

SYLLABUS OUTLINE FOR MATHEMATICS CLASS IV

Competencies	Main themes	Activities/Methods	Evaluation	Periods	Term
<u>GEOMETRY:</u> Understanding basic geometrical shapes and designs. Recognising and classifying open and closed figures.	Shapes and spatial understanding. - Open and closed figures. -Interior and exterior of closed figures.	<ul style="list-style-type: none"> • Identification of open and closed figures. • Observes geometrical figures and identifies open and closed figures such as an arc, circle, closed and open curves or shapes like ‘Z’ and ‘B’. • Identifies the interior and exterior of closed curves. 	Observation, Oral-testing, Written work	15	I
Understanding curvilinear and linear boundaries.	Curvilinear and linear boundaries.	<ul style="list-style-type: none"> ○ Identifies the curvilinear and linear boundaries by observation and comparison – observes the boundaries of a circle and that of a rectangular shape. ○ Observes and compares various figures and classify on the basis of boundaries. 	Observation & Oral testing		
Understanding shapes and designs.	Circle – (a closed figure) – radius, centre and diameter of a circle.	<ul style="list-style-type: none"> • Draw a circle with i) free hand and ii) with the help of a compass and compares the accuracy of the two drawings. • Identifies the radius, centre and diameter of a circle. 	Observation & Oral testing		
	Tangrams and Tiles.	<ul style="list-style-type: none"> ○ Uses Tangrams to creat different shapes. 	Observation & Oral testing		

Understanding of measurement of simple geometrical shapes both in non-standard as well as in standard units.	Explores Areas and Perimeter. -Perimeter of an object as the distance around it.	<ul style="list-style-type: none"> ○ Tiles geometrical shapes using one or two shapes. ○ Choose a tile among a given number of tiles that can tile a given region both intuitively and experimentally. ▪ Explores intuitively and experimentally the area and perimeter of simple shapes. - Guess the perimeter of an object by tracing it with a finger. - Find the perimeter of an object (e.g. eraser) using a thread (for non-standard units) and a meter tape (for standard units) by wrapping around the object. - The sides of a rectangle are marked off in 1 cm units. The perimeter is found out by counting the number of the 1 cm unit. - To find out the area of a rectangle by guessing and by counting the total units comprising the rectangle. 	Observation, Oral testing, Written work		
Understanding 3-D and 2-D shapes.	3D shapes and 2D shapes.	<ul style="list-style-type: none"> ○ Makes 4-faced, 5-faced, 6-faced cubes from given nets especially designed for the same. ○ Explores intuitively the reflections through inkblots, paper-folding and paper-cutting. ○ Read and draw 3-D objects, making use of the familiarity with the conventions used in this. 	-Observation, -Oral testing, -Written work	8	II

		<ul style="list-style-type: none"> ○ Draws intuitively the plan, elevation and side view of simple objects. 			
NUMBERS: Multiplication: Understanding the concept of multiplication for developing the ability to compute.	Review of concepts and properties of multiplication facts. Multiplication tables. Multiplies two and three digits numbers using lattice algorithm and standard (column) algorithm.	<ul style="list-style-type: none"> ○ Multiplication as repeated addition. ○ Explore multiplication facts using the 'sets' of objects. (e.g. 4 sets of 2 apples i.e. $2+2+2+2 = 8$ i.e. $4 \times 2 = 8$) ▪ Construction of multiplication tables upto 10×10. ▪ Multiplies 2-digit and 3-digit numbers using standard algorithm and lattice multiplication algorithm. 	-Written work -Oral testing -Observation -	13	I
Division: Understanding the concept of division to develop the ability to compute. Apply knowledge and understanding in their day to day life.	Division of a given number by another number in different ways. Application of the four operations to life-situations.	<ul style="list-style-type: none"> ▪ Divides a given number by another number in various ways such as: <ul style="list-style-type: none"> - by drawing dots - by grouping - by using multiplication - by repeated subtraction. • Framing word problems. • Estimates sums, differences and products of given numbers. 	-Written work -Oral testing	12	I

Fractional Numbers: Ability to operate numbers and to apply the knowledge of operationalise in the context of measurement and the use of currency and coins.	- Identifies half, one-fourth and three-fourth of a whole. - Identifies the symbols $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$. Meaning of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$. - Appreciates equivalence of $\frac{2}{4}$ and $\frac{1}{2}$; and of $\frac{2}{2}$, $\frac{3}{3}$, $\frac{4}{4}$ and 1. - Uses decimal fractions in the context of units of length and money.	<ul style="list-style-type: none"> • Explores geometrical shapes divided into half, one-fourth and three-fourth. • Identifies the symbols $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$ by comparing with geometrical figures indicating the same idea. • Prepare paper strips of the same size. - Ask the child to fold one strip in two equal parts and to colour or shade one part with a pencil to give the idea of $\frac{1}{2}$. - Again, ask another child to fold another strip in four equal parts and shade two parts to give the idea of $\frac{2}{4}$. - Comparison of the two strips should be done to understand the equivalence of $\frac{1}{2}$ and $\frac{2}{4}$. 	Observation, Oral testing, Written work	20	II
Mental Arithmetic: Ability to compute mentally.	Addition, subtraction and multiplication.	<ul style="list-style-type: none"> • Add & subtract multiples of 10 and 100 mentally. • Completes multiplication facts by adding partial products, mentally. (e.g. $7 \times 6 = 5 \times 6 + 2 \times 6$) 	Oral Testing	5	I
	Simple fractions	<ul style="list-style-type: none"> ▪ . Adds & subtracts simple fractions mentally. 	Oral testing	5	II
	Computing & conversion	<ul style="list-style-type: none"> ○ Computing the number of days between two dates, mentally. ○ Converts Rupees to paise & vice-versa, mentally. 	Oral testing	5	III
MONEY Enhancing the ability to operate	Money - Conversion - Addition and	<ul style="list-style-type: none"> ○ Converts Rupees to paise. ○ Adds and subtracts amounts using column addition and subtraction with 	Observation, -Oral testing, -Written work	8	III

practically, using common currency and coins.	subtraction money. - Operations of money.	re-grouping. ○ Uses operations to find totals, change, multiple cost and unit cost. ○ Estimates roughly the totals and total costs.			
<u>MEASUREMNT:</u> Length: - Ability to use standard units of measurement of length. - Developing the ability to measure and estimate and to learn terms related to measurement.	Length Relates metre with centimetre. Converts metres into centimeters. Converts centimetres into meters. Solves problems involving length and distances.	○ Ask children to measure objects using a tape in terms of metre and centimeter. Ask children to estimate the differences between the two units when measuring the same height/object. ○ Relates metre with centimetre from the conversion table i.e. 1 metre = 100 centimetre. ▪ Conversion of metre into centimetre by multiplying by 100. ▪ Conversion of centimetres into metres by dividing centimetre by 100. ○ Estimates lengths of objects. ○ Estimates distance between two given locations.	Observation, Oral testing, Written work	8	I
Weight: Ability to use, estimates & measure standard units of weight.	Weight - Concept of weight - Operation and estimation of weights	○ Weights objects using balance and standard units. ○ Determines sums and differences of weights. ○ Estimates the weight of an object and verifies using a balance.	-Observation, -Oral testing, -Written work -Records on performance of activities	6	II

Volume: Ability to use, estimates & measure standard units of volume	Volume - Concept of volume. - Estimation of volume.	<ul style="list-style-type: none"> Measures volumes of a given liquid using containers marked with standard units. Determines sums and differences of volume. Estimates the volume of a liquid contained in a vessel and verifies by measuring. 	-Observation, -Oral testing, -Written work -Records on performance of activities	6	II
Time: Ability to use standard units of time. Enhancing the ability to measure time practically in day to day activities.	Time - Computation - Correlation - Leap year & time. - Reading 'time' -n a.m & p.m - Duration of time & estimation.	<ul style="list-style-type: none"> Computes the number of weeks in a year. Correlates the number of days in a year with the number of days in each month. Justifies the reason for the need of a leap year. Reads clock time to the nearest hours and minutes. Expresses time using the terms 'a.m.' and 'p.m.' Estimates the duration of familiar events. Find approximate time elapsed (to the nearest hour) by forward counting. Computes the number of days between two days. 	Observation, -Oral testing, -Written work	12	III
Data Handling: Enhancing the ability in data collection,	Data Handling - Data collection and representation - Drawing inferences	<ul style="list-style-type: none"> Collects data and represents in the form of bar graphs. Draws inferences of data with the help of the teacher. 	Observation, -Oral testing, -Written work	9	III

representation and interpretation.	of data.	<ul style="list-style-type: none"> Collects information (e.g. age of students in the class) and represent in the form of bar graph. 			
Patterns: Ability to identify and understand patterns.	Patterns	<ul style="list-style-type: none"> Identifies patterns in multiplication and division: multiples of 9. Casts out nines from a given number to check if it is a multiple of 9. Multiplies and divides by 10's and 100's. Identifies geometrical patterns based on symmetry. 	Observation Written work	9	III