Vision Empower & XRCVC Teacher Instruction KIT Addition

Syllabus: Karnataka State Board Subject: Mathematics Grade: Second Textbook Name: Mathematics-Text cum Workbook(Revised)-Second Standard Chapter Number & Name: 3. Addition

1. OVERVIEW

1.1 OBJECTIVE & PREREQUISITES

Objective

- To add two digit numbers without carrying (sum not to exceed 99).
- To add two digit numbers with carrying (sum not to exceed 99).
- Learning to add by interchanging the place of the numbers.
- To add numbers using the number line. (Sum not to exceed 9)

Prerequisite Concept

- Oral numbers
- Counting Skill
- Using a slate & stylus / Brailler (If a Braille learner)
- Reading & Writing of Braille/Large Font Alphabets
- Place value and Large Numbers (for addition using place value)
- Basic addition

Refer to VE_TIK_Math_G1-10-Addition (sum not more than 20)

VE_TIK_Math_G1-12 -Numbers 21-99

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Kindly Note: Activities marked with * are mandatory

1. OVERVIEW

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INTRODUCTION TO THE CONCEPT

Activity 1: Recap of single digit addition*

3.2 CONCEPT INTRODUCTION ACTIVITIES ADDITION WITHOUT CARRYING AND WITH CARRY OVER

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4.1 REINFORCEMENT

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2. LEARN

2.1 KEY POINTS

Addition is one of the four basic operations of arithmetic. The other words used for addition are add, sum, plus, increase and total. Addition is bringing two or more numbers (or things) together to make a new total.

2.2 LEARN MORE None

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

INTRODUCTION TO THE CONCEPT

Activity 1: Recap of single digit addition* *Materials Required*: pebbles/ seeds/ ice-cream sticks/ pencils *Prerequisites:* NA

Activity Flow

Using various kinds of objects like pebbles/ seeds/ ice-cream sticks/ pencils, the teacher can do a recap of addition the students have learned earlier. The teacher can demonstrate to the class first and then encourage children to work out the sums independently using the objects. Add 5+3, 2+7, 1+8, 6+5

3.2 CONCEPT INTRODUCTION ACTIVITIES **ADDITION WITHOUT CARRYING AND WITH CARRY OVER** Activity 2: Adding two-digit numbers without carrying* *Materials Required: Paper cups, and Ice cream sticks/Plastic toothpicks, rubber bands, Abacus.*

Activity Flow

I have 41 beads with me and Ravi gives me 12 more beads. What is the total number of beads I have?

Let's calculate.

Bundle up 10 ice-cream sticks/toothpicks and place a rubber band around each bundle. We have 2 cups here representing the units and tens.

I have 41 beads. Let's expand this into units and Tens.

In 41 we have 4 tens and 1 unit. Let's place the objects accordingly into the paper cups. So we place 1 object in the units cup and 4 bundles of 10 objects to represent 40 in the tens cup.

Similarly, if we expand 12 we have 1 ten and 2 units. Let's add 2 objects to the unit's cup and 1 bundle of 10 objects to represent 10 in the tens cups. Let's count all of them. We have 3 objects in the unit's cup and 5 bundles of 10 objects in the tens cup. So we have 5 tens and 3 units i.e. 53.

Teachers can also demonstrate this on the abacus.

Activity 3: Addition with carry over*

Materials Required: Taylor frame, paper cups, and ice cream sticks/Plastic toothpicks or Abacus and beads

Prerequisites: NA

Activity Flow

To introduce the concept of addition with carry over.

- 1. Arrange the paper cups in 3 rows (horizontally) and 2 columns (vertically) such that total 6 paper cups in each place value.
- 2. Explain to the students that each cup in units place we can have numbers 0 to 9.
- 3. There can be a maximum of 9 bundles of 10 objects in the tens place value cup. Therefore 90 objects can fit into tens place.
- 4. If we have more than 9 objects in the unit's place, we need to bundle the objects into 10 and move them into the tens place.

Take an example:

Amith has 26 sticks and Shwetha has 38 sticks. What is the total number of sticks they both have?

Amith has 26 sticks= 2 tens and 6 units. Place 2 bundles of 10 objects in the tens cup and 6 objects in the unit's cup in the first row.

Shwetha has 38 sticks= 3 tens and 8 units. Place 3 bundles of 10 objects in the tens cup and 8 objects in the unit's cup in the second row.

Now let's add the first row and second row and place the total in the third row. We will begin with the unit's place.

We have 6 ones + 8 ones=14 one's number of objects in the unit's place.

14 ones = 1 tens and 4 units. Let's bundle up 10 sticks, place a rubber band and move it to the tens cup and let the remaining 4 sticks remain in the unit's place.

Next let's add the tens place. We have 2 bundles of 10 objects in the first row and 3 bundles of 10 objects in the second row and we have one carry over bundle so we have a total of 6 bundles of 10 objects in the tens place (third row). So the total number of sticks are 60 + 4 = 64 sticks.

Finally, ask them to read the answer by seeing the number of sticks in each place value accordingly.

Teachers can demonstrate the sum using abacus too. An abacus has units and tens rod and children can be taught to add using the abacus.

ADDITION BY INTERCHANGING & ON NUMBER LINE

Activity 4: Addition by interchanging the place of numbers* *Materials Required: Bowl, beads/pebbles/ice-cream sticks Prerequisites:* Addition

Activity Flow Veena and Pavan on their way back from school were discussing addition. Pavan: Veena, if 2 is added to 3, what will the sum be? Veena: Answer is 5. Pavan: Veena, if now add 3 to number 2, what will the sum be? Veena: That is also 5. Pavan: How is this possible? Veena: Is it possible? Let's do it with the help of objects. Teachers can demonstrate to the class using objects that adding 2+3 and 3+2 gives 5. Even though the numbers are exchanged and added, the sum remains the same. Demonstrate one more problem. 3+8 and 8+3

Activity 6: Addition on Number line* *Materials Required: rope with 10 knots and tied at ends Prerequisites:* addition

Activity Flow

On the rope number line, make the student start from a number, say 5 and then count 'forward' (to the right) 3 knots/ beads and read the number reached now (which will be 8).

Addend & Sum:

The addend can be defined as the numbers or terms added together to form the sum. For example 7+2=9. 7 and 2 are addends and 9 is the sum.

4. EXERCISES & REINFORCEMENT

4.1 REINFORCEMENT

Activity 7: Reinforce addition with and without carry forward *Materials Required:* Cups, toothpicks, rubber bands or Abacus and beads *Prerequisites:* NA

Activity Flow

Teachers can reinforce practice of sums with and without carry over using cups, toothpicks as mentioned above in the concept introduction activity. Please refer to activity# 2 and 3 for details.

Teaching Tips:

If there are any additional teaching tips then utilize this section to mention them.

References

None

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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