Lesson-1: Large Numbers

Theme 1: Why do we need land?

13 Periods (40 minutes each)

Learn Better (MCB), CRM signs, Stay Ahead (WB), Book of Holistic Teaching and Project ideas

eBook, Animated activities, dictionary, HOTS, I explain, Mental Maths, Quiz, Quick Maths, Worksheets

Confirming Better

I believe in myself

MATHEMATICS

Curricular Goals and Objectives (NCF-FS)

To enable the students:

- Read and write 7- and 8-digit numbers.
- Learn the expanded form of the numbers.
- Compare the numbers and arrange them in order.
- Compare the numbers in the two place value systems.
- Round off the numbers to the nearest 10, 100 and 1000.
- Convert Roman numerals into Hindu-Arabic numerals and vice-versa.
- Make an expanded form and place value chart for the given numbers.
- Think, analyse and answer.
- Make their own Little Book of Revision.

Methodology

Period 1

A Note to the teacher: Prepare a KWL chart for the class. Help students identify the concepts they already know, what they want to know, and what they learn from the lesson.

Teacher: Hello students! Welcome to the new class. How are you all?

(Wait for their responses and acknowledge their expressions)

Teacher: Alright, let us begin our new lesson for this year! Before we start, let us check what we remember from what we learned before. This will help us get ready for our new lesson on larger numbers.

Teacher: Let us start with place value and comparing numbers. I have a number twenty-three thousand, four hundred fifty-six. Can anyone tell me how to write this number?

Students: 23,456

Teacher: Correct! Now, can you tell me the value of the 4 in this number?

Students: The 4 is in the thousands place. So, its value is four thousand.

Teacher: Very good! Now, let us compare two numbers: 48,219 and 47,999. Which number is greater?

Students: 48,219 is greater because the thousands place has 8, which is bigger than 7 in the other number.

Teacher: Great job! You remembered how to compare numbers by looking at each place value.

Teacher: Now, let us talk about rounding. We have 37 balloons. If we want to round this number to the nearest ten, how many balloons would we say we have?

Students: We would say we have 40 balloons.

Teacher: Correct! We round 37 up to 40 because 37 is closer to 40 than 30.

Teacher: The school cafeteria has 215 apples. If they estimate the number of apples to the nearest hundred, how many apples would they say they have?

Students: They would say they have 200 apples.

Teacher: You all did a great job reviewing these important math concepts! Now, we are ready to learn about even larger numbers! Today, we will build on all of this knowledge and dive deeper into these topics. Before we begin, what are some things you are curious to learn about related to these topics?

Pin up the KWL chart on the board. Ask students to share what all they remember from the previous year.

As they share, consolidate their ideas in the **K** (What I Know) and **W** (What I Want to Know) columns of the chart, respectively. Display or paste the chart in a place that is accessible for children so they can refer to and reflect on it throughout the lesson.

K	W	L

Kinaesthetic

Teacher: Let us play 'Number Guessing.'

Teacher: Work in pairs. One student chooses a 4-digit number secretly. The other student asks for each digit's place value (ones, tens, hundreds, thousands). The first student shows the digit with their fingers. The other student writes down the number.

Teacher: For example, you can ask, 'What is the digit in the hundreds place?'

Teacher: The student with the secret number will show the digit using their fingers. For example, if the digit in the hundreds place is 5, they will hold up 5 fingers.

Teacher: The other student will write down the number as they guess each digit.

Teacher: Let us practice! I will be the first student, and I will think of a four-digit number. You will ask me questions to guess my number.

(After the practice time, allow students to play this game with their partners. Move around the class to observe and support students who need help)

MUST DO

10 MIN.

Auditory

Read the listening text given on the last page of the main course book. Ensure students are seated comfortably and can hear you clearly. Use a calm and engaging tone to maintain their attention. Then, ask the students the questions related to the text. Encourage them to take turns answering. If needed, read the text once or twice to help them understand better. Support them by repeating or rephrasing the questions and praising their efforts.

MUST DO

10 MIN.

Pictorial

Teacher: Now, look at the picture. Ryan is excited about his first day in Grade 5, but he is not sure which classroom to go to. Can you see the doors with numbers on them? Those are the classrooms.

Kinaesthetic

Form pairs. One student will choose a 4-digit number and keep it as a secret. The other student will ask for the digits in each place value (ones, tens, hundreds and thousands). The first student will show the digit using the fingers. The other student will write the number.

Auditory*

Listen to your teacher carefully. Answer the questions.

Pictorial PS

1. **Ryan is excited about his first day in Grade 5. Help him identify his class. Circle the correct answer in the given picture.**

2. **There are 25 students in Ryan's class. Write the number using Roman numerals.**

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Teacher: The doors have Roman numerals instead of regular numbers. Can anyone tell me what Roman numeral stands for the number 5?

Students: V

Teacher: Correct! So, Ryan needs to find the classroom with the Roman numeral V on the door.

Teacher: Let us look at the picture again. Which door has the Roman numeral V on it?

(Students point to the correct door)

Teacher: Great job! Ryan should go to that classroom. Now, let us move on to the next question.

Teacher: There are 25 students in Ryan's class. We need to write this number using Roman numerals.

Teacher: How to write 25 in Roman numerals? If you are not sure how to write 25 in Roman numerals, think about how we can break down the number. 25 is equal to 20 + 5. What is the Roman numeral for 20?

Teacher: Correct! And what is the Roman numeral for 5?

Students: V

Teacher: So, to write 25 in Roman numerals, we combine XX and V. What do we get?

Students: XXV

Teacher: Excellent! You have got it! 25 in Roman numerals is written as XXV.

MUST DO

10 MIN.

Differentiated Activity

110 km/hr

Ask students to create their own number challenges (e.g., a riddle about rounding or Roman numerals). They will exchange challenges with peers to solve.

80 km/hr

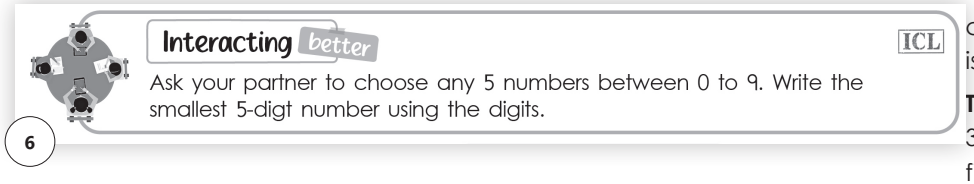
Students to solve the problems and discuss answers in pairs.

- Write 48,762 in words.
- What is the place and face value of 7 in 78,432?
- Round 568 to the nearest place of 10 and 100

40 km/hr

Provide cards with numbers and their place values or rounded values. For example:

- One card says "Round 37 to the nearest 10."



- Another card says "40."

Students match the questions with the correct answers.

Home task

Complete a worksheet with the below problems:

- Write the value of the underlined digit in 23,<u>4</u>56.
- Round 45 to the nearest ten.
- Write the Roman numeral for 10.

Period 2

Interacting Better

Teacher: Good morning, everyone! Today, let us start the session with a fun game to practice our place value skills.

Teacher: First, you will work in pairs. One student in each pair will secretly choose five different numbers between 0 and 9. The other student's challenge is to use those five numbers to create the smallest possible five-digit number.

Teacher: Let us try an example. Imagine your partner chooses the numbers 3, 0, 7, 2, and 1. How would you arrange these numbers to make the smallest five-digit number?

Students: We would put the smallest digit, 0, in the ten-thousands place. But since zero at the beginning doesn't make a real five-digit number, we would put the next smallest digit, 1, in the ten-thousands place.

Teacher: Very good! So, the number would start with 1. Now, what would be the next digit?

Students: 0, because it is the smallest digit we haven't used yet.

Teacher: Correct! So, the number starts with 10. Now, continue filling in the rest of the digits to make the smallest number.

Teacher: Great job! You have successfully created the smallest five-digit number using those digits. Now, it's your turn to play with your partner!

Teacher: Remember to work together, communicate clearly, and have fun!

COULD DO
10 MIN.

Reading

Teacher: Open your books to page 6. Let us read the story to find out what the students are doing.

(Read the story aloud in a clear and engaging voice. Pause occasionally to ensure students are following along and looking at the text.)

Teacher: As I read, follow along in your books. After we finish, I would like you to share your thoughts about the story.

(Encourage students to share their ideas and praise their efforts to express themselves.)

MUST DO
10 MIN.

Teacher: Next, let us explore some really big numbers! Look at this image. What do you notice?

Students: There are numbers with many digits!

Teacher: That is right! These are 7-digit and 8-digit numbers. Can anyone read the number shown in the first box?

Students: Ten lakhs.

Teacher: Very good! How many digits does 'ten lakh' have?

Students: Seven digits.

Teacher: Correct! And what is the smallest 7-digit number?

Students: Is it 10,00,000?

Teacher: Excellent! You got it. Now, let's look at the next box. What's the number shown here?

Students: One crore.

Teacher: That is right! How many digits does 'one crore' have?

Students: Eight digits.

Teacher: Correct! So, one crore is the smallest 8-digit number. Now, think about how we can build on this. What happens when we add 1 to the greatest 6-digit number?

Students: We get the smallest 7-digit number!

Teacher: Exactly! And what happens when we add 1 to the greatest 7-digit number?

Students: We get the smallest 8-digit number!

Teacher: Correct! There is a pattern here. Today, we will learn more about these large numbers, their place values, and how to read and write them.

MUST DO
20 MIN.

Infographic can be shown to reinforce the concept to students.

COULD DO
10 MIN.

Differentiated Activity

110 km/hr

Give students partially filled place value charts (e.g., "1__,__,000"). Ask them to complete the chart by adding digits to form specific

large numbers (e.g., "the smallest 8-digit number" or "a number greater than 99,99,999 but less than 1,00,00,000").

80 km/hr

Provide students with a set of digit cards (0–9). Ask them to:

- Create the smallest 7-digit and 8-digit numbers.
- Explain their reasoning (e.g., "I used the smallest digits first").
- Write the numbers in words.

40 km/hr

Provide cards with large numbers (e.g., 10,00,000; 1,00,000; 1,00,000,000) and cards with their descriptions (e.g., "Smallest 7-digit number," "Smallest 8-digit number"). Students can match the number to its description and read the numbers aloud.

Home task

Work out the following in your rough note book.

- Write the number 1,23,45,678 in words.
- What happens when you add 1 to 99,99,999?
- Write the smallest and largest 8-digit numbers.

Period 3

Teacher: Hello, class! I hope you enjoyed doing the home fun yesterday! Before we begin the session, who would like to share the home task given yesterday?

COULD DO
05 MIN.

Exercise 1

Teacher: Open your books to page 7. You will see some large numbers on this page.

Teacher: Your task is to place commas in these numbers according to the Indian Place Value System. Remember, in the Indian system, commas are placed after every three digits from the right, and then after every two digits. For example: 1234567 becomes 12,34,567.

Teacher: After placing the commas, write the numbers in words in your notebook. Once you are done, carefully proofread your work to ensure the commas are correct and the spellings are accurate. Double-check the placement of commas and the way you have written the numbers in words.

SHOULD DO
10 MIN.

1 **Place commas in the given numbers as per the Indian place value system. Also, write the numbers in words. Write the answers in your notebook.**

a. 9987509
b. 34182117
c. 87961534
d. 89533482

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2 **Write the numbers for the following number names. Write the answers in your notebook.**

a. Fifty-two lakh three hundred
b. One crore eighty-seven lakh nine
c. Seven lakh eleven thousand two
d. Seventy lakh one thousand five

ICL LOTS better

UNDERSTANDING NUMBERS

Expanded form

When we write a number as a sum of the place values of its digits, it is known as the expanded form of the number.

Example 1: Write the expanded form of 6,75,86,421.

Number	6	7	5	8	6	4	2	1
Place	Crores	Ten lakhs	Lakhs	Ten thousands	Thousands	Hundreds	Tens	Ones
Place value	6,00,00,000	70,00,000	5,00,000	80,000	6,000	400	20	1
Expanded form	6 crores or 6,00,00,000 +	7 ten lakhs or 70,00,000 +	5 lakhs or 5,00,000 +	8 ten thousands or 80,000 +	6 thousands or 6,000 +	4 hundreds or 400 +	2 tens or 20 +	1 one or 1

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Example 2: Write the numeral for forty-five lakh nine.

TL	L	TTh	Th	H	T	O
4	5	0	0	0	0	9

Thus, the numeral for forty-five lakh nine is 45,00,009.

Processing better CL

If there is no digit at any place, then that place is filled with a zero. As there are no digits at the ten thousands, thousands, hundreds and tens place in Example 2, these places are filled with zeros.

LOTS **3** **Write the expanded forms of the following. Write the answers in your notebook.**

a. 34,26,106
b. 81,02,50,732
c. 75,81,300
d. 23,09,468
e. 50,02,611

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Exercise 2

Teacher: Well done on completing Exercise 1! For the next activity, you will see number names given in your book. Your task is to write the numbers for these number names. For example: Twenty-three lakh forty-five thousand six hundred seventy-eight" is written as 23,45,678.

Teacher: Make sure to use commas in the numbers according to the Indian Place Value System and double-check your work to ensure accuracy.

SHOULD DO 10 MIN.

Understanding Numbers

Teacher: You might remember learning about place value in your previous grades. When we write a number as the sum of the place values of its digits, it is called place value. Now, let us see how this works with larger numbers.

Teacher: Look at this example. What number is shown here? Refer to the place value row to read out the number name.

Students: Six crores seventy-five lakhs eighty-six thousand four hundred and twenty-one.

Teacher: Excellent! This is how we read larger numbers. Now, look at the next example. There are some zeros in different places. How would you read this number?

Students: Forty-five lakh nine.

Teacher: That is correct! But why did you not include the zeros while reading?

Teacher: Remember, if there is no digit at any place, that place is filled with zero. In the second example, the ten-thousands, thousands, hundreds, and tens places are all zeros. We only read the numbers that have digits placed under each place value.

Exercise 3

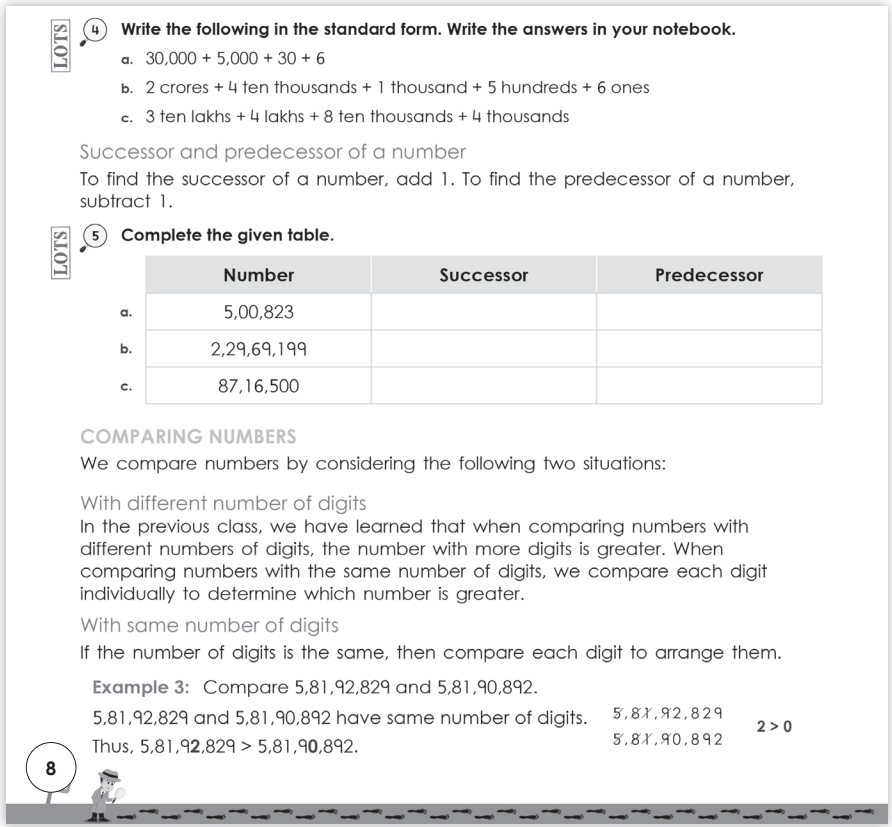
Teacher: Now, let us practice this concept in our books. Open Exercise 3 on page 8.

Teacher: You will need to write the expanded form of the given numbers in your notebook. Let me show you how to do this with an example, and then you can work on the rest of the sums by yourself.

MUST DO 15 MIN.

Animation can be shown to students to recapitulate the concept.

COULD DO 10 MIN.



LOTS

4 **Write the following in the standard form. Write the answers in your notebook.**

a. 30,000 + 5,000 + 30 + 6

b. 2 crores + 4 ten thousands + 1 thousand + 5 hundreds + 6 ones

c. 3 ten lakhs + 4 lakhs + 8 ten thousands + 4 thousands

Successor and predecessor of a number

To find the successor of a number, add 1. To find the predecessor of a number, subtract 1.

LOTS

5 **Complete the given table.**

	Number	Successor	Predecessor
a.	5,00,823		
b.	2,29,69,199		
c.	87,16,500		

COMPARING NUMBERS

We compare numbers by considering the following two situations:

With different number of digits

In the previous class, we have learned that when comparing numbers with different numbers of digits, the number with more digits is greater. When comparing numbers with the same number of digits, we compare each digit individually to determine which number is greater.

With same number of digits

If the number of digits is the same, then compare each digit to arrange them.

Example 3: Compare 5,81,92,829 and 5,81,90,892.

5,81,92,829 and 5,81,90,892 have same number of digits.

5,81,92,829
5,81,90,892

2 > 0

Thus, 5,81,92,829 > 5,81,90,892.

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Differentiated Activity

110 km/hr

Provide more challenging exercises with larger numbers (up to 9 digits). Ask them to write the numbers in expanded form as well.

80 km/hr

Provide a moderate set of numbers with 7-digit and 8-digit numbers for comma placement and writing the number in words.

40 km/hr

Provide a smaller set of numbers with varying place values (up to 6 digits). Ask them to focus on placing commas in these numbers and writing the numbers in words.

Home task

Complete exercise 4 in your notebook.

Period 4

COULD DO

05 MIN.

Start the session by discussing the home task assigned in the previous period.

Successor and predecessor of a number

Teacher: I am sure you are familiar with before and after numbers that you learned in your earlier grades. Did you know that these are also called the successor and predecessor of a number?

The **successor** of a number is the number that comes immediately after it. To find the successor of a number, simply add 1 to it.

Teacher: What is the successor of 46?

Students: 47

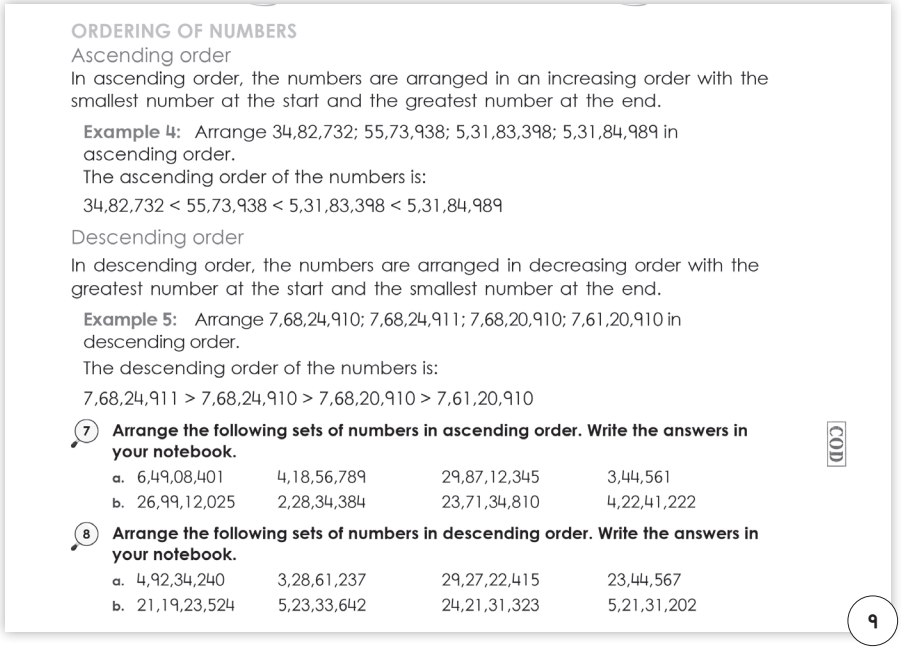
Teacher: Correct! Let us try a larger number now. What is the successor of 4568?

Students: 4569

Teacher: Well done!

On the other hand, the **predecessor** of a number is the number that comes immediately before it. To find the predecessor of a number, simply subtract 1 from it.

Teacher: Let us now practice this in your books. Open Exercise 5 on page 8. You will see a table with numbers. Your task is to write the successor and



ORDERING OF NUMBERS

Ascending order

In ascending order, the numbers are arranged in an increasing order with the smallest number at the start and the greatest number at the end.

Example 4: Arrange 34,82,732; 55,73,938; 5,31,83,398; 5,31,84,989 in ascending order.

The ascending order of the numbers is:

34,82,732 < 55,73,938 < 5,31,83,398 < 5,31,84,989

Descending order

In descending order, the numbers are arranged in decreasing order with the greatest number at the start and the smallest number at the end.

Example 5: Arrange 7,68,24,910; 7,68,24,911; 7,68,20,910; 7,61,20,910 in descending order.

The descending order of the numbers is:

7,68,24,911 > 7,68,24,910 > 7,68,20,910 > 7,61,20,910

7. **Arrange the following sets of numbers in ascending order. Write the answers in your notebook.** COD

a.	6,49,08,401	4,18,56,789	29,87,12,345	3,44,561
b.	26,99,12,025	2,28,34,384	23,71,34,810	4,22,41,222

8. **Arrange the following sets of numbers in descending order. Write the answers in your notebook.**

a.	4,92,34,240	3,28,61,237	29,27,22,415	23,44,567
b.	21,19,23,524	5,23,33,642	24,21,31,323	5,21,31,202

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predecessor of each number. Remember to apply the rules we discussed: to find the successor, add 1, and to find the predecessor, subtract 1.

Once you are done, discuss your answers with your partner.

MUST DO
10 MIN.

Teacher: Next, let us compare big numbers. Look at the chart. When comparing numbers with different digits, what do we do?

Students: The number with more digits is greater.

Teacher: Correct! What if the numbers have the same number of digits?

Students: Compare each digit from left to right.

Teacher: Exactly! Let's compare 5,81,92,829 and 5,81,90,892. Which is greater?

Students: 5,81,92,829 because it has 2 in the thousands place and the other has 0.

MUST DO
10 MIN.

Teacher: Great! Let us practice it in the book. Open exercise 6 on page 9. Remember to compare each digit carefully.

Teacher: Let us review. For the first one, is 6,52,583 greater than or less than 6,25,583?

Students: Greater than.

Teacher: Excellent! You all did a great job comparing these numbers! Now complete the rest of the numbers.

SHOULD DO
05 MIN.

Ordering of numbers

Teacher: Let us have a quick recap of how to arrange numbers in ascending and descending order.

- Ascending order means arranging numbers from the smallest to the largest.
- Descending order means arranging numbers from the largest to the smallest.

Teacher: Let us look at the examples given in your book. (Discuss the examples and clarify any doubts.)

Now, let us make this more exciting! You will work in groups for the next activity. Each team will receive a set of number cards. Your task is to arrange these numbers in ascending order first and then in descending order. Work together as a team and ensure everyone participates. Once you finish, we will review your answers together.

MUST DO
10 MIN.

Differentiated Activity

110 km/hr

Provide students with a set of scrambled digits. They need to rearrange the digits to form the largest and smallest possible 7-digit numbers.

80 km/hr

Provide students with a set of scrambled digits. They need to rearrange the digits to form the largest and smallest possible 5-digit numbers.

40 km/hr

Provide students with a set of scrambled digits. They need to rearrange the digits to form the largest and smallest possible 4 -digit numbers.

Infographic could be used to reinforce the concept to learners.

Home task

Complete exercise 7 and 8 in the course book.

Period 5

COULD DO

05 MIN.

Start the session by discussing the home task assigned in the previous period.

Teacher: Today we are going to explore a special way to write and read very large numbers. Look at the image. What do you see?

Teacher: That is right! The table on page 9 shows us the International Place Value System. Can anyone tell me what they notice about how the numbers are grouped?

Students: There are commas after every three digits.

Teacher: Excellent! Those commas help us read and understand large numbers. Each group of three digits is called a 'period'.

Teacher: Can you name the periods in the chart?

Students: Millions, Thousands, and Ones.

Teacher: Very good! Now, let's look at the example. The number 3,821,564 is written in the chart. Can someone tell me the place value of the digit 3?

Students: Millions.

Teacher: Correct! And what is the place value of the digit 8?

INTERNATIONAL PLACE VALUE SYSTEM

In the international place value system, each period* is divided into three places. Commas are put after every three places from the right to mark a period.

	Millions			Thousands			Ones		
Periods	Hundred millions	Ten millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
Places	100,000,000	10,000,000	1,000,000	100,000	10,000	1,000	100	10	1

Example 6: Represent the given numbers in the international place value chart. Also, place commas and write them in words.

a. 3821564 b. 14896506 c. 533194201

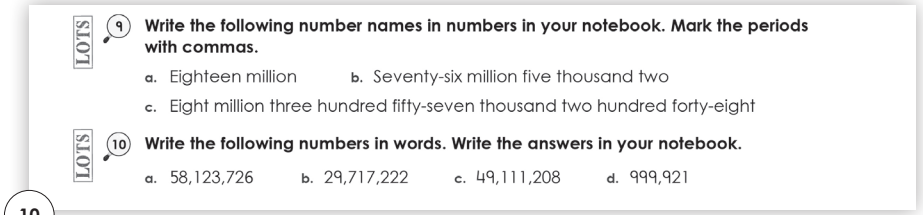
*Check the 'Grasping Better' section to learn the meaning of the word.

Millions			Thousands			Ones		
Hundred millions	Ten millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
		3	8	2	1	5	6	4
	1	4	8	9	6	5	0	6
5	3	3	1	9	4	2	0	1

a. 3,821,564: Three million eight hundred twenty-one thousand five hundred sixty-four

b. 14,896,506: Fourteen million eight hundred ninety-six thousand five hundred six

c. 533,194,201: Five hundred thirty-three million one hundred ninety-four thousand two hundred one



LOTS 9 **Write the following number names in numbers in your notebook. Mark the periods with commas.**

a. Eighteen million b. Seventy-six million five thousand two

c. Eight million three hundred fifty-seven thousand two hundred forty-eight

LOTS 10 **Write the following numbers in words. Write the answers in your notebook.**

a. 58,123,726 b. 29,717,222 c. 49,111,208 d. 999,921

Student 5: Ten millions.

Teacher: Very good! So, we read this number as 'Three million eight hundred twenty-one thousand five hundred sixty-four'.

Teacher: Now, let us try another example. The number 14,896,506 is written in the chart. Can someone read this number?"

Students: Fourteen million eight hundred ninety-six thousand five hundred six.

Teacher: Great! Now, let us practice with one more example. The number 533,194,201 is shown in the chart. Can you read this number?

Students: Five hundred thirty-three million one hundred ninety-four thousand two hundred one.

Teacher: Excellent! You have all done a fantastic job reading and understanding these large numbers using the International Place Value System.

MUST DO
15 MIN.

Exercise 9

Teacher: Write the given numbers in your notebook and mark the periods with commas.

Exercise 10

Teacher: Open your notebook and write the given numbers in words.

SHOULD DO
20 MIN.

Differentiated Activity

110 km/hr

Provide a with mixed numbers written in Indian and International place value formats (e.g. 5,67,890 and 567,890). Ask students to identify and write the number names in both systems.

80 km/hr

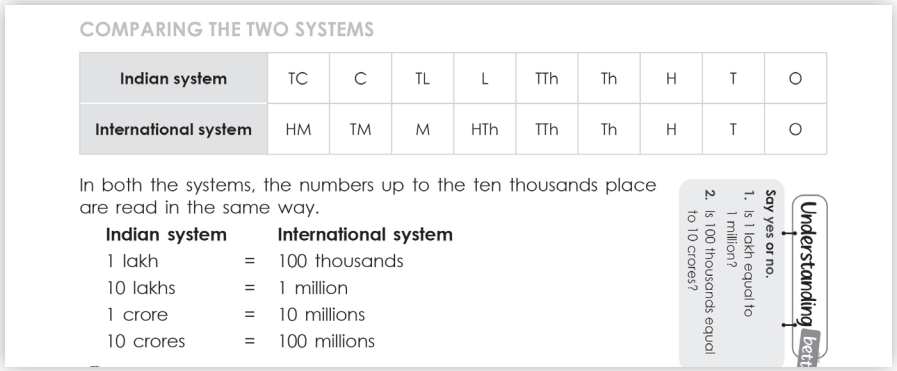
Give set of numbers in International system and ask students to write the names in system.

40 km/hr

Create a simple table where students write the names of numbers given in Indian and International System

Home task

Creating better can be given as home task. Students can create a dart board using the instruction given on page 16.



COMPARING THE TWO SYSTEMS

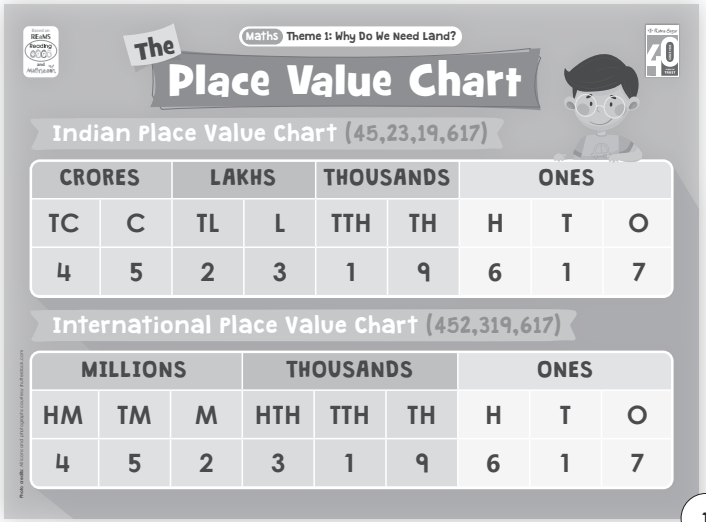
Indian system	TC	C	TL	L	TTh	Th	H	T	O
International system	HM	TM	M	HTh	TTh	Th	H	T	O

In both the systems, the numbers up to the ten thousands place are read in the same way.

Indian system		International system
1 lakh	=	100 thousands
10 lakhs	=	1 million
1 crore	=	10 millions
10 crores	=	100 millions

Understanding better

Say yes or no.
1. Is 1 lakh equal to 1 million?
2. Is 100 thousands equal to 10 crores?



Maths Theme 1: Why Do We Need Land?

The Place Value Chart

Indian Place Value Chart (45,23,19,617)

CRORES		LAKHS		THOUSANDS		ONES		
TC	C	TL	L	TTH	TH	H	T	O
4	5	2	3	1	9	6	1	7

International Place Value Chart (452,319,617)

MILLIONS			THOUSANDS			ONES		
HM	TM	M	HTH	TTH	TH	H	T	O
4	5	2	3	1	9	6	1	7

1

Period 6

Comparing 2 systems

Teacher: Good morning, class! Today we are going to have a fun activity to compare the Indian and International Place Value Systems. I am going to divide you into two teams, Team A and Team B. I will give each team a number.

Teacher: Team A, you will write this number in the Indian Place Value System. And Team B, you will write the same number in the International Place Value System.

(Allow students to work on the number and then checks their answers.)

Teacher: Great job, teams! Now, let's compare the two systems. What differences did you notice?

Students: Team A's number had commas in different places than Team B's number.

Teacher: That's right! The grouping of digits is different in the two systems. Team A, can you explain how you grouped your numbers?

Students: We used commas to group the digits into groups of two, three, and two.

Teacher: Correct! And Team B?

Students: We used commas to group the digits into groups of three.

Teacher: Exactly! Now, look at the place value chart for both systems. Can you point out the differences?

Poster - Use the poster to consolidate Indian and International place value system.

Remember the major difference between Indian and international place value system lies in how they group large numbers.

Indian Place Value System:

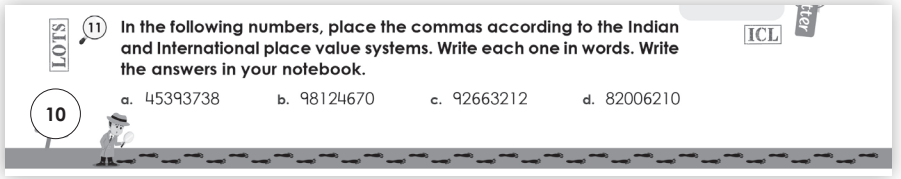
- Uses commas to group digits into periods of correct this places.
- The periods are called Ones, Thousands, Lakhs, and Crores.
- Example: 10,00,00,000 is read as Ten Crore.

International Place Value System:

MUST DO
10 MIN.

- Uses commas to group digits into periods of three places.
- The periods are called Ones, Thousands, Millions, Billions.

MATHEMATICS



LOTS (11) **In the following numbers, place the commas according to the Indian and International place value systems. Write each one in words. Write the answers in your notebook.** ICL

a. 45393738 b. 98124670 c. 92663212 d. 82006210

10

ROUNDING OFF NUMBERS

Sometimes, we round off a number to estimate values in a given problem. It is not an actual value but the approximate value.

Rules for rounding off numbers

- If the digit just to the right of the rounding digit* is 0,1, 2, 3 or 4, the rounding digit remains as it is and all the digits to the right of the rounding digit are changed to zero. For example, rounding 47,362 to the nearest thousand gives 47,000.
- If the digit just to the right of the rounding digit is 5, 6, 7, 8 or 9, then 1 is added to the rounding digit and all the digits to the right of the rounding digit are changed to zero. For example, rounding 24,695 to the nearest thousand gives 25,000.

Example 7: Round off the numbers given in the table to nearest 10 and 100.

	Number	Round off to nearest 10	Round off to nearest 100
a.	357	360	400
b.	292	290	300
c.	614	610	600

Example 8: Round off the given numbers to the nearest 1000.

a. 26,794 b. 7,27,51,442

b. The digit at the hundreds place is 7, so adding 1 to the digit at the thousands place that is 6 and the digits to the right of the 6 are replaced by 0.

Thus, 26,794 is rounded off to 27,000.

c. The digit at the hundreds place is 4, so the digit at the thousands place that is 1 remains 1 only and the digits to the right of the 1 are replaced by 0.

Thus, 7,27,51,442 is rounded off to 7,27,51,000.

(12) **Round off the following numbers to the nearest 10. Write the answers in your notebook.** LOTS

a. 4,135 b. 7,676 c. 5,324

d. 23,409 e. 98,432 f. 3,99,003

(13) **Round off the following numbers to the nearest 100. Write the answers in your notebook.** LOTS

a. 6,238 b. 6,187 c. 3,815

d. 34,844 e. 94,190 f. 5,11,250

*Check the 'Learning Better' section to learn the meaning of the word.

11

- Example: 100,000,000 is read as One Hundred Million.

Exercise 11

Teacher: As a next step, let us practice it in our books. Open exercise 11 on page 10. Complete the exercise by placing commas according to the Indian and International systems. Next write the numbers as words in your notebook.

SHOULD DO 10 MIN.

(You may assign some parts of the exercise as home task)

Rounding off numbers

Teacher: Imagine you have 382 marbles. If you want to round off this number to the nearest ten, what would it be?"

(Give students a few seconds to think)

Students: 380?

Teacher: Correct! How did you get 380?

Students: Because 382 is closer to 380 than 390.

Teacher: Excellent! You're using your understanding of place value. Now, let look at the rules for rounding off numbers on the board.

(Read the rules together with the students followed by a discussion to consolidate their understanding)

Exercise 12

Teacher: Now, work in pairs to round off the following numbers to the nearest 10 and write the answers in your notebook.

Exercise 13

Teacher: In the previous exercise, you did round off to 10 while here you will round off the numbers to the nearest 100.

SHOULD DO 20 MIN.

Animated activities could be shown to students to reinforce the topics learnt.

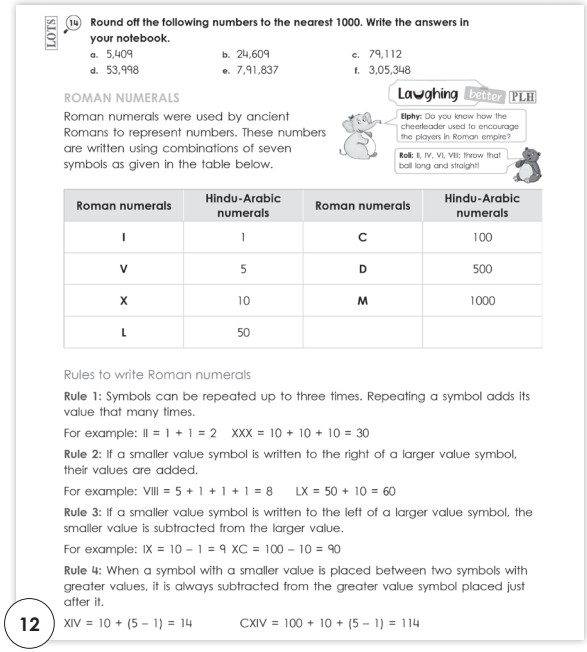
Differentiated Activity

110 km/hr

Create a number with at least 9 digits and write it in both systems. Round off to the nearest 10, 100, and 1,000.

80 km/hr

Write 5 numbers in Indian and International formats. Round off each number to the nearest 10 and 100.



LOTS

14 **Round off the following numbers to the nearest 1000. Write the answers in your notebook.**

a. 5,409 b. 24,609 c. 79,112
d. 53,998 e. 7,91,837 f. 3,05,348

ROMAN NUMERALS

Roman numerals were used by ancient Romans to represent numbers. These numbers are written using combinations of seven symbols as given in the table below.

Laughing better PLH

Elphy: Do you know how the cheerleader used to encourage the players in Roman empire?

Roli: II, IV, VI, VIII; throw that ball long and straight!

Roman numerals	Hindu-Arabic numerals	Roman numerals	Hindu-Arabic numerals
I	1	C	100
V	5	D	500
X	10	M	1000
L	50		

Rules to write Roman numerals

Rule 1: Symbols can be repeated up to three times. Repeating a symbol adds its value that many times.

For example: II = 1 + 1 = 2 XXX = 10 + 10 + 10 = 30

Rule 2: If a smaller value symbol is written to the right of a larger value symbol, their values are added.

For example: VIII = 5 + 1 + 1 + 1 = 8 LX = 50 + 10 = 60

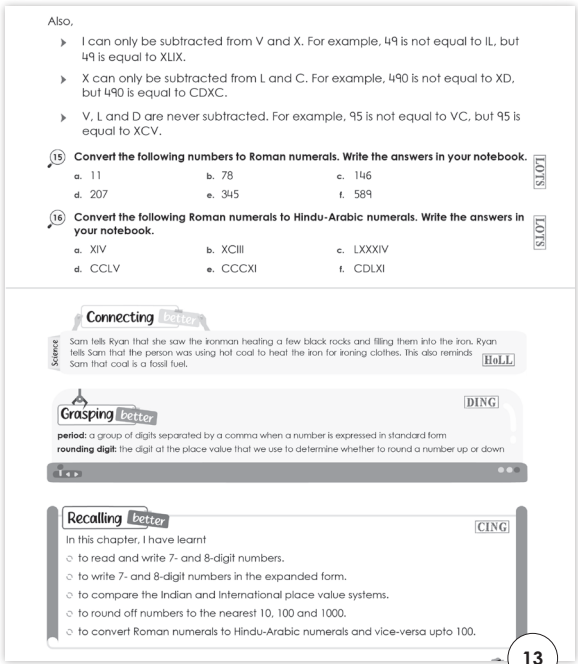
Rule 3: If a smaller value symbol is written to the left of a larger value symbol, the smaller value is subtracted from the larger value.

For example: IX = 10 – 1 = 9 XC = 100 – 10 = 90

Rule 4: When a symbol with a smaller value is placed between two symbols with greater values, it is always subtracted from the greater value symbol placed just after it.

XIV = 10 + (5 – 1) = 14 CXIV = 100 + 10 + (5 – 1) = 114

12



Also,

- I can only be subtracted from V and X. For example, 49 is not equal to IL, but 49 is equal to XLIX.
- X can only be subtracted from L and C. For example, 490 is not equal to XD, but 490 is equal to CDXC.
- V, L and D are never subtracted. For example, 95 is not equal to VC, but 95 is equal to XCV.

15 **Convert the following numbers to Roman numerals. Write the answers in your notebook.** LOTS

a. 11 b. 78 c. 146
d. 207 e. 345 f. 589

16 **Convert the following Roman numerals to Hindu-Arabic numerals. Write the answers in your notebook.** LOTS

a. XIV b. XCIII c. LXXXIV
d. CCLV e. CCCXI f. CDLXI

Connecting better

Science

Sam tells Ryan that she saw the ironman heating a few black rocks and filling them into the iron. Ryan tells Sam that the person was using hot coal to heat the iron for ironing clothes. This also reminds Sam that coal is a fossil fuel. HoLL

Grasping better DING

period: a group of digits separated by a comma when a number is expressed in standard form

rounding digit: the digit at the place value that we use to determine whether to round a number up or down

Recalling better CING

In this chapter, I have learnt

- to read and write 7- and 8-digit numbers.
- to write 7- and 8-digit numbers in the expanded form.
- to compare the Indian and International place value systems.
- to round off numbers to the nearest 10, 100 and 1000.
- to convert Roman numerals to Hindu-Arabic numerals and vice-versa upto 100.

13

40 km/hr

Write 3 numbers in Indian format and identify their International equivalents. Round off each to the nearest 10.

Home task

Complete exercise 14 in your notebook.

Period 7

Laughing Better

Students can be asked to read the conversation between Elphy and Roli. Allow them to share their thoughts with the whole class.

COULD DO 10 MIN.

Roman Numerals

Teacher: Did you know that roman numerals are formed with seven letters? Look at the table given on page 12. These are the seven letters which are used in converting numbers into roman numerals.

Teacher: There are also some rules to write roman numerals. Let us look at them one by one.

SHOULD DO 10 MIN.

Exercise 15

Teacher: You will be working in pairs for this activity. Convert the given numbers into Roman numerals.

Exercise 16

Teacher: In this exercise you will convert the given roman numerals into Hindu-Arabic numerals

SHOULD DO 10 MIN.

Connecting better

Make students to read the given text and encourage them to share their thoughts.

COULD DO 10 MIN.

Home Task

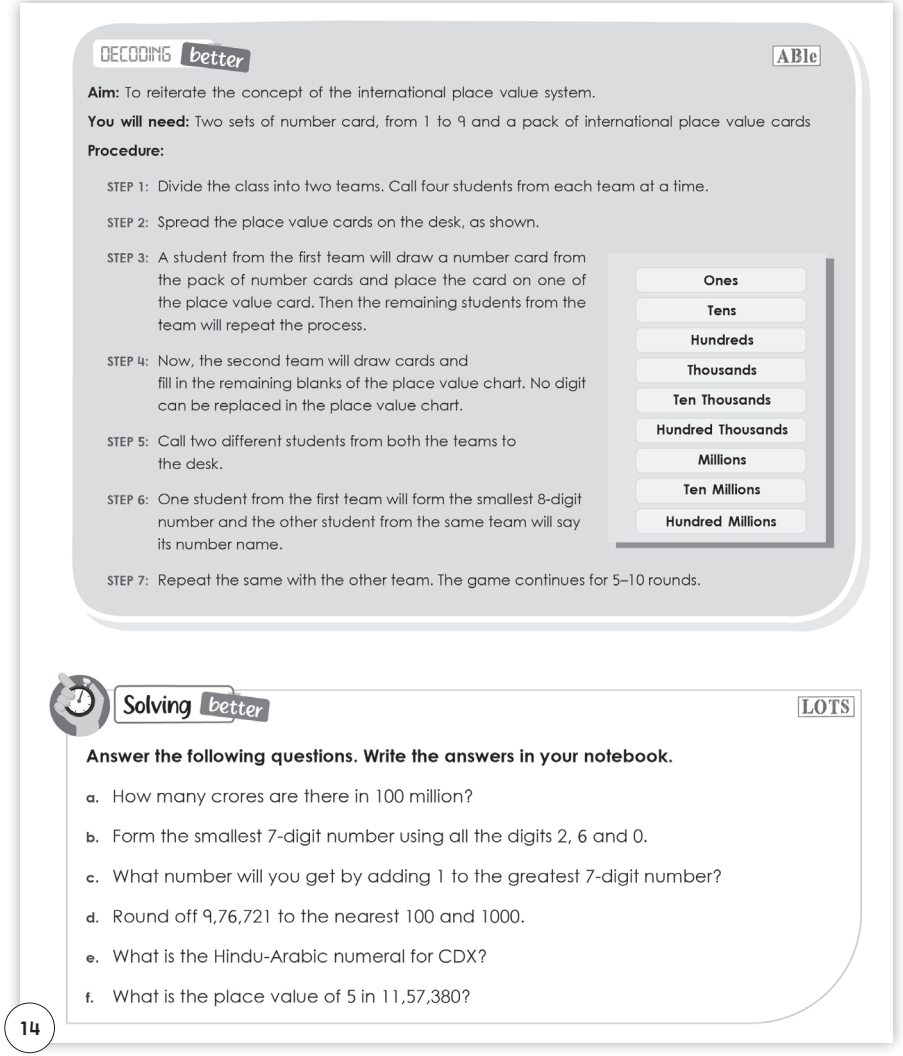
Students can make their own little book of revision to consolidate all the topics learnt in the lesson.

Period 8

Grasping Better

Make students read the words and discuss their meanings.

COULD DO 05 MIN.



DECODING better — ABle

Aim: To reiterate the concept of the international place value system.

You will need: Two sets of number card, from 1 to 9 and a pack of international place value cards

Procedure:

STEP 1: Divide the class into two teams. Call four students from each team at a time.

STEP 2: Spread the place value cards on the desk, as shown.

STEP 3: A student from the first team will draw a number card from the pack of number cards and place the card on one of the place value card. Then the remaining students from the team will repeat the process.

STEP 4: Now, the second team will draw cards and fill in the remaining blanks of the place value chart. No digit can be replaced in the place value chart.

STEP 5: Call two different students from both the teams to the desk.

STEP 6: One student from the first team will form the smallest 8-digit number and the other student from the same team will say its number name.

Ones
Tens
Hundreds
Thousands
Ten Thousands
Hundred Thousands
Millions
Ten Millions
Hundred Millions

STEP 7: Repeat the same with the other team. The game continues for 5–10 rounds.

Solving better — LOTS

Answer the following questions. Write the answers in your notebook.

a. How many crores are there in 100 million?

b. Form the smallest 7-digit number using all the digits 2, 6 and 0.

c. What number will you get by adding 1 to the greatest 7-digit number?

d. Round off 9,76,721 to the nearest 100 and 1000.

e. What is the Hindu-Arabic numeral for CDX?

f. What is the place value of 5 in 11,57,380?

Recalling Better

Ask the learners to form two teams. Each team will get a question to be answered. This is to recapitulate the concepts learnt in the lesson. The questions could be

- Write a 7-digit number with 4 in its hundreds place.
- What is the 8-digit number that you get after adding 1 to the largest 7-digit number?
- Write the expanded form of 45,63,254.
- Write the expanded form of 8,97,64,543.
- How do you compare the Indian and International place value systems?
- Round off 5,43,67,789 to the nearest 10, 100 and 1,000.
- Convert 5,679 to Roman numerals.
- Convert L-VIII to Hindu-Arabic numerals.

MUST DO — 05 MIN.

Decoding Better

Teacher: I am going to divide you into two teams. We will have Team A and Team B." I have prepared a set of number cards from 1 to 9, and a set of place value cards for the International Place Value System."

Teacher: I will place the place value cards on the board. Now, each team will take turns sending one member to draw a number card and place it in the correct position on the place value chart.

Teacher: Remember, you cannot repeat any numbers! Once all the cards are placed, your team will form the smallest possible 8-digit number using those digits and tell me the number name."

Teacher: Are you ready to play?

Students: Yes!

Teacher: Great! Team A, you're up first! Send one member to draw a number card.

Post the game

Teacher: Let us discuss some of the strategies you used to form the smallest numbers."

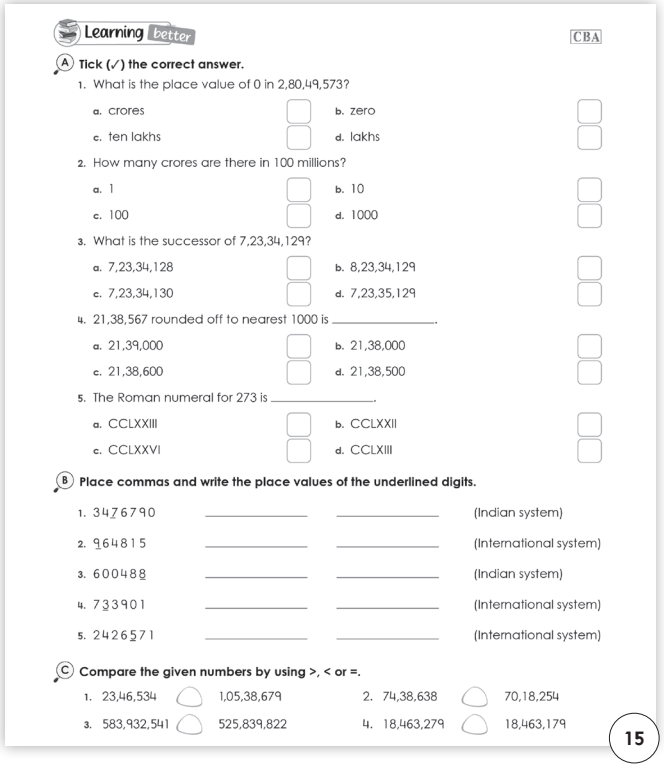
(Facilitate a whole-class discussion on the strategies used by the teams.)

MUST DO — 20 MIN.

Solving Better

Make students to work on the sums in their notebook

SHOULD DO — 15 MIN.



Learning better CBA

A Tick (✓) the correct answer.

1. What is the place value of 0 in 2,80,49,573?
   a. crores ☐ b. zero ☐
   c. ten lakhs ☐ d. lakhs ☐
2. How many crores are there in 100 millions?
   a. 1 ☐ b. 10 ☐
   c. 100 ☐ d. 1000 ☐
3. What is the successor of 7,23,34,129?
   a. 7,23,34,128 ☐ b. 8,23,34,129 ☐
   c. 7,23,34,130 ☐ d. 7,23,35,129 ☐
4. 21,38,567 rounded off to nearest 1000 is _____.
   a. 21,39,000 ☐ b. 21,38,000 ☐
   c. 21,38,600 ☐ d. 21,38,500 ☐
5. The Roman numeral for 273 is _____.
   a. CCLXXIII ☐ b. CCLXXII ☐
   c. CCLXXVI ☐ d. CCLXIII ☐

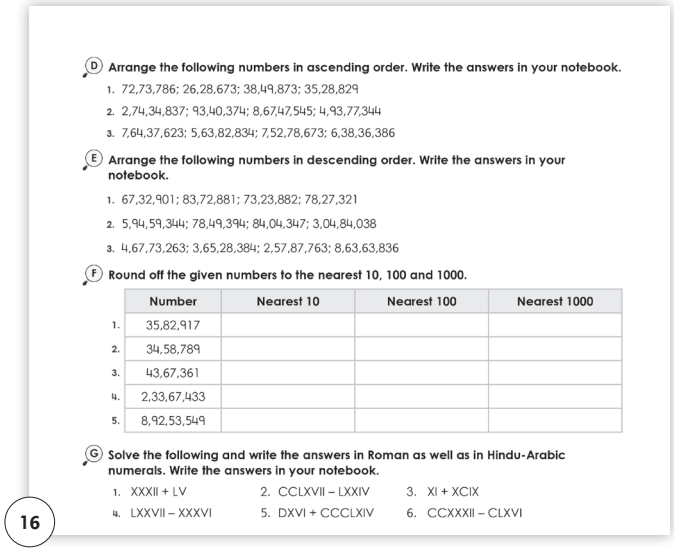
B Place commas and write the place values of the underlined digits.

1. 34$\underline{7}$6790 _____ _____ (Indian system)
2. $\underline{9}$64815 _____ _____ (International system)
3. 600488 _____ _____ (Indian system)
4. 7$\underline{3}$3901 _____ _____ (International system)
5. 24265$\underline{7}$1 _____ _____ (International system)

C Compare the given numbers by using >, < or =.

1. 23,46,534 ◯ 1,05,38,679
2. 74,38,638 ◯ 70,18,254
3. 583,932,541 ◯ 525,839,822
4. 18,463,279 ◯ 18,463,179

15



D Arrange the following numbers in ascending order. Write the answers in your notebook.

1. 72,73,786; 26,28,673; 38,49,873; 35,28,829
2. 2,74,34,837; 93,40,374; 8,67,47,545; 4,93,77,344
3. 7,64,37,623; 5,63,82,834; 7,52,78,673; 6,38,36,386

E Arrange the following numbers in descending order. Write the answers in your notebook.

1. 67,32,901; 83,72,881; 73,23,882; 78,27,321
2. 5,94,59,344; 78,49,394; 84,04,347; 3,04,84,038
3. 4,67,73,263; 3,65,28,384; 2,57,87,763; 8,63,63,836

F Round off the given numbers to the nearest 10, 100 and 1000.

	Number	Nearest 10	Nearest 100	Nearest 1000
1.	35,82,917			
2.	34,58,789			
3.	43,67,361			
4.	2,33,67,433			
5.	8,92,53,549			

G Solve the following and write the answers in Roman as well as in Hindu-Arabic numerals. Write the answers in your notebook.

1. XXXII + LV
2. CCLXVII – LXXIV
3. XI + XCIX
4. LXXVII – XXXVI
5. DXVI + CCCLXIV
6. CCXXXII – CLXVI

16

Period 9

Learning Better

Teacher: Hello, students! It is time to check how much we have learned about large numbers. We will now work on the end-of-lesson exercises. Let us begin with the first activity.

Teacher: Read the given statements carefully and choose the correct options. Take your time, and think before you answer. Let's see how well you understand large numbers.

COULD DO — 10 MIN. ☐

Exercise B

Teacher: Divide into pairs. One partner writes the number in the Indian system, the other in the international system. First pair to finish shouts 'BINGO!' and puts commas in the numbers on the board.

MUST DO — 10 MIN. ☐

Exercise D

Teacher: Arrange the given numbers in ascending order. Remember to use the rule for ascending order while doing the exercise.

SHOULD DO — 10 MIN. ☐

Exercise E

Teacher: Arrange the given numbers in descending order. Remember to use the rule for descending order while doing the exercise.

COULD DO — 10 MIN. ☐

Quiz can be shown to students to recapitulate the concepts.

Home Task

Complete exercise C and F

Period 10

Exercise F

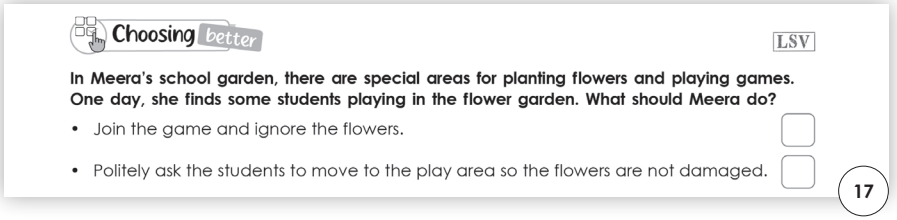
Teacher: Look at the numbers given in the table. You will round off the numbers to the nearest 10, 100 and 1000

MUST DO — 10 MIN. ☐

Exercise G

Teacher: Solve the following problems and write the answers in both Roman numerals and Hindu-Arabic numerals. Let us work on an example together first. After that, you will pair up with a partner to solve the remaining problems.

MUST DO — 15 MIN. ☐



Choosing better

LSV

In Meera's school garden, there are special areas for planting flowers and playing games. One day, she finds some students playing in the flower garden. What should Meera do?

- Join the game and ignore the flowers. ☐
- Politely ask the students to move to the play area so the flowers are not damaged. ☐

17

Think and write the answer in your notebook

Show the number cards 8, 6, 4, 3, 1, and 0 to the learners. Ask them to form numbers. Write all the numbers formed on the board. Ask the learners to find the one that could be rounded off to the nearest 1,000, to get 4,35,000. Let them all try and write. Then confirm the correct answer.

MUST DO 15 MIN. ☐

Mental Math digital activity can be shown to students to work in pairs or teams.

Period 11

Choosing Better

Discuss the scenario with students and ask them to think and share the options they would choose and why.

COULD DO 10 MIN. ☐

Worksheet 1

Ask students to open their Math workbook to page 13. Guide the to complete the exercises in worksheet 1.

Note – You may also take up this worksheet in class for concept recap or for assessment purpose.

SHOULD DO 30 MIN. ☐

Home task

Worksheet 2 can be assigned as home task for students for practice purpose.

Period 12

Worksheet 3

Ask students to open their Math workbook to page 15. Guide the to complete the exercises in worksheet 3.

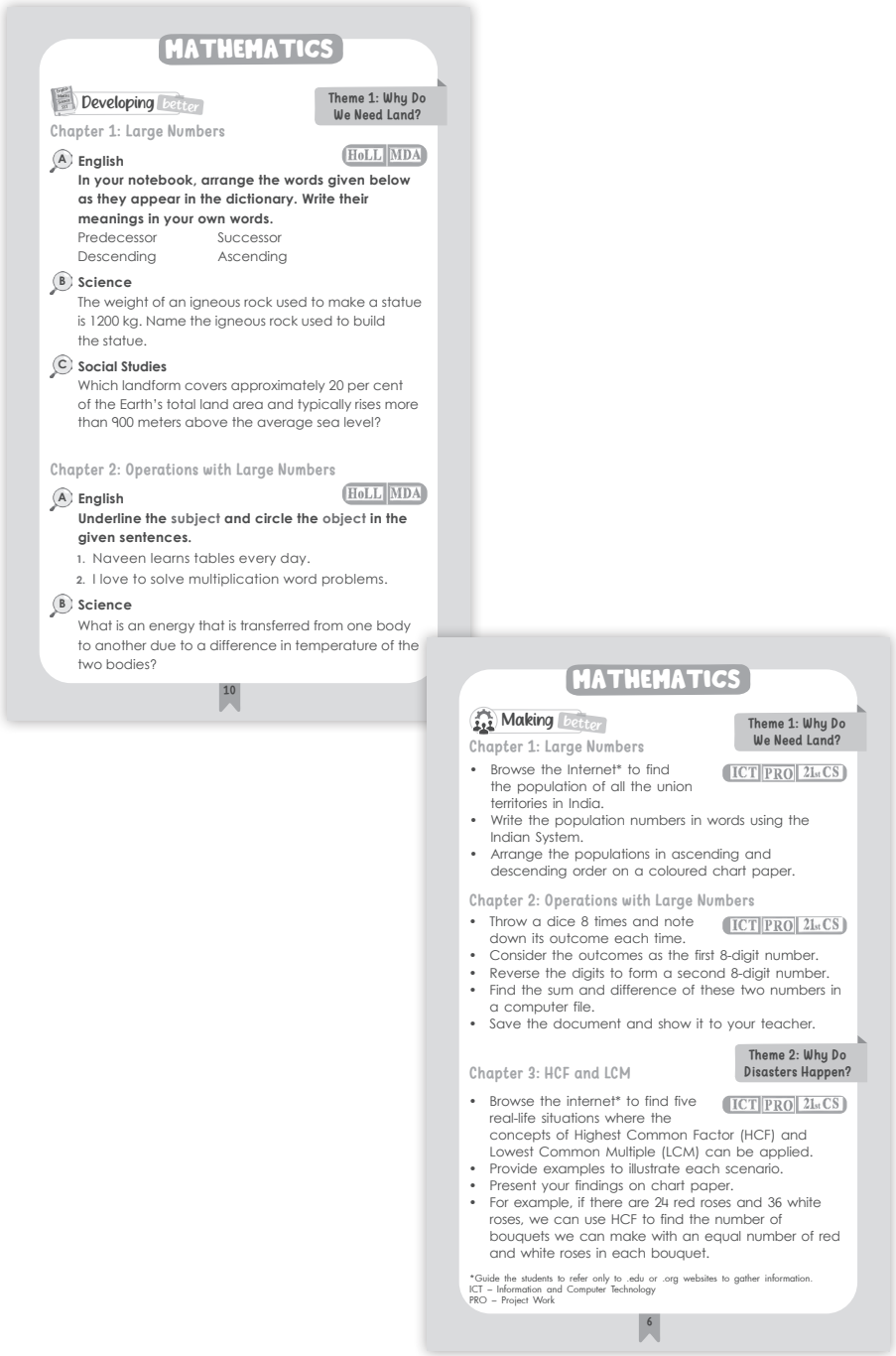
Note – You may also take up this worksheet in class for concept recap or for assessment purpose.

SHOULD DO 30 MIN. ☐

L (What I have learnt)

Ask the students to sit with their partners and discuss what they have learned from the lesson. Then, give each pair a turn to share their points, and consolidate their ideas on a KWL chart. Once the chart is complete, discuss their journey, reflecting on what they initially knew, what they wanted to know, and what they have learned.

MUST DO 10 MIN. ☐



MATHEMATICS

Developing better

Theme 1: Why Do We Need Land?

Chapter 1: Large Numbers

A English

HoLL MDA

In your notebook, arrange the words given below as they appear in the dictionary. Write their meanings in your own words.

Predecessor Successor
Descending Ascending

B Science

The weight of an igneous rock used to make a statue is 1200 kg. Name the igneous rock used to build the statue.

C Social Studies

Which landform covers approximately 20 per cent of the Earth's total land area and typically rises more than 900 meters above the average sea level?

Chapter 2: Operations with Large Numbers

A English

HoLL MDA

Underline the subject and circle the object in the given sentences.

1. Naveen learns tables every day.
2. I love to solve multiplication word problems.

B Science

What is an energy that is transferred from one body to another due to a difference in temperature of the two bodies?

10

MATHEMATICS

Making better

Theme 1: Why Do We Need Land?

Chapter 1: Large Numbers

ICT PRO 21st CS

- Browse the Internet* to find the population of all the union territories in India.
- Write the population numbers in words using the Indian System.
- Arrange the populations in ascending and descending order on a coloured chart paper.

Chapter 2: Operations with Large Numbers

ICT PRO 21st CS

- Throw a dice 8 times and note down its outcome each time.
- Consider the outcomes as the first 8-digit number.
- Reverse the digits to form a second 8-digit number.
- Find the sum and difference of these two numbers in a computer file.
- Save the document and show it to your teacher.

Theme 2: Why Do Disasters Happen?

Chapter 3: HCF and LCM

ICT PRO 21st CS

- Browse the internet* to find five real-life situations where the concepts of Highest Common Factor (HCF) and Lowest Common Multiple (LCM) can be applied.
- Provide examples to illustrate each scenario.
- Present your findings on chart paper.
- For example, if there are 24 red roses and 36 white roses, we can use HCF to find the number of bouquets we can make with an equal number of red and white roses in each bouquet.

*Guide the students to refer only to .edu or .org websites to gather information.
ICT – Information and Computer Technology
PRO – Project Work

6

Period 13

Holistic Learning

A. Read the words provided and ask students to look up their meanings in a dictionary. Have them write the definitions in their notebooks. This activity can also be assigned as a home task.

B. Read the question given and encourage students to discuss it with their science teacher to find the answer.

C. Discuss the given scenario in class and ask students to think about the solution. They can research and bring their answers to the next class.

COULD DO 15 MIN. ☐

Project Ideas

Divide the students into groups and take them to the computer lab to research population data. After gathering the information, ask the students to write the population numbers in words using the Indian Place Value System. Then, have them arrange the values in both ascending and descending order.

COULD DO 25 MIN. ☐

Note: This activity can also be assigned as a homework task.

Learning Outcomes

The students will:

Physical Development	• Engage in class activities and learn number system in play way method.
Socio-Emotional and Ethical Development	• Present their project work on the population of Union Territories of India and numbers.
Cognitive Development	• Identify 7- and 8-digit numbers. • Write the given numbers in their expanded forms. • Write numbers in Indian and International Place Value system and compare the two systems. • Round off the given set to numbers by following the rules. • Identify the Roman numerals and differentiate them from the Hindu Arabic numerals.

Language and Literacy Development	• Express their thoughts and feelings about the activity they like to do in the Secret Journal.
Aesthetic and Cultural Development	• Display their interest and creativity in making their Little Book and decorating it.
Positive Learning Habits	• Follow simple instructions to start and stop an activity

Starry Knights

First chapter must have been exhausting for you. However, their cheerful faces on meeting their new teacher must have been an incentive for all your hard work and preparation. Kindly share few anecdotes that made you feel motivated to add more activities and enhance their learning experience.

Give yourself a STAR for being the winner!

Answers

Theme 1: Why Do We Need Land?
Lesson-1: Large Numbers

Main Coursebook

Kinaesthetic

Accept all relevant responses.

Auditory

1. 4 2. 4

Pictorial

1.

2. XXV

Interactive better

Accept all relevant responses.

1. a. 99,87,509 – Ninety-nine lakh eighty-seven thousand five hundred nine
   b. 3,41,82,117 – Three crore forty-one lakh eighty-two thousand one hundred seventeen
   c. 8,79,61,534 – Eight crore seventy-nine lakh sixty-one thousand five hundred thirty-four
   d. 8,95,33,482 – Eight crore ninety-five lakh thirty-three thousand four hundred eighty-two
2. a. 52,00,300 b. 1,87,00,009
   c. 7,11,002 d. 70,01,005

Understanding better (page 7)

1. 9999999 2. 10000000
3. a. 30,00,000 + 4,00,000 + 20,000 + 6,000 + 100 + 0 + 6
   b. 80,00,00,000 + 1,00,00,000 + 0 + 2,00,000 + 50,000 + 0 + 700 + 30 + 2
   c. 70,00,000 + 5,00,000 + 80,000 + 1,000 + 300 + 0 + 0
   d. 20,00,000 + 3,00,000 + 0 + 9,000 + 400 + 60 + 8
   e. 50,00,000 + 0 + 0 + 2,000 + 600 + 10 + 1
4. a. 35,036 b. 2,00,41,506
   c. 34,84,000
5.

	Number	Successor	Predecessor
a.	5,00,823	**5,00,824**	**5,00,822**
b.	2,29,69,199	**2,29,69,200**	**2,29,69,198**
c.	87,16,500	**87,16,501**	**87,16,499**

6. a. > b. > c. > d. =
7. a. 3,44,561 < 4,18,56,789 < 6,49,08,401 < 29,87,12,345
   b. 2,28,34,384 < 4,22,41,222 < 23,71,34,810 < 26,99,12,025
8. a. 29,27,22,415 > 4,92,34,240 > 3,28,61,237 > 23,44,567
   b. 24,21,31,323 > 21,19,23,524 > 5,23,33,642 > 5,21,31,202
9. a. 18,000,000 b. 76,005,002
   c. 8,357,248
10. a. Fifty-eight million one hundred twenty-three thousand seven hundred twenty-six
    b. Twenty-nine million seven hundred seventeen thousand two hundred twenty-two
    c. Forty-nine million one hundred eleven thousand two hundred eight
    d. Nine hundred ninety-nine thousand nine hundred twenty-one

Understanding better (page 10)

1. No 2. No

11.

Numbers	Indian system	Number names
45393738	4,53,93,738	Four crore fifty-three lakh ninety-three thousand seven hundred thirty-eight
98124670	9,81,24,670	Nine crore eighty-one lakh twenty-four thousand six hundred seventy
92663212	9,26,63,212	Nine crore twenty-six lakh sixty-three thousand two hundred twelve
82006210	8,20,06,210	Eight crore twenty lakh six thousand two hundred ten

Numbers	International system	Number names
45393738	45,393,738	Forty-five million three hundred ninety-three thousand seven hundred thirty-eight
98124670	98,124,670	Ninety-eight million one hundred twenty-four thousand six hundred seventy
92663212	92,663,212	Ninety-two million six hundred sixty-three thousand two hundred twelve
82006210	82,006,210	Eighty-two million six thousand two hundred ten

12. a. 4,140 b. 7,680 c. 5,320
    d. 23,400 e. 98,440 f. 3,99,000
13. a. 6,200 b. 6,100 c. 3,800
    d. 34,800 e. 94,200 f. 5,11,200
14. a. 5,000 b. 25,000 c. 79,000
    d. 54,000 e. 7,92,000 f. 3,05,000
15. a. XI b. LXXVIII c. CXLVI
    d. CCVII e. CCCXLV f. DLXXXIX
16. a. 14 b. 93 c. 84 d. 255
    e. 311 f. 461

Solving better

1. a. 10 b. 20,00,006 c. 1,00,00,000
   d. 9,76,700; 9,77,000
   e. 410 f. 5 ten thousand

Learning better

A. 1. B 2. B 3. C 4. A 5. A

B. 1. 3,47,790 7,000
   2. 964,815 900,000
   3. 6,00,488 8
   4. 733,901 30,000
   5. 2,426,571 500

C. 93,40,374 < 2,74,34,837 < 4,93,77,344 < 8,67,47,545

D. 1. 83,72,881 > 78,27,321 > 73,23,882 > 67,32,901
   2. 5,94,59,344 > 3,04,84,038 > 84,04,347 > 78,49,394
   3. 8,63,63,836 > 4,67,73,263 > 3,65,28,384 > 2,57,87,763

F.

	Number	Nearest 10	Nearest 100	Nearest 1000
1.	35,82,917	35,82,920	35,82,900	35,83,000
2.	34,58,789	34,58,790	34,58,800	34,59,000
3.	43,67,361	43,67,360	43,67,400	43,67,000
4.	2,33,67,433	2,33,67,430	2,33,67,400	2,33,67,000
5.	8,92,53,549	8,92,53,550	8,92,53,500	8,92,54,000

G. 1. LXXXVII; 87 2. CXCIII; 193
   3. CX; 110 4. XLI; 41
   5. DCCCLXXX; 880 6. LXVI; 66

Thinking better

43168

Choosing better

- Politely ask the students to move to the play area so the flowers are not damaged. ✓

Students' Worksheets

Worksheet 1

A. 1. 94,219,071 – Ninety-four million two hundred nineteen thousand seventy-one
   2. 82,350,925 – Eighty-two million three hundred fifty thousand nine hundred twenty-five
   3. 39,232,510 – Thirty-nine million two hundred thirty-two thousand five hundred ten
   4. 55,527,993 – Fifty-five million five hundred twenty-seven thousand nine hundred ninety-three
   5. 14,705,234 – Fourteen million seven hundred five thousand two hundred thirty-four

B. 1. 100 2. 98,500 3. 0 hundred
   4. 2,00,034 5. 75,00,00,403

C. 1. LXXII 2. CXVII 3. CCXXXVIII
   4. DXIV 5. CML

Worksheet 2

A. 1. Twenty-four lakh thirty-two thousand eight hundred seventy-five
   2. Sixty-seven lakh ninety-nine thousand eight hundred eighty-five
   3. Four crore fifty-nine lakh seventy-five thousand eight hundred thirty
   4. Five crore thirty-one lakh twenty-seven thousand five hundred twenty-six
   5. Seventy-four crore four lakh eight hundred twelve

	greatest	smallest
B. 1.	88,88,750	50,00,078
2.	99,99,999	11,11,111
3.	77,77,777	22,22,222
4.	88,88,888	40,00,000
5.	99,99,999	11,11,111
	nearest 10	**nearest 100**
C. 1.	4,140	4,100
2.	21,540	21,500
3.	7,00,170	7,00,200
4.	92,65,790	92, 65,800
5.	1,37,22,510	1,37,22,500

Worksheet 3

A. 1. Ninety-nine million eight hundred one thousand three hundred sixty-seven
   2. Seventy-six million thirty-one thousand six hundred fifty-four
   3. Thirty-eight million two hundred thirteen thousand eight hundred seventy-nine
   4. Six hundred sixty-eight million seven hundred ninety-five thousand thirty-five
   5. Two hundred eighty-five million six hundred twenty-two thousand one hundred thirteen

B. 1. 70,028 2. 6,700,005 3. 20,07,015
   4. 81,70,004 5. 6,09,40,010

C. 1. 458 2. 84 3. 312 4. 92 5. 265

Book of Holistic Teaching

English

A. Ascending - smallest to the biggest
B. Descending - biggest to smallest
C. Predecessor - just before
D. Successor - just after

Science: Granite

Social Studies: Mountains

Book of Project Ideas

Making better

Accept all relevant responses.

Lesson-2: Operations with large numbers

15 Periods (40 minutes each)

Learn Better(MCB), Stay Ahead(WB),Book of Holistic Teaching, Book of Project Ideas.

eBook, animated activities, dictionary, HOTS, I explain, Mental Maths, Quiz, Quick Maths, Worksheets.

Confirming better

I am thankful for all I have.

Curricular Goals and Objectives (NCF-FS)

To enable the students:

- understand the operations of large numbers.
- learn to add, subtract, multiply and divide large numbers.
- learn to solve word problems involving large numbers.
- understand which operation to perform in order to solve the given sums.
- learn to use DMAS when the sums include all four mathematical operations.
- make a number teller using paper craft.
- write about the person they would like to predict the fortune in their Secret Journal.
- practise mathematical sums using DMAS in their Little Book of Revision.
- aim to achieve SDG 10: Reduced Inequalities by respecting and valuing everyone.

Methodology

Period 1

A Note to the teacher: Prepare a KWL chart for the class. Help students identify the concepts they already know, what they want to know, and what they learn from the lesson.

Teacher: Hello students! Welcome to the new class. How are you all?

(Wait for their responses and acknowledge their expressions)

Teacher: Today, we will begin a new lesson. But before that, let us recall some of the concepts we already know. This will help us prepare for our lesson on larger numbers.

Teacher: I will give you a few sums and your task is to identify the operation used in each.

- If a shopkeeper sold 125 apples in the morning and 89 in the afternoon, how many apples did he sell in total?
- There are 754 chocolates in a box and 482 are eaten. How many chocolates remain?
- A chair costs ₹1,250. What is the cost of 4 such chairs?
- A farmer harvested 1,000 kg of wheat. He sold 750 kg and packed the rest into bags of 50 kg each. How many bags did he use?

Teacher: Well done! As you can see, we use different operations for different types of problems. In today's lesson, we will learn how to perform these operations with larger numbers.

Teacher: Now, let us take a moment to think about what we already know and what we want to learn. I will record your ideas in the KWL chart.

- **K (What I Know):** What do you remember about working with numbers from previous lessons?
- **W (What I Want to Know):** What do you want to learn about larger numbers or operations with them?

K	W	L

(Pin up the chart on the board for visibility and easy reference. Encourage students to refer to it and reflect on their learning throughout the lesson.)

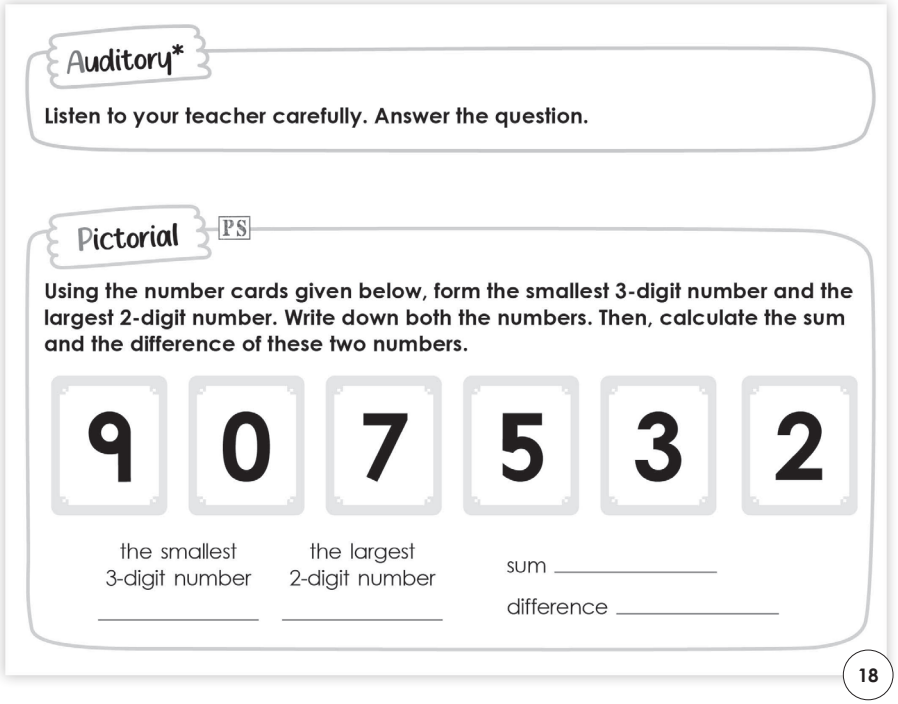
Kinaesthetic

Teacher: First, you will work in pairs. Each of you will secretly think of two 2-digit numbers and write them down on a piece of paper. Once you have written down your numbers, you will swap papers with your partner.

Teacher: Now, your task is to find the sum of the two 2-digit numbers written on the paper you received. Remember to work carefully and accurately!

Kinaesthetic

Guess two 2-digit numbers and write them on a piece of paper. Swap the papers with your partner. Work out the sum of the numbers listed on the sheet you have received.



Auditory*

Listen to your teacher carefully. Answer the question.

Pictorial PS

Using the number cards given below, form the smallest 3-digit number and the largest 2-digit number. Write down both the numbers. Then, calculate the sum and the difference of these two numbers.

9	0	7	5	3	2

the smallest 3-digit number _____

the largest 2-digit number _____

sum _____

difference _____

18

You can use any method you like to add the numbers, such as mental math or using a column method.

Teacher: Once you have found the sum, you can compare your answer with your partner to see if you both got the same result. Let us play! You have 5 minutes to complete this activity.

Teacher: At the end, we will discuss our answers and see who came up with the highest sum.

(Allow students to play this game with their partners. Move around the class to observe and support students who need help)

MUST DO 10 MIN.

Auditory

Read the listening text given on the last page of the main course book. Ensure students are seated comfortably and can hear you clearly. Use a calm and engaging tone to maintain their attention. Then, ask the students the questions related to the text. Encourage them to take turns answering. If needed, read the text once or twice to help them understand better. Support them by repeating or rephrasing the questions and praising their efforts.

MUST DO 10 MIN.

Pictorial

Teacher: Look at the cards on the board. We have the numbers 9, 0, 7, 5, 3 and 2. Using these cards, we are going to create the smallest possible 3-digit number and the largest possible 2-digit number.

Teacher: Remember, you can only use each card once.

Teacher: Start with the smallest 3-digit number. What is the smallest possible number we can make using these cards?

Students: 203

Teacher: Very good! 203 is the smallest 3-digit number we can make. Now, let's find the largest 2-digit number. What is the largest 2-digit number we can make?

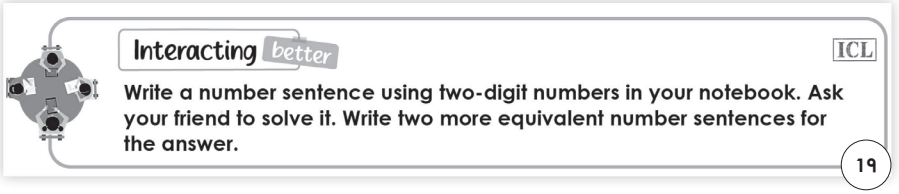
Students: 97

Teacher: Excellent! 97 is the largest 2-digit number we can make. Now, let's calculate the sum of these two numbers. What is 203 + 97?

(*While the students are calculating the sum, teacher will hang up the* ***poster*** *of Theme1:Why Do We Need Land? on the wall.*)

Students: 300

Teacher: Correct! Now, find the difference between these two numbers.



What is 203 - 97?

Students: 106

Teacher: Very good! You've successfully found the smallest 3-digit number, the largest 2-digit number and calculated their sum and difference.

MUST DO
10 MIN.

Dictionary can be used to reinforce vocabulary related to operations.

Period 2

Interacting better

Teacher: Good morning, everyone! Today, let us start the session with a fun game to practice our math skills.

Teacher: First, you will work in pairs. Each of you will write a number sentence using two-digit numbers in your notebook. For example, you could write something like 25 + 37 = ?

Teacher: Once you have written your number sentence, you will swap notebooks with your partner. Your task is to solve the number sentence written by your partner.

Teacher: After you have solved it, you will write two more number sentences that have the same answer as the original sentence. For example, if the original sentence was 25 + 37 = 62, you could write 50 + 12 = 62 and 70 - 8 = 62.

Teacher: Remember to work carefully and accurately! You can use any method you like to solve the number sentences, such as mental math or using a column method.

Teacher: Let us play! You have 5 minutes to complete this activity. At the end, we'll discuss our answers and see how many different equivalent number sentences we can find!

COULD DO
10 MIN.

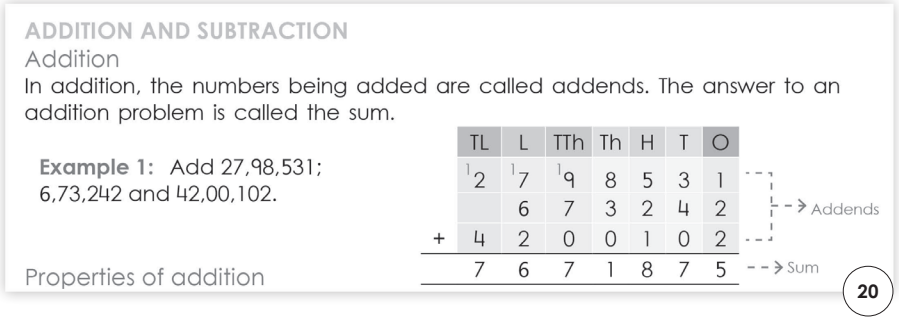
Reading

Teacher: Open your books to page 19. Let us read the story to find out what the students are doing. (Read the story aloud in a clear and engaging voice. Pause occasionally to ensure students are following along and looking at the text.)

Teacher: As I read, follow along in your books. After we finish, I would like you to share your thoughts about the story.

(Encourage students to share their ideas and praise their efforts to express themselves.)

MUST DO
10 MIN.



ADDITION AND SUBTRACTION

Addition

In addition, the numbers being added are called addends. The answer to an addition problem is called the sum.

Example 1: Add 27,98,531; 6,73,242 and 42,00,102.

	TL	L	TTh	Th	H	T	O	
	$^{1}2$	$^{1}7$	$^{1}9$	8	5	3	1	
		6	7	3	2	4	2	→ Addends
+	4	2	0	0	1	0	2	
	7	6	7	1	8	7	5	→ Sum

Properties of addition

20

Addition and subtraction

Teacher: I am going to divide you into two teams. I have a dice here. Each team will take turns rolling the dice seven times. Each roll will give you a digit for your 7-digit number.

Teacher: For example, if you roll a 3, then 5, then 1 and so on, your number could be 351,246. Once both teams have their 7-digit numbers, we'll write them on the board.

Teacher: Now, the challenge is to add the two 7-digit numbers together! The team that gets the correct answer first gets to roll the dice next.

Teacher: Let us start! Team A, your turn to roll the dice seven times to create your 7-digit number.

(Proceed with the game and allow teams to take turns to roll the dice and add the numbers)

Teacher: Great job, teams! Now, let us explore some properties of addition. What happens when you add two numbers, but change the order of the numbers?

Students: The answer stays the same!

Teacher: Exactly! This is called the commutative property of addition. For example, 45 + 54 is the same as 54 + 45, both equal 99.

Teacher: What happens when you add 1 to any number?

Students: We get the next number in the sequence, the successor.

Teacher: Correct! For example, 7,856 + 1 = 7,857. And what happens when you add 0 to any number?

Students: The number stays the same.

Teacher: That is right! Adding 0 to any number doesn't change its value. For example, 6,007 + 0 = 6,007.

Teacher: You all have demonstrated a good understanding of addition and its properties! Well done!

Subtraction

Teacher: Let us now explore some subtraction facts and rules. Open your book to page 20. Look at the subtraction problem. Just like place values, in subtraction each element has a name.

The bigger number in the problem is called minuend, the smaller number is called subtrahend and the answer to the subtraction problem is called the difference.

Teacher: Now, look at the example on the book. We have two 7-digit numbers. Can someone read the minuend?

Students: Eight crore, seventy-five lakh, forty-two thousand, three.

Teacher: And what about the subtrahend?

Students: Six crore, four lakh, thirteen thousand, six hundred and seventy.

Teacher: Great! So, when we subtract the subtrahend from the minuend, we get the difference. Let us work out this subtraction problem together. What is 3 - 7?

Students: We cannot subtract 7 from 3, so we need to borrow from the tens place.

Teacher: Correct! So, we borrow 1 from the tens place, making the 3 become 13. Now, what is 13 - 7?

Students: 6

Teacher: Great! We write 6 in the ones place. Now, let us continue with the subtraction.

MUST DO

10 MIN.

(Guide the students through the entire subtraction process, explaining each step clearly.)

Animation can be shown to generate interest among students.

Differentiated Activity

110 km/hr

Solve the following subtraction sum. 8,754,621 - 5,432,856 = ?

80 km/hr

Solve the following subtraction sum: 1,234,567 - 345,678 = ?

40 km/hr

Solve the following subtraction sum: 5,689 - 3,458 = ?

Properties of subtraction

When 0 is subtracted from a number, the difference is the number itself.	When 1 is subtracted from a number, the difference is the predecessor of the number.	When a number is subtracted from itself, the difference is always 0.
38,18,354 – 0 = 38,18,354	76,37,382 – 1 = 76,37,381	88,06,776 – 88,06,776 = 0

Period 3

Properties of subtraction

Teacher: Good morning! Today, we will explore properties of subtraction. Each pair will get a flashcard with a subtraction rule. Read it, explain it and give an example.

(Provide each team with the subtraction rule and allow them time to read and discuss it. Once they feel prepared, the pairs can present their understanding to the rest of the class. Consolidate their ideas to conclude the learning on the subtraction rule.)

MUST DO
10 MIN.

Exercise 1

Teacher: In your notebook, solve the given numbers to find their sum. Discuss the answers with the class.

Exercise 3

Teacher: Solve the sum in your notebook. Then I will invite volunteers to present the sum on the board.

SHOULD DO
10 MIN.

Word Problems

Discuss the given examples with students to help them understand the steps involved in solving a word problem.

MUST DO
20 MIN.

Infographic could be used to provide more information about the concepts taught to the students.

Differentiated Activity

110 km/hr

A library had 12,435 books. After donating 3,678 books and selling 2,349 books, how many books are left in the library?

80 km/hr

A farmer harvested 8,245 kg of wheat. He sold 5,673 kg. How much wheat is left? Verify your answer.

40 km/hr

A box contains 1,200 candies. If 875 candies are distributed, how many candies are left?

Home task

In your notebook, solve the given numbers in exercise 2 to find the difference. Discuss the answers with the class.

Period 4

Start the session by discussing the home task assigned in the previous period.

COULD DO
05 MIN.

LOTS SP

(2) **Find the difference. Write the answers in your notebook.**

a. 65,01,036 – 55,815 b. 47,74,891 – 62,340 c. 97,71,122 – 15,80,403

(3) **Find the sum and the difference of the greatest and the smallest 7-digit numbers. Write the answers in your notebook.**

WORD PROBLEMS

Example 3: There were 86,50,234 people in Maharashtra and 41,52,343 people in Delhi that observed the Earth Hour. How many people in all observed the Earth Hour in Maharashtra and Delhi?

Number of people in Maharashtra = 86,50,234

Number of people in Delhi = 41,52,343

Total number of people = 86,50,234 + 41,52,343

	TL	L	TTh	Th	H	T	O
		1					
	8	6	5	0	2	3	4
+	4	1	5	2	3	4	3
1	2	8	0	2	5	7	7

Thus, a total of 1,28,02,577 people observed the Earth Hour.

Example 4: A factory produces 21,58,701 packets of biscuits in a year. They sold 4,82,128 packets in the first month and 6,07,308 packets in the second month. How many packets did they sell in the two months combined? How many packets of biscuits are left?

Packets of biscuits sold in the first month = 4,82,128

Packets of biscuits sold in the second month = 6,07,308

Packets of biscuits sold in total = 4,82,128 + 6,07,308
= 10,89,436

	L	TTh	Th	H	T	O
	1					1
	4	8	2	1	2	8
+	6	0	7	3	0	8
1	0	8	9	4	3	6

Packets of biscuits left = Total packets of biscuits
– Packets of biscuits sold
= 21,58,701 – 10,89,436
= 10,69,265

	TL	L	TTh	Th	H	T	O
		0	14	18	6	9	11
	2	~~1~~	~~5~~	~~8~~	~~1~~	~~0~~	~~1~~
–	1	0	8	9	4	3	6
	1	0	6	9	2	6	5

So, 10,89,436 packets of biscuits were sold and 10,69,265 packets of biscuits were left.

(4) **Solve the following word problems, in your notebook.**

a. A paper manufacturer produced 67,36,562 sheets of paper in the month of April. In May and June, he produced 72,53,516 and 83,53,156 sheets of paper respectively. What is the total number of sheets of paper produced in three months?

b. In a city, the total number of males and females who can vote in the upcoming election is 25,40,716. Out of these voters, 11,32,250 are males. Calculate the number of females in the city who can vote?

c. Vishal bought a plot of land for ₹88,47,998 to build a house. He spent ₹43,23,571 on building materials and he paid ₹11,05,432 as labour charges to build the house. How much money did he spend in total?

LTL SP

Understanding better

Say yes or no.

1. The bigger number in subtraction is called subtrahend.
2. When 1 is added to a number, we get the predecessor of the number.

ICL

21

d. In a factory, 85,35,650 bedcovers were produced over ten years. Out of these, 23,59,565 are silk bedcovers and 32,78,540 are satin bedcovers. The rest are cotton bedcovers. Find the number of cotton bedcovers produced.

MATHEMATICS

MULTIPLICATION AND DIVISION

Multiplication

In multiplication, the number to be multiplied by another number is called the multiplicand. The number by which we multiply is called the multiplier. The answer to a multiplication problem is called the product.

Example 5: Multiply 1,05,732 × 778

			L	TTh	Th	H	T	O	
			1	0	5	7	3	2	→ Multiplicand
×						7	7	8	→ Multiplier
			8	4	5	8	5	6	
		7	4	0	1	2	4	0	
+	7	4	0	1	2	4	0	0	
	8	2	2	5	9	4	9	6	→ Product

Calculating better KoI

Multiply with 5

CASE I: When the number is even:

- divide the number by 2 and then place zero at the ones digit of the number obtained.
  For example: Multiply 8,63,274 by 5
  8,63,274 ÷ 2 = 4,31,637
  Thus, 8,63,274 × 5 = 43,16,370

CASE II: When the number is odd:

- subtract 1 from the number and then divide it by 2.
- now, place 5 at the ones digit of the number obtained. For example: Multiply 52,34,789 by 5
  52,34,789 – 1= 52,34,788
  52,34,788 ÷ 2 = 26,17,394
  Thus, 52,34,789 × 5 = 2,61,73,945

Properties of multiplication

The numbers can be multiplied in any order; the product will remain the same.
2,34,568 × 3 = 7,03,704
3 × 2,34,568 = 7,03,704

When a number is multiplied by 1, the product is the number itself.
52,18,343 × 1 = 52,18,343

When a number is multiplied by 0, the product is always 0.
33,91,515 × 0 = 0

Division

In division, the dividend is the number to be divided. The divisor is the number by which the dividend is divided. The answer to a division problem is called the quotient and the number left over after division is called the remainder.

Example 6: Divide 7,44,168 by 39 and check your answer.

```
         1 9 0 8 1   → Quotient
Divisor → 39 ) 7 4 4 1 6 8   → Dividend
       – 3 9
         3 5 4
       – 3 5 1
             3 1 6
       –     3 1 2
                 4 8
       –         3 9
                   9   → Remainder
```

Checking:

Dividend = Divisor × Quotient + Remainder
7,44,168 = 39 × 19081 + 9 = 7,44,159 + 9 = 7,44,168

22

Exercise 4

Teacher: Work in pairs to solve the given word problems. I will guide you through the first question to help you understand the steps.

(Solve the first question together with the students to demonstrate the process. Then ask the students to work on parts b and c in pairs.)

SHOULD DO 25 MIN.

Multiplication

Teacher: Now we are going to have a fun game to practice our multiplication skills. I have a set of number cards here. Some cards have 2-digit numbers and some have 3-digit numbers. I will give each of you a number card. Keep your number secret for now.

Teacher: We will start with two volunteers. Please come up to the front and show your number cards to the class.

(Two students come up and show their number cards.)

Teacher: Everyone, what is the product of these two numbers?

(Continue the game with different students showing their numbers and the class calculating the product. Introduce the multiplication facts to students)

COULD DO 10 MIN.

Explainer video can be shown to students to help them recapitulate multiplication facts.

COULD DO 10 MIN.

Home task

Solve the part c of the word problem in exercise 4 in your notebook.

Period 5

Start the session by discussing the home task assigned in the previous period.

COULD DO 05 MIN.

Properties of multiplication

Provide each team with the multiplication properties and allow them time to read and discuss it. Once they feel prepared, the pairs can present their understanding to the rest of the class. Consolidate their ideas to conclude the learning on the multiplication properties.

MUST DO 10 MIN.

Exercise 5

Teacher: In your notebook, solve the given numbers to find their product. Discuss the answers with the class.

SHOULD DO 15 MIN.

Properties of division

When a number is divided by 1, the quotient is the number itself.	When 0 is divided by a number, the quotient is 0.	When a number is divided by itself, the quotient is 1.
38,902 ÷ 1 = 38,902	0 ÷ 6,14,435 = 0	3,45,838 ÷ 3,45,838 = 1

5. **Find the products. Write the answers in your notebook.**
   a. 8,52,406 × 28 b. 1,32,097 × 77 c. 1,27,686 × 614

6. **Divide the following. Write the answers in your notebook.**
   a. 4,16,265 ÷ 18 b. 5,34,250 ÷ 63 c. 32,40,647 ÷ 78

COD COD

WORD PROBLEMS

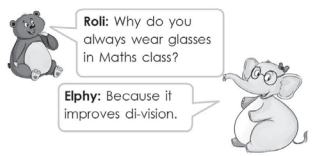
Example 7: A manufacturer produces 8,53,406 bolts every day. How many bolts were produced in the month of December?
Number of bolts produced every day = 8,53,406
Number of bolts produced in the month of December = 8,53,406 × 31
2,64,55,586 bolts were produced in the month of December.

		L	TTh	Th	H	T	O
		8	5	3	4	0	6
×						3	1
	1	8	5	3	4	0	6
+	2 5	6	0	2	1	8	×
	2 6	4	5	5	5	8	6

Example 8: The cost of 85 cycles is ₹10,05,125. What is the cost of one cycle?
Cost of 85 cycles = ₹10,05,125
Cost of 1 cycle = ₹10,05,125 ÷ 85
Thus, the cost of one cycle is ₹11,825.

```
      0 0 1 1 8 2 5
   85 | 1 0 0 5 1 2 5
    - 0 ↓
      1 0
    -   0 ↓
      1 0 0
    -   8 5 ↓
        1 5 5
    -     8 5 ↓
          7 0 1
    -     6 8 0 ↓
            2 1 2
    -       1 7 0 ↓
              4 2 5
    -         4 2 5
              -----
                  0
```

Laughing better PLH



7. **Solve the following word problems, in your notebook.**
   a. A bakery produces 4,15,325 breads every six months. How many breads will be produced in a year?

Processing better

Division is the inverse operation of multiplication.

LTL SE CL

Division

Teacher: In your previous grades, you would have learned about division. Now let us see the process involved in dividing larger numbers. Open your book to page 22. Look at the example given.

(Discuss the example with students step by step. Introduce the step to check the division sum)

MUST DO 10 MIN.

I Explain could be shown for better understanding of the concept.

Home task

Creating better can be given as home task. Students can create a mathematical operation teller using the instruction given on page 28.

Period 6

Properties of division

Provide each team with the multiplication properties and allow them time to read and discuss it. Once they feel prepared, the pairs can present their understanding to the rest of the class. Consolidate their ideas to conclude the learning on the multiplication properties.

MUST DO 15 MIN.

Exercise 5

Teacher: In your notebook, solve the given numbers to find their quotient and reminder. Discuss the answers with the class.

Teacher: Now that we know the steps for multiplication and division, let us try to apply them in some real-life examples. Work in your teams to go through the given examples and explain what you understood from them.

SHOULD DO 15 MIN.

Animated activities could be shown to students to reinforce the topics learnt.

MUST DO 10 MIN.

Home task

Solve exercise 5, part c in your notebook.

Period 7

Laughing better

Students can be asked to read the conversation between Elphy and Roli. Allow them to share their thoughts with the whole class.

COULD DO 10 MIN.

MATHEMATICS

Exercise 7

Teacher: Work in pairs to solve the given word problems. I will guide to do the first one with you.

Which Operation

Teacher: Now that you know how to solve different operations, it is also equally important to read the given sum carefully to identify which operation should be used to solve the problem. Let us to learn how to figure out missing numbers in word problems. Look at this first example:

The sum of two numbers is 67,89,104. If one number is 53,348, find the other number.

Teacher: Can anyone tell me what "sum" means?

Students: It means the answer you get when you add numbers together.

Teacher: Right! So, we know that one number is 53,348 and when we add it to the other number, we get 67,89,104. How can we find the missing number?

Students: We can subtract 53,348 from 67,89,104.

Teacher: Great! That's exactly how we do it. When we are looking for a missing number in addition, we usually subtract. Let us try another one.

Example 10: What should be added to 56,06,744 to get 80,25,423?

Teacher: This problem is asking what number we need to add to 56,06,744 to reach 80,25,423. What operation should we use here?

Students: Subtract 56,06,744 from 80,25,423.

Teacher: You got it! We are still subtracting to find the missing number.

Teacher: Now let us look at a different type of problem: Example 11: The product of two numbers is 7,12,768. If one number is 9,632, find the other number.

Teacher: What does "product" mean?

Students: The answer you get when you multiply numbers.

Teacher: Correct! So, if we know the product and one number, how do we find the other number?

Student: We divide the product by the known number.

Teacher: That is right! When we have multiplication, we use division to find the missing number. Example 12: A number when divided by 89 gives the quotient 145. Find the number.

Teacher: What is a quotient?

Students: The answer you get when you divide.

Teacher: Right! So, we know a number was divided by 89 and the answer was 145. How do we find the original number?

Student: We multiply the quotient by the divisor.

Teacher: Exactly! In this case, we multiply 145 by 89.

Teacher: So, remember these rules:

If you have addition and need to find a missing number, you usually subtract.

If you have multiplication and need to find a missing number, you usually divide.

Teacher: Now, let us practice some problems together!

MUST DO

10 MIN.

Slideshow can be used to reinforce the concepts taught in the lesson.

Exercise 8

Solve part a, b and c in class and the remaining can be assigned as home task for students.

SHOULD DO

10 MIN.

Differentiated Activity

110 km/hr

Solve the following complex word problem and explain the steps: The sum of three numbers is 150,000. The first number is 45,000 and the second number is 75,000. Find the third number.

80 km/hr

Solve the following problem: The product of two numbers is 450,000. If one number is 15,000, find the other number.

40 km/hr

Solve the following simpler word problem: The sum of two numbers is 100,000. If one number is 35,000, what is the other number?

Home Task

Students can make their own little book of revision to consolidate all the topics learnt in the lesson.

Period 8

The four operations together

Teacher: Hello students, today we are going to learn about solving math problems that have multiple operations in them.

THE FOUR OPERATIONS TOGETHER

If there is more than one operation in a question, follow the rule of DMAS* to calculate the answer.

D	M	A	S
Division	Multiplication	Addition	Subtraction

*Check the 'Grasping Better' section to learn the meaning of the word.

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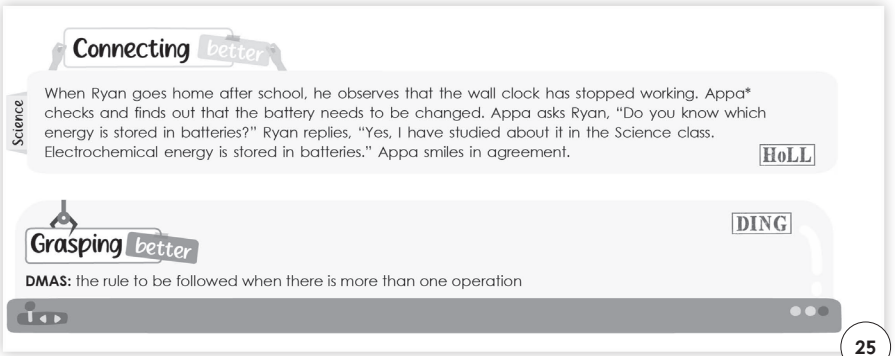
MATHEMATICS


Connecting better

Science

When Ryan goes home after school, he observes that the wall clock has stopped working. Appa* checks and finds out that the battery needs to be changed. Appa asks Ryan, "Do you know which energy is stored in batteries?" Ryan replies, "Yes, I have studied about it in the Science class. Electrochemical energy is stored in batteries." Appa smiles in agreement.

HoLL

DING

Grasping better

DMAS: the rule to be followed when there is more than one operation

25

Teacher: First, let us form four teams. Team 1 will be called Division, Team 2 will be called Multiply, Team 3 will be called Addition and Team 4 will be called Subtraction.

Teacher: Now, look at the board. We have written "DMAS" on it. This is the order we follow to solve these problems. DMAS stands for Division, Multiplication, Addition, Subtraction.

Teacher: If there is more than one operation in a question, we always do division first, then multiplication, then addition and finally subtraction.

Teacher: Let us try an example: 7 x 4 + 15 - 8.

Teacher: Team Division, what is 7 x 4?

Student: 28

Teacher: Good. Now, Team Addition, what is 28 + 15?

Student: 43

Teacher: And finally, Team Subtraction, what is 43 - 8?

Student: 35

Teacher: Excellent! So, the answer to 7 x 4 + 15 - 8 is 35.

Teacher: Now, I am going to give each team a few problems to solve on their own. You have 5 minutes.

Teacher: Now, let us practice some more! Look at the example given on page 25 of your book.

(Discuss the example with students and encourage them to share their understanding).

MUST DO

10 MIN.

Exercise 9

Teacher: Work in pairs to solve the parts a and b in your notebook.

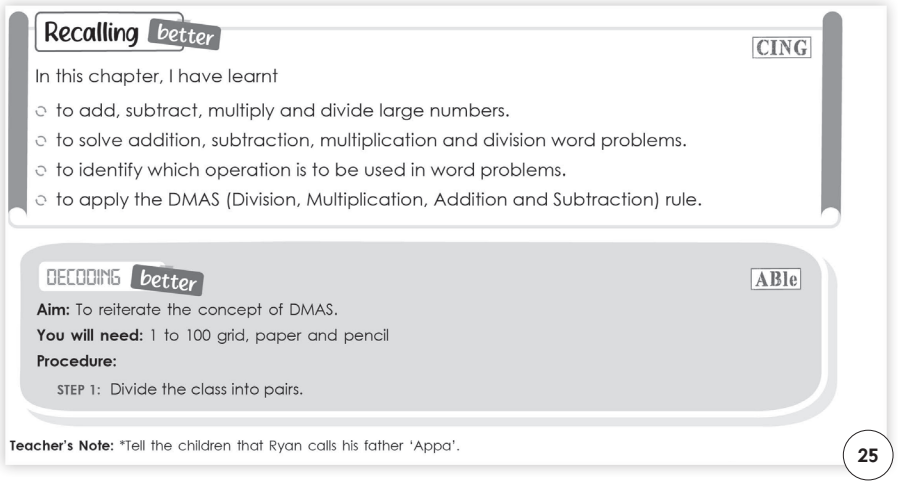
SHOULD DO

10 MIN.

Connecting better

Teacher: Alright, everyone, imagine a scenario. Imagine you're at home and you notice your wall clock has stopped working. You ask your grandfather, Appa, for help. He explains to you about the battery inside the clock and how it provides energy to make the clock run.

Teacher: Now, I want you to work with a partner and come up with a short conversation between you and Appa about this. Think about what questions you might ask Appa, and how he might explain things to you. You can use words like 'energy,' 'battery,' 'power,' and 'electricity' in your conversation.



Recalling better

CING

In this chapter, I have learnt

- to add, subtract, multiply and divide large numbers.
- to solve addition, subtraction, multiplication and division word problems.
- to identify which operation is to be used in word problems.
- to apply the DMAS (Division, Multiplication, Addition and Subtraction) rule.

DECODING better

ABle

Aim: To reiterate the concept of DMAS.

You will need: 1 to 100 grid, paper and pencil

Procedure:

STEP 1: Divide the class into pairs.

Teacher's Note: *Tell the children that Ryan calls his father 'Appa'.

25

Teacher: Once you have had a chance to practice with your partner, we will share some of the conversations with the whole class.

COULD DO 10 MIN.

Grasping better

Students can have a discussion on the given term as they are already aware of this term.

SHOULD DO 10 MIN.

Quiz can also be used after the discussion to recap students learnings.

Home Task

Solve exercise 9 part c and d in notebook.

Period 9

Recalling better

The following questions could be asked to recapitulate the concept taught in the lesson.

Write the number you get after adding 56,78,432 and 3,45,26,876.

What do you do if all four operations are in the given sum?

Find the product of the numbers you get for 3,764 and 67.

MUST DO 10 MIN.

Find the quotient for 56,000 divided by 100.

Decoding better

Teacher: Alright, everyone, get ready for some fun with numbers! Today, we are going to have a little math competition.

Teacher: We are going to form four teams and each team will get a grid of numbers from 1 to 100. Your challenge is to choose any three numbers from your grid and create as many math problems as you can within 10 minutes.

Teacher: For example, if you choose the numbers 25, 12 and 7, you could create problems like: * 25 + 12 = ? * 7 x 12 = ? * 25 - 7 = ? * 12 divided by 25 = ?

Teacher: The team that creates and solves the most correct math problems in 10 minutes will win the title of 'Ramanujan'! Are you ready to put on your thinking caps and show me what you have got?

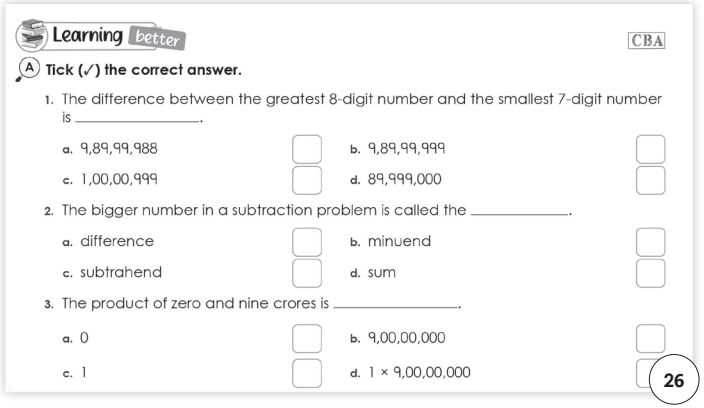
SHOULD DO 20 MIN.

Solving better

Make students to work on the sums in their notebook.

SHOULD DO 10 MIN.

Mental Maths can be used to help students solve questions faster.



Learning better CBA

A Tick (✓) the correct answer.

1. The difference between the greatest 8-digit number and the smallest 7-digit number is _____.

a. 9,89,99,988 ☐ b. 9,89,99,999 ☐

c. 1,00,00,999 ☐ d. 89,999,000 ☐

2. The bigger number in a subtraction problem is called the _____.

a. difference ☐ b. minuend ☐

c. subtrahend ☐ d. sum ☐

3. The product of zero and nine crores is _____.

a. 0 ☐ b. 9,00,00,000 ☐

c. 1 ☐ d. 1 × 9,00,00,000 ☐

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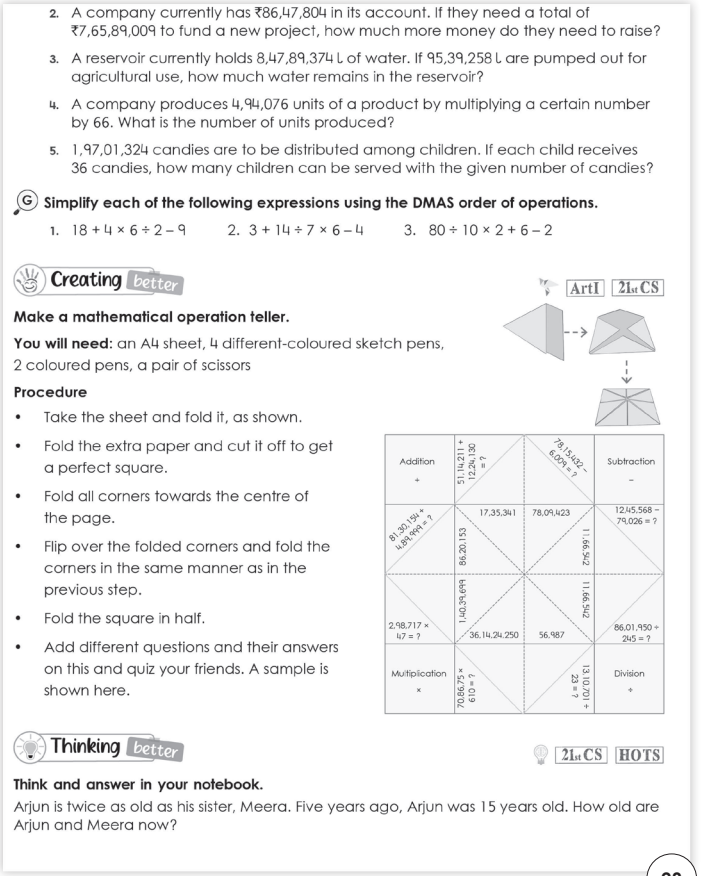

2. A company currently has ₹86,47,804 in its account. If they need a total of ₹7,65,89,009 to fund a new project, how much more money do they need to raise?
3. A reservoir currently holds 8,47,89,374 L of water. If 95,39,258 L are pumped out for agricultural use, how much water remains in the reservoir?
4. A company produces 4,94,076 units of a product by multiplying a certain number by 66. What is the number of units produced?
5. 1,97,01,324 candies are to be distributed among children. If each child receives 36 candies, how many children can be served with the given number of candies?

G Simplify each of the following expressions using the DMAS order of operations.

1. 18 + 4 × 6 ÷ 2 – 9 2. 3 + 14 ÷ 7 × 6 – 4 3. 80 ÷ 10 × 2 + 6 – 2

Creating better ArtI 21st CS

Make a mathematical operation teller.

You will need: an A4 sheet, 4 different-coloured sketch pens, 2 coloured pens, a pair of scissors

Procedure

- Take the sheet and fold it, as shown.
- Fold the extra paper and cut it off to get a perfect square.
- Fold all corners towards the centre of the page.
- Flip over the folded corners and fold the corners in the same manner as in the previous step.
- Fold the square in half.
- Add different questions and their answers on this and quiz your friends. A sample is shown here.

Addition +	51,14,211 + 12,24,130 = ?	78,15,932 − 6,004 = ?	Subtraction −
81,30,154 × 4,84,969 = ?	86,20,153	17,35,341	78,09,423	12,45,568 − 79,026 = ?
2,98,717 × 147 = ?	1,40,34,699	36,14,24,250	56,987	11,66,542	86,01,950 ÷ 245 = ?
Multiplication ×	70,66,75 × 610 = ?		13,10,701 + 23 = ?	Division ÷

Thinking better 21st CS HOTS

Think and answer in your notebook.

Arjun is twice as old as his sister, Meera. Five years ago, Arjun was 15 years old. How old are Arjun and Meera now?

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Period 10

Learning better

Teacher: Hello, students! It is time to check how much we have learned about large numbers. We will now work on the end-of-lesson exercises. Let us begin with the first activity.

Teacher: Read the given statements carefully and choose the correct options. Take your time and think before you answer. Let's see how well you understand operations in large numbers.

COULD DO 10 MIN. ☐

Exercise B

Teacher: Divide into pairs. Read the given sentences and mark them as true or false.

MUST DO 10 MIN. ☐

Exercise C

Ask the learners to form groups of three learners each. Tell them to solve parts 1, 3 and 5 in their notebooks. Call one volunteer to solve each part on the board to be confirmed and discussed. Later, they can cross-check.

SHOULD DO 10 MIN. ☐

Exercise D

Form groups of three learners each. (Give cue cards with sums to the learners in groups). Ask them to solve and tell the product.

MUST DO 10 MIN. ☐

Period 11

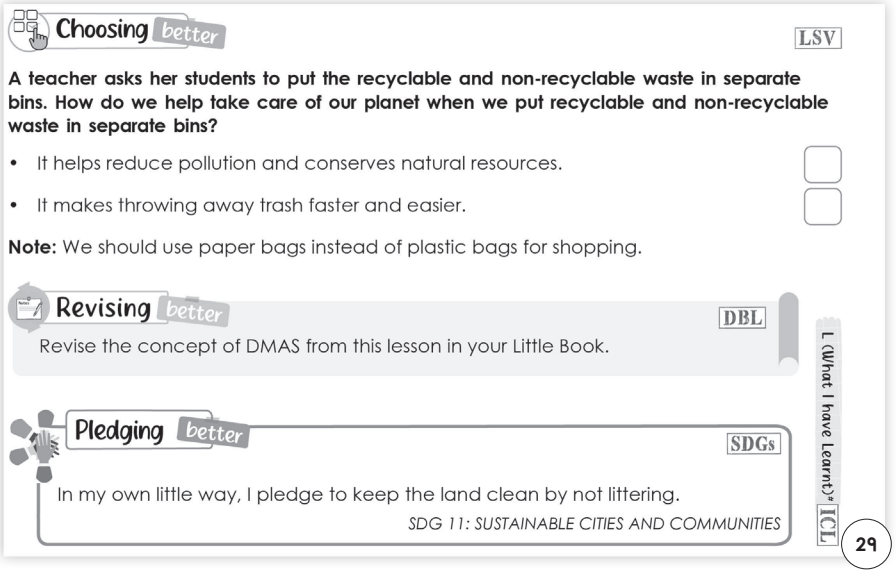
Exercise E

Teacher: Let us continue with the book exercises. Open your books to page 27. We are going to work on exercise E. First, I will solve the first division problem on the board for you. I will show you how to do it step-by-step.

Teacher: Now, let us check our answer. Remember, we can check division by multiplying the divisor and the quotient. If we get the original dividend, our answer is correct.

Teacher: Now work in pairs. Each of you will choose one of the remaining division problems to solve in your notebook. Once you have solved your problem, check your answer by multiplying the divisor and quotient. Then, compare your answer with your partner.

COULD DO 10 MIN. ☐



Choosing better

LSV

A teacher asks her students to put the recyclable and non-recyclable waste in separate bins. How do we help take care of our planet when we put recyclable and non-recyclable waste in separate bins?

- It helps reduce pollution and conserves natural resources.
- It makes throwing away trash faster and easier.

Note: We should use paper bags instead of plastic bags for shopping.

Revising better

DBL

Revise the concept of DMAS from this lesson in your Little Book.

Pledging better

SDGs

In my own little way, I pledge to keep the land clean by not littering.

SDG 11: SUSTAINABLE CITIES AND COMMUNITIES

L (What I have Learnt)

ICL

29

Exercise F

Make students to work on 1, 2 and 3 part of the exercise. The remaining can be assigned as home task for students.

SHOULD DO 15 MIN.

Exercise G

Model the first part on the board. Then they can work with their partners to solve the remaining parts of the exercise. Once they finish, discuss the answers with the class.

SHOULD DO 15 MIN.

Period 12

Thinking better

Read out the given statement and ask students to work on the problem in their notebook.

MUST DO 15 MIN.

Choosing better

Discuss the scenario with students and ask them to think and share the options they would choose and why.

COULD DO 15 MIN.

L (What I have learnt)

Ask the students to sit with their partners and discuss what they have learned from the lesson. Then, give each pair a turn to share their points and consolidate their ideas on a KWL chart. Once the chart is complete, discuss their journey, reflecting on what they initially knew, what they wanted to know and what they have learned.

MUST DO 10 MIN.

HOTS can be used to help students develop critical thinking and deeper understanding of the concept.

Home Task

Students can revise the concept of DMAS in their little book of revision.

Period 13

SDG 10: Reduced Inequalities

Class Activity: The learners can make cards and badges that they can wear. The badges could be captioned as 'I Respect'. Then they may give the cards to didis and bhaiyas (helpers in school). They must ensure never to disrespect them thus achieving SDG 10 of reduced inequalities. Whole class discussion.

MUST DO 30 MIN.

Home Activity: Ask the learners if they respect the house help, the rag picker, green grocer or auto rickshaw driver. Then explain that these people deserve to be respected irrespective of the job they do. They must ensure never to disrespect anyone. Whole class discussion.

COULD DO
10 MIN.

Period 14

COULD DO
10 MIN.

Teacher: Good morning, everyone! How are you all feeling today?

Teacher: Let us begin the class with a quick activity. I would like each of you to tell me how you are feeling today in one word. Are you feeling energetic, happy, excited, or maybe a little sleepy?

Teacher: Great! Now, let us move ahead with today's lesson. We will be working on worksheets to check our understanding of numbers, place values successors etc.

MUST DO
30 MIN.

Teacher: Please open your workbook on page 16 and we will begin with Part A of the worksheet 1. Write the number names for the following numerals.

(Similarly do the other parts of the worksheet.)

Teacher: Now that you have completed the worksheet, let us review the answers together.

Teacher: Please exchange your notebooks with your friend and check each other's answers.

(Guide learners as required. Show the answers on board. Discuss the problematic part with students.)

COULD DO
05 MIN.

Teacher: Well done, everyone! You have all worked very hard today. To end the session, let us take a few moments to calm our minds and bodies with a short calming exercise.

Teacher: Sit comfortably in your seat, close your eyes, and take a deep breath in. Hold it for a few seconds and slowly exhale. Let's do this three times to help us relax.

Teacher: Now, imagine a peaceful place. It could be a beach, a garden, or a calm forest. Picture yourself there, feeling relaxed and peaceful.

Teacher: Let us take one final deep breath together. Breathe slowly and deeply... and exhale. When you are ready, you can open your eyes and return to the room.

Teacher: Thank you for your focus and effort today. You did a great job! Have a peaceful day ahead.

Period 15

Additional Task

Holistic Learning

A. Read the given sentences and ask students to identify the subject and object in the sentence.

B. Read the question given and encourage students to discuss it with their science teacher to find the answer.

C. Read out the sentences and ask students answer the question. You may ask them to refer to their social book or discuss with social teacher if required.

MUST DO
20 MIN.

Project Ideas

This is a home task. Read and explain to the learners that they will have to throw a dice 8 times. Note down the numbers to form an 8-digit number. Reverse the order of the digits to form the second number. Then find the difference of the two numbers. Save it on MS Word and show it to the teacher. You may demonstrate the method using a dice to the learners. Clarify their doubts so that they can do it independently at home.

COULD DO
10 MIN.

Quiz can be conducted for students to recap the concepts learnt so far.

COULD DO
10 MIN.

Learning Outcomes

The students will:

Physical Development	• Engage in class activities and learn number system in play way method.
Socio-Emotional and Ethical Development	• Present their project work confidently to their peers.

Cognitive Development	• Add, subtract, multiply and divide large numbers. • Solve word problems comfortably, on their own. • Practise Vedic maths tricks in multiplying the numbers by 5. • Revise the number operations using DMAS, in their Little Book.
Language and Literacy Development	• Express their thoughts and feelings about the activity they like to do in the Secret Journal.
Aesthetic and Cultural Development	• Display their interest and creativity in making their Little Book and decorating it.
Positive Learning Habits	• Follow simple instructions to start and stop an activity

Starry Knights

First session must have been exhausting for you. However, their cheerful faces on meeting their new teacher must have been an incentive for all your hard work and preparation. Kindly share few anecdotes that made you feel motivated to add more activities and enhance their learning experience.

Give yourself a STAR for being the winner!