

Multiply a 2-digit number by a 1-digit number – no exchange

Notes and guidance

In this small step, children explore multiplying 2-digit numbers by 1-digit numbers. At this stage, none of the multiplication calculations require exchanges.

Children apply their understanding of partitioning to represent and solve calculations using the expanded method. The 2-digit number is partitioned into tens and ones, both are multiplied by the 1-digit number and then the partial products are added to find the total product. This is explored through a progression of representations from base 10 to place value counters and part-whole models, alongside number sentences.

The expanded method allows children to gain a deep understanding of the structure of the calculation before progressing to formal short multiplication in Year 4

Things to look out for

- Children may partition a 2-digit number into single digits rather than tens and ones, for example $48 \times 8 = 4 \times 8 + 8 \times 8$
- Errors may occur if partial products are lined up incorrectly.

Key questions

- How can you partition a 2-digit number into tens and ones?
- What is the product of the tens and the single digit?
- What is the product of the ones and the single digit?
- What do you need to do to find the final answer?

Possible sentence stems

- _____ tens and _____ ones multiplied by _____ is equal to _____ tens multiplied by _____ and _____ ones multiplied by _____
- _____ tens multiplied by _____ is equal to _____
_____ ones multiplied by _____ is equal to _____
_____ multiplied by _____ is equal to _____
- _____ \times _____ = _____ tens \times _____ + _____ \times _____

National Curriculum links

- Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for 2-digit numbers times 1-digit numbers, using mental and progressing to formal written methods

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Key learning

- Complete the number sentences.

Use the place value chart to help you.

Tens	Ones

$$3 \text{ tens} \times 2 = \text{ ______ } \text{ tens}$$

$$2 \text{ ones} \times 2 = \text{ ______ } \text{ ones}$$

$$\text{ ______ } + \text{ ______ } = \text{ ______ }$$

$$32 \times 2 = \text{ ______ }$$

- A minibus has space for 21 people.

How many people can fit on 3 minibuses?

Use a place value chart and base 10 to help you.

- Use the place value chart and counters to work out 21×4

Tens	Ones

$$2 \text{ tens} \times 4 = \text{ ______ } \text{ tens}$$

$$1 \text{ one} \times 4 = \text{ ______ } \text{ ones}$$

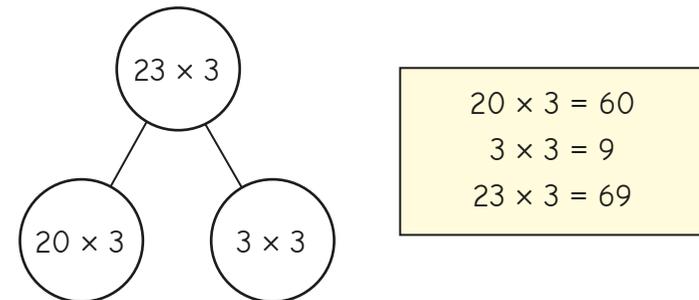
$$\text{ ______ } + \text{ ______ } = \text{ ______ }$$

$$21 \times 4 = \text{ ______ }$$

- Work out the multiplications.

32×3	23×2	12×4	41×2
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- Ron has used a part-whole model to multiply 23 by 3



Use a part-whole model to help you work out the multiplications.

21×5	42×2	52×2	21×6
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- Complete the number sentences.

▶ 32×4

$$= \text{ ______ } \text{ tens} \times 4 + \text{ ______ } \text{ ones} \times 4$$

$$= \text{ ______ } + \text{ ______ }$$

$$= \text{ ______ }$$

▶ 42×3

$$= \text{ ______ } \text{ tens} \times 3 + \text{ ______ } \text{ ones} \times 3$$

$$= \text{ ______ } + \text{ ______ }$$

$$= \text{ ______ }$$

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Reasoning and problem solving

Tiny is working out 41×5



I can partition 41 into 4 and 1 to help me.

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    graph TD
      A[41 x 5] --> B[4 x 5]
      A --> C[1 x 5]
      B --> D[20]
      C --> E[5]
      D --> F[25]
      E --> F
    
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What has Tiny done wrong?
Work out the correct answer.

205

Whitney is comparing calculations.



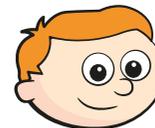
$4 \times 21 = 2 \times 42$

Yes

Is Whitney correct?

How does she know this?

Ron multiplies a 2-digit number by a 1-digit number.



The answer is 48

- 48 and 1
- 24 and 2
- 12 and 4

What might Ron's numbers be?