CBSE Class 7 Math's syllabus

Number System (50 hrs.)

(i) **Knowing our Numbers: Integers**

Multiplication and division of integers (through patterns). Division by zero is meaningless

Properties of integers (including identities for addition & multiplication, commutative, associative, distributive) (through patterns).

These would include examples from whole numbers as well. Involve expressing commutative and associative properties in a general form. Construction of counterexamples, including some by children. Counter examples like subtraction is not commutative.

Word problems including integers (all operations)

(ii) **Fractions and rational numbers:**

-Multiplication of fractions

-Fraction as an operator

-Reciprocal of a fraction

-Division of fractions

-Word problems involving mixed fractions

-Introduction to rational numbers (with representation on number line)

-Operations on rational numbers (all operations)

-Representation of rational number as a decimal.

-Word problems on rational numbers (all operations)

-Multiplication and division of decimal fractions

-Conversion of units (length & mass)

-Word problems (including all operations)

(iii) **Powers:**

-Exponents only natural numbers.

-Laws of exponents (through observing patterns to arrive at generalization.)

(i) $a^m\ a^n = a^{m+n}$

(ii) $(a^m)^n = a^{mn}$

(iii) $a^m/a^n = a^{m-n}$, where $m - n \in N$

Algebra (20 hrs.)

ALGEBRAIC EXPRESSIONS

-Generate algebraic expressions (simple) involving one or two variables

-Identifying constants, coefficient, powers

-Like and unlike terms, degree of expressions e.g., x2y etc. (exponent ≤ 3, number of variables)

-Addition, subtraction of algebraic expressions (coefficients should be integers).

-Simple linear equations in one variable (in contextual problems) with two operations (avoid complicated coefficients)

Ratio and Proportion (20 hrs.)

-Ratio and proportion (revision)

-Unitary method continued, consolidation, general expression.

-Percentage- an introduction.

-Understanding percentage as a fraction with denominator 100

-Converting fractions and decimals into percentage and vice-versa.

-Application to profit and loss (single transaction only)

-Application to simple interest (time period in complete years).

Geometry (60 hrs)

(i) **Understanding shapes:**

-Pairs of angles (linear, supplementary, complementary, adjacent, vertically opposite) (verification and simple proof of vertically opposite angles)

-Properties of parallel lines with transversal (alternate, corresponding, interior, exterior angles)

(ii) **Properties of triangles:**

-Angle sum property (with notions of proof & verification through paper folding, proofs using property of parallel lines, difference between proof and verification.)

-Exterior angle property

-Sum of two sides of a triangle and its third side

-Pythagoras Theorem (Verification only)

(iii) **Symmetry**

-Recalling reflection symmetry

-Idea of rotational symmetry, observations of rotational symmetry of 2-D objects. (90^0, 120^0, 180^0)

-Operation of rotation through 90o and 180o of simple figures.

-Examples of figures with both rotation and reflection symmetry (both operations)

-Examples of figures that have reflection and rotation symmetry and vice-versa

(iv) **Representing 3-D in 2-D:**

-Drawing 3-D figures in 2-D showing hidden faces.

-Identification and counting of vertices, edges, faces, nets (for cubes cuboids, and cylinders, cones).

-Matching pictures with objects (Identifying names)

-Mapping the space around approximately through visual estimation.

(v) **Congruence**

-Congruence through superposition (examples blades, stamps, etc.)

-Extend congruence to simple geometrical shapes e.g. triangles, circles.

-Criteria of congruence (by verification) SSS, SAS, ASA, RHS

(vi) **Construction (Using scale, protractor, compass)**

-Construction of a line parallel to a given line from a point outside it.(Simple proof as remark with the reasoning of alternate angles)

-Construction of simple triangles. Like given three sides, given a side and two angles on it, given two sides and the angle between them.

Mensuration (15 hrs.)

-Revision of perimeter, Idea of , Circumference of Circle Area Concept of measurement using a basic unit area of a square, rectangle, triangle, parallelogram and circle, area between two rectangles and two concentric circles.

Data handling (15 hrs.)

-Collection and organization of data – choosing the data to collect for a hypothesis testing.

-Mean, median and mode of ungrouped data – understanding what they represent.

-Constructing bar graphs

-Feel of probability using data through experiments. Notion of chance in events like tossing coins, dice etc. Tabulating and counting occurrences of 1 through 6 in a number of throws. Comparing the observation with that for a coin. Observing strings of throws, notion of randomness.