Vision Empower & XRCVC

Teacher Instruction KIT

Subtraction

Syllabus: Karnataka State Board
Subject: Mathematics
Grade: III
Textbook Name: Mathematics Textbook cum Workbook
Chapter Number & Name: 4, Subtraction

1. OVERVIEW

1.1 OBJECTIVE AND PREREQUISITES

Objective

Students will be able to:

- subtract three-digit numbers without borrowing and by borrowing
- solve problems with using place value table
- solve subtraction problems
- solve subtraction problems for various situations expressed in stories
- frame problems on subtraction
- estimate the difference between two given numbers which are less than 99.

Prerequisite Concept

- Place value, subtraction of two-digit numbers, the concept of estimation.

TIK_MATH_G3_CH3_Addition.

Content Index

*Kindly Note: Activities marked with * are mandatory*

2. LEARN

2.1 KEY POINTS

- The number from which you subtract is called 'minuend'
- The number to be subtracted is called 'subtrahend'
- The answer is called 'difference'.
- Subtraction is the process of removing one number from another to calculate the difference between the two.

2.2 LEARN MORE

3 ENGAGE

3.1 INTEREST GENERATION ACTIVITY

Activity 1: Discussion
Materials Required: None
Prerequisites: None

Activity Flow

1. *Discuss the following questions with the students:*
    a. *What is subtraction?*
    b. *Name a few keywords in subtraction? Answer: Subtract, minus, take away, difference.*

Keyword gives a clue about which operation to use. Keywords - subtract, minus, take away, difference, left, less, remain.
For example, there are 35 students in a class. Out of which 20 students left for the singing practice. How many students are left in the classroom?
Here, the keyword is left. Out of 35, 20 students left the classroom, remaining is $35-20=15$.

The difference between 8 and 4 is 4. The keyword is difference.

c. *Show us the subtraction hand signal?*
d. *Do we start our subtraction from ones or tens?*
e. *State one rule that we should always keep in mind while doing subtraction? We should always subtract a smaller number from a bigger number.*

2. *Ask the students to find the answers to the following question:*
3. *Whoever knows the answer, ask them to raise their hand to answer. If they answered correctly, clap for them.*

a. $20-10=?$
b. $19-10=?$
c. $18-10=?$
d. $17-10=?$
e. $16-10=?$
f. $15-10=?$

Instruction:

1. *Divide the students into a group of 4. Distribute 50 sticks and 5 paper cups to each group.*
2. *Ask them to place 20 sticks in the first cup, 19 sticks in the second cup, 18 sticks in the third cup, and 17 sticks in the fourth and so on.*
3. *Now ask the above questions and tell them to find the answer by removing 10 sticks from each cup. Give a chance to each group to answer the above questions. And also ask them to observe the answers.*

3.2 CONCEPT INTRODUCTION ACTIVITIES

Subtraction

Activity 1: Subtraction - without borrowing.
Materials Required: Place value board, place value blocks or braille number cards.
Place value board: Refer to TIK_G3_CH3_Addition, Activity 1.

Note: Students can use the same place value board for all the activities.
Prerequisites: Subtracting two-digit numbers

Activity Flow

Story: Ranga and Raja were friends, both of them own a book shop on either side of the road. Now, there are 468 books in Ranga's Shop. There are 365 books in Raja's Shop. In Ranga's shop there are more books. In Rajanna's shop, there are less number of books

1. *Tell the children, the rightmost is units place, middle column is tens place and the leftmost column is hundreds place. Instruct the children to use the place value block/number cards to form the number on the place value board.*

Hundreds	*Tens*	*Ones*
4	*6*	*8*
3	*6*	*5*

2. *Ask the students how many hundreds, tens and ones are there in the number 468 and 365.*
3. *Ask them to subtract the numbers in units place, write the remaining in units place (3rd row, 3rd column). The answer is* $8-5=3$.
4. *Then ask them to move to the second column to subtract tens (* $6-6=0$ *), write the answer in the tens place (3rd row, 2nd column).*
5. *Now ask them to subtract the numbers in the hundreds place (* $4-3=1$ *), write the answer in the hundreds place (3rd row, 1st column).*

Hundred	*Tens*	*Ones*
4	*6*	*8*
3	*6*	*5*
1	*0*	*3*

6. *Therefore, there are 103 (1 hundred, 0 tens and 3 units) more books in Ranga shop than in Raja's shop.*

Note for all activity: If they don't have a place value board, ask them to place the three paper cups next to each other. Tell the rightmost cup represents units place, the second rightmost cup represents tens place and the third rightmost cup represents hundreds place.
Ask them to write the number according to its place value using braille cards/ place value blocks.

Activity 2: Subtraction - with borrowing.
Materials Required: Place value board and braille number cards or place value blocks markings.
Prerequisites: Subtraction of two-digit number with borrowing

Activity Flow

Story:
Once in a forest, a fox started to sell bananas. Monkeys and elephants in the forest were very happy. In order to purchase fruits, a monkey has saved 247 rupees. He came to the fox shop with that money. He purchased a bunch of bananas for 158 rupees. As the fox was brilliant in calculations, the monkey gave all the money to the fox and told him to take 158 rupees and give the balance amount. Fox gave 76 rupees to the monkey as a balance amount.

1. *Make the children narrate the same story in their own words.*
2. *Now ask them to identify the bigger number between the given numbers. Between 247 and 158 which is the biggest number why do you say so? (expected response is 247 is the bigger number, it has 2 hundred)*
3. *Discuss the following questions with the students?*
    a. *Did Fox give the correct balance amount to the monkey?*
    b. *How many of you believe that the fox is brilliant in calculations? Ask the children to check the calculation.*
4. *Ask them to form the number by placing the number cards/ place value blocks on the place value board.*
5. *Tell the children to write 247 in the first row and 158 in the second row according to its place value.*

Hundred	*Tens*	*Ones*
2	*4*	*7*
1	*5*	*8*

6. *Ask them to subtract the numbers in units place ($7-8$). It is impossible to subtract 8 units from 7 units. Therefore take one ten from tens place, convert into 10 units (1ten = 10 units) and add to 7 units. Now in one place, we have 17 units/cubes). Subtract 8 from 17, 9 units/cubes remain. Write 9 in the units place.*

Hundreds	*Tens*	*Ones*
2	*3*	*17*
1	*5*	*8*
		9

7. *When one is borrowed to units place from 4 tens, 3 tens remaining. Now subtract 5 tens from 3 tens. It is impossible to subtract 5 from 3 so take one hundred from hundred's place (1 hundred = 10 tens). Convert into tens and add to 3 tens ($10+3=13$). Subtract 5 from 13, 8 remains. Write 8 in ten's place.*

Hundred	*Tens*	*Ones*
1	*13*	*17*
1	*5*	*8*
0	*8*	*9*

8. *Subtract 1hundred flat (group), from 1 hundred flat ($1-1=0$), write 0 in hundreds place.*
9. *Therefore, the amount needed to give back is 89 rupees. The fox cheated the monkey.*
10. *Fox gave 76 rupees, how much more it has to give? Ask the students to subtract 76 from 89, to know the amount needed to give.*

Hundreds	*Tens*	*Ones*
0	*8*	*9*
0	*7*	*6*
0	*1*	*3*

Activity 3: Subtraction - Using the expanded form.

Materials Required: Braille cards (0 to 9(single digit), 10 to 100(tens cards- 10, 20, …, 100), 100 to 1000(100, 200, 300 cards) or 9 paper cups and 3 different types of marbles.
Prerequisites: The expanded form of addition.

Activity Flow

1. *Narrate the following word problem to the students.*

Rahul and his sister Rashi are threading beads. Already Rahul had threaded 228 beads and Rashi had threaded only 105 beads. Therefore, how many more beads are threaded by Rahul.

2. *Do you think we can solve this in any different ways? Yes, we can subtract using expanded form.*
3. *Ask the students to arrange 3 paper cups in a straight line. Below the 1st line, ask them to arrange the 3 more paper cups parallel to the 1st line. Similarly, ask them to arrange the remaining paper cups in the 3rd row (parallel to the 2nd-row paper cups). Note: paper cups should be arranged in 3 by 3 (3 rows and 3 columns) equally spaced horizontally and vertically.*
4. *Instruct them, the rightmost column is one's place, the middle column is tens place and the leftmost column is hundreds place.*
5. *Now, ask the students how many beads threaded by Rahul. It's 228, ask them how many hundreds, tens and ones are there in the number 228. Reinforce the number of hundreds, tens and ones in the number 228. I.e 2 hundred, 2 tens (which is nothing but 20), and 8 ones.*
    a. *In the first row, ask them to represent the number 228 by putting marbles in the place value cups.*
    Example: In the first row, there will be three paper cups. Tell them to put 2 marbles in the hundreds place (1st paper cup), 2 marbles in the tens place (2nd paper cup), and 8 marbles in the ones place.
    b. *Similarly, do the same for the number 105 (use the paper cups which is in the 2nd row).*
    c. *Third-row paper cups are to write the answer using the marbles.*
    d. *Now, tell them we start the subtraction from ones, so* $8-5=3$ *. Tell them to put 3 marbles in the unit place. Move to the tens place,* $2-0=2$ *, put 2 marbles in the ten's place. Then move to the hundreds place,* $2-1=1$ *, put 1 marble in the hundreds place.*
    e. *Encourage them to tell the number of hundreds, tens and ones they have.*
6. *Give different numbers and ask them to subtract.*

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USING BRAILLE NUMBER CARDS/Tailor frame

1. *Ask the students to write the number 228 using the braille place value cards or in the tailor frame.*
   For example, placing 200, 20 and 8
2. *Below the first number, ask the students to write the number 105 using the braille place value cards or in the tailor frame.*
   For example:

200	20	8	
100	0	5	–

3. *Encourage the students to tell the number of hundreds, tens and ones in both the numbers.*
    a. *228 = 2 hundred, 2 tens, and 8 ones.*
    b. *105 = 1 hundred, 0 tens, and 5 ones.*
4. *Start the subtraction from ones,* $8-5=3$ ones .
5. *Then move to the next place,* $2-0=2$ tens . *Finally, subtract 1 hundred from 2 hundred (* $2-1=1$ *). Therefore the answer is 124. It has 1 hundred, 2 tens and 4 ones.*

200	20	8	
100	0	5	–
100	20	3	

ESTIMATION

Activity 4: Estimated Difference

Materials Required: Taylor frame/ braille cards from 50 to 60.
Prerequisites: Estimation of addition

Activity Flow

1. *Ask the students to write numbers from 50 to 60 in a straight line using a Taylor frame and types.*
   Or
   Ask them to arrange the braille cards horizontally in ascending order.
2. *Tell them to consider that as a number line from 50 to 60.*
3. *Discuss the following questions with the students.*
    a. *What is the middle number in the number line? I.e. 55 - digit 5 is in the unit place. It is the middle number between any 2 tens.*
    b. *What is the nearest ten for the number 52? The answer is 50. Because the number 60 is far from the number 52 and 50 is close to the number 52.*
    c. *What is the nearest ten for the number 50? Ask them to observe the number line to answer.*
    d. *What is the nearest ten for the number 56? Ask them to observe the number line to answer.*
    e. *The number 51,52,53,54 which are towards the left side of 55 are near to 50,*
    f. *Therefore 10's estimated value of 51,52,53,54 is 50.*

g. *The numbers 56,57,58,59 towards the right side of 60 are nearer to 60. Therefore 10's estimated value of 56,57,58,59 is 60*

4. *Ask the following question:*
   a. *The tens estimated value of 57 and the tens estimated value of 52.*
   b. *Find the estimation of the difference between 57 and 52.*
      The estimated value of 57 is 60
      The estimated value of 52 is 50
      Difference is ($60-50=10$ *)*
5. *Similarly, the nearest ten for the number 43 is 40.*

Activity 5: PLAY

Materials Required: Braille cards of three-digit number/ Braille -Play cards
Prerequisites: Concept of three-digit addition and subtraction.

Activity Flow

1. *Divide the students into two groups (A and B).*
2. *Take two bowls, put a pack of play cards in one bowl and another pack of play cards in the other bowl. Remove the joker. One bowl for group A and the other bowl for group B*
3. *Call one student from group A and one student from group B. Tell them to take three cards from their respective bowl.*
4. *Ask them to form a three-digit number using the taken cards.*
5. *If you use three-digit braille cards in both the bowls then skip the steps from 2 to 4.*
6. *Tell one person to add both the three-digit numbers and the other person to subtract the smaller number from the bigger number. If they solve the problem correctly give one point to the respective groups.*
7. *Call the students one by one and repeat the activity.*
8. *The team that gets more points in 10 minutes will be the winner.*

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

Give the following examples to the children:

1. Whole and part - In our class, there are 40 students. Among 40 students, 34 students are present. How many students are absent?
2. To reduce something - for example, Give away 104 apples from 307 apples. How many apples remain?
3. To compare - for example, Ravi ate 40 chocolates and Geetha ate 28 chocolates. Who many more did Ravi eat?
4. You have 10 rupees in your pocket. You want to buy chocolate which is 15 rupees. How much more do you need?

In our daily life, we use subtraction in many situations. To calculate the difference, remaining, balance, lost, to compare we use subtraction.

4 EXERCISES & REINFORCEMENT

4.1 PRACTICE EXERCISES

Activity 1: Practice problems

Materials Required: None

Prerequisites: Subtraction of three-digit numbers.

Activity Flow

1. *Estimate the following numbers and find the difference.*
    a. *89 and 19*
    b. *34 and 8*
    c. *64 and 32*

2. *Subtract and find the difference.*
    a. $327 - 224 = ?$
    b. $710 - 510 = ?$
    c. $580 - 160 = ?$
    d. $433 - 244 = ?$

3. *Vikas is reading a novel containing 325 pages. He had already finished reading 224 pages. How many more pages still he has to read.*

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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