

1 Numbers

Concept	Competency	Sub-competency	Learning Outcomes The learner:	No. of periods (recommended)
Understanding Thousands	Arithmetic ability	Recognises and writes numbers with the understanding of place value system	• reads and writes numbers and number names from 1001 to 10000.	1
Place Value, Face Value, and Expanded Form	Arithmetic ability	Recognises and writes numbers with the understanding of place value system	• writes place value, face value, and expanded form of numbers up to 9999.	2
Number Before (Predecessor) and Number After (Successor)	Arithmetic ability	Recognises and writes numbers with the understanding of place value system	• writes predecessor, successor, and numbers in between for numbers up to 10000.	1
Odd and Even Numbers	Arithmetic ability	Sorts numbers into groups and sub-groups based on recognizable properties	• identifies numbers as odd or even based on the defined properties.	1
Number Patterns	Establishing connections	Identifies and extends simple patterns in their surroundings, shapes, and numbers	• recognizes and completes number patterns.	1
Comparison of Numbers	Arithmetic ability	Arranges numbers in ascending and descending order	• compares two given numbers using place value.	2
Ordering Numbers	Arithmetic ability	Arranges numbers in ascending and descending order	• arranges the given numbers in ascending or descending order.	2

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Concept	Competency	Sub-competency	Learning Outcomes The learner:	No. of periods (recommended)
Forming Greatest and Smallest Numbers	Arithmetic ability	Arranges numbers in ascending and descending order	• forms greatest and smallest numbers using given digits by arranging them in different orders.	1
Ordinal Numbers	Arithmetic ability	Sorts numbers into groups and sub-groups based on recognizable properties	• reads and writes ordinal numbers up to 25.	1
Revision Exercises		• revises and applies the concepts learnt in the chapter.		1
		Total		**13**

Tune In

Begin the chapter with a fun activity where students find their way across a maze of numbers recalling numbers from 986 onwards. Direct the students to watch concept videos to refresh prerequisite concepts covered in the previous class. Students may use Warm-up! to read important recall points and attempt questions in their notebook for practicing previously learnt concepts.

The additional questions suggested here for certain concepts may either be copied on the class board and used to initiate a class discussion or taken up using concrete objects in the class.

Questions for easy recap

1. What is one more than 99?
2. Which is the greatest three-digit number?
3. What number comes after 919?
4. Which is the greater number: 654 or 645?
5. Fill in the blanks: 628, 638, 648, _____, _____, _____

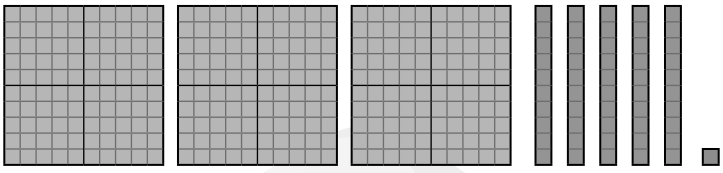
Understanding Thousands

'What is one more than 999?' Begin the class discussion with this question. Introduce 1000 in the class as the smallest four-digit number. Then progress to building other four-digit numbers starting from 1000. Finally, introduce 10000 as the smallest five-digit number.

Students should be able to identify the numbers represented by different combinations of blocks. Direct students to attempt the interactivity to practice this concept. Further, encourage them to

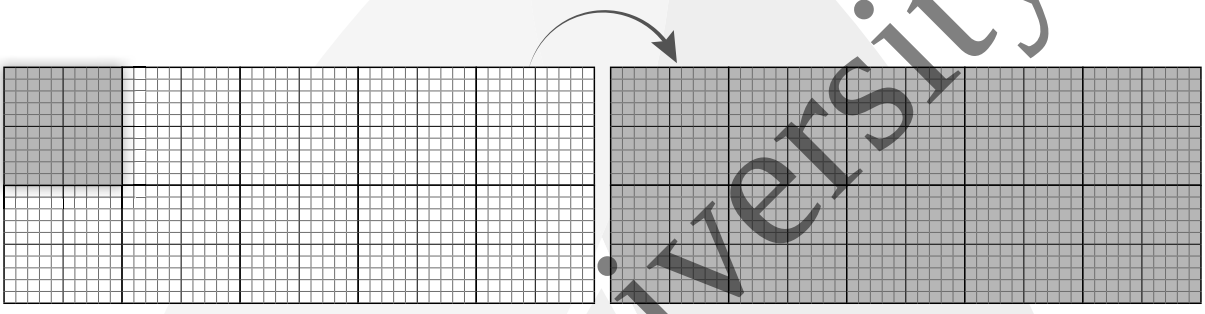
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explore the Number Grids tool to represent numbers using blocks. Start with building a few three-digit numbers yourself and asking the students to identify these using expanded form of numbers. Also ask the students to represent a few three-digit numbers using the tool.

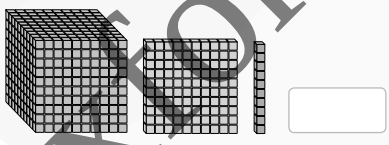
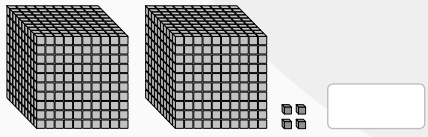


300 + 50 + 1 = 351

Use the tool to show how 10 hundred-squares combine to form a thousand block.

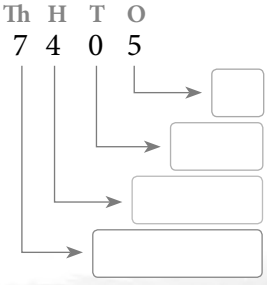


Questions for class discussion

1. Write the next three numbers.
   a. 4515, _____, _____, _____
   b. 2030, _____, _____, _____
   c. 8900, _____, _____, _____
2. Write the numbers represented by the blocks.
   a. 
   b. 

Place Value, Face Value, and Expanded Form

Students will be introduced to the Thousands place in this chapter. They should be able to extend their understanding of place value and face value of a digit in a number to four-digit numbers.



Use the given example to initiate a class discussion. Ask the students to write the place value of each digit of the given number. See if the students can recall the concept and apply it to four-digit numbers. Reinforce that the place value and face value of 0 is always 0.

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Using the concept of place value encourage the students to also write the expanded form of a four-digit number as well as write its number name.

Think: What happens if the digit at the thousands place in a four-digit number is 0?

Numbers on the Abacus

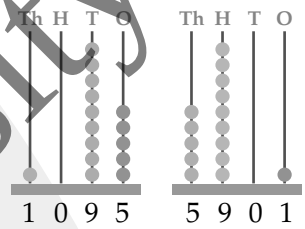
Take up the following activity in the class.

Objective: To represent four-digit numbers on the abacus and identify the place value of the digits

Materials Required: Abacus with four rods, beads

Method: Divide the class into groups.

1. Give a four-digit number to each group. Say, 1095.
2. Ask the students of each group to then display this number on the abacus using beads and record the place value of each digit in the number.
3. Next, ask each group to reverse the order of the digits in the four-digit number to obtain a new number.
4. Each group should then display this number on the abacus using beads and record the place value of each digit.



The observations can be made as shown in the table given below.

Number \ Place value		Th	H	T	O
1095	Face value	1	0	9	5
	Place value	1000	0	90	5
5901	Face value	5	9	0	1
	Place value	5000	900	0	1

Point out to the students that the place value of a digit depends on its position in the number. However, the place value of 0 remains 0 irrespective of its position in a number.

Some Common Mistakes

These are some common mistakes which the students can make while answering questions related to this concept. It is better to draw the students' attention to these and help them avoid the same.

The standard form for 1000 + 80 + 8 is 188. (×)
The standard form for 1000 + 80 + 8 is 1088. (✓)

The expanded form of 205 = 20 + 5. (×)
The expanded form of 205 = 200 + 0 + 5. (✓)

The face value of 8 in 1080 is 80. (×)
The face value of 8 in 1080 is 8. (✓)

Five hundred five is written as 5005. (×)
Five hundred five is written as 505. (✓)

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Questions for class discussion

1. Write the expanded form of these numbers.
   a. 2451 _____
   b. 4508 _____
2. Write the number names for the following:
   a. 3421 b. 5419 c. 7080 d. 6103
3. What is the place value and the face value of the digit 5 in the number 3542?

Number Before (Predecessor) and Number After (Successor)

Students are already familiar with the concept of number before and number after of a given number. You can take any 10 consecutive four-digit numbers on a number line and describe the concept one more time. Let students identify a number before or after a specified number on the number line. Also familiarize the students with more formal terms of 'predecessor' and 'successor' of a given number and enforce the idea of finding the predecessor of a number by subtracting 1 from that number and finding the successor by adding 1 to the given number.

Write a few four-digit numbers on the board and ask the students to find their predecessor and successor.

1568	8000	4001	6525

Odd And Even Numbers

Define the basic difference between odd and even numbers. At this stage students should be able to sort the given numbers correctly into odd even buckets. Provide a set of 7–8 numbers and ask the students to identify them as odd or even based on the digit in the ones place.

Thereafter students should also be able to find a specific odd or even number based on the given conditions. Say, for example, Find the smallest four-digit odd number. Many students will have the tendency to come up with 1000 as the answer. At this point, correct them and explain how to reach the answer, that is, 1001.

Number Patterns

Students have been familiar with number patterns since earlier classes. Now extend these patterns to four-digit numbers. Note that patterns can be made by counting forward or counting backward. It is important that the students learn to first identify whether a pattern is made by counting forward or backward and then think about how many jumps should be made for getting the next number in the pattern.

For example, discuss the number pattern 1240, 1340, 1440, 1540, _____, _____ in class. First ask the students to observe how this pattern has been made by counting forward. Then ask them to

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identify how they need to count forward in jumps of 100 to get the next two numbers, 1640 and 1740, in the pattern.

Work Together

Encourage students to create a number pattern of their own and then share the pattern with the student sitting next to them to identify the next two terms of the pattern.

Questions for class discussion

Complete the following patterns.

1. 1001, 1011, 1021, _____, _____, _____
2. 3455, 3450, 3445, _____, _____, _____
3. 9122, 9126, 9130, _____, _____, _____
4. 7917, 7817, 7717, _____, _____, _____

Comparison of Numbers

Students already know how to compare smaller numbers. Now discuss with them how to compare two four-digit numbers and a four-digit number with smaller numbers.

Reiterate the steps to compare any two given numbers as follows:

Step 1: Count the number of digits in the given numbers. The number that has more digits is greater.

When comparing 2568 and 987, we can see that, 2568 has 4 digits and 987 has 3 digits.

So, 2568 > 987.

Step 2: If the given numbers have the same number of digits, then compare the digits in the highest place. Say, when comparing two four-digit numbers 4508 and 6008, compare the digits at the thousands place. Since 4 < 6, 4508 < 6008.

Step 3: If the digits in the highest place are the same, then compare the digits in the next highest place and soon. Continue till we get two different digits. The number with the greater digit in that place will be the greater number.

Say, when comparing two four-digit numbers 4535 and 4508, the digits at the thousands and the hundreds place of both the numbers are the same. So, compare the digits at the tens place. Since 3 > 0, 4535 > 4508.

Work Together

Ask students to write any random number up to 9999. Then ask them to check the number written by the student sitting to their right/left and compare the two numbers. The student with a greater number gets a point. Equal numbers do not call for any points. Ask the students to use different combination of digits every time and continue the play for 3-4 rounds.

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Ordering Numbers

Once the students have learnt to compare two given numbers, they can easily find the greatest or the smallest numbers out of the given three, four, or more numbers. This will help them to arrange the given numbers in order from smallest to greatest or vice versa, that is, ascending or descending order.

Numbers in Order

Take up the following activity in the class.

Objective: To arrange numbers in ascending or descending order

Method: Divide the class into groups of five.

1. Give a flash card with a different four-digit or three-digit number to each student of the group.
2. Ask each group to compare the numbers on the flash cards and arrange the numbers in ascending order.
3. Let this be a time-bound activity.
4. After the time is over ask each group to come forward, display the cards in their hands, and stand from left to right in increasing order of numbers on the flash cards.
5. Ask the remaining groups if the order is correct.
6. Repeat this with all the groups one by one and randomly ask some groups to stand in decreasing order.
7. Explain that only by reversing the order of numbers arranged in ascending order, they can arrive at the descending order of those numbers.

Forming Greatest and Smallest Numbers

Write two different four-digit numbers formed using the same four digits on the board. Let the students figure out the similarity between the two numbers.

Say, 5732 and 3275. Explain to the students that though the two numbers are formed using the same four digits, one number is greater than the other.

Now, provide them any four digits, say, 4, 6, 1, 9 and ask them to try and create as many four-digit numbers as they can using the given digits. Write the responses on the class board and ask the students to compare the responses and find the greatest and the smallest of those numbers. Also ask them if they think there are more numbers that could be formed using these digits.

Using this discussion as the base explain how the students can form the greatest and the smallest numbers using the given digits. It is important for the students to understand that the greatest number will have the greatest of all the given digits in the highest place and the smallest number will have the smallest of all the given digits in the highest place.

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Some Common Mistakes

These are some common mistakes which the students can make while forming the greatest or the smallest numbers using the given digits. It is better to draw the students' attention to these and help them avoid the same.

Given digits: 7, 0, 1, 3
0 < 1 < 3 < 7
Smallest 4-digit number: 0137 (×)
Smallest 4-digit number: 1037 (✓)

Given digits: 4, 2, 9 (Repeat 9)
9 > 4 > 2
Greatest 4-digit number: 9429 (×)
Greatest 4-digit number: 9942 (✓)
Smallest 4-digit number: 2949 (×)
Smallest 4-digit number: 2499 (✓)

Ordinal Numbers

Ordinal numbers define the position or the rank of an object in relation to other objects in a place.

Find your Position

Call out 10 students to the front of the class. Now engage the whole class in an activity. Ask the class to note the position of each student starting from left to right.

1. Now ask the class to name the student at the fifth position. If correctly named, ask this student to step forward.
2. Ask the class to name the students at the third and the sixth position. If answered correctly, ask these students to interchange their positions.
3. Ask roll no. 20 to stand between the ninth and the tenth student. Then ask the previous tenth student to speak out his/her new position (eleventh).
4. Continue with different iterations, till the students are comfortable using ordinal numbers.

Revision

Students to attempt the revision exercises and revise the concepts covered in the chapter. The HOTS questions will check their understanding of the concept of place value, comparing numbers and forming numbers. Direct students to the Mental Maths interactivity for quick practice of the concepts learnt.

Students can also be directed to the Let's Meet the Mathematician video and asked to explore more about the life of Italian mathematician ***Leonardo Pisano Fibonacci*** and his contribution to the field of Mathematics.

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ASSESSMENT



Name:..... Class:..... Date:.....

1. Fill in the missing numbers in the boxes.

4576			4579				4583		4585

2. Circle the number that matches with the corresponding number name.

a.	1032	1034	1320	1023	One thousand twenty-three
b.	2823	8823	2813	2883	Two thousand eight hundred twenty-three
c.	9137	9713	9317	9371	Nine thousand seven hundred thirteen
d.	2604	2614	2640	2460	Two thousand six hundred forty
e.	7003	7307	7030	7039	Seven thousand thirty

3. Pick out the greatest and the smallest number and complete the table given below.

					Greatest number	Smallest number
a.	1051	1044	1320	1023		
b.	4823	8823	2813	2983		
c.	9137	9713	9217	9271		
d.	2804	2814	2640	2460		
e.	7003	7307	7090	7093		

4. Match each of the following numbers with its expanded form.

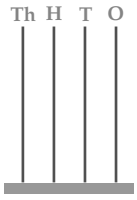
a.	6118	6000 + 100 + 80
b.	6018	6000 + 80
c.	6180	6000 + 100 + 10 + 8
d.	6080	6000 + 800 + 1
e.	6801	6000 + 10 + 8

5. Represent each number on the abacus.

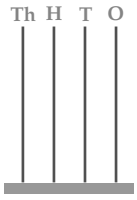
a. 3406



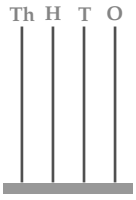
b. 3112



c. 9024



d. 5501



6. Fill in the blanks.
   a. The smallest three-digit number is _____.
   b. The place of 8 in 2085 is _____.

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c. The standard form of 2000 + 500 + 2 is _____.

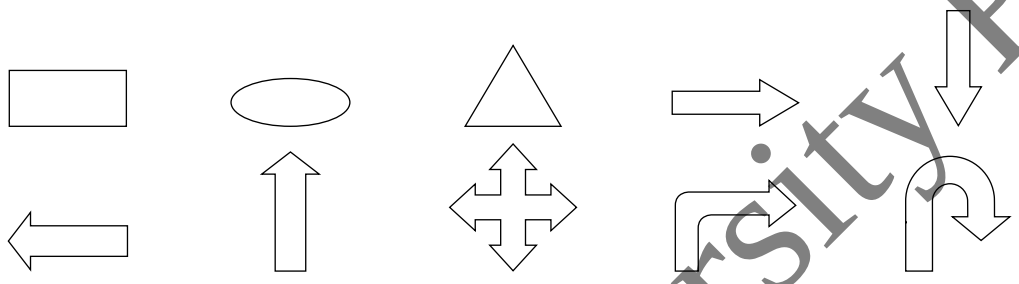
d. The number name of the largest four-digit number is _____.

7. Observe the list of shapes given below.

a. Colour the eighth, fifth, and tenth shape in blue.

b. Colour the second, fourth, and ninth shape in red.

c. Write down the ordinal numbers of the shapes that you have not coloured.



8. Observe the patterns and fill in the missing numbers.

a.	8764	8754			8724	
b.	9016		9018		9020	9021
c.		5629	5729		5929	

9. Write the place value of each of the underlined digits.

a. 9<u>2</u>36 _____ b. 40<u>5</u>7 _____

c. 419<u>1</u> _____ d. 6391 _____

e. 7<u>8</u>25 _____ f. 7983<u>3</u> _____

10. Write all the four-digit numbers that you can make using only the digits 4 and 0. Arrange the numbers thus formed in ascending order.

11. Write the number names for the numbers given below.

a. 6303 b. 9084 c. 4454 d. 7186 e. 5319

12. Pick out the odd numbers from the list of numbers given below.

3909	3902	3900	3099	7452	7425	8000	9000	2002

13. Write down all the even numbers between 4996 and 5018.

MENTAL MATHS

1. What are the five numbers that come just after 5010, when you skip count by 200?
2. Which is the largest three-digit number?
3. Write the seventeenth number after 4183.
4. How many tens are there in one hundred?
5. How many hundreds are there in one thousand?

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