Addition Year 1

Children should

- Have access to a wide range of counting equipment including Base 10, Numicon, bead strings, number lines and everyday objects and be shown numbers in different contexts
- Read and write the addition (+) and equals (=) signs within number sentences
- Interpret addition number sentences and solve missing number problems

8 + 3 = ☐   15 + ☐ = 19   ☐ + ☐ = 7

- Use number lines to add, by counting on in ones starting with the **larger** number

6+3=9

0 1 2 3 4 5 6 7 8 9 10
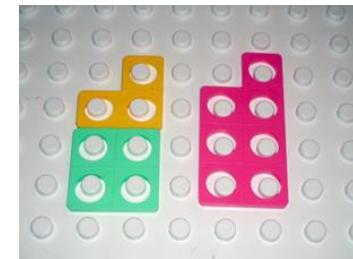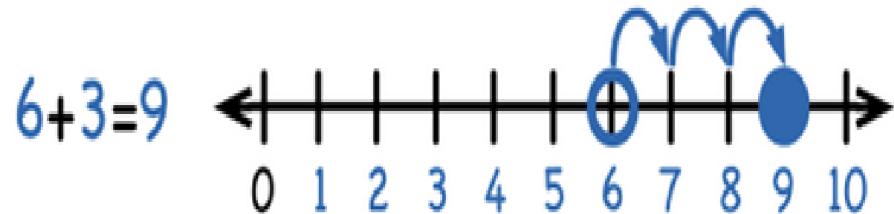
Key vocabulary

number bonds, number line, add, more, plus, make, sum, total, altogether, inverse, double, near double, equals, is the same as

Key skills for addition in Year 1

- Read and write numbers from 0 to 20 in numerals and words
- Count to and across 100, **forwards** and backwards
- Count in multiples of 2, 5 and 10
- Given a number, say **one more**
- Recall bonds to 10 and 20, and addition facts within 20
- Solve simple one-step problems involving addition, using concrete objects and pictorial representations

Addition Year 2
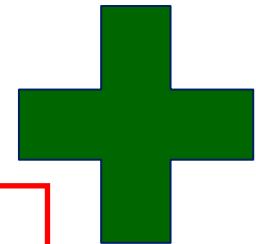
Children should

- Have access to a wide range of concrete equipment including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental calculation

Add by

- Partitioning and recombining, exchanging if necessary

34 + 45 = (30 + 40) + (4 + 5) = 79

- Using near doubles

6 + 7 = double 6 + 1 = 13

- Using near multiples of 10

24 + 9 = 24 + 10 − 1 = 34 -1 = 33

When a pupil has demonstrated with independent class work good understanding of place value and mental methods the **expanded** method can be introduced   67 + 28 = 95

	T	O
	6	7
+	2	8
	1	5
	8	0
	9	5
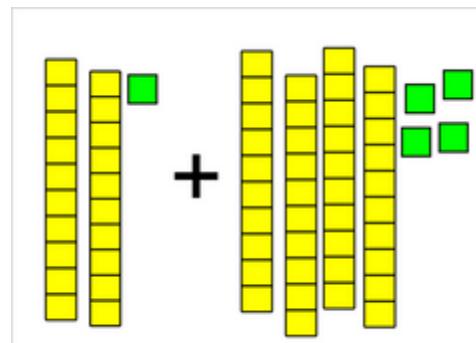
Add with 2-digit numbers

35 + 47
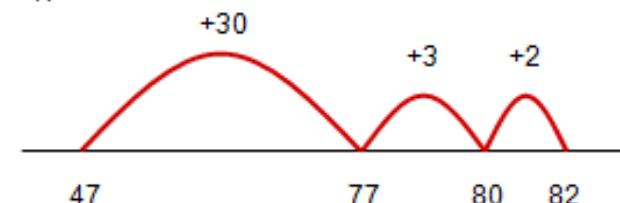
+30   +3   +2

47   77   80   82

Key vocabulary

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number bonds, number line, sum, tens, ones, partition, exchange

Key skills for addition in Year 2

- Add a two-digit number and ones
- Add a two-digit number and tens
- Add two two-digit numbers
- Add three single-digit numbers
- Understand that adding can be done in any order
- Recall number bonds to 20 fluently, and derive and use related facts up to 100
- Count in steps of 2, 3, and 5 and count in tens from any number
- Understand the place value of 2-digit numbers (tens and ones)
- Compare and order numbers from 0 up to 100 using <, > and = signs
- Read and write numbers to at least 100 in numerals and words
- Solve problems involving addition, using concrete, pictorial and abstract representations

Addition Year 3
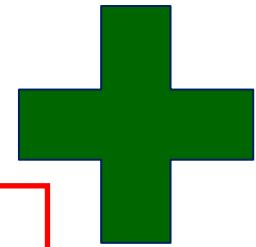
Children should
- Have access to a wide range of concrete equipment including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental and formal written calculation

Add using the **expanded** method:

367 + 28 = 395

```
    H   T   O
    3   6   7
+       2   8
    ─────────
        1   5
        8   0
    3   0   0
    ─────────
    3   9   5
```

Add numbers with up to 3-digits

Children who are secure and confident with the expanded method move on to use the **compact** column method. Eg 367 + 28 = 395

```
    H   T   O
    3   6   7
+       2   8
    ─────────
    3   9   5
          1
```

Key vocabulary

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, hundreds, tens, ones, partition, addition, column, increase, vertical, exchange, expanded, compact, inverse

Key skills for addition in Year 3

- Count, read and write numbers to 1000 in numerals and words
- Add a three-digit number and ones mentally
- Add a three-digit number and tens mentally
- Add a three-digit number and hundreds mentally
- Estimate answers to calculations, using the inverse to check answers.
- Solve problems, including missing number problems, using number facts, place value, and more complex addition
- Recognise the place value of each digit in 3-digit numbers (hundreds, tens, ones)
- Continue to practise a wide range of mental addition strategies, ie. number bonds, adding the nearest multiple of 10, 100, 1000 and adjusting, using near doubles, partitioning and recombining
- Add numbers with up to 3 digits using the formal written method of column addition

Addition Year 4
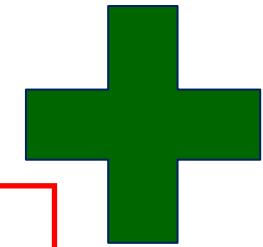
Children should

- Continue to have access to a wide range of practical apparatus including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental and formal written calculation

Add using the **compact column** method

Eg 3367 + 828 = 4195

```
      Th   H   T   O
       3   3   6   7
  +        8   2   8
      ─────────────
       4   1   9   5
           1       1
```

Use and apply this method to money and measurement values.

Add numbers with up to 4-digits

Key vocabulary

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones, partition, addition, column, increase, vertical, exchange, expanded, compact, thousands, hundreds, digits, inverse

Key skills for addition in Year 4

- Select the most appropriate method: mental, jottings or written and explain why
- Recognise the place value of each digit in a four-digit number
- Round any number to the nearest 10, 100 or 1000
- Estimate and use inverse operations to check answers
- Solve 2-step problems in context, deciding which operations and methods to use and why
- Find 1000 more than a given number
- Continue to practise a wide range of mental addition strategies, ie. number bonds, add the nearest multiple of 10, 100, 1000 and adjust, use near doubles, partitioning and recombining
- Add numbers with up to 4 digits using the formal written method of column addition

Addition Year 5

Children should
- Continue to have access to a wide range of practical apparatus including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental and formal written calculation. Include money, measures and decimals with different numbers of decimal places.

Add numbers with more than 4 digits using the **compact column** method

Eg 66367 + 25828 = 92195

```
    TTh  Th   H    T    O
     6    6    3    6    7
+    2    5    8    2    8
    _____
     9    2    1    9    5
     1    1         1
```

Add numbers with more than 4-digits including 2 decimal places

Use and apply this method to add money and measurement values.

Eg £23.59 + £7.55 = £31.14

```
     2    3  .  5    9
+         7  .  5    5
    _____
     3    1  .  1    4
     1    1     1
```

Key vocabulary

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones, partition, addition, column, increase, exchange, expanded, compact, vertical, thousands, hundreds, digits, inverse, decimal places, decimal point, tenths, hundredths, thousandths

Key skills for addition in Year 5

- Add numbers mentally with increasingly large numbers, using and practising a range of mental strategies ie. add the nearest multiple of 10, 100, 1000 and adjust; use near doubles, inverse, partitioning and re-combining; using number bonds
- Use rounding to check answers and accuracy
- Solve multi-step problems in contexts, deciding which operations and methods to use and why
- Read, write, order and compare numbers to at least 1 million and determine the value of each digit
- Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000
- Count forwards in steps of powers of 10 for any given number up to 1 million
- Interpret negative numbers in context, counting forwards and backwards with positive and negative integers through zero
- Add numbers with more than 4 digits using the formal written method of column addition

Addition Year 6
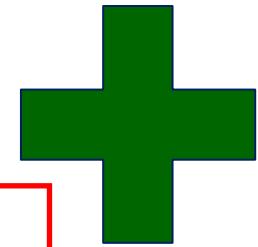
Children should

- Continue to have access to a wide range of practical apparatus including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental and formal written calculation. Include money, measures and decimals with different numbers of decimal places.

Add several numbers with different numbers of decimal places

Add several numbers with more than 4 digits

```
    2   3 .  3   6   1
        9 .  0   8   0
    5   9 .  7   7   0
+       1 .  3   0   0
   _____
    9   3 .  5   1   1
      2   1      2
```

Add with increasingly large and more complex numbers and decimal values

Use and apply this method to add money and measurement values.

Key vocabulary

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones, partition, addition, column, increase, exchange, expanded, compact, vertical, thousands, hundreds, digits, inverse, decimal places, decimal point, tenths, hundredths, thousandths

Key skills for addition in Year 6

- Perform mental calculations, including with mixed operations and large numbers, using and practising a range of mental strategies
- Solve multi-step problems in context, deciding which operations and methods to use and why
- Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy
- Read, write, order and compare numbers up to 10 million and determine the value of each digit
- Round any whole number to a required degree of accuracy
- Understand how to add mentally with larger numbers and calculations of increasing complexity

Subtraction Year 1

Children should

- Have access to a wide range of counting equipment including Base 10, Numicon, bead strings, number lines and everyday objects and be shown numbers in different contexts
- Read and write the subtraction (-) and equals (=) signs within number sentences
- Interpret subtraction number sentences and solve missing number problems

7 = [ ] - 9   19 - [ ] = 12   18 - 5 = [ ]

Subtract with numbers up to 20

- Use number lines to subtract, by counting back

7

4

−3

3   2   1

0   1   **2**   3   4   5   6

= 2   5
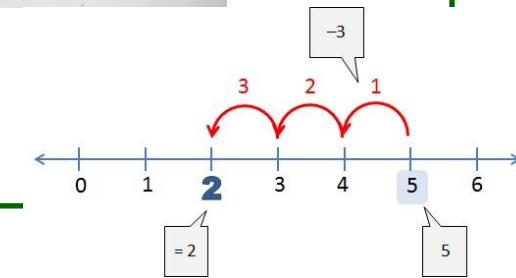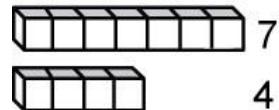
Key vocabulary

number bonds, number line, inverse, double, near double, equals, is the same as, difference between, subtract, take away, less, minus, leaves

Key skills for subtraction in Year 1

- Read and write numbers from 0 to 20 in numerals and words
- Count to and across 100, forwards and **backwards**
- Count in multiples of 2, 5 and 10
- Given a number say one less
- Recall bonds to 10 and 20 and subtraction facts within 20
- Subtract one-digit and two-digit numbers to 20, including zero
- Solve one-step problems involving subtraction, using concrete objects and pictorial representations

Subtraction Year 2

Children should
- Have access to a wide range of concrete equipment including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental calculation

Subtract by
- Partitioning, taking away the tens and then the ones, exchanging if necessary
- Counting back on a number line, counting back the tens and then the ones
- Partitioning and recombining, exchanging if necessary

45 - 32 = (40 - 30) + (5 - 2) = 13
- Using near multiples of 10

34 - 11 = 34 − 10 - 1 = 24 -1 = 23

When a pupil has demonstrated with independent class work good understanding of place value and mental methods the **expanded** method can be introduced   67 - 28 =

	T	O
	$^{50}6$ 0	$^{17}7$
-	2 0	8
	3 0	9

Subtract with 2-digit numbers

62 - 25 = ____

Tens	Ones

24   34   44   47

-10   -10   -3

47-23 = 24
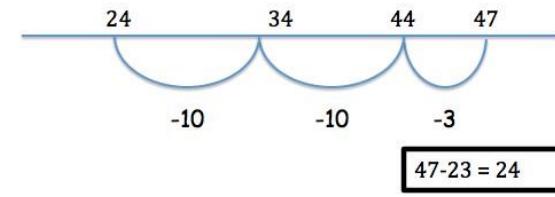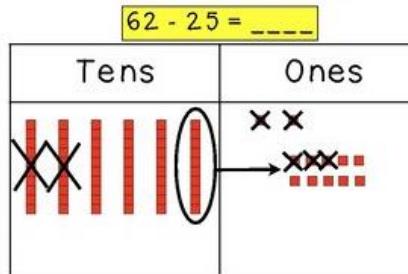
Key vocabulary

number bonds, number line, inverse, equals, is the same as, subtract, take away, less, minus, subtract, leaves, difference, partition, tens, ones, exchange

Key skills for subtraction in Year 2

- Subtract a two-digit number and ones
- Subtract a two-digit number and tens
- Subtract two two-digit numbers
- Recall number bonds to 20 fluently, and derive and use related facts up to 100
- Count in steps of 2, 3, and 5 and count in tens from any number
- Understand the place value of 2-digit numbers (tens and ones)
- Compare and order numbers from 0 up to 100 using <, > and = signs
- Read and write numbers to at least 100 in numerals and in words
- Solve problems involving subtraction, using concrete, pictorial and abstract representations

Subtraction Year 3

Children should
- Have access to a wide range of concrete equipment including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental and formal written calculation

Subtract using the **expanded** method:

367 - 58 =

H	T	O
3 0 0	^{50}6̶ 0̶	^{17}7̶
-	5 0	8
3 0 0	0 0	9

367 - 58 = 309

Children who are secure and confident with the expanded method move on to use the **compact** column method. Eg 367 - 58 =

H	T	O
3	^{5}6̶	^{1}7
-	5	8
3	0	9

Subtract numbers with up to 3-digits

Key vocabulary

subtract, take away, less, minus, leaves, difference, partition, hundreds, tens, ones, exchange, column, decrease, vertical, expanded, compact, inverse, estimate

Key skills for subtraction in Year 3

- Count, read and write numbers to 1000 in numerals and words
- Subtract a three-digit number and ones mentally
- Subtract a three-digit number and tens mentally
- Subtract a three-digit number and hundreds mentally
- Estimate answers to calculations, using the inverse to check answers
- Solve problems, including missing number problems, using number facts, place value, and more complex subtraction
- Recognise the place value of each digit in 3-digit numbers (hundreds, tens, ones)
- Continue to practise a wide range of mental subtraction strategies, ie. number bonds, subtracting the nearest multiple of 10, 100, 1000 and adjusting, partitioning and recombining
- Subtract numbers with up to 3 digits using the formal written method of column subtraction

Subtraction Year 4

Children should
- Continue to have access to a wide range of practical apparatus including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental and formal written calculation

Subtract using either the **expanded** or **compact column** method

2367 - 1058 =

Th				H			T			O	
2	0	0	0	3	0	0	$^{50}\cancel{6}$	0		$^{17}\cancel{7}$	
- 1	0	0	0				5	0		8	
1	0	0	0	3	0	0	0	0		9	

2367 - 1058 = 1309

Compact column method

Th	H	T	O
2	3	$^{5}\cancel{6}$	$^{1}7$
- 1	0	5	8
1	3	0	9

2367 - 1058 = 1309

Subtract numbers with up to 4-digits

Use and apply these methods to subtract money and measurement values.

Key vocabulary

subtract, take away, less, minus, leaves, difference, partition, thousands, hundreds, tens, ones, exchange, column, decrease, vertical, expanded, compact, inverse, estimate

Key skills for subtraction in Year 4

- Select the most appropriate method: mental, jottings or written and explain why
- Recognise the place value of each digit in a four-digit number
- Round any number to the nearest 10, 100 or 1000
- Estimate and use inverse operations to check answers
- Solve two-step problems in context, deciding which operations and methods to use and why
- Find 1000 less than a given number
- Continue to practise a wide range of mental subtraction strategies, ie. number bonds, subtract the nearest multiple of 10, 100, 1000 and adjust, partitioning and recombining
- Subtract numbers with up to 4 digits using the formal written method of column subtraction

Subtraction Year 5

Children should
- Continue to have access to a wide range of practical apparatus including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental and formal written calculation.

Subtract numbers with more than 4 digits using the **compact column** method

```
  TTh  Th   H    T    O
   ²3⁄   ¹2   3   ⁵6⁄   ¹7
-      2   5    0    5    8
      0   7    3    0    9
```

32367 - 25058 = 7309

Use and apply these methods to subtract money and measurement values.

Subtract numbers with more than 4-digits including 2 decimal places

Key vocabulary

subtract, take away, less, minus, leaves, difference, partition, thousands, hundreds, tens, ones, exchange, column, decrease, vertical, expanded, compact, inverse, estimate, tenths, hundredths, decimal point, decimal, integer

Key skills for subtraction in Year 5

- Subtract numbers mentally with increasingly large numbers, using and practising a range of mental strategies ie. Subtract the nearest multiple of 10, 100, 1000 and adjust, inverse, partitioning and re-combining, using number bonds
- Use rounding to check answers and accuracy
- Solve multi-step problems in contexts, deciding which operations and methods to use and why
- Read, write, order and compare numbers to at least 1 million and determine the value of each digit
- Round any number up to 1, 000, 000 to the nearest 10, 100, 1000, 10,000 and 100,000
- Count backwards in steps of powers of 10 for any given number up to 1 million
- Interpret negative numbers in context, counting backwards with positive and negative integers through zero
- Subtract numbers with more than 4 digits using the formal written method of column subtraction

Subtraction Year 6

Children should
- Continue to have access to a wide range of practical apparatus including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental and formal written calculation. Include money, measures and decimals with different numbers of decimal places.

Subtract numbers with more than 4 digits using the **compact column** method

```
  TTh  Th  H   T   O
   ²3̶  ¹2   3   ⁵6̶  ¹7
-   2   5   0   5   8
    0   7   3   0   9
```

32367 - 25058 = 7309

Subtract with increasingly large and more complex numbers and decimal values

Use and apply these methods to subtract money and measurement

Key vocabulary
Key skills for subtraction in Year 6

subtract, take away, less, minus, leaves, difference, partition, thousands, hundreds, tens, ones, exchange, column, decrease, vertical, expanded, compact, inverse, estimate, tenths, hundredths, decimal point, decimal, integer

Key skills for subtraction in Year 6
- Subtract numbers mentally with increasingly large numbers, using and practising a range of mental strategies ie. Subtract the nearest multiple of 10, 100, 1000 and adjust, inverse, partitioning and re-combining, using number bonds
- Use rounding to check answers and accuracy
- Solve multi-step problems in contexts, deciding which operations and methods to use and why
- Read, write, order and compare numbers to at least 1 million and determine the value of each digit
- Round any number up to 1, 000, 000 to the nearest 10, 100, 1000, 10,000 and 100,000
- Count backwards in steps of powers of 10 for any given number up to 1 million
- Interpret negative numbers in context, counting backwards with positive and negative integers through zero
- Subtract numbers with more than 4 digits using the formal written method of column subtraction

Multiplication
Year 1
X

Children should
- Have access to a wide range of concrete apparatus including Base 10, Numicon, bead strings, number lines and everyday objects
- Read and write the multiplication (x) and equals (=) signs within number sentences

Multiply using
- concrete objects, arrays and pictorial representations

How many legs will 3 teddies have?

2 + 2 + 2 = 6

4 x 5
5 + 5 + 5 + 5
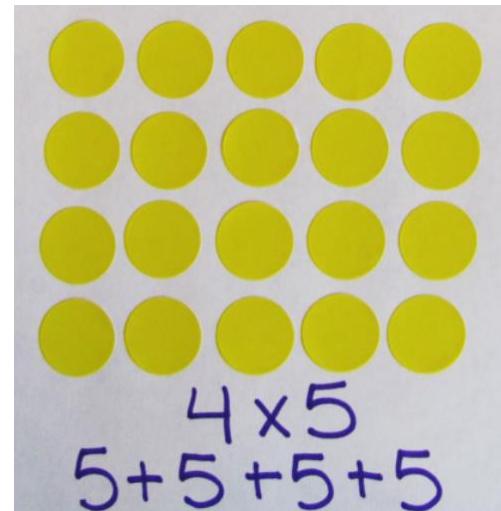
Key vocabulary

Once, twice, three, five times, multiple of times, repeated addition, array, row, column, double

Key skills for multiplication in Year 1

- Count in multiples of 2, 5 and 10, forwards and backwards
- Solve one-step problems involving multiplication, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher
- Make connections between arrays, number patterns and counting in twos, fives and tens
- Begin to understand doubling using concrete objects and pictorial representations

Multiplication
Year 2 X

Children should
- Have access to a wide range of concrete equipment including Numicon, Base 10, place value counters and empty number lines to support mental calculation

Multiply using
- Repeated addition
- Arrays
- Mental recall of facts for the 2, 5 and 10 times tables

Multiply numbers up to 12 by 2, 5 and 10

$5 \times 3 = 15$

$3 \times 5 = 15$

$5 \times 3 = 5 + 5 + 5 = \underline{15}$

$3 \times 5 = 3 + 3 + 3 + 3 + 3 = \underline{15}$

Key vocabulary

Once, twice, three times, five times, multiple, times, repeated addition, array, row, column, double, groups of, equal, commutative

Key skills for multiplication in Year 2

- Count in steps of 2, 3 and 5 from zero, and in 10s from any number
- **Recall and use multiplication facts from the 2, 5 and 10 multiplication tables**, including recognising odds and evens
- Write and calculate number statements using the x and = sign
- Understand that multiplication can be done in any order (commutative)
- Solve a range of problems involving multiplication, using concrete objects, arrays, repeated addition, mental methods and multiplication facts
- Solve problems involving multiplication, using concrete, pictorial and abstract representations

Multiplication Year 3 X

Children should

- Have access to a wide range of concrete equipment including Numicon, Base 10, place value counters to support mental and formal written calculation

Multiply using the **expanded** method:

14 x 3

```
      H   T   O
          1   4
  x           3
      _____
      1   2       (3 x 4)
      3   0       (3 x 10)
      _____
      4   2
```

14 x 3 = 42

Children who are secure and confident with the expanded method move on to use **short** multiplication Eg 14 x 3

```
          H   T   O
              1   4
      x           3
          _____
              4   2
                1
```

Multiply 2-digit numbers by a one-digit number

Key vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, once, twice, three times..., partition, multiple, product, hundreds, tens, ones, exchange

Key skills for multiplication in Year 3

- **Recall and use multiplication facts for the 2, 3, 4, 5, 8 and 10 multiplication tables**
- Recognise the place value of each digit in 3-digit numbers (hundreds, tens, ones)
- Multiply by 10 and multiples of 10
- Write and calculate number statements using known multiplication tables including 2-digit x single digit, using mental methods and progressing to written methods
- Solve multiplication problems, including missing number problems   x 5 = 20,   3 x   = 18,   x   = 32
- Develop mental strategies using commutativity (e.g. 4 x 12 x 5 = 4 x 5 x 12 = 20 x 12 = 240)
- Solve problems involving multiplication in contexts

Multiplication Year 4

X

Children should

- Continue to have access to a wide range of practical apparatus including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental and formal written.
- Multiply using the **expanded** method:

514 x 3

```
      Th   H    T    O
           5    1    4
  x                  3
      _____
                1    2      (3 x 4)
                3    0      (3 x 10)
       1    5   0    0      (3 x 500)
      _____
       1    5   4    2
```

Multiply 2 and 3-digit numbers by a one-digit number

Children who are secure and confident with the expanded method move on to use **short** multiplication

Eg 514 x 3

```
      Th   H    T    O
           5    1    4
  x                  3
      _____
       1    5   4    2
                   1
```

Key vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, array, column, row, commutative, groups of, sets of, lots of, equal groups, multiply, times once, twice, three times... partition, total, multiple, product, inverse, thousands, hundreds, tens, ones, exchange

Key skills for multiplication Year 4

- Count in multiples of 6, 7, 9, 25 and 1000
- **Recall multiplication facts for all multiplication tables up to 12 x 12**
- Recognise the place value of each digit in 4-digit numbers (thousands, hundreds, tens, ones)
- Use place value, known and derived facts to multiply mentally including: multiplying by 0, 1, 10, 100; multiplying 3 numbers
- Use factor pairs and commutativity in mental calculation 3 x 6 = 6 x 3 , 2 x 6 x 5 = 10 x 6

Multiplication Year 5 X

Children should

- Continue to have access to a wide range of practical apparatus including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental and formal written calculation.
- Multiply by 2 digit numbers using **long** multiplication

Eg 2367 x 28 =

TTh	Th	H	T	O
	2	3	6	7
x			2	8
1	8$_2$	9$_5$	3$_5$	6
4	7$_1$	3$_1$	4	0
6	6	2	7	6
1	1			

Continue to use **short** multiplication for more complex numbers Eg 3652 x 8

TTh	Th	H	T	O
	3	6	5	2
x				8
2	9	2	1	6
	5	4	1	

**Multiply numbers with up to 4 digits by a 1 or 2-digit number**

Key vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets equal groups, once, twice, three times... partition, total, multiple, product, inverse, factor, factor pairs, composite numbers, prime numbers, prime factors, square number, cubed number, integer, exchange

Key skills for multiplication in Year 5

- **Recall and multiplication facts for all times tables up to 12 x 12**
- Identify multiples and factors, using knowledge of multiplication tables to 12 x 12
- Solve problems where larger numbers are decomposed into their factors
- Multiply integers (whole numbers) and decimals by 10, 100 and 1000
- Recognise and use square and cube numbers and their notation
- Solve problems involving combinations of operations, choosing and using calculations and methods appropriately

Multiplication Year 6

X

Children should

- Continue to have access to a wide range of practical apparatus including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental and formal written calculation. Include money, measures and decimals with different numbers of decimal places.

£36.52 x 8 = £292.16

```
      T  O  .  t  h
      3  6  .  5  2
   x         .     8
   _____
   2  9  2  .  1  6
         5  4     1
```

Multiply with increasingly large and more complex numbers and decimal values

Use and apply this method to add money and measurement values.

Key vocabulary

groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, commutative, sets of, equal groups, times once, twice, three times... partition, total, multiple, product, inverse, factor, factor pairs, composite numbers, prime numbers, prime factors, square number, cubed number, integer, common factors, common multiples

Key skills for addition in Year 6

- **Recall and multiplication facts for all times tables up to 12 x 12**
- Multiply up to 4-digit x 2-digit using long multiplication
- Perform mental calculations with mixed operations and large numbers
- Solve multi-step problems in a range of contexts, choosing appropriate combinations of operations and methods
- Estimate answers using round and approximation and determine levels of accuracy
- Round any integer to a required degree of accuracy

Division

Year 1
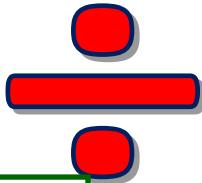
÷

Children should

- Have access to a wide range of concrete apparatus including Base 10, Numicon, bead strings, number lines and everyday objects
- Read and write the division (÷) and equals (=) signs within number sentences

Divide by sharing and grouping, using concrete objects, arrays and pictorial representations

Share small quantities equally

Sharing:

4   4   4
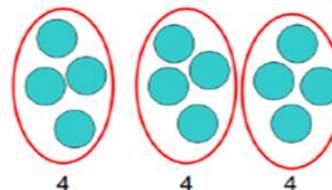
12 shared between 3 is 4

$12 ÷ 3 = 4$

Key vocabulary
share, share equally, group, groups of, lots of, array, halve, divide, divided by

Key skills for division in Year 1

- Count in multiples of 2, 5 and 10, forwards and backwards
- Solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher
- Make connections between arrays, number patterns and counting in twos, fives and tens
- Recognise, find and name a half as one of two equal parts of an object, shape or quantity
- Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity

Division Year 2
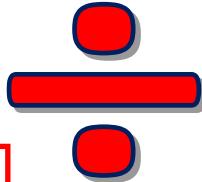
Children should

- Have access to a wide range of concrete equipment including Numicon, Base 10, place value counters, empty number lines and hundred squares to support mental calculation

Divide by sharing and grouping and using arrays

sharing
12 sweets shared between 3 people...
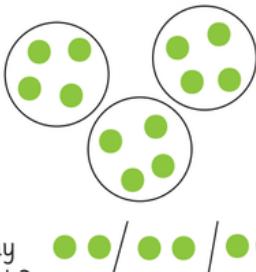
grouping
There are 6 sweets, how many people can have 2 sweets each?

●● / ●● / ●●
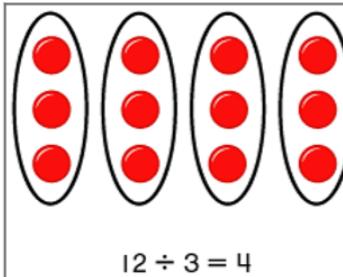
Divide using known multiplication facts

Arrays:

$12 \div 3 = 4$

This represents **12 ÷ 3, posed as** how many groups of 3 are in 12?

Pupils should also show that the same array can represent **12 ÷ 4 = 3** if grouped horizontally.

Key vocabulary
share, share equally, group, equal groups of, lots of, array, divide, divided by, grouping, left, halve

Key skills for division in Year 2

- Count in steps of 2, 3 and 5 from zero, and in 10s from any number
- **Recall and use multiplication and division facts from the 2, 5 and 10 multiplication tables**, including recognising odds and evens
- Write and calculate number statements using the ÷ and = sign
- Understand that multiplication BUT NOT DIVISION can be done in any order (commutative)
- Solve a range of problems involving division, using concrete objects, arrays, repeated addition, mental methods and multiplication facts
- Solve problems involving multiplication, using concrete, pictorial and abstract representations

Division Year 3 ÷
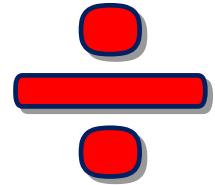
Children should
- Have access to a wide range of concrete equipment including Numicon, Base 10, place value counters to support mental and written calculation

Divide using mental methods and known multiplication facts

4 x 8 = 32 so 32 ÷ 8 = 4 and 32 ÷ 4 = 8

33 ÷ 3 = 11 so 66 ÷ 3 = 22 and 99 ÷ 3 = 33

40 ÷ 4 = 10 so 80 ÷ 4 = 20

And finding remainders
33 ÷ 4 = 8 r1

Children who are secure and confident with mental methods move on to use repeated subtraction.
Eg 72 ÷ 4 = 18

```
        7  2
     -  4  0        (10 x 4)
        3  2
     -  3  2        (8 x 4)
        0
```

**Divide 2-digit numbers by one-digit numbers using MENTAL METHODS and known multiplication facts**

Key vocabulary

share, share equally, group, equal groups of, lots of, array, divide, divided by, grouping, left, halve, left over, inverse, remainder, multiple, exchange

Key skills for division in Year 3

- **Recall and use multiplication and division facts for the 2, 3, 4, 5, 8 and 10 multiplication tables**
- Recognise the place value of each digit in 3-digit numbers (hundreds, tens, ones)
- Write and calculate number statements using known multiplication tables including 2-digit ÷ single digit, using mental methods and progressing to written methods
- Solve division problems including missing number problems ÷ 5 = 12, 56 ÷ = 7, ÷ = 8 and in context
- Develop efficient mental methods, for example, using multiplication and division facts (e.g. using 3 × 2 = 6, 6 ÷ 3 = 2 and 2 = 6 ÷ 3)

Division Year 4 ÷
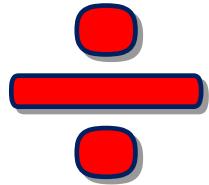
Children should
- Continue to have access to a wide range of practical apparatus including Numicon, Base 10, place value counters to support mental and written calculation

Divide using short division

Short division

$98 \div 7 = 14$

$$7 \overline{)9\ ^28}$$ gives $1\ 4$

$872 \div 4 = 218$

$$4 \overline{)8\ 7\ ^32}$$ gives $2\ 1\ 8$

Divide numbers with up to 3-digits by a one-digit number

Key vocabulary

share, share equally, group, equal groups of, lots of, array, divide, divided by, grouping, left, halve, left over, inverse, remainder, multiple, factor, exchange

Key skills for division in Year 4

- **Recall multiplication and division facts for all multiplication tables up to 12 x 12**
- Recognise the place value of each digit in 4-digit numbers (thousands, hundreds, tens, ones)
- Use place value, known and derived facts to divide mentally and extend this to three-digit numbers to derive facts, for example $200 \times 3 = 600$ so $600 \div 3 = 200$
- Practise to become fluent in the formal written method of short division
- Solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers

Division Year 5 ÷
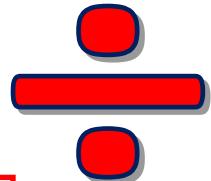
Children should

- Continue to have access to a wide range of practical apparatus including Base 10 and place value counters to support mental and written calculation

Divide numbers with up to 4 digits using short division

$8372 \div 4 = 2093$

```
    2  0  9  3
  _____
4 | 8  3  ³7 ¹2
```

Express remainders as a fraction or a decimal

$57 \div 4 = 14.25$ or $14 \frac{1}{4}$

```
    1  4   r1
  _____
4 | 5  ¹7
```

Finding and interpreting remainders

How many complete weeks are there in 125 days?

```
    1   7   r6
  _____
7 | 1  ¹2  ⁵5
```

There are 17 complete weeks in 125 days (round down)

There are 6 children to each table. There are 127 children in the school. How many tables are needed?

```
    2   1   r1
  _____
6 | 1  ¹2   7
```

22 tables are needed (round up)

Divide numbers with up to 4-digits by a one digit-number

Key vocabulary

share, share equally, group, equal groups of, lots of, array, divide, divided by, grouping, left, halve, left over, inverse, remainder, multiple, factor, factor pairs, composite numbers, prime numbers, prime factors, square number, cubed number, integer

Key skills for division in Year 5

- **Recall multiplication and division facts for all times tables up to 12 x 12**
- Divide numbers mentally, drawing upon known facts
- Divide whole numbers and those involving decimals by 10, 100 and 1000
- Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
- Solve problems involving combinations of all four operations, including understanding of the equals sign, and including division for scaling by different fractions and problems involving simple rates.

Division   Year 6   ÷
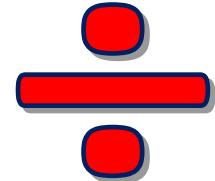
Children should
- Continue to have access to a wide range of practical apparatus including Base 10 and place value counters to support mental and written calculation

Divide numbers with up to 4 digits by a two-digit whole number using long division interpreting any remainders as appropriate

Divide numbers with up to 4 digits by a two-digit whole number using **short division** where appropriate interpreting any remainders as appropriate

$8372 ÷ 12 = 697r6$

```
        6   9   7     r6
 1  2 | 8   3  ¹¹7  ⁹2
```

Divide numbers up to 4-digits by a 2-digit number

Long division
$8372 ÷ 24 = 2093$

```
              3   4   8      r20
     2   4 | 8   3   7   2
             7   2
             1   1   7
                 9   6
                 2   1   2
                 1   9   2
                     2   0
```

Key vocabulary

share, share equally, group, equal groups of, lots of, array, divide, divided by, grouping, left, halve, left over, inverse, remainder, multiple, factor, factor pairs, composite numbers, prime numbers, prime factors, square number, cubed number, integer

Key skills for division in Year 6

- **Recall multiplication and division facts for all times tables up to 12 x 12**
- Perform mental calculations, including with mixed operations and large numbers, using and practising a range of mental strategies
- Divide numbers with up to 4 digits by a two-digit whole number using long division interpreting any remainders as appropriate
- Divide numbers with up to 4 digits by a two-digit whole number using **short division** where appropriate interpreting any remainders as appropriate
- Solve multi-step problems in context, deciding which operations and methods to use and why
- Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy