KEY STAGE 1

Children in Years 1 and 2 will be given a really solid foundation in the basic building blocks of mental and written arithmetic. Through being taught place value, children will develop an understanding of how numbers work, so that they are confident with 2-digit numbers and beginning to read and say numbers above 100.

Addition and Subtraction: A focus on number bonds, first via practical hands-on experiences and subsequently using memorisation techniques, enables a good grounding in these crucial facts, and ensures that all children leave Year 2 knowing the pairs of numbers which make all the numbers up to 10 at least. Children will also have experienced and been taught pairs to 20. Children's knowledge of number facts enables them to add several 1-digit numbers, and to add/subtract a 1-digit number to/from a 2-digit number. Another important conceptual tool is the ability to add/subtract 1 or 10, and to understand which digit changes and why. This understanding is extended to enable children to add and subtract multiples of 10 to and from any 2-digit number. The most important application of this knowledge is the ability to add or subtract any pair of 2-digit numbers by counting on or back in 10s and 1s. Children may extend this to adding by partitioning numbers into 10s and 1s.	**Multiplication and Division:** Children will be taught to count in 2s, 3s, 5s and 10s, and will relate this skill to repeated addition. Children will meet and begin to learn the associated ×2, ×3, ×5 and ×10 tables. Engaging in a practical way with the concept of repeated addition and the use of arrays enables children to develop a preliminary understanding of multiplication, and asking them to consider how many groups of a given number make a total will introduce them to the idea of division. Children will also be taught to double and halve numbers, and will thus experience scaling up or down as a further aspect of multiplication and division.	**Fractions:** Fractions will be introduced as numbers and as operators, specifically in relation to halves, quarters and thirds.

Year 1

	Mental calculation	Written calculation	Essential/ Expected attainment for all children
Y1 +	To know number bonds ('story' of 5, 6, 7, 8, 9 and 10) To be able to count on in 1s from a given 2-digit number To be able to add two 1-digit numbers To be able to add three 1-digit numbers, spotting doubles or pairs to 10 To be able to count on in 10s from any given 2-digit number To be able to add 10 to any given 2-digit number Use number facts to add 1-digit numbers to 2-digit numbers e.g. *Use 4 + 3 to work out 24 + 3, 34 + 3* To be able to add by putting the larger number first		To know pairs with a total of 10 To be able to count in 1s To be able to count in 10s To be able to count on 1 from any given 2-digit number

Y1 –	To know number bonds ('story' of 5, 6, 7, 8, 9 and 10) To be able to count back in 1s from a given 2-digit number To be able to subtract one 1-digit number from another To be able to count back in 10s from any given 2-digit number To be able to subtract 10 from any given 2-digit number To be able to use number facts to subtract 1-digit numbers from 2-digit numbers e.g. *Use 7 – 2 to work out 27 – 2, 37 – 2*		To know pairs with a total of 10 To be able to count back in 1s from 20 to 0 To be able to count back in 10s from 100 to 0 To be able to count back 1 from any given 2-digit number
Y1 ×	To begin to count in 2s, 5s and 10s To begin to say what three 5s are by counting in 5s, or what four 2s are by counting in 2s, etc. To be able to recall double numbers to 10		To begin to count in 2s and 10s To recall double numbers to 5 using fingers
Y1 ÷	To begin to count in 2s, 5s and 10s To be able to find half of even numbers to 12 and know it is hard to halve odd numbers To be able to find half of even numbers by sharing To begin to use visual and concrete arrays or 'sets of' to find how many sets of a small number make a larger number		To begin to count in 2s and 10s To be able to find half of even numbers by sharing

Year 2			
	Mental calculation	**Written calculation**	**Essential/ Expected attainment for all children**
Y2 +	Number bonds – To know all the pairs of numbers which make all the numbers to 12, and pairs with a total of 20 To be able to count on in 1s and 10s from any given 2-digit number To be able to add two or three 1-digit numbers To be able to add a 1-digit number to any 2-digit number using number facts, including bridging multiples of 10 e.g. *45 + 4* e.g. *38 + 7* To be able to add 10 and small multiples of 10 to any given 2-digit number To be able to add any pair of 2-digit numbers		To know pairs of numbers which make each total up to 10 To be able to add two 1-digit numbers To be able to add a 1-digit number to a 2-digit number by counting on in 1s To be able to add 10 and small multiples of 10 to a 2-digit number by counting on in 10s
Y2 –	Number bonds – To know all the pairs of numbers which make all the numbers to 12 To be able to count back in 1s and 10s from any given 2-digit number To be able to subtract a 1-digit number from any 2-digit number using number facts, including bridging multiples of 10 e.g. *56 – 3* e.g. *53 – 5* To be able to subtract 10 and small multiples of 10 from any given 2-digit number To be able to subtract any pair of 2-digit numbers by counting back in 10s and 1s or by counting up		To know pairs of numbers which make each total up to 10 To be able to subtract a 1-digit number from a 2-digit number by counting back in 1s To be able to subtract 10 and small multiples of 10 from a 2-digit number by counting back in 10s

Y2 ×	To be able to count in 2s, 5s and 10s To begin to count in 3s To begin to understand that multiplication is repeated addition and to use arrays e.g. *3 × 4 is three rows of 4 dots* To begin to learn the ×2, ×3, ×5 and ×10 tables, seeing these as 'lots of' e.g. *5 lots of 2, 6 lots of 2, 7 lots of 2* To recall double numbers up to 20 To begin to double multiples of 5 to 100 To begin to double 2-digit numbers less than 50 with 1s digits of 1, 2, 3, 4 or 5		To be able to count in 2s, 5s and 10s To begin to use and understand simple arrays e.g. *2 × 4 is two lots of four* To recall double numbers up to 10 To be able to double multiples of 10 to 50
Y2 ÷	To be able to count in 2s, 5s and 10s To begin to count in 3s Using fingers, say where a given number is in the 2s, 5s or 10s count e.g. *8 is the fourth number when I count in 2s* To be able to relate division to grouping e.g. *How many groups of 5 in 15?* To be able to halve numbers to 20 To begin to halve numbers to 40 and multiples of 10 to 100 To find $^1/_2$, $^1/_3$, $^1/_4$ and $^3/_4$ of a quantity of objects and of amounts (whole number answers)		To be able to count in 2s, 5s and 10s To be able to say how many rows in a given array e.g. *How many rows of 5 are in an array of 3 × 5?* To be able to halve numbers to 12 To be able to find $^1/_2$ of amounts

LOWER KEY STAGE 2

In Lower Key Stage 2, children build on the concrete and conceptual understandings they have gained in Key Stage 1 to develop a real mathematical understanding of the four operations, in particular developing arithmetical competence in relation to larger numbers.

Addition and subtraction: Children are taught to use place value and number facts to add and subtract numbers mentally and they will develop a range of strategies to enable them to discard the 'counting in 1s' or fingers-based methods of Key Stage 1. In particular, children will learn to add and subtract multiples and near multiples of 10, 100 and 1000, and will become fluent in complementary addition as an accurate means of achieving fast and accurate answers to 3-digit subtractions. Standard written methods for adding larger numbers are taught, learned and consolidated, and written column subtraction is also introduced.	**Multiplication and division:** This key stage is also the period during which all the multiplication and division facts are thoroughly memorised, including all facts up to 12 × 12. Efficient written methods for multiplying or dividing a 2-digit or 3-digit number by a 1-digit number are taught, as are mental strategies for multiplication or division with large but 'friendly' numbers, e.g. when dividing by 5 or multiplying by 20.	**Fractions and decimals:** Children will develop their understanding of fractions, learning to reduce a fraction to its simplest form, as well as finding non-unit fractions of amounts and quantities. The concept of a decimal number is introduced and children consolidate a firm understanding of 1-place decimals, multiplying and dividing whole numbers by 10 and 100.

Year 3

	Mental calculation	Written calculation	Essential/ Expected attainment for all children
Y3 +	To know pairs with each total to 20 e.g. *2 + 6 = 8, 12 + 6 = 18, 7 + 8 = 15* To know pairs of multiples of 10 with a total of 100 To be able to add any two 2-digit numbers by counting on in 10s and 1s or by using partitioning To be able to add multiples and near multiples of 10 and 100 To be able to perform place-value additions without a struggle e.g. *300 + 8 + 50 = 358* To be able to use place value and number facts to add a 1-digit or 2-digit number to a 3-digit number e.g. *104 + 56 is 160 since 104 + 50 = 154 and 6 + 4 = 10* *676 + 8 is 684 since 8 = 4 + 4 and*	To be able to use expanded column addition to add two or three 3-digit numbers or three 2-digit numbers To be able to begin to use compact column addition to add numbers with 3 digits To begin to add like fractions e.g. $^3/_8 + {}^1/_8 + {}^1/_8$ To be able to recognise fractions that add to 1 e.g. $^1/_4 + {}^3/_4$ e.g. $^3/_5 + {}^2/_5$	To know pairs of numbers which make each total up to 10, and which total 20 To be able to Add two 2-digit numbers by counting on in 10s and 1s e.g. *56 + 35 is 56 + 30 and then add the 5* To be able to understand simple place-value additions e.g. *200 + 40 + 5 = 245* To be able to use place value to add multiples of 10 or 100

	76 + 4 + 4 = 84 To be able to add pairs of 'friendly' 3-digit numbers e.g. *320 + 450* To be able to begin to add amounts of money using partitioning		
Y3 –	To know pairs with each total to 20 e.g. *8 – 2 = 6* e.g. *18 – 6 = 12* e.g. *15 – 8 = 7* To be able to subtract any two 2-digit numbers To be able to perform place-value subtractions without a struggle e.g. *536 – 30 = 506* To be able to subtract 2-digit numbers from numbers > 100 by counting up e.g. *143 – 76 is done by starting at 76. Then add 4 (80), then add 20 (100), then add 43, making the difference a total of 67* To be able to subtract multiples and near multiples of 10 and 100 To be able to subtract, when appropriate, by counting back or taking away, using place value and number facts To be able to find change from £1, £5 and £10	To use counting up as an informal written strategy for subtracting pairs of 3-digit numbers e.g. *4999923 – 357* To begin to subtract like fractions e.g. $^{7}/_{8} - {}^{3}/_{8}$	To know pairs of numbers which make each total up to 10, and which total 20 To be able to count up to subtract 2-digit numbers e.g. *72 – 47* To be able to subtract multiples of 5 from 100 by counting up e.g. *100 – 35* To be able to subtract multiples of 10 and 100
Y3 ×	To know by heart all the multiplication facts in the ×2, ×3, ×4, ×5, ×8 and ×10 tables To be able to multiply whole numbers by 10 and 100 To be able to recognise that multiplication is commutative To be able to use place value and number facts in mental multiplication e.g. *30 × 5 is 15 × 10*	To be able to use partitioning (grid multiplication / lattice method) to multiply 2-digit and 3-digit numbers by 'friendly' 1-digit numbers	To know by heart the ×2, ×3, ×5 and ×10 tables To be able to double given tables facts to get others To be able to double numbers up to 25 and multiples of 5 to 50

	To be able to partition teen numbers to multiply by a 1-digit number e.g. *3 × 14 as 3 × 10 and 3 × 4* To be able to double numbers up to 50		
Y3 **÷**	Know by heart all the division facts derived from the ×2, ×3, ×4, ×5, ×8 and ×10 tables Divide whole numbers by 10 or 100 to give whole number answers Recognise that division is not commutative Use place value and number facts in mental division e.g. *84 ÷ 4 is half of 42* Divide larger numbers mentally by subtracting the 10th multiple as appropriate, including those with remainders e.g. *57 ÷ 3 is 10 + 9 as 10 × 3 = 30 and 9 × 3 = 27* Halve even numbers to 100, halve odd numbers to 20	Perform divisions just above the 10th multiple using horizontal or vertical jottings and understanding how to give a remainder as a whole number Find unit fractions of quantities and begin to find non-unit fractions of quantities	Know by heart the division facts derived from the ×2, ×3, ×5 and ×10 tables Halve even numbers up to 50 and multiples of 10 to 100 Perform divisions within the tables including those with remainders e.g. *38 ÷ 5*

Year 4			
	Mental calculation	**Written calculation**	**Essential/ Expected attainment for all children**
Y4 +	To be able to add any two 2-digit numbers by partitioning or counting on To know by heart/quickly derive number bonds to 100 and to £1 To be able to add to the next 100, £1 and whole number e.g. *234 + 66 = 300* e.g. *3·4 + 0·6 = 4* To be able to perform place-value additions without a struggle e.g. *300 + 8 + 50 + 4000 = 4358* To be able to add multiples and near multiples of 10, 100 and 1000 To be able to add £1, 10p, 1p to amounts of money To be able to use place value and number facts to add 1-, 2-, 3- and 4-digit numbers where a mental calculation is appropriate e.g. *4004 + 156 by knowing that 6 + 4 = 10 and that 4004 + 150 = 4154 so the total is 4160*	To be able to use column addition for 3-digit and 4-digit numbers e.g. 5347 2286 +1495 121 9128 To be able to add like fractions e.g. $^3/_5 + {}^4/_5 = {}^7/_5 = 1\,{}^2/_5$ To be confident with fractions that add to 1 and fraction complements to 1 e.g. $^2/_3 + \_ = 1$	To be able to add any 2-digit numbers by partitioning or counting on To know number bonds to 20 To know pairs of multiples of 10 with a total of 100 To be able to add 'friendly' larger numbers using knowledge of place value and number facts To be able to use expanded column addition to add 3-digit numbers
Y4 –	To be able to subtract any two 2-digit numbers To know by heart/quickly derive number bonds to 100 To be able to perform place-value subtractions without a struggle e.g. *4736 – 706 = 4030* To be able to subtract multiples and near multiples of 10, 100, 1000, £1 and 10p To be able to subtract multiples of 0·1	To be able to use expanded column subtraction for 3- and 4-digit numbers To be able to use complementary addition to subtract amounts of money, and for subtractions where the larger number is a near multiple of 1000 or 100 e.g. *2002 – 1865* To be able to subtract like fractions e.g. $^4/_5 - {}^3/_5 = {}^1/_5$ To be able to use fractions that add to 1 to find	To be able to use counting up with confidence to solve most subtractions, including finding complements to multiples of 100 e.g. *512 – 287* e.g. *67 + _ = 100*

	To be able to subtract by counting up e.g. *503 – 368 is done by adding 368 + 2 + 30 + 100 + 3 (so we added 135)* To be able to subtract, when appropriate, by counting back or taking away, using place value and number facts To be able to subtract £1, 10p, 1p from amounts of money To be able to find change from £10, £20 and £50	fraction complements to 1 e.g. $1 - {}^{2}/_{3} = {}^{1}/_{3}$	
Y4 **×**	To know by heart all the multiplication facts up to 12 × 12 To be able to recognise factors up to 12 of 2-digit numbers To be able to multiply whole numbers and 1-place decimals by 10, 100, 1000 To be able to multiply multiples of 10, 100 and 1000 by 1-digit numbers e.g. *300 × 6* e.g. *4000 × 8* To be able to use understanding of place value and number facts in mental multiplication e.g. *36 × 5 is half of 36 × 10* e.g. *50 × 60 = 3000* To be able to partition 2-digit numbers to multiply by a 1-digit number mentally e.g. *4 × 24 as 4 × 20 and 4 × 4* To be able to multiply near multiples by rounding e.g. *33 × 19 as (33 × 20) – 33* To be able to find doubles to double 100 and beyond using partitioning To begin to double amounts of money e.g. *£35·60 doubled is £71·20*	To be able to use a vertical written method to multiply a 1-digit number by a 3-digit number (ladder method) To be able to use an efficient written method to multiply a 2-digit number by a number between 10 and 20 by partitioning (grid method)	To know by heart multiplication tables up to 10 × 10 To be able to multiply whole numbers by 10 and 100 To be able to use the grid method to multiply a 2-digit or a 3-digit number by a number ≤ 6

Y4 **÷**	To know by heart all the division facts up to 144 ÷ 12 To be able to divide whole numbers by 10, 100, to give whole number answers or answers with 1 decimal place To be able to divide multiples of 100 by 1-digit numbers using division facts e.g. *3200 ÷ 8 = 400* To be able to see place value and number facts in mental division e.g. *245 ÷ 20 is half of 245 ÷ 10* To be able to divide larger numbers mentally by subtracting the 10th or 20th multiple as appropriate e.g. *156 ÷ 6 is 20 + 6 as 20 × 6 = 120 and 6 × 6 = 36* To find halves of even numbers to 200 and beyond using partitioning To begin to halve amounts of money e.g. *half of £52·40 is £26·20*	To be able to use a written method to divide a 2-digit or a 3-digit number by a 1-digit number To be able to give remainders as whole numbers To begin to reduce fractions to their simplest forms To be able to find unit and non-unit fractions of larger amounts	To know by heart all the division facts up to 100 ÷ 10 To be able to divide whole numbers by 10 and 100 to give whole number answers or answers with 1 decimal place To be able to perform divisions just above the 10th multiple using the written layout and understanding how to give a remainder as a whole number To be able to find unit fractions of amounts

UPPER KEY STAGE 2

Children move on from dealing mainly with whole numbers to performing arithmetic operations with both decimals and fractions.

Addition and subtraction: Children will consolidate their use of written procedures in adding and subtracting whole numbers with up to 6 digits and also decimal numbers with up to 2 decimal places. Mental strategies for adding and subtracting increasingly large numbers will also be taught. These will draw upon children's robust understanding of place value and knowledge of number facts. Negative numbers will be added and subtracted.	**Multiplication and division:** Efficient and flexible strategies for mental multiplication and division are taught and practised, so that children can perform appropriate calculations even when the numbers are large, such as *40 000 × 6* or *40 000 ÷ 8*. In addition, it is in Years 5 and 6 that children extend their knowledge and confidence in using written algorithms for multiplication and division.	**Fractions, decimals, percentages and ratio:** Fractions and decimals are also added, subtracted, divided and multiplied, within the bounds of children's understanding of these more complicated numbers. Children will also calculate simple percentages and ratios.

Year 5

	Mental calculation	Written calculation	Essential/ Expected attainment for all children
Y5 +	To know number bonds to 1 and to the next whole number To be able to add to the next 10 from a decimal number e.g. *13·6 + 6·4 = 20* To be able to add numbers with 2 significant digits only, using mental strategies e.g. *3·4 + 4·8* e.g. *23 000 + 47 000* To be able to add 1- or 2-digit multiples of 10, 100, 1000, 10 000 and 100 000 e.g. *8000 + 7000* e.g. *600 000 + 700 000* To be able to add near multiples of 10, 100, 1000, 10 000 and 100 000 to other numbers e.g. *82 472 + 30 004* To be able to add decimal numbers which are near multiples of 1 or 10, including money e.g. *6·34 + 1·99*	To be able to use column addition to add two or three whole numbers with up to 5 digits To be able to use column addition to add any pair of 2-place decimal numbers, including amounts of money To begin to add related fractions using equivalences e.g. $^1/_2 + {}^1/_6 = {}^3/_6 + {}^1/_6$ To be able to choose the most efficient method in any given situation	To be able to add numbers with only 2 digits which are not zeros e.g. *3·4 + 5·8* To derive swiftly and without any difficulty number bonds to 100 To be able to add 'friendly' large numbers using knowledge of place value and number facts To be able to use expanded column addition to add pairs of 4- and 5-digit numbers

	e.g. *£34·59 + £19·95* To be able to use place value and number facts to add two or more 'friendly' numbers, including money and decimals e.g. *3 + 8 + 6 + 4 + 7* e.g. *0·6 + 0·7 + 0·4* e.g. *2056 + 44*		
Y5 –	To be able to subtract numbers with 2 significant digits only, using mental strategies e.g. *6·2 – 4·5* e.g. *72 000 – 47 000* To be able to subtract 1- or 2-digit multiples of 10, 100, 1000, 10 000 and 100 000 e.g. *8000 – 3000* e.g. *60 000 – 200 000* To be able to subtract 1- or 2-digit near multiples of 10, 100, 1000, 10 000 and 100 000 from other numbers e.g. *82 472 – 30 004* To be able to subtract decimal numbers which are near multiples of 1 or 10, including money e.g. *6·34 – 1·99* e.g. *£34·59 – £19·95* To be able to use counting up subtraction, with knowledge of number bonds to 10, 100 or £1, as a strategy to perform mental subtraction e.g. *£10 – £3·45* e.g. *1000 – 782* To be able to recognise fraction complements to 1 and to the next whole number e.g. $1\ ^{2}/_{5} + {}^{3}/_{5} = 2$	To be able to use compact or expanded column subtraction to subtract numbers with up to 5 digits To be able to use complementary addition for subtractions where the larger number is a multiple or near multiple of 1000 To be able to use complementary addition for subtractions of decimal numbers with up to 2 places, including amounts of money To begin to subtract related fractions using equivalences e.g. $^{1}/_{2} - {}^{1}/_{6} = {}^{2}/_{6}$ To be able to choose the most efficient method in any given situation	To be able to derive swiftly and without difficulty number bonds to 100 To be able to use counting up with confidence to solve most subtractions, including finding complements to multiples of 1000 e.g. *3000 – 2387*
Y5 ×	To know by heart all the multiplication facts up to 12 × 12	To be able to use short multiplication to multiply a 1-digit number by a number with up to 4 digits	To know multiplication tables to 11 × 11 To be able to multiply whole numbers and 1-place

	To be able to multiply whole numbers and 1- and 2-place decimals by 10, 100, 1000, 10 000 To use knowledge of factors and multiples in multiplication e.g. *43 × 6 is double 43 × 3* e.g. *28 × 50 is $^1/_2$ of 28 × 100 = 1400* To use knowledge of place value and rounding in mental multiplication e.g. *67 × 199 as 67 × 200 – 67* To use doubling and halving as a strategy in mental multiplication e.g. *58 × 5 is half of 58 × 10* e.g. *34 × 4 is 34 doubled twice* To be able to partition 2-digit numbers, including decimals, to multiply by a 1-digit number mentally e.g. *6 × 27 as 6 × 20 (120) plus 6 × 7 (42)* e.g. *6·3 × 7 as 6 × 7 (42) plus 0·3 × 7 (2·1)* To be able to double amounts of money by partitioning e.g. *£37·45 doubled is £37 doubled (£74) plus 45p doubled (90p) giving a total of £74·90*	To be able to use long multiplication to multiply 3-digit and 4-digit numbers by a number between 11 and 20 To be able to choose the most efficient method in any given situation To be able to find simple percentages of amounts e.g. *10%, 5%, 20%, 15% and 50%* To be able to begin to multiply fractions and mixed numbers by whole numbers ≤ 10 e.g. *4 × $^2/_3$ = $^8/_3$ = 2 $^2/_3$*	decimals by 10, 100 and 1000 Use knowledge of factors as aids to mental multiplication e.g. *13 × 6 is double 13 × 3* e.g. *23 × 5 is $^1/_2$ of 23 × 10* Use the grid method / lattice method to multiply numbers with up to 4 digits by 1-digit numbers Use the grid method / lattice method to multiply 2-digit numbers by 2-digit numbers
Y5 ***÷***	To know by heart all the division facts up to 144 ÷ 12 To be able to divide whole numbers by 10, 100, 1000, 10 000 to give whole number answers or answers with 1, 2 or 3 decimal places To be able to use doubling and halving as mental division strategies e.g. *34 ÷ 5 is (34 ÷ 10) × 2* To be able to use knowledge of multiples and factors, as well as tests for divisibility, in mental division	To be able to use short division to divide a number with up to 4 digits by a number ≤ 12 To be able to give remainders as whole numbers or as fractions To be able to find non-unit fractions of large amounts To be able to turn improper fractions into mixed numbers and vice versa To be able to choose the most efficient method in any given situation	To know by heart division facts up to 121 ÷ 11 To be able to divide whole numbers by 10, 100 or 1000 to give answers with up to 1 decimal place To be able to use doubling and halving as mental division strategies To be able to use an efficient written method to divide numbers ≤ 1000 by 1-digit numbers To be able to find unit fractions of 2- and 3-digit numbers

	e.g. *246 ÷ 6 is 123 ÷ 3* e.g. *We know that 525 divides by 25 and by 3* To be able to halve amounts of money by partitioning e.g. *$^1/_2$ of £75·40 = $^1/_2$ of £75 (£37·50) plus half of 40p (20p) which is £37·70* To be able to divide larger numbers mentally by subtracting the 10th or 100th multiple as appropriate e.g. *96 ÷ 6 is 10 + 6, as 10 × 6 = 60 and 6 × 6 = 36* e.g. *312 ÷ 3 is 100 + 4 as 100 × 3 = 300 and 4 × 3 = 12* To know tests for divisibility by 2, 3, 4, 5, 6, 9 and 25 To know square numbers and cube numbers To be able to reduce fractions to their simplest form		

Year 6			
	Mental calculation	**Written calculation**	**Essential/ Expected attainment for all children**
Y6 +	To know by heart number bonds to 100 and use these to derive related facts e.g. *3·46 + 0·54* To be able to derive, quickly and without difficulty, number bonds to 1000 To be able to add small and large whole numbers where the use of place value or number facts makes the calculation do-able mentally e.g. *34 000 + 8000* To be able to add multiples of powers of 10 and near multiples of the same e.g. *6345 + 199* To be able to add negative numbers in a context such as temperature where the numbers make sense To be able to add two 1-place decimal numbers or two 2-place decimal numbers less than 1 e.g. *4·5 + 6·3* e.g. *0·74 + 0·33* To be able to add positive numbers to negative numbers e.g. *Calculate a rise in temperature or continue a sequence beginning with a negative number*	To be able to use column addition to add numbers with up to 5 digits To be able to use column addition to add decimal numbers with up to 3 decimal places To be able to add mixed numbers and fractions with different denominators	To be able to derive, swiftly and without difficulty, number bonds to 100 To be able to use place value and number facts to add 'friendly' large or decimal numbers e.g. *3·4 + 6·6* e.g. *26 000 + 54 000* To be able to use column addition to add numbers with up to 4-digits To be able to use column addition to add pairs of 2-place decimal numbers
Y6 –	To be able to use number bonds to 100 to perform mental subtraction of any pair of integers by complementary addition e.g. *1000 – 654 as 46 + 300 in our heads* To be able to use number bonds to 1 and 10 to perform mental subtraction of any pair of 1-place	To be able to use column subtraction to subtract numbers with up to 6 digits To be able to use complementary addition for subtractions where the larger number is a multiple or near multiple of 1000 or 10 000 To be able to use complementary addition for	To be able to use number bonds to 100 to perform mental subtraction of numbers up to 1000 by complementary addition e.g. *1000 – 654 as 46 + 300 in our heads* To be able to use complementary addition for subtraction of integers up to 10 000

	or 2-place decimal numbers using complementary addition and including money e.g. *10 – 3·65 as 0·35 + 6* e.g. *£50 – £34·29 as 71p + £15* To be able to use number facts and place value to perform mental subtraction of large numbers or decimal numbers with up to 2 places e.g. *467 900 – 3005* e.g. *4·63 – 1·02* To be able to subtract multiples of powers of 10 and near multiples of the same To be able to subtract negative numbers in a context such as temperature where the numbers make sense	subtractions of decimal numbers with up to 3 places, including money To be able to subtract mixed numbers and fractions with different denominators	e.g. *2504 – 1878* To be able to use complementary addition for subtractions of 1-place decimal numbers and amounts of money e.g. *£7·30 – £3·55*
Y6 ×	To know by heart all the multiplication facts up to 12 × 12 To be able to multiply whole numbers and decimals with up to 3 places by 10, 100 or 1000 e.g. *234 × 1000 = 234 000* e.g. *0·23 × 1000 = 230* To be able to identify common factors, common multiples and prime numbers and use factors in mental multiplication e.g. *326 × 6 is 652 × 3 which is 1956* To be able to use place value and number facts in mental multiplication e.g. *4000 × 6 = 24 000* e.g. *0·03 × 6 = 0·18* To be able to use doubling and halving as mental multiplication strategies, including to multiply by 2, 4, 8, 5, 20, 50 and 25 e.g. *28 × 25 is a quarter of 28 × 100 = 700* To be able to use rounding in mental multiplication	To be able to use short multiplication to multiply a 1-digit number by a number with up to 4 digits To be able to use long multiplication to multiply a 2-digit number by a number with up to 4 digits To be able to use short multiplication to multiply a 1-digit number by a number with 1 or 2 decimal places, including amounts of money To be able to multiply fractions and mixed numbers by whole numbers To be able to multiply fractions by proper fractions To be able to use percentages for comparison and calculate simple percentages	To know by heart all the multiplication facts up to 12 × 12 To be able to multiply whole numbers and 1- and 2-place decimals by 10, 100 and 1000 To be able to use an efficient written method to multiply a 1-digit or a teen number by a number with up to 4 digits by partitioning (grid method / lattice method) To be able to multiply a 1-place decimal number up to 10 by a number ≤ 100 using the grid method

	e.g. *34 × 19 as (34 × 20) – 34* To be able to multiply 1- and 2-place decimals by numbers up to and including 10 using place value and partitioning e.g. *3·6 × 4 is 12 + 2·4* e.g. *2·53 × 3 is 6 + 1·5 + 0·09* To be able to double decimal numbers with up to 2 places using partitioning e.g. *36·73 doubled is double 36 (72) plus double 0·73 (1·46)*		
Y6 ÷	To know by heart all the division facts up to 144 ÷ 12 To be able to divide whole numbers by powers of 10 to give whole number answers or answers with up to 3 decimal places To be able to identify common factors, common multiples and primes numbers and use factors in mental division e.g. *438 ÷ 6 is 219 ÷ 3 which is 73* To be able to use tests for divisibility to aid mental calculation To be able to use doubling and halving as mental division strategies, for example to divide by 2, 4, 8, 5, 20 and 25 e.g. *628 ÷ 8 is halved three times: 314, 157, 78·5* To be able to divide 1- and 2-place decimals by numbers up to and including 10 using place value e.g. *2·4 ÷ 6 = 0·4* e.g. *0·65 ÷ 5 = 0·13* e.g. *£6·33 ÷ 3 = £2·11* To be able to halve decimal numbers with up to 2 places using partitioning	To use short division to divide a number with up to 4 digits by a 1-digit or a 2-digit number To be able to use long division to divide 3-digit and 4-digit numbers by 'friendly' 2-digit numbers To be able to give remainders as whole numbers or as fractions or as decimals To be able to divide a 1-place or a 2-place decimal number by a number ≤ 12 using multiples of the divisors To be able to divide proper fractions by whole numbers	To know by heart all the division facts up to 144 ÷ 12 To be able to divide whole numbers by 10, 100, 1000 to give whole number answers or answers with up to 2 decimal places To be able to use an efficient written method, involving subtracting powers of 10 times the divisor, to divide any number of up to 1000 by a number ≤ 12 e.g. *836 ÷ 11 as 836 – 770 (70 × 11) leaving 66 which is 6 × 11, giving the answer 76* To be able to divide a 1-place decimal by a number ≤ 10 using place value and knowledge of division facts

	e.g. *Half of 36·86 is half of 36 (18) plus half of 0·86 (0·43)* To know and use equivalence between simple fractions, decimals and percentages, including in different contexts To be able to recognise a given ratio and reduce a given ratio to its lowest terms		

Mental Calculation – calculating without writing things down or using a calculator

Written calculation – using more “formal” methods for calculation such as column addition for example.