

Maths

Multiplication and Division

Expanded Multiplication with Two-Digit Numbers



Aim

- I can multiply two-digit by one-digit numbers using expanded multiplication.

Success Criteria

- I can set out the calculation correctly.
- I can partition the calculation and multiply the ones then tens.
- I can add the calculations together to find the answer.

12x Table Bingo



On your bingo card, you have six multiplication sentences.

I will reveal some answers one at a time. If your multiplication sentence gives the answer that I reveal, then cover that square.

When you have covered all of your squares, shout, '**BINGO!**' You are the winner.

12	24	72	108	48	84
36	120	60	132	0	144

The Grid Method

Do you remember how to solve multiplication problems using the **grid method**?

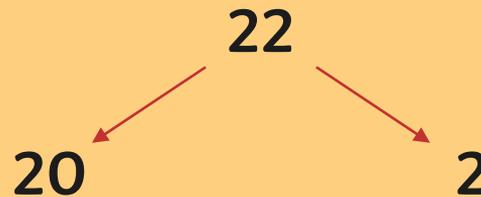


The Grid Method

Look at the problem.

$$22 \times 4 = ?$$

Partition the large number into tens and ones.



Draw a grid.

x	20	2
4		



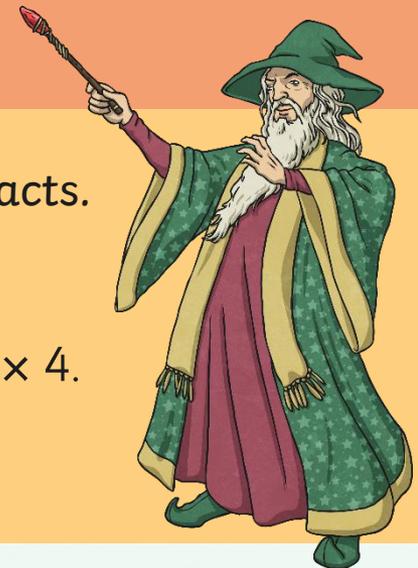
The Grid Method

Fill in the grid by solving 20×4 , then 2×4 .

×	20	2
4		

How did we work out 20×4 ?

- Draw the wizard's hat to find the multiplication facts.
- Calculate the answer.
- If we know 2×4 then we know the answer to 20×4 .
- How do we know this?



The Grid Method

After you have solved the calculations add the two answers together.

This gives you the answer to the problem.

x	20		2	
4	80	+	8	= 88

$$20 \times 4 = 80$$

$$2 \times 4 = 8$$

$$80 + 8 = 88$$

$$22 \times 4 = 88$$

The Grid Method

- Look at the problem.
- Partition the large number.
- Draw a grid.
- Write the numbers into the grid.
- Solve the calculations.
- Add the answers together.
- Write this number at the end of the problem to finish answering the question.

Example Answer

x	20		2
4	80	+	8

$$22 \times 4 = 88$$

Expanded Multiplication

We're going to learn a new method of multiplication, called the **expanded multiplication**.

Expanded multiplication is like the grid method, but quicker to write down.

We are going to lay our multiplication problems out in columns instead of grids.

Expanded Multiplication

	3	6
x		7
<hr/>		
	4	2
2	1	0
<hr/>		
2	5	2

Lay out your calculation in a grid.

Work out 6×7 and write the answer here.

Work out 30×7 and write the answer here.

Add them together and write your answer here.

Expanded Multiplication



	4	8
x		8
<hr/>		
	6	4
3	2	0
<hr/>		
3	8	4

Lay out your calculation in a grid.

Work out 8×8 and write the answer here.

Work out 40×8 and write the answer here.

Add them together and write your answer here.

Expanded Multiplication

	6	8
x		8
<hr/>		
	6	4
4	8	0
<hr/>		
5	14	4

Lay out your calculation in a grid.

Work out 8×8 and write the answer here.

Work out 60×8 and write the answer here.

Add them together and write your answer here.

→ If there are more than 9 tens, regroup them as hundreds and write them under the hundreds column, remembering to add them onto the total.

Expanded Multiplication

	8	4
x		6
<hr/>		
	2	4
4	8	0
<hr/>		
5	10	4

Lay out your calculation in a grid.

Work out 4×6 and write the answer here.

Work out 80×6 and write the answer here.

Add them together and write your answer here.

→ If there are more than 9 tens, regroup them as hundreds and write them under the hundreds column, remembering to add them onto the total.

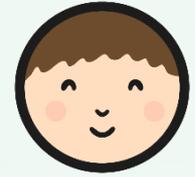
Medal Multiplication



Bronze	Silver	Gold
<ol style="list-style-type: none">$20 \times 3 = 60$$32 \times 5 = 160$$16 \times 4 = 64$	<ol style="list-style-type: none">$42 \times 6 = 252$$51 \times 9 = 459$$64 \times 7 = 448$	<ol style="list-style-type: none">$58 \times 8 = 464$$95 \times 9 = 855$$69 \times 7 = 483$



Expanded Multiplication Activities



★ Expanded Multiplication

I can multiply one-digit by one-digit.

Example:
 $64 \times 5 = 320$

x	60
5	300

$300 + 20 = 320$

Questions:

1. $28 \times 3 =$ _____

x	20
3	

2. $74 \times 5 =$ _____

x	70
5	

3. $47 \times 4 =$ _____

x	47
4	

★ Expanded Multiplication

I can multiply one-digit by one-digit.

4. $36 \times 3 =$ _____

H	T	O
	3	6
x		3
_____	(6 × 3)	
_____	(30 × 3)	

6. $82 \times 5 =$ _____

H	T	O
	8	2
x		5
_____	(2 × 5)	
_____	(80 × 5)	

8. $24 \times 8 =$ _____

H	T	O
	2	4
x		8
_____	(4 × 8)	
_____	(20 × 8)	

10. $78 \times 7 =$ _____

H	T	O
	7	8
x		7
_____	(8 × 7)	
_____	(70 × 7)	

★ Expanded Multiplication

I can multiply two-digit by one-digit.

7. $92 \times 8 =$ _____

H	T	O
	9	2
x		8

9. $98 \times 8 =$ _____

H	T	O
	9	8
x		8

11. $88 \times 8 =$ _____

H	T	O
	8	8
x		8

★ Expanded Multiplication

I can multiply two-digit by one-digit.

1. $82 \times 5 =$ _____

H	T	O
	8	2
x		5

3. $24 \times 8 =$ _____

H	T	O
	2	4
x		8

5. $78 \times 7 =$ _____

H	T	O
	7	8
x		7

★ Expanded Multiplication

7. $98 \times 8 =$ _____

H	T	O
	9	8
x		8

9. $88 \times 8 =$ _____

H	T	O
	8	8
x		8

Use expanded multiplication to solve these problems.

- Isamu had 29 sheets of stickers. Each sheet contained eight stickers. How many stickers did he have in total?
- Lucy fetched five packs of pens from the school office. If each pack contained 24 pens, how many pens did she have?
- Skyla had 46 boxes of eggs. If each box contained six eggs, how many eggs did she have altogether?

Missing Numbers



Oh no! My pen leaked on my work!

Can you work out which digits are missing in these expanded multiplication calculations?

	4	3
x		
	1	2
1	6	0
1	7	2

	5	
x		5
	3	5
2	5	
2	8	5

Aim



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Success Criteria

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