Vision Empower & XRCVC Teacher Instruction KIT Mental Arithmetic

Syllabus: Karnataka State Board Subject: Mathematics Grade: III Textbook Name: Mathematics Text cum workbook Chapter Number & Name: Mental Arithmetic

1. OVERVIEW

1.1 OBJECTIVE AND PREREQUISITES

Objective

Students will be able to:

- add and subtract single-digit numbers and two-digit numbers mentally.
- double the two-digit numbers mentally (not exceeding two digits).

Prerequisite Concept

• Addition and subtraction *TIK_MATH_G2_CH7_Mental arithmetic*

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2. LEARN

2.1 KEY POINTS

- When we multiply a given number by 2, then it becomes double.
- When we add the same number to itself, it gets doubled.

2.2 LEARN MORE

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

MENTAL CALCULATION

Activity 1: Race to 27

Materials Required: Play cards *Prerequisites:* Counting, number recognition

Activity Flow

- Before the session: Remove all the 10s, king, queen and jack from the card packs and make sure the play arena is kept at hand. Now you are ready for the session.
- In this session, it is advisable to race only up to a smaller number like 27 since it is the children's first time playing the game.
- Explain the game to the children. Tell them that they are going to add up the numbers on the cards they get until someone reaches 27. Whoever reaches 27 without crossing over wins the game.
- Now, hand the pack to one of the children and ask him/her to deal 2 cards each to all participants.
- *Gently guide the children by adding up their cards to see what numbers they have.*

- Some children might be comfortable adding up the cards on their own, while some others may need help to add. Help those who do not know how to add correctly.
- If there are children who have gone over 27, explain that those who go above the number are out of the game.
- If nobody has exactly the number 27 without going over, encourage those who are still in the game to pick a card from the middle.
- Ask them to add the number they got to the total of the 2 cards they already have. Again, assist those who need some help in adding.
- If time permits, play 2 to 3 more rounds of the game.

3.2 CONCEPT INTRODUCTION ACTIVITIES

PLAY WITH NUMBERS

Activity 2: Play with numbers

Materials Required: None Prerequisites: None

Activity Flow

Narrate the following scenario:

John, Radha, Gowri, Prakash and Jyothi have collected tamarind seeds fallen on the ground under a tamarind tree. Radha collected 20 seeds, Gowri collected 24 seeds, Prakash collected 36 seeds, Jothi collected 12 seeds, John collected 18 seeds.

Calculate mentally and answer the following.

- John and Radha together have 38 tamarind seeds. Say true or false ____
- How many tamarind seeds do Gowri and Prakash together have? ____
- How many more tamarind seeds does Radha have than Jyothi? ____
- If the number of tamarind seeds that Gowri and John have has to be equal, then John has to collect 7 more seeds, say true or false? ____
- If the number of tamarind seeds that Radha and Jyoti have to be equal, how many more seeds should Jyothi collect ? ____
- Prakash and Gowri together have 68 seeds. If Gowri has 24 seeds then how many seeds does Prakash have? ____

DOUBLE

Activity 2: Doubling

Materials Required: None Prerequisites: Counting, addition

Activity Flow

Ask the students, what is meant by double. Double means twice the size or amount or quantity. *Example:*

The word "cool" has a double "o" in the middle.

To get a double of a number, we add the same number to itself. For example, the double of 2 is 2+2=4.

For example, Michelle has 4 marbles and Jane has double the marbles that Michelle has. How many marbles does Jane have? 4+4=8.

It is easy to remember the numbers that we get by doubling one-digit numbers.

Ask the answers from the students:

- 1 dog + 1 dog = 2 dogs
- 2 cats + 2 cats = 4 cats
- 3 ducks + 3 ducks = 6 ducks
- 4 rats + 4 rats = 8 rats
- 5 balls + 5 balls = 10 balls
- 6 cups + 6 cups = 12 cups.
- 7 caps + 7 caps = 14 caps.
- 8 owls + 8 owls = 16 owls.
- 9 fish + 9 fish = 18 fish.
- 10 chocolates + 10 chocolates = 20 chocolates.

Activity 3: Doubling - Magician hat

Materials Required: None Prerequisites: Counting, addition

Activity Flow

There was a magician in a small village. He always used his cap to perform a magic show? One day Geetha, Ramu, Gowri and Prakash went to his house to see the magician and his cap. The magician said, see my talent. Whatever I put in my cap, it becomes double. After knowing this, Geetha put her 7 tamarind seeds in that cap. The cap doubled the tamarind seeds. How many tamarind seeds she will get back? 7+7=? If you put 5 flowers, how many flowers will you get back? If you put 11 marbles, how many marbles will you get back?

Note:

When we multiply a given number by 2, then it becomes double. When we add the same number to itself, it gets doubled.

Twice the value of 10 = 20; For example: (10+10=20; 10*2=20) Twice the value of 15 = 30Twice the value of 11 = 22Twice the value of 30 = 60Twice the value of 13 = 26Twice the value of 40 = 80

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

Each of us uses math every single day. We usually aren't using a calculator or writing down computations, though. A lot of what we need to do involves mental math. In other words, we need to be able to calculate math quickly in our heads.

Mental math often involves the use of estimation. For example, if you're buying 3kg of tomato and you know the price of 1kg. In that case, you calculate or estimate the total amount in your head. In most of the local shops, the shop keeper will do metal calculations only.

4. EXERCISES & REINFORCEMENT

4.1 PRACTICE EXERCISES EXERCISE PROBLEMS

Activity 1: Practice Problems Materials Required: None Prerequisites: Addition, subtraction, multiplication

Activity Flow

- 1. Calculate mentally and fill in the blanks
 - a. 40 + 10 = ?
 - *b.* 12 + 8 = ?
 - c. 5+5=?
 - *d*. 20 + 20 = ?
- 2. Solve mentally and say true or false
 - a. 10 + 5 = 15

- b. 10 + 9 = 18
- *c*. 4 + 6 = 8
- *d.* 3+9=12
- *e.* 50 32 = 28
- $f_{1} = 20 6 = 4$
- 3. Calculate mentally and write the answer.
 - a. You have 18 marbles. You won 17 more marbles in a game. How many marbles do you have now?
 - b. You have 45 chocolates to distribute to your friends on your birthday. If you gave away 32 chocolates, how many chocolates are remaining?
 - *c.* You have 48 tamarind seeds. If you lose 25 tamarind seeds in a game, how many tamarind seeds do you have now?
- 4. Double the following numbers and write.
 - a. 10
 - b. 20
 - с. 16
 - d. 25
 - e. 11
 - f. 17

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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