

Vision Empower & XRCVC

Teacher Instruction KIT

Multiplication

Syllabus: Karnataka State Board

Subject: Mathematics

Grade: Second

Textbook Name: Mathematics-Text cum Workbook(Revised)-Second Standard

Chapter Number & Name: 5. Multiplication

1. OVERVIEW

1.1 OBJECTIVE & PREREQUISITES

Objective

To understand multiplication through repeated addition.

To understand the formation of multiplication tables.

Prerequisite Concept

- Addition and counting in Groups
- Place value

Refer to VE_TIK_Math_G1-08-Units & Tens

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

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*Kindly Note: Activities marked with * are mandatory*

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2. LEARN

2.1 KEY POINTS

Multiplication is one of the four basic operations of arithmetic that gives the result of combining groups of equal sizes. In other words, multiplication is repeated addition. It is represented by the signs cross 'X' or '*'. When we multiply two numbers, the answer obtained is known as the 'product'. The number of objects in each group is called 'multiplicand', and the number of such equal groups is called 'multiplier'.

2.2 LEARN MORE

None

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

INTRODUCTION TO THE CONCEPT

Activity 1: Revision of addition*

Materials Required: Toothpicks/matchsticks, rubber bands

Prerequisites: None

Activity Flow

Make a few bundles of three (or any small number) toothpicks (or matchsticks) and give them to the student. Make the student count the number of bundles. Tell them the number of toothpicks (or matchsticks) in each bundle and then ask them to estimate the number of toothpicks (or matchsticks). Once they have given their estimate, make the student separate the bundles and count the total number of toothpicks (or matchsticks). This will help refresh the concept of addition.

3.2 CONCEPT INTRODUCTION ACTIVITIES

MULTIPLICATION AND BUILDING TABLES

Activity 2: Getting started with multiplication*

Materials Required: bowls and counters.

Prerequisites: Oral Numbers 0 to 99, Counting skill

Activity Flow

Teacher needs to tell the children that multiplication helps us find the total number of items quickly. For multiplication we need to think about the number of equal size groups and the number of items in each group.

Let's take a look at an example.

Each time you visit your friend Ravi, he gives you two chocolates. So one visit is equal to 2 chocolates or you can say an equal sized group has two chocolates. You have visited Ravi 5 times in a week. So there will be 5 equal sized groups. So here I have 5 bowls representing 5 days and I drop 2 counters in each bowl representing 2 chocolates. So we can find out the total number of chocolates that Ravi gave by adding $2+2+2+2+2=10$. Here we are adding 2 repeatedly for 5 times.

We can also use multiplication to find out how many chocolates Ravi gave you. So here we have 5 groups of 2 chocolates. This can be represented as $2 \times 5 = 10$. In the example illustrated, numbers are repeatedly added.

When we multiply two numbers, the answer obtained is known as the 'product'. The number of objects in each group is called 'multiplicand', and the number of such equal groups is called 'multiplier'.

In $2 \times 5 = 10$, 2 is the multiplicand as we have 2 chocolates, 5 is the multiplier as 2 is repeated 5 times and 10 is the product.

Any number multiplied by '0' the product is always '0'.

For example,

$$2 \times 0 = 0$$

$$20 \times 0 = 0$$

$$0 \times 12 = 0$$

Multiplication is an easy form of repeated addition. Teachers can work out and illustrate more examples.

1. $2+2+2=6$, $2 \times 3=6$
2. $5+5=10$, $5 \times 2=10$
3. $3+3+3=9$, $3 \times 3=9$

Teacher needs to ask the following questions to students as she works out the above examples to check for students' understanding of the concept.

How many equal sized groups do you observe?

How many groups are there?

The expressions used to illustrate the problem?

Activity 3: Multiplication using ten-frames*

Materials Required: Egg carton with Ten partition, beads/seeds/counters.

Prerequisites: Oral Numbers 0-99, Counting skill

Activity Flow

A ten-frame is a frame with ten equal boxes, with 5 equal boxes in the first row and 5 in the second row. Multiplication is putting up groups together. We can have more numbers of counters in each box.

Let's work out a problem. Tara has 3 boxes and she can put in 5 cupcakes in each box. How many total cupcakes Tara has?

Here we have a ten frame. Let's assume each empty space to be a box, so here we have 10 spaces, but Tara has only 3 boxes so we will fill only 3 spaces with how many cupcakes in each box, 5. So we drop 5 counters and fill in 3 spaces. Children can then drop the counters and by using the method of regrouping get the total. Here we have $5+5+5=15$ or this can also be said as 3 times 5, $3 \times 5=15$.

Teacher can work out more problems like $4+4+4+4$, 4×4 , $6+6+6+6+6+6$, 6×5

Activity 4: Construction of tables*

Materials Required: Egg carton with Ten partition, beads/seeds/counters.

Prerequisites: Oral Numbers 0-99, Counting skill

Activity Flow

Multiplication tables:

Now that we all know how to do multiplication let us now get started with the construction of number tables which will help u memorize the number tables which will be helpful later. All the number times each other forms the multiplication table.

Let's start with the number '0'. The multiplication table of '0' will be 0 as the product of any number multiplied with number '0' is 0.

Table of 1:

$1 \times 1=1$. Teachers can demonstrate this using a ten frame. 1 times 1 is putting one counter in 1 box.

$1 \times 2=2$. We place 1 counter in two boxes.

$1 \times 3=3$.

Table of 2:

$2 \times 1=2$. This means 2 times 1, this means 2 times itself, so I drop 2 counters in one box and it gives me the answer 2.

$2 \times 2=4$. This means 2 times 2, this means $2+2$, so we drop two counters in 2 boxes. We can go on till 2 times 10.

In the similar way, help students construct the table of 3, 4 and 5.

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE

- Counting in everyday life, especially quick totaling of the number of quantities

- Quantifying objects and information (data)

4.EXERCISES & REINFORCEMENT

4.1 REINFORCEMENT

Activity 5: Match the multiplication fact with the addition fact *

Materials Required: Braille strips with the addition facts and multiplication facts

Prerequisites: Counting, number recognition, basic multiplication

Activity Flow

Each student gets 5 addition facts and 5 multiplication facts in braille strips. The teacher informs the class that the addition facts are numbered 1 to 5 and the multiplication facts are numbered a-e. The students have to first read out the addition fact and match it with their respective multiplication fact.

1. $3+3$,

2. $2+2+2+2+2$,

3. $4+4+4+4$,

4. $6+6$,

5. $7+7+7+7+7$

Multiplication fact

a. $4*4$

b. $6*2$

c. $2*5$

d. $7*5$

e. $3*2$

For students who do not understand braille, we can check for understanding of concepts orally.

For the students who are able to read the problems the teacher needs to cross check if the students are able to work the problems correctly.

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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