Chapter- 9

Multiplication

STUDY NOTES

LEARNING OBJECTIVE: Learners will be able to get knowledge about:

*Multiplication as Repeated Addition

*Multiplication on a Number Line

*Multiplication tables

*Simple Multiplication

*Multiplication of 2-digit numbers by 1-digit(without carry-over and with carry-over)

*Multiplication of 3-digit number by a 1-digit number

*Oral Multiplication

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Multiplication is Repeated Addition:

Repeated addition is adding equal groups together. It is also known as multiplication. If the same number is repeated then, we can write that in the form of multiplication.
For example:

a. Nisha has 5 pairs of shoes.

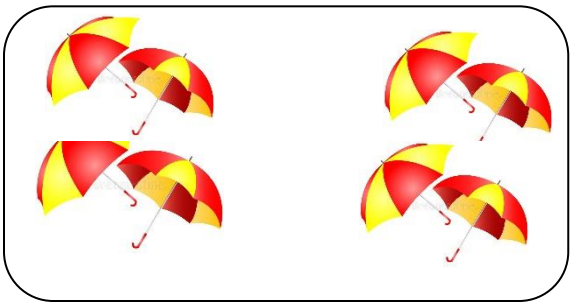
How many shoes does Nisha have?

Number of shoes Nisha has =2 + 2 + 2 + 2 + 2=10

Or 5 times 2=10

Or 5 x 2=10

b. There are 2 groups of Umbrellas.



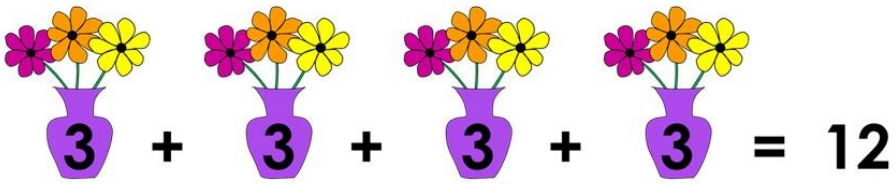
4 umbrellas in each group.

Repeated Addition: 4 + 4= 8

We can also write 2 groups of 4= 8

We can also write 2 x 4 = 8

Multiplication as repeated addition:



3 x 4 = 12

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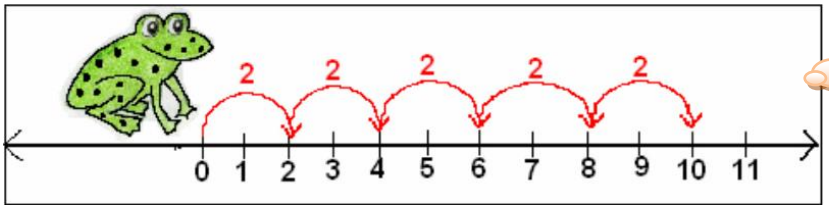
Multiplication on a number line:

Example:

a. Multiply 2 by 5



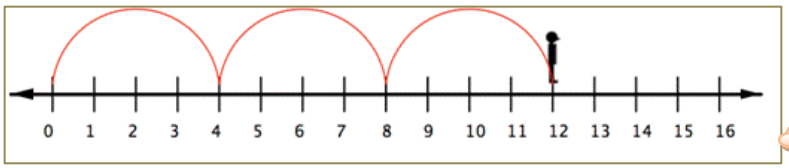
Start from 0 and jump 2 places 5 times

2+2+2+2+2= 10 or

5 times 2 equals 10 or

5 x 2 = 10

b. Multiply 4 by 3



Start from 0 and jump 4 places 3 times

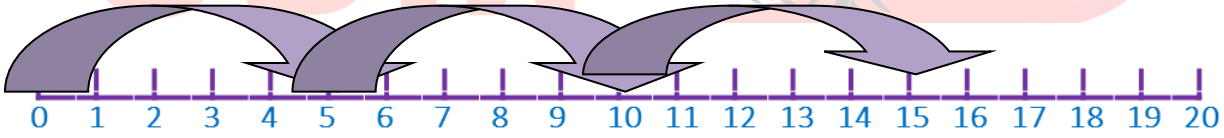
4 + 4 + 4 = 12 or

3 times 4 equals 12 or

3 x 4 = 12

Multiplication on Number Line with more examples:

a. Multiply 5 by 3

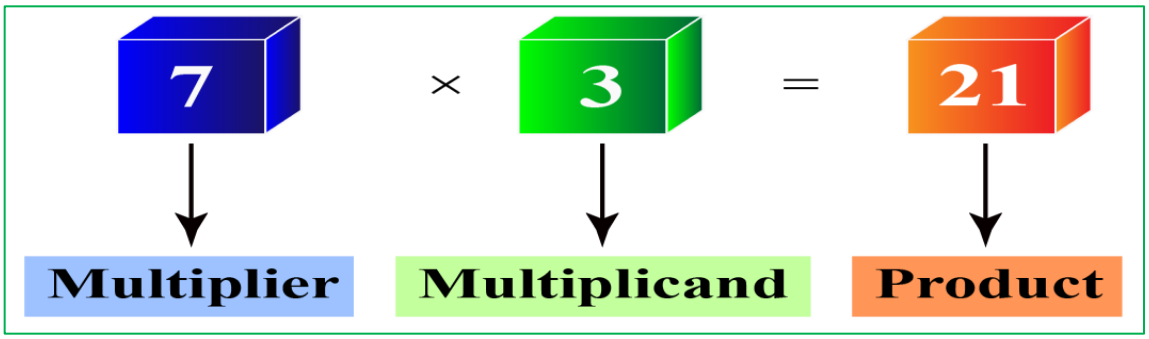


Repeated Addition: 5 + 5 + 5 = 15

3 times 5 equals 15

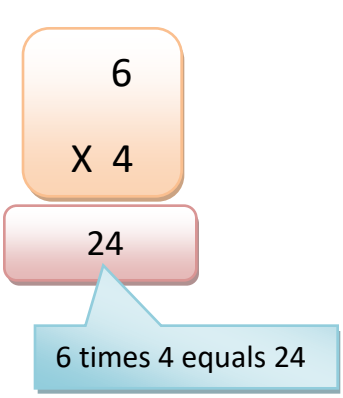
3 x 5 = 15

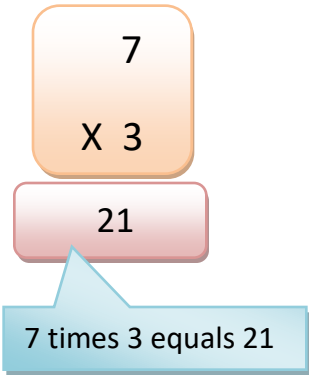
Parts of Multiplication:



Simple Multiplication:

Example :

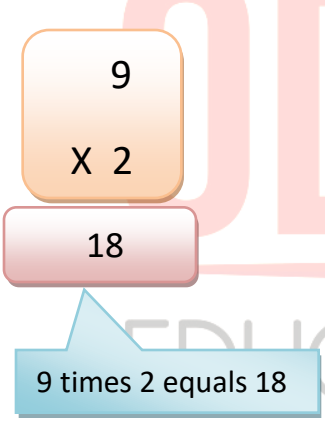


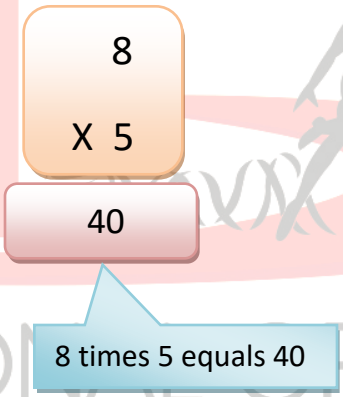


Step 1: Recall multiplication tables.

Step 2: Now multiply the multiplicand by multiplier.

Step 3: Write the product.





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Multiplication of a 2-digit number by a 1-digit number. (Without carrying over):

Example 1:

Multiply 23 by 2

	T	O
	2	3
x		2
	4	6

Step 1: Start with the ones.Multiply 3 by 2, write the product under ones place.

Step 2: Multiply the tens place number by 2, write the product under tens place.

So, 23 multiplied by 2 equals 46.

Example 2:

Multiply 33 by 3

	T	O
	3	3
x		3
	9	9

Step 1: Start with the ones.Multiply 3 by 3, write the product under ones place.

Step 2: Multiply the tens place number by 3, write the product under tens place.

So, 23 multiplied by 2 equals 99.

Multiplication of a 2-digit number by a 1-digit number. (With carry over):

Example 1:

Multiply 17 by 5

	T	O
	3	
	1	7
x		5
	8	3 5

8 tens and 5 ones make

Step 1: Multiply Ones place digits and write the answer in Ones column. 7 ones x 5 ones = 35

Step 2: Now carry over 3 tens from ones place to tens place and keep 5 ones in ones place.

Step 3: Now multiply tens column digit. 1 ten x 5 = 5 tens, add the product with the carried over number ; 5 + 3 = 8 and write in tens place.

So, 17 x 5 = 85

Example 2:

Multiply 29 by 4:

	T	O
	3	
	2	9
x		4
	11	36

11 tens and 6 ones make 116

Step 1: Multiply Ones place digits and write the answer in Ones column. 9 ones x 4 ones = 36

Step 2: Now carry over 3 tens from ones place to tens place and keep 6 ones in ones place.

Step 3: Now multiply tens column digit. 2 tens x 4 = 8 tens, add the product with the carried over number ; 8 + 3 = 11 and write in tens place.

So, 29 x 4 = 116

Points to know about Multiplication:

When we change the order of any number the product remains

When we multiply 1 to any number we get the number itself as product

When we multiply 0 by any number we get 0 as product

Multiplication of a 3-digit number by a 1-digit Number

Example 1:

Multiply 413 by 3

	H	T	O
	4	1	3
x			2
	8	2	6

So, the answer is **826**

Step 1: Multiply Ones place digits and write the answer in Ones column.3 ones x 2 ones = 6 ones

Step 2: Now multiply tens digits and write the answer in tens column. 1 ten x 2 = 2 tens.

Step 3: Now multiply hundreds place digit and write the product in hundreds column. 4 hundreds x 2 = 8 hundreds

So, 413 x 3 = 826 **Answer 826**

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Multiplication Word Problems:

Example:

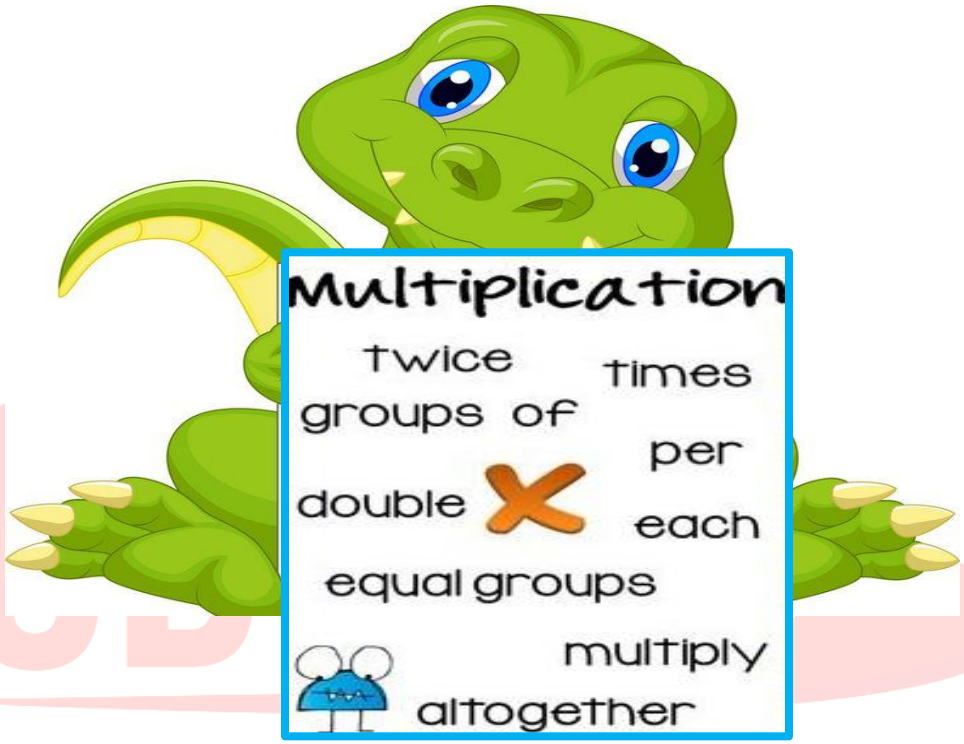
There are 23 sweet packets. In each packet there are 8 sweets. How many sweets are there in all?

Number of sweet packets
Number sweets in each packet
Total number sweets

H	T	O
	2	3
X		8
1	8	4

So, there are 184 sweets in all

Key words for Multiplication:



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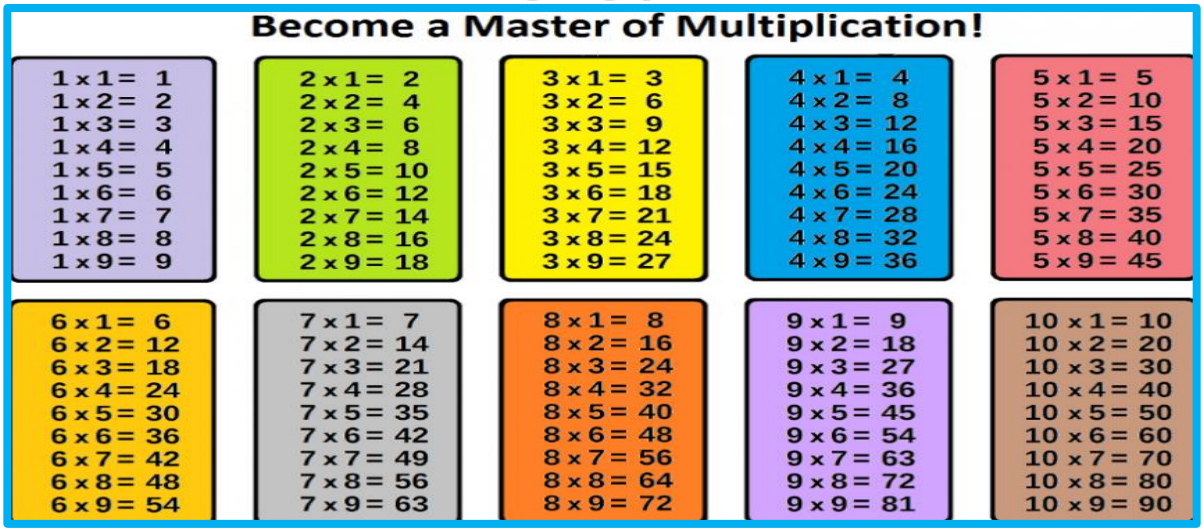
Multiplication tables 1 to 10



Multiply orally:

1. 7 multiplied by 7	7x 7 = 49
2. 12 times 5	12 x 5 = 60
3. Two eights are	2 x 8 = 16
4. There were 3 boxes with 15 oranges in each. How many Oranges are in all?	3 x 15 = 45
5. A shirt has 7 buttons. How many buttons do we need for 5 such shirts?	5 x 7 = 35
6. There are 12 egges in a tray. How many eggs will be there in 7 such trays?	7 x 12 =84

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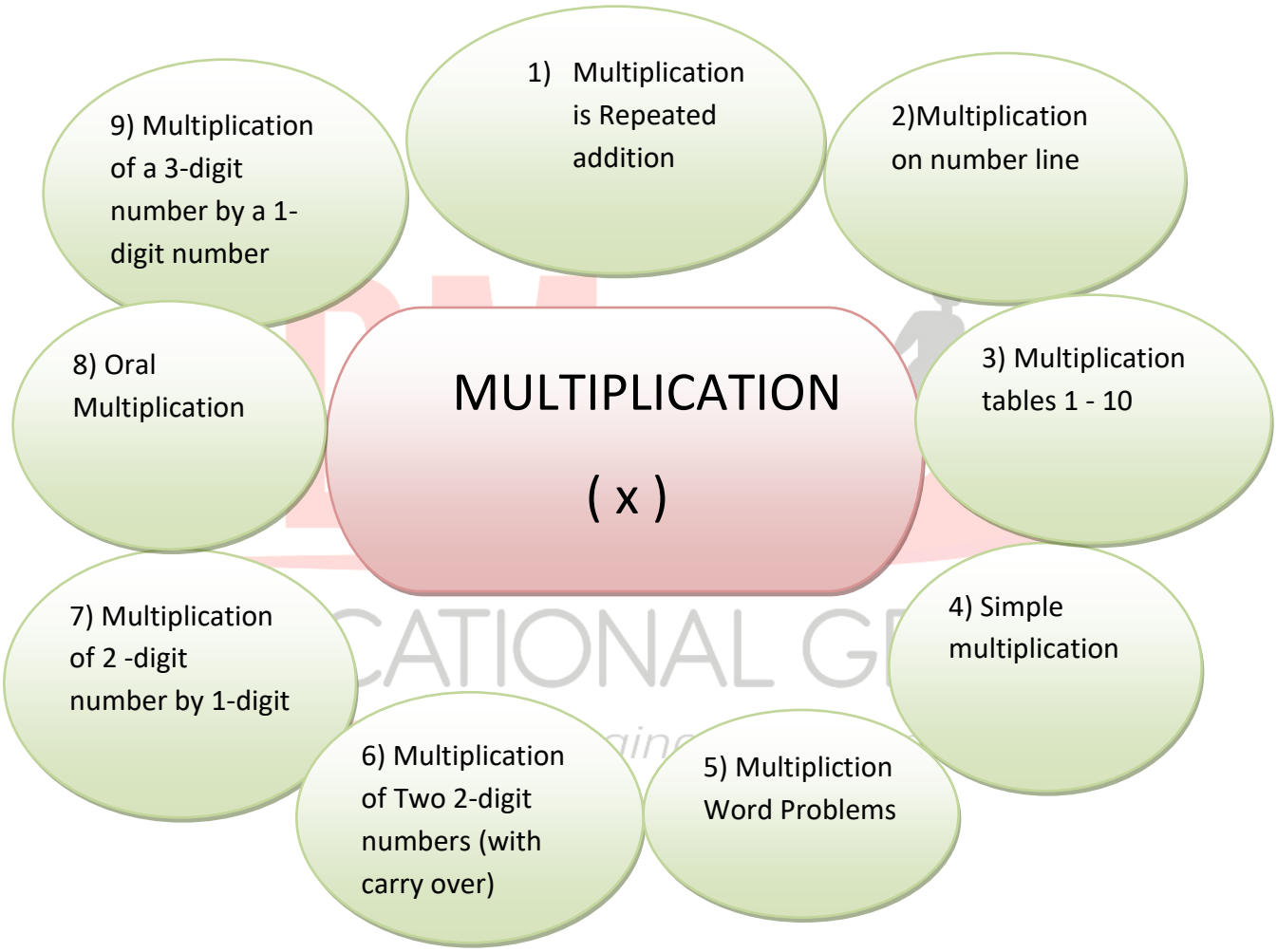
CHAPTER AT A GLANCE



LEARNING OUTCOME:

Learners can multiply different 1- digit,2-digits, and 3-digit numbers. They can also solve word problems by finding the keywords.