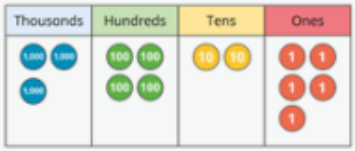
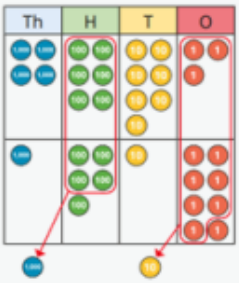
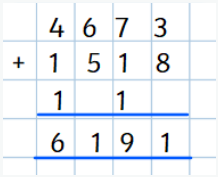
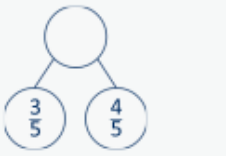
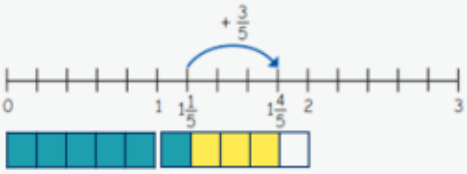
Year 4

Add numbers with up to 4 digits using a formal written method.
Solve simple measure and money problems involving fractions and decimals to 2 decimal places.
Add fractions with the same denominator.

Progression of Skills	Representations
Add 1s, 10s and 100s to a 4-digit number Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.	The ones/tens/hundreds/thousands column will increase by …  3,425 + 3 = 3,425 + 30 = 3,425 + 300 = 3,425 + 3,000 =
	What patterns do you notice? 2,350 + 3 = 2,350 + 30 = 2,350 + 300 = 2,350 + 3,000 = 6,040 + 200 = 6,040 + 500 = 6,040 + 900 = 2,211 + ☐ = 2,251 2,211 + ☐ = 2,215 2,211 + ☐ = 2,511
Add up to two 4-digit numbers Formal written method with up to 3 exchanges. Encourage children to estimate and use inverse operations to check answers to calculations.	There are … ones/tens/hundreds so I do/do not need to make an exchange. I can exchange 10 … for 1 …  
Add decimal numbers in the context of money Emphasis on partitioning and use of number lines rather than formal written calculations.	… pence + … pence = … pence … pounds + … pounds = … pounds  45p + 25p = 70p £2 + £3 = £5 £5 + 70p = £5.70
	£3.25 can be partitioned into £3 + 20p + 5p 
Add fractions and mixed numbers with the same denominator beyond 1 whole	When adding fractions with the same denominator, I only add the numerator. … fifths + … fifths = … fifths $\frac{3}{5} + \frac{4}{5} = \frac{7}{5} = 1\frac{2}{5}$   

Year 4

Subtract numbers with up to 4 digits using a formal written method.
Solve simple measure and money problems involving fractions and decimals to 2 decimal places.
Subtract fractions with the same denominator.

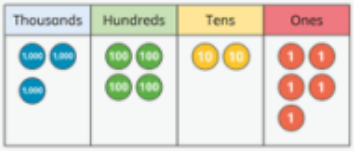
Progression of Skills

Representations

Subtract 1s, 10s, 100s and 1,000s from a 4-digit number

Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.

The ones/tens/hundreds/thousands column will decrease by ...



3,425 − 2 =
3,425 − 20 =
3,425 − 200 =
3,425 − 2,000 =

What patterns do you notice?

4,356 − 3 =
4,356 − 30 =
4,356 − 300 =
4,356 − 3,000 =

6,940 − 200 =
6,940 − 300 =
6,940 − 400 =

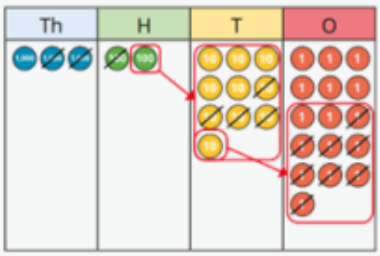
4,433 − ☐ = 4,430
4,433 − ☐ = 4,033
4,433 − ☐ = 4,403

Subtract up to two 4-digit numbers

Formal written method with up to 3 exchanges. Encourage children to estimate and use inverse operations to check answers to calculations.

I need to subtract... ones/tens/hundreds. I do/do not need to make an exchange.

I can exchange 1... for 10...



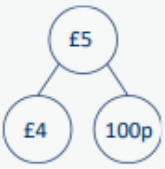
	Th	H	T	O
	3	12	10	16
−	2	1	4	8
	1	0	5	8

Subtract decimal numbers in the context of money

Emphasis here is on partitioning and use of number lines rather than formal written calculations.

I can partition £... into £... and 100p
£... − £... = £...
100p − ...p = ...p

£5 − £3.26
£4 − £3 = £1
100p − 26p = 74p
£5 - £3.26 = £1.74

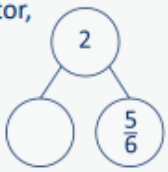


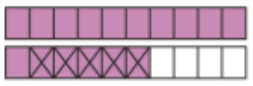
£3.26 can be partitioned into £3 + 20p + 6p

Subtract fractions and mixed numbers with the same denominator

Include subtracting fractions from wholes.

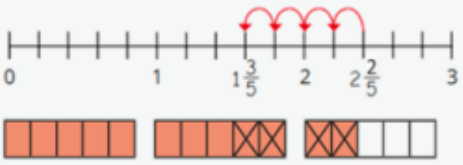
When subtracting fractions with the same denominator, I only subtract the numerator.
... tenths − ... tenths = ... tenths



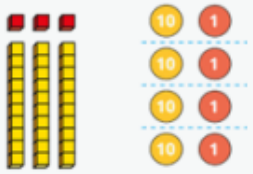
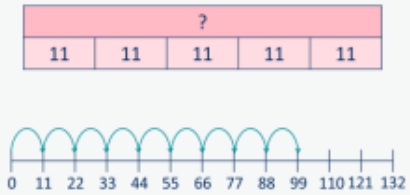
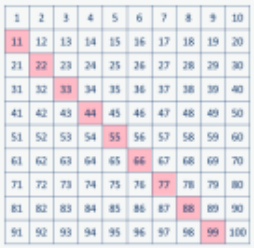
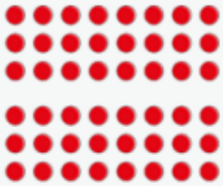
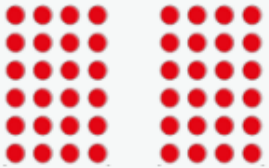
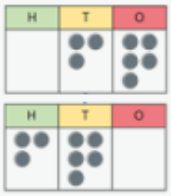


$\frac{16}{10} - \frac{5}{10}$

$\frac{16}{10} - \frac{9}{10}$



Year 4	Recall multiplication facts for multiplication tables up to 12 × 12 Use place value, known and derived facts to multiply mentally, including: multiplying by 0 and 1; multiplying together three numbers. Recognise and use factor pairs and commutativity in mental calculations. Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Progression of Skills	Representations
Times-table facts to 12 × 12 Encourage daily counting in multiples both forwards and back. Encourage children to notice links between related times-tables.	… groups of … = … times … is equal to … … × … =   
Multiply by 1 and 0	Any number multiplied by 1 is equal to … Any number multiplied by 0 is equal to …  … × … = … 1 × 1 = 1 1 × 0 = 0 2 × 1 = 2 2 × 0 = 0 3 × 1 = 3 3 × 0 = 0 4 × 1 = 4 4 × 0 = 0
Multiply 3 numbers Children use their understanding of commutativity to multiply more efficiently.	To work out … × … × …, I can first calculate … × … and then multiply the answer by …  4 × 2 × 3 = 8 × 3 = 24 2 × 3 × 4 = 6 × 4 = 24 3 × 4 × 2 = 12 × 2 = 24
Factor pairs Children explore equivalent calculations using different factors pairs.	12 = … × … , so … × 12 = … × … × …  8 × 6 = 8 × 3 × 2 8 × 6 = 24 × 2  6 × 8 = 6 × 4 × 2 6 × 8 = 24 × 2
Multiply by 10 and 100 Some children may over-generalise that multiplying by 10 or 100 always results in adding zeros. This will cause issues later when multiplying decimals.	When I multiply by 10, the digits move … place value column to the left. … is 10 times the size of …  35 × 10 = 350 When I multiply by 100, the digits move … place value columns to the left. … is 100 times the size of …  14 × 100 = 1,400

Related facts

Use knowledge of multiplying by 10 and 100 to scale times-table facts.

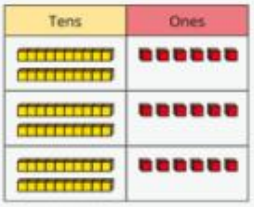
... × ... ones is equal to ... ones
so ... × ... tens is equal to ... tens
and ... × ... hundreds is equal to ... hundreds.

$3 \times 7 = 21$ $\quad$ $7 \times 3 = 21$
$3 \times 70 = 210$ $\quad$ $7 \times 30 = 210$
$3 \times 700 = 2{,}100$ $\quad$ $7 \times 300 = 2{,}100$

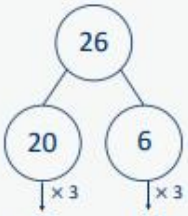
Mental strategies

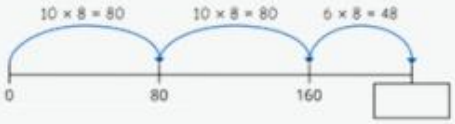
Partition 2 or 3-digit numbers to multiply using informal methods.

... tens multiplied by ... is equal to ... tens.
...ones multiplied by ... is equal to ... ones.



$3 \times 26 = 60 + 18 = 78$



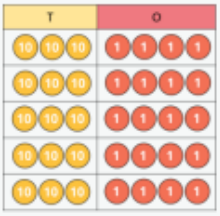


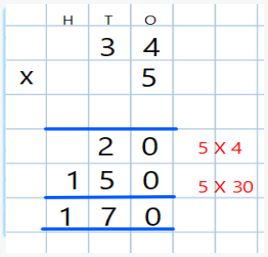
$26 \times 8 = 80 + 80 + 48 = 208$

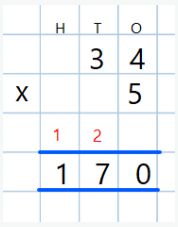
Multiply a 2 or 3-digit number by a 1-digit number

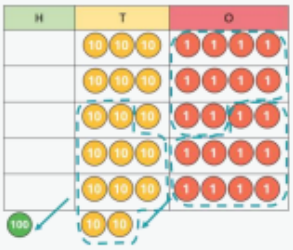
The short multiplication method is introduced for the first time, initially in an expanded form.

To multiply a 2-digit number by ... , I multiply the ones by ... and the tens by ...
To multiply a 3-digit number by ... , I multiply the ones by ... , the tens by ... and the hundreds by ...





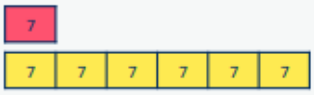




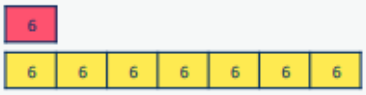
Scaling

Children focus on multiplication as scaling (... times the size).

... is ... times the size of ...



A computer mouse costs £7
A keyboard costs 6 times as much.



A red ribbon is 6 cm.
A yellow ribbon is 7 times as long.

Correspondence problems

Encourage children to use tables to show all the different possible combinations.

For every ... , there are ... possibilities.
There are ... × ... possibilities altogether.

A pizza company offers a choice of 5 toppings and 3 bases.

$5 \times 3 = 15$

	Deep pan	Italian	Thin
Cheese	C DP	C I	C Th
Mushroom	M DP	M I	M Th
Vegetable	V DP	V I	V Th
Chicken	C DP	C I	C Th
Tuna	T DP	T I	T Th

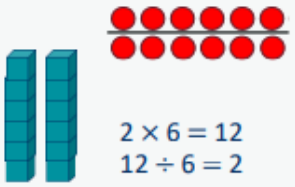
Year 4

Recall division facts for multiplication tables up to 12 × 12
Use place value, known and derived facts to divide mentally, including: dividing by 1
Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.

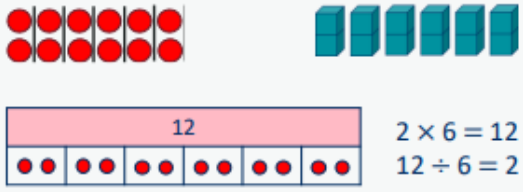
Division facts to 12 × 12

Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.

There are … groups of … in …
… ÷ … =



… has been shared equally into … equal groups.
… ÷ … =



Divide a number by 1 and itself

Children may try to divide a number by zero and it should be highlighted that this is not possible.

When I divide a number by 1, the number remains the same.

5 shared between 1 is 5

There are **5** groups of 1 in 5

When I divide a number by itself, the answer is 1

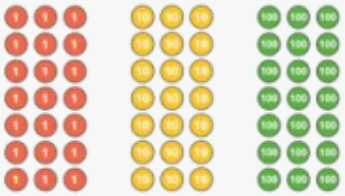
5 shared between 5 is 1

There is **1** group of 5 in 5

Related facts

Link to known times-table facts.

… ÷ … is equal to …
so … tens ÷ … is equal to … tens
and … hundreds ÷ … is equal to … hundreds.



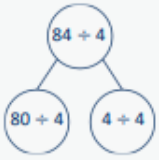
21 ÷ 7 = 3
210 ÷ 7 = 30
2,100 ÷ 7 = 300

21 ÷ 3 = 7
210 ÷ 3 = 70
2,100 ÷ 3 = 700

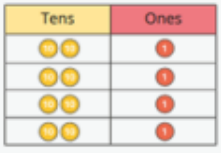
Divide a 2 or 3-digit number by a 1-digit number

Progress from divisions with no exchange, to divisions with exchange and then divisions with remainders.

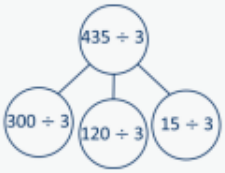
I can partition … into … tens and … ones.



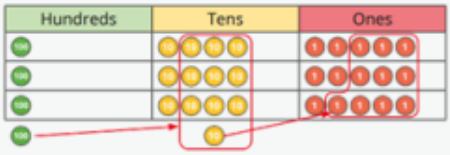
80 ÷ 4 = 20
4 ÷ 4 = 1
84 ÷ 4 = 21



I cannot share the hundreds/tens equally, so I need to exchange 1 … for 10 …



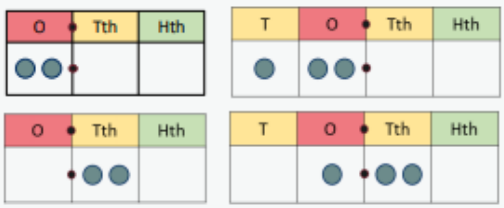
300 ÷ 3 = 100
120 ÷ 3 = 40
15 ÷ 3 = 5
435 ÷ 3 = 145



Divide by 10 and 100

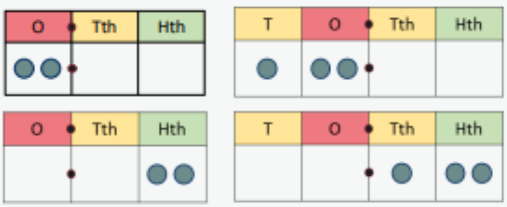
Encourage children to notice that dividing by 100 is the same as dividing by 10 twice.

When I divide by 10, the digits move 1 place value column to the right.
… is one-tenth the size of …



2 ÷ 10 = 0.2
12 ÷ 10 = 1.2

When I divide by 100, the digits move 2 place value columns to the right.
… is one-hundredth the size of …



2 ÷ 100 = 0.02
12 ÷ 100 = 0.12