Vision Empower & XRCVC Teacher Instruction KIT DIVISION

Syllabus: Karnataka State Board Subject: Math Grade: 4 Textbook Name: Mathematics text cum workbook Chapter Number & Name: 6. Division

1. OVERVIEW

1.1 OBJECTIVE & PREREQUISITES

Objective

Students will be able to:

- divide numbers by grouping,
- divide by using dots,
- understand that division is repeated subtraction
- compare multiplication and division,
- divide the dividend by one digit number without remainder,
- divide the dividend by a one digit number with remainder,
- solve statement problems related to our daily life situations.

Prerequisite Concept

• Subtraction and division *TIK_MATH_G3_CH6_Division and TIK_MATH_G3_CH4_Subtraction.*

Content Index

Kindly Note: Activities marked with * are mandatory

LEARN

KEY POINTS LEARN MORE

ENGAGE

INTEREST GENERATION ACTIVITY Activity 1: The concept of division CONCEPT INTRODUCTION ACTIVITIES Activity 2: Division by grouping Activity 3: Division using dots. Activity 4: Division as repeated subtraction

Activity 5: Division with reminders.

LET'S DISCUSS: RELATE TO DAILY LIFE*

EXERCISES & REINFORCEMENT

Activity #: Practice and Recall IMPORTANT GUIDELINES*

> Exercise Reading Perform Textbook Activity Provide Homework

2. LEARN

2.1 KEY POINTS

- Division: The process of classifying or distributing things equally is called division.
- Dividend: The number which is to be divided is called the dividend.
- Divisor: The number by which the dividend is divided is called the divisor
- Quotient: The result of the division is called the quotient.
- Remainder: What remains after the division is called the remainder. The remainder is always less than the divisor.

2.2 LEARN MORE None

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

Concept of division

Activity 1: The concept of division

Materials Required: A copy (in audio or text format) of the children's book THE DOORBELL RANG by Pat Hutchins. A text copy of the story is attached to the end of this document. An audio version can be found at <u>https://www.youtube.com/watch?v=HZpXuc735pg</u> Prerequisites: Subtraction

Activity Flow

The Doorbell Rang is a children's story. In the story, the children's mother has made cookies for them. Before they could eat them, however, the doorbell rings. Each ring of the doorbell brings more friends to share the delicious cookies Ma has made.

- Play the audio or read out the story to the children.
- Pause when Sam says: "That's 6 each" and ask the children how many cookies there are in total. How many children are there to share the cookies now?
- Pause each time the door is opened and more children come in. Ask the children to count how many children are there to share the cookies each time.
 - How many will each child get?

- Each time you pause the story to ask these questions, make sure every child understands what is being done.
- After the story, explain that each time more children come in, the number of cookies one person gets will be smaller and smaller.
- Now explain what division is. Tell them that each time they calculated how to distribute the cookies equally, they were actually dividing.

3.2 CONCEPT INTRODUCTION ACTIVITIES

Division by grouping

Activity 2: Division by grouping

Materials Required: Chocolates\ marbles (or any item that is easily available) *Prerequisites:* Multiplication and division.

Activity Flow

- Count the number of children in your class.
- Carry with you chocolates 4 times the number of children in your class. For example, if you have 5 children in your class, you would carry 5*4 = 20 chocolates.
- Handover the chocolate to one child in the class and explain that their goal is to distribute these chocolates equally to the class. All children should have an equal number of chocolates.
- First, ask the child to distribute 1 chocolate to each child, and then count the rest of the chocolates leftover after distribution.
- Is it possible to distribute one more chocolate to each person?
- Keep distributing chocolates until all chocolates have been distributed.
- Explain that now 20 chocolates (according to the example in step 2) can be distributed among 5 groups equally with 4 in every group.
- *Reinforce the concept of division explained to them after the previous activity.*

Division using dots

Activity 3: Division using dots.

Materials Required: Braille paper, slate and stylus *Prerequisites: None*

Activity Flow

• Take the example from the textbook that of distributing 16 flowers into 2 equal groups.

- Explain to the children that each flower will now be represented by a braille dot on the paper.
- Ask the children to put 16 dots on the paper, one in each line.
- Now, ask them to open the slate, take the paper out and count the dots to see if they have put the right number of dots.
- Then, ask them to insert the paper back into their slate.
- The children should make 2 dots in each line (since the example says divide into 2 equal groups) counting up to 16.
- The children should then take the paper out and count the number of dots as well as the number of lines.
- Explain to them that they have now divided 16 into 2 groups of 8 each.

Division as repeated subtraction

Activity 4: Division as repeated subtraction

Materials Required: paper cups, ice cream sticks, rubber bands, taylor frame. *Prerequisites: Division*

Activity Flow

- Divide the class into pairs.
- Give each pair a large set of ice cream sticks (between 50-100) and up to 12 paper cups.
- Set out a division problem and explain that it is possible to divide a number by repeatedly subtracting another number from it. Example problems could be:
 - 45 divided by 9 =
 - *12 divided by 3 =*
 - 32 divided by 8 =
- Ask the students to set out ice cream sticks equal to the dividend into one paper cup.
- Then, ask them to take out as many sticks as the divisor from the cup, make it into a bundle with a rubber band, and put it into another cup.
- They should keep taking out sticks equal to the divisor and putting them into fresh cups until the cup containing the dividend is empty.
- Now, ask them to put away the empty cup of the dividend and count the number of cups currently containing sticks.
- The answer / quotient is equal to the number of cups required.

Division with reminders

Activity 5: Division with reminders.

Materials Required: paper cups, ice cream sticks, rubber bands, taylor frame. *Prerequisites: None*

Activity Flow

- Tell the students that they are going to pretend to be a herd of animals that day. For any student who doesn't know, explain that a herd is a group of animals traveling together.
- Designate one area / corner of the classroom as the holding pen, for stray animals which are not part of the herd.
- Then, call out a type of animal that travels in a herd (buffalo, giraffes, zebras, wild boars, cows, bison, elephants) and the size of the group you want them to form. For example, "Elephants—form groups of five!"
- Ask them to count and see how many groups were formed.
- Now, check the equation, and take down all equations on a slate / taylor frame for them to see later. For instance, if you had 20 students in your class, your equation would be 20/5 = 4.
- For the first few times, make sure that the numbers you give are divisible without remainders.
- Then, introduce a number that the class cannot divide into equal groups. For instance, if your class size is 20, you could try forming groups of 3. There will be 2 leftover children, who will then be sent to the holding pen.
- After trying this a few times, explain to them the concept of remainders. Tell them that the children who ended up in the holding pen were in fact the remainders who could not fit into groups.
- Show them the equations that you had written down for reinforcement.
- (Adapted from: <u>https://theteacherstudio.com/getting-students-ready-to-divide-and/</u>)

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

The division is something that we use daily. Division allows us to share or divide numbers. For example, sharing 10 sweets among 2 children. How many sweets will each one get? Division allows us to find the answer quickly. i.e. 10 divided by 2 is 5. Each one will get 5.

Another example: Assume, your mother brought 1 small size of pizza for the dinner. It has 4 slices. How will you share the small size of pizza with your mother, father and sister? How many pieces will each one get?

4. EXERCISES & REINFORCEMENT

4.1 EXERCISES & REINFORCEMENT

Practice and Recall

Activity 6: Practice and Recall

Materials Required: None

Prerequisites: Division and subtraction.

Activity Flow

- 1. Divide the following by repeated subtraction:
 - a. 20/4 =
 - *b.* 25/5 =
 - *c.* 40/10 =
 - *d.* 35/7 =
- 2. Fill in the blanks with a suitable answer.
 - *a.* 42/6 =
 - b. In $24 \div 8 = 3$, the dividend is _____
 - *c.* In $45 \div 9 = 5$, 9 indicates_____
 - *d.* In 72 ÷ 8, the quotient is _____and the remainder is _____
- 3. Divide:
 - a. 88 divided by 2
 - b. 91 divided by 7
 - *c.* 850/5
 - *d.* 792/6
 - *e.* 8464/4
 - *f.* 9567/9

4. Solve:

- a. 4 students can sit on a bench. How many benches are needed for 64 children to sit?
- b. 240 candles are arranged equally in 8 boxes. How many candles are there in each box?
- *c.* 255 children went on a picnic. They travelled in 5 buses. How many children travelled in each bus?
- *d.* A train covers a distance of 672 km in 6 hour. What is the average distance it covered in one hour?
- e. A worker earns `952 rupees per week. What is his daily income?

- f. On Independence day 3 chocolates were distributed to each child. If 246 chocolates were distributed, then how many children have received the chocolates?
- 5. Find the quotient and remainder:
 - a. 76 divided by 6
 - b. 93 divided by 8
 - c. 345 divided by 5
 - *d.* 911/6
 - *e.* 9254/8
 - *f.* 8374/5
 - *g.* 2437/5
 - *h.* 6218 /7
 - *i.* 3452/6
 - *j.* 5715/8
 - *k.* 2375/4
 - *l.* 4238/7
- 6. Solve:
 - a. Pooja wants to buy a mixer which costs 2300 rupees and a cooker that costs `1750 rupees . If she has 3500 rupees , how much more money does she need to buy them ?
 - b. The cost of 9 bags of wheat is 4050 rupees. What is the cost of 21 bags of wheat?
 - c. 520 books are arranged in 4 shelves. How many books are arranged in 32 such shelves ?
 - d. A book costs 15 rupees and a pencil costs 4 rupees. Mohan buys 2 books and 3 pencils. How much money should he pay altogether ?

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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