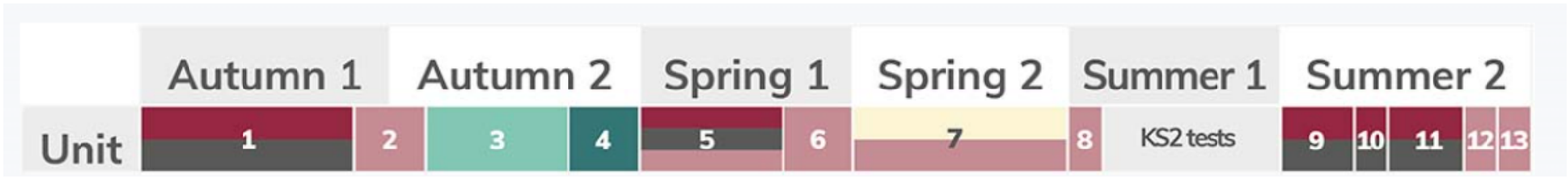
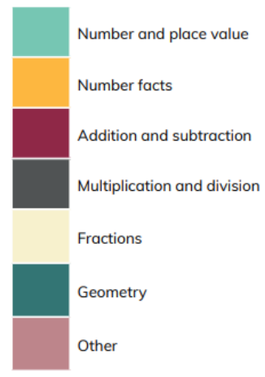
Y6- Overview

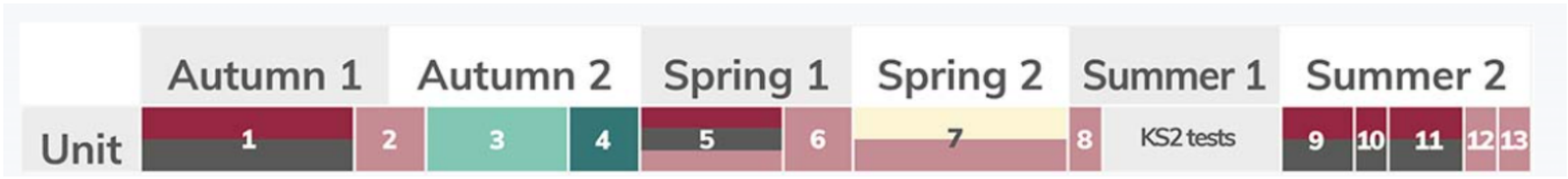


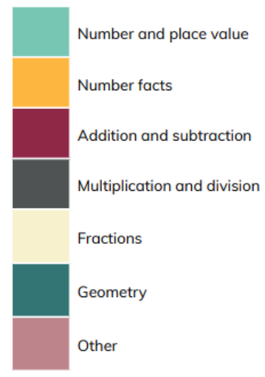


	Area, perimeter, position and direction (2 weeks)
Ready to progress	
NCETM documents	WHOLE DOCUMENT https://www.ncetm.org.uk/media/mbmej2b2/ncetm_spine2_segment30_y6.pdf#page=4
Small steps	• To recall and explain how to calculate the area of a parallelogram. • To use the area of a parallelogram formula to calculate unknown measurements. • To explain how to calculate the area of a triangle. • To calculate unknown dimensions of a triangle with a specified area. • To apply understanding of calculating area and perimeter of polygons to solve problems. • To describe the relationship between scale factors and the side lengths and perimeters of two shapes. • To draw and complete simple shapes by plotting positions on the full coordinate grid. • To draw and translate simple shapes on the full coordinate grid. • To reflect simple shapes in the axes on a full coordinate grid. • To solve problems involving missing coordinates.
Links	NCETM SLIDES ALL SLIDES https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.ncetm.org.uk%2Fmedia%2Fsb4oqxau%2Fcp-year-6-unit-6-area-perimeter-position-and-direction.pptx&wdOrigin=BROWSELINK OAK https://www.thenational.academy/teachers/programmes/maths-primary-ks2/units/area-perimeter-position-and-direction/lessons?sid-172cfc=zhMw-Vq2PF6&sm=0&src=3 WHITE ROSE https://assets.whiteroseeducation.com/new-schemes/Y6%20Spring%20Block%205%20SOL%20Area%20perimeter%20and%20volume.pdf Mastery with greater depth https://www.ncetm.org.uk/media/uitjlx5g/mastery_assessment_y6.pdf
Reasoning	Connected Calculations p and q are whole numbers such that p + q = 1000 and p is 150 greater than q. Find the values of p and q and explain your method. Undoing Two rectangular fields share the same width of 7.6 m. Field A is twice as long as Field B. If the perimeter of Field B is 23 m, calculate the perimeter of the combined fields and explain your reasoning. Generalising Write an algebraic formula for the nth term of these sequences: 4, 8, 12, 16 ... and 0.4, 0.8, 1.2, 1.6 ... Explain how you found your formula. Area of Parallelograms Explain how to calculate the area of a parallelogram with base 10 cm and height 6 cm. Then find the area. Finding Unknown Measurements A parallelogram has an area of 48 cm^2 and a base of 8 cm. Explain how to find the height and calculate it.

	Area, perimeter, position and direction (2 weeks)
Problem solving	Click on me
Glossary	• Equivalent - Equivalent means having the same value. • Factor - A factor is a number which exactly divides another whole number. • Product - The product is the result of two or more numbers multiplied together • Dividend - The dividend is the amount that you want to divide. • Divisor - A divisor is the number we divide by. • Quotient - A quotient is the result after division has taken place. It is the whole number part.
Stem sentences	Work towards the following generalisation: 'If I double one factor, I must halve the other factor for the product to stay the same.' 'If I multiply one factor by two, I must divide the other factor by two for the product to stay the same. IfI multiply_____by two, I must divide by two for the product -to stay the same.'" 'If I multiply one factor by three, I must divide the other factor by three for the product to stay the same. Use the following generalisation: 'If I multiply the dividend by ten, I must multiply the divisor by ten for the quotient to stay the same.'
Representations	Step 1 – use an array to represent a known fact: 6 × 2 = 12 • *'Six times two is equal to twelve.'* Step 2 – move half of the array: Step 3 – identify the new fact: 3 × 4 = 12 • *'Three times four is equal to twelve.'* Step 4 – compare: 6 × 2 = 12 ÷ 2 × 2 = 3 × 4 = 12 Grid model: Step 1 – represent the calculation as a rectangle: 5 × 18 Step 2 – split the rectangle in half and rearrange: Step 3 – identify the new fact: 10 × 9 = 90 Step 4 – complete the original calculation: 5 × 18 = 90 Number line: 5 eighteens / 10 nines • *'A forty-metre length of ribbon is cut into ten-metre lengths; how many lengths are made?'* 40m = 10m + 10m + 10m + 10m 40 ÷ 10 = 4 • *'Four lengths are made.'* Step 2 – compare: 4 ÷ 1 = 4 (×10) 40 ÷ 10 = 4 12 × 25 = 300 (× 5, ÷ 5) 60 × 5 = 300 8 ÷ 4 = 2 (×10) 80 ÷ 40 = 2 (×10) 800 ÷ 400 = 2

Y6- Overview





	Multiplying and dividing by 2-digit numbers (3 weeks)
Ready to progress	6AS/MD-2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding
NCETM documents	TEACHING POINT 3 AND 4 https://www.ncetm.org.uk/media/p22ldwpi/ncetm_spine2_segment23_y6.pdf#page=18 TEACHING POINT 1, 2 AND 3 https://www.ncetm.org.uk/media/grsozl2r/ncetm_spine2_segment24_y6.pdf#page=4 TEACHING POINT 1, 2 AND 3 https://www.ncetm.org.uk/media/4xlhcqpk/ncetm_spine2_segment25_y6.pdf#page=3
Small steps	• To explain how to multiply a 3-digit number by a 2-digit number. • To explain how to use long multiplication to multiply two 2-digit numbers regrouping ones to tens. • To explain how to use long multiplication to multiply two 2-digit numbers with regrouping. • To explain how to use long multiplication to multiply a 3-digit by a 2-digit number. • To explain how to use long multiplication to multiply a 4-digit by a 2-digit number. • To explain how to use the associative law to multiply efficiently. • To explain when it is efficient to use factorising or long multiplication to multiply by 2-digit numbers. • To divide numbers with up to 4 digits by multiples of 10. • To use short and long division to divide by a 2-digit divisor. • To divide by a 2-digit divisor including using long division. • To solve problems with 4-digit dividends using factors and long division. • To divide by a 2-digit divisor with a remainder. • To use long division with fraction remainders. • To use long division with decimal remainders. • To solve problems involving remainders in context.
Links	NCETM SLIDES 37 TO THE END -https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.ncetm.org.uk%2Fmedia%2F3y4nb14k%2Fcp-year-6-unit-5-multiplication-and-division.pptx&wdOrigin=BROWSELINK OAK https://www.thenational.academy/teachers/programmes/maths-primary-ks2/units/multiplying-and-dividing-by-2-digit-numbers/lessons?sid-567201=2i_5m8RsYP&sm=0&src=3 WHITE ROSE https://assets.whiteroseeducation.com/new-schemes/Y6%20Autumn%20Block%202%20SOL%20Addition%20subtraction%20multiplication%20and%20division.pdf Mastery with greater depth https://www.ncetm.org.uk/media/uitfjlx5g/mastery_assessment_y6.pdf
Reasoning	Always, Sometimes, Never? Is it always, sometimes or never true that when you multiply a 3-digit number by a 2-digit number, the product has 5 digits? Explain why using an example of long multiplication. Which is Correct? Which of these number sentences is correct? a) 3 + 6 × 2 = 15 b) 124 × 35 = 4340 c) 346 × 17 = 5882 Choose one and explain your reasoning using long multiplication. Use the Inverse Use the inverse to check: 2346 × 46 = 332796 Is the original calculation correct? Show your working with division. Size of an Answer The product of a number with two decimal places and a two-digit number is 21.34. What could the two numbers be? Can you find more than one pair?

Multiplying and dividing by 2-digit numbers
(3 weeks)

Problem solving

Click on me

Glossary

- Partial product - Any of the multiplication results we get leading up to an overall multiplication result is a partial product.
- Regroup - The process of unitising and exchanging between place values is known as regrouping.
- Associative law - The associative law states that it doesn't matter how you group or pair values (i.e. which we calculate first), the result is still the same. It applies for addition and multiplication.
- Composite number - A composite number is an integer with more than two factors. All integers greater than 1 are either composite or prime.
- Associative law - The associative law states that it doesn't matter how you group or pair values (i.e. which we calculate first), the result is still the same. It applies for addition and multiplication.
- Efficient / efficiently - Working efficiently means finding a way to solve a problem quickly whilst also maintaining accuracy.
- Dividend - The dividend is the amount that you want to divide.
- Divisor - A divisor is the number we divide by.
- Multiple - A multiple is the result of multiplying a number by another whole number.
- Quotient - A quotient is the result after division has taken place.
- Estimate - Estimate means to find a value that is close enough to the right answer, usually with some thought or calculation involved.
- Long division - Long division is a method used for dividing large numbers by breaking the number down into smaller groups.
- Remainder - A remainder is an amount left after a division.
- Long division - Long division is a method used for dividing large numbers by breaking the number down into smaller groups.
- Prime number - A prime number is a number with exactly 2 factors.

Stem sentences

To multiply a three-digit number by a two-digit number, first multiply by the ones, then multiply by the tens, and then add them together.'
To multiply a three-digit number by a two-digit number, first multiply by the ones, then multiply by the tens, and then add them together.'

'If I double one factor, I must double the product.' '

If I multiply one factor by two, I must multiply the product by two.'
If I multiply one factor by _____I must multiply the product by___'

If I halve one factor, I must halve the product.'

'If I divide one factor by two, I must divide the product by two.'
'If I divide one factor by_____ I must divide the product by___.'

If a factor increases multiplicatively, the change to the product is the same.'
'If a factor decreases multiplicatively, the change to the product is the same.'

'If I double one factor, I must double the product.'
'If I halve one factor, I must halve the product

f I double the dividend and keep the divisor the same, I must double the quotient.'
'If I multiply the dividend by two and keep the divisor the same, I must multiply the quotient by two.

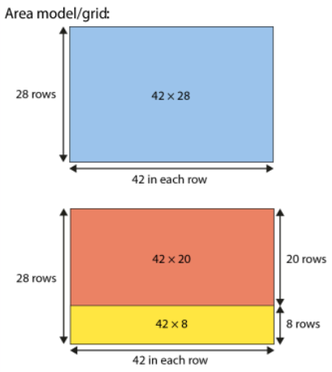
IfI double the divisor and keep the dividend the same, I must halve the quotient.'
'If I multiply the divisor by two and keep the dividend the same, I must divide the quotient by two.'
'IfI multiply the divisor by___and keep the dividend the same, I must divide the quotient by_____

'If halve the divisor and keep the dividend the same, I must double the quotient.'
'If I divide the divisor by two and keep the dividend The same, I must multiply the quotient by two.'
'IfI divide the divisor by____and keep the dividend the same, I must multiply the quotient by____

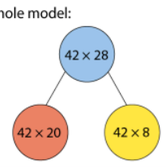
Representations

'Seats in one section of a stadium are in rows of forty-two. If there are twenty-eight rows, how many seats are there in this section?'

Area model/grid:



Part–part–whole model:



Short multiplication and combining partial products:

$$\begin{array}{r} 42 \\ \times\ \ 8 \\ \hline 336 \\ {\scriptstyle 1} \end{array} \qquad \begin{array}{r} 42 \\ \times\ \ 20 \\ \hline 840 \end{array}$$

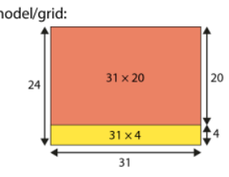
$$\begin{array}{r} 840 \\ +\ \ 336 \\ \hline 1176 \end{array}$$

- *'There are 1,176 seats in this section of the stadium.'*

'Martha wants to calculate how many hours there are in January.'

31 × 24

Area model/grid:



Short multiplication and combining partial products compared with long multiplication:

$$\begin{array}{r} 31 \\ \times\ \ 4 \\ \hline 124 \end{array} \qquad \begin{array}{r} 31 \\ \times\ \ 20 \\ \hline 620 \end{array}$$

$$\begin{array}{r} 620 \\ +\ \ 124 \\ \hline 744 \end{array} \qquad \begin{array}{r} 31 \\ \times\ \ 24 \\ \hline 124 \\ 620 \\ \hline 744 \end{array}$$

- *'There are seven hundred and forty-four hours in January.'*

Multiplication algorithm – expanded layout:

Step 1 – write the factors

	100s	10s	1s
		3	1
×		2	4

Step 2 – multiply the ones digit by the ones digit

	100s	10s	1s	
		3	1	
×		2	4	
			4	4 × 1 one = 4 ones

Step 3 – multiply the tens digit by the ones digit and regroup

	100s	10s	1s	
		3	1	
×		2	4	
	1	2	4	4 × 3 tens = 12 tens = 1 hundred + 2 tens

Step 4 – place a zero to show that it's ten times the size

	100s	10s	1s
		3	1
×		2	4
	1	2	4
			0

Step 5 – multiply the ones digit by the tens digit

	100s	10s	1s	
		3	1	
×		2	4	
	1	2	4	
		2	0	2 tens × 1 one = 2 tens

Step 6 – multiply the tens digit by the tens digit

	100s	10s	1s	
		3	1	
×		2	4	
	1	2	4	
	6	2	0	2 tens × 3 tens = 6 hundreds

Step 7 – add the partial products

	100s	10s	1s	
		3	1	
×		2	4	
	1	2	4	31 × 4
	6	2	0	31 × 20
	7	4	4	

Step 1 – write the factors

	100s	10s	1s
		4	7
×		1	8

Step 2 – multiply the ones digit by the ones digit and regroup

	100s	10s	1s	
		4	7	
×		1	8	
		6		8 × 7 ones = 56 ones = 5 tens + 6 ones

Step 3 – multiply the tens digit by the ones digit, add the regrouped tens and regroup again

	100s	10s	1s	
		4	7	
×		1	8	
	3	7	6	8 × 4 tens = 32 tens 32 tens + 5 tens = 37 tens = 3 hundreds + 7 tens

Step 4 – place a zero to show that it's ten times the size

	100s	10s	1s
		4	7
×		1	8
	3	7	6
			0

Step 5 – multiply the ones digit by the tens digit

	100s	10s	1s	
		4	7	
×		1	8	
	3	7	6	
		7	0	1 ten × 7 ones = 7 tens

Step 6 – multiply the tens digit by the tens digit

	100s	10s	1s	
		4	7	
×		1	8	
	3	7	6	
	4	7	0	1 ten × 4 tens = 4 hundreds

Step 7 – add the partial products

	100s	10s	1s	
		4	7	
×		1	8	
	3	7	6	47 × 8
	4	7	0	47 × 10
	8	4	6	

Step 1 – write the factors

	100s	10s	1s
		2	7
×		2	3

Step 2 – multiply the ones digit by the ones digit and regroup

		2	
	100s	10s	1s
		2	7
×		2	3
		1	

3 × 7 ones = 21 ones
= 2 tens + 1 one

Step 3 – multiply the tens digit by the ones digit and add the regrouped tens

		2	
	100s	10s	1s
		2	7
×		2	3
		8	1

3 × 2 tens = 6 tens
6 tens + 2 tens = 8 tens

Step 4 – place a zero to show that it's ten times the size

		2	
	100s	10s	1s
		2	7
×		2	3
		8	1
			0

Step 5 – multiply the ones digit by the tens digit and regroup

1	2	
100s	10s	1s
	2	7
×	2	3
	8	1
	4	0

2 tens × 7 ones = 14 tens
= 1 hundred + 4 tens

Step 6 – multiply the tens digit by the tens digit and add the regrouped hundred

	2	
100s	10s	1s
	2	7
×	2	3
	8	1
5	4	0

2 tens × 2 tens = 4 hundreds
4 hundreds + 1 hundred = 5 hundreds

Step 7 – add the partial products

	2	
100s	10s	1s
	2	7
×	2	3
	8	1
5	4	0
6	2	1
1		

27 × 3
27 × 20

Multiplication algorithm – expanded layout:

Step 1 – write the factors

	1,000s	100s	10s	1s
		3	1	2
×			2	8

Step 2 – multiply the ones digit by the ones digit and regroup

			1	
	1,000s	100s	10s	1s
		3	1	2
×			2	8
				6

8 × 2 ones = 16 ones
= 1 ten + 6 ones

Step 3 – multiply the tens digit by the ones digit and add the regrouped tens

			1	
	1,000s	100s	10s	1s
		3	1	2
×			2	8
			9	6

8 × 1 ten = 8 tens
8 tens + 1 ten = 9 tens

Step 4 – multiply the hundreds digit by the ones digit and regroup

			1	
	1,000s	100s	10s	1s
		3	1	2
×			2	8
	2	4	9	6

8 × 3 hundreds = 24 hundreds
= 2 thousands + 4 hundreds

Step 5 – place a zero to show that it's ten times the size

			1	
	1,000s	100s	10s	1s
		3	1	2
×			2	8
	2	4	9	6
				0

Step 6 – multiply the ones digit by the tens digit

			1	
	1,000s	100s	10s	1s
		3	1	2
×			2	8
	2	4	9	6
			4	0

2 tens × 2 ones = 4 tens

Step 7 – multiply the tens digit by the tens digit

			1	
	1,000s	100s	10s	1s
		3	1	2
×			2	8
	2	4	9	6
		2	4	0

2 tens × 1 ten = 2 hundreds

Step 8 – multiply the hundreds digit by the tens digit

			1	
	1,000s	100s	10s	1s
		3	1	2
×			2	8
	2	4	9	6
	6	2	4	0

2 tens × 3 hundreds = 6 thousands

Step 9 – add the partial products

			1	
	1,000s	100s	10s	1s
		3	1	2
×			2	8
	2	4	9	6
	6	2	4	0
	8	7	3	6
	1			

312 × 8
312 × 20

Multiplication algorithm – compact layout:

		1		
		3	1	2
×			2	8
	2	4	9	6
	6	2	4	0
	8	7	3	6
		1		

Multiplication algorithm – expanded layout:

Step 1 – write the factors

	10,000s	1,000s	100s	10s	1s
		3	1	2	6
×				2	8

Step 2 – multiply the four-digit number by the ones digit, regrouping where necessary

		1	2	4	
	10,000s	1,000s	100s	10s	1s
		3	1	2	6
×				2	8
	2	5	0	0	8

3,126 × 8

Step 3 – place a zero to show that it's ten times the size

		1	2	4	
	10,000s	1,000s	100s	10s	1s
		3	1	2	6
×				2	8
	2	5	0	0	8
					0

3,126 × 8

Step 4 – multiply the four-digit number by the tens digit, regrouping where necessary

		1	1		
		1	2	4	
	10,000s	1,000s	100s	10s	1s
		3	1	2	6
×				2	8
	2	5	0	0	8
	6	2	5	2	0

3,126 × 8
3,126 × 20

Step 5 – add the partial products

		1			
		1	2	4	
	10,000s	1,000s	100s	10s	1s
		3	1	2	6
×				2	8
	2	5	0	0	8
	6	2	5	2	0
	8	7	5	2	8

3,126 × 8
3,126 × 20

Multiplication algorithm – compact layout:

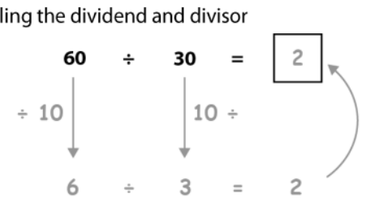
		1			
		1	2	4	
		3	1	2	6
×				2	8
	2	5	0	0	8
	6	2	5	2	0
	8	7	5	2	8

- Skip counting in multiples of thirty
  - *'Three tens, six tens.'*
  - *'Thirty, sixty.'*
  - **2** × 30 = 60

  so

  60 ÷ 30 = **2**

- Scaling the dividend and divisor



- Recording as short division

```
      0   2
   ┌──────
30 │ 6  60
```

- Informal written method

  60 ÷ 30 = 2 (from step *1:1*)

  85 – 60 = 25

so

85 ÷ 30 = 2 r 25

- Recording as long division

```
      2   r 25
   ┌──────
30 │ 8   5
     6   0
     2   5
```

- Informal written method

  7 × 50 = 350

  350 ÷ 50 = 7

  364 – 350 = 14

so

364 ÷ 50 = 7 r 14

- Recording as long division

```
         7   r 14
   ┌──────
50 │ 3   6   4
     3   5   0
     0   1   4
```

```
         9   r 7
   ┌──────
32 │ 2   9   5
     2   8   8        (9 × 32)
     0   0   7
```

so

295 ÷ 32 = 9 r 7

Ratio chart and short division:

'Becky has 434 cm of ribbon to wrap up prizes for a school competition. Each prize needs 31 cm of ribbon. How many prizes can she wrap?'

434 ÷ 31 = ?

	×31
1	31
2	62
3	
4	124
5	155
6	
7	
8	248
9	
10	310

`  0 ┌──` `31 │ 4  3  4`	4 hundreds ÷ 31 = 0 hundreds r 4 hundreds • *'Write "0" in the hundreds column…'*
`  0 ┌──` `31 │ 4 ⁴3  4`	4 hundreds = 40 tens • *'…and write "4" to the left of the tens digit of the dividend.'*
`  0  1 ┌──` `31 │ 4 ⁴3  4`	43 tens ÷ 31 = 1 ten r 12 tens • *'Write "1" in the tens column...'*
`  0  1 ┌──` `31 │ 4 ⁴3 ¹²4`	12 tens = 120 ones • *'…and write "12" to the left of the ones digit of the dividend.'*
`  0  1  4 ┌──` `31 │ 4 ⁴3 ¹²4`	124 ones ÷ 31 = 4 ones (refer to the ratio chart) • *'Write "4" in the ones column.'*

Ratio chart:	Step 1 – write the divisor, frame and dividend
×31 table (1: 31; 2: 62; 3: ; 4: 124; 5: 155; 6: ; 7: ; 8: 248; 9: ; 10: 310)	`  ┌──` `31 │ 4  3  4`

Step 2 – divide the hundreds
 `  0 ┌──`
 `31 │ 4  3  4`
 4 hundreds ÷ 31 = 0 hundreds r 4 hundreds
 • *'Write "0" in the hundreds column of the answer line.'*
	Step 3 – exchange hundreds for tens, combine with the existing tens and divide…
	 `  0  1 ┌──`
	 `31 │ 4  3  4`
	 `    3  1` (1 ten × 31 = 31 tens)
	 4 hundreds = 40 tens
	 40 tens + 3 tens = 43 tens
	 43 tens ÷ 31 = 1 ten and a remainder
	 • *'Write "1" in the tens column of the answer line and write "31" underneath the "43".'*

Step 4 – subtract to find the remainder

```
     0  1
   ┌──────
31 │ 4  3  4
     3  1          (1 ten × 31 = 31 tens)
     1  2
```

43 tens – 31 tens = 12 tens

- *'Write "12" underneath the "31".'*

Step 5 – exchange tens for ones and combine with the existing ones

```
     0  1
   ┌──────
31 │ 4  3  4
     3  1  ↓       (1 ten × 31 = 31 tens)
     1  2  4
```

12 tens = 120 ones

120 ones + 4 ones = 124 ones

- *'Write "4" after the "12".'*

Step 6 – divide the ones

```
     0  1  4
   ┌──────
31 │ 4  3  4
     3  1          (1 ten × 31 = 31 tens)
     1  2  4
     1  2  4       (4 ones × 31 = 124 ones)
```

124 ones ÷ 31 = 4 ones

(refer to the ratio chart)

- *'Write "4" in the ones column of the answer line and write "124" underneath the "124", aligning the digits.'*

Step 7 – subtract to show there is no remainder

```
     0  1  4
   ┌──────
31 │ 4  3  4
     3  1          (1 ten × 31 = 31 tens)
     1  2  4
     1  2  4       (4 ones × 31 = 124 ones)
     ──────
        0
```

124 ones – 124 ones = 0 ones

- *'Write "0" underneath the "31".'*

- *'Becky can wrap fourteen presents.'*

Short division

```
     0  1  4
   ┌──────
31 │ 4 ⁴3 ¹²4
```

Long division

```
     0  1  4
   ┌──────
31 │ 4  3  4
     3  1          (1 ten × 31 = 31 tens)
     1  2  4
     1  2  4       (4 ones × 31 = 124 ones)
     ──────
        0
```

Three-digit ÷ two-digit calculation with a remainder:

Ratio chart

	×33
1	33
2	66
3	
4	132

Short division

```
     0  2  1  r 25
   ┌──────
33 │ 7 ⁷1 ⁵8
```

Long division

```
        2  1  r 25
   ┌──────
33 │ 7  1  8
     6  6
        5  8
        3  3
        2  5
```

Four-digit ÷ two-digit calculation without remainder:

4,945 ÷ 23 = ?

Long division

```
        2  1  5
   ┌──────
23 │ 4  9  4  5
     4  6
        3  4
        2  3
        1  1  5
        1  1  5
        ──────
           0
```

Short division

```
     0  2  1  5
   ┌──────
23 │ 4 ⁴9 ³4 ¹¹5
```

Four-digit ÷ two-digit calculation with remainder:

7,283 ÷ 28 = ?

Long division

```
        2  6  0  r 3
   ┌──────
28 │ 7  2  8  3
     5  6
     1  6  8
     1  6  8
     ──────
        0  3
```

Short division

```
                 3
   ┌──────
28 │ 7 ⁷2 ¹⁶8  3
```

Long division – remainder converted to decimal fraction:

'Dinesh sells twenty-five jumpers, each for the same amount, and makes a total of £730. How much did each jumper sell for?'

730 ÷ 25 = ?

Step 1 – calculate the whole-number quotient:

```
        2  9
   ┌──────
25 │ 7  3  0
     5  0
     2  3  0
     2  2  5
           5
```

- 73 tens ÷ 25 = 2 tens and a remainder
  'Write "2" in the tens column of the answer line and write "50" underneath the "73".'
- 73 tens – 50 tens = 23 tens
  'Write "23" underneath the "50".'
- 23 tens = 230 ones
  'Write "0" after the "23".'
- 230 ones ÷ 25 = 9 ones and a remainder
  'Write "9" in the ones column of the answer line and write "225" underneath the "230".'
- 230 ones – 225 ones = 5 ones
  'Write "5" underneath the "225".'

Step 2 – introduce the decimal point:

```
        2  9 .
   ┌──────
25 │ 7  3  0 . 0
     5  0
     2  3  0
     2  2  5
           5
```

- *'There is a remainder. To represent this as a decimal fraction, first write a decimal point after the ones digit of both the dividend and the quotient. Write a place-holder zero in the tenths column of the dividend.'*

Step 3 – continue:

```
        2  9 .
   ┌──────
25 │ 7  3  0 . 0
     5  0
     2  3  0
     2  2  5
           5  0
```

- 5 ones = 50 tenths
  'Write "0" after the "5".'

Step 4 – complete the calculation:

```
        2  9 . 2
   ┌──────
25 │ 7  3  0 . 0
     5  0
     2  3  0
     2  2  5
           5  0
           5  0
           ──────
              0
```

- 50 tenths ÷ 25 = 2 tenths
  'Write "2" in the tenths column of the answer line and write "50" underneath the "50".'
- 50 tenths – 50 tenths = 0 tenths
  'Write "0" underneath the "50".'

- So, 730 ÷ 25 = 29.2
- *'Each jumper sold for £29.20.'*

Short division alternative:

```
     0  2  9 . 2
   ┌──────
25 │ 7 ⁷3 ²³0 . ⁵0
```

Long division – remainder converted to proper fraction:

'Saveeta travels 730 km to visit her grandma. Lily travels 25 km to visit her grandma. How many times Lily's distance does Saveeta travel?'

730 ÷ 25 = ?

```
        2  9  5/25
   ┌──────
25 │ 7  3  0
     5  0
     2  3  0
     2  2  5
           5
```

- *'There is a remainder. To represent this as a fraction, write the remainder as the numerator and the divisor as the denominator.'*

  $5 \div 25 = \frac{5}{25}$

  'Write $\frac{5}{25}$ after the ones column of the answer line.'

- *'Simplify the fraction.'*

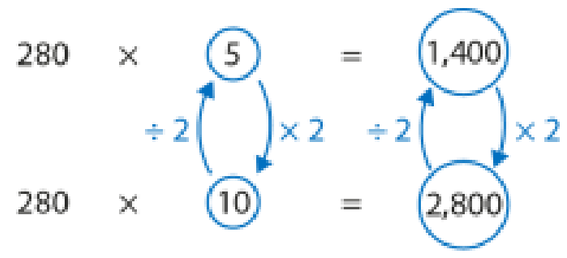
  $\frac{5}{25} = \frac{1}{5}$

- So, $730 \div 25 = 29\frac{1}{5}$
- *'Saveeta travels twenty-nine and one-fifth times the distance that Lily travels.'*

Short division alternative:

```
     0  2  9  5/25
   ┌──────
25 │ 7 ⁷3 ²³0
```

- *'Solve* 280 × 5.'



Compare the equations: