PROGRESSION IN NUMBER – PLACE VALUE

	Year 3	Year 4	Year 5	Year 6
Counting	• Count from 0 in multiples of 4, 8, 50 and 100 • Count up and down in tenths	• Count in multiples of 6, 7, 9, 25 and 1000 • Count backwards through zero to include negative numbers • Count up and down in hundredths	• Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • Count forwards and backwards in decimal steps	• Count forwards or backwards in steps of integers, decimals, powers of 10
Reading and Writing	• Read and write numbers up to 1000 in numerals and in words • Read and write numbers with one decimal place	• Read and write numbers to at least 10 000 • Read and write numbers with up to two decimal places	• Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • Read, write, order and compare numbers with up to 3 decimal places	• Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
Place Value	• Identify, represent and estimate numbers using different representations (including the number line) • Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • Identify the value of each digit to one decimal place • Partition numbers in different ways (e.g. 146 = 100+ 40+6 and 146 = 130+16) • Find the effect of multiplying a one- or two-digit number by 10 and 100, identify the value of the digits in the answer • Find 1, 10 or 100 more or less than a given number	• Recognise the place value of each digit in a four-digit number • Identify the value of each digit to two decimal places • Partition numbers in different ways (e.g. 2.3 = 2+0.3 & 1+1.3) • Identify, represent and estimate numbers using different representations (including the number line) • Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer • Find 0.1, 1, 10, 100 or 1000 more or less than a given number	• Identify the value of each digit to three decimal places • Identify represent and estimate numbers using the number line • Find 0.01, 0.1, 1, 10, 100, 100 and other powers of 10 more or less than a given number • Multiply/divide whole numbers and decimals by 10, 100 and 1000	• Identify the value of each digit to three decimal places • Identify, represent and estimate numbers using the number line • Find 0.001, 0.01, 0.1, 1, 10 and powers of 10 more/less than a given number • Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
Comparing and Ordering	• Compare and order numbers up to 1000 • Compare and order numbers with one decimal place	• Order and compare numbers beyond 1000 • Order and compare numbers with the same number of decimal places up to two decimal places		• Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • Order and compare numbers including integers, decimals and negative numbers

Rounding	• **Round numbers to at least 1000 to the nearest 10 or 100**	• **Round any number to the nearest 10, 100 or 1000** • **Round decimals (one decimal place) to the nearest whole number**	• **Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000** • **Round decimals with two decimal places to the nearest whole number and to one decimal place**	• **Round any whole number to a required degree of accuracy** • **Round decimals with three decimal places to the nearest whole number or one or two decimal places**
Sequences	• **Describe and extend number sequences involving counting on or back in different steps**	• **Describe and extend number sequences involving counting on or back in different steps, including sequences with multiplication and division steps**	• **Describe and extend number sequences including those with multiplication/division steps and where the step size is a decimal**	• **Describe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimal**
Roman Numerals	• **Read Roman numerals from I to XII**	• **Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of zero and place value**	• **Read Roman numerals to 1000 (M); recognise years written as such**	
Negative numbers		• **Count backwards through zero to include negative numbers**	• **Interpret negative numbers in context, count on and back with positive and negative whole numbers, including through zero**	• **Use negative numbers in context, and calculate intervals across zero**
	Solve number problems and practical problems involving these ideas	**Solve number and practical problems that involve all of the above and with increasingly large positive numbers**	**Solve number and practical problems that involve all of the above**	**Solve number and practical problems that involve all of the above**

PROGRESSION IN NUMBER – ADDITION AND SUBTRACTION

	Year 3	Year 4	Year 5	Year 6
Addition and subtraction facts	• Recall/use addition/subtraction facts for 100 (multiples of 5 and 10) • Derive and use addition and subtraction facts for 100 • Derive and use addition and subtraction facts for multiples of 100 totalling 1000	• Recall and use addition and subtraction facts for 100 • Recall and use +/- facts for multiples of 100 totalling 1000 • Derive and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place)	• Recall and use addition and subtraction facts for 1 and 10 (with decimal numbers to one decimal place) • Derive and use addition and subtraction facts for 1 (with decimal numbers to two decimal places)	• Recall and use addition and subtraction facts for 1 (with decimals to two decimal places)
Mental methods	• Add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds	• Select a mental strategy appropriate for the numbers involved in the calculation • Add and subtract mentally combinations of two and three digit numbers and decimals to one decimal place	• Select a mental strategy appropriate for the numbers involved in the calculation • Add and subtract numbers mentally with increasingly large numbers and decimals to two decimal places	• Select a mental strategy appropriate for the numbers in the calculation • Perform mental calculations including with mixed operations and large numbers and decimals
Formal written methods	• Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	• Add and subtract numbers with up to 4 digits and decimals with one decimal place using the formal written methods of columnar addition and subtraction where appropriate	• Add and subtract whole numbers with more than 4 digits and decimals with two decimal places, including using formal written methods (columnar addition and subtraction)	• Add and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction)
Choosing and Using appropriate strategies	• Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method) • Select a mental strategy appropriate for the numbers involved in the calculation • Understand and use take away and difference for subtraction, deciding on the most efficient method for the numbers involved, irrespective of context	• Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)	• Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)	• Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)

Estimation and checking	• **Estimate the answer to a calculation and use inverse operations to check answers**	• **Estimate; use inverse operations to check answers to a calculation**	• **Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy**	• **Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy**
Order of operations				• **Use knowledge of the order of operations to carry out calculations**
Problem solving	**Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction**	• **Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why** • **Solve addition and subtraction problems involving missing numbers**	• **Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why** • **Solve addition and subtraction problems involving missing numbers**	• **Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why** • **Solve problems involving all four operations, including those with missing numbers**

PROGRESSION IN NUMBER – MULTIPLICATION AND DIVISION

	Year 3	Year 4	Year 5	Year 6
Multiplication and division facts	• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	• Recall multiplication and division facts for multiplication tables up to 12 × 12		
Properties of Number		• Recognise and use factor pairs and commutativity in mental calculations	• Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • Establish whether a number up to 100 is prime and recall prime numbers up to 19 • Recognise and use square (^{2}) and cube (^{3}) numbers, and notation	• Identify common factors, common multiples and prime numbers
Mental methods	• Understand that division is the inverse of multiplication and vice versa • Understand how multiplication and division statements can be represented using arrays • Understand division as sharing and grouping and use each appropriately • Derive and use doubles of all numbers to 100 and corresponding halves • Derive and use doubles of all multiples of 50 to 500 • 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	• Use partitioning to double or halve any number, including decimals to one decimal place • 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	• Use partitioning to double or halve any number, including decimals to two decimal places • Multiply and divide numbers mentally drawing upon known facts	• Use partitioning to double or halve any number • Perform mental calculations, including with mixed operations and large numbers

Formal written methods	• **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**	• **Multiply two-digit and three-digit numbers by a one-digit number using formal written layout** • **Divide numbers up to 3 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context**	• **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** • **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 multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication** • **Multiply one-digit numbers with up to two decimal places by whole numbers** • **Divide numbers up to 4 digits by a two-digit whole number using the formal written methods of short or long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context** • **Use written division methods in cases where the answer has up to two decimal places**
Choosing and using appropriate strategies	• **Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)**	• **Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)**	• **Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)**	• **Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)**
Estimation and checking	• **Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy**	• **Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy**	• **Use estimation/inverse to check answers to calculations; determine, in the context of a problem, an appropriate degree of accuracy**	• **Use estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy**
Order of operations				• **Use knowledge of the order of operations to carry out calculations**
Problem solving	• **Solve problems, including missing number problems, involving multiplication and division (and interpreting remainders), including positive integer scaling problems and correspondence problems in**	• **Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, division (including interpreting remainders), integer scaling problems and harder**	• **Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign** • **Solve problems involving multiplication and division**	• **Solve problems involving all four operations, including those with missing numbers**

	which n objects are connected to m objects	correspondence problems such as n objects are connected to m objects	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	

PROGRESSION IN NUMBER - FRACTIONS, DECIMALS AND PERCENTAGES

	Year 3	Year 4	Year 5	Year 6
Counting	• Count on and back in steps of $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$	• Count on and back in steps of unit fractions	• Count on and back in mixed number steps such as $1\frac{1}{2}$	
Fractions and Division	• Show practically or pictorially that a fraction is one whole number divided by another (e.g. $\frac{3}{4}$ can be interpreted as 3 ÷ 4) • Understand that finding a fraction of an amount relates to division • Recognise that tenths arise from dividing objects 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	• Understand that a fraction is one whole number divided by another (e.g. $\frac{3}{4}$ can be interpreted as 3 ÷ 4) • Recognise, find and write fractions of a discrete set of objects including those with a range of numerators and denominators • Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten		•
Equivalent fractions	• Recognise and show, using diagrams, equivalent fractions with small denominators	• Recognise and show, using diagrams, families of common equivalent fractions	• Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	• Use common factors to simplify fractions; use common multiples to express fractions in the same denomination

Fractions and Decimals		• Recognise and write decimal equivalents of any number of tenths or hundredths • Recognise and write decimal equivalents to $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}$	• Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • Read and write decimal numbers as fractions (e.g. 0.71 = $\frac{71}{100}$)	• Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts • Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375 and $\frac{3}{8}$)
Fractions and Percentages			• 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, and as a decimal	• Find simple percentages of amounts
Improper fractions and mixed numbers			• Recognise mixed numbers and improper fractions and convert from one form to the other • Write statements > 1 as a mixed number (e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$)	
Compare and order fractions	• Compare and order unit fractions, and fractions with the same denominators (including on a number line)	• Compare and order unit fractions and fractions with the same denominators (including on a number line)	• Compare and order fractions whose denominators are all multiples of the same number (including on a number line)	• Compare and order fractions, including fractions > 1 (including on a number line)
Add and subtract fractions	• Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]	• Add and subtract fractions with the same denominator (using diagrams)	• Add and subtract fractions with denominators that are the same and that are multiples of the same number (using diagrams)	• Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
Multiply and divide fractions			• Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	• Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$) • Divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$)
Ratio and Proportion				• Solve problems involving the relative sizes of two quantities

				where missing values can be found using integer multiplication/division facts • **Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples** • **Solve problems involving similar shapes where the scale factor is known or can be found**
Problem solving	**Solve problems that involve all of the above**	• **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** • **Solve simple measure and money problems involving fractions and decimals to two decimal places**	• **Solve problems involving fractions and decimals to three places** • **Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}$ and fractions with a denominator of a multiple of 10 or 25**	• **Solve problems involving fractions** • **Solve problems which require answers to be rounded to specified degrees of accuracy** • **Solve problems involving the calculation of percentages (e.g. of measures and such as 15% of 260) and the use of percentages for comparison**

PROGRESSION IN GEOMETRY

	Year 3	Year 4	Year 5	Year 6
Properties of shapes	• Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them • Recognise angles as a property of shape or a description of a turn • Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	• Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • Identify lines of symmetry in 2-D shapes presented in different orientations • Complete a simple symmetric figure with respect to a specific line of symmetry • Continue to identify horizontal and vertical lines and pairs of perpendicular and parallel lines • Identify acute and obtuse angles and compare and order angles up to two right angles by size	• Distinguish between regular and irregular polygons based on reasoning about equal sides and angles • Use the properties of rectangles to deduce related facts and find missing lengths and angles • Identify 3-D shapes from 2-D representations • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • Draw given angles, and measure them in degrees (°) • Identify: - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and half a turn (total 180°) - other multiples of 90°	• Compare/classify geometric shapes based on the properties and sizes • Draw 2-D shapes using given dimensions and angles • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • Recognise, describe and build simple 3-D shapes, including making nets • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
Position and Direction	• Describe positions on a square grid labelled with letters and numbers	• Describe positions on a 2-D grid as coordinates in the first quadrant • Plot specified points and draw sides to complete a given polygon • Describe movements between positions as translations of a given unit to the left/right and up/down	• Describe positions on the first quadrant of a coordinate grid • Plot specified points and complete shapes • Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	• Describe positions on the full coordinate grid (all four quadrants) • Draw and translate simple shapes on the coordinate plane, and reflect them in the axes

PROGRESSION IN MEASUREMENT

	Year 3	Year 4	Year 5	Year 6
Length, Mass and Capacity	• Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	• Estimate, compare and calculate different measures, including money in pounds and pence • Convert between different units of measure [e.g. kilometre to metre; hour to minute]	• Use, read and write standard units of length and mass • Convert between different units of metric measure • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints	• Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal places • Convert between standard units of length, mass, volume and time using decimal notation to three decimal places • Convert between miles and kilometres
Area, Perimeter and Volume	• Understand perimeter is a measure of distance around the boundary of a shape • Measure the perimeter of simple 2-D shapes	• Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • Know area is a measure of surface within a given boundary • Find the area of rectilinear shapes by counting squares	• Measure/calculate the perimeter of composite rectilinear shapes • Calculate and compare the area of rectangle, use standard units square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes • Estimate (and calculate) volume ((e.g., using 1 cm^3 blocks to build cuboids (including cubes)) and capacity (e.g. using water) • Understand the difference between liquid volume and solid volume	• Recognise that shapes with the same areas can have different perimeters and vice versa • Calculate the area of parallelograms and triangles • Recognise when it is possible to use formulae for area and volume of shapes • Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units (e.g. mm^3 and km^3)
Temperature	• Continue to estimate and measure temperature to the nearest degree (°C) using thermometers	• Order temperatures including those below 0°C	• Continue to order temperatures including those below 0°C	• Calculate differences in temperature, including those that involved a positive and negative temperature
Time	• Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • Estimate/read time with increasing accuracy to the nearest minute • Record/compare time in terms of seconds, minutes, hours; use vocabulary such as o'clock,	• Read, write and convert time between analogue and digital 12- and 24-hour clocks	• Continue to read, write and convert time between analogue and digital 12 and 24-hour clocks • Solve problems involving converting between units of time • Use all four operations to solve problems involving measure	

	a.m./p.m., morning, afternoon, noon, midnight • Know the number of seconds in a minute and the number of days in each month, year and leap year • Compare durations of events [for example to calculate the time taken by particular events or tasks]		using decimal notation, including scaling	
Money	• Continue to recognise and use the symbols for pounds (£) and pence (p) and understand that the decimal point separates pounds/pence • Recognise that ten 10p coins equal £1 and that each coin is $\frac{1}{10}$ of £1 • Add and subtract amounts of money to give change, using both £ and p in practical contexts	• Estimate, compare and calculate different measures, including money in pounds and pence • Write amounts of money using decimal notation • Recognise that one hundred 1p coins equal £1 and that each coin is $\frac{1}{100}$ of £1 • Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days and problems involving money and measures		
Problem Solving	• Solve problems involving money and measures and simple problems involving passage of time	• Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days and problems involving money and measures	• Use all four operations to solve problems involving measure using decimal notation, including scaling • Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate	• Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate

PROGRESSION IN STATISTICS

	Year 3	Year 4	Year 5	Year 6
Sorting diagrams	• Use sorting diagrams to compare and sort objects, numbers and common 2-D and 3-D shapes and everyday objects •	• Use a variety of sorting diagrams to compare and classify numbers and geometric shapes based on their properties and sizes •	• Complete and interpret information in a variety of sorting diagrams (including those used to sort properties of numbers and shapes)	• Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes)
Bar charts, pictograms and tables	• Interpret and present data using bar charts, pictograms and tables • Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables	• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts, time graphs • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	• Complete, read and interpret information in tables and timetables • Solve comparison, sum and difference problems using information presented in all types of graph including a line graph	• Solve comparison, sum and difference problems using information presented in all types of graph
Mode, Median and Range			• Calculate and interpret the mode, median and range	Calculate and interpret the mean as an average
Line graphs			• Solve comparison, sum and difference problems using information presented in all types of graph including a line graph	• Interpret and construct pie charts and line graphs and use these to solve problems
Pie Charts				• Interpret and construct pie charts and line graphs and use these to solve problems