1

MATH GENIUS

Think Smart, Solve Fast

Ver. 2.0

Lesson Plan

Experience the Joy of Learning Mathematical Skills

ORANGE

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9, Daryaganj, New Delhi-110002
Phone: 011-43776600 +918588814859
Email: info@orangeeducation.in
Website: www.orangeeducation.in

IE Code: 0511063121

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PREFACE

The Teacher's Resource Manual is specially developed for teachers using **Math Genius!** Coursebooks. The manual has been designed to provide the teacher with additional materials and support that they may require to effectively teach the coursebook. Each **Teacher's Resource Manual** is completely mapped with its coursebook. The method of teaching/learning suggested in the book is completely based on the Learning-by-doing method which supports guidelines and aids of classroom teaching as per the New Education Policy 2020. The classroom teaching/learning activity helps to allay the fear of Mathematics from the minds of the learners and develops an inherent link for the subject.

Each **Teacher's Resource Manual** has two segments—Chapter-wise detailed **Lesson Plans based on 6E model** and **Practice Materials** in the form of **Worksheets**.

Features of the Teacher's Resource Manual:

Detailed Lesson Plan: It contains Topics to be covered in the chapter, Suggested Allocation of Periods, Teaching Objectives, Learning Objectives and Suggested Teaching Aids.

- **Each lesson plan is based on 6E's:** The 6E lesson plan is based on an instructional model that consists of six phases or steps: Engage, Explore, Explain, Elaborate, Evaluate and Enhance.
- **Engage:** It enhances students' curiosity, interest, and engagement and help them access prior knowledge. .
- **Explore:** It provides students with opportunities to construct learning experience through activities.
- **Explain:** students acquire opportunities to explain their learning experiences with the current learning and to conceptualise the topic's main ideas.
- **Elaborate:** Students apply their knowledge to real-world applications.
- **Evaluate:** it allows teachers and students to recognize the learning effect and review and assess what they have learned and how they have learned it.
- **Enhance:** Provides students time to think, plan, investigate, and organize collected information.

Worksheets: This segment has worksheets for each chapter which can be used for practice and evaluation of learners' understanding of the concepts taught. At the end, answers to each worksheet have been given.

A teacher has to use his/her experience and expertise in teaching the subject. This **Teacher's Resource Manual** provides some methodology in this regard but in no way does it limit the scope of the teaching. As per the interest, experience and proficiency of the teaching, you are advised to make suitable additions and modifications to the methodology being discussed.

Suggestions for the improvement of the book by the teachers' community will be gratefully acknowledged by us.

—Publisher

Spatial Understanding

Learning Objectives

After studying this chapter, students will be able to...

- know and describe the spatial relationship among objects.
- locate the position of things in a space.

LESSON PLAN

Suggested number of periods: 8

Suggested Teaching Aids: Textbook (Math Genius 1), soft toys, cut-outs or stickers of different objects, blackboard or whiteboard, pens, pencils, chalks/marker, notebook, flash cards, an empty box, school stationery, etc.

Keywords: Inside-Outside, Top-Bottom, On-Under, Above-Below, Before-After, Near-Far, etc.

Pre-requisite knowledge: Students must be familiar with big-small, tall-short, less-more, heavy-light, etc.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–2	Topic: Inside-Outside	Suggested extra teaching aids: Softballs, basket, colourful pebbles, etc. Math Genius 1 Pages 8–9

ENGAGE

Take the class to the playground and divide them into two teams: Team 1–**Tiger**, and Team 2–**Lion**. Instruct both teams to look at the surroundings. Team **Tiger** will tell the names of the things/objects that are **big** and its opposite team **Lion** will tell the names of the things/objects that are **small**. The team telling the correct opposite pair of objects/things will get a star sticker. The team who will get more stickers will do this activity. Ask both teams, can they tell which object/thing they had identified during the activity is **heavy** or **light**, **tall** or **short**? Accept the response.

(The teacher must explain the big-small, tall-short, heavy-light during the activities.) **[Holistic Learning]**

EXPLORE

Instruct the students in the class to look at their tables. What things/objects are outside your bag and what are inside of your bag? Accept the response. Now, take the class in the playground and keep a basket at some distance and take some softballs. Ask the students to take the ball and throw inside the basket (each child will get 5 chance only). The student who throws maximum balls inside the basket will win the game.

[Experiential Learning]

EXPLAIN

Take the reference of the page 8 of the textbook to explain the concept Inside-Outside to the class.

ELABORATE

To elaborate the concept of Inside-outside, ask few questions from the kids, such as:

'Where is the dustbin? Inside or Outside the class'.

Where do you throw your garbage? Inside the dustbin or Outside the dustbin', *etc*.

Also, ask the students to observe the location of plant, gate, vehicles, etc. in relation to other objects. Encourage them to use positional words in communication. Encourage the class to answer the questions under the section 'Life Skills' on page 8 of the textbook. **[Collaborative Learning]**

EVALUATE

Classwork: Ask to solve Practice Time 1A.

ENHANCE

Distribute worksheets having sketches of pictures on the concept 'Inside-outside' to the students of the class and encourage them to colour the objects that are outside/inside using different colour. Also, ask students to watch the following videos related to the topics taught in the periods:

- https://www.youtube.com/watch?v=e4QuwrmLLRA

Period: 3	Topic: Top-Bottom	Suggested extra teaching aids: Colourful blocks, drawing sheets, some posters/ pictures, Math Genius 1, Page 10

ENGAGE

Take some pictures that are based on the concept of Top-Bottom and display to the class.

Ask: 'Which things/objects are at the Top or Bottom position?'. Accept the response.

EXPLORE

Take some different coloured blocks and give three blocks to each kid. Instruct them to put the blocks one over the other. Once they have done, ask them 'which colour block is at the top?', 'Which colour block is at the bottom?' Accept the responses. **[Experiential Learning]**

EXPLAIN

Take the reference of the page 10 of the textbook to explain the concept Top-Bottom to the class.

ELABORATE

To elaborate the concept of Top-Bottom, Ask the class to draw our national flag in their notebook. Instruct them to colour top strip of the flag saffron and bottom strip green and then ask the questions given under activity on page 10. **[Conceptual Learning]**

EVALUATE

Classwork: Ask to practice the questions of Practice Time 1B in the class.

ENHANCE

Ask the students to make a drawing that will reflect the concept of Top-Bottom of objects/things by taking the help of parents.

Period: 4	Topic: Above-Below/On-Under	Suggested extra teaching aids: Natural resources, school stationery, etc. Math Genius 1, Pages 11–12

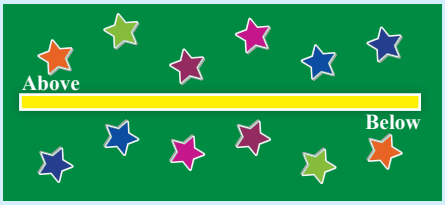
ENGAGE

Take the class into the ground and instruct the students to observe the things/objects in ground or its surrounding. Ask few questions related to the position of the object, such as: 'Where is the bird flying in the sky with respect to the tree?' etc. Accept the responses. Then ask students to give examples of above and below from things/objects in the ground. **[Holistic Learning]**

EXPLORE

Stick a ribbon on the blackboard and spread some star stickers on your table. Call some students one by one and instruct them to take one sticker and stick it above or below the ribbon. Accept the response.

Point to the fan and ask the students its position. Then ask them, 'Where is the floor?' Where is the sky? Also, tell them to give examples of above and below from things in the classroom.



[Experimental Learning]

EXPLAIN

Take the reference of the pages 11–12 of the textbook to explain the concept above-below/on-under in the class. Encourage the students to answer the 'Challenge Question' given on page 11. **[Critical Thinking]**

ELABORATE

Stand near your table. Keep a book on the table and a bag under the table. Point to the book and ask, 'Where is the book?' Encourage the students to answer 'On'. Point to the bag and ask the students, 'Where is the bag?' Encourage the students to answer 'Under'. Then ask students to look around and find examples of on and under. Accept the responses from the class.

EVALUATE

Classwork: Ask students to practice the questions of Practice Time 1C in the class.

ENHANCE

Encourage the kids to relate this concept 'Above-Below/On-Under' with other subjects like science with the help of 'Math Connect' section on page 12.

Period: 5	Topic: Before-After	Suggested extra teaching aids: School stationery, etc. Math Genius 1, Page 13

ENGAGE

Call some students near the blackboard and instruct them to stand in a queue. Ask from rest of the class, 'who is standing before <Name of a kid>?', 'Who is standing after <Name of the kid>?'. Accept the responses from the class.

EXPLORE

Ask any student randomly to name the boy/girl who is sitting behind/in front of him/her. Help in recognition if he/she is unable to name the student as asked. Let them know behind means 'After' and in front of means 'Before'. Repeat this activity until they could understand the concept well.

EXPLAIN

Take the reference of the page 13 of the textbook to explain the concept Before/After in the class.

ELABORATE

Give 4 different objects to each student. The objects can be, pencil, eraser, crayon and ruler. Ask them to put these side by side on the table in a certain order (The order can be pencil, ruler, eraser, crayon.). Once they are arranged, ask them, 'What is before the ruler?', 'What is after the ruler?' 'What is before the pencil?, etc. Accept the responses from the class. Change the order of things and have another session to make sure that the students have understood the concept. **[Conceptual Learning]**

EVALUATE

Classwork: Ask students to practice the questions of Practice Time 1D.

Homework: Encourage them to give answer of 'Think Tank' question on page 13.

ENHANCE

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=xsVZ6d3xnv8

Period: 6	Topic: Near-Far	Suggested extra teaching aids: School stationery, Math Genius 1, Pages 14–15

ENGAGE

Ask the students of the class to raise their hands to signify they live near to the school and to signify they live far from the school. Accept the responses from the class.

EXPLORE

Take the class on the ground and play a game. Divide the class into pairs and instruct some pairs (2 or 3 pairs at a time) to run towards a finish line and after covering some distance ask them loudly to freeze. Now instruct the rest of the class to observe the position of the participants within the pairs and ask 'Who is near to the finishing line', and 'Who is far from the finishing line?' within the pairs. Repeat this activity with other pairs, till time permits. **[Holistic Learning]**

EXPLAIN

Explain the class that Near means 'It is something that is closer to you' and Far means 'It something away from you'.

ELABORATE

Take the reference of the page 14 of the textbook to explain the concept Near-Far to the class.

EVALUATE

Homework: Ask students to practice the questions of Practice Time 1E.

Classwork: Encourage them to give answer of 'Think Tank' question on page 14.

ENHANCE

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=tOb75PWuIOw
- https://www.youtube.com/watch?v=t7w3PHgvKJE

Periods: 7–8	Topic: Revision	Suggested extra teaching aids: Math Genius 1, Pages 15–17

ENGAGE

Make students comfortable, so that they can ask any question on any previously taught topics. Clarify their doubts or queries and start the revision of the exercise.

EXPLORE

Guide the students to perform the activity given in 'Gamified Learning' section in the classroom.

EXPLAIN

Discuss questions 1 and 2 of the 'Chapter Assessment' on page 16 and accept the response. If they have any confusion then explain and correct it.

ELABORATE

Discuss and encourage the students to answer the questions of section 'Mental Maths'.

EVALUATE

Classwork: Ask to solve Q1–2 of Chapter Assessment.

Homework: Ask to solve Q3 and 4 of Chapter Assessment.

ENHANCE

Encourage the students of the class to watch the videos from the QR code or www.orangewebsupport.co.in

Numbers up to 20

Learning Objectives

After studying this chapter, students will be able to...

- count, read and write numbers up to 20
- represent numbers using tens and ones
- count numbers forward and backward
- know about before, after and between
- compare and order given numbers
- understand positional numbers

LESSON PLAN

Suggested number of periods: 14

Suggested Teaching Aids: Textbook (Math Genius 1), soft toys, cut-outs or stickers of different objects, blackboard or whiteboard, pens, pencils, chalks/marker, notebook, flash cards, an empty box, school stationery, etc.

Keywords: Number, Counting, Ones, Tens, Greater than, Smaller than, Equal to, Ordinal numbers.

Pre-requisite knowledge: Students must be familiar with counting numbers up to nine.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–3	Topics: Number 1 to 9, Introducing zero, Understanding the number 10	Suggested extra teaching aids: Softballs, basket, colourful pebbles, etc. Math Genius 1, Pages 19–23

ENGAGE

This activity combines physical movement. Visual recognition, and counting.

Ask the class to pay attention and tell them let's sing a song loudly in chorus with action.

One, one, having so much fun,
Two, two, tie my shoe!
Three, three, look and see,
Four, four, on the floor!
Five, five, bees in a hive,
Six, six, pick-up sticks!
Seven, seven, up to heaven,
Eight, eight, a snowman's mate!
Nine, nine, feeling fine!

After singing the song, ask the class for clapping themselves.
Then, ask the students to open page 18 of their Maths Genius 1 and observe the picture given in 'Get Ready' section. Count the number of objects/things/animals in it and answer the questions given there.

[Holistic Learning]

EXPLORE

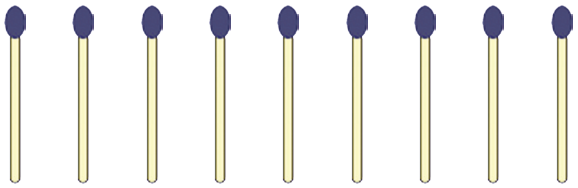
Hide some sets of number cards (1–9) around the classroom or play-area and make sure they are visible but not too obvious. Ask the class to play a 'Number Hunt' game. Instruct them that they need to find the number cards from 1 to 9 hidden around the room.
As they find each number card, ask them to say the number loud and count the corresponding number of fingers on their hands. For example, if they find the number 4, they should count, '1, 2, 3, 4' and the student who will find a maximum number of cards will be rewarded with small star stickers. **[Experiential Learning]**

EXPLAIN

Take the reference of the pages 19–20 of the textbook to explain more about counting numbers 1–9 to the class. Ask the class to count number of different kind of fishes in the given picture under 'Maths Fun' section on page 20 and write their correct number in the grid in front of respective fish.

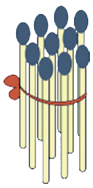
ELABORATE

In the next period, divide the class in pairs. Give 3 crayons to one partner and ask him to give the crayons one by one to his/her partner. After giving each crayon, ask the question to that student, 'How many crayons are left in his/her hand?' After the child has given all the crayons, he/she will say zero. Let the other partner follow the same pattern. Teacher can take reference of page 21 for the topic 'Introducing Zero' to the class.
After that, distribute a set of nine matchsticks to the pairs and instruct them to count the matchsticks they have and read aloud the number (say 9) also tell to spell-out its number name too.
And then, give one more matchstick to each pair and ask them 'How many matchsticks they have now?' and tell aloud the number (say 10) instruct them to make a bunch of 10 matchsticks together using a rubber band.



9 matchsticks

and 1 matchstick



a bunch of 10 matchsticks

Tell the class that when we add 1 more to number 9, it becomes 10.

Also, take the reference of pages 21–23 to explain the concept 'Understanding ten'.

[Conceptual Understanding]

EVALUATE

Classwork: Instruct the class to practice Q1 of Practice Time 2A and 2B.
Homework: Ask to solve remaining questions of Practice Time 2A and 2B.

ENHANCE

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=tOb75PWuIOw
- https://www.youtube.com/watch?v=t7w3PHgvKJE

Periods: 4–5	Topics: Numbers from 11 to 20, Representing Numbers on Abacus	Suggested extra teaching aids: Matchsticks, rubber bands, etc. Math Genius 1, Pages 24–26

ENGAGE

Ask the class to pay attention and instruct them to count your fingers till 9 one by one (as 1, 2, 3, …, 10) and write their number names in your notebooks. Now, ask them 'What number will they get after counting 10? Accept the responses from the class.

EXPLORE

In the previous periods the students have learnt counting 10 by making a collection/bunch of 10. Now, divide the class into pairs and give them some matchsticks (up to 20), and instruct them to make a bunch of 10 matchsticks using a rubber band. Now, ask them to put one matchstick at a time with the bunch of 10 (as 10 and 1, 10 and 2, …, 10 and 9), count and tell the total matchsticks each time loudly (as 10 and 1 is 11, 10 and 2 is 12, 10 and 3 is 13, …, 10 and 9 is 19, 10 and 10 is 20). Accept the responses from the class.

Ask them again 'Is two bunches of 10 make 20?'. Accept the responses. **[Experiential Learning]**

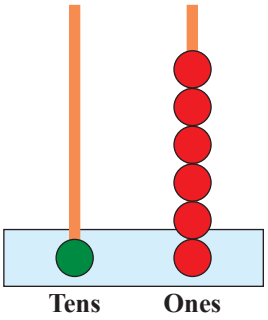
EXPLAIN

Take the reference of the pages 24–25 of the textbook to explain more about numbers from 11–20 to the class.

ELABORATE

Divide the class into pairs and distribute paper abacus and some colourful bindis (red colour for Ones digits and green colour for Tens digit) to them. Speak a number up to 20 and instruct the class to represent the number by pasting bindis on the paper abacus' spikes. Accept the responses. Before starting the activity, tell them that the first spike from right is for one-digit number that is 1 to 9 and the next spike is for tens digit. Take reference of page 26 to explain more about the numbers on abacus to the class.

[Art Integration]



EVALUATE

Classwork: Ask to solve Q.1 of Practice Time 2C and 2D.
Homework: Instruct to practice the remaining questions of Practice Time 2C and 2D).

ENHANCE

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=U_BwugDsqHI

Periods: 6–7	Topics: Before, after and between, Number line	Suggested extra teaching aids: Number posters (1–20), number cards, a long thread, etc. Math Genius 1, Pages 27–29

ENGAGE

Ask the class to pay attention and instruct them to count the numbers 1 to 20 in chorus. Now, write a few sets of 3 numbers (up to 20) on the board. For example,

7 8 9
10 11 12
12 13 14, etc.

Ask the class 'which number is after/before/ between in the written sets of numbers?'. Accept the responses from the class.

EXPLORE

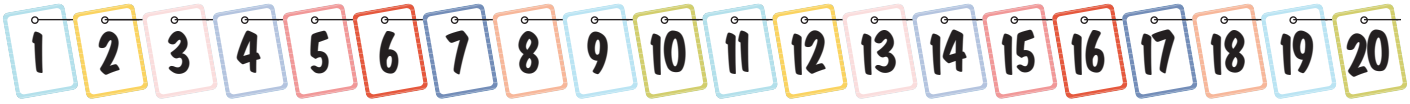
Divide the class into groups of four students. Give them three number posters of numbers up to 20. Instruct the groups that any three out of four members will tie the number posters on their chest and line up in a row randomly. Now, the fourth member of the group will recognize the number that come just after/before/ between when the teacher instructs. Accept the responses. **[Experiential Learning]**

EXPLAIN

Take the reference of the page 27 of the textbook to explain more about the numbers that come just after/ between and just before.

ELABORATE

After teaching the concept of 'After, Before and Between', take a long thread and tie it up horizontally along both sides of the walls of the class at a height so that children can reach to it easily. Distribute number cards up to 20 among the children of the class and instruct them to come one by one according to the numbers written on their number cards starting from 0 and hang their cards on the thread.



Repeat this activity with rest of the children of the class. Now ask them, 'What do we call this set up?, In 'which direction on the number line do we move so that the numbers become bigger ?', 'In which direction on the number line do we move so that the numbers become smaller ?'. Accept the responses from the class.

Based on the response, explain them,

- A line with numbers placed on it in order and at an equal distance is called a number line.
- When we move from left to right on a number line, the numbers become bigger.
- Numbers to the left of a given number are smaller than the number.
- Numbers to the right of a given number are bigger than the number.

Also, we can obtain the numbers that come just after/before/between the given numbers using the number line. (Teacher can also take the reference of page 27 for the topic 'Number line'.) **[Discussion Based Learning]**

EVALUATE

Classwork: Ask to solve Q1 of Practice Time 2E.

Homework: Ask to solve Q2 of Practice Time 2E.

ENHANCE

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=fRJM4DLTLqc
- https://www.youtube.com/watch?v=_OS0wzijcxg

Periods: 8–9	Topics: Forward and Backward counting, More and Less	Suggested extra teaching aids: Colourful pebbles, some stars stickers, etc. Math Genius 1, Pages 29–30

ENGAGE

Ask the class to pay attention and instruct them to count the numbers 1 to 20 in chorus. Ask: Can they count numbers backward that is from 20 to 1? Accept the responses.

EXPLORE

Sing the song given below in class in chorus to reinforce backward counting in a fun way.

10 Little monkeys jumping on a bed,
one jumped up and bumped his head,
Mom called the Doctor and the doctor said
....."no more monkeys jumping on a bed." [Chorus]

9 Little monkeys jumping on a bed,
one ..... bed." [repeat chorus]

8 Little monkeys jumping on a bed.
one ..... bed." [repeat chorus]

7 Little monkeys jumping on a bed
one ..... bed." [repeat chorus]

6 Little monkeys jumping on a bed
one ..... bed." [repeat chorus]

5 Little monkeys jumping on a bed
one ..... bed." [repeat chorus]

4 Little monkeys jumping on a bed
one ..... bed." [repeat chorus]

3 Little monkeys jumping on a bed
one ..... bed." [repeat chorus]

2 Little monkeys jumping on a bed
one ..... bed." [repeat chorus]

1 Little monkey jumping on a bed
one ..... bed." [repeat chorus]

After the end of this song, ask the class for clapping themselves. **[Collaborative Learning]**

EXPLAIN

Take the reference of the textbook page 29 to explain forward and backward counting to the class.

ELABORATE

Take the class to the playground and divide the class into two teams (Team–Hunters and Team–Pirates). Ask both teams to participate in 'Treasure hunt' game. (Before the game start teacher will hide some colourful pebbles in the playground) Instruct that the team who find and collect more pebbles will win this game. Both teams will find and collect the pebbles within 20 minutes and give them to the teacher. **[Holistic Learning]**

After end of the time, call the captains of both team and ask them to observe both collections of pebbles and tell which collection has more pebbles and which collection has less. Accept the response.

Also, take reference of the textbook page 30 to explain more about the topic 'more and less' to the class.

EVALUATE

Classwork: Ask to solve Q1 of Practice Time 2F and 2G.

Homework: Ask to solve Q2 of Practice Time 2F and 2G.

ENHANCE

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=Yt8GFgxlITs
- https://www.youtube.com/watch?v=8TIjoLW5oRw
- https://www.youtube.com/watch?v=fS60rraBhz4
- https://www.youtube.com/watch?v=iK9SsB2GvW8&t=62s

Periods: 10–11	Topics: Comparing Numbers, Ascending and Descending Orders	Suggested extra teaching aids: Number posters (1–20), Math Genius 1, Pages 31–35

ENGAGE

Call a child and instruct him/her to count number of boys in the class and write their numbers in the board. Now, again call another child, instruct him/her to count number of girls in the class and write their numbers too on the board. Then, ask the class, 'Which number is greater?'. Accept the response from the class and then move forward.

EXPLORE

Divide the class into pairs. Instruct the members of each pair to count the number of objects in his/her school bag including textbooks and notebooks and write the numbers in their notebooks. Ask the pairs to compare both the numbers and answer the question,

'Which number is greater?', Which number is smaller?', etc.

Accept the response from the class and then explain them accordingly.

EXPLAIN

'<' is the symbol used for 'less than'.

'<' is the symbol used for 'less than'.

Take the reference of the textbook page 31 to explain 'Comparing Numbers' to the class.

ELABORATE

Divide the class into groups of four students. Give them four number posters with numbers 1 to 20 written on it. Instruct the members of the groups to tie up the number posters on their chest, observe the numbers written on it and stand in a row starting from smallest number to largest number. **[Conceptual Learning]**

Based on this activity explain the class that

- Numbers arranged from the smallest to the greatest is called ascending order.
- Numbers arranged from the greatest to the smallest is called descending order.

Also, take reference of the textbook pages 33–34 to explain more about the 'Ascending and Descending order' to the class.

EVALUATE

Classwork: Ask to solve Q1, 2 of Practice Time 2H and 2I.

Homework: Ask to solve remaining questions of Practice Time 2H and 2I.

ENHANCE

Encourage the students to give the answer of question in the section 'Maths Fun' on page 32.

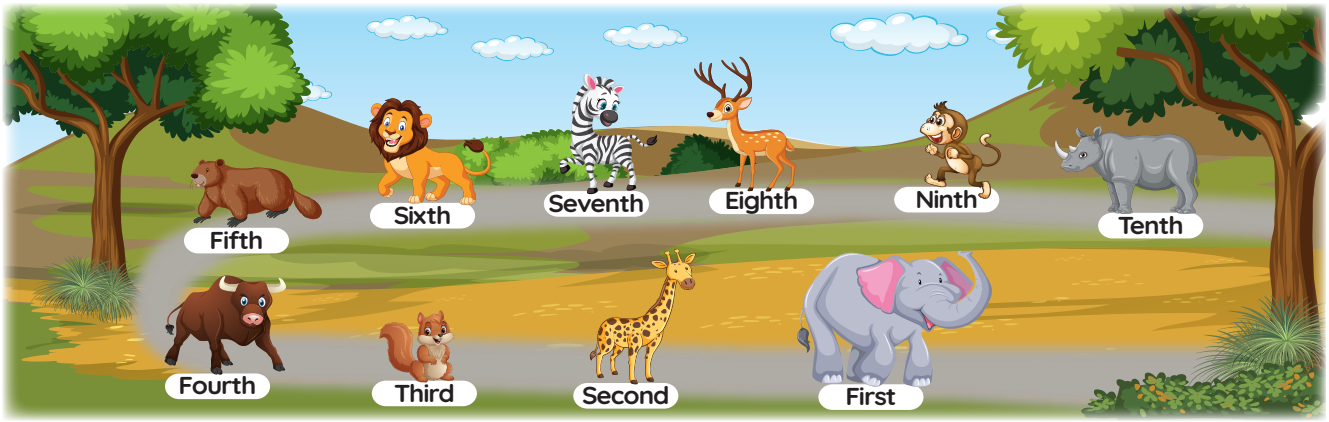
Also, ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=SCjZo8Zgly0
- https://youtube.com/watch?v=QN1Y7AcLTOM
- https://www.youtube.com/watch?v=k1GSjR-T7R4
- https://www.youtube.com/watch?v=99LU0JZ8h30

Period: 12	Topic: Ordinal Numbers	Suggested extra teaching aids: Number posters (1-20), Math Genius 1, Pages 35–36

ENGAGE

Call any five children of the class and instruct them to stand in a row behind the other. Now, ask from the rest of the children of the class, 'Name the child who is standing at the first position?', Who (name of the child) is standing at the second position?', etc. Accept the response.



Now, show a chart having different animals at different position and ask the questions about the positions of different animals in the picture. Accept the response.

EXPLORE

Take the class into the playground and divide the class into groups of 10 each. Ask any group to make a chuck-chuck train by standing next to each other and keeping their hands on the shoulder of the kid who is next to him. Instruct another group to tell the ordinal positions of the kids in chuck-chuck train. Accept the response.

Repeat this activity with other groups till time permits. **[Holistic Learning]**

EXPLAIN

Take the reference of the textbook page 35 to explain Ordinal numbers to the class.

ELABORATE

The numbers that tell the position or place of something placed in order are called ordinal numbers.

First, second, third, fourth, ..., tenth are ordinal numbers. In short, we represent them as 1st, 2nd, 3rd, 4th, ..., 10th. **[Conceptual Learning]**

EVALUATE

Classwork: Ask to solve Practice Time 2J in the classwork/homework.

ENHANCE

Encourage the students to give the answers of the questions in the section 'Life Skills' on page 36.

Also, ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=r6SqdvLLZWg
- https://www.youtube.com/watch?v=tbKVdjM-hnw

Periods: 13–14	Topics: Revision	Suggested extra teaching aids: Math Genius 1, Pages 37–38

ENGAGE

Make students comfortable, so that they can ask any question on any previously taught topics. Clarify their doubts or queries and start the revision of the exercise.

EXPLORE

Start the revision of the exercise by using Challenge Question, Chapter Assessment, Mental Maths and Maths Fun. Also guide them to perform the activity in the classroom.

EXPLAIN

Discuss questions 1 to 5 of the 'chapter assessment' on page 37 and accept the response. If any confusion or error occurs, then explain and correct it.

ELABORATE

Discuss Challenge Question and encourage the students to answer the questions of section 'Mental Maths'.

EVALUATE

Classwork: Discuss the questions 1 to 5 of 'Chapter Assessment' in classroom.

Homework: Ask to solve Q6 to 9 of 'Chapter Assessment' on page 37.

ENHANCE

At last guide the students to do project and activity given in 'Gamified Learning' section on page 38. Encourage the students of the class to watch the videos from the QR code or 'www.orangewebsupport.co.in'

Addition up to 20

Learning Objectives

After studying this chapter, students will be able to...

- do addition by counting forward
- do addition on the number strips
- form number combinations
- make 10 to add
- perform vertical additions
- add three numbers
- add 2-Digit and 1-Digit numbers
- understand properties of addition
- solve real-life problems based on addition

LESSON PLAN

Suggested number of periods: 10

Suggested Teaching Aids: Textbook (Math Genius 1), soft toys, cut-outs or stickers of different objects, blackboard or whiteboard, pens, pencils, chalks/marker, notebook, flash cards, an empty box, school stationery, etc.

Keywords: Addition, sum, altogether, total, addend.

Pre-requisite knowledge: Students must be familiar with counting numbers 1 to 20, number line, forward counting, etc.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Period: 1	Topic: Addition by Counting Forward	Suggested extra teaching aids: Objects in the school bags, Math Genius 1, Pages 40–41

ENGAGE

Ask the class to pay attention and narrate the Sneha's birthday scene under the section 'Get Ready!' in interactive manner. Ask the students of the class count the number of boys and the number of girls separately. And tell, 'How many girls and boys are there altogether in the Birthday party?

Accept the response. Based on the response, instruct the students to count the objects and add them in the given questions in the textbook page 40.

EXPLORE

Divide the class into pairs. Instruct each member of the pairs to count number of objects they have in their school bags and add the number of objects together by counting forward. The pair who will add correctly will get a star sticker as reward. Accept the response from the class and then explain accordingly.

[Experiential Learning]

EXPLAIN

Suppose the first member has 5 objects and second member has 4 objects in their bags. Then to add them, we start with larger number that is 5 and count forward by 4 steps (equal to number of objects in second bag) as:

$$5 \xrightarrow{\text{and 1}} 6 \xrightarrow{\text{and 1}} 7 \xrightarrow{\text{and 1}} 8 \xrightarrow{\text{and 1}} 9$$

So, we can say that there are 9 objects altogether in both the bags.

Tell the class that the parts add up to give the total are called **addends** and the result is called sum. To write an addition sentence, we use symbol '+' and '=' sign. The sign '=' means 'is equal to'.

So, we write the above sum as 5 + 4 = 9. **[Conceptual Learning]**

ELABORATE

Take the reference of the textbook page 40 to elaborate more about addition by counting forward to the class.

EVALUATE

Classwork: Ask to solve Q1 of Practice Time 3A.

Homework: Ask to solve Q2 of Practice Time 3A.

ENHANCE

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=IGwdxtAfdEc

Periods: 2–3	Topics: Addition on the number Strip, Number combinations, Making 10 to add	Suggested extra teaching aids: Notebook, objects in the school bag, Math Genius 1, Pages 42–45

ENGAGE

Ask the class to pay attention. Instruct them to count number of textbooks and notebooks in your bag and add them. Accept the response. Also, ask them they can add by using number strip. Get their response and based on this introduce the concept of addition on number strip.

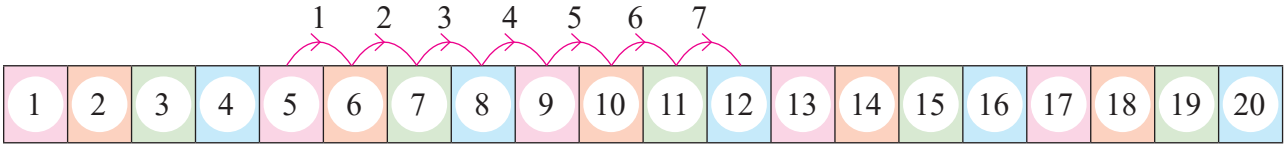
EXPLORE

Take the students into a playground and make a number strip up to number 20 on the floor. Call a child randomly, tell him/her a number (say 5) and the child will stand on that number. Now, tell the another number (say 7) to add in first number (5). Instruct the kid jump 7 steps forward from number 5 to reach the result. Ask the resultant number (sum). Accept the response. **[Experiential Learning]**

Repeat the activity with more children of the class till time permits.

EXPLAIN

To add 5 and 7, we start from 5 on the number strip and move 7 steps (ones) forward.



So, 5 + 7 = **12**

Also, take the reference of textbook page 42 to explain more about the addition on number strip.

ELABORATE

Now, divide the class into pairs and give them a few red and blue colour buttons. Tell them any number (say 1, 2, 3, …, or 9) to make different combinations of two numbers for the given number by using buttons.

Take the reference of the page 43 of the textbook to elaborate more about number combinations to the class.

Also, take the reference of page 44 to elaborate addition by making 10. Tell them, to find the total, we make a group of 10 first and then count the remaining. **[Conceptual Understanding]**

EVALUATE

Classwork: Ask to solve Q1 of Practice Time 3B, 3C and 3D.

Homework: Ask to solve remaining question of Practice Time 3B, 3C and 3D.

ENHANCE

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=MYHOyKtT5sY
- https://www.youtube.com/watch?v=Ceqo2Y3K3wA
- https://www.youtube.com/watch?v=k9IMztXsCAs

Periods: 4–5	Topics: Vertical addition, Addition of three numbers	Suggested extra teaching aids: Notebook, buttons of different colours, etc. Math Genius 1, Pages 45–47

ENGAGE

Ask the class to pay attention. Write few pairs of numbers up to 0–9 on the board. Ask, 'What is the sum of numbers in the pair?'. Accept the response. Can you add these numbers vertically? After getting their response, introduce vertical addition of numbers.

EXPLORE

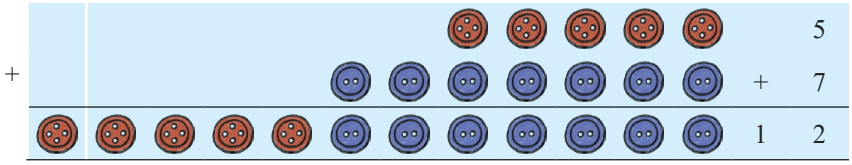
Divide the class into pairs and distribute some buttons of two different colours (Red and Blue). Instruct the pairs that first member will keep the one colour (red) buttons in row and the second member of the pair will keep the another colour (blue) buttons below the red colured buttons in second row.

Ask them to count the buttons of each colour separately and noted down their numbers in their notebook.

Now, ask them to count the coloured buttons altogether to find the total number of buttons they have. Accept the response. **[Experiential Learning]**

EXPLAIN

Let one pair has 5 red and 7 blue buttons. So, to find the total number of buttons they have we can arrange and add them as



To add numbers vertically, we can also draw vertical lines or bars as same as numbers given and then count total number of vertical lines to get the sum of those numbers. For example, Let us add 7 and 5.

		Tens	Ones	
Draw 5 lines.			5	|||||
Draw 7 lines.	+		7	|||||||
Count the total number of lines.		1	2	

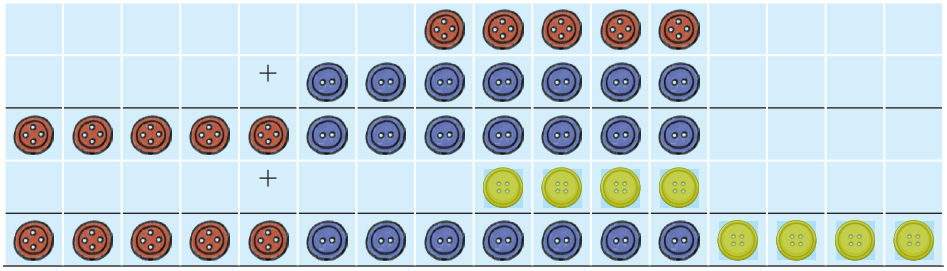
5 + 7 = 12

This format of adding numbers is known as vertical addition.

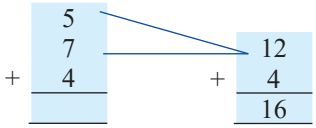
Take the reference of the textbook page 45 to explain more about vertical addition to the class.

ELABORATE

Now, give the pairs some buttons of third colour (Green buttons) and instruct them to count the green colour buttons and get the sum by adding it with red and blue coloured buttons. Accept the response from the class and tell them to add three numbers, first add two numbers then add third number to the sum of first two numbers.



First add 5 and 7 and then add 4 to the sum of 5 and 7.



Thus, 5 + 7 + 4 = 16 **[Conceptual Learning]**

EVALUATE

Classwork: Ask to solve Q.1–2 of Practice Time 3E and 3F.

Homework: Ask to solve remaining questions of Practice Time 3E and 3F.

ENHANCE

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=IGwdxtAfdEc

Periods: 6–8	Topics: Adding 2-digit and 1-digit numbers, Properties of Addition, Real-life problems based on addition	Suggested extra teaching aids: Notebook, objects in the school bag, beads, seeds. Math Genius 1, Pages 47–52

ENGAGE

Divide the class into pairs. Instruct the pairs that each member will tell his/her age to each other and then they will find the sum of their ages by adding them vertically. Accept the response from the class.

If the sum of the ages of the members in a pair is more than 9, that is, 2-digit number (say 10, 12, or 13, etc.) then ask the pair to add your best friend's age.

Accept the response. Check whether the pair be able to add the age of his/her best friend in the obtained result (in 2-dgit number). Then, introduce the concept of 'addition of 2-digit number and 1-digit number'.

EXPLORE

Divide the class into pairs. Put some pebbles/seeds/breads of larger sizes in a bowl. Invite the pairs one by one. Tell one member to pick up a hand full of concrete items from the bowl and count it. Write down the number. Ask another member to take out few more concrete from the bowl and count it. Note down the number and try to add the two numbers. Hence, count the concretes altogether and check if your answer is correct.

[Experiential Learning]

EXPLAIN

Suppose a pair of students get two numbers such as 12 and 4. Then to add the numbers write the 1-digit number below the 2-digit number in vertical column. Follow the following steps:

Step 1: Add the ones:

2 ones + 4 ones = 6 ones

Write 6 in ones column.

Step 2: Add the tens:

There is no tens digit in the second number.

So, write 1 in the tens place.

So, 12 + 4 = 16

	Tens	Ones
	1	2
+		4
	1	6

Also, take the reference of pages 47–48 to explain more about the adding 2-digit and 1-digit numbers.

ELABORATE

Give any number up to 9 to the class and instruct them to add 0 and 1 at a time. Ask what number as a result they get. Accept the responses from the class and explain them the property 'adding zero' and 'adding 1'.

Now, give one more number to the class and ask them to add both numbers by writing them in different orders and to observe the results obtained. Suppose, the first number is 6 and the second number is 3, then

6 + 3 = 9 and 3 + 6 = 9

Clearly, 6 + 3 = 3 + 6

Explain the class that if we change the order of numbers, the answer does not change and it is called the order property of addition.

Also, take the reference of pages 48–49 to explain more about the properties of addition.

Now, create some story sums on addition up to 20 and discuss with the class. Take reference of page 51.

[Conceptual/Creative Thinking]

EVALUATE

Classwork: Ask to solve Q1 of Practice Time 3G, Q1–2 of 3H and 3I.

Homework: Ask to solve remaining questions of Practice Time 3G, 3H and 3I.

ENHANCE

Encourage the students to solve the problems given in the 'Life Skills', 'Maths Fun' and 'Challenge Question' sections on page 52.

Periods: 9–10	Topic: Revision	Suggested extra teaching aids: Notebook, objects in the school bag, Math Genius 1, Pages 53–54

ENGAGE

Make students comfortable, so that they can ask any question on any previously taught topics. Clarify their doubts and start the revision of the exercise.

EXPLORE

Start the revision of the exercise. by using Chapter Assessment, Mental Maths, etc. Also guide them to perform the activity given in 'Gamified Learning' section in the classroom.

EXPLAIN

Discuss questions 1 to 3 of the 'Chapter Assessment' on page 53 and accept the response. If any confusion or error occurs, then explain and correct it.

ELABORATE

Encourage the kids to answer the questions of 'Mental Maths' section.

EVALUATE

Classwork: Discuss the questions 1 to 3 of 'Chapter Assessment' in classroom.

Homework: Ask to solve Q4 to 6 of 'Chapter Assessment' on page 53.

ENHANCE

Encourage the students to watch the videos from the QR code or 'www.orangewebsupport.co.in'

Subtraction up to 20

Learning Objectives

After studying this chapter, students will be able to...

- know that subtraction means taking away
- subtract up to 20 on the number line
- understand subtraction facts
- explore addition-subtraction relationship
- do subtraction by counting backward
- subtract numbers vertically
- solve real life problems using subtraction

LESSON PLAN

Suggested number of periods: 10

Suggested Teaching Aids: Textbook (Math Genius 1), soft toys, cut-outs or stickers of different objects, blackboard or whiteboard, pens, pencils, chalks/marker, notebook, flash cards, an empty box, school stationery, etc.

Keywords: Subtraction, Difference, Take Away, Left, Minus.

Pre-requisite knowledge: Students must be familiar with counting numbers 1 to 20, number line, backward counting, etc.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–3	Topics: Subtraction, Subtraction: counting backward, Subtraction on a number line	Suggested extra teaching aids: Objects in the school bag, Math Genius 1, Pages 55–59

ENGAGE

Ask the class to pay attention and narrate the scene between Ryan and his mother under the section 'Get Ready!' in interactive manner. Ask the students to give answer of the question given at the end of the section. Accept the response. Hence, introduce the concept of subtraction. **[Holistic Learning]**

EXPLORE

Divide the class into pairs. Take some sets of smiley stickers (10 stickers in each group). Give a set of stickers to each pair. Ask one member of the pair to take some stickers from them. Now ask the another member, "how

many stickers are left with him?" Accept the responses from the class and then explain about the subtraction as the process of taking away. **[Experiential Learning]**

EXPLAIN

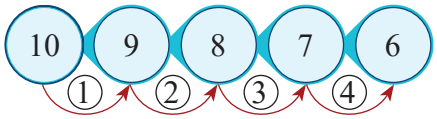
Subtraction means to take away. As 10 stickers are given to each group. Suppose one member takes away 4 stickers, so cross out 4 images as shown here.

Now count the remaining stickers. It is 6. It can be read as 10 minus 4 is 6.

And written as: 10 – 4 = 6 stickers

Take the reference of the textbook page 56 to explain more about subtraction.

Also, explain to the class that we can subtract by counting backward as,

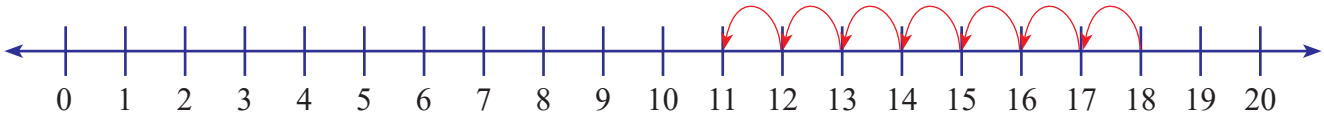


To subtract 4 from 10, we start with the bigger number 10 and count backwards 4 steps. Thus, 10 – 4 = 6.

ELABORATE

Take the class into playground. Draw a number line up to 20 on the ground. Call a student, ask a subtraction problem and tell him/her to solve it. Let us subtract 18 – 7.

Instruct the student to go to the number 18 and jump 7 places back. Ask him/her, 'At what number did he/she reach?' After the 7th jump, he/she reaches at 11, so 11 is the answer.



Therefore, 7 taken away from 18 leaves 11. Or 18 – 7 =11

Take the reference of the page 58 of the textbook to elaborate more about subtraction by counting backward to the class. **[Conceptual Learning]**

EVALUATE

Classwork: Ask to solve Q.1 of Practice Time 4A, Q.1–3 of Practice Time 4B, and 4C.

Homework: Ask to solve remaining questions of Practice Time 4A, 4B, and 4C.

ENHANCE

Encourage students to solve the question given in 'Life Skills' section given on page 58.

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=gMegunexwLo
- https://www.youtube.com/watch?v=TgMYJZme4rE
- https://www.youtube.com/watch?v=CNpJWC52yrk

Periods: 4–5	Topics: Subtraction facts, Vertical subtraction	Suggested extra teaching aids: Notebook, objects in the school bag, stickers, etc. Math Genius 1, Pages 59–62

ENGAGE

Ask the class to pay attention. Instruct them to count number of objects in their bag. Instruct the students to check the same of their classmates sitting next to them in the class. Ask, "who has more objects and by how many?"

Accept the response. Talk about how they found.

EXPLORE

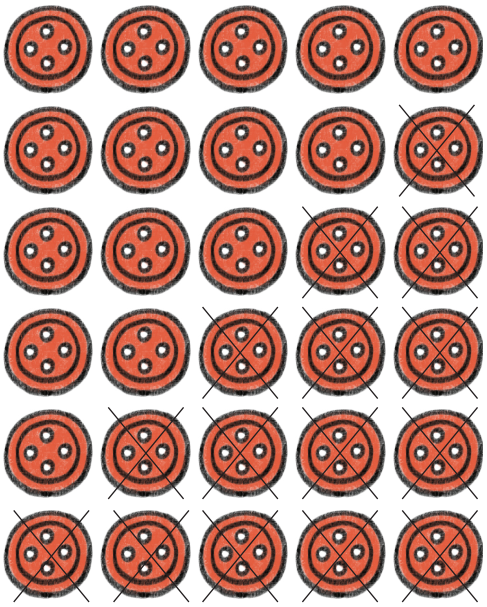
Take some sets of button stickers (a set will have 10 button stickers of the same colour). Divide the class into pairs.

Give a set of button stickers to each pair and tell them a number between 1 to 9. Instruct them to make all the possible subtraction facts for that particular number by marking a cross on the button stickers, using a marker pen. Accept the response from the class. **[Experiential Learning]**

EXPLAIN

Explain the class in details about the subtractions facts of different numbers.

Paste the stickers on a page and cross out the stickers by using marker pen. Let us write subtraction facts of 5. As



5 – 0 = 0

5 – 1 = 4

5 – 2 = 3

5 – 3 = 2

5 – 4 = 1

5 – 5 = 0

[Conceptual Learning]

Hence, motivate the students to do the similar activity. Also, take the reference of textbook pages 59–60 to explain more about the subtraction facts of different numbers up to 9 and encourage the class to complete the subtraction facts given on those pages.

ELABORATE

Now, ask a member of a pair to give few buttons/stickers to his partner (let 4 sticker given the partner). Ask the member kid of the pair how many stickers are left with him. Accept the response. We can subtract by drawing and striking out lines or objects.

Draw the number of lines equal to the number of stickers in the group. Strike out lines equal to the number of stickers taken away by the another member of the pair. Count the number of left over lines that will represent the number of stickers left. It is the answer. Tell them that we can find the stickers left by subtracting 4 from 9 vertically, as: Write the smaller number that is 4 below the bigger number 9.

		Ones
Draw 9 lines.		9
Cross out the lines as many as smaller (4).	–	4
Count the remaining number of lines.		5

Thus, $9 - 4 = 5$

Such method of subtraction is called vertical subtraction.

EVALUATE

Classwork: Ask to solve Q.1 of Practice Time 4D and 4E.

Homework: Ask to solve remaining questions of Practice Time 4D and 4E.

ENHANCE

Encourage the students to answer the problem given in the section 'Maths Connect' on page 61.

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=FxrTNtClwrg

Periods: 6–8	Topics: Subtracting a 1-digit number from a 2-digit number, Properties of subtraction, Subtraction stories, Addition and Subtraction relationship	Suggested extra teaching aids: Notebook, buttons of different colours, Math Genius 1, Pages 63–67

ENGAGE

Divide the class into pairs. Instruct the pairs that each member will tell the number of family members in his/her family and then find who has more family members by how many. To get this, find the difference between family members by subtracting vertically. Accept the response from the class.

Also, discuss about the joint family and nuclear family too.

Let within pair a child lives in a joint family having more than 10 members, that is, a 2-digit number and another child has 4 members, that is, 1-digit number. Then ask how they can find the difference in number of family members. **[Holistic Learning]**

Accept the response. Hence, introduce the concept of subtracting a 1-digit number from a 2-digit number.

EXPLORE

In a bowl put some dice and counters of large size. Invite the pairs randomly and instruct one member to pick up some dice/counters in his/her hand closed. keep it aside and count the number of dice and counters. Tell another member to find which is more and how many. Discuss how to subtract a 1-digit number from a 2-digit number if case arises. **[Experiential Learning]**

EXPLAIN

Let us subtract 2 from 13. Write the 1-digit number (2) below the 2-digit number in vertical column. Follow the following steps:

Step 1: Subtract the ones: 3 ones – 2 ones = 1 one

Write 1 in one column.

Step 2: Subtract the tens: There is no tens digit in the second number.

So, write 1 in the tens place. So, 13 – 2 = 11

	Tens	Ones
	1	3
–		2
	1	1

Also, take the reference of page 63 to explain more about the subtraction of 2-digit and 1-digit numbers.

ELABORATE

Give any number up to 9 to the class and instruct them to subtract 0 and 1 at a time from the given number. Ask what number as a result they get. Accept the responses from the class and then explain them the property 'subtracting zero' and 'subtracting 1'. Now, ask them subtract the number from itself.

What do they get? Based on the responses received from the class, explain the properties of subtraction. Also, take the reference of page 64 to explain more about the properties of subtraction. Now, create some story sums on subtraction up to 20 and discuss with the class. Take reference of page 65.

Thereafter move on to the next topic "Addition and subtraction relationship. For this, call a group of 3–4 students in front of the class. Give some concrete items to any two of them. Instruct them to count and speak aloud. Then tell them to handover all these items to the third member. The third member also count and speak the number aloud. Ask the 4th member to write the addition sentence for the 3 numbers spoken. After that, instruct the third member to return the items to the first/second as many as he/she gave earlier. Now, count how many are left. The 4th member again write the subtraction fact on the board. **[Conceptual Learning]**

EVALUATE

Classwork: Ask to solve Q1–4 of Practice Time 4F, 4G, 4H and Q1–6 of Practice Time 4I.

Homework: Ask to solve remaining questions of Practice Time 4F, 4G, 4H and 4I.

ENHANCE

Encourage the class to participate in the game given in the section 'Maths Fun' given on page 67 and answer the question.

Periods: 9–10	Topic: Revision	Suggested extra teaching aids: Notebook, Math Genius 1, Pages 68–70

ENGAGE

Make students comfortable, so that they can ask any question on any previously taught topics. Clarify the doubts or queries and start the revision of the exercise.

EXPLORE

Start the revision of the exercise by using Chapter Assessment, Mental Maths, Challenge Question. Also guide them to perform the activity given in 'Gamified Learning' section in the classroom.

EXPLAIN

Discuss questions 1 to 4 of the 'chapter assessment' on pages 68–69 and accept the response. If any confusion or error occurs, then explain and correct it.

ELABORATE

Encourage the kids to answer the questions of section 'Mental Maths'.

EVALUATE

Classwork: Discuss the questions 1 to 4 of 'chapter assessment' in classroom.
Homework: Ask to solve Q.5 to 10 of 'chapter assessment' on pages 68–69.

ENHANCE

Encourage the kids of the class to watch the videos from the QR code or 'www.orangewebsupport.co.in'

5 Numbers 21 to 50

Learning Objectives

After studying this chapter, students will be able to...

- read and write numbers from 21 to 50
- build numbers from 21 to 50
- split numbers from 21 to 50 into tens and ones
- compare and order numbers

LESSON PLAN

Suggested number of periods: 8

Suggested Teaching Aids: Textbook (Math Genius 1), soft toys, cut-outs or stickers of different objects, blackboard or whiteboard, pens, pencils, chalks/marker, notebook, number cards, dice, matchsticks, colourful buttons stickers, school stationery, etc.

Keywords: Abacus, Spikes, Ones and Tens, 2-digit numbers.

Pre-requisite knowledge: Students must be familiar with tens and ones and grouping ones into tens.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–3	Topics: Numbers in Tens, Numbers from 21 to 30, 31 to 40 and 41 to 50	Suggested extra teaching aids: Number cards (1-9), some stars stickers, matchsticks, etc. Math Genius 1, Pages 72–78

ENGAGE

This activity combines physical movement, visual recognition, and counting.

Ask the class to pay attention and tell them let's sing a song loudly in chorus with action.

One, two, buckle my shoe,
Three, four, knock at the door,
Five, six, pick up sticks,
Seven, eight, lay them straight,
Nine, ten, a big fat hen,
Eleven, twelve, dig and delve,
Thirteen, fourteen, maids a-courting,
Fifteen, sixteen, maids in the kitchen,
Seventeen, eighteen, maids in waiting,
Nineteen, twenty, my plate's empty.

After singing the song, ask the class for clapping themselves. Next recall the previous concept using 'Get Ready' section. **[Holistic Learning]**

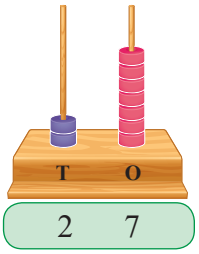
Now, ask the students to tell the numbers that come after 20. Accept the response. Based on it introduce the numbers beyond 20 up to 50.

EXPLORE

Divide the class into groups and give them a piece of thermocol. Encourage and help the groups to make their own abacus using thermocol and pencils. Distribute some plastic rings of two colours That will represent ones and tens digit. Write few numbers (from 21 to 50) on the blackboard and instruct the students to represent those numbers on the abacus using the rings. Also, read aloud the number name of the number built on abacus. The group who will represent more numbers correctly on the abacus will get star sticker as award. Accept the response from the class and then explain building and representing numbers accordingly. **[Creative Learning]**

EXPLAIN

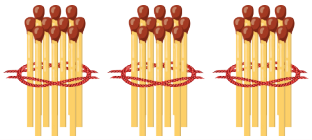
In the abacus, the spike on the left is for tens place and the spike on the right is for ones place. Let us build/represent 27 on the abacus, It has 2 tens and 7 ones, so put 2 blue rings in the leftmost spike to represent 2 tens that is 20. And then put 7 red rings to show 7 ones that is 7. So, number 27 can be built as shown alongside.



Take the reference of the pages 72–75 of the textbook to explain more about building numbers from 21 to 50 to the class. **[Experiential Learning]**

ELABORATE

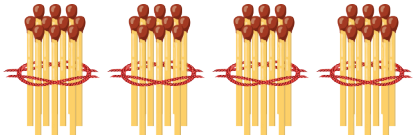
To reinforce the concept of building numbers up to 50 and their names. Divide the class into pairs and give them some matchsticks. Tell a number to each pair and instruct them build that number by making bunches of 10. Also, read aloud the number name of that particular number. As,

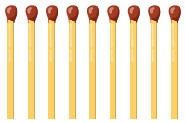


3 tens and  **4 ones**

Tens	Ones
3	4

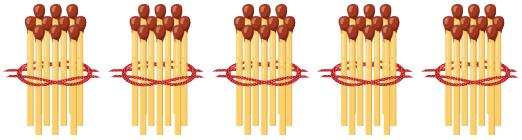
Thirty-four



4 tens **and**  **9 ones**

Tens	Ones
4	9

Forty-nine



5 tens **and** **0 ones**

Tens	Ones
5	0

Fifty

Also, tell them that

- The numbers from 21 to 29 are composed of 2 tens and 1, 2, 3, 4, ..., 9 ones.
- The numbers from 31 to 39 are composed of 3 tens and 1, 2, 3, 4, ..., 9 ones.
- The numbers from 41 to 49 are composed of 4 tens and 1, 2, 3, 4, ..., 9 ones.

EVALUATE

Classwork: Ask to solve Q.1, 3 and 4 of Practice Time 5A.

Homework: Ask to solve Q.2, 5–7 of Practice Time 5A.

ENHANCE

Encourage the students of the class to answer the questions in the sections 'Fast Check' and participate in the activity given in the 'Maths Fun' section.

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=E53mN_ay27k

Periods: 4–6	Topics: Comparing Numbers, Ascending order, Descending order	Suggested extra teaching aids: Some sets of Number cards (0-9) Math Genius 1, Pages 78–81

ENGAGE

Ask the class to pay attention and divide into pairs. Instruct each pair to count the objects in their pencil pouches or school bags and tell, who has more items in the pairs. Accept the response. Now, write few pair of numbers on the board and ask the class 'Can you compare the numbers written in the pairs?'. For example, in number pair (28 and 37), which is greater? Accept the response and then introduce the concept of comparing numbers up to 50. **[Experiential Learning]**

EXPLORE

Divide the class into pairs. Spread some number cards on the table and call the pairs to come to the table one by one and choose any four cards.

Instruct the pairs to make two 2-digit number by using the chosen number cards and then compare both the numbers formed. Avoid the formation of numbers beyond 50. Ask 'Which number is greater? Or Which number is smaller?'. Accept the response. The pair of students who will give the correct answer will get a star as reward.

Also, ask the pair 'which number is greater/smaller after changing the order of the digits?

Accept the response from the class and then explain them accordingly. **[Critical Thinking]**

EXPLAIN

Take the reference of the pages 78–79 of the textbook to explain comparing numbers and also explain the rules for comparing numbers to the class.

ELABORATE

Now, instruct the pair to make 2-digit numbers as many as they can by using those four number cards. And then arrange them in ascending and descending order. Accept the response. Recall to them that

- Number are arranged from the smallest to the greatest is called ascending order.
- Number are arranged from the greatest to the smallest is called descending order.

Also, take reference to pages 80–81 of the textbook to explain more about the 'Ascending and descending orders of the numbers' to the class. **[Conceptual Learning]**

EVALUATE

Classwork: Ask to solve Q.1, 2 of Practice Time 5B and Q.1 of Practice Time 5C.

Homework: Ask to solve Q.3 of Practice Time 5B and Q.2 of Practice Time 5C.

ENHANCE

Encourage the students of the class to do the activity given on page 78, give the answer of question in the section 'Fast Check' on page 79 and Life Skills given on page 80.

Also, ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=cxJFXp8FyvI
- https://www.youtube.com/watch?v=CYtN9lOI648

Periods: 7–8	Topic: Revision	Suggested extra teaching aids: Math Genius 1, Pages 82–83

ENGAGE

Make students comfortable, so that they can ask any question on any previously taught topics. Clarify their doubts or queries and start the revision of the exercise.

EXPLORE

Guide the students of the class to perform the Activity as suggested in 'Gamified Learning' section in the classroom. **[Experiential Learning]**

EXPLAIN

Start the revision of the chapter by using the 'Chapter Assessment', 'Challenge Question' and 'Mental Maths'.

ELABORATE

Encourage the students of the class to answer the questions under the section 'Mental Maths'.

EVALUATE

Classwork: Ask to solve Q.1 to 4 of 'Chapter Assessment' and 'Mental Maths'.

Homework: Ask to solve Q.5–6 'Chapter Assessment'.

ENHANCE

Encourage the students of the class to answer the questions under the section 'Challenge Question' to enhance their understanding on the topics taught in the classroom.

Encourage the students of the class to watch the videos from the QR code or www.orangewebsupport.co.in

6 Numbers up to 100

Learning Objectives

After studying this chapter, students will be able to...

- know formation of numbers 51–100
- read and write numbers and number names up to 100
- write numbers before, after and between the given numbers
- know the place value of digits in a number
- express a number in expanded and short forms
- compare and order the given numbers
- do skip counting

LESSON PLAN

Suggested number of periods: 14

Suggested Teaching Aids: Textbook (Math Genius 1), blackboard/whiteboard, pencils, chalks/marker, notebook, number cards, dice, matchsticks, colourful buttons stickers, school stationery, etc.

Keywords: Number names up to 100, Place value, Expanded form, Short form, Skip counting, etc.

Pre-requisite knowledge: Students must be familiar with tens and ones and grouping ones into tens.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–4	Topic: Counting numbers from 51 to 100	Suggested extra teaching aids: Some stars stickers, matchsticks, rubber bands, etc., Math Genius 1, Pages 84–91

ENGAGE

Ask the class to pay attention and count the counting 1 to 50 in chorus. You can use 'Get Ready' section to recall the previous concept. Give a number up to 50 randomly and ask them to tell aloud the number name of that number. The students who will spell out the correct number name will get a star as reward.

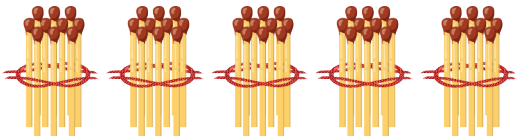
Now, ask the students of the class to tell the numbers that come after 50. Accept the response. Based on it introduce to them the numbers 51 to 100.

EXPLORE

Divide the class into pairs and give them some matchboxes and rubber bands. Tell a number (between 51 to 99) to each pair and instruct them to build that number by making bunches of 10 matchsticks and with loose ones. Also, read aloud the number name of that particular number. Accept the response form the class and explain how to build, read and write numbers.

EXPLAIN

To build the numbers first make the bunches of 10 matchsticks and place them with loose ones (that will represent ones). As



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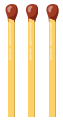
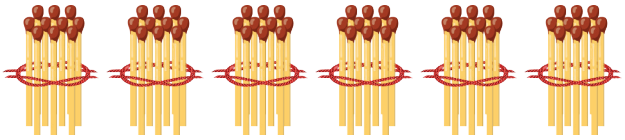


Tens	Ones
5	3

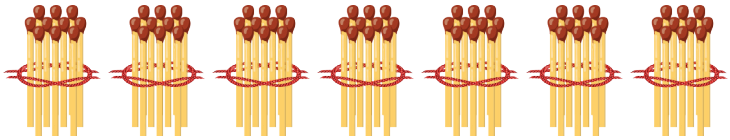
5 tens **3 ones** Fifty-three



and

Tens	Ones
6	4

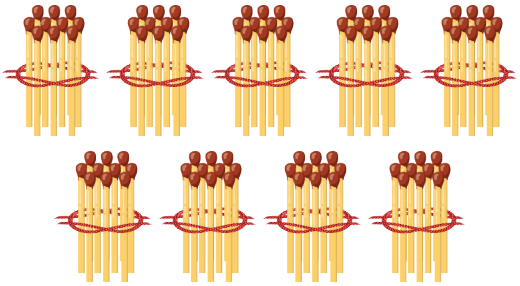
6 tens **4 ones** Sixty-four



and

Tens	Ones
7	5

7 tens **5 ones** Seventy-five



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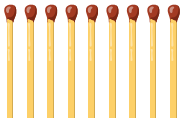
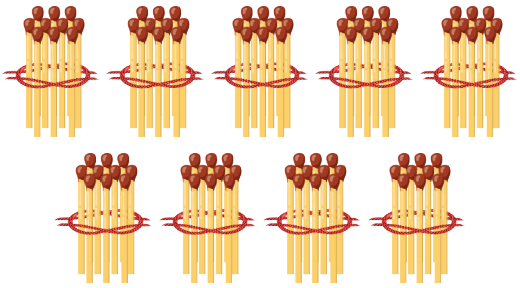


Tens	Ones
9	9

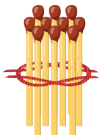
9 tens **9 ones** Ninety-nine

Also, tell them, that 9 tens and 10 ones or 1 ten make One hundred. As



and

or



Hundreds	Tens	Ones
1	0	0

9 tens **10 ones** One hundred

Take the reference of the pages 85–89 of the textbook to explain more about building numbers 51–100 to the class.

ELABORATE

To reinforce the concept of building numbers, encourage the pairs of students to represent those numbers (from 51 to 99) bundles of tens and ones and read aloud the number name of those numbers.

EVALUATE

Classwork: Ask to solve Q.1, 3 of Practice Time 6A and Practice Time 6B.

Homework: Ask to solve Q.2, 4 of Practice Time 6A.

ENHANCE

Encourage the students of the class to participate word search game in the 'Maths Fun' section.

Ask students to watch the following videos related to the topics taught in the periods to enhance their knowledge.

- https://www.youtube.com/watch?v=E53mNay27k

Periods: 5–7	Topics: Bigger Numbers on an Abacus, What comes Before, After or Between	Suggested extra teaching aids: Abacus made using thermocol, colourful rings (red and blue), some number posters (51 to 99), Math Genius 1, Pages 92–93

ENGAGE

Ask the class to pay attention and instruct them to count the numbers 51 to 100 in chorus. Now, write a few sets of 3 numbers (up to 99) on the board.

E.g., 57 58 59
70 71 72
92 93 94, etc.

Ask the class 'which number is after/before/ between in the written sets of numbers?'. Accept the responses form the class.

EXPLORE

Divide the class into groups of four students. Give them three number posters of numbers up to 99 written on it. Instruct the groups that of any three out of four members will tie the number poster on his/her chest and line up in a row randomly, and fourth member of the groups will recognize the number that comes just after/ before/ between when the teacher will ask. Accept the responses.

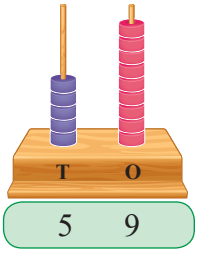
EXPLAIN

To reinforce the concept of building numbers, encourage the pairs of students to represent those numbers (from 51 to 99) on the abacus made by them using thermocol.

Let us represent 59 on abacus.

Since, in the number 59, it has 5 tens and 9 ones.

So, we put 9 beads in ones spike and 5 beads in tens spike as shown alongside to represent 59 on it.



Take the reference of the page 92 of the textbook to explain more about the numbers that come just after/between and before.

ELABORATE

In the next period, take a long thread and tie it up horizontally along both sides of the walls of the class at a height so that kids can reach to it easily. Divide the class into groups of ten students. Call a group at a time and give some number cards, e.g., 71 to 80 and instruct them to come one by one and hang their number cards using safety pin on the thread according to sequence of numbers.

Repeat this activity with other group of the students with different sets of number cards. Ask 'In which direction on the number line do we move so that the numbers become bigger ?', 'In which direction on the number line do we move so that the numbers become smaller ?'. Accept the responses from the class.
Based on the response, explain them,

- A line with numbers placed on it in order and at an equal distance is called a number line.
- When we move from left to right on a number line, the numbers become bigger.
- Numbers to the left of a given number are smaller than the number.
- Numbers to the right of a given number are bigger than the number.

Also, we can obtain the numbers that come just after/before/between the given numbers using the number line.

EVALUATE

Classwork: Ask to solve Q.1 and 3 of Practice Time 6B.
Homework: Ask to solve Q.2 and 4 of Practice Time 6B.

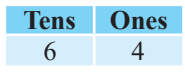
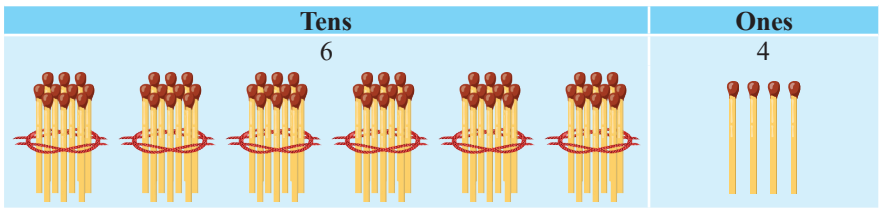
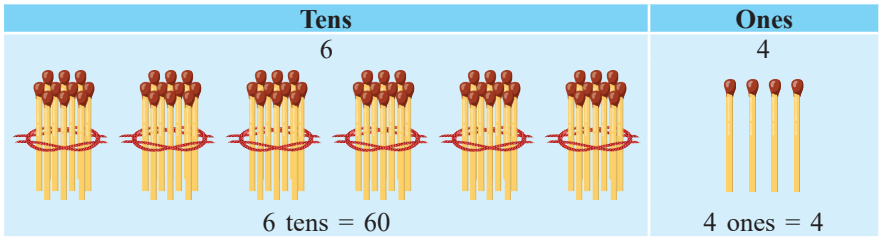
ENHANCE

Encourage the students to give the answer of the question under the section 'Think Tank' on page 92.

Periods: 8–9	Topics: Place value, Expanded form and Short form, Comparing Numbers	Suggested extra teaching aids: Matchsticks, Some sets of Number cards (0–9), Math Genius 1, pages: 94–96

ENGAGE

Divide the class into group of 3 students each. Call any group in front of the class. Ask one of them to think any 2-digit number and write it on the board. Tell another student to take the bundles of tens and ones to show the number written on the board. Now, instruct the third student to demonstrate how many tens and ones are there in the number explain the place value of each digit to the class.

Let the first student think a number 64. Then he/she writes as	
Then the second student takes the matchsticks and put it as	
Now the third student demonstrate the place values as Hence, teacher can express the number as the place values of digits and introduce expanded form. 64 = 6 tens + 4 ones = 60 + 4 ←Expanded form	

Repeat the activity with other groups till time permits.

EXPLORE

Divide the class into pairs. Spread some number cards on the table and call the pairs to come to the table one by one and choose any four cards.

Instruct the pairs to make two 2-digit numbers by using the chosen number cards and then compare both the numbers formed. Ask 'Which number is greater? Or which number is smaller?'. Accept the response. The pair of students who will give the correct answer will get a star as reward.

Also, ask the pair 'which number is greater/smaller after changing the order of the digits'?

Accept the response from the class and then explain them accordingly.

EXPLAIN

Explain the concept of Place value and Expanded form as well as Short form of numbers taking the reference of page 94. After understanding this concept, take the reference of the page 95 and explain Comparing numbers and the rules for ordering numbers to the class.

ELABORATE

Repeat the card game. Instruct the pair make four 2-digit numbers as many as then can by using those four number cards. And then arrange them in ascending and descending order. Accept the response. Recall them that

- Number are arranged from the smallest to the greatest is called **ascending order**.
- Number are arranged from the greatest to the smallest is called **descending order**.

EVALUATE

Classwork: Ask students to solve Q.1, 2 of Practice Time 6C and Q.3, 4 of Practice Time 6D.

Homework: Ask students to solve Q.3 of Practice Time 6C and Q.1, 2 and 5 of Practice Time 6D.

ENHANCE

Encourage the students to discuss about 'Maths Connect' given on page 94 and solve 'Fast Check' given on page 95.

Periods: 10–12	Topic: Skip Counting	Suggested extra teaching aids: Chalk, blackboard, number charts Math Genius 1, pages: 97–98

ENGAGE

Divide the class into 2 groups. Ask the groups to choose a leader and send him/her in front of the class. Make a table on the board for two teams as shown below.

Group A	
Group B	

Now instruct the group members to speak aloud the counting one by one in alternate order and the leader to write the numbers in respective rows on the board.

Group A	1, 3, 5, …
Group B	2, 4, 6, …

Then ask the class to observe the number sequence. Next, divide the class into 3 or 4 teams and let students perform similar activity. Hence, introduce the class about Skip Counting.

EXPLORE

Supply the printout of a 100-number chart to each student. Tell the students to take any colour pencil and shade a 1-digit number of his/her choice. Then, instruct them to leave 4 numbers next to the coloured number and shade the fifth number. Continue this process up to 100 and list the numbers which have been shaded. Ask them to compare with their bench partner and discuss about the list.

EXPLAIN

Take the reference of the pages 97-98 and explain about skip counting to the class.

ELABORATE

Display a 100 number chart in the class. Demonstrate skip counting by 10 starting from any number and discuss how tens digit changes but ones digit remains the same.

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	100

07 17 27 37 47 57 67 77 87 97

EVALUATE

Classwork: Ask students to solve Q. 1 and 3 of Practice Time 6E.

Homework: Ask students to solve Q. 2 and 4 of Practice Time 6E.

ENHANCE

Encourage the students to watch the video on internet for enhancing their knowledge.

- https://www.youtube.com/watch?v=SXPW9zu24Xc

Periods: 13–14	Topic: Revision	Suggested extra teaching aids: Pencil, notebook, Math Genius 1, Pages 99–100

ENGAGE

Make students comfortable, so that they can ask any question on any previously taught topics. Clarify their doubts or queries and start the revision of the exercise.

EXPLORE

Guide the students of the class to perform the activity of 'Gamified Learning' in the classroom.

EXPLAIN

Start the revision of the chapter by using the 'Chapter Assessment'.

ELABORATE

Discuss questions 1 to 4 of 'chapter assessment'.

EVALUATE

Classwork: Discuss Q1–4 of the 'chapter assessment' on page 99.

Homework: Ask students to solve Q5–8 of chapter assessment.

ENHANCE

Encourage the students to answer the questions under the section 'Challenge Question' to enhance their understanding on the topics taught in the classroom.

Encourage the students of the class to watch the videos from the QR code or www.orangewebsupport.co.in

Addition and Subtraction up to 100

Learning Objectives

After studying this chapter, students will be able to...

- add numbers of one digit to two digits (without regrouping)
- add two 2-digit numbers (without regrouping)
- subtract a 1-digit number from a 2-digit number (without regrouping)
- do subtraction of 2-digit numbers (without regrouping)
- learn adding and subtracting the tens
- solve real life problems using addition and subtraction

LESSON PLAN

Suggested number of periods: 17

Suggested Teaching Aids: Book: Math Genius 1, blackboard or whiteboard, dienes blocks up to 100, some real-life objects, pen, pencils, etc.

Keywords: Addition, Subtraction, 1-digit number, 2-digit number, Tens, Ones, Addend, Sum, In all, Total, Altogether, More, Less, Left, Difference, Taking away, etc.

Pre-requisite knowledge: Students must be familiar with addition and subtraction of 1-digit numbers, and a 2-digit number with a 1-digit number up to 20.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–5	**Topics: Adding a 2-digit and a 1-digit numbers, Addition in tens, Adding 2-digit numbers**	**Suggested extra teaching aids: Blackboard or whiteboard, pens, pencils, chalks/marker, dienes blocks, ice-cream sticks, rubber band, number cards up to 25, etc. Math Genius 1, Pages 103–107**

ENGAGE

Start the class by asking addition and subtraction of two 1-digit numbers. Ask the students of the class to count the number of boys and the number of girls and write them separately on board. Next, ask to calculate total number of boys and girls in the class and also find who is less and by how many. Accept the response. Discuss 'Get Ready' given on page 103 and guide them to solve the questions.

EXPLORE

Divide the class into pairs. Either draw a number line up to 50 on the ground using chalk or spread a number mat up to 50 on the floor. Call any pair randomly. Give them two number cards from 0 to 25. Instruct to read the number and the first child will jump on the number line or on the grid of mat up to that number.

After that the second child will start from that number and jump forward as per the number of his/her number card.

Ask to identify the sum of two given numbers. Repeat with different pairs using different combinations of numbers till the time permits. **[Experiential Learning]**

EXPLAIN

If in pair, the first student got the number 25 and the second student got 4, demonstrate that we can add these two number vertically using place values. Also visualise the addition using the dines block.

To add the numbers vertically, write the 1-digit number below the 2-digit number in vertical column and follow the steps a explained below:

Step 1: Add the ones:

5 ones + 4 ones = 9 ones

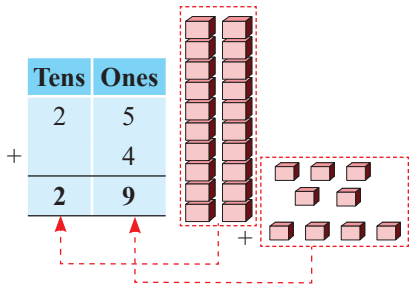
Write 9 in ones column

Step 2: Add the tens:

As, there is no tens digit in the second number.

So, write 2 in the tens place.

So, 25 + 4 = 29



Also, take the reference of examples given on 104 of the textbook. Then, move on to next pages to explain the addition in tens and addition of two 2-digit numbers.

ELABORATE

Demonstrate on board addition of two tens and addition of two 2-digit numbers by taking the reference of examples given on pages 105–107. **[Conceptual Learning]**

EVALUATE

Classwork: Instruct the class to do Q.1 to 4 of Practice Time 7A, 7B and 7C in the classwork.

Homework: Ask to do the rest of the questions of Practice Time 7A, 7B and 7C in the homework as well.

ENHANCE

- Discuss 'Knowledge Desk' and 'Fast Check' given on page 104 in the classroom.
- Motivate and help the children to answer the questions of 'Maths Connect' given on page 107.

[Critical Thinking]

Periods: 6–10	Topics: Subtracting 1-digit numbers from 2-digit numbers, Subtraction in tens, Subtraction of 2-digit numbers	Suggested extra teaching aids: Blackboard or whiteboard, pens, pencils, chalks/marker, notebook, playing cards, Math Genius 1, Pages 108–111

ENGAGE

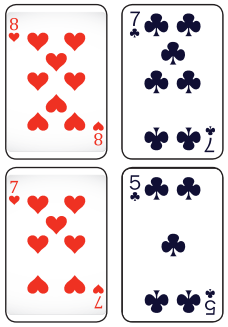
Introduce the topic in the classroom with some interesting activities, or asking questions on previously learned topics and then link to subtraction.

- Which number is the smallest 2-digit number?
- Which number is the largest 1-digit number?

- Can you subtract the smallest 2-digit number from the greatest 1-digit number?
- If you subtract the greatest 1-digit number from the smallest 2-digit number, which number will you get? Accept the responses.

EXPLORE

- Remove the aces and the faces cards from the deck of cards and divide the class into 2 teams.
- Ask 2 children from team A(say) to step forward in front of the class.
- The teacher will ask each child to choose one card each from 2 suits and arrange them as two 2-digit numbers, in such a way that the larger number is above the lower number of same suit.



	Tens	Ones
	8	7
–	7	5
	1	**2**

Write the numbers on board. Next, instruct them to subtract the number, with the help of cards. After one correct sum, continue with team B and so on. The team who will do maximum correct sum will be appreciated. **[Collaborative Learning]**

EXPLAIN

To subtract 5 from 38 vertically, write the 1-digit number (5) below the 2-digit number (38) in vertical column. Then follow the given steps:

Step 1: Subtract the ones: 8 ones – 5 ones = 3 ones

Write 3 in ones column.

Step 2: Subtract the tens: As there are no tens digit in the second number, so, write 3 in the tens place.

Thus, 38 – 5 = 33

	Tens	Ones
	3	8
–		5
	3	**3**

Also, take the reference of example given on page 108 to explain more about the subtraction of 2-digit and 1-digit numbers.

ELABORATE

Demonstrate on board subtraction in tens and subtraction of two 2-digit numbers by taking the reference of examples given on pages 109 to 111. **[Conceptual Learning]**

EVALUATE

Classwork: Instruct the class to do Q.1–4 of Practice Time 7D and 7E, and Q.1 of Practice Time 7F in the classwork.

Homework: Ask to do the rest of the questions of Practice Time 7D, 7E and 7F in the homework as well.

ENHANCE

- Download worksheets on subtraction of 1-digit numbers, 2-digit numbers from 2-digit numbers and distribute it among the children to solve it.

Periods: 11–15	Topics: Addition and subtraction using expanded form, Addition and subtraction stories	Suggested extra teaching aids: Blackboard or whiteboard, pens, pencils, chalks/marker, notebook, dienes blocks up to 999, Abacus, A4 paper sheets, Math Genius 1, Pages 112–116

ENGAGE

Start the class by asking about the expanded form of some two-digit numbers, like: 32, 45, etc.

Accept the answers. Introduce addition and subtraction using expanded form as follows:

$$32 = 30 + 2$$
$$45 = 40 + 5$$

Add tens and ones separately; $70 + 7 = 77$

Thus, 32 + 45 = 77.

Also, take the references of examples given on page 112 of the textbook.

EXPLORE

Divide the class into groups of 4–5 children.

Distribute A4 sheets among the children in the class.

Write some addition and subtraction problems on the board, like: 11 + 22, 25 – 10, etc.

Instruct each group to write one addition story and one subtraction story with the help of each other using these numbers, and show the sum. The group whose story is proper and sum is correct will be appreciated.

[Creative and Collaborative Learning]

EXPLAIN

Explain the method of addition and subtraction using expanded form by taking reference of examples given on page 112. For each addition fact, we have two subtraction facts, like for addition fact 32 + 45 = 77, we have two subtraction facts: 77 – 32 = 45 and 77 – 45 = 32.

Further, explain that to solve a word problem, first decide whether we have to use addition or subtraction by using the keywords.

Keywords for the addition are: in all, total, together, altogether, sum and for subtraction: more, less, left, difference, taking away.

ELABORATE

Demonstrate on board the method to understand and solve the problems given in 'Addition and Subtraction Stories' by using the keywords in examples given on page 114 of the textbook.

EVALUATE

Classwork: Instruct the class to do Q.1 (a)–(c), 2(a)–(d) of Practice Time 7G and Q.1–3 of Practice Time 7H in the classwork.

Homework: Ask to do the rest of the questions of Practice Time 7G and 7H in the homework as well.

ENHANCE

- Motivate and help in solving the questions of 'Life Skills' and 'Challenge Question' given on pages 113 and 115 of the text book.
- Instruct and guide to solve the questions given in 'Maths Fun' on page 116.

Periods: 16–17	Topic: Revision	Suggested extra teaching aids: Blackboard or whiteboard, pens, pencils, chalks/marker, notebook, dienes blocks up to 999, Abacus, A4 paper sheets, Math Genius 1, Pages 117–118

ENGAGE

Make students comfortable, so they can ask any question on any previously learnt topics in which they are confused. Clarify their doubt or queries and start the revision of the exercise.

EXPLORE

Help the children to do the activity given in 'Gamified Learning' section on page 118 of the textbook.

EXPLAIN

Start the revision of the exercise by using 'Chapter Assessment' and 'Mental Maths'.

ELABORATE

Discuss and help the children to solve questions of the 'Chapter Assessment'. If they have any confusion or they make any error, then explain and correct them.

EVALUATE

Classwork: Discuss questions 1, 2 and 3 of the 'Chapter Assessment' in the classroom.

Homework: Ask to do the rest of the questions of 'Chapter Assessment' as homework assignment.

ENHANCE

Ask students to watch the video of 'Addition and Subtraction' for grade 1 on 'www.orangewebsupport.co.in'.

Shapes and Patterns

Learning Objectives

After studying this chapter, students will be able to...

- identify basic geometrical plane shapes
- explore which objects can roll and slide
- explore the use of shapes and patterns in daily life
- know about solid shapes
- understand different types of patterns

LESSON PLAN

Suggested number of periods: 18

Suggested Teaching Aids: Book: Math Genius 1, blackboard or whiteboard, some real-life objects like: Ball, birthday cap, cardboards, toy car, etc.

Keywords: Plane shapes, Side, Corner, Rectangle, Triangle, Circle, Oval, Square, Solid shapes, Cube, Cuboid, Cylinder, Cone, Sphere, Faces, Roll, Slide.

Pre-requisite knowledge: Students must be familiar with shapes like, rectangle, square, triangle, circle, cube, cuboid, cylinder, cone and sphere.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–5	Topics: Plane shapes, Exploring shapes in daily life, Same shape, Same size	Suggested extra teaching aids: Some real-life objects, cutouts of some different plane shapes, Math Genius 1, Pages 119–122

ENGAGE

After greeting the students, ask few questions like:

- Can you say what is the shape of your mother's bangle?
- What is the shape of blackboard/whiteboard?

Accept the responses. Also discuss the content given in 'Get Ready' section on page 119 of the textbook and help in answering the questions.

EXPLORE

Before starting the class, cut the different shapes from some colourful chart papers. Ask to seat all children in a circle. The teacher will stand in the middle and take the square shape in his/her hand and ask which shape is this? Hand over the square to a student who says "square" and passes it to other in a circular way, each student saying "square" as they pass it around. Also, you can encourage children to name any object for an example which looks like a square. Do this for all the shapes. **[Collaborative Learning]**

EXPLAIN

When the whole class recognise the shapes, explain the properties of each shape. Like: A circle is round and it has no sides and corners. A square has 4 sides and 4 corners. Similarly, a rectangle has 4 sides and 4 corners. A triangle has 3 sides and 3 corners.

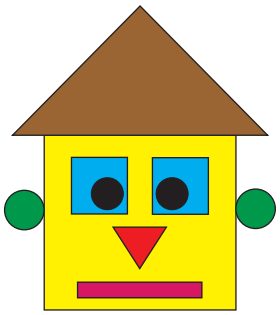
Further, ask students to observe the surroundings and find the objects that have the above mentioned shapes. Also explained that two objects may have same shape but different size, and two shapes may have same shape and same size. Give counter examples for better understanding. **[Experiential Learning]**

ELABORATE

To revise the concept of plane shapes, the teacher will conduct the following activity in the classroom. Put 4 copies of each cutout of different shapes on the teacher's table.

Divide the class into four groups. Distribute a chart paper to each of them. Teacher will tell the clues and the children will make Mr. Head by identifying the clues and paste the shapes on chart paper like:

- My face is a square,
- My mouth is a rectangle,
- My head is a triangle,
- My ears are circles,
- My nose is a triangle,
- My eyes are also square,
- And my eyeballs are also circles.
- I am Mr. Head.



The group who will create the shape correctly at first will be the winner.

[Creative Thinking and Art Integration]

EVALUATE

Classwork: Ask to do Q1 and 3 of Practice Time 8A and Q1 of Practice Time 8B. If the students make any error while solving the problems, the teacher will correct it and explain.

Homework: Ask to do the remaining questions of Practice Time 8A and 8B as their homework assignment.

ENHANCE

- Discuss and ask to do the 'Activity' given on page 121.
- Discuss 'Think Tank' given on page 122.

Periods: 6–10	Topics: Exploring solid shapes, Rolling and sliding	Suggested extra teaching aids: Some real life objects, card board Math Genius 1, Pages 123–125

ENGAGE

After the greeting, start the class by placing plastic or wooden cube, cuboid, cone, cylinder and sphere on teacher's table. Teacher will take the shapes one by one and ask to observed the shape and compare it with real life objects they have seen around.

EXPLORE

Divide the class into groups and give each group a set of shape cutouts or just tell them the names of shapes they need to find. Take the groups to different parts of the school or classroom. Their task is to find real-life objects that represent each of the solid shapes. For example, they might find a ball for a sphere, a tissue roll for a cylinder, a building block for a cube, and an ice cream cone for a cone. Encourage them to discuss why they think each object represents a particular solid shape. **[Experimental and Collaborative Learning]**

EXPLAIN

Take cube, cuboid, cone, cylinder and sphere in hand one by one and explain about its shape. Show the objects that resemble with the shapes, for example, show them the duster and explain how its shape is a cuboid. Similarly, explain that an ice-cream cone or birthday cap is of cone shaped and so on. Also take the references and examples given on page 123 of the textbook. **[Conceptual Learning]**

ELABORATE

Demonstrate how some objects roll and some objects slide. Take a long piece of cardboard, and place it on the table like a ramp by putting some objects to prop up the ramp. Call students one by one and gave them some small objects that will roll or slide like: toy car, ball, glue stick, markers, blocks, small boxes, can, etc. Ask children to sort objects into categories: things that roll, things that slide. **[Experiential Learning]**

EVALUATE

Classwork: Ask to do Q1 of Practice Time 8C and Q3 of Practice Time 8D. If the students make any error while solving the problems, the teacher will correct it and explain.

Homework: Ask to do the remaining questions of Practice Time 8C and 8D as their homework assignment.

ENHANCE

- Ask children to investigate how different objects move when placed on an inclined plane. Why some objects roll down, some slide down. Ask them to observe that the shape and texture of an object affects whether it will roll or slide.

Periods: 11–15	Topic: Patterns	Suggested extra teaching aids: Some real life objects, Cutouts of different shapes, Math Genius 1, Page 126

ENGAGE

Instruct the class to pay attention. Draw some object patterns on the board with some blank spaces. Ask from the class to tell the name of next two shapes or objects to complete the pattern drawn on the board. Accept the responses. Introduce the concept of different kinds of pattern.

EXPLORE

Divide the class into groups. Give each group some cut-outs of different shapes or tell them in advance to bring a leaf, flower, marble, bead, etc. Instruct them to make their own pattern using these cut-outs of shapes or concrete items they have brought. Ask from other group to identify and tell the name of the next two shapes or items to continue the pattern. Accept the responses. The teacher can ask to make different types of *rangoli* on the floor or board by using the patterns. **[Experiential Learning]**

EXPLAIN

A sequence of figures, shapes, letters or numbers that repeat itself is called a pattern.

We can find beautiful patterns on sarees, carpets, *rangolis*, tiles, and in nature. Explain about patterns in shapes, patterns in numbers, patterns in letters, etc.

ELABORATE

Demonstrate the different types of patterns existing in our surrounding like: in the window frames, on the floor, in our clothes, etc. Also take the references from page 126 of the textbook. **[Conceptual Learning]**

EVALUATE

Classwork: Ask to do few questions of Practice Time 8E. If the students make any error while solving the problems, the teacher will correct it and explain.

Homework: Ask the solve the remaining questions of Practice Time 8E as their homework assignment.

ENHANCE

- Discuss and motivate to solve the pattern based question in 'Mental Maths' given on page 127.

Periods: 16–18	Topic: Revision	Suggested extra teaching aids: Some real life objects, some cut-outs of different shapes, etc. Math Genius 1, Pages 127–129

ENGAGE

Make students comfortable, so they can ask any question on any previously taught topics in which they are confused. Clarify their doubts or queries and start the revision of the exercise.

EXPLORE

Motivate students to do the activity given in 'Gamified Learning' in the classroom.

EXPLAIN

Start the revision of the exercise by using 'Chapter Assessment' and 'Challenge Question'.

ELABORATE

Discuss Q1, 2 and 3 of the 'Chapter Assessment' and accept students' answers. If they have any confusion or they make any error, then explain and correct them.

EVALUATE

Classwork: Ask to solve Q1, 2 and 3 of the 'Chapter Assessment'.

Homework: Ask to do Q4 of 'Chapter Assessment' given on page 128 of the textbook and encourage to make the *rangoli* given in 'Life Skill' on page 127.

ENHANCE

- Ask to watch video on shapes and patterns on 'www.orangewebsupport.co.in'.
- Instruct to do the activity given on page 127 in 'Maths Fun'.
- Help them to do the activity given on page 128 in 'Maths Connect'.

9 Multiplication

Learning Objectives

After studying this chapter, students will be able to...

- know multiplication as repeated addition
- understand multiplication using an array
- do multiplication on the number line
- learn multiplication tables 1, 2, 5 and 10

LESSON PLAN

Suggested number of periods: 12

Suggested Teaching Aids: Book: Math Genius 1, blackboard or whiteboard, some real-life objects like sketch pens, pens, pencils, times table chart, marbles, beads, bowls, etc.

Keywords: Repeated addition, Equal group, Multiplication fact, Symbol '×', Times Table

Pre-requisite knowledge: Students must be familiar with counting up to 100 and the addition of 1-digit numbers.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–5	Topics: Repeated addition (equal groups), Multiplication as repeated addition	Suggested extra teaching aids: Some real-life objects, marbles, ice-cream sticks, etc. Math Genius 1, Pages 131–133

ENGAGE

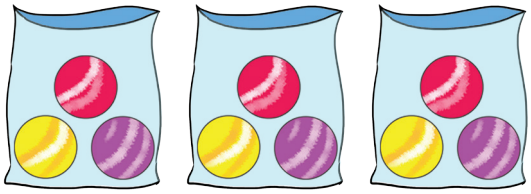
Start the class by involving the children in an activity. Instruct some children to raise their both hands and ask the rest of the students to tell how many hands are there in all. Accept the responses and tell those children to put down their hands. Again, ask another group of children to raise only one hand and instruct the class to count the number of fingers they have. Accept their responses. Now, discuss and instruct the class to complete the 'Get Ready' section given on page 130. Introduce repeated addition by making equal groups.

EXPLORE

Divide the class into groups. Give some marbles/ice-cream sticks to them. Instruct the group to make the group of 2s, 3s or 5s.

Ask to count the total number of groups formed and the total number of marbles/ice-cream sticks by each group. Accept the responses. **[Experiential Learning]**

EXPLAIN



We can count the total number of objects by making groups of equal number of objects. For example, consider the groups of marbles.
Here, we have 3 groups of 3 marbles.
To count the total number of marbles, we add 3, 3 times.
3 + 3 + 3 = 9
When we add same number again and again, it is called repeated addition.
Further, we can write 3 + 3 + 3 = 3 × 3 = 9 or 3 times 3 = 9.
This method is called multiplication by repeated addition. Explain to the students that repeated addition can be also represented as multiplication. We can use multiply sign to write the above multiplication, as 3 × 3 = 9 and read it as 3 multiplied by 3 is 9.

ELABORATE

Give more different objects. Instruct them to count them by making groups of objects and performing multiplication as repeated addition. Demonstrate this on the blackboard. Use the references and examples given on pages 131 and 132 of the textbook.

EVALUATE

Classwork: Instruct the class to do the Q.1–3 of Practice Time 9A and Q.1 of Practice Time 9B in the classwork.

Homework: Ask to solve Q.2 of Practice Time 9B in the homework as well.

ENHANCE

- Ask to solve the question given in 'Think Tank' section on page 133.

Periods: 6–10	Topic: Multiplication tables	Suggested extra teaching aids: Some real-life objects, Math Genius 1, Pages 134–136

ENGAGE

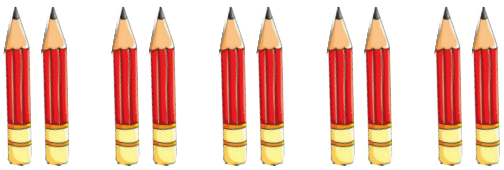
Write some repeated addition sentences for few numbers on the blackboard. As, 2 + 2 + 2 + 2 + 2 + 2, 4 + 4 + 4 + 4 + 4, 7 + 7 + 7, etc. and ask the students to think how we can write this in multiplication statement. Accept the responses. Introduce 'Multiplication tables'.

EXPLAIN

Explain that by using the references of repeated addition table given on pages 134 to 135 we can get the multiplication tables of any number.

ELABORATE

Place 10 real-life objects, like pencils on the table as follows:



Explain that here, we have 5 groups of 2 pencils each *i.e.*, 2 + 2 + 2 + 2 + 2 = 10 = 5 × 2 = 10

5 × 2 = 10 is read as '5 into 2 is 10' or '5 multiplied by 2 is 10' or '5 times 2 is 10'.

5 × 2 = 10 is called the multiplication fact or multiplication statement.

Here, '×' is the sign of multiplication. And the repeated addition is also called the multiplication.

Motivate the class to read the times table of 1, 2, 5 and 10 in chorus and remember it.

[Experimental Learning]

EVALUATE

Classwork: Instruct the class to memorize the times table of 1, 2, 5 and 10 and solve some questions from Practice Time 9C.

Homework: Ask to solve the rest of the questions of Practice Time 9C in the homework as well.

ENHANCE

- Discuss and ask to solve 'Think Tank' given on page 136. **[Critical Thinking]**
- Ask to do the activity given on page 136. **[Cross Curricular Learning]**

Periods: 11–12	Topic: Revision	Suggested extra teaching aids: Math Genius 1, Pages 137–138

ENGAGE

Make students comfortable, so they can ask any question on any previously taught topics in which they are confused. Clarify their doubts or queries and start the revision of the exercise.

EXPLORE

Guide the students to do the activity in 'Gamified Learning' section given on page 138.

EXPLAIN

Start the revision of the exercise by using 'Mental Maths', 'Chapter Assessment' and 'Challenge Question'.

ELABORATE

Discuss questions 1 to 4 in the 'Chapter Assessment' and accept students' answers. If they have any confusion or they make any error, then explain and correct them. Discuss 'Challenge Question' and motivate students to solve 'Mental Maths'.

EVALUATE

Classwork: Discuss questions 1 to 4 of the 'Chapter Assessment' in the classroom.

Homework: Ask to solve Q.5 of 'Chapter Assessment'.

ENHANCE

- Ask students to learn times table from 1 to 10.
- Show them the video on 'Multiplication' on 'www.orangewebsupport.co.in'.

10 Measurement

Learning Objectives

After studying this chapter, students will be able to...

- compare and measure lengths, weights (masses) and capacities of different objects
- understand non-standard and traditional units
- measure length, weight and capacity of an object using small things such as dice, blocks, paper clips, containers of different sizes, etc.

LESSON PLAN

Suggested number of periods: 15

Suggested Teaching Aids: Book: Math Genius 1, blackboard or whiteboard, real life objects, pencils, erasers, paper clips, matchsticks, coins, pebbles, blocks, glass, Jug, etc.

Keywords: Tall, Short, Heavy, Light, More, Less, Handspan, Palm, Cubit, Pace, Footspan, Armspan, Balance, Heavier, Lighter, etc.

Pre-requisite knowledge: Students must be familiar with long, short, heavy objects, light objects, etc. and measuring activites.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–4	Topics: Comparing lengths, Measuring length	Suggested extra teaching aids: Some real-life objects, some chart paper, etc. Math Genius 1, Pages 140–143

ENGAGE

After the greeting, hang the chart of pictures of animals or trees in the middle of the class or show them on the white board. Ask from each student one by one, for example, show pictures of a giraffe and a dear and ask 'which one is taller' or 'which one is smaller'? Accept the responses. Also, discuss the content given in 'Get Ready' section and ask to answer the questions. Introduce the topic 'Comparing lengths'.

EXPLORE

Divide the class into pairs. Help each pair to measure the length of their desk, with handspan and with a ruler or a thread. Help them to note their measurement on a paper. Ask their measurement one by one. Discuss why the measure of each is differ in handspan and same in ruler or thread. **[Experiential Learning]**

EXPLAIN

When we want to compare the lengths of two or more objects, we can keep them side by side and compare them easily. For example, among the three objects, say a crayon, a pencil and an eraser, we can clearly see that the pencil is the longest and the eraser is the shortest.

Also, refer page 141 of the textbook to explain that long ago, we measure any length by using our body parts such as fingers, handspans, cubits, feet, footspan, armspan, etc. But they are not standard as size of body parts of a person are different from the others. So, for correct measurement, we always use the same length object. For example, we can measure length of our desk by using a ruler, etc.

ELABORATE

Demonstrate measuring the length of an object like pencil, or a book by using another object like eraser, sharpener, etc. For detailed explanation, take the references given on pages 140–142 of the textbook.

[Conceptual Learning]

EVALUATE

Classwork: Discuss and motivate to solve Q.1 and 2 of Practice Time 10A. If any student makes any error, the teacher will correct it and explain.

Homework: Ask to solve the remaining questions of Practice Time 10A as their homework assignment.

ENHANCE

- Discuss and motivate to solve 'Think Tank' given on page 140. **[Holistic Learning]**
- Ask to watch the video on measurement on the link 'www.orangewebsupport.co.in'. **[Tech Connect]**

Periods: 5–8	Topics: Comparing weights, Measuring weights	Suggested extra teaching aids: Some real life objects, one classroom weighing balance, etc. Math Genius 1, Pages 143–144

ENGAGE

Put a few things like school bag, duster, pen, pencil, 1 banana, 1 orange, etc. on teacher's table. Call students one by one and present any two items like school bag and duster, then ask which is heavier and which is lighter. Accept the responses. Introduce 'Comparing weights'.

EXPLORE

Divide the class into groups. Provide each group a small balance or scale. Place a variety of objects of different sizes and weights (e.g., blocks, toy animals, small balls) in a basket or box. Instruct students to take turns placing objects on each side of the scale to see which one is heavy or light or if they can make it balance. Encourage students to experiment with different combinations of objects and observe how it affects the balance. **[Experiential Learning]**

EXPLAIN

When we are unable to say which item is heavier or lighter just by viewing them, we use a balance or scale to compare weights. A balance has two pans. When we put a heavier item on a pan and the lighter item on another pan, the pan having heavier item goes down. If both the pans are balanced, it means the weight of both the items are equal. Take the references and examples given on pages 143–144 of the textbook.

ELABORATE

Provide each student with a small amount of playdough.

Instruct students to sculpt two objects of their choice: one that they think is heavy and one that they think is light. After sculpting, they verify their observation by weighting their creation on weighting scale and share their creations with the class and explain why they choose to make each object heavy or light.

[Experimental Learning]

EVALUATE

Classwork: Discuss and motivate to solve few questions of Practice Time 10B and 10C in the classroom. For any mistake, the teacher will mark and explain.

Homework: Ask to solve the remaining questions of Practice Time 10B and 10C as homework assignments.

ENHANCE

- Discuss 'Think Tank' given on page 143 of the textbook. **[Logical Thinking]**
- Ask to weigh a watermelon/papaya and check how many apples/oranges are equal to its weight with help of parents.
- Help students to make the balance given in 'Maths Fun' on page 147.

Periods: 9–12	Topics: Comparing capacities, Measuring capacity	Suggested extra teaching aids: Several containers of different shapes and sizes, water or sand, measuring cups or spoons, etc. Math Genius 1, Pages 145–147

ENGAGE

Put three different sized bottles on the table and fill them with water. Show two bottles and ask from class, which of the bottles has more water and which has less. Accept the responses. Further, ask: which can store more water–a bottle or a bucket, accept the responses. Introduce 'comparing capacity'.

EXPLORE

Take a large tray and place a container on it. Allow the students to explore the containers themselves. Provide them the measuring cups or spoons to transfer water from one container to another. Encourage them to pour water from a smaller container into a larger one and vice versa. Discuss which container holds more water and why. Which one holds less?

What happens when we pour water from a smaller container into a larger one or from a larger one to smaller one? **[Experiential Learning]**

EXPLAIN

Begin by discussing what the capacity means. Explain to the students that capacity refers to how much a container can hold. We use the words 'more' and 'less' to compare the capacities of containers. Bigger container has larger capacity compare to smaller containers. For example, the bucket can hold more water than a mug. So, the bucket has more capacity than that of a mug.

If 1 mug is filled with 2 glasses of water, then capacity of mug is equal to 2 glasses.

ELABORATE

Demonstrate in the classroom the activity given on page 145 of the textbook.

EVALUATE

Classwork: Instruct to solve few questions of Practice Time 10D and 10E in the classroom. For any mistake, the teacher will mark and explain.

Homework: Ask to solve the remaining questions of Practice Time 10D and 10E as homework assignments.

ENHANCE

- Discuss and motivate to solve 'Think Tank' given on page 145. **[Logical Thinking]**
- Discuss and help to solve 'Challenge Question' given on page 147. **[Critical Thinking]**

Periods: 13–15	Topic: Revision	Suggested extra teaching aids: Math Genius 1, Pages 148–149

ENGAGE

Make students comfortable, so they can ask any question on any previously taught topics in which they are confused. Clarify their doubts or queries and start the revision of the exercise.

EXPLORE

Orgainise the students in groups in such a way that they can do the activity given in 'Gamified Learning' section on page 149 of the textbook. **[Experimental and Collaborative Learning]**

EXPLAIN

Start the revision of the exercise by using 'Mental Maths' and 'Chapter Assessment' of the chapter.

ELABORATE

Discuss 'Mental Maths', and Q1 to 3 of the 'Chapter Assessment' and accept student's answers. If they have any confusion or do any error, then explain and correct it.

EVALUATE

Classwork: Ask to solve Q1 to 3 of the 'Chapter Assessment' in the classroom.

Homework: Ask to solve Q4 to 5 of the 'Chapter Assessment' given on page 148 as homework assignment.

ENHANCE

- Ask to watch the video on measurement for grade 1 on 'www.orangewebsupport.co.in'.

Time

Learning Objectives

After studying this chapter, students will be able to...

- understand parts of a day
- read and write time on a clock
- know the names of months in a year
- know about the clock
- know the days in a week
- feel and experience about seasons

LESSON PLAN

Suggested number of periods: 13

Suggested Teaching Aids: Book: Math Genius 1, blackboard or whiteboard, wall clock/table clock, calendar, charts on seasons, etc.

Keywords: Day, Night, Morning, Noon, Evening, Hour, Minute, Week, Month, Year, Seasons, Summer, Winter, Rainy, etc.

Pre-requisite knowledge: Students must be familiar with clock, day and night, hot and cold etc.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–5	Topic: Day and night	Suggested extra teaching aids: Some chart having images of daily activity, some flash cards for daily routine activity, etc. Math Genius 1, Pages 150–152

ENGAGE

After the greeting, start with a discussion like: when you wake up is it morning or night? When do you come to school, day or night? When do you sleep? Accept the responses.

Discuss the concepts given in "Get Ready" section and motivate to solve the questions given on pages 150 and 151 of the textbook.

EXPLORE

Take 4 cardboard boxes and write 'morning', 'afternoon', 'evening', 'night' on them. Put it in four corner of the class room. Take some flash cards like: wake up, eat breakfast, eat lunch, eat dinner, go to school, start school, go home, arrive home, watch TV, do homework, go to bed, etc.

Take another cardboard box and put some small ball in it.

Teacher will start the game by holding any flash card with announcing the phrase (e.g. eat dinner)

children will come up one by one and pick up a ball from fifth box and drop it in any of the four box which represent the correct timing for it. Repeat the same for all of the flashcards by putting the ball into the correct boxes. It may be the case that some students will need to visit two boxes for some activities. If any child make any error, teacher will guide him/her.

Finally, count out the balls of each box to see which is the winning time of the day!

[Experiential and Collaborative Learning]

EXPLAIN

Daytime is when we can see the Sun. Nighttime is when the Sun has set and it is dark outside.

A day has mainly three parts. Morning, noon and evening.

ELABORATE

Demonstrate in the classroom the difference between daytime and nighttime and part of a day by taking the reference given on pages 151 and 152 of the textbook. **[Conceptual Learning]**

EVALUATE

Classwork: Discuss and help to solve the questions given in Practice Time 11A.

Homework: Ask them to prepare a beautiful chart on different routine activities by taking images cut-out from old magazines or newspapers and label them as morning, noon, evening or night with help of elders.

ENHANCE

- Discuss 'Fast Check' given on page 151 of the textbook.
- Discuss 'Think Tank' given on page 151 of the textbook.

Periods: 5–8	Topic: Reading time	Suggested extra teaching aids: A big dummy clock, cardboard clocks, etc. Math Genius 1, Pages 152–153

ENGAGE

Instruct the class to pay attention. Show a big dummy clock and ask: What is this?

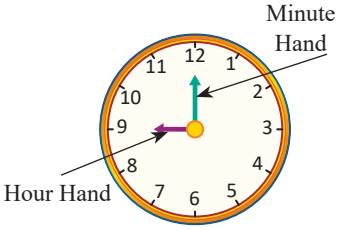
What time is it showing? Accept the responses. Introduce 'Reading time'.

EXPLORE

Divide the class into two groups. Help them to make a cardboard clock with minute and hour hand to them. Instruct the first group to display the time in hour and the other group will tell the time. If other group identifies the time shown on the clock correctly, then the other group will get 1 point. Each group will get five turns. The group who will tell the more correct time will win the game. **[Experiential Learning]**

EXPLAIN

The clock has numbers from 1 to 12 on its face and each number represents the hours. The long hand is the minute hand. The short hand is the hour hand. When the minute hand points to 12, the hour hand tells us the time depending upon the number pointing by it. **[Conceptual Learning]**



ELABORATE

Demonstrate with dummy clock that when the hour hand is at 9 and the minute hand is at 12, the clock is showing 9 o' clock. In the same way, show different times in exact hours in the classroom.

[Conceptual Learning]

EVALUATE

Classwork: Ask to solve Q.1 (a), (b), Q.2 (a), (b) of Practice Time 11B. If any student makes any error, the teacher will correct it and explain.

Homework: Ask to solve the remaining questions of Practice Time 11B as their homework assignment.

ENHANCE

- Discuss 'Knowledge Desk' given on page 153.
- Help in solving the 'Activity' given on page 154.

Periods: 9–11	Topic: Days of a week, Months of a year, Seasons	Suggested extra teaching aids: A calendar, a chart having cutouts/images of some seasons, some seasonal objects, etc. Math Genius 1, Pages 154–156

ENGAGE

After the greeting, start the class by asking few questions like:

- What day is today?
- What day was yesterday?
- Which month is going on?
- In which season do we feel cold?
- In which season do we feel hot?

Accept the responses. Start the topic 'Days of a week'.

EXPLORE

Show a calendar to the class. Instruct the children to observe the calendar.

Ask: How many days are there in a week? How many months are there in a year?

Accept the responses. **[Experiential Learning]**

EXPLAIN

There are 7 days in week. Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday. Every week begins on Monday and ends on Sunday. One year has twelve months. Tell the class that in our country, there are three main seasons in a year, winter, summer, rainy or monsoon.

Also, take the references given on pages 154, 155 and 156 of the textbook.

ELABORATE

Hang a calendar on the board.

Instruct students, to come one by one and help them to mark their birthday on calendar.

Ask from the other students of the class to identify month and day of birthday. Accept the responses. If they make any error, the teacher will rectify and explain.

EVALUATE

Classwork: Ask to solve Q1 of Practice Time 11C and 11D in the classroom. If any student makes any error, the teacher will correct and explain.

Homework: Ask to solve the remaining questions of Practice Time 11C and 11D as homework assignment.

ENHANCE

- Discuss the 'Knowledge Desk' given on page 155 of the textbook.
- Discuss and help to solve 'Think Tank' given on pages 154 and 156 of the textbook.

Periods: 12–13	Topic: Revision	Suggested extra teaching aids: Math Genius 1, Pages 157–158

ENGAGE

Make students comfortable, so that they can ask any question on any previously taught topics in which they are confused. Start the revision of the exercise.

EXPLORE

Motivate to do the activity given in 'Gamified Learning' on page 158 of the textbook.

[Conceptual Learning]

EXPLAIN

Start the revision of the exercise by using 'Chapter Assessment', 'Mental Maths' and 'Challenge Question' of the chapter.

ELABORATE

Discuss questions 1 to 4 in the 'Chapter Assessment' and accept student's answers. If they have any confusion or do any error, then explain and correct it. Discuss and motivate students to solve 'Mental Maths'.

EVALUATE

Classwork: Discuss and help them to solve questions 1 to 4 of the chapter assessment in the classroom.

Homework: Ask to do the activity given in 'Maths Fun' on page 157 of the textbook.

ENHANCE

- Help the children to solve the 'Challenge Question'.
- Ask to watch the video on 'Time' for grade 1 on 'www.orangewebsupport.co.in'.

Money

Learning Objectives

After studying this chapter, students will be able to...

- know Indian currency-notes and coins
- exchange money of different denominations
- understand the use of money in real life
- shopping with smaller amount

LESSON PLAN

Suggested number of periods: 10

Suggested Teaching Aids: Book: Math Genius 1, blackboard or whiteboard, some dummy notes and coins of different denominations.

Keywords: Currency, Notes, Coins, Rupees, Paise, Exchange, Shopping, Addition, Subtraction, Total amount, Balance, etc.

Pre-requisite knowledge: Students must be familiar with what currencies are used for, Indian currencies and its symbol, coins and notes in use, addition and subtraction of numbers, etc.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–5	Topics: Money, Coins in use, Notes in use, Counting money	Suggested extra teaching aids: Some dummy notes and coins of different denominations Math Genius 1, Pages 159–162

ENGAGE

After the greeting, start the class by asking some questions like: What is money? What do you do with it? Accept the responses. Show currency notes and coins of different denominations in the classroom. Instruct to identify them and tell their values. Accept the responses. Discuss the concepts given in 'Get Ready' section on page 159. Guide them to solve the questions based on it.

EXPLORE

Divide the class into groups. Give them some dummy currency notes. Arrange a buffet of objects on the table with a price tag on each. Keep price under ₹30. Instruct and help the group to act as a buyer and seller and buy things using dummy currency. Repeat with all students. Observe them and help if any group wants it.

[Experiential Learning]

EXPLAIN

We use money to buy things and pay for services. Indian currencies are available in the form of notes and coins. The symbol '₹' is used for rupees and 'p' for paise. Further, explain counting of money of same value by using skip counting, and for different values, we start counting from the note or coin of biggest value. For detailed explanation, take the references given on pages 160 to 161 of the textbook.

ELABORATE

Divide the class into pairs. Take two trays. Put some dummy notes in one tray and dummy coins in another tray. Call each pair one by one. One member of the pair will take one currency note from the tray, and the second member will choose the coins that will equal to the value of that note, like:

The pair who do it correctly will be get 1 point. Repeat this process with all the pairs.

[Experiential Learning]

EVALUATE

Classwork: Ask to solve Q1 and 3 of Practice Time 12A in the classwork.

Homework: Ask to solve the remaining questions of Practice Time 12A as their homework assignment.

ENHANCE

- Help the children to do the activity given on page 161 of the textbook.

Periods: 6–8	Topic: Money stories	Suggested extra teaching aids: Some dummy currency notes and some coins, etc. Math Genius 1, Pages 162–163

ENGAGE

Show some toys or some objects in the class with price tag under ₹20.

Ask: If you want to buy any two of them, how much amount you must have? Accept the responses. Introduce 'Money stories'.

EXPLORE

Divide the class into groups. Take some objects and put price tags on them. Give dummy currency to them. Choose any group and instruct to play the game of shopping. Ask to buy more than 1 thing and pay the total amount of money to the shopkeeper (the teacher can play the role of shopkeeper).

Further, ask what amount will left, if you bought items worth ₹ 40 and you give a ₹ 50 note to the shopkeeper? Accept the response.

[Experiential Learning]

EXPLAIN

Addition and subtraction of money are carried out as usual addition and subtraction of numbers.

ELABORATE

Demonstrate on board examples based on 'addition and subtraction of money' by taking examples given on page 162 of the textbook. **[Conceptual Learning]**

EVALUATE

Classwork: Ask to solve few questions of Practice Time 12B in the classwork.

Homework: Ask to solve the remaining questions of Practice Time 12B as their homework assignment.

ENHANCE

- Discuss and motivate to solve the questions of 'Mental Maths' given on page 163 of the textbook.

Periods: 9–10	Topic: Revision	Suggested extra teaching aids: Math Genius 1, Pages 164–165

ENGAGE

Make students comfortable, so they can ask any question on any previously taught topics in which they are confused. Clarify their doubts or queries and start the revision of the exercise.

EXPLORE

Guide students to do the activity given in 'Gamified Learning' section on page 165.

[Experiential and Collaborative Learning]

EXPLAIN

Start the revision of the exercise by using 'Chapter Assessment' and 'Challenge Question'.

ELABORATE

Ask to solve questions 1 and 2 of the 'Chapter Assessment' and accept student's answers. If they have any confusion or do any error, then explain and correct it. Guide them to solve 'Challenge Question' given on page 165 of the textbook.

EVALUATE

Classwork: Ask to solve Q1 and 2 of the 'Chapter Assessment' and 'Challenge Question' in the classroom.

Homework: Ask to solve Q3 and 4 of 'Chapter Assessment' as homework assignment.

ENHANCE

- Ask to do the project work given in 'Maths Fun' on page 165 of the textbook.

[Holistic Learning]

Data Handling

Learning Objectives

After studying this chapter, students will be able to...

- learn sorting things
- know about collection of information
- present and interpret the given data

LESSON PLAN

Suggested number of periods: 8
Suggested Teaching Aids: Book: Math Genius 1, blackboard or whiteboard, real-life objects, etc.
Keywords: Data, Ccollection, Sorting, Listing.
Pre-requisite knowledge: Students must be familiar with sorting things.
NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–5	Topic: Collecting data	Suggested extra teaching aids: Some colour pencils or crayons, some chart paper, etc. Math Genius 1, Pages 166–168

ENGAGE

Discuss the concept given in "Get Ready" section and discuss the questions based on it. Encourage the students to write the answers.

EXPLORE

Divide the class into groups. Give them a box having crayons/pencils of mixed colours. Instruct to separate red, yellow, blue, and green coloured crayons/pencils and make table for this.

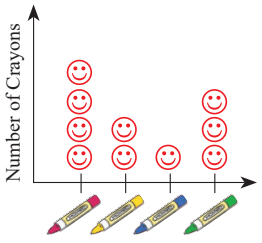
Ask: How many total blue crayons/pencils are there? How many greens crayons/pencils are there? Which colour of crayons/pencils is the maximum in number? Which colour of crayons/pencils is the minimum in number? How many crayons/pencils are there in total? Accept the responses. **[Experiential Learning]**

EXPLAIN

Collection of information in the form of numbers, words, people or things is called data. Data can be displayed through a table or chart.

Organising the data means presenting it in such a manner so that it becomes meaningful at a glance.

For example, we can represent the sorting of crayons/pencils in the chart also as shown alongside.



ELABORATE

Discuss the situation given on page 167 and help children to answer the given questions by observing the scene. **[Experiential Learning]**

EVALUATE

Classwork: Ask to solve Q1 of Practice Time 13 in their classwork. If any student make any error, the teacher will correct it and explain.

Homework: Ask to solve Q2 of Practice Time 13 as homework assignment.

ENHANCE

- Discuss and motivate to solve 'Challenge Question' given on page 170 of the textbook.

Periods: 6–8	Topic: Revision	Suggested extra teaching aids: Math Genius 1, Pages 169–170

ENGAGE

Make students comfortable, so they can ask any question on any previously taught topics in which they are confused. Clarify their doubts or queries and start the revision of the exercise.

EXPLORE

Encourage students to do the activity given in 'Gamified Learning' section in the classroom.

EXPLAIN

Start the revision of the exercise by using 'Chapter Assessment'.

ELABORATE

Discuss and help to solve the question given in 'Chapter Assessment'.

EVALUATE

Classwork: Discuss Q1 and 2 given in 'Chapter Assessment'. **[Experiential Learning]**

Homework: Ask to solve the Q3 of the 'Chapter Assessment' in homework assignment.

ENHANCE

- Ask to watch the video on data handling on 'www.orangewebsupport.co.in'. **[Tech Connect]**
- Ask to do the activity given in 'Life Skills' on page 170. **[Social and Emotional Learning]**

Introduction to Division

Learning Objectives

After studying this chapter, students will be able to...

- understand what sharing is
- identify the symbol of division (÷)
- know sharing as a division
- represent sharing mathematically in a division fact

LESSON PLAN

Suggested number of periods: 3

Suggested Teaching Aids: Book: Math Genius 1, blackboard or whiteboard, some real-life objects like some candies, pencils, etc.

Keywords: Sharing equally, division, division fact, etc.

Pre-requisite knowledge: Students must be familiar with the concept of sharing.

NEP feature: The way of teaching provides experiential learning opportunities to the students and allows them to work with the support of each other which helps in their holistic development.

Periods: 1–2	Topic: Sharing equally	Suggested extra teaching aids: Some real-life objects, etc. Math Genius 1, Pages 172–173

ENGAGE

Put some candies up to 10 on the teacher's table. Call any pair of students to divide the 10 candies among themselves equally. Ask from the class how many candies each of them get. Accept the responses. Also discuss the situation given in 'Get Ready' and its solution.

EXPLORE

Ask them to make 2, 3, 4, ... teams for playing a game. Ask: How many players are there in all? How many players are there in each team? Accept the responses. Discuss how the situation can be expressed in a division fact. **[Experiential Learning]**

EXPLAIN

Let 10 candies be shared between 2 friends. Then each child will get 5 candies. We can write it as $10 \div 2 = 5$, this is called division statement or division fact and the symbol of division is '÷'. Take the reference of the real life example given on page 172 of the textbook to explain the division as equal sharing.

ELABORATE

Call one boy/girl and give them few pencils. Instruct to share equally among the students of the class including themselves. Ask: how many pencils does each student get? Accept the responses. Now, instruct the class to write it as division sentence using division sign. **[Holistic Learning]**

EVALUATE

Classwork: Based on the topic instruct the class to do Q.1 of Practice Time 14 in the classwork.

Homework: Ask to solve Q.2 of Practice Time 14 as the homework assignment.

ENHANCE

- Discuss and ask to solve 'Fast Check' given on page 173.

Periods: 3	Topic: Revision	Suggested extra teaching aids: Math Genius 1

Provide the worksheet by taking printout from the portal 'www.orangewebsupport.co.in' for revision.