Vision Empower & XRCVC

Teacher Instruction KIT

Numbers

Syllabus: Karnataka State Board Subject: Mathematics Grade: III Textbook Name: Mathematics Textbook Cum Workbook Chapter Number & Name: 2, Numbers

1. OVERVIEW

1.1 OBJECTIVE AND PREREQUISITES **Objective**

Students will be able to:

- read and write numbers from 0 to 999
- expand numbers with respect to place values
- count numbers starting from any number and do skip counting
- identify the greatest and smallest numbers when 3 or more numbers are given from 0 to 999
- arrange the given numbers in the ascending and the descending orders
- form greatest and smallest numbers by using given digits
- identify 3 digit numbers on the number line
- find the values of 3 digit numbers on a number line.

Prerequisite Concept

• Numbers from 0 - 99, place value *TIK_MATH_G2_CH2_Numbers (0-99)*

Content Index

Kindly Note: Activities marked with * are mandatory

OVERVIEW

OBJECTIVE AND PREREQUISITES

<u>LEARN</u>

KEY POINTS LEARN MORE

ENGAGE

INTEREST GENERATION ACTIVITY Activity 1: Units and tens CONCEPT INTRODUCTION ACTIVITIES **INTRODUCTION TO 3-DIGIT NUMBERS**

Activity 2: Introduction to 3 digit numbers

PLACE VALUE

Activity 3: Numbers- expand numbers for place value

SKIP COUNTING

Activity 4: Numbers - Skip counting

GREATEST AND SMALLEST NUMBER

Activity 5: Numbers - Greatest and smallest number

MONEY

Activity 6: Numbers - Money

Materials Required: None

ASCENDING AND DESCENDING ORDER

Activity 7: Numbers - Ascending and descending order

<u>Activity 8: Numbers - To form the smallest and greatest number.</u>

Numbers In words

Activity 9: Numbers - In words

<u>LEARN - NUMBER LINE</u>

Activity 10: Numbers - Number line

LET'S DISCUSS: RELATE TO DAILY LIFE*

EXERCISES & REINFORCEMENT

PRACTICE EXERCISES Activity 11: Recall and practise IMPORTANT GUIDELINES* <u>Exercise Reading</u> <u>Perform Textbook Activity</u> <u>Provide Homework</u>

2. LEARN

2.1 KEY POINTS

- 1 is added to 99 to get one hundred.
- 10 bundles of 10 give one hundred.
- 100 is a three-digit number.
- The smallest three-digit number is 100.
- In 100, '0' is in the units place and the second '0' in tenth place, '1' is in the hundredth place.

2.2 LEARN MORE

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

Activity 1: Units and tens

Materials Required: sticks and rubber band *Prerequisites:* Numbers from 0 - 99

Activity Flow

- Ask the following questions to the students.
 - What is the smallest place value? Unit
 - What is the other name of the unit called? One's cube
- Tell the students that Raja, Ramya and Geetha all are collecting gooseberries. Raja collected 20, Ramya collected 50, and Geetha collected 85.
 - Who collected the least number of gooseberries?
 - Who collected the maximum number of gooseberries?
 - Who collected less than 50 gooseberries?
- Make the students into groups of four.
- Distribute the sticks to each group and ask them to make bundles of ten.
 - A bundle of 10 means 10.
 - Two bundles of 10 means 20.
 - Three bundles of 10 means 30.
 - Similarly, 9 bundles of 10 mean 90.
- Now ask the students to add sticks in nine bundles of 10 in the following way:
 - nine bundles of 10 + 1 sticks =___
 - nine bundles of 10 + 2 sticks =___
 - nine bundles of 10 + 5 sticks = ____
 - nine bundles of 10 + 4 sticks = ____
 - nine bundles of 10 + 9 sticks = ____
 - *nine bundles of 10 + 10 sticks = ____ = 100*

3.2 CONCEPT INTRODUCTION ACTIVITIES

INTRODUCTION TO 3-DIGIT NUMBERS

Activity 2: Introduction to 3 digit numbers

Materials Required: Place value blocks *Prerequisites:* Concept of one's and ten's

Activity Flow

- Introduce the concept of forming 3 digit numbers using the place value block/ using the above activity.
- Introduce that next to ten place we have a hundred place. Hundred is also called a hundred flat. Give the hundred flats to the children and ask them to feel it.
- Tell the students that the place value always goes from right to left. The right is the smallest and the left is the biggest.
- Now instruct the children to use the place value block and form the number that is called out. For example 462.
- Now instruct the children to see what digit is in the one's place. It is 2 so place 2 one's cube, then in ten's place we have 6 so place 6 ten towers and then we have 4 hundred so keep 4 hundred flats. Give step by step instruction. Once children get used to this. Give them a random number and ask them to form the given number using place value blocks.

Question :

- Form the number 678?
- How many hundred flats will the number 678 have?
- What is the number name for 678?
- What digit is in one's place?

PLACE VALUE

Activity 3: Numbers- expand numbers for place value

Materials Required: Place value blocks *Prerequisites:* Concept of place value (ones and tens)

Activity Flow

Note: Place value is the value of each digit in a number. The place value of a digit changes according to its position in the number. The place value increases in powers of 10, starting from units. The digits in numbers from right to left have the place values of 1, 10, 100, 1000, 10000 etc.

For example 548 5 is in the hundreds place and its place value is 500, 4 is in the tens place and its place value is 40, 8 is in one's place and its place value is 8.

Expanded form

- The form of writing a number broken into different additive values using the place values is called an expanded form. For instance, the expanded form of the number 548
 - *is*, 548 = 500 + 40 + 8
- Explain the following to the students.
- The place value of each digit in 321 is as follows:
 - The place value of 1 is 1 ones = 1
 - The place value of 2 is 2 tens = 20
 - The place value of 3 is 3 hundred =300
- Using the place value blocks encourage the children to place the place value blocks accordingly. So for the given number keep 3 hundred flats, 2 ten towers, 1 one's cube.

The standard form for this number is 321 and the expanded form is 300+20+1.

- Ask the students to write the expanded form for the number 512 and the standard form for 700+30+9
- Ask the students to think of any 3 digit number of their choice and ask them to tell the expanded form for that number.

Certain facts about number:

- Adding 1 to 99 to get one hundred.
- 10 bundles of 10 give one hundred.
- 100 is a three-digit number.
- The smallest three-digit number is 100.
- In 100, '0' is in the units place and the second '0' in tenth place, '1' is in the hundredth place.

SKIP COUNTING

Activity 4: Numbers - Skip counting

Materials Required: None Prerequisites: Two-digit numbers.

Activity Flow

Note:

- The smallest 2 digit number is 100.
- The smallest 2 digit number is 10.
- The biggest 2 digit number is 99.
- The biggest 3 digit number is 999.

Skip counting can be defined as the method of counting forward or backwards by numbers other than 1. To skip count, we keep adding the same number each time to the previous number.

For example, we skip count by 2 like this: 2, 4, 6, 8, 10

Here, we are skip counting by 2. So, starting at 0, the next number will be 0 + 2 = 2, then, 2 + 2 = 4, then 4 + 2 = 6, then 6 + 2 = 8, and then, 10, 12, 14, 16, 18 and so on.

- Ask the students to sit in a circle.
- Tell them that they are going to play a skip counting game.
- *Tell the following instructions to the students.*
- Each student will tell the numbers in sequence, whenever the multiple of 2 comes, they have to clap instead of saying that number aloud.
- For example, the 1st person will start by telling the number 1, the second person will clap, the third person continues the sequence that is 3, the fourth person will clap, the fifth person will continue the number sequence.
- Repeat the same activity for multiples of 10 and 5.

GREATEST AND SMALLEST NUMBER

Activity 5: Numbers - Greatest and smallest number

Materials Required: Tactile number cards and place value board.

Place value board- Take A4 size cardboard and divide the cardboard into three divisions. Mark the division using fevicol.

Prerequisites: Place value

- Tell the following story to the students.
- Which animal has more friends? Once upon a time in a jungle there lived many animals. Among them, 3 animals (rabbit, rat, elephant) were good friends. One day those animals had a fight saying who has more number of friends. Rabbit came and said, "I have 325 friends, I have a bigger number than you". Rat said, "NO, No I have a bigger number I have 475 friends". The elephant said, "Stop it, I have 157 friends." All three animals went to a fox and told him about the problem. The fox listened to their problem and decided that the elephant had the smallest number and the rat had the biggest number. Do you agree with the judgement given by fox?
- Ask the children when 3 or more numbers are given how do you find out which number is big or small?
- Now using the place value board orient the children to form a number on the board.

	Н	Т	U
Rabbit	3	2	5
Rat	4	7	5
Elephant	1	5	7

- While comparing 3-digit numbers, first compare the digits in the hundredth place. Whichever number has more hundreds is the greater number. If the digits in the hundreds place are the same, then compare the digits in the ten's place, if the digits in the tens place are the same, then compare the digits in the units place and identify the bigger and the smaller numbers.
- Compare hundreds Among 3, 4, 1, the biggest digit is 4 the smallest digit is 1.Therefore, among 325, 475, 157, the greatest number is 475 and the smallest number is 157
- Ask the following questions to the students.
 - How many hundreds are there in the elephant's number?
 - How many ones are there in the rat's number?
 - Which is the smallest 475 or 157?
 - Which is the greatest 325 or 157?

MONEY

Activity 6: Numbers - Money Materials Required: None Prerequisites: Place value

Activity Flow

- Ask the following questions to the students.
 - How many ones make 1 ten? The answer is 10 ones
 - How many tens make 1 hundred? 10 ten's
- Similarly, 10 one-rupee coins make one-ten.
- Ten ten-rupee notes make one-hundred.
- Discuss the following problem with the students.

Peacock receives money only in 100 rupee notes, 10 rupee notes and coins of 1 rupee coins. How many notes and coins to be given by animals to the peacock? How many rupees and notes do they pay?

- Rabbit 175 rupees
- Monkey 200 rupees
- Elephant 450 rupees

ASCENDING AND DESCENDING ORDER

Activity 7: Numbers - Ascending and descending order

Materials Required: Tactile number cards and place value board.

Place value board- Take A4 size cardboard and divide the cardboard into three divisions. Mark the division using fevicol.

Prerequisites: Place value. Refer to activity 5.

Activity Flow

- Ask the following questions:
 - What do you understand by the term ascending order? Arranging numbers from small to big.
 - What do you understand by term descending order? Arranging numbers from big to small.
- Ask the students to arrange the following numbers in arranging order:
 - 34, 89, 45, 12 and 56
 - Answer: 12, 34, 45, 56 and 89
- Make a group and tell 3 three-digit numbers to the students.
- Ask them to write all the numbers on the place value board.

For example, the given numbers are 345, 567, 789 and 555

- Н Т О
- 3 4 5
- 5 6 7
- 7 8 9
- 5 5 5

(Explanation - in the hundreds place value, the numbers we have are 3, 5, 5 and 7. The smallest number is 3, the second biggest number is 5 and the biggest number is 7)

- Now ask the children to compare a hundred values and ask them to rearrange the numbers in an ascending order
- Н Т О
- 3 4 5
- 5 6 7
- 5 5 5
- 7 8 9

If the hundred place digits have the same value then ask them to compare the value of tens place. Again ask them to rearrange the numbers in ascending order.

- H T O 3 4 5 5 5 5 5 6 7 7 8 9
- Similarly, ask them to arrange the descending order.

Activity 8: Numbers - To form the smallest and greatest number.

Materials Required: Tactile number cards/braille number cards and place value board. Place value board- Take A4 size cardboard and divide the cardboard into three divisions. Mark the division using fevicol.

Prerequisites: Place value. Refer to activity 5.

- Divide the students into groups.
- Distribute the braille cards to each group.
- Tell the students to make the largest number, place the highest value (digit) at the leftmost place, the second-highest value at the second leftmost place and the lowest value at the rightmost place.
- For example, for the given numbers 2, 3, 4. The possible greatest number is 432.
- The first highest value is 4, ask them to place the number 4 at the leftmost place (hundreds place) on the place value board. The next highest value is 3, ask them to place the number 3 at the second leftmost place (ten's place) on the place value board. The least value is 2, ask them to place the number 2 at the rightmost place (one's place). Now ask them to read the three-digit number they have formed.
- Now ask them to take any three cards and then ask them to make the possible greatest three-digit number.
- To make the smallest number, place the lowest value at the leftmost place on the place value board, the second-lowest value at the second leftmost place and the highest value at the rightmost place on the place value board.
- For example, for the given numbers 2, 3 and 4. The possible smallest number is 234.
- The lowest value among 2, 3 and 4 is 2, ask them to place the number card 2 at the leftmost place (hundreds place). The next second smallest value is 3; ask them to place at the second leftmost place (ten's place). The highest value is 2, ask them to place the number card 2 at the rightmost place (one's place)
- Now ask them to take any three cards and then ask them to make the possible smallest three-digit number.

To compare the given numbers: 490, 409

- First, write the numbers in the place value board.
- Compare the value of the rightmost digit. Both the numbers have the same amount of hundreds (4 hundred), so compare the digits in the ten's place. In 190, there are 90 tens and in 409, there are 0 tens. Between 9 and 0, the big digit is 9. Therefore the biggest number between 490 and 409 is 490.

A game for 2 players.

- Divide the students into pairs.
- The aim of the game is to make the highest number.
- Shuffle the cards and put them face down on the table.
- Player one- turns over a card and places it on the place value board.
- Player two- does the same
- Player one- turns over a second card and place it in any position on the place value board. Player two- do the same.
- Player one- turns over a third card and places it at any position on the place value board. Player two- do the same.
- Give a chance to both players to move the cards around on the place value board to make the highest number possible.
- Who makes the highest three-digit number give a point. Repeat the same activity 6 times and who gets maximum points will be the winner.

Numbers In words

Activity 9: Numbers - In words

Materials Required: Tactile number cards/braille number cards and place value board. Place value board- Take A4 size cardboard and divide the cardboard into three divisions. Mark the division using fevicol.

Prerequisites: Numbers in words (0 - 99).

- Call out any three-digit number.
- Ask the students to write the three-digit number on the place value board.
- Then ask them how many hundreds, ten's, and ones they have.
- For example, if the given number is 312 means, it has 3 hundred, 1 ten and 2 ones.
- Explain to them, it can be written as 3 hundred and twelve.
- Give a few more examples to them
 - 346 = three hundred forty-six
 - 567 = five hundred sixty-seven
 - \circ 100 = hundred

- 199 = one hundred ninety-nine
- 200 = two hundred
- 299 = two hundred ninety-nine
- *300 = three hundred*
- 399 = three hundred ninety-nine
- 400= Four hundred
- **499 =** ____
- *500 =*
- o 599 = ____
- Divide the students into groups of 4 and distribute the braille cards to them.
- Ask them to take any three cards from the pack and tell them to make a three-digit number.
- Ask each group to read their three-digit number.
- Give the numbers in words and ask them to write in figures using braille cards and place a value board.
- For example, five hundred and forty-four = 544.

LEARN - NUMBER LINE

Activity 10: Numbers - Number line

Materials Required: Tactile number line- Draw a straight line with marks at equal distance. *Prerequisites:* Numbers from 1 to 99.

- Ask the students to explore the tactile number line.
- Explain to the students that the number line is a straight line. Numbers are written in order at equal distance on the number line. The value of the number increases on the number line, as we move towards the right side from any point.
- Tell the students, the given number line starts from 200. The number line progressed with a difference of 20.
- Ask the students to place their fingers on the first mark and read the number 200, and then ask them to move to the second mark and read the number 220, then ask them to move to the third markings and read the number 240, continue the number line till 400. And also explain, while moving towards the right, the digit in the ten's place is changing in the given number line because we increase the number by 20.
- Now place a dot/bindi at the desired location on the number line and ask them to find the number.
- Now tell the students, the number line starts from 110 and the number line progressing with a difference of 10. Ask the students to read the number line.
- For example, 110, 120, 120, 140, 150, 160, 170, 180, 190, 200.

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

Ask the following questions to the students

- 1. In what situations, you will use numbers? For example, a teacher uses numbers to count the number of students in his/her classroom.
- 2. Where can we find numbers? For example, in a clock, we can find numbers from 1 to 12.

4. EXERCISES & REINFORCEMENT

4.1 PRACTICE EXERCISES

Activity 11: Recall and practice

Materials Required: None Prerequisites: Numbers from 1- 999

Activity Flow

- 1. Read the following numbers and write in words. Example: 101 - One hundred one
 - a. 213
 - b. 439
 - с. 528
 - d. 646
 - e. 957
 - f. 362
 - g. 774
 - h. 880
- 2. Write the numbers

Example: One hundred ninety six - 196

- a. Three hundred forty eight
- b. Two hundred eighty three
- c. Five hundred seventeen
- d. Eight hundred thirty four
- e. Seven hundred twenty five
- f. Six hundred seventy nine
- g. Nine hundred five
- h. Four hundred fifty

- 3. Write the given numbers in the place value table:
 - a. 186
 - b. 375
 - с. 420
 - d. 904
 - е. 613
 - f. 832
 - g. 241
 - h. 557
 - i. 768
 - j. 600
- 4. Fill in with the missed numbers:
- a. 300, 310, ___, __, __, 360
- b. 400, 420, ____, ___, 500
- c. 201, 203, ___, 209, ___, 215

5. Write the number which comes after.

- a. 99,____
- b. 200,____
- с. 410,____
- d. 506,____

6. Identify the greater and smaller numbers in each pair and write:

- a. 125 and 521
- b. 999 and 909
- *c.* 772 and 774
- d. 501 and 105
- e. 842 and 824
- 7. Find the greatest number:
 - a. 811, 801, 810, 809 and 812
 - b. 336, 346, 386, 316 and 376
 - c. 666, 660, 665, 663 and 667
 - d. 740, 770, 780, 710 and 720
 - e. 901, 910, 920, 903 and 903

8. Find the smallest number:

- a. 416, 406, 426, 462 and 460
- b. 700, 500, 200, 300 and 400
- c. 183, 187, 181, 190 and 189
- d. 572, 576, 571, 575 and 574

9. Write in the ascending order:

- a. 567, 467, 967, 767 and 267
- b. 477, 873, 783, 580 and 986
- *c.* 701, 770, 707, 775 and 777

10. Write in the descending order:

- a. 415, 428, 409, 472 and 447
- b. 645, 642, 649, 647 and 644
- c. 501, 301, 101, 601 and 201

11. Frame the greatest and the smallest numbers using the digits given below :

Example: 2. 7, 0 The greatest number is 720 The smallest number is 027

- a. 9,1, 5 The greatest number is _____ The smallest number is _____
- b. 6, 3, 7 The greatest number is _____ The smallest number is _____
- c. 1, 8, 4 The greatest number is _____ The smallest number is _____

4.2 IMPORTANT GUIDELINES*

Exercise Reading

It is very important that the children practice their learnings as well as their Reading. Hence have the children read out the newly learned concepts from their textbooks or other available resources.

Perform Textbook Activity

It is good practice to have the children perform the textbook activities. Your textbook activities might not be accessible hence go through this resource to learn how to make textbook content accessible

Provide Homework

To evaluate their understanding and to help the student revise and implement the new learnt concept ensure to provide them with homework. Students should perform one or two of the questions mentioned above or from the textbook exercises with the teacher in Class and the remaining may be given for homework. Also, ensure that the student knows their special skills linked to independently using their accessible books as it will be critical to doing homework independently

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