

Helpful resources to support Multiplication

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

TH	H	T	U
Thousands	Hundreds	Tens	Units

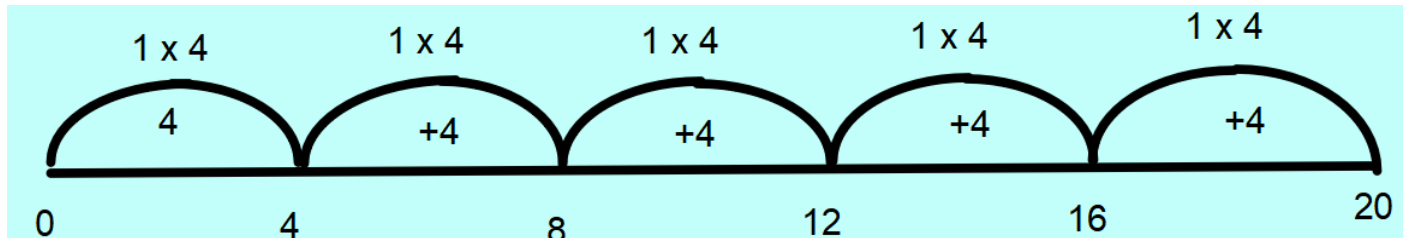
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Lesson 1 - Using a numberline to multiply a 1 digit number by another 1 digit number.

Example

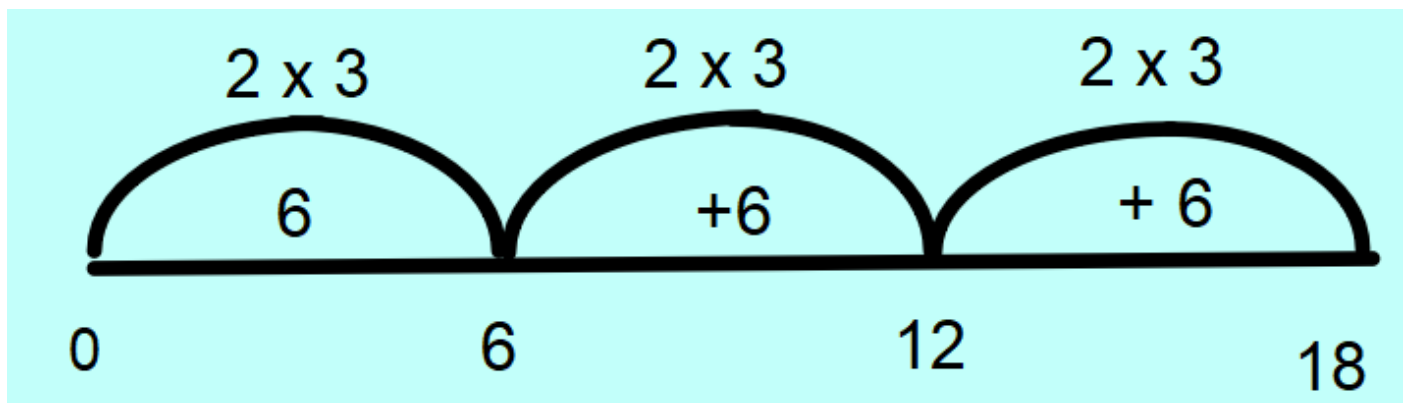
If I wanted to answer the calculation $5 \times 4 =$

My numberline would look like this



I have jumped 5 times adding on 4 each time - 5 lots of 4. Notice how I have written the calculation above the jump, the calculation answer inside the jump and my total below each jump. This helps make sure my method is accurate and I know what I am doing at each stage of the calculation.

Here is another one. This time I have answered the calculation 6×3 .



This time, because I know that $2 \times 3 = 6$ I was able to do 3 jumps of 2×6 rather than 6 jumps of 3. I have still multiplied 3 six times because

$$2 \times 3 + 2 \times 3 + 2 \times 3 = 6 \times 3 \text{ in total}$$

You can choose to complete the work today in small steps like the first example or in larger steps like the second one. Have a go at the calculations below in section 1. Remember to add in the written calculation you have done above the jump, the answer to that calculation inside the jump and the new total at the end of the jump.

Section I

$4 \times 3 =$

$7 \times 4 =$

$8 \times 3 =$

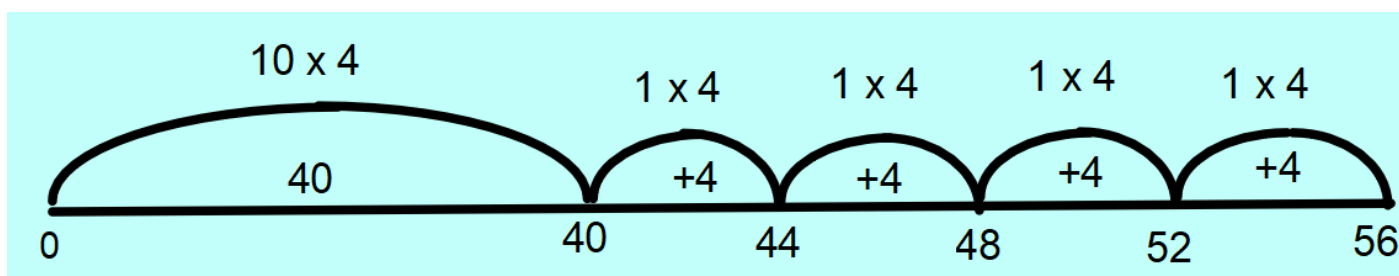
$6 \times 5 =$

$9 \times 2 =$

Section 2

Let's have a look at some slightly bigger numbers.

How could I do the calculation 14×4 ? It could take me a long time to do 14 jumps along a numberline so I am going to use my timestable knowledge to help me find a quicker way.



Can you see how I used my knowledge of the $10 \times$ table to reduce the amount of jumps I had to do.

Now you have a go at solving the calculations below using this method. How few jumps can you use to solve the calculations correctly?

$$13 \times 5$$

$$14 \times 3$$

$$12 \times 4$$

Lesson 2 - Using the grid method of multiplication for numbers below 20

In order to use the grid method of multiplication you need to know about partitioning. Partitioning is where you break down larger numbers into their parts. For example 13 could be broken down into 1 Ten (10) and 3 Ones. Using your place value grid will help you to work out each part.

Let's start the lesson today by having a go at partitioning some numbers. I have done the first two for you. Fill in the blank spaces in the reasoning and the missing numbers in the grid.

Tens	Ones
20	4

24 is made up of 2 $\times$ 10 (20) and 4 ones so as 20 is a tens number it goes in the first box and as 4 is a Ones number it goes in the second box

Tens	Ones
30	6

36 is made up of 3 $\times$ 10 (30) and 6 ones so as 30 is a tens number it goes in the first box and as 6 is a Ones number it goes in the second box

Tens	Ones

42 is made up of ____ $\times$ ____ () and ____ ones so as ____ is a tens number it goes in the first box and as ____ is a Ones number it goes in the second box

Tens	Ones

73 is made up of ____ $\times$ ____ () and ____ ones so as ____ is a tens number it goes in the first box and as ____ is a Ones number it goes in the second box

Tens	Ones

68 is made up of ____ $\times$ ____ () and ____ ones so as ____ is a tens number it goes in the first box and as ____ is a Ones number it goes in the second box

Now let's have a go at using this knowledge to multiply using the grid method.

		Tens	Ones
Ones	X		

This is what a multiplication grid looks like.

Your partitioned number goes on the top line. The tens number in the first box and the ones number in the second box.

		Tens	Ones
Ones	X	10	3
	5		

This Multiplication grid shows the calculation 13×5 which we partitioned earlier into 1 Ten and 3 Ones

		Tens	Ones
Ones	X	10	3
	5	50	

Next you need to complete the calculations in the empty boxes.
First you need to multiply the 10 in the top row by your single digit on the next row. $10 \times 5 = 50$.

		Tens	Ones
Ones	X	10	3
	5	50	15

Then you need to multiply the single digit on the top row by your single digit on the second row - $3 \times 5 = 15$

The last part of answering the calculation 13×5 is to add together the answers to your multiplication calculations. In this case $50 + 15$ so the answer is 65.

Now it's your turn to have a go. Use the grid provided to answer the calculation alongside it. Don't forget to partition the larger number into Tens and Ones and remember to add up the answers in your grid to complete the calculation.

$$14 \times 3$$

	Tens	Ones	
Ones	X		+

$$12 \times 4$$

	Tens	Ones	
Ones	X		+

$$16 \times 5$$

	Tens	Ones	
Ones	X		+

$$17 \times 2$$

	Tens	Ones
Ones	X	

+

$$13 \times 6$$

	Tens	Ones
Ones	X	

+

Now make up a calculation of your own and complete it using the grid below.

	Tens	Ones
Ones	X	

+

Excellent work. Well done. Hopefully you are starting to become confident with this method. We will practice again tomorrow.

Lesson 3 - Using the grid method of multiplication for numbers up to 40

Yesterday you used the grid method of multiplication to answer some calculations using low numbers below 20. Today we are going to look at some slightly higher numbers.

Remind yourself of the grid method by looking back at your work from yesterday. When you are ready take a look at the calculation below.

		Tens	Ones	
	X	30	4	
Ones	5			+

This grid shows the calculation 34×5

This may look quite tricky to solve due to the high numbers however you are already really good at multiplying by 10 so you can use that knowledge to help you solve the calculation to go in the first box.

Instead of multiplying 30 by 5, try multiplying 3×5 , then multiplying the answer by 10. $3 \times 5 = 15$ and $15 \times 10 = 150$.

		Tens	Ones	
	X	30	4	
Ones	5	150	20	+
				150
				20
				— 170 —

You can then find the answer to the second calculation and add it to the other box. It would look like this.

The last step would be to add up the two numbers in the boxes that you just calculated alongside your grid like I have. As you can see, the answer is 170.

Now it is your turn. Follow these steps to complete your calculations

- 1) Partition the 2digit number in the calculation into Tens and Ones
- 2) Correctly enter the partitioned number and single digit into the grid.
- 3) Calculate the answer to the first box using the method demonstrated above.
- 4) Calculate the answer to the second box
- 5) Add the numbers in the boxes together.

Use your multiplication and place value grid to help you.

$$24 \times 3$$

	Tens	Ones
Ones	X	

+

$$35 \times 4$$

	Tens	Ones
Ones	X	

+

$$26 \times 5$$

	Tens	Ones
Ones	X	

+

$$32 \times 3$$

	Tens	Ones
	X	
Ones		

+

$$27 \times 4$$

	Tens	Ones
	X	
Ones		

+

Now make up a calculation of your own and complete it using the grid below. Can you challenge yourself to multiply a 1 digit number by a number over 40?

	Tens	Ones
	X	
Ones		

+

Fantastic. I really hope you are feeling far more confident with this method after all this practice. Tomorrow you can start to answer some of the questions from White to show off your newly learnt multiplication skills.

Lesson 4 - Using our knowledge of multiplication to complete Mathematical problems

1)

A farmer is calculating the number of sheep on her farm.

She has 6 fields.

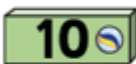
Each field has 35 sheep.

Use a written method to work out how many sheep there are altogether.

	Tens	Ones	
X			+

2)

Ron, Eva and Mo each have 23 marbles.

Tens		Ones
		
		
		

How many marbles are there in total?

X			+

3)

One toaster costs £32

How much do 3 toasters cost?



X			+

4)

There are 7 year groups in a school.

There are 112 children in each year group.

How many children are there in the whole school?

X			+