Number : Place Value

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value Counting	• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens **Autumn 1** **Autumn 4** **Spring 2** **Summer 4**	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward **Autumn 1**	• count from 0 in multiples of 4, 8, 50 and 100; **Autumn 1** **Autumn 3**	• count in multiples of 6, 7, 9, 25 and 1 000 • count backwards through zero to include negative numbers **Autumn 1**	• count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero **Autumn 1**	
Place Value Representing	• identify and represent numbers using objects and pictorial representations. • read and write numbers from 1 to 20 in numerals and words. • read and write numbers from 1 to 100 in numerals. **Autumn 1** **Autumn 4** **Spring 2** **Summer 4**	• read and write numbers to at least 100 in numerals and in words • identify, represent and estimate numbers using different representations, including the number line **Autumn 1**	• identify, represent and estimate numbers using different representations • read and write numbers up to 1 000 in numerals and in words **Autumn 1**	• identify, represent and estimate numbers using different representations • read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. **Autumn 1**	• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • read Roman numerals to 1 000 (M) and recognise years written in Roman numerals. **Autumn 1**	• read, write, order and compare numbers up to • 10 000 000 and determine the value of each digit (appears also in Reading and Writing Numbers) **Autumn 1**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value Use of P V and compare	• given a number, identify one more and one less **Autumn 1** **Autumn 4** **Spring 2** **Summer 4**	• recognise the place value of each digit in a two-digit number (tens, ones) • compare and order numbers from 0 up to 100; use <, > and = signs **Autumn 1**	• recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • compare and order numbers to 1000 **Autumn 1**	• find 1000 more or less than a given number • recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • order and compare numbers beyond 1 000 **Autumn 1** **Autumn 4**	• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit **Autumn 1**	• read, write, order and compare numbers up to 10 000 000 and determine the value of each digit **Autumn 1**
Place Value Problems and Rounding		• use place value and number facts to solve problems **Autumn 1**	• solve number problems and practical problems involving these ideas. **Autumn 1**	• round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above **Autumn 1**	• interpret negative numbers in context, . • round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above **Autumn 1**	• round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above **Autumn 1**

Addition and Subtraction

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition & Subtraction Recall, Represent, Use	• read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 **Autumn 2** **Spring 2**	• recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. **Autumn 2**	• estimate the answer to a calculation and use inverse operations to check answers **Autumn 2**	• estimate and use inverse operations to check answers to a calculation **Autumn 2**	• use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy **Autumn 2**	

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition & Subtraction Calculations	• add and subtract one-digit and two-digit numbers to 20, including zero **Autumn 2** **Spring 1**	• add and subtract numbers using concrete objects, pictorial representations, and mentally, including: ➢ a two-digit number and ones ➢ a two-digit number and tens ➢ two two-digit numbers ➢ adding three one-digit numbers **Autumn 2**	• add and subtract numbers mentally, including: ➢ a three-digit number and ones ➢ a three-digit number and tens ➢ a three-digit number and hundreds • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction **Autumn 2**	• add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate **Autumn 2**	• add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers **Autumn 2**	• perform mental calculations, including with mixed operations and large numbers • use their knowledge of the order of operations to carry out calculations involving the four operations **Autumn 2**
Addition & Subtraction Solve Problems	• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9 **Autumn 2** **Spring 1**	• solve problems with addition and subtraction: ➢ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ➢ applying their increasing knowledge of mental and written methods **Autumn 2**	• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction **Autumn 2**	• solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why **Autumn 2**	• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why **Autumn 2**	• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • Solve problems involving addition, subtraction, multiplication and division **Autumn 2**

Multiplication and Division

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication & Division Recall, Represent, Use		• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers **Autumn 4** **Spring 1**	• recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables **Autumn 3**	• recall multiplication and division facts for multiplication tables up to 12 × 12 • use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers • recognise and use factor pairs and commutativity in mental calculations **Autumn 4** **Spring 1**	• identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) **Autumn 4**	• identify common factors, common multiples and prime numbers • use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy • **Autumn 4**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication & Division Calculations		• calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs **Autumn 4** **Spring 1**	• write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods **Autumn 3** **Spring 1**	• multiply two-digit and three-digit numbers by a one-digit number using formal written layout **Spring 1**	• multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • multiply and divide numbers mentally drawing upon known facts • 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 • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 **Autumn 4** **Spring 1** **Summer 1**	• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate interpreting remainders according tor the context • perform mental calculations, including with mixed operations and large numbers **Autumn 2**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication & Division Solve Problems	• solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher **Summer 1**	• solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts **Autumn 4** **Spring 1**	• solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects **Spring 1**	• 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 **Spring 1**	• solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates **Autumn 4** **Spring 1**	• solve problems involving addition, subtraction, multiplication and **Autumn 2**
Multiplication & Division Combined Operations					• solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign **Spring 1**	• use their knowledge of the order of operations to carry out calculations involving the four operations **Autumn 2**

Fractions, Decimals and Percentages

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions Recognise and write	• 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 **Summer 2**	• recognise, find, name and write fractions $^1/_3$, $^1/_4$, $^2/_4$ and $^3/_4$ of a length, shape, set of objects or quantity **Spring 4**	• count up and down in tenths • recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10. • recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators • recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators **Autumn 3**	• count up and down in hundredths • recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten **Spring 3**	• identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $^2/_5 + {}^4/_5 = {}^6/_5 = 1^1/_5$) **Spring 2**	
Fractions Compare		• write simple fractions e.g. $^1/_2$ of 6 = 3 and recognise the equivalence of $^2/_4$ and $^1/_2$. **Spring 4**	• recognise and show, using diagrams, equivalent fractions with small denominators • compare and order unit fractions, and fractions with the same denominators **Summer 4**	• recognise and show, using diagrams, families of common equivalent fractions **Spring 3**	• compare and order fractions whose denominators are all multiples of the same number **Spring 2**	• compare and order fractions whose denominators are all multiples of the same number • compare and order fractions, including fractions >1 **Autumn 3**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions Calculatiosn		• write simple fractions e.g. $^1/_2$ of 6 = 3 and recognise the equivalence of $^2/_4$ and $^1/_2$. **Spring 4**	• add and subtract fractions with the same denominator within one whole (e.g. $^5/_7 + {}^1/_7 = {}^6/_7$) **Summer 1**	• add and subtract fractions with the same denominator **Spring 3**	• add and subtract fractions with the same denominator and multiples of the same number • add and subtract fractions with the same denominator and multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams **Spring 2**	• add and subtract fractions with different denominators and mixed numbers, using the • concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $^1/_4 \times {}^1/_2 = {}^1/_8$) • divide proper fractions by whole numbers (e.g. $^1/_3 \div 2 = {}^1/_6$) **Autumn 3**
Fractions Solve Problems			• solve problems that involve all of the above **Summer 4**	• solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number **Spring 3**		

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Decimals Recognise and Write				• recognise and write decimal equivalents to $^1/_4$; $^1/_2$; $^3/_4$ **Spring 1** **Summer 4**	• read and write decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$) **Spring 3**	• identify the value of each digit in numbers given to three decimal places **Spring 1**
Decimals Compare				• round decimals with one decimal place to the nearest whole number • compare numbers with the same number of decimal places up to two decimal places **Summer 1**	• round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places **Spring 3**	

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Decimals Calculations and Problems				• 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 **Spring 1**	• solve problems involving numbers up to three decimal places **Summer 1**	• solve problems involving numbers up to three decimal places • solve problems involving numbers up to three decimal places • use written division methods in cases where the answer has up to two decimal places • solve problems which require answers to be rounded to specified degrees of accuracy **Spring 4**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions, Decimals and Percentages				• solve simple measure and money problems involving fractions and decimals to two decimal places. **Spring 3** **Spring 4** **Summer 1**	• recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator 100 as a decimal fraction • solve problems which require knowing percentage and decimal equivalents of $^1/_2$, $^1/_4$, $^1/_5$, $^2/_5$, $^4/_5$ and those with a denominator of a multiple of 10 or 25. **Spring 3**	• associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$) • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. **Spring 1** **Spring 2**

Ration and Proportion

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions, Decimals and Percentages						• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts . • solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. **Spring 6**

Algebra

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions, Decimals and Percentages	• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9	• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	• solve problems, including missing number problems,			• use simple formulae • express missing number problems algebraically • find pairs of numbers that satisfy number sentences involving two unknowns • enumerate all possibilities of combinations of two variables **Spring 3**

Whilst Algebraic notations is not introduced till Y6, algebraic thinking starts much earlier. As exemplified by the 'missing numbers' objectives from Y1/2/3