

Multiply a 2-digit number by a 1-digit number

Notes and guidance

In this small step, children progress from multiplying using informal written methods to the formal written method. The short multiplication method is introduced for the first time, initially in an expanded form and then in the formal short single-line form.

Children first do calculations where there are no exchanges, then move on to one and two exchanges. Place value counters in place value charts are used to illustrate the structure of the short multiplication by presenting the concrete model alongside the formal written method.

Concrete manipulatives alongside abstract calculations are particularly useful to support children's understanding of exchanges.

Things to look out for

- Children may exchange ones or tens incorrectly, often by missing zeros or including zeros erroneously.
- Children may not include digits created through exchanging, either by not writing them down when completing the exchange or neglecting to include them in the calculation afterwards.
- When exchanges are performed, if digits are written in the incorrect place, this can lead to errors with the rest of the calculation.

Key questions

- What is the same and what is different about multiplying by 1s and multiplying by 10s?
- How does the written method match the representation?
- Which column should you start with?
- What is the same and what is different about the different methods?

Possible sentence stems

- _____ ones \times _____ = _____ ones,
_____ tens \times _____ = _____ tens
- To multiply a 2-digit number by _____, you multiply the _____ by _____ and the _____ by _____
- _____ tens multiplied by _____ plus the ten I exchange is equal to _____ tens.

National Curriculum links

- Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout

Multiply a 2-digit number by a 1-digit number

Key learning

- Dora uses place value counters alongside the written multiplication to work out 34×2

Tens	Ones
10 10 10	1 1 1 1
10 10 10	1 1 1 1

	T	O
	3	4
x		2
		8
	6	0
	6	8

($4 \times 2 = 8$)
($30 \times 2 = 60$)

Use Dora's method to work out the multiplications.

23×3	32×3	42×2
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- Jo uses place value counters to work out 24×3

Tens	Ones
10 10	1 1 1 1
10 10	1 1 1 1
10 10	1 1 1 1

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

(4×3)
(20×3)

Use Jo's method to work out the multiplications.

6×14	23×4	18×3
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- Brett and Scott have each worked out 34×5

Brett

	H	T	O
		3	4
x			5
		2	0
	1	5	0
	1	7	0

(4×5)
(30×5)

Scott

	H	T	O
		3	4
x			5
	1	7	0
	1	2	

- ▶ What is the same about their methods?
- ▶ What is different about their methods?
- ▶ Whose method is more efficient?

- Complete the multiplications.

	H	T	O
		4	3
x			5

	H	T	O
		3	6
x			4

	H	T	O
		7	4
x			5

Multiply a 2-digit number by a 1-digit number

Reasoning and problem solving

Here are three incorrect multiplications.

		H	T	O					
			6	1					
	x			5					
			3	5					

		H	T	O					
			7	4					
	x			7					
			4	9	8				

		H	T	O					
			2	6					
	x			4					
			8	2	4				

What mistakes have been made?

Complete the calculations correctly.



		H	T	O					
			6	1					
	x			5					
			3	0	5				
			3						

		H	T	O					
			7	4					
	x			7					
			5	1	8				
				2					

		H	T	O					
			2	6					
	x			4					
			1	0	4				
				2					

Are the statements always true, sometimes true or never true?



When multiplying a 2-digit number by a 1-digit number, the product has three digits.

sometimes true

When multiplying a 2-digit number by 8, the product is an odd number.

never true

When multiplying a 2-digit number by 7, you will need to complete an exchange.

sometimes true

Explain how you know.

