SYLLABUS OUTLINE FOR MATHEMATICS CLASS VI

Content outline	Periods	Term
NUMBER SYSTEM **i. Knowing our numbers:** Consolidating the sense of number-ness up to 5 digits, size, estimation of numbers, identifying smaller, larger etc. Place value (recapitulation and extension), connectives: use of symbols =, <, > and use of brackets, word problems on number operations involving large numbers up to a maximum of 5 digits in the answer after all operations. This would include conversions of units of length and mass (from the larger to the smaller units), estimation of outcome of number operations. This would include conversions of units of length and mass (from the larger to the smaller units), estimation of outcome of number operations. Introduction to a sense of the largeness of ,and initial familiarity with, large numbers up to 8 digits and approximation of large numbers.	14	I
ii. Playing with numbers: Simplification of brackets, multiples and factors, divisibility rule of 2, 3, 4, 5, 6, 8, 9, 10, 11. (All these through observing patterns. Children would be helped in deducing some and then asked to derive some that are a combination of basic patterns of divisibility). Even/odd and prime/composite numbers, co-prime numbers, prime factorization, every number can be written as products of prime factors. HCF and LCM, prime factorization and division method for HCF and LCM, the property LCM X HCF = product of two numbers. All this is to be embedded in contents that bring out the significance and provide motivation to the child for learning these ideas.	12	I
iii. Whole Numbers: Natural numbers, whole numbers, properties of numbers (commutative, associative, distributive, additive identity, multiplicative identity), number line, seeing patterns, identifying and formulating rules to be done by children. (As familiarity with algebra grows, the child can express the generic pattern).	8	I
NUMBER SYSTEM: (contd.) **iv. Negative numbers and Integers:** How negative numbers arise, models of negative numbers, connection to daily life; ordering of negative numbers, representation of negative numbers on number line. Children to see patterns	8	II

identify and formulate rules. What are integer, identification of integers on the number line, operation of addition and subtraction of integers, number line, (addition of negative integer reduces the value of the number), comparison of integers, ordering of integers. **v. Fractions:** Revision of what a fraction is, Fraction as a part of whole, representation of fractions (pictorially and on a number line), fraction as a division, proper, improper and mixed fractions, equivalent fractions, comparison of fractions, addition and subtraction of fractions (Avoid large and complicated unnecessary tasks). (Moving towards abstraction in fractions). Review of the idea of a decimal fraction, place value in the context of decimal fraction, inter conversion of fractions (avoid recurring decimals at this stage), word problems involving addition and subtraction of decimals (two operations together on money, mass, length and temperature).	18	II
ALGEBRA: **Introduction to Algebra:** • Introduction to variable through patterns and through appropriate word problems and generalization (example 5 x 1 = 5 etc) • Generate such patterns with more examples. • Introduction to unknowns through examples with simple contents (single operations). • Equation, solution of an equation.	15	II
RATIO AND PROPORTION • Concept of Ratio • Proportion as equality of two ratios. • Unitary method (with only direct variation implied) • Word problems.	15	III
GEOMETRY: **i. Basic geometrical ideas (2D):** • Introduction on to geometry. Its linkage with and reflection in everyday experience. • Line, line segment, ray • Open and closed figures. • Interior and exterior of closed figures. • Curvilinear and linear boundaries.	15	I

• Angle-vertex, arm, interior and exterior. • Triangle – vertices, sides, angles, interior and exterior, altitude and median. • Quadrilateral – sides, vertices angles, diagonals, adjacent sides and opposite sides (only convex quadrilateral are to be discussed) interior and exterior of a quadrilateral. • Circle – Centre, radius, diameter, arc, sector, chord, segment, semi-circle, circumference, interior and exterior.		
ii. Understanding Elementary Shapes (2D and 3D) • Measurement of Line segment • Measure of angles • Pair of lines • Intersecting and perpendicular lines • Parallel lines • Types of angles – acute, obtuse, right, straight, reflex, complete and zero angle. • Classification of triangles (on the basis of sides and of angles).	10	I
ii. Understanding Elementary Shapes: **(2D and 3D) (contd.)** • Types of quadrilateral – Trapezium, parallelogram, rectangle, square, rhombus. • Simple polygons (introduction) (up to octagons, regular as well as non-regular). • Identification of 3D shapes: cubes, cuboids, cylinders, sphere, cone, prism (triangular), pyramid (triangular and square). Identification and locating the surroundings. • Elements of 3D figures (Faces, Edges and vertices). • Nets for cube, cuboids, cylinders, cones and tetrahedrons.	14	II
iii. Symmetry: (reflection) • Observation and identification of 2D symmetrical objects for reflection symmetry. • Operation of reflection (taking minor images) of simple 2D objects. • Recognizing reflection symmetry (identifying axes)	10	III
iv. Constructions (using straight edge scale, protractor, compasses) (6 periods) • Drawing of a line segment • Construction of a circle. • Perpendicular bisector	6	II

iv. Constructions (using straight edge scale, protractor, compasses) (contd.) • Construction of angles (using protractor) • Angle 60˚, 120˚ (using compasses) • Angle bisector – making angles of 30˚, 45˚, 90˚ etc. (using compasses) • Angle equal to a given angle (using compass) • Drawing a line perpendicular to a given line from a point on the line and outside the line.	10	III
MENSURATION **Concept of perimeter and introduction to area:** Introduction and general understanding of perimeter using many shapes. Shapes of different kinds with the same perimeter. Concept of area, area of a rectangle and a square. Counter examples to different misconcepts related to perimeter and area. Perimeter of a rectangle – and its special case – a square. Reducing the formula of the perimeter for a rectangle and then through pattern and generalization.	15	III
DATA HANDLING: • What is data? Choosing data to examine a hypothesis. • Collection and organization of data – examples of organizing it in tally bars and a table. • Pictograph – Need for scaling in pictographs interpretation and construction. • Making bar graphs for given data interpreting bar graphs.	10	III