

Directorate of Education, GNCT of Delhi
Annual Syllabus
Class-VII (2026-27)
Subject: Mathematics

Book	Chapter No. and Name	Content	Curricular Goals and Competencies	Learning Outcomes	Suggested Activities
Part-I	Chapter – 1 Large Numbers Around Us	A Lakh Varieties, Land of Tens, Of Crores and Crores, Exact and Approximate Value, Patterns in Products, Did You Ever Wonder...?	CG-1 Understands numbers and sets of numbers (Whole numbers, Fractions, Integers, and Rational numbers) looks for patterns, and appreciates relationships between numbers. C-1.1 Develops a sense for and an ability to manipulate (e.g., read, write, form, compare, estimate, and apply operations) large whole numbers of up to 10 digits and expresses them in scientific notation using exponents and powers. C-1.2 Discovers, identifies, and explores patterns in numbers and describes rules for their formation (e.g., prime numbers, powers of 3, etc.) and explain relations between different patterns.	The learner will be able to: • solve problems involving large numbers by applying appropriate operations (addition, subtraction, multiplication and division)	• The "Lakh" Step Count: Students estimate the number of steps they take from the school gate to their classroom and use "Pattern Boxes" to calculate how many days of school it would take to reach one lakh (1,00,000) steps. • Matchstick Digit Swap: Using used matchsticks or drawing lines on slates, students represent a 5-digit number (like 63,890) and compete to create the largest possible number by moving only two sticks.
Part-I	Chapter – 2 Arithmetic Expressions	Simple Expressions, Reading and Evaluating Complex Expressions	C-1.3 Explores and understands sets of numbers such as whole numbers, fractions, integers, and rational numbers, and their properties. C-1.4 Represents rational numbers in decimal form as an extension of the Indian system of numeration 'past the decimal point'. C-1.5 Explores the idea of percentage and apply it in solving problems. C-1.6 Explores and applies fractions (both as ratios and in decimal form) in daily life situations.	The learner will be able to: • Identify and forms arithmetic expressions using the four basic operations (+, −, ×, ÷) to represent real-life situations. • Evaluate complex expressions correctly by identifying terms and applying the proper order of operations.	• Favorite Number "Expression Challenge": Each student picks a "favorite number" and competes to write the most diverse arithmetic expressions (using +, −, ×, ÷) that evaluate to that number within two minutes. • Expression Engineer! (The 4-Fours Game): Using exactly four 4's and any arithmetic operations or brackets, students try to create expressions for every value from 1 to 10
Part-I	Chapter – 3 A Peek Beyond the Point	The Need for Smaller Units, A Tenth Part, A Hundredth Part, Decimal Place Value,		The learner will be able to: • convert fractions into decimals and vice versa. solve problems on daily life situations involving	• The "Precision Hunt": Students use a standard ruler to measure small classroom objects (like a pencil tip) and record the lengths in both millimetres and decimal

		Units of Measurement, Locating and Comparing Decimals, Addition and Subtraction of Decimals, More on the Decimal System	CG-2 Understands the concepts of variable, constant, coefficient, expression, and (one variable) equation, and uses these concepts to solve meaningful daily life problems with procedural fluency. C-2.1 Extends the abstract representation of a number in the form of a variable or an algebraic expression using a variable. C-2.2 Forms algebraic expressions using variables, coefficients, and constants, and manipulates them through addition, subtraction, and multiplication. C-2.3 Poses and solves linear equations to find the value of an unknown, including to solve puzzles and word problems. C-2.4 Develops own methods to solve puzzles and problems using algebraic thinking. CG-3 Understands, formulates, and applies properties and theorems regarding simple geometric shapes (2D and 3D). C-3.1 Describes, classifies, and understands relationships among different types of two and three-dimensional shapes using their defining properties/attributes. C-3.2 Knows properties of lines, angles, triangles, quadrilaterals, and polygons, and applies them to solve related problems. C-3.3 Identifies attributes of three-dimensional shapes (cubes, parallelepipeds, cylinders, cones, etc.) and uses two-dimensional representations of three-dimensional objects to visualise and solve problems. C-3.4 Draws and constructs geometric shapes such as lines, parallel lines, angles, and simple triangles, with specified properties, using compass and straightedge.	addition and subtraction of fractions /decimals.	centimetres (e.g., 0.7 cm) to understand the need for units smaller than a centimetre. Decimal "Tug-of-War": Students are given pairs of decimals (e.g., 0.1 and 0.09) and must "prove" which is larger by drawing them on a number line or using a 10x10 grid, helping to clear the common misconception that "more digits means a larger number."
Part-I	Chapter – 4 Expressions Using Letter-Numbers	The Notion of Letter-Numbers, Revising Arithmetic Expressions, Omission of the Multiplication Symbol in Algebraic Expressions, Simplification of Algebraic Expressions, Pick Patterns and Reveal Relationships		The learner will be able to: - Identify and uses 'letter-numbers' as symbols or variables to represent unknown or general quantities in mathematical relationships. - Translate real-life situations and patterns (such as ages, matchstick patterns, and costs) into concise algebraic expressions. - Generalize mathematical rules and formulas, such as finding the perimeter of various shapes using symbolic notation.	Matchstick Pattern Generalizer: Students use matchsticks or draw lines to create a growing sequence of shapes and write an algebraic expression to predict the total number of sticks needed for the 50th step. "Secret Age" Formula: Students create a "shorthand" expression for their age in relation to a sibling or friend (e.q., $S = A + 3$), and challenge others to find the "Secret Age" (S) by providing the different values for the variable (A).
Part-I	Chapter – 5 Parallel and Intersecting Lines	Across the Line, Perpendicular Lines, Between Lines, Parallel and Perpendicular Lines in Paper Folding, Transversals, Corresponding Angles, Drawing Parallel Lines,		The learner will be able to: verify the properties of various pairs of angles formed when a transversal cut two lines.	"Crease Capture": Each student folds a square piece of paper twice in any direction; they then trace the creases with a pencil and identify the point of intersection and the four angles formed. Human Transversal: Two students hold long sticks (or use floor lines) to represent parallel lines, while a third student places a stick across them as a "transversal" to help

		Alternate Angles, Parallel Illusions	CG-4 Develops understanding of perimeter and area for 2D shapes and uses them to solve day-to-day life problems.		the class identify corresponding and vertically opposite angles.
Part-I	Chapter – 6 Number Play	Numbers Tell us Things, Picking Parity, Some Explorations in Grids, Nature's Favourite Sequence: The Virahāṅka–Fibonacci Numbers!, Digits in Disguise,	C-4.1 Identifies, selects, and uses units of appropriate size and type to measure and examine the relationship between perimeter and area for 2D shapes (both regular and irregular shapes). C-4.2 Discovers, understands, and uses formulas to determine the circumference of a circle and the area of a triangle, parallelogram, and trapezium, and develops strategies to find the areas of more complex 2D shapes. C-4.3 Explores and uses Baudhayana's Theorem on right triangles and other fundamental geometric theorems to solve puzzles and everyday problems.	The learner will be able to: - Generalize number patterns into algebraic expressions. - Use 'letter-numbers' to describe general properties of sequences and finds specific values at any given position.	Parity "Pair-Up": Students take a handful of small objects (stones or bottle caps) and determine if the number is even or odd by pairing them up; they then combine their objects with a partner to discover the rules for the sum of two odd or two even numbers. Magic Grid Challenge: Students draw a 3x3 grid and attempt to place numbers so that every row and column adds up to the same "Magic Sum," using algebraic reasoning to identify why certain numbers cannot work in specific spots.
Part-I	Chapter – 7 A Tale of Three Intersecting Lines	Equilateral Triangles, Constructing a Triangle When its Sides are Given, Construction of Triangles When Some Sides and Angles are Given, Constructions Related to Altitudes of Triangles, Types of Triangles	C-4.4 Discovers and constructs tilings of the plane using 2D shapes and identifies and appreciates their appearances in art in India and around the world. C-4.5 Develops the notion of fractal and identifies and appreciates the appearances of fractals in nature and art in India and around the world. CG-5 Collects, organises, represents (graphically and in tables), and interprets data/ information from daily life experiences. C-5.1 Collects, organises data, and applies measures of central tendencies such as average/mean, mode, and median.	The learner will be able to: - Classify triangles based on sides (equilateral, isosceles, scalene) and angles (acute, obtuse, right-angled) using precise mathematical vocabulary. - Construct triangles using a ruler and compass when given specific measurements and recognizes when a construction is impossible.	The "Broken Stick" Investigation: Students are given three strips of paper or twigs of varying lengths and must try to form a closed triangle, leading to the discovery that the sum of any two sides must be greater than the third. Angle Sum "Tear-Off": Students draw any triangle on a scrap piece of paper, tear off the three corners (angles), and arrange them side-by-side on a straight line to visually prove they always sum to 180°.
Part-I	Chapter – 8 Working with Fractions	Multiplication of Fractions, Division of Fractions, Some Problems Involving Fractions	C-5.2 Selects, creates, and uses appropriate graphical representations of data, including pictographs, bar graphs, histograms, line graphs, and pie charts.	The learner will be able to: - interpret the division and multiplication of fractions. - use algorithms to multiply and divide fractions/decimals.	Paper-Folding Products: Students take a rectangular piece of paper, fold it vertically to show one fraction (e.g., 1/2) and horizontally to show another (e.g., 1/3); the overlapping region visually demonstrates the product of two fractions. "Greater or Smaller?" Prediction: Students are given division problems where the divisor is a proper fraction and

					must predict if the quotient will be larger or smaller than the dividend before calculating to test their understanding of Brahmagupta’s rule.
	➤ The above content must be completed for Mid Term Examination by 5th September, 2026. ➤ Mental Maths & Maths Lab Activities ➤ Revision of syllabus for Mid Term Examination.				
MID TERM EXAMINATION					
Part-II	Chapter – 1 Geometric Twins	Geometric Twins, Congruence of Triangles, Angles of Isosceles and Equilateral Triangles	CG-6 Develops mathematical thinking and the ability to logically and precisely communicate mathematical ideas. C-6.1 Applies both inductive and deductive logic to formulate definitions and conjectures, evaluates and produces convincing arguments/proofs to turn these definitions and conjectures into theorems or correct statements, particularly in the areas of algebra, elementary number theory, and geometry. CG-7 Engages with puzzles and mathematical problems and develops own creative methods and strategies to solve them. C-7.1 Applies creativity to develop one’s own solutions to puzzles and other problems and appreciates the work of others to develop their own solutions. C-7.2 Engages in and appreciates the artistry and aesthetics of puzzle-making, puzzle-posing, and puzzle-solving.	The learner will be able to: - Define and identifies congruent figures as "geometric twins" that have the same shape and size through the method of superposition. - Establish the criteria for congruence of triangles (SSS, SAS, ASA, and RHS) through investigation and measurement. - Analyse and explains why certain conditions (like SSA or AAA) do not guarantee congruence, recognizing that these can lead to multiple non-identical shapes.	Triangle Construction "Secret Code" (SSS, SAS, ASA): Pairs of students sit back-to-back; one student gives "instructions" (e.g., "draw a triangle with sides 4cm, 5cm, and 6cm") to the other. They then compare their drawings to see if the given measurements were sufficient to create an exact replica. "Ambiguous Case" Investigation: Students are asked to draw a triangle given two sides and a non-included angle (SSA); they compare their results with neighbours to discover why this specific set of information does not always guarantee a "geometric twin."
Part-II	Chapter – 2 Operations with Integers	A Quick Recap of Integers, Multiplication of Integers		The learner will be able to: multiply/divide two integers	Integer "Tug-of-War": Students stand in a line representing a giant number line. One student starts at '0'; they move forward for positive numbers and backward for negative numbers based on "action cards" (e.g., +5 followed by –8), identifying their final position as the sum. The "Rakesh Puzzle" Race: Pairs of students compete to find two integers given

			CG-8 Knows and appreciates the development of mathematical ideas over human history, and the contributions of past and modern mathematicians from India and across the world. C-8.1 Recognises important mathematical contributions of India (e.g., zero, Indian numerals, ideas around infinity, concepts of algebra, etc.) as well as the contributions of specific Indian mathematicians (such as Baudhayana, Panini, Pingala, Aryabhata, Brahmagupta, Virahanka, Bhaskara, Madhava, and Ramanujan). C-8.2 Recognizes and appreciates how concepts (like the notion of number, from counting numbers, to 0, to negative numbers, to rational evolved over a period of time across different civilizations.		their sum and difference (e.g., "Find two numbers with a sum of 2 and a difference of -10).
Part-II	Chapter –3 Finding Common Ground	The Greatest of All, Least, but not Last!, Patterns, Properties, and a Pretty Procedure!,		The learner will be able to: Determine HCF and LCM of a group of numbers using the Prime Factorization method. Generalize the relationship between HCF and LCM for different types of numbers (e.g., for co-prime numbers, consecutive numbers, or multiples).	Tile the Floor: Using a small rectangular space (like a book or a floor tile) and paper squares of different sizes, students try to find the largest square that can perfectly cover the area without any gaps or overlaps. Mystery Colour Decoder: Students create a "colour code" for the first few prime numbers and use them to draw "composite circles" for numbers up to 20 based on their prime factors.
Part-II	Chapter – 4 Another Peek Beyond the Point	A Quick Recap of Decimals, Decimal Multiplication, Decimal Division, Look Before You Leap!	CG-9 Develops basic skills and capacities of computational thinking, namely, decomposition, pattern recognition, data representation, generalization, abstraction, and algorithms, in order to solve problems where such techniques of computational thinking are effective.	The learner will be able to: use algorithms to multiply and divide decimals.	The "Shift the Point" Race: Students are given a decimal number on a slate and a "command" (e.g., "Multiply by 100" or "Divide by 10"). They must race to rewrite the number, demonstrating their understanding of how the decimal point shifts based on the number of zeros. Gram-to-Kilo Grocery Shop: Using local items (like a stone or a book), students estimate their weight in grams and then convert them into kilograms using decimals.
Part-II	Chapter – 5 Connecting the Dots	Of Questions and Statements, Representative Values, Visualising Data, Data Detective	C-9.1 Approaches problems using programmatic thinking techniques such as iteration, symbolic representation, and logical operations and reformulates problems into series of ordered steps (algorithmic thinking). C-9.2 Identifies, analyses, and implements possible solutions to problems, with the goal of achieving the most efficient and effective combination of steps and resources and generalizes this process to a wide variety of problems.	The learner will be able to: - Collect, record, and organize data to answer specific questions related to social or physical phenomena. - Calculate and interprets the Arithmetic Mean and Median as representative values for a given dataset. - Construct and interprets double/clustered bar	The "Human Dot Plot": Students estimate a specific duration (like 30 seconds) in their heads and shout "Stop" when they think it's over; the teacher records the actual elapsed times on the board as a dot plot to visualize the "spread" and "clustering" of their guesses. Double Bar Graph "Mood Tracker": Students record their "Energy Levels" (on a scale of 1–10) in the morning and again before leaving school. They create a double bar graph to compare the class's morning

				graphs to compare two sets of data across different categories.	vs. afternoon energy, identifying trends over time.
Part-II	Chapter – 6 Constructions and Tilings	Geometric Constructions, Tiling		The learner will be able to: Construct a perpendicular bisector, Bisect and copies angles accurately, Construct specific angles (such as 60°, 90°, and 120°) using only a ruler and compass, Identify and create tilings (tessellations)	• Angle "Copy-Paste": One student draws a random angle on a scrap of paper; using only a strip of paper as a "ruler" and a fixed string as a "compass," a partner must recreate the exact same angle elsewhere without using a protractor. • Nature’s Tiler: Inspired by beehives, students try to "tile" their desk surface using paper cut-outs of different regular polygons (triangles, squares, pentagons, hexagons) to identify which shapes leave no gaps and why hexagons are "nature's choice."
Part-II	Chapter – 7 Finding the Unknown	Find the Unknowns, Solving Equations Systematically, Mind the Mistake, Mend the Mistake, A Pinch of History,		The learner will be able to: • Differentiate between an algebraic expression and an equation. • Solve simple linear equations. Verify the solution of an equation.	• The "Inverse" Walk: A student performs a series of "secret operations" on a number (e.g., "I multiplied by 2 and added 3 to get 11"). The class must "walk backward" using inverse operations (subtract 3, then divide by 2) to find the starting number. • Algebraic "Think of a Number": Students create their own "math magic tricks" (Multiply by 2, add 10, divide by 2...). They then use a letter-number (x) to write out the expression and prove why the final result is always a specific constant.
	➤ The whole syllabus must be completed for Annual Examination by 30th January, 2027. ➤ Mental Maths & Maths Lab Activities ➤ Revision of whole syllabus for Annual Examination.				
ANNUAL EXAMINATION 2027					