

Multiplication Prior Assessment Questions 6, 7 and 8

Objective: I can use a written method to multiply a number by a 2-digit number.

NC NMD4: multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers

Teacher Input Ideas:

Place a 4digit amount onto the board and ask the children to multiply this by any one digit number of their choice. Encourage children to share how they worked it out using the short multiplication or expanded multiplication method. Allow the children time to discuss how they worked out the answer and ensure that children are confident with this before moving on to multiplying by 2 digits.

Place a 2- digit number such as 35 on the board and x by 12. See how the children will attempt to multiply this. Talk about different ways that the children have. Some children still may suggest portioning, as they feel more familiar with this method so encourage children to share their methods.

Some children hopefully will suggest methods such as expanded or written long method.

Model how to layout the sum as below to help us to calculate quickly and add the parts back together

Expanded method:

$$\begin{array}{r} \text{H T O} \\ 24 \\ \times 13 \\ \hline 12 \quad (3 \times 4 \text{ is } 12) \\ 60 \quad (3 \times 20 \text{ is } 60) \\ 40 \quad (10 \times 4 \text{ is } 40) \\ \hline 200 \quad (10 \times 20 \text{ is } 200) \\ \hline 312 \end{array}$$

Ensure that the children understand that we are calculating 10×4 and 10×20 as some children make errors here particularly when using the long method. If children still

need to see the link with partitioning, model here. Encourage children to explain how they have used the method too, ensuring correct use of place value vocabulary.

Repeat with other 2 and 3 digit amounts so that the children can explore using the expanded column method for multiplying by 2 digit amounts. Such as 34×19 , 231×12 .

For those children who are secure with the short method, encourage the children to begin to use the long method:

h t o

5 6 model along side

x 1 3

1 6 8 (3×6 is 18 and $3 \times 5 = 15$ also model carrying and adding the ten)

¹
5 6 0 (10×6 is 60 and $50 \times 10 = 500$ ensure children understand use of place value)

7 2 8

Practice Activities

Purple Practice: Most suited for children who made errors in question 6 and 7 and will benefit from securing the expanded multiplication method for 2 digit by 2 and 3 digit amounts.

This activity models how to use the expanded multiplication method for multiplying 2 digit amounts by 2 and 3 digit amounts. The children are provided with 9 questions and space to work out the answers using the expanded column method for 2 digit multiplication by up to 3 digit amounts.

Green Practice: Most suited for children who made errors in Question 6 and 7 and will benefit from being introduced to the long multiplication method for 2 digit by 2 and 3 digit amounts.

This activity models how to use the long multiplication method to move the children on from the short method on to the long method for multiplication by 2 digit amounts. The children are presented with 9 sums which require the children to multiply 2 and 3 digit amounts by 2 digit numbers.

Yellow Practice: Most suited for children who answered questions 6,7 and 8 accurately, however will benefit from learning the formal long multiplication method.

The yellow task contains blocks with 3 and 4 digit amounts to multiply by a 2 digit number. The blocks on this sheet can be cut up so that the children can select different combinations of pink and green blocks to multiply by each other, creating their own sums.

Mastery: For this mastery task the children are to prove if each statement about multiplying different amounts of digits is true or false. The children are to prove if the statement is true or false by exploring different sums. Encourage the children to find a few examples for each statement to help them to prove their point of view.

If the children need support, encourage the children make suggestions of numbers for each statement. Ask the children how they know what will be the largest possible combination can be for each statement. Such as 9×99 , 99×99 , 999×9 . How does this help them to prove they are right?

Answers:

Purple:

- | | | |
|---------|---------|---------|
| 1) 390 | 2) 884 | 3) 396 |
| 4) 700 | 5) 888 | 6) 1612 |
| 7) 1651 | 8) 3536 | 9) 5376 |

Green:

- | | | |
|---------|---------|---------|
| 1) 612 | 2) 588 | 3) 1102 |
| 4) 588 | 5) 783 | 6) 2754 |
| 7) 3487 | 8) 3458 | 9) 3690 |

Yellow:

Children to select own blocks and combinations so share answers with others or use a calculator to check answers.

Mastery:

All statements are true

LO: I can use the expanded written method to multiply 2 and 3 digit amounts by 2 digits.

Use the written expanded multiplication method to work out the answers to the sums.

Example:

Th	H	T	O	
	1	2	3	
x		1	2	
		6		(2 × 3)
	4	0		(2 × 20)
	2	0	0	(2 × 100)
		3	0	(10 × 3)
	2	0	0	(10 × 20)
	1	0	0	(10 × 100)
	1	4	7	6

1) T O	2) T O	3) T O	4) T O	5) T O
2 6	5 2	3 3	2 8	3 7
x 1 5	x 1 7	x 1 2	x 2 5	x 2 4
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6) T O	7) H T O	8) H T O	9) H T O
5 2	1 2 7	2 2 1	3 8 4
x 3 1	x 1 3	x 1 6	x 1 4
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LO: I can use the long multiplication method to multiply 2 and 3 digit amounts by 2 digits.

Use the written long multiplication method to work out the answers to the sums.

Example:

	H	T	O	
	1	2	4	
x		1	3	
		3	7	2
	1	2	4	0
	1	6	3	2
				1

HINT
Remember that this is
10 × 4 place value.

1)

	T	O
	3	6
x	1	7

2)

	T	O
	4	2
x	2	4

3)

	T	O
	5	8
x	1	9

4)

	T	O
	2	8
x	2	1

5)

	T	O
	3	9
x	2	7

6)

	T	O
	8	1
x	3	4

7)

	H	T	O
	3	1	7
x	1	1	

8)

	H	T	O
	1	8	2
x	1	9	

9)

	H	T	O
	2	0	5
x	1	8	

Pick a green block and multiply it by a pink block.

294

319

209

3627

8294

5117

5026

3281

281

11

14

15

17

19

24

31

27

38

Explore each statement to see if it is true or false:

If I multiply a 1 digit number by a 2 digit number I will never get an answer larger than 3 digits.

If I multiply a 3 digit number by a 1 digit number, I will never get an answer larger than 4 digits.

If I multiply any 2 digit number by another 2 digit number, I will never get an answer larger than a 4 digit number.

If I multiply a 3 digit number by a 2 digit number I will never get an answer larger than a 5 digit number.

If I multiply a 4 digit number by a 2 digit number I will never get an answer larger than a 6 digit number.