

Class 4

Section I
Pedagogical processes suggested by NCERT
The learner may be provided opportunities in pairs /groups / individually and encouraged to —
Explore and write multiplication facts through various ways like skip counting, extending patterns, etc. For example, for developing multiplication table of 3, children could use either skip counting or repetitive addition or pattern
<ul style="list-style-type: none">Expand the two-digit number and multiply, e.g., 23 multiplied by 6 could be solved as follows: $23 \times 6 = (20+3) \times 6 = 20 \times 6 + 3 \times 6$ $120 + 18 = 138$
Solve and create daily life problems using multiplication like, if a pen costs Rs. 35 what will be the cost of 7 pens?
Discuss and evolve standard algorithm for multiplication.
Make groups for division, e.g., $24 \div 3$ means I.e. To find how many groups of 3 can be there in 24 or how many 3's make 24?
Create contextual questions based on mathematical statements, e.g., the statement $25 - 10 = 15$ may trigger different questions from different students. A student may create: "I had 25 apples. Ten were eaten. How many apples are still left?"
Create contextual problem through group activity such as dividing the class in two groups where one group solves the problem given by the other group by using different operations and the vice-versa.
To discuss and correlate fractional numbers like half, one fourth, three fourths with daily life
Represent the fractional numbers through activities related to pictures /paper folding
Draw circles with various lengths of radius, compasses and explore various designs with the shape.
Discuss observation on tiling (of different shapes) which they see in their homes / on footpaths / floors of various buildings
Make their own tiles and verify whether the tiles they created tessellate or not
Look at various objects in the classroom from different viewpoints and make a deep drawing of the view. For example, a glass may look differently from the front. Questions like, 'but how it would look like from the top?' or 'how it would look like from below?' may be raised
Convert rupees into <i>paisa</i> , e.g., how many 50 <i>paisa</i> coins you will get in exchange of 20 rupees
Make bills so that the students while making bills will use the four operations of addition / subtraction / multiplication / division
Estimate the length of an object / distance first and then verify them by actually measuring them. For example, estimating the length of their bed or distance between the school gate and the classroom and verifying it by measuring them

Make a balance and weigh things with standard weights. In case standard weights are not available, packages with standard weights may be used like packets of ½ kg dal, 200 gm pack of salt, 100 gm pack of biscuits
Innovate use of weights like using two 250 gm packets instead of 500gm packet (or by using stones of equivalent weights, etc.)
Make their own measuring vessel to measure capacities of other vessels. For example, a bottle may have capacity for 200 ml and can be used as a measurement unit to know the amount of water in a jug or in a container
Observe and study the calendar and come up with the number of weeks in a month / in a year. Let children explore the pattern in the number of days in each month and how days are associated with dates in a month, etc.
Utilise their experiences inside /outside the class having exposure to telling time / reading clock in hours and minutes, along with peers
Discover the time lapsed in an event by counting forward or using subtraction / addition
Explore patterns / designs in their environment (using shapes and numbers) and make such patterns and extend them
Collect information and draw meaningful results in their daily life. Using these experiences, the children may be involved in activities focusing on data handling
Read data /bar graphs, etc., from newspapers /magazines and interpret them

Section II	
Learning Outcomes of NCERT	Measuring the LOs
The learner —	
<p>Applies operations of numbers in daily life</p> <ol style="list-style-type: none"> Multiplies 2- and 3-digit numbers Divides a number by another number using different methods like – pictorially (by drawing dots), equal grouping or repeated subtraction and by using inter-relationship between division and multiplication <p>Creates and solves simple real-life situations / problems including money, length, mass and capacity by using the four operations</p>	<p>Applies operations of numbers in daily life:</p> <ul style="list-style-type: none"> multiplies 2- and 3-digit numbers divides a number by another number using different methods like – pictorially (by drawing dots), equal grouping or repeated subtraction and by using inter-relationship between division and multiplication creates and solves simple real-life situations / problems including money, length, mass and capacity by using the four operations
<p>Works with fractions</p> <ol style="list-style-type: none"> Identifies half, one-fourth, three-fourths of a whole in a given picture by paper folding and also in a collection of objects. 	<p>Works with fractions:</p> <ul style="list-style-type: none"> identifies half, one-fourth, three-fourths of a whole in a given picture by paper folding and also in a collection of objects.

<p>b) Represents the fractions as half, one-fourth and three-fourths by using numbers / numerals</p> <p>Shows the equivalence of a fraction with other fractions</p>	<ul style="list-style-type: none"> • represents the fractions as half, one fourth and three-fourths by using numbers / numerals • shows the equivalence of a fraction with other fractions
<p>Acquires understanding about shapes around her /him</p> <ul style="list-style-type: none"> • Identifies the centre, radius and diameter of the circle • Finds out shapes that can be used for Tiling • Makes cube / cuboids using the given nets • Shows through paper folding / paper cutting, ink blots, etc. The concept of symmetry by reflection <p>Draws top view, front view and side view of simple objects</p>	<p>Acquires understanding about shapes around her /him:</p> <ul style="list-style-type: none"> • identifies the centre, radius and diameter of the circle • finds out shapes that can be used for tiling • makes cube / cuboids using the given nets • shows through paper folding / paper cutting, ink blots, etc. the concept of symmetry by reflection • draws top view, front view and side view of simple objects
<p>Explores the area and perimeter of simple geometrical shapes (triangle, rectangle, square) in terms of given shape as a unit. For example, the number of books that can completely fill the top of a table.</p>	<p>Explores the area and perimeter of simple geometrical shapes (triangle, rectangle, square) in terms of given shape as a unit.</p>
<p>Converts meter into centimeter and vice-versa</p>	<p>Converts meter into centimeter and vice versa</p>
<p>estimates the length of an object /distance between two locations, weight of various objects, volume of liquid, etc., and verifies them by actual measurement</p>	<p>Estimates the length of an object /distance between two locations, weight of various objects, volume of liquid, etc., and verifies them by actual measurement</p>
<p>Solves problem involving daily life situations related to length, distance, weight, volume and time involving four basic arithmetic operations</p>	<p>Applies knowledge of length, distance, weight, volume and time involving four basic arithmetic operations, in order to solve problem involving daily life situations</p>
<p>Reads clock time in hour and minutes and expresses the time in a.m. And p.m.</p>	<p>Reads clock time in hour and minutes and expresses the time in a.m. and p.m.</p>
<p>Relates to 24 hr. clock with respect to 12 hr. clock</p>	<p>Relates to 24 hr. clock with respect to 12 hr. clock</p>
<p>Calculates time intervals / duration of familiar daily life events by using forward or backward counting / addition and subtraction</p>	<p>Uses forward or backward counting / addition and subtraction in order to</p>

	calculate time intervals /duration of familiar daily life events
Identifies the pattern in multiplication and division (up to multiple of 9	Identifies the pattern in multiplication and division (up to multiple of 9)
Observes, identifies and extends geometrical patterns based on symmetry	Observes, identifies and extends geometrical patterns based on symmetry
Represents the collected information in tables and bar graphs and draws inferences from these	Represents the collected information in tables and bar graphs in order to draw inferences from these

MAPPING OF GRADE 4 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 name	Learning Objective	NCERT LO
Chapter 1: Building with bricks	Observes and identifies various brick patterns in walls, floors and name them	Observes, identifies and extends geometrical patterns based on symmetry
	Examines properties of a brick for a cuboid (edges, faces etc.).	Acquires understanding about shapes around her /him <ul style="list-style-type: none"> • Identifies the center, radius and diameter of the circle • Finds out shapes that can be used for Tiling • Makes cube / cuboids using the given nets • Shows through paper folding / paper cutting, ink blots, etc. The concept of symmetry by reflection Draws top view, front view and side view of simple objects
	Observes specific types of brick patterns in the surroundings and names them.	Observes, identifies and extends geometrical patterns based on symmetry
	Solves problems based on daily life instances.	Applies operations of numbers in daily life <ul style="list-style-type: none"> a) Multiplies 2- and 3-digit numbers b) Divides a number by another number using different methods like – pictorially (by drawing dots), equal grouping or repeated subtraction and by using inter-relationship between division and multiplication Creates and solves simple real-life situations / problems including money, length, mass and capacity by using the four operations
Chapter 2: Long and Short	Estimates and measures the distance (in cm) between the given objects	estimates the length of an object /distance between two locations, weight of various objects, volume of liquid, etc., and verifies them by actual measurement

	Measures the heights of different objects using a scale	estimates the length of an object /distance between two locations, weight of various objects, volume of liquid, etc., and verifies them by actual measurement
	Measures distance between objects (in meters and kilometers)	estimates the length of an object /distance between two locations, weight of various objects, volume of liquid, etc., and verifies them by actual measurement
	Converts units of length (cm, m, km)	Converts meter into centimeter and vice- versa
	Measures the distance and determines the nearest and farthest points	estimates the length of an object /distance between two locations, weight of various objects, volume of liquid, etc., and verifies them by actual measurement
	Solves simple real life problems related to length and height of objects (including conversion)	Solves problem involving daily life situations related to length, distance, weight, volume and time involving four basic arithmetic operations
	Solves simple real life problems related to distance between objects/places (including conversion)	Solves problem involving daily life situations related to length, distance, weight, volume and time involving four basic arithmetic operations
Chapter 3: A Trip to Bhopal	Solves small number mathematical problems by estimation and verification	Applies operations of numbers in daily life a) Multiplies 2- and 3-digit numbers b) Divides a number by another number using different methods like – pictorially (by drawing dots), equal grouping or repeated subtraction and by using inter-relationship between division and multiplication Creates and solves simple real-life situations / problems including money, length, mass and capacity by using the four operations
	Solves real life problems based on time and distance.	Solves problem involving daily life situations related to length, distance, weight, volume and time involving four basic arithmetic operations

	Solves time and measurement related real life problems (including conversion)	Solves problem involving daily life situations related to length, distance, weight, volume and time involving four basic arithmetic operations
	Solves contextual problems involving money	Applies operations of numbers in daily life a) Multiplies 2- and 3-digit numbers b) Divides a number by another number using different methods like – pictorially (by drawing dots), equal grouping or repeated subtraction and by using inter-relationship between division and multiplication Creates and solves simple real-life situations / problems including money, length, mass and capacity by using the four operations
	Performs division by equal distribution method and alternative methods.	Applies operations of numbers in daily life a) Multiplies 2- and 3-digit numbers b) Divides a number by another number using different methods like – pictorially (by drawing dots), equal grouping or repeated subtraction and by using inter-relationship between division and multiplication Creates and solves simple real-life situations / problems including money, length, mass and capacity by using the four operations
Chapter 4: Tick Tick Tick	Reads time from a 12 hour clock.	Reads clock time in hour and minutes and expresses the time in a.m. And p.m.
	Tells the duration (in minutes/hours/seconds) between the given time stamps and vice versa	Calculates time intervals / duration of familiar daily life events by using forward or backward counting / addition and subtraction
	Writes time in am-pm format and relate it with daily life activities	Reads clock time in hour and minutes and expresses the time in a.m. And p.m.
	Writes time in 12 hour format and 24 hour format	Relates to 24 hr. clock with respect to 12 hr. clock

Chapter 5: The way the world looks	Observes and draws objects from different heights.	<p>Acquires understanding about shapes around her /him</p> <ul style="list-style-type: none"> • Identifies the center, radius and diameter of the circle • Finds out shapes that can be used for Tiling • Makes cube / cuboids using the given nets • Shows through paper folding / paper cutting, ink blots, etc. <p>The concept of symmetry by reflection</p> <p>Draws top view, front view and side view of simple objects</p>
	Observes and draws objects from different sides.	
	Draws objects from different angles	
Chapter 6: The Junk Seller	Compares the cost and calculates the total amount paid in real life situations	<p>Applies operations of numbers in daily life</p> <p>a) Multiplies 2- and 3-digit numbers</p> <p>b) Divides a number by another number using different methods like – pictorially (by drawing dots), equal grouping or repeated subtraction and by using inter-relationship between division and multiplication</p> <p>Creates and solves simple real-life situations / problems including money, length, mass and capacity by using the four operations</p>
	Solves arithmetic sums mentally	
	Devises alternative methods to do multiplication	
	Estimates and verifies the answer for various sums involving arithmetic operations.	
	Solves real life problems related to currency (coins and notes)	
Chapter 7: Jugs and Mugs	Estimates and measures the volume of liquids in liters and milliliters	<p>estimates the length of an object /distance between two locations, weight of various objects, volume of liquid, etc., and verifies them by actual measurement</p>
	Estimates, measures and compares volume of different liquids.	
	Solves real life problems based on volume of liquids.	<p>solves problem involving daily life situations related to length, distance, weight, volume and time involving four basic arithmetic operations</p>
Chapter 8: Carts and Wheels	Constructs circles of varied sizes with different radii	<p>Acquires understanding about shapes around her /him</p> <ul style="list-style-type: none"> • Identifies the center, radius and diameter of the circle • Finds out shapes that can be used for Tiling • Makes cube / cuboids using the given nets • Shows through paper folding / paper cutting, ink blots, etc. <p>The concept of symmetry by reflection</p> <p>Draws top view, front view and side view of simple objects</p>
	Measures radii of circles with the help of a ruler/measuring tape/thread.	
	Identifies the center of the circle.	
Chapter 9: Halves and Quarters	Divides objects (or shapes) into two and four equal parts (concretely, pictorially and symbolically)	<p>Works with fractions</p> <p>a) Identifies half, one-fourth, three-fourths of a whole in a</p>

	Writes $\frac{3}{4}$ symbolically and relate its meaning with the part and whole.	given picture by paper folding and also in a collection of objects.
	Finds fractional part of a given natural number.	b) Represents the fractions as half, one-fourth and three-fourths by using numbers / numerals Shows the equivalence of a fraction with other fractions
Chapter 10: Play with Patterns	Identifies and extends the patterns using blocks and geometrical shapes.	Observes, identifies and extends geometrical patterns based on symmetry
	Identifies and extends the patterns using numbers and letters.	
	Solves magic squares and magic triangles.	Identifies the pattern in multiplication and division (up to multiple of 9)
	Identifies and extends various number patterns	
	Completes the given tiling patterns	observes, identifies and extends geometrical patterns based on symmetry
Chapter 11: Tables and Shares	Relates the concept of multiplication to the arrangement of things in an array.	
	Solves a variety of daily life problems using multiplication.	Applies operations of numbers in daily life a) Multiplies 2- and 3-digit numbers
	Solves problems based on division with large numbers using repeated subtraction.	b) Divides a number by another number using different methods like – pictorially (by drawing dots), equal grouping or repeated subtraction and by using inter-relationship between division and multiplication
	Devises alternative method of division apart from standard algorithm	Creates and solves simple real-life situations / problems including money, length, mass and capacity by using the four operations
	Solves daily life problems based on division	
	Multiplies or divides the given numbers.	Identifies the pattern in multiplication and division (up to multiple of 9)
	Extends the number pattern for a given situation to find the unknown value	
	Identifies the pattern in multiplication and division (up to multiple of 9)	
Chapter 12: How Heavy? How Light?	Adds smaller values to get a sum of 1kg	estimates the length of an object /distance between two locations, weight of various objects, volume of liquid, etc., and verifies them by actual measurement
	Estimates, measures and compares the weight of objects in grams and kilograms.	
	Devises alternative methods to measure heavy objects.	

	Uses a variety of weights to weigh using a weighing balance.	
	Solves real life problems involving weights.	Solves problem involving daily life situations related to length, distance, weight, volume and time involving four basic arithmetic operations
	Draws comparison of different objects basis on their weights	estimates the length of an object /distance between two locations, weight of various objects, volume of liquid, etc., and verifies them by actual measurement
Chapter 13: Fields and Fences	Recognizes the total length of boundary as the perimeter of a plane figure and calculates perimeter of simple shapes.	Explores the area and perimeter of simple geometrical shapes (triangle, rectangle, square) in terms of given shape as a unit.
	Estimates and compares the perimeter of various figures	
	Solves real life problems involving perimeter of simple shapes.	
	Determines the size of a shape by using a smaller shape as a unit	
	Determines the size (or area) of simple geometrical shapes and irregular figures given on a square grid.	
	Solves real life problems based on the area of plane figures	
Chapter 14: Smart Charts	Collects and records data in a tabular form	Represents the collected information in tables and bar graphs and draws inferences from these
	Reads and interprets the data recorded in a tabular form.	
	Draws a strip chart to represent a given information	
	Reads and interprets a strip chart.	
	Draws a chapati chart to represent the information given in a tabular form	