Class 1

Section I
Pedagogical processes suggested by NCERT
The learner may be provided opportunities in pairs /groups / individually and encouraged to —
Observe different contexts and situations from the immediate environment such as things that are inside /outside the classroom They may be encouraged to use spatial vocabulary / concepts like top-bottom, on- under, inside-outside, above-below, near- far, before-after, thin- thick, big-small etc.
Identify and draw the things which are near- far, tall-short, thick-thin, etc.
Handle concrete materials or models and classify them. For example, objects which are round in shape such as chapati, ball, etc and those which are not round such as pencil box.
Count objects, for instance, students may take out objects up to 9 from a given collection of objects such as picking any 8 leaves /4 beads /6 ice-cream sticks etc, from the given box.
Take out objects up to 20 from a given collection of objects
Use words like more than, less than or equal through the strategy of one to one correspondence in objects in two groups
Explore different strategies to add numbers up to 9 like counting on forward and using already known addition facts
Evolve different strategies to subtract numbers up to 9 as for example, recounting after taking out objects from a given collection
Use different strategies like aggregation, counting forward, using addition facts, etc. To extend addition up to 20 (sum not exceeding 20)
Develop different strategies of subtraction through taking away objects / pictures
Count in groups of tens and ones for numbers more than 20 e.g. 38 has 3 groups /bundles of ten each and 8 loose (ones)
Sort objects based on similarities and differences through their sense of touch and observations
Verbalise the properties of shapes /criterion used by them in sorting / classifying solids / shapes
Use concrete play money for
Finds short lengths in their immediate environment using non-uniform units like finger, hand span, length of a forearm, footsteps, etc.
Conduct classroom discussions on learner observations of pattern and allow them to describe in their own language. Let children find what will come next and justify their answer
Observe and collect information from the visuals, contexts / situations such as number of items

Section II	
Learning Outcomes of NCERT	**Measuring the LO**
Classifies objects into groups based on a few physical attributes such as shape, size	• Classifies objects into groups based on a few physical attributes such as shape,

and other observable properties including rolling and sliding recites number names and counts objects up to 20, concretely, pictorially and symbolically	size and other observable properties including rolling and sliding • recites number names and counts objects up to 20, concretely, pictorially and symbolically
Works with numbers 1 to 20 Counts objects using numbers 1 to 9 Compares numbers up to 20. For example, tells whether number of girls or number of boys is more in the class	• Identifies numbers 1 to 20 • Counts objects using numbers 1 to 9 • Compares numbers up to 20.
Applies addition and subtraction of numbers 1 to 20 in daily life • Constructs addition facts up to 9 by using concrete objects. For example, to find 3+3 counts 3 steps forward from 3 and concludes that 3+3=6 • Subtracts numbers using 1 to 9. For example, the child takes out 3 objects from a collection of 9 objects and counts the remaining to conclude 9-3=6	• Applies addition and subtraction of numbers 1 to 20 in daily life • constructs addition facts up to 9 by using concrete objects. • subtracts numbers using 1 to 9. • Identifies and differentiates between the process of addition and subtraction
Solves day-to-day problems related to addition and subtraction of numbers up to 9	Solves day-to-day problems related to addition and subtraction of numbers up to 9
Recognizes numbers up to 99 and writes numerals	Recognizes numbers up to 99 and writes numerals
Describes the physical features of various solids /shapes in her own language. For example- a ball rolls, a box slides etc.	Describes the physical features of various solids /shapes in her own language.
Estimates and measures short lengths using non-uniform units like a finger, hand span, length of a forearm, footsteps, etc.	Estimates and measures short lengths using non-uniform units like a finger, hand span, length of a forearm, footsteps, etc.
Observes, extends and creates patterns of shapes and numbers. For example, arrangement of shapes / objects / numbers, etc. For example, arrangement of shapes / objects / numbers, etc.:- -  - 1,2,3,4,5,...	Observes, extends and creates patterns of shapes and numbers.

- 1,3,5,… - 2,4,6,…… 1,2,3,1,2,..., 1,…3,……..	
Collects, records (using pictures /numerals) and interprets simple information by looking at visuals. (for example, in a picture of a garden the child looks at different flowers and draws inference that flowers of a certain colour are more).	Collects, records (using pictures /numerals) and interprets simple information by looking at visuals.
Develops the concept of zero	Infer the application of zero in different mathematical situations.
	Classifies & Catagories the denomination of commonly used coins and notes

MAPPING OF GRADE 1 MATHEMATICS TOPICS WITH LEARNING OUTCOMES ADAPTED BY CBSE

Important Note: It must be ensured by the teachers that learners are able to use mathematical learning in day to day life and unfamiliar contexts/ situations about which they are not exposed earlier. Learning Objectives should also focus on enhancing the ability of the learner to convert a real life problem into a mathematical problem and the ability to interpret and evaluate mathematical results in the real life contexts.

Chapter no	Learning Objective	Learning Outcome
Chapter 1 : Shapes and Space	Describes spatial relationships using "top-bottom, on-under /above-below"	Describes the physical features of various solids /shapes in her own language.
	Describes spatial relationships using "bigger-smaller, near-farther"	
	Matches and sorts common 2D shapes by features and size	
	Matches common 3D objects to corresponding shapes and classifies them based on observable features	
	Recognizes 'circle' and 'square' and establishes correspondence with everyday objects	
	Recognizes 'rectangle' and 'triangle' and establishes correspondence with everyday objects	
	Matches and sorts concrete objects and pictures based on visual attributes like shape, size, colour.	Classifies objects into groups based on a few physical attributes such as shape, size and other observable properties including rolling and sliding recites number names and counts objects up to 20, concretely, pictorially and symbolically
	Applies own rule(s) to sort groups of objects	
Chapter 2: Numbers 1 to 9	Establishes one-to-one correspondence between objects and compares one collection with the other (concrete and pictorial)	Classifies objects into groups based on a few physical attributes such as shape, size and other observable properties including rolling and sliding recites number names and counts objects up to 20, concretely, pictorially and symbolically
	Recites number names in standard order (1-9) and pairs one number name with only one object.	Identifies numbers 1 to 20 Counts objects using numbers 1 to 9 Compares numbers up to 20.
	Uses cardinality in counting (concrete, pictorial)	
	Uses ordinality in counting (concrete, pictorial)	
	Uses number count is independent of object arrangement (number conservation)	
	Identifies and writes numbers (1-9)	Identifies numbers up to 99 and writes numerals

	Matches objects with correct number (1-9) and creates groups corresponding to a given number (concrete, pictorial)	Works with numbers 1 to 20 Counts objects using numbers 1 to 9 Compares numbers up to 20. For example, tells whether number of girls or number of boys is more in the class
	Determines if one group has more / less/ same items as the other; Creates groups with equal number of items (1-9) (Numerically and pictorially)	
	Completes number sequences by counting forward and backward (1-9)	Observes, extends and creates patterns of shapes and numbers.
	Sequences up to three numbers (1-9) in increasing or decreasing order (concrete and pictorial)	Works with numbers 1 to 20 Counts objects using numbers 1 to 9 Compares numbers up to 20. For example, tells whether number of girls or number of boys is more in the class
	Develops concept of zero and its symbol	
Chapter 3: Addition (single digit, up to a sum of 9)	Uses the vocabulary and concept of addition as "putting together, joining" and that the resulting quantity is more than the original (Concretely and pictorially)	Applies addition and subtraction of numbers 1 to 20 in daily life • Constructs addition facts up to 9 by using concrete objects. • Subtracts numbers using 1 to 9.
	Combines two groups and determines the total quantity for sum not exceeding 9 (Concretely and pictorially)	
	Adds 1-digit numbers pictorially (sum not exceeding 9)	
	Represents addition symbolically (sum not exceeding 9)	
	Uses concept of adding zero to a number (concretely, pictorially and numerically)	Develops the concept of zero.
	Uses commutative property for 1-digit numbers (concretely, pictorially and numerically)	Applies addition and subtraction of numbers 1 to 20 in daily life • Constructs addition facts up to 9 by using concrete objects• Subtracts numbers using 1 to 9.
	Composes numbers (up to 9) by addition of smaller numbers in different combinations (concretely, pictorially and numerically)	
Chapter 4: Subtraction (single digit, up to 9)	Uses the vocabulary and concept of subtraction as "taking away" and "remove" and that the resulting quantity is less than the original (Concretely and pictorially)	Applies addition and subtraction of numbers 1 to 20 in daily life • Constructs addition facts up to 9 by using concrete objects. • Subtracts numbers using 1 to 9.
	Subtracts from and determines the resulting quantity of a subgroup (sum of collection not exceeding 9) (Concretely and pictorially)	
	Subtracts 1-digit numbers pictorially.	
	Subtracts 1 digit number with vertical arrangement(symbolically with numbers not exceeding 9)	

	Uses the concept of subtracting zero from a number (concretely, pictorially and numerically)	develops the concept of zero.
	Identifies the missing subtrahend and minuend to make the two groups equal (pictorially and numerically for numbers 1-9)	Applies addition and subtraction of numbers 1 to 20 in daily life • Constructs addition facts up to 9 by using concrete objects. • Subtracts numbers using 1 to 9.
Chapter 5: Numbers from 10-20	Groups individual objects into 10s (concrete and pictorial)	• Identifies numbers 1 to 20 • Counts objects using numbers 1 to 9 • Compares numbers up to 20.
	Numerals (10-20): Recites number names in standard order and associates them with corresponding number of items (concrete, pictorial) and numerals	• Classifies objects into groups based on a few physical attributes such as shape, size and other observable properties including rolling and sliding • recites number names and counts objects up to 20, concretely, pictorially and symbolically
	Numerals (10-20): Identifies and writes numbers	Identifies numbers 1 to 20 Counts objects using numbers 1 to 9 Compares numbers up to 20
	Numerals (10-20): Matches objects with correct number and creates groups corresponding to a given number (concrete, pictorial)	Classifies objects into groups based on a few physical attributes such as shape, size and other observable properties including rolling and sliding recites number names and counts objects up to 20, concretely, pictorially and symbolically
	Numerals (10-20): Composes and decomposes two digit numbers symbolically (e.g., 17=10+7), and develops understanding of zero as a placeholder	.
	Numerals (10-20): Explain how two digits of a two-digit number represent amounts of tens and ones (concretely and pictorially)	
	Solves addition using vertical algorithm for 2 digit numbers (up to 20) without carry over	Applies addition and subtraction of numbers 1 to 20 in daily life • Constructs addition facts up to 9 by using concrete objects. • Subtracts numbers using 1 to 9.
	Numerals (10-20): Determines if one group has more / less/ same items as the other; Creates groups with equal number of items (Numerically and pictorially)	Identifies numbers 1 to 20 Counts objects using numbers 1 to 9 Compares numbers up to 20.

	Numerals (10-20): Completes number sequences by counting forward and backward, without skip counting	Observes, extends and creates patterns of shapes and numbers
	Numerals (10-20): Sequences up to three numbers in increasing or decreasing order. (concrete, pictorial, numerical)	Identifies numbers 1 to 20 Counts objects using numbers 1 to 9 Compares numbers up to 20.
	Numerals (1-20): Estimates group size in broad ranges (e.g. "less than 5", "more than 10") and locates approximate position of a number on the number line.	
	Numerals (10-20): Expresses counting fluency (1-10)	
	Uses fluency in addition for 1-digit numbers (including 0) up to a total of 10	Applies addition and subtraction of numbers 1 to 20 in daily life • Constructs addition facts up to 9 by using concrete objects. • Subtracts numbers using 1 to 9.
	Solves addition using vertical algorithm for 2 digit numbers (up to 20) with carryover	
	Solves addition based real life problems presented orally (using numbers up to 20)	
	Uses fluency in subtraction for (1-1 digit) and (2-1 digit), including 0	
	Solves subtraction using vertical algorithm for 2 digit numbers (up to 20) without borrowing	
	Solves subtraction based real life problems presented orally (sum not more than 20)	
Chapter 6: Time	Identifies and sequences events by time of day and knows related vocabulary	Solves day-to-day problems related to addition and subtraction of numbers up to 9
	Identifies and sequences events within a given activity, and knows related vocabulary	

	Names days of the week in sequence and knows related vocabulary	
Chapter 7: Measurement	Compares length and height of objects and starts to measure them using non-standard units	Describes the physical features of various solids /shapes in her own language.
	Measures, compares and orders length and heights of common objects using non-standard units	Estimates and measures short lengths using non-uniform units like a finger, hand span, length of a forearm, footsteps, etc.
	Compares objects by weight and understands related vocabulary	Describes the physical features of various solids /shapes in her own language.
Chapter 8: Numbers from 21 to 50	**Numerals (21-50):** Recites number names in standard order and associates them with corresponding number of items (pictorial) and numerals	Identifies numbers up to 99 and writes numerals
	Numerals (10-50): Identifies and writes numbers	
	Numerals (21-50): Matches objects with correct number and creates groups corresponding to a given number (pictorial)	
	Numerals (21-50): Completes number sequences by counting forward and backward	Observes, extends and creates patterns of shapes and numbers.

Chapter 9: Data Handling	Classifies objects into given categories and count the numbers of objects in each category (concretely)	Collects, records (using pictures /numerals) and interprets simple information by looking at visuals.
	Organizes, represents, and interprets simple information (pictorially and numerically)	
Chapter 10: Patterns	**Numerals (1-50):** Skip counting forward and backwards in 10s & 5s	Observes, extends and creates patterns of shapes and numbers.
	Numerals (1-50): Skip counting forward and backwards in 2s & 3s	
	Observes and repeats patterns with shapes and pictures.	
Chapter 11: Numbers	**Numerals (51-70):** Recites number names in standard order and associates them with corresponding number of items (pictorial) and numerals	Identifies numbers up to 99 and writes numerals
	Numerals (71-99): Recites number names in standard order and associates them with corresponding number of items (pictorial) and numerals	
	Numerals (51-99): Recognizes and writes numbers	
	Numerals (51-99): Matches objects with correct number and creates groups corresponding to a given number (pictorial)	
	Numerals (51-99): Completes number sequences by counting forward and backward	observes, extends and creates patterns of shapes and numbers.

Chapter 12: Money	Understands the denomination of commonly used coins and notes	Solves day-to-day problems related to addition and subtraction of numbers up to 9
	Adds 1- and 2-rupee coins to make a given amount	
	Estimates/guesses the value of everyday items	
Chapter 13: How many	Apply the learning in various contexts	Solves day-to-day problems related to addition and subtraction of numbers up to 9