refractive index , image formation by lenses, Lens formula , Magnification , Power of Lens
13.	**The Human Eye and the Colorful World"**	Structure and function of the eye, power of accommodation, vision defects (myopia, hypermetropia, presbyopia), refraction through a glass prism, dispersion of white light, atmospheric refraction phenomena (twinkling stars), and scattering of light (blue sky).
14.	**Electricity**	Electric current, electric potential, Ohm's law, factors affecting resistance, series and parallel resistor combinations, heating effects of electric current, and electric power.

Reference Books:

1. Science textbook for class X (Karnataka)
2. Science textbook for class IX (Karnataka)
3. Concise physics ICSE by Selina Publishers (IX)
4. Arihanth ICSE all in one Physics
5. Pearson class 10 foundation Physics
6. S chand ICSE Physics class 9 and class 10

B. MATHEMATICS

1.	**NUMBER SYSTEM**	**Real Numbers:** Natural numbers, whole numbers and integers, Rational numbers, Irrational numbers, Real numbers, Representation of real numbers on the number line, Comparison and ordering of real numbers, Rational and irrational numbers between two numbers **Laws of Exponents:** Positive integral exponents, Negative exponents, Zero exponent, Product of powers, Quotient of powers, Power of a power, Power of a product, Power of a quotient, Simplification using laws of exponents **Surds:** Meaning of surds, Simplification of surds, Like and unlike surds, Addition and subtraction of surds, Multiplication and division of surds, Rationalisation of denominators, Simplifying expressions involving surds **Fundamental Theorem of Arithmetic:** Prime numbers, Composite numbers, Prime factorisation, Fundamental theorem of arithmetic, HCF using prime factorisation, LCM using prime factorisation, Relationship between HCF and LCM, Applications involving HCF and LCM **Decimal Representation:** Terminating decimals, non-terminating recurring decimals, Conversion between fractions and decimals, Conditions for terminating decimal expansion
2.	**POLYNOMIALS**	**Introduction to Polynomials:** Definition of polynomial, Terms, coefficients and constants, Degree of a polynomial, Constant polynomial, Linear polynomial, Quadratic polynomial, Cubic polynomial, Classification based on number of terms **Operations on Polynomials:** Addition, Subtraction, Multiplication, Division, Simplification of polynomial expressions **Value of a Polynomial:** Evaluating a polynomial, Finding unknown values, Polynomial identities through substitution **Zeroes of a Polynomial:** Meaning of zero/root, Finding zeroes, Graphical interpretation of zeroes, Relationship between zeroes and coefficients for quadratic polynomials **Remainder Theorem:** Statement and application, Finding remainder, Finding unknown constants, Divisibility using remainder theorem **Factor Theorem:** Statement and application, Checking whether a factor exists, Finding factors, Factorisation using factor theorem
3.	**ALGEBRAIC**	$(a + b)^2 = a^2 + 2ab + b^2$,

	IDENTITIES	$(a-b)^2 = a^2 - 2ab + b^2$, $a^2 - b^2 = (a+b)(a-b)$, $(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$, $(a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$, $a^3 - b^3 = (a-b)(a^2 + ab + b^2)$, $a^3 + b^3 = (a+b)(a^2 - ab + b^2)$, $(a+b+c)^2 = a^2 + b^2 + c^2 + 2(ab + bc + ac)$, Applications of identities, Factorisation using identities
4.	**ALGEBRAIC EXPRESSIONS & FACTORISATION**	**Algebraic Expressions:** Terms and coefficients, Like and unlike terms, Addition and subtraction, Multiplication, Simplification, Substitution **Factorisation:** Taking common factors, Grouping, Factorisation using identities, Factorisation of quadratic expressions, Factorisation of algebraic fractions, Higher-order factorisation problems **Algebraic Fractions:** Simplification, Addition and subtraction, Multiplication, Division, Factor cancellation, Problems involving algebraic fractions
5.	**LINEAR EQUATIONS**	**Linear Equations in One Variable:** Formation of equations, solving simple equations, Equations involving brackets, Equations involving fractions, Equations involving decimals, Equations with variables on both sides, Equations reducible to linear form **Applications:** Age problems, Number problems, Digit problems, Money problems, Ratio-based problems, Geometry-based problems, Simple word problems **Linear Equations in Two Variables:** Definition, Solutions of an equation, ordered pairs, Finding solutions, Graphical representation, Equation of a line in simple forms **Pair of Linear Equations:** Formation of simultaneous equations, Graphical solution, Substitution method, Elimination method, Consistent/inconsistent systems, Applications
6.	**QUADRATIC EQUATIONS**	**Introduction:** Definition, Standard form, Identifying quadratic equations, Formation of quadratic equations **Solving Quadratic Equations:** Factorisation method, Splitting the middle term, Quadratic formula, Problems involving fractions **Nature of Roots:** Discriminant, Distinct real roots, Equal roots, No real roots **Relationship Between Roots and Coefficients:** Sum of roots, Product of roots, Forming quadratic equations from given roots, Finding unknown parameters **Applications:** Number problems, Area problems, Geometry-based problems, Consecutive integer problems
7.	**COORDINATE GEOMETRY**	**Cartesian Plane:** Coordinate axes, Origin, X-coordinate, Y-coordinate, ordered pairs, Plotting points

		Quadrants: Identification of quadrants, Signs of coordinates, Points on axes, Reflection of points **Distance Formula:** Distance between two points, Distance from origin, Applications, **Section Formula:** Internal division, Coordinates of dividing point, Ratio-based problems **Midpoint:** Midpoint formula, Applications, Finding unknown coordinates **Coordinate Geometry Applications:** Collinearity through distance, Perimeter of coordinate figures, Area of simple coordinate figures, Geometrical interpretation of coordinates
8.	**LINES & ANGLES**	**Basic Concepts:** Point, Line, Line segment, Ray, Plane, Types of angles **Angle Relationships:** Complementary angles, Supplementary angles, Adjacent angles, Linear pair, Vertically opposite angles **Parallel Lines:** Transversal, Corresponding angles, Alternate interior angles, Alternate exterior angles, Co-interior angles, Converse properties **Applications:** Finding unknown angles, Algebraic angle problems, Multi-step angle problems, Proof-based reasoning
9.	**TRIANGLES**	**Classification:** Scalene triangle, Isosceles triangle, Equilateral triangle, Acute triangle, Right triangle, Obtuse triangle **Basic Properties:** Angle sum property, Exterior angle theorem, Exterior angle problems, Relationship between sides and angles **Congruence:** Meaning of congruence, SSS, SAS, ASA, AAS, RHS, Corresponding parts of congruent triangles **Special Properties:** Properties of isosceles triangles, Properties of equilateral triangles, Right triangle properties, Pythagoras theorem, Converse of Pythagoras theorem **Inequalities:** Triangle inequality, Relationship between sides and opposite angles, Comparing sides and angles **Midpoint Theorem:** Midpoint theorem, Converse, Applications, Problems involving parallel lines and triangles
10.	**QUADRILATERALS**	**Types:** Quadrilateral, Trapezium, Parallelogram, Rectangle, Rhombus, Square, Kite **Properties:**Angle sum, Opposite sides, Opposite angles, Adjacent angles, Diagonals **Parallelogram:** Properties, Diagonals, Conditions for a quadrilateral to be a parallelogram, Applications **Rectangle:** Properties, Diagonal properties, Applications **Rhombus:** Properties, Diagonal properties, Applications **Square:** Properties, Diagonals, Relationship with rectangle and rhombus **Trapezium:** Properties, Parallel sides, Isosceles trapezium, Applications
11.	**CIRCLES**	**Basic Terminology:** Circle, Centre, Radius, Diameter, Chord, Arc, Sector, Segment, Circumference **Chords:** Properties of chords, Equal chords, Perpendicular from

		centre to chord, Distance of chords from centre **Angles in a Circle:** Angle subtended by chord, Angle at centre, Angle at circumference, Angles in the same segment **Cyclic Quadrilateral:** Definition, Opposite angle property, Applications **Tangents:** Tangent to a circle, Radius perpendicular to tangent, Number of tangents, Basic tangent problems
12.	**MENSURATION**	**Perimeter & Area Rectangle:** Perimeter, Area, Diagonal, Applications, **Square:** Perimeter, Area, Diagonal, Applications **Triangle:** Area, Base-height relationship, Heron's formula **Parallelogram:** Area, Base-height relationship **Rhombus:** Area using diagonals **Trapezium:** Area, Applications **Circle:** Circumference, Area, Arc basics, Sector basics
13.	**HERON'S FORMULA**	**Basic Concepts:** Semi-perimeter, Heron's formula, Area of triangle **Applications:** Finding area, Finding unknown side, Finding height using area, Quadrilateral divided into triangles, Real-life applications
14.	**SURFACE AREA & VOLUME**	**Cubes:** Volume, Total surface area, Lateral surface area, Edge relationships **Cuboids:** Volume, Total surface area, Lateral surface area, Diagonal, Applications **Cylinder:** Radius and height, Curved surface area, Total surface area, Volume, Applications **Cone:** Radius, Height, Slant height, Curved surface area, Total surface area, Volume, Basic applications **Sphere:** Radius and diameter, Surface area, Volume, Applications **Hemisphere:** Curved surface area, Total surface area, Volume, Applications **Mixed Mensuration:** Combination of solids, Conversion of solids, Capacity, Unit conversion, Cost-based problems
15.	**STATISTICS**	**Data:** Collection of data, Raw data, Primary and secondary data, Classification of data **Frequency Distribution:** Frequency, Frequency tables, Grouped data, Ungrouped data, Class intervals, Class limits **Graphical Representation:** Bar graph, Histogram, Frequency polygon, Interpretation of graphs **Measures of Central Tendency:** Mean, Median, Mode, Mean from frequency distribution, Median from data, Mode from data **Data Interpretation:** Reading tables, Reading graphs, Comparing datasets, Missing-data problems, Application-based questions
16.	**PROBABILITY**	**Basic Concepts:** Random experiment, Trial, Outcome, Sample space, Event **Probability:** Probability of an event, Equally likely outcomes, Favourable outcomes, Impossible event, Certain event **Simple Applications:** Coins, Dice, Cards, Number selection,

		Everyday probability situations **Probability Reasoning:** Complementary events, Comparing probabilities, Finding missing probabilities, Multi-step elementary probability problems
17.	**INTRODUCTION TO TRIGONOMETRY**	**Right-Angled Triangle:** Hypotenuse, Perpendicular, Base, Pythagorean relationship **Trigonometric Ratios:** Sine, Cosine, Tangent, Reciprocal ratios, Relationship between ratios **Standard Angles:** 0°, 30° , 45° , 60° , 90° **Basic Identities:** Fundamental trigonometric relationships, Simplification of basic expressions, Finding unknown ratios **Applications:** Heights and distances – basic level, Angle of elevation, Angle of depression, Right-triangle applications

Reference Books:

1. NCERT Mathematics, Classes 9 and 10
2. Karnataka State Board Mathematics textbooks, Classes 9 and 10
3. ICSE mathematics books, class 9 and 10
4. R.D. Sharma Mathematics for Class 9 and Class 10
5. R.S. Aggarwal Mathematics for Class 9 and Class 10
6. Challenge and Thrill of Pre-College Mathematics by V. Krishnamurthy et al.
7. Geometry Revisited by Coxeter and Greitzer
8. M.L. Khanna IIT Mathematics
9. Understanding ICSE mathematics by M.L. Agarwal
10. Concise mathematics by Selina publications