Whole School

Maths Progression

		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 in steps of 2, 3 and 5 from 0, forwards and backwards • Count in tens from any number, forwards and backwards	• Count from 0 in multiples of 4, 8, 50 and 100 • Find 10/100 more or less than a given number	• Count in multiples of 6, 7, 9, 25 and 1000 • Count backwards through zero to include negative numbers	• Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 • Count forwards and backwards with positive and negative whole numbers, including through zero	
	Representing	• Identify and represent numbers using objects and pictorial representations • Read and write numbers to 100 in numerals • Read and write numbers to 20 in words	• Read and write numbers to 100 in numerals and words • Identify, represent and estimate numbers using different representations, including the number line	• Identify, represent and estimate numbers using different representations • Read and write numbers up to 1000 in numerals and words	• Identify, represent and estimate numbers using different representations • Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of 0 and place value	• Read and write numbers to at least 1,000,000 and determine the value of each digit • Read Roman numerals to 1000 and recognise years written in Roman numerals	• Read and write numbers to 10,000,000 and determine the value of each digit
	Use PV & Compare	• Given a number, identify one more or one less	• Recognise the place value of each digit in a two-digit number (tens, ones) • Compare and order numbers from 0 up to 100 using =, >, < symbols	• Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • Compare and order numbers up to 1000	• Find 1000 more or less than a given number • Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, ones) • Order and compare numbers beyond 1000	• Order and compare numbers to at least 1,000,000 and determine the value of each digit	• Order and compare numbers up to 10,000,000 and determine the value of each digit
	Problems & Rounding		• Use place value and number facts to solve problems	• Solve number problems and practical problems involving the above	• Round any number to the nearest 10, 100 or 1000 • Solve number problems and practical problems involving the above with increasingly large positive numbers	• Interpret negative numbers in context • Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000, and 100,000	• Round any whole number to a required degree of accuracy • Use negative numbers in context and calculate intervals across zero

						• Solve number problems and practical problems involving the above	• Solve number problems and practical problems involving the above
Addition & Subtraction	Recall, Represent, Use	• Read, write and interpret mathematical statements involving addition, subtractions and equals signs • Represent and use number bonds and related subtraction facts within 20	• 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	• Estimate the answer to a calculation and use the inverse operations to check answers	• Estimate and 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	
	Calculations	• Add and subtract 1-digit and 2-digit numbers to 20, including zero	• Add and subtract numbers using concrete objects, pictorial representations and mentally, including: - A 2-digit number and ones - A 2-digit number and tens - Two 2-digit numbers - Adding three 1-digit numbers	• Add and subtract numbers mentally, including: -a 3-digit number and ones -a 3-digit number and tens -a 3-digit number and hundreds •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 four digits, using formal written methods of columnar addition and subtraction	• Add and subtract numbers with more than four digits, using formal written methods of columnar addition and subtraction • Add and subtract number mentally, with increasingly large numbers	• Perform mental calculations, including with mixed operations and larger numbers • Use their knowledge of the order of operations to carry out calculations involving the four operations

	Solve Problems	• Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations • Solve missing number problems such as 9 – □ = 6	• Solve problems with addition and subtraction by: -Using concrete objects and pictorial representations, including those involving numbers, quantities and measures -Applying their increasing knowledge of mental and written methods	• Solve problems including missing number problems, using 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 multi-step problems in contexts, deciding which operations and methods to use and why • Solve problems involving addition and subtraction, including understanding of the equals sign	• Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
Multiplication & Division	*Recall, Represent & Use*	•Recall and use multiplication and division fats for the 2, 5, 10 times tables, including recognising odd and even numbers	•Recall and use multiplication and division fats for the 2, 5, 10 times tables, including recognising odd and even numbers •Show that multiplication of two numbers can be done in any order (commutative) and division by one number by another cannot	•Recall and use multiplication and division facts for the 3, 4- and 8-times tables	•Recall and use multiplication and division facts for times tables up to 12 x 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	• Identify multiples and factors, including finding factor pairs of a number and common factors of two numbers • Know and use the vocabulary of prime numbers, prime factors and composite numbers • Establish whether a number up to 100 is prime and recall prime numbers to 19 • Recognise and use square numbers and cube numbers and the notion for them	• Identify common factors, common multiples and prime numbers • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
	Calculations		• Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the correct symbols, including =	• Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for 2-digit numbers times 1-digit numbers, using mental and progressing to formal written methods	• Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout	• Multiply numbers up to 4 digits by a 1 or 2-digit number using a formal written method, including long multiplication for 2-digit numbers • Multiply and divide numbers mentally drawing upon known facts • Divide numbers up to 4 digits by a 1-digit number using the formal written method of short division and interpret remainders	• Multiply multi-digit by a 2-digit whole number using the formal written method of long multiplication • Divide numbers up to 4 digits by a 2-digit whole number using the formal written method of long division and interpret remainders as whole number remainders, fractions or by rounding • Divide numbers up to 4 digits by a 2-digit number

						appropriately for the context • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	using formal written method of short division where appropriate, interpreting remainders according to the context • Perform mental calculations, including with mixed operations and large numbers
	Solve Problems	• Solve one-step problems involving multiplication and division, by using concrete objects, pictorial representations and arrays, with support	• Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts	• Solve problems, including missing number problems, involving, multiplication and division, including positive integer scaling problems	• Solve problems involving multiplying and adding, including using the distributive law to multiply 2-digit numbers by 1-digit, integer scaling problems such as: n objects are connected to m objects	• Solve problems involving multiplication and division including 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	• Solve problems involving addition, subtraction, multiplication and division • Use their knowledge of the order of operations to carry out calculations involving the four operations
Fractions	Recognise & 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	• Recognise, find, name and write fractions $\frac{1}{3}, \frac{1}{4}, \frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or a quantity	• Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing 1-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	• Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten	• 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: $[\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}]$	

	Compare		• Recognise the equivalence of $\frac{1}{2}$ and $\frac{2}{4}$	• Recognise and show, using diagrams, equivalent fractions with small denominators • Compare and order unit fractions, and fractions with the same denominators	• Recognise and show, using diagrams, families of common equivalent fractions	• Compare and order fractions whose denominators are all multiples of the same number	• Use common factors to simplify fractions; use common multiples to express fractions in the same denomination • Compare and order fractions, including fractions > 1
	Calculations		• Write simple fractions for example, $\frac{1}{2}$ of 6 = 3	• 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	• Add and subtract fractions with the same denominator and denominators that are multiples of the same number • Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	• Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • Multiply simple pairs or proper fractions, writing the answer in its simplest form • Divide proper fractions by whole numbers
	Solve Problems			• 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		
Decimals	*Recognise & Write*				• Recognise and write decimal equivalents of any number of tenths or hundredths • Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$	• Read and write decimal numbers as fractions [E.g. $\frac{41}{100} = 0.41$ • Recognise and use thousandths and relate them to tenths. Hundredths and decimal equivalents	• Identify the value of each digit in numbers given to three decimal places
	Compare				• Round decimals with one decimal place to the nearest whole number • Compare numbers with the same number of	• Round decimal places to the nearest whole number and to one decimal place • Read, write, order and compare numbers with up to three decimal places	

					decimal places up to two decimal places		
	Calculations & 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	• Solve problems involving number up to three decimal places	• Multiply and divide numbers by 10,000 and 1000 giving answers up to three decimal places • Multiply 1- digit numbers with up to two decimal places by whole numbers • 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
Fractions, Decimals & Percentages					• Solve simple measure and money problems involving fractions and decimals to two decimals places	• 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 • 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 those fractions with a denominator of a multiple of 10 or 25	• Associate a fraction with division and calculate decimal fraction equivalents [e.g. 0.375 for $\frac{3}{8}$] • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
Ratio & Proportion							• 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 calculation of percentages [e.g. 15% of 360] and use 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
Measurement	Using Measures	• Compare, describe and solve practical problems for: -lengths and heights [Eg. Longer/shorter, tall, short] -mass/weight [heavy/light, heavier/lighter] -capacity and volume [full/empty, half full, more than/less than] -time [quicker/slower, earlier/later] • Measure and begin to record the following: -lengths and heights -mass/weight -capacity and volume -time (hours, minutes, seconds)	• Choose and use appropriate standard units to estimate and measure length/height in any direction (m,cm); mass (kg/g); temperature (®C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • Compare and order lengths, mass, volume/capacity and record the results using <, > and =	• Measure, compare, add and subtract lengths (m/cm/mm), mass (kg/g), volume and capacity (l/ml)	• Convert between different units of measure [E.g. kilometre to metre, hour to minute] • Estimate, compare and calculate different measures	• Convert between different units of metric measure [E.g. km/m; cm/m; cm/mm; g/kg; l/ml] • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • Use all four operations to solve problems involving measure [E.g. length, mass, volume, money] 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 • Use, read, write and convert between standard units, converting measurements of length, mass, volume, and time from a smaller unit of measure to a larger unit and vice versa, using decimal notation up to three decimal places • Convert between miles and kilometres
	Money	• Recognise and know the value of different denominations of coins and notes	• Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value • Find different combinations of coins	• 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	• Use all four operations to solve problems involving measure	

			that equal the same amounts of money • Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change				
	Time	• Sequence events in chronological order using language [E.g. before, after, next, first, morning, evening] • Recognise and use language relating to dates, including days of the week, weeks, months and years • Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	• Compare and sequence intervals of time • Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times • Know the number of minutes in an hour and number of hours in a day	• 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 and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon, midnight • Know the number of seconds in a minute and number of days in each month, year and leap year • Compare durations of events	• Read, write and convert time between analogue and digital 12- and 24-hour clocks • Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	• Solve problems involving converting between units of time	• Use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa
	Perimeter, Area & Volume			• Measure the perimeter of simple 2D shapes	• Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and meters • Find the area of rectilinear shapes by counting squares	• Measure and calculate the perimeter of composite rectilinear shapes in centimetres and meters • Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square	• Recognise that shapes with the same areas can have different perimeters and vice versa • Recognise when it is possible to use formulae for area and volume of shapes

						meters (m^2) and estimate the area of irregular shapes	• Calculate the area of parallelograms and triangles • Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic meters (m^3), and extending to other units [E.g mm^3 and km^3]
Geometry	2D Shapes	• Recognise and name common 2D shapes [E.g. rectangles, squares, circles, triangle]	• Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line • Identify 2D shapes on the surface of 3D shapes [E.g. a circle on a cylinder, triangle on a pyramid] • Compare and sort common 2D shapes and everyday objects	• Draw 2D shapes	• Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • Identify lines of symmetry in 2D shapes presented in different orientations	• Distinguish between regular and irregular polygons based on reasoning about equal sides and triangles • Use the properties of rectangles to deduce related facts and find missing lengths and angles	• Draw 2D shapes using given dimensions and angles • Compare and classify geometric shapes based on their properties and sizes • Illustrate and name parts of circles, including radius, diameter, circumference and know that the diameter is twice the circumference
	3D Shapes	• Recognise and name common 3D shapes [E.g. cuboids, pyramids, spheres]	• Recognise and name common 3D shapes [E.g. cuboids, pyramids, spheres] • Compare and sort common 3D shapes and everyday objects	• Make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe		• Identify 3D shapes, including cubes and other cuboids, from 2D representations	• Recognise, describe and build simple 3D shapes, including making nets
	Angles & Lines			• Recognise angles as a property of a shape or a description of a turn • Identify right angles, recognise that two right angles make a half turn, three make three-quarters and four a complete turn; identify whether angles are greater	• Identify acute and obtuse angles and compare and order angles up to two right angles by size • Identify lines of symmetry in 2D shapes presented in different orientations • Complete a simple symmetric figure with	• 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 (360®) • Identify angles at a point on a straight line and half a turn (total 180®)	• Find unknown angles in any triangles, quadrilaterals, and regular polygons • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite and find missing angles

				than or less than a right angle • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines	respect to a specific line of symmetry	• Identify other multiples of 90®	
	Position & Direction	• Describe position, direction and movement, including whole, half, quarter and three-quarter turns	• Order and arrange combinations of mathematical objects in patterns and sequences • Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)	•	• Describe positions on a 2D grid as coordinates in the first quadrant • Describe movements between positions as translations of a given unit to the left/right and up/down • Plot specified points and draw sides to complete a given polygon	• 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 the positions on the full coordinate grid (four quadrants) • Draw and translate simple shapes on the coordinate plane, and reflect them in the axes
Statistics	Present & Represent	•	• Interpret and construct simple pictograms, tally charts, block diagrams and simple tables	• Interpret and present data using bar chart, pictograms and tables	• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	• Complete, read and interpret information in tables, including timetables	• Interpret and construct pie charts and line graphs and use these to solve problems
	Solve Problems	•	• Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • Ask and answer questions about totalling and comparing categorical data	• Solve one-step and two-step questions [E.g. 'How many more?] using information presented in scaled bar charts and pictograms and tables	• Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	• Solve comparison, sum and difference problems using information presented in a line graph	• Calculate and interpret the mean as an average
Algebra							• Use simple formulae • Generate and describe linear number sequences • Express missing number problems algebraically

							• Find pairs of numbers that satisfy an equation with two unknowns