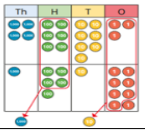
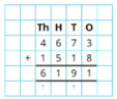
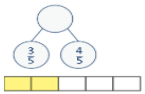
Progression of Addition

Year 3	Year 4	Year 5
Add 1s, 10s and 100s to a 3- digit number Add two numbers (no exchange) Add two numbers across a 10 or 100 Complements to 100 Add fractions with the same denominator within 1 whole Calculate the duration of events	Add 1s, 10s and 100s to a 4- digit number Add up to two 4-digit numbers Add decimal numbers in the context of money Add fractions and mixed numbers with the same denominator beyond 1 whole	Add using mental strategies Add whole numbers with more than 4 digits Add decimals with up to 2 decimal places Complements to 1 Add fractions with denominators that are a multiple of one another

Addition

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	**Key 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.	There are … ones, so I do/do not need to make an exchange. There are … tens, so I do/do not need to make an exchange. … ones = … ten and … ones. … tens = … hundred and … tens  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 $\frac{3}{5} + \frac{4}{5} = \frac{7}{5} = 1\frac{2}{5}$  	

Progression of Subtraction

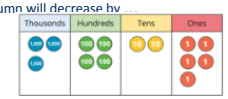
Year 3	Year 4	Year 5
Subtract 1s, 10s and 100s from a 3-digit number Subtract two numbers (no exchange) Subtract two numbers across a 10 or 100 Complements to 100 Subtract fractions with the same denominator within 1 whole	Subtract 1s, 10s, 100s and 1,000s from a 4-digit number Subtract up to two 4-digit numbers Subtract decimal numbers in the context of money Subtract fractions and mixed numbers with the same denominator	Subtract whole numbers with more than 4 digits Subtract using mental strategies Subtract decimals with up to 2 decimal places Complements to 1 Subtract fractions with denominators that are a multiple of one another

Subtraction

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	**Key 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 …



$3,425 - 2 =$ $3,425 - 200 =$

$3,425 - 20 =$ $3,425 - 2,000 =$

What patterns do you notice?

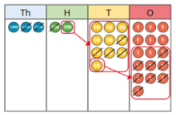
$4,356 - 3 =$
$4,356 - 30 =$
$4,356 - 300 =$

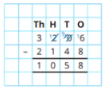
$6,940 - 200 =$
$6,940 - 300 =$
$6,940 - 400 =$

$4,433 - \square = 4,430$
$4,433 - \square = 4,033$
$4,433 - \square = 4,403$

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…





$4,356 - 3,000 =$

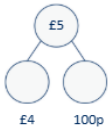
Subtract decimal numbers in the context of money
Emphasis here is on partitioning and use of number lines rather than formal written calculations.

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

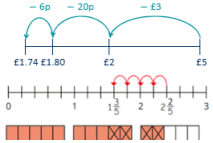
£5 − £3.26

£4 − £3 = £1

100p − 26p = 74p
£5 - £3.26 = £1.74



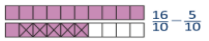
£3.26 can be partitioned into £3 + 20p + 6p



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



Progression of Multiplication

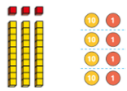
Year 3	Year 4	Year 5
The 3 times-table The 4 times-table The 8 times-table Related facts Multiply a 2-digit number by a 1-digit number - no exchange Multiply a 2-digit number by a 1-digit number - with exchange Scaling Correspondence problems	Times-table facts to 12 × 12 Multiply by 1 and 0 Multiply 3 numbers Factor pairs Multiply by 10 and 100 Related facts Mental strategies Multiply a 2 or 3-digit number by a 1-digit number Scaling Correspondence problems	Multiples and factors Square and cube numbers Multiply numbers up to 4 digits by a 1-digit number Multiply numbers up to 4 digits by a 2-digit number Multiply by 10, 100 and 1,000 Mental strategies Multiply fractions by a whole number Multiply mixed numbers by a whole number Find the whole

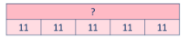
Multiplication

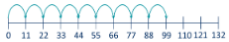
Year 4	Recall multiplication facts for multiplication tables up to 12 × 12 Use place value, known and derived facts to multiply mentally, including: multiplying by 0 and 1; multiplying together three numbers. Recognise and use factor pairs and commutativity in mental calculations. Multiply two-digit 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	**Key representations**

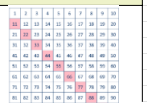
Times-table facts to 12 × 12
Encourage daily counting in multiples both forwards and back.
Encourage children to notice links between related times-tables.

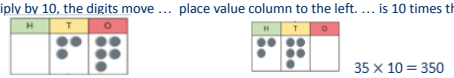
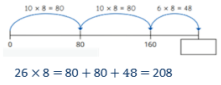
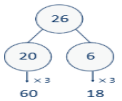
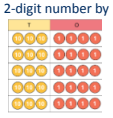
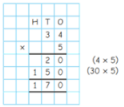
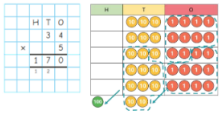
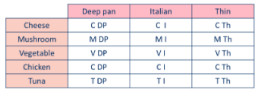
… groups of … =
… times … is equal to …
… × … =







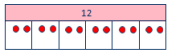
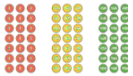
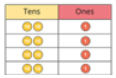
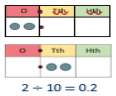
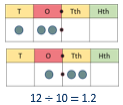
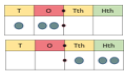


Multiply by 1 and 0 Any number multiplied by 1 is equal to … Any number multiplied by 0 is equal to …		… × … = … 1 × 1 = 1 1 × 0 = 0 2 × 1 = 2 2 × 0 = 0 3 × 1 = 3 3 × 0 = 0 4 × 1 = 4 4 × 0 = 0
Multiply 3 numbers Children use their understanding of commutativity to multiply more efficiently.	To work out … × … × …, 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 = … × … × … 	
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 … 
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.   26 × 8 = 80 + 80 + 48 = 208  3 × 26 = 60 + 18 = 78	
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 hu   	
Scaling Children focus on multiplication as scaling (… times the size)	For every … , there are … possibilities. There are … × … possibilities altogether. A pizza company offers a choice of 5 toppings and 3 bases. 5 × 3 = 15	

Progression of Division

Year 3	Year 4	Year 5
Divide by 3 Divide by 4 Divide by 8 Related facts Divide a 2-digit number by a 1-digit number - no exchange Divide a 2-digit number by a 1-digit number - with remainders Unit fractions of a set of objects Non-unit fractions of a set of objects	Division facts to 12 × 12 Divide a number by 1 and itself Related facts Divide a 2 or 3-digit number by a 1-digit number Divide by 10 and 100	Mental strategies Divide numbers up to 4 digits by a 1-digit number Divide by 10, 100 and 1,000 Fraction of an amount

Division

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.	
Progression of skills	**Key representations**	
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 … … ÷ … =   2 × 6 = 12 12 ÷ 6 = 2 	… has been shared equally into … equal groups. … ÷ … =   2 × 6 = 12 12 ÷ 6 = 2
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 …  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 r … is one-hundredth the size of …  2 ÷ 100 = 0.02  12 ÷ 100 = 0.12