

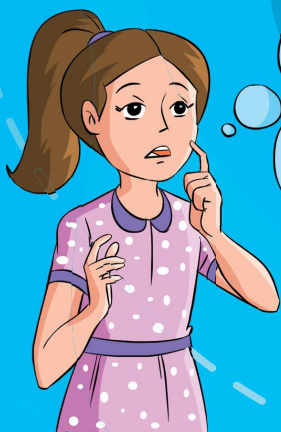
BRIDGE MONTH PROGRAMME

Grade 6



MATHEMATICS

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BRIDGE MONTH PROGRAMME

Mathematics- Grade 6

First Edition

April 2024 Vaisakha 1946

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*Printed on 80 GSM paper with NCERT
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Published at the Publication Division
by the Secretary, National Council of
Educational Research and Training,
Sri Aurobindo Marg, New Delhi 110 016
and printed at

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Curriculum Transition - Implementing NCF-SE 2023

Bridge Month Programme For Grade 6

Mathematics

Mathematics is the art and science of discovering patterns and explaining them. These patterns are all around us, in nature, in technology, and in the motion of the earth, sun, moon, and stars. There is mathematics in everything that we do and see, from shopping and cooking, to throwing a ball and playing games, to solar eclipses and climate patterns. Mathematics thus gives us the foundational concepts and capacities required to think about the world around us and the world beyond us. But most of all, when taught well, mathematics is truly enjoyable and can become a lifelong passion. The goal of mathematics Education is to bring to life these aspects of mathematics. With the growing challenges with respect to artificial intelligence, machine learning, data science, climate modelling, infrastructure development, and the numerous other related scientific issues faced by India and all nations today, mathematics along with computational thinking has become ever more important. Quality education in mathematics and mathematical thinking will thus be indispensable for India's future, and indeed for ensuring India's leadership role in these critically important and emerging fields.

Objectives of the Programme

This programme intends to support and motivate students to actively participate and engage in learning activities of Grade 6 confidently and to enjoy learning mathematics.

Week-wise timetable

Week	Time Available in Hours	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	3 Hr. 20 Minutes	-	Maths	Maths	Maths	Maths
		-			Maths	
Week 2	3 Hr. 20 Minutes	-	Maths	Maths	Maths	Maths
		-			Maths	
Week 3	3 Hr. 20 Minutes	-	Maths	Maths	Maths	Maths
		-			Maths	
Week 4	3 Hr. 20 Minutes	-	Maths	Maths	Maths	Maths
		-			Maths	

Week-wise Activity Plan

This consists of a variety of activities including games, puzzles, etc., which will not only help children to attain pre-requisites for the development of competencies included in Grade 6 mathematics, but also to create a positive, vibrant and sustainable attitude among the students towards learning mathematics. Topics covered in this course are based on the gaps identified through the comparison of LOs of existing and the new Grade 5 mathematics and the corresponding gaps in the syllabi. Activities and games will be integrated appropriately to create a positive attitude towards mathematics.

In the bridge month, teachers are expected to use experiential learning activities to facilitate children's transition from Grade 5 to 6. Activities and Games have been suggested to keep the students fruitfully engaged for around a month's period. This support material will help in preparing students to joyfully engage in learning the concepts that are proposed in the new mathematics textbook for Grade 6.



Teachers may use similar games/puzzles/activities in the classroom and encourage students to devise such activities.

Teachers may use these activities as per their choice at an appropriate time during this bridge month

Week	Competencies to be addressed	Activity-1	Activity -2	Activity- 3	Activity- 4	Activity-5
Week 1	<ul style="list-style-type: none"> Solves puzzles and daily-life problems involving one or more operations on whole numbers (including word puzzles and puzzles from 'recreational' areas, such as the construction of magic squares) in finding their own, possibly different, solutions. Discovers, recognises, describes, and extends patterns in 2D and 3D shapes. Deduces that shapes having equal areas can have different perimeters and shapes having equal perimeters can have different areas 	W1.1	W1.3	W1.5	W1.7	W1.8
		W1.2	W1.4	W1.6		

Week 2	<ul style="list-style-type: none"> ● Deduces that shapes having equal areas can have different perimeters and shapes having equal perimeters can have different areas 	W2.1	W2.3	W2.5	W2.6	W2.7
		W2.2	W2.4			
Week 3	<ul style="list-style-type: none"> ● Describes location and movement using both common language and mathematical vocabulary ; understands the notion of map ● Recognises and creates symmetry (reflection, rotation) in familiar 2D and 3D shapes ● Understands the definition and formula for the area of a square or rectangle as length times breadth 	W3.1	W3.3	W3.4	W3.5	W3.6
		W3.2				

Week 4	<ul style="list-style-type: none"> ● Understands the definition and formula for the area of a square or rectangle as length times breadth ● Solves puzzles and daily-life problems involving one or more operations on whole numbers (including word puzzles and puzzles from 'recreational' areas, such as the construction of magic squares) in finding their own, possibly different solutions. ● Selects appropriate methods and tools for computing with whole numbers, such as mental computation, estimation, or paper pencil calculation, in accordance with the context 	W 4.1	W4.2	W4.4	W4.6	W4.7
			W4.3	W4.5		

Details of Activities

ACTIVITIES FOR WEEK-1

Introduction: Ice Breaking and motivation sessions

The introductory sessions (40 minutes each) aim to enhance the motivation level of students towards learning mathematics by involving them in various puzzles, games and activities. Care must be given to provide students ample opportunity to think, question, discover and verify the results. This will help in creating interest and satisfaction among them. Apart from enhancing the motivation, these types of activities will help in developing mental computational capabilities and logical thinking also.

While doing these the teacher will get an opportunity to observe the students' thinking process. They may see whether the students are able to apply the concepts learnt by them till now, the strategies they employ while playing the games, etc. Based on these observations teachers may motivate students to improve upon their learning strategies.

Few such activities/games/puzzles are given below.

Activity W1.1

Let the teacher start with the following game:

- Teacher: I have a number in my mind. It lies between 1 and 30 including both. You are expected to identify the number through a series of questions.
- For each of the questions I will reply with either 'YES' or 'NO' only. Ask the question in such a way that, I can give the answer 'YES' or 'NO' only. If a child can't hear the questions they may be written or acted out.
- Teacher may ask the students to raise their hands for taking initiative in asking questions and then take up questions one by one with the above-mentioned answers.



- Either one student or a group of 3-4 students may plan their questions and then ask them one by one before reaching a conclusion.
- They should tell the class the strategy they tried for getting the number in the teacher's mind.
- If this student or the group of students succeed in locating the number, then the teacher may tell another student or group of students to take over the questioning for some other number. If the earlier student or group of students do not succeed in finding the number, then another student or group can take over the questioning and try to find that number.
- The students may be encouraged to ask a varied number of questions.

Modifications in the game:

- The game can be modified by changing the final number 30 to 40, 50, 60, etc.
- After getting enough exposure to the game, the teacher may ask the students to note the total number of questions asked before identifying the secret number. The teacher may then suggest finding the secret number with fewer and fewer questions. This will motivate the students to improve upon their strategies.
- To make the game more interesting, engrossing and competitive, two or three groups of students may be asked to participate. The group which finds the secret number in the least number of steps will be the winner.

Activity W1.2

- Step 1: Think of any number
- Step 2: If the number is odd, triple it and add 1, if the number is even, halve it.
- Step 3: Continue step 2, based on the resulting number in step 2 and continue the steps.



- Step 4: Write the pattern generated., e.g.,

Step 1: 5

Step 2: $3 \times 5 + 1 = 16$

Step 3: $16 / 2 = 8$

Step 4: $8 / 2 = 4$

Step 5: $4 / 2 = 2$

Step 6: $2 / 2 = 1$

Step 7: $3 \times 1 + 1 = 4$

Step 8: $4 / 2 = 2$

Step 9: $2 / 2 = 1$

.....

Resulting pattern is 5, 16, 8, 4, 2, 1, 4, 2, 1, 4, 2, 1,

- Ask the students to play it in pairs
- Let one child give the number, the other one develops the pattern and vice versa.
- Discuss all the patterns they developed and ask them to find out the reason for the pattern which is named as hailstone numbers.

Activity W1.3

- Think of a number; multiply it by 2; add 6; take half of the number; subtract 1; subtract the number thought of; I predict you now have 2.
- Let the students play this game in pairs. Ask them to discuss and find out the trick behind it.
- Encourage them to come up with similar such tricks.

Activity W1.4

- Take two cards (paper or cardboard cutouts). Write some specific



numbers from 1 to 4 on each of them.

- Ask your friend to think of a number between 1 and 4; then, for each card, ask: "Is your number on this card?"; with their two yes/no answers, you should be able to tell them the number they thought of!
- What numbers will you write on the two cards?
- Extension: There are six cards (which can be printed on one sheet of paper and then cut into six pieces) - each has numbers between 1 and 50; ask your friend/family member to think of a number between 1 and 50; shuffle the cards; then, for each card, ask: "Is your number on this card?"; with their six yes/no answers, you can tell them the number they thought of! How does it work?

Activity W1.5

- Ask the students to write a two-digit number whose digits are not the same.
- Let them reverse the number and subtract the smaller from the larger.
- Ask them to repeat the process with the obtained answer till they reach a one-digit number.
- Teacher may predict the one-digit number.
- Let them sit in group and observe their calculations and identify the patterns in the intermediate answers.
- They may be asked to identify the two-digit numbers which will lead to a one-digit number in one step.
- Motivate them to play this trick with their family members and other friends.

Activity W1.6

Another number game:

- Ask the children to write 3 numbers less than 10 in descending order and don't show it to anyone.

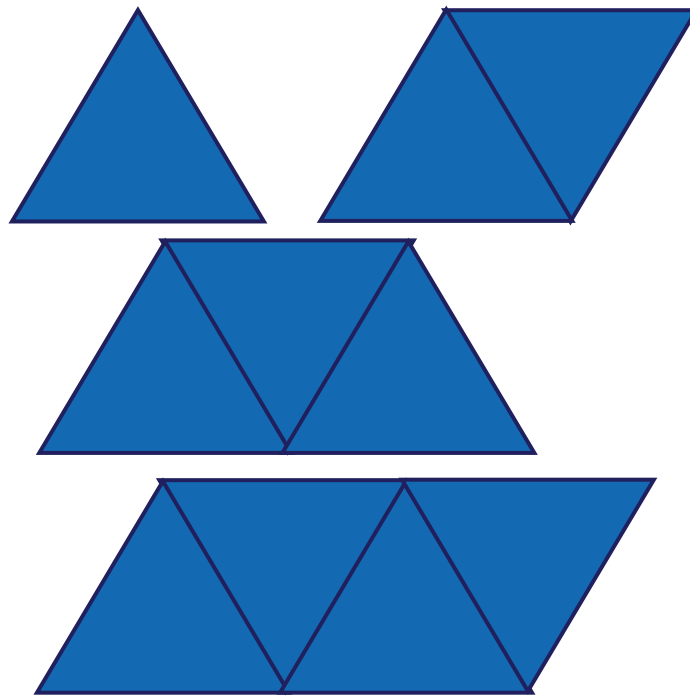


- Let them find the following:
 - Add the first and second numbers.
 - Add the second and third numbers.
 - Add the third and first numbers.
- Ask them to tell the three sums they got in order. The teacher can tell the three numbers the child thought of.

Activity W1.7

Matchstick activity:

- Ask the students to make shapes using equilateral triangles with the help of matchsticks as given below:



- Let them make more such chains by adding equilateral triangles.
- Ask them to find out the number of matchsticks required in each step. Let them come up with a pattern.

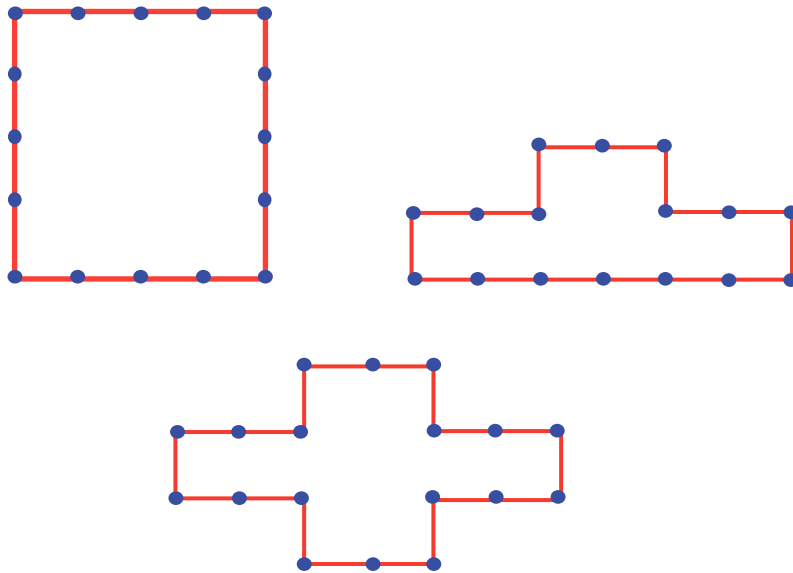
Some interactions through activities will expose students to the properties of shapes such as squares and rectangles.

Length—same perimeter- different shape:

Activity W1.8

Ask the students to construct the following figures using ear buds/ matchsticks and observe the total length of their boundary.

- The students may be asked to calculate the length of the boundary of these shapes. They may check if the lengths are the same.



- Students may be encouraged to construct more shapes with the same boundary length.
- This will give them an idea that different shapes can have the same boundary length or perimeter.

ACTIVITIES FOR WEEK-2

Activity W2.1

- The students may be asked to measure the length of longer edges of mathematics textbook.
- They may be asked to find the length of the boundary of the top of a table in the classroom using the above length. They may check how many such books can be arranged along the boundary of the top.

- The same process may be done with the shorter edge of the book.
- They may check if there is any other object of different shape in the classroom having the same boundary length using the book.
- They may use any other book or object, such as, pencil etc.

Activity W2.2

The activity can be extended to measuring rooms and other spaces of different shapes available in the school. Discussion may be held about that.

Volume: Making boxes of different volume from same size paper:

Activity W2.3

- Take two rectangular papers of the same size and different colours (say blue and yellow). First take any paper, say blue colour, crease it along the larger side from the middle such that both parts become



(Fig. 1)



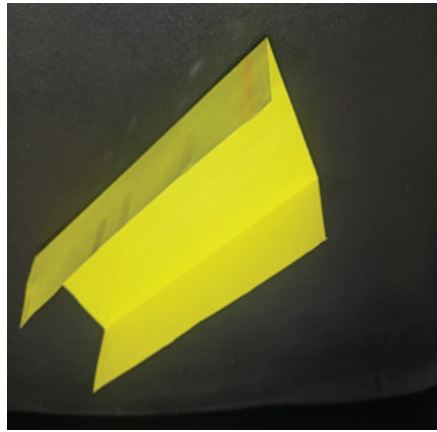
(Fig. 2)

equal (Fig. 1).

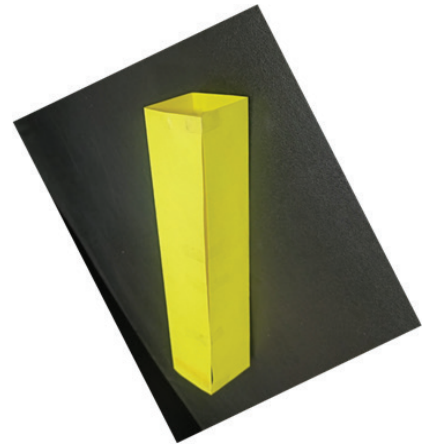
- Crease the same paper from the middle such that both parts become equal and this divides the paper in four equal parts (Fig. 2).
- Now join the open sides of the paper with power tape and form a box (Fig. 3).



(Fig. 3)



(Fig. 4)



(Fig. 5)

- Do the same with another paper, say yellow colour, by creasing it along the shorter side and form another box (Fig. 4 and Fig.5).
- Now put the blue box on the table vertically so that one open side faces the table and the other side upwards and fill it completely with rice/grains. Empty all the rice in a container and fill the yellow box with this rice. Does it fill the blue box completely or not?

Activity W2.4

Discuss and Explore:

1. Do the above activity by making a triangular shaped box and discuss your observations.

AREA: Same area different shapes

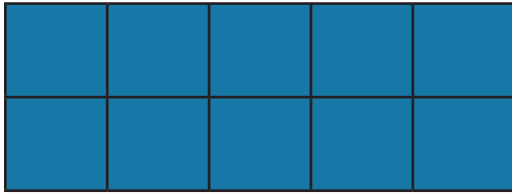
Activity W2.5

- Take 10 pieces of dimension 1 x 1 unit.
- Look at some of the following arrangements.

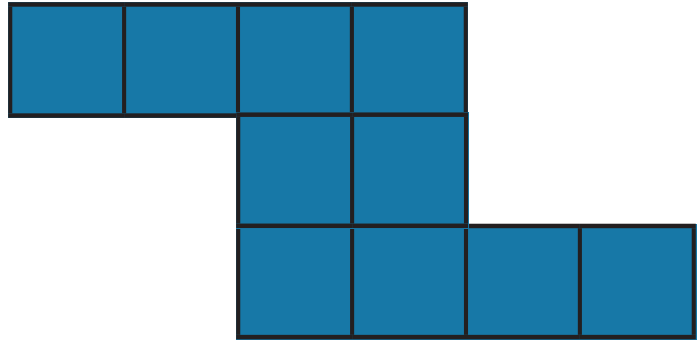
(i)



(ii)



(iii)



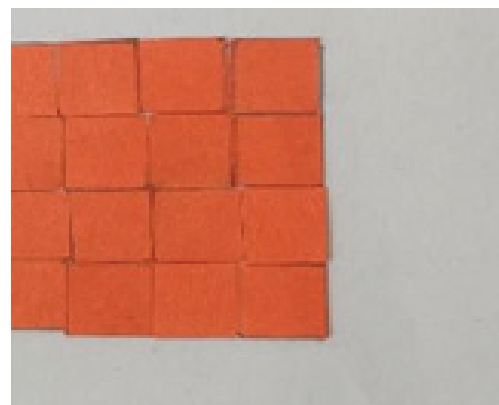
- Do you find that all these arrangements occupy the same space, that is, they have the same area?
- Make some more arrangements of squares in different ways.
- What do you conclude?

Activity W2.6

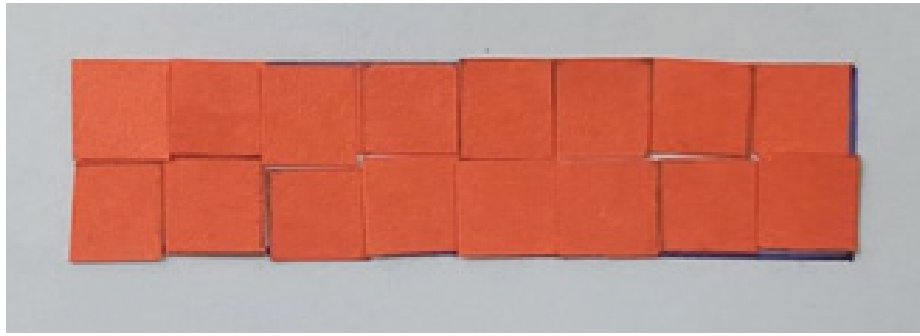
- Take 16 cutouts of a strip. The dimension of the rectangle is 16 x 1 units.



- Arrange them in a square shape of dimension 4 x 4 units.



- These can also be arranged as a shape of dimension 8 x 2 units.

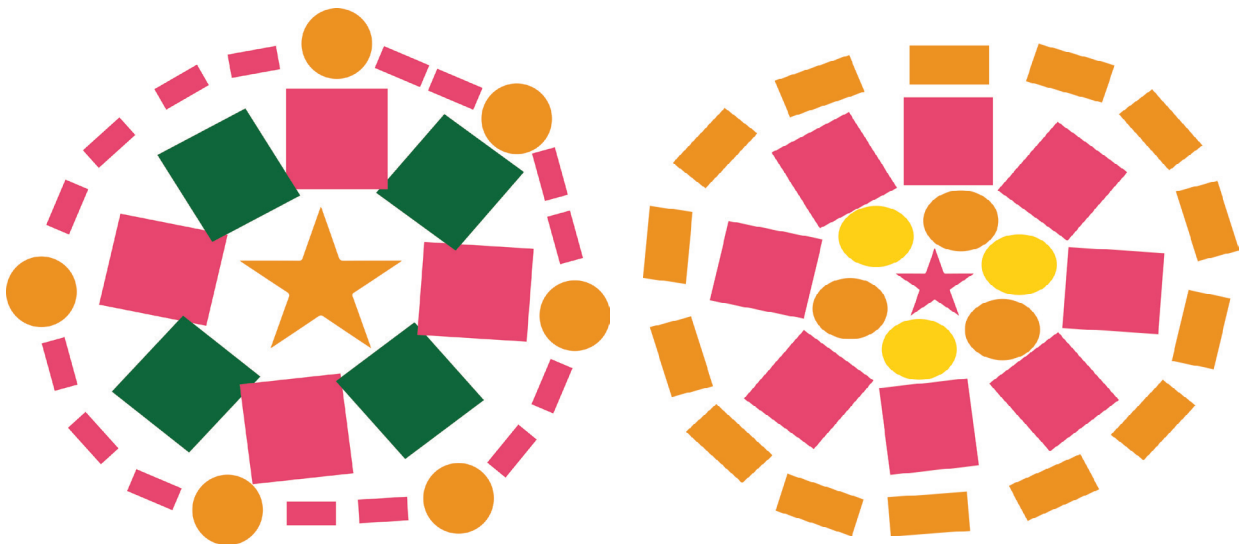


- The regions in all these cases are different but the amount of region occupied by them i.e., their areas are the same.
- Ask the students to make more such cutouts, say, 20, 25, 30, etc., and make different shapes.

Activity W2.7

Rangoli Making

- In this activity students will be able to make different shapes using the chart paper and then arrange them into beautiful rangoli/kolam
- Ask the children (in group) to make different shapes using coloured chart papers. They may be asked to make different rangoli/kolam



ACTIVITIES FOR WEEK-3

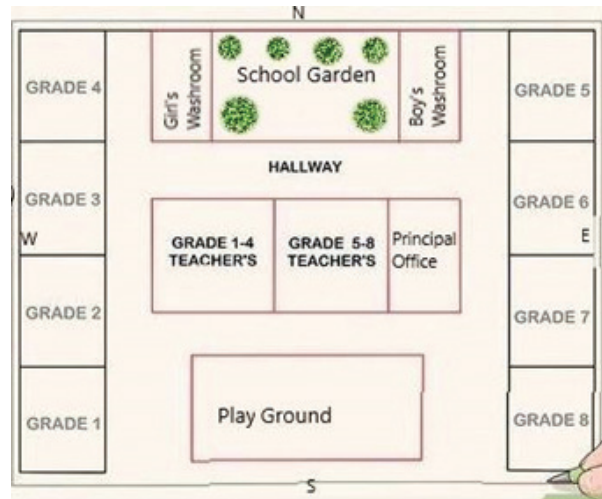
Using the Informal Coordinate System to Draw a Map

Activity W3.1

Exploring Directions on a Map

In this activity students will explore different places using a map and understand the value of directions mentioned in it.

- Ask them to get a Map of their school.
- They may be asked to look for a compass rose on the map. It's usually a small star or flower-like symbol with arrows pointing in different directions. This handy tool will guide them as they explore directions.
- They may be familiarised with the four main directions:
 1. North is at the top of the map.
 2. South is at the bottom.
 3. East is on the right side.
 4. West is on the left side.
- They may be asked to face a certain direction.
- They may then use the compass rose to figure out which direction they are facing. It's like using a compass to find their way.
- Now, allow them to try to locate different places on the map using the directions they have learned. For example, they might find their classroom to the north of the playground.
- You may call out a direction, and the student should point to that direction on the map.



- The map can be made tactile with Braille labelling.

Activity W3.2

Ask the students to take a piece of paper that looks like a big checkerboard, with lots of little squares on it. Each of these squares has its own special address, i.e., giving each square a name so that we can find it easily.

- Give the students two numbers, say (3, 4), to tell us where a square is.
- The first number tells us how far to move to the right.
- The second number tells us how far to move up or down.
- Give plenty of such numbers and ask them to plot these on the grid.
- This gives them an intuitive idea of the coordinate system.
- Students may try plotting some points on our own grid! It's like connecting the dots to reveal a hidden picture. (Please provide such graphics for connecting dots as hands on activity)
- Plastic mesh grid or geo board may be used for students with visual challenges.

Activity W3.3

A Treasure Hunt

- Provide each student with a copy of the treasure map, which includes coordinates (i.e., pairs of numbers discussed in earlier activity) marking the location of the treasure.
- Explain the objective of the activity: to use the given coordinates to locate the treasure.
- Allow students to work individually or in pairs to navigate the map and find the treasure.



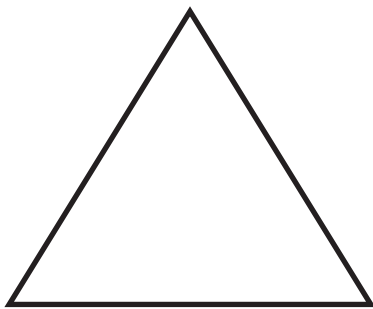
- Once the treasure is found, celebrate the successful completion of the hunt and discuss the coordinates used to locate the treasure.
- Encourage students to create their own treasure maps for future activities, incorporating coordinates and landmarks of their choice.

Creating patterns and designs with rotational and reflection symmetry

Symmetry is a property where one shape or arrangement can be transformed into another that looks the same.

Activity W3.4

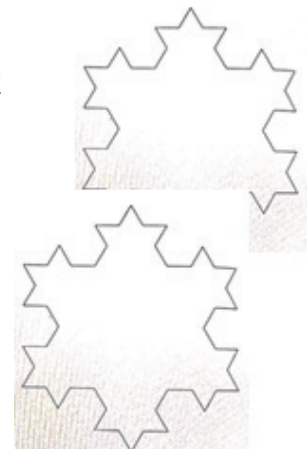
- Provide students with various shapes such as squares, triangles, and stars etc.



- Ask them to rotate each shape and observe if it looks the same after a certain amount of rotation.
- Encourage them to identify the amount of rotation to get a similar shape.

Activity W3.5

- Divide students into groups and provide them with coloured pencils or markers along with blank sheets of paper.



Asks each group to create a design that exhibits rotational symmetry.

- Encourage them to experiment with different shapes and colours to make their designs more beautiful.

Discussion

- Lead a discussion on the importance of symmetry in art, architecture, and nature.
- Encourage students to share examples of symmetrical patterns they have noticed in their surroundings.

Explore

- Take a nature walk around the school or nearby park and ask students to identify objects with rotational and reflection symmetry.
- Organize a field trip to a museum or art gallery to observe symmetrical patterns in different forms of artwork.
- Provide students with symmetry-themed puzzles and games to solve collaboratively, fostering teamwork and critical thinking skills.

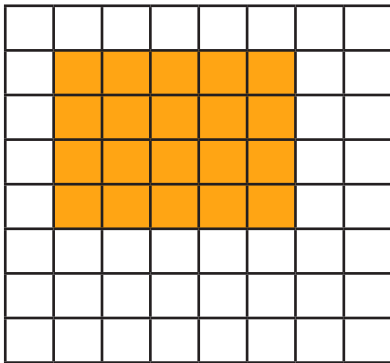
Symmetry is not only a fundamental concept in mathematics but also a source of inspiration for artistic expression. By exploring rotational and reflection symmetry, students can sharpen their observational skills, enhance their creativity, and develop a deeper appreciation for the beauty of symmetry in the world around them. So, let's continue to embrace symmetry as we embark on our journey of discovery and creativity!

Deriving formula of Area of Square, rectangle

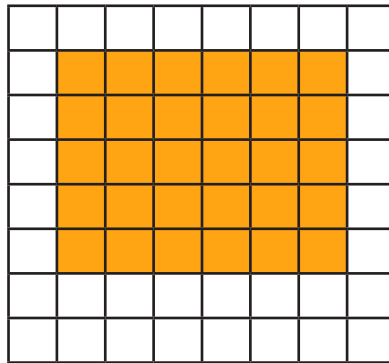
The children are familiar with the shapes, squares and rectangles. The following activities may be performed to give them an idea of the formulae of the area of squares and rectangles.

Activity W3.6

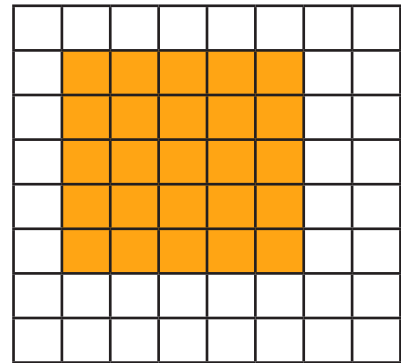
(a)



(b)



(c)



- Give children such square and rectangular shapes made on grids.
- Ask them to count the number of squares horizontally and vertically.
- This will give them an idea of how long and wide the shape is.
- The information can be filled in the table given below.

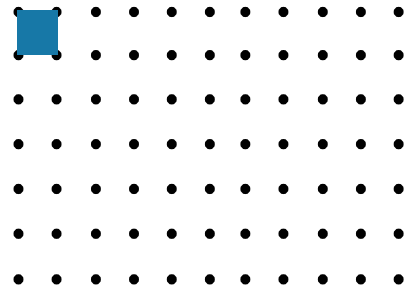
(figure No.)	Shape (shaded)	Side 1	Side 2	Total number of squares	Another way of writing the same	Area
(a)	rectangle	5 units	4 units	20	5×4	20 unit squares

- Provide them grid sheets and ask them to shade rectangular and square shapes.
- After shading the shapes, they may give it to each other to identify whether it is a square or a rectangle and calculate the areas.
- They may be encouraged to shade these shapes in different orientations.

ACTIVITIES FOR WEEK-4

Activity W4.1

- Consider a grid.
- Paste such square shaped slips on the grid and form squares and rectangles. One such is given below:



One such arrangement is:

- Find the total number of such square slips in the above rectangular shape formed.
- Tabulate the same.
- This may give children an idea of calculating areas of squares and rectangles in a play way method



Identifying properties of squares and rectangles for finding area

Activity W4.2

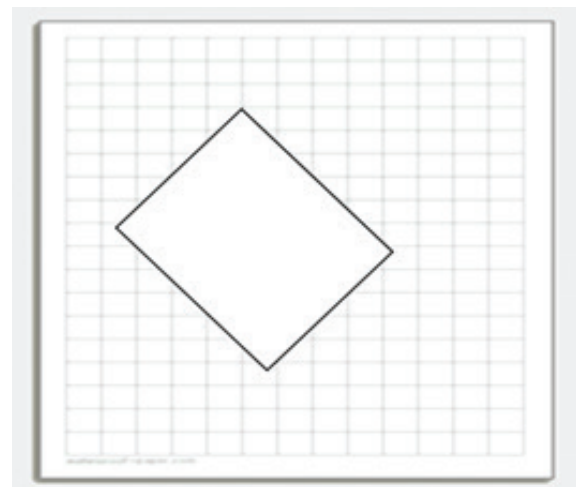
Initially a game can be played in this way:

- Make chits numbered from 1 to 12 and put them in a bag.
- Give each child a sheet of square grid paper.
- One child becomes the leader and picks up two chits and shows them to the others.

Level 1: The rest have to draw the rectangle of those sides in their own square grid paper. It can be vertical or horizontal.

Suppose the numbers are 2 and 5. Others will draw rectangles of sides 2 units and 5 units. Or 5 units and 2 units.

One such could be-



The aim is to fill the square grid.

Level 2: The rest can think of the area and decide what sides they want to draw, e.g., if the numbers pulled out are 2 and 6, the children can draw either a rectangle 2 by 6 or 3 by 4 or 12 by 1.

They may check if all these shapes cover the same area or not.

Level 3: If the numbers pulled out are 2 and 8, the children can draw either 2 by 8, 4 by 4 or 1 by 16. Once they make different shapes, they can check whether all areas are the same or not.

Through this activity, the students can generalise that, the area of a rectangle/square is the product of adjacent sides.

Activity W4.3

Give children stamps of square and rectangular shapes found around us.

Ask them to paste on a grid and calculate the number of grid squares covered by each one of them.

Activity W4.4

Children may be asked to observe different objects such as books, Notebooks, the floor of the room etc. and try to devise ways to find their areas.

Activity W4.5W

Having a sense of numbers is vital for the understanding of numerical aspects of the world. Students can be helped in improving their number sense at this level. It requires exploring and playing with numbers, and being encouraged to think about patterns and

relationships between numbers. In school mathematics this element of playing and having fun with numbers is important. The following games are suggested with this purpose. These are expected to stimulate engagement, participation and mathematical reasoning.

It needs to be remembered that students learn to apply the concepts learnt faster while playing games. A good game should have:

- an element of competitiveness; this can be achieved by having two or more players who take turns to achieve a 'winning' situation of some kind.
- an element of choice and decision making about the next move throughout the game
- an element of interaction between the players in that the moves of one player affect the others.
- It should be accessible for all, with good colour contrast, language choice, Braille, large font etc.

The following games will help in making students revisit numbers and also allow them to have a deeper look at them. This will help in their further learning about numbers.

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

Give a copy of the hundred grid as shown to the students or it can be drawn on the Board. (Make this grid in Braille also)

- Eight clues are given below:
 1. The number is greater than 9.
 2. The number is not a multiple of 10.
 3. The number is a multiple of 7.
 4. The number is odd.

5. The number is not a multiple of 11.
6. The number is less than 200.
7. Its one's digit is larger than its tens digit.
8. Its tens digit is odd.

The game is played as follows-

Tell the students that you have a number in your mind

To know this number the students have to use four clues out of the eight clues given above

One student may say the clue one by one; your response will be either Yes or No.

After the fourth clue the student has to think about the clues, he/she asked and the corresponding response given by you.

Based on this the student has to guess the number

If the student is not able to guess the number, the process is repeated with another student

The game proceeds in this way.

It may happen that there could be a group of numbers that come under one category.

The number supposed by you will have properties shared by many other numbers.

The students will be led to think about the properties of numbers.

After all the four clues are exhausted by one student, discussion may be held about the clues given and the corresponding response given by you.

The students may be asked to locate a clue which is not useful.

Activity W4.6

This game can be played by two students or two pairs of students.

Dice used for playing the game should be tactile/accessible and the boxes drawn on board should also be accessible.

- The following pairs of boxes may be drawn on the Board:

A

--	--	--	--

B

--	--	--	--

- Student A rolls the dice four times.
- In each turn they have to fill up one of the boxes.
- In four turns student A forms a number by filling the four boxes marked A
- Similarly, student B fills up the boxes in B by successively rolling the dice four times.
- Students may compare the four-digit numbers so formed.
- The student who forms a larger or smaller number is the winner.
- It can be extended to five digits also.
- This will strengthen their learning of the numbers.

Teachers may use similar games/puzzles/activities in the classroom and encourage students to device such activities.

Activity W4.7

Activities like games play an important role not only in physical development but also in the mental development of an individual. They are helpful in the development of mathematical abilities of a student. Playing tag games makes students more aware of space. They learn strategies that can be applied to other games, sports, or activities. It allows everyone an opportunity to play. In most variations of tag, everyone is participating at the same time, and no one is waiting for their turn.

Kho Kho is a tag game of India. Its origins are as old as Mahabharata, with strategies and tactics likely derived from Mahabharata itself. This game fosters many desirable traits such as sportsmanship, teamwork, loyalty, competitiveness, and self-esteem as well as speed, agility, strategy and quick thinking. The qualities of strategy and quick thinking are essential for the development of mathematical thinking of a student, as they will be gradually exposed to higher layers of abstraction in mathematics.

Two teams face each other in this game (Team A and Team B). The game starts with a toss between the two team captains. The winning captain decides who will chase the other team. Both the teams consist of 12 players. If Team A won the toss and decides to chase. 9 players from team A enter the

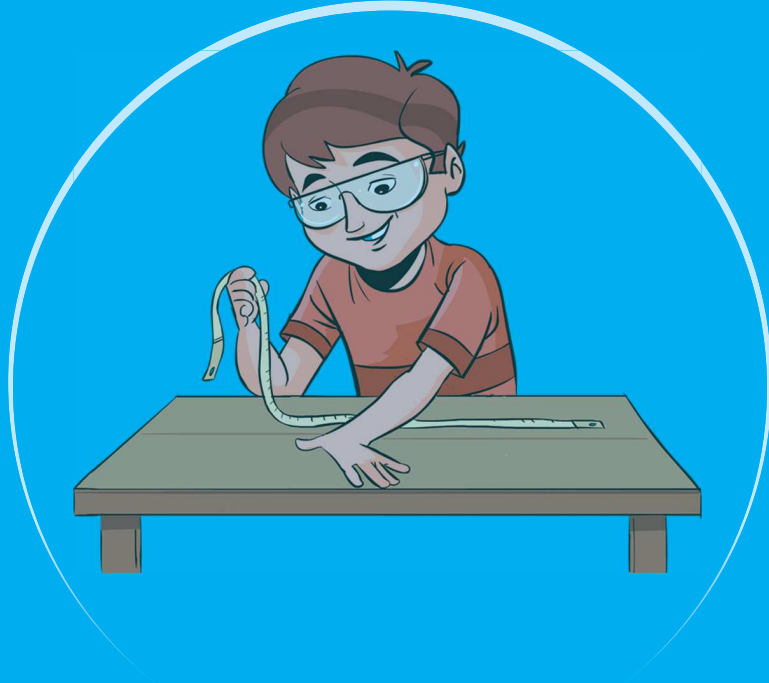


playground. All 9 players sit/kneel in the middle of the court facing the opposite direction in a straight row. A match consists of two innings of running and chasing turns of 9 minutes. From Team B, three players can enter the ground as the runner. All 9 players of the team sit in a row with both the ends having a pole. The 3 runners can go between two players of Team A who are sitting in a zigzag alignment. The chaser team member is not to go through their sitting team members failing to it is a penalty. They can only turn back and chase after They touch the pole at either end of the line. These are the basic rules to follow on the ground. Students can be encouraged to devote some time for playing this game and discussion can be held on winning strategies.

4. Assessment (Holistic)

Major Learning Outcomes mapped with the competencies given in NCF-SE	Exemplar Rubrics for Assessment	Progress of Students (Teachers using the proposed rubrics ensure students' progress of learning during this process, and may note their strengths and gaps (if any) and provide support to children to fill the gap)
<p>Compare numbers.</p> <p>Estimate large numbers</p>	<p>Activity W 1.5</p> <p>The following stages represent the learning levels of students in realizing the targeted Learning Outcome.</p> <p>S1: Child takes a one-digit number and so could not proceed further. They are at Stage 1.</p> <p>S2: Child makes a two-digit number in which the digits are same. So, they could not proceed further. They are at Stage 2.</p> <p>S3: Child makes a two-digit number with different digits. But they could not reverse the number as they had no idea about reversing a number. They are at stage 3.</p> <p>S4: Child forms a two-digit number as per the given condition. Subtracts the smaller one from the bigger. They obtain a two-digit number. But they do not repeat the process to get a one-digit number. They are at Stage 4.</p> <p>S5: The child completes the required process till they obtain a one-digit number. They are at Stage 5.</p>	<p>Appropriate inputs and support may be provided to students at Stages S1, S2, S3 and S4.</p>

Identifies 2D shapes from the immediate environment that have rotation and reflection symmetry, like alphabet and shapes		
Understands Interrelation between Area and Perimeter		
Understands Interrelation between Area and Perimeter		
Calculates the area of rectangular 2D shapes and expresses the same in standard units		
Reads and interprets a map using the understanding of directions		
Creates artifacts of different shapes and sizes using same measure of an attribute		



विद्यया ऽ मृतमश्नुते



एन सी ई आर टी
NCERT

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING