Mathematics - VI Standard

Unit No. & Topic	Expected learning outcomes	Content	Transactional Teaching Strategy	Teaching Aids	No. of Periods
1. Number work	To recall concept of whole numbers, number names & numerals To know four fundamental Operations on whole numbers (sum or product not to exceed 5 digits) To know how to use shortcuts in calculators	1.1 Arithmetic –review Four fundamental of operations. Using short-cuts for calculators	Write number and find the place value. Use columnar method to write numbers & apply operations. Explain the algorithm of shortcuts.	Number charts Abacus, Dot board, Geo board	60
	To recall classifications of natural numbers as odd or even To identify Prime number, To understand and appreciate. Patterns in numbers. To understand that prime numbers cannot be used to form rectangular patterns.	1.2 Number patterns – Revision- Extension to triangular, square and cube numbers	Use dots to introduce the patterns in numbers Ask the students to arrange the numbers in different patterns	Stickers	
	To express large numbers in index notation	1.3. Large numbers			
	To recall the divisibility tests and apply them	1.4. Divisibility tests for 2,10,5,4,8,3,9, 11 and 6- Revision	Study the multiplication table and recognize patterns	Multiplication tables	

	To recall the concept of GCD and LCM and use them To know how to find GCD and LCK by Division method.	1.5. GCD and LCM of 2 and 3 digit numbers Revision – Division method.	Express numbers as product of primes Apply division method at first to 2 digit numbers getting GCD in one or two steps (e.g.24 and 36; 30 and 50)		
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1. Number Work	To understand the need for fractional numbers TO use LCK to do operation on factions. To know that decimals are fractions with demoniators as powers of 10. To convert fractional numbers into decimals and vice-versa. To compare two rational numbers To recall the four fundamental operations on fractions and decimals and apply them	1.6. Rational Numbers Fractional numbers – Decimals- Revision	Give examples from real life situations for comparing life fractions; extend it to unlike fractions; use the linkage between metric measures and decimals.	Cuisenn air' s strips, graph sheets and geo board.	

	To understand and appreciate the need for extension of whole number system To arrange integers in ascending or descending order. To perform four fundamental operations on integers To understand that the sum, product and difference two integers is also an integer whereas in division the result is not necessarily an integer and is often to be a rational number	1.7 Direct Numbers – Representation on Number line Order in Numbers Four fundamental operations	Introduce concept through Profit and Loss, Height and depth etc. With an West-East line introduce directed number first as E4, W3, etc., later as +4, -3 etc.	Number line Graph	

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2. Every Day Arithmetic	To recall concept of ratios To compare two given ratios To form a proportion To apply concepts of ratio and proportion in life situation	2.1 Ratio and Proporation – Revision	From life situations like Sharing, Mixtures etc.	Graph Sheets	
	To understand that percentage is a fraction with denominator 100. To know to compare performances through conversion of fractions into percentages	2.2 Percentages – Revision	Mark Sheets of tests and exams may be used to motivate the need for a standard measure like percentage		
	To verify shopping bills and understand their format To prepare bill for not more than four purchases without taxes	2.3 Shopping – revision	Real invoices may be used		

	To know how interest is calculated	2.4 Finance – Simple interest for not more than 3 terms without formula	Unitary method to be adopted		

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3. Measurements	To know the table of metric measures from milli to kilo To write the unit measures correctly To apply four fundamental operation on metric measures To know the area measures (Ares, Hectares) and volumes measures (Litre, Kilolitre) To understand the relationship between volume and linear measures.	3.1 Metric Measures – Linear, Weight & Capacity Revision Extension to Area & Volume	Use weights and measures in real situation, like classroom, playground, desks and benches To measure quantify of water using measures of capacity and find the relationship 1 litre = 100cc Use of graph sheets to find area	Weights and measures Graph Sheets	**30**
	To convert from one unit to time to another and find duration between two time periods. To understand the concept of leap-year and identify leap-years	3.2 Measures of time from seconds to day, weak, year, leap-year	Watches, stopwatches and calendar	Measuring instrument Railway time table.	

	To know how to find the perimeter and area of rectangle to derive the formula for perimeter and area of rectangle and square. To understand that the diagonal divides a rectangle into two congruent right triangles. To understand that while the area of a right triangle is half that of a rectangle containing the same, the perimeter of a right triangle is not equal to half that of the rectangle To understand that the walls of a rectangle room are rectangular in shape and calculate the area of four walls.	3.3 Perimeter and Areas of rectangle, right triangle, area of four walls of the room	The graph sheets to find areas of rectangle and its perimeter By paper folding, learn that a rectangle given, place to two congruent right triangle Measure perimeter of a rectangle and the contained right angle	Graph sheets Isometric papers Squared papers.	

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4. Algebra	To know and understand that literals are place holders for numbers. To understand addition and subtraction rules To understand the meaning of powers of literals	4.1. Use of literals for members-variables coefficient of literals – powers up to 3.	Introduce the literals through life situations and arithmetic problems like 7 + ? = 15 etc., Area of rectangle A = / b etc.	Squared paper work cards	20
5. Geometry	To know to distinguish between the various terms To understand intuitively the meaning of the terms	5.1 Fundamental Terms Points, lines, rays, segements, plane and space	Demonstrate on the black board The limitations of representations on the black board should be explained A dot is not a point, but a point	Black Board Number rule	30

	To understand that two points define a line To recognize collinear lines, congruent lines, parallel lines and perpendicular lines.	5.2 Preperties of collinearity, concurrency, parallelisms and perpendicularity	Demonstrate the concepts on the black board. Demonstrate how to check for concurrency, parallelism and perpendicularity	Paper folding, thread sticks etc.,	
	To understand the basic concepts of an angle, that two rays with a common end point determine an angle. To recognize different kinds of angles To tell supplementary and complementary angles for a given angle To find out that for obtuse angles there is no complementary angle. The supplementary angle of an acute is obtuse and vice versa.	5.3 Angle and angle measures, kinds of angles – right angle, acute angle, obtuse angle complementary & supplementary angles Revision	Demonstrate how an angle is constructed Use cardboard cuttings to explain different kinds of angles.	Set squares, papers – folding, Cardboards	

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5.Geometry	To recognize different kinds of triangles Equilateral, isosceles, scalene, right, acute and obtuse angled triangles	5.4 Triangles – Classification bases on (a) length of sides (b) measures of angles Revision	use cardboard cuttings to demonstrate the different kinds of triangles With match sticks of different lengths, construct different kinds of triangles	Cardboard, match stick thread etc	

	To understand that special quadrilaterals have specific relationship with regard the sides and angles. To recognize the different kinds of quadrilaterals To draw them on a graph sheet	5.5 special quadrilaterals squares, rectangles, parallelogram, rhombus, kite and Trapezium Properties of sides, angles and diagonals	Demonstrate the properties of special quadrilaterals through paper folding, graphs	Plane figure models paper folding sticks of different lengths Graph sheets.	
6. Practical Geomentry	Given a line segment know how to measure it Know how to draw a line equal to the given measure	6.1 Line segments drawing and measuring	Introduce length measure through number line and then to measurement to rule	Graph sheet Number line	
	Given an angle, know how to find its measure, Draw an angle, given its measure	6.2. Angles drawing and measuring-3 limited to angle 90,45,30 and 60 degress	Use paper-folding exercises to Construct angles of different measures	Set-square, Paper folding	

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6. Practical Geometry	To understand that by folding a line segment so that its ends concur, the perpendicurlar bisector is obtained	6.3 Perpendicular bisector of a segment – Drawing	Use Paper – folding method	Paper folding	20
	To understand that by bringing the legs of an angle together, the angular bisector is obtained	6.4 Angular bisector Drawings	Use Paper-folding method	Paper folding	

7. Data Handling	To know how to read and interpret a given diagrammatic representation	7.2 Diagrammatic representation – Pictogram, Bar diagram, Weather chart, Temperature etc. Reading and interpreting (No drawing of diagram)	Date relating situations in the class. Collect diagrams		14
				Total	**224**

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1. Number Work	To recall the concept of integers and the rules for operation on integers. To appreciate the necessary for using bracket To know now to expand arithmetic expressions with brackets To evaluate formulas	1.1. Integers – Review Use of brackets and their removal (only one backet)	Introduce the operations through number line Use cardboards	Number line	**40**
	To result fractional numbers and the operations on them To understand that the rules from operation on integers hold good for rational numbers To know how to simplify arithmetic expressions with rational numbers	1.2. Rational Numbers Four fundamental operations	Tell how inadequacy of whole numbers leads to integers and fractions	Number line	

	To know how to represent a whole number as product of prime factors. To understand the use of indices is a short form of expressing a number To recognize that in square numbers prime factors occur in pairs and the index is even To recognize that for every two same factors, the square root contains one. To recognize that in cube numbers, prime factors occur in sets of three To know how to find square root and cube root.	1.4 Indices Roots-square roots and cube roots	Ask the students to express numbers as product of primes	Factor tree	

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2. Every day Arithmetic	To appreciate the need for approximate values To know how to round off a number to a. the nearest integer b. two or three decimal places c. a given number of significant digits	1.5. Approximations	Use life situations to make students appreciate the need for approximation. Ensure that students understand the concept of significant digits	Scales	

	To understand that relationship between two related items can be in direct or inverse variation To be able to identify the type of variation in a problem To find the method to solve the problem	2.1 Variation Direct and Inverse Variation Revision and Extension	Time and work, time and distance sharing problems etc., to be used to identify variation. Examples to show non-relationship of two variables, eg. Heights & weights food taken & weight of a person etc.	Tax Tables	30
	To recall the concept of percentage To know how to find the percentage of a given commodity To know how to calculate commission discount and sales lax	2.2 percentages Use for findings commission Discount and Tax (Sales tax only)	Collect details of commission and discount rates Explain the differences between commission and discount		
	To recall how to find simple interest To find the term for which interest is to be calculated in Recurring, Deposit problem To calculate interest and amount in R.D. problem	2.3 Finance Recurring Deposit	Through a study of patterns derive the formula ? n=n(n+1)/2 Use strips to find the period for which interest is calculated on each instalment.	R.D Tables Post Office R.D.Schemes Bank R.D. Schemes.	