Maths Progression of Skills (based on White Rose for Reception and Year 1 and Power Maths Years 2 -6).

	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value	• Children have a deep understanding of number to 10, including the composition of each number. • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. Subitise (recognise quantities without counting) up to 5. • Children verbally count beyond 20, recognising the pattern of the counting system.	• Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. • 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. • Read and write numbers from 1 to 20 in numerals and words. • Given a number, identify one more and one less • Children count reliably with numbers from 1 to 20, place them in order and say	• 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. • Recognise the place value of each digit in a two-digit number (tens, ones). • Identify, represent and estimate numbers using different representations, including the number line. • Compare and order numbers from 0 up to 100; use and = signs. • Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.	• Recognise the place value of each digit in a three-digit number (hundreds, tens, and ones). • Identify, represent and estimate numbers using different representations. Read and write numbers up to 1,000 in numerals and in words. • Compare and order numbers up to 1,000. • Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. • Solve number problems and practical problems involving these ideas	• Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). • Round any number to the nearest 10, 100 or 1,000. • Count in multiples of 6, 7, 9, 25 and 1,000. • Identify, represent and estimate numbers using different representations. • Order and compare numbers beyond 1,000. • 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.	• Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit (10,000). Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. • Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 (10, 100 and 1,000). • Solve number problems and practical problems that involve all of the above. • Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals. • Interpret negative numbers in context, count forwards and	• Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit. • Solve number and practical problems that involve all of the above. • Round any whole number to a required degree of accuracy. • Use negative numbers in context, and calculate intervals across zero.

				• Find 1,000 more or less than a given number. • Round any number to the nearest 10 100 or 1,000. • Solve number and practical problems that involve all of the above and with increasingly large positive numbers. • Count backwards through zero to include negative numbers	backwards with positive and negative whole numbers, including through zero.	
which number is one more or one less than a given number.						

Addition and Subtraction

| Addition and Subtraction | • Using quantities and objects, children add and subtract 2 single digit numbers and count on or back to find the answer. | • Represent and use number bonds and related subtraction facts within 20.
• Read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs.
• Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9. | • 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.
• Solve problems with addition and subtraction: - using concrete objects and pictorial representations, including those | • Add and subtract numbers mentally, including: - a threedigit number and ones - a three-digit number and tens - a three-digit number and hundreds.
• Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.
• Add and subtract numbers with up to three digits, using formal written | • Add and subtract numbers with up to 4 digits using the formal written methods of column addition and subtraction where appropriate. • Estimate and use inverse operations to check answers to a calculation.
• Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. | • Add and subtract whole numbers with more than 4 digits, including using formal written methods (column addition and subtraction).
• Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.
• Add and subtract numbers mentally with increasingly large numbers.
• Solve addition and subtraction | • 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.
• Solve problems involving addition, subtraction, multiplication and division. |

		• Add and subtract one-digit and two-digit numbers to 20, including zero	involving numbers, quantities and measures - applying their increasing knowledge of mental and written methods. • 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. • Use place value and number facts to solve problems. • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	methods of column addition and subtraction. • Estimate the answer to a calculation and use inverse operations to check answers.		multistep problems in contexts, deciding which operations and methods to use and why.	
	•Children automatically recall numbers bonds up to 5 and some number bonds to 10, including double facts.	• Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens (multiples of twos, fives and tens).	• Calculate mathematical statements for multiplication and division within the multiplication tables and write them	• 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.	• Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. •	• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.

Multiplication and division							
	Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	• 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.	using the multiplication (×), division (÷) and equals (=) signs. • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.	• 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. • 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.	• 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. • Count in multiples of 6, 7, 9, 25 and 1,000. • Recall multiplication and division facts for multiplication tables up to 12 × 12. • 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. • Recognise and use factor pairs and commutativity in mental calculations. •	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. • Establish whether a number up to 100 is prime and recall prime numbers up to 19. • Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers. • Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3). • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000. • Multiply numbers up to 4 digits by a one or two-digit number using a formal written method, including	• Divide numbers up to 4 digits by a twodigit number using the formal written method of short division where appropriate, interpreting remainders according to the context. • Identify common factors, common multiples and prime numbers. • Use their knowledge of the order of operations to carry out calculations involving the four operations. • Perform mental calculations, including with mixed operations and large numbers. • Solve problems involving addition, subtraction, multiplication and division.

					Multiply two-digit and three-digit numbers by a one digit number using formal written layout.	long multiplication for two-digit numbers. • Multiply and divide numbers mentally drawing upon known facts.	
Fractions (Decimals and Percentages)	Explore and represent patterns within numbers and how quantities can be distributed equally.	• Recognise, find and name a half as one of two equal parts of an object, shape or quantity. • Recognise, find and name a half as one of two equal parts of an object, shape or quantity.	• Recognise, find, name and write fractions 1 third, 1 half, 1 quarter and 3 quarters of a length, shape, set of objects or quantity. • Write simple fractions for example, 1 half of 6 = 3 and recognise the equivalence of 2 quarters and 1 half .	• Recognise and use fractions as numbers: unit fractions and non unit fractions with small denominators. • 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. • Compare and order unit fractions, and fractions with the same denominators. • Recognise, find and write fractions of a discrete set of objects: 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. • Recognise and show, using families of common equivalent fractions. • 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. • Add and subtract fractions with the same denominator. • Recognise and write decimal	• 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. • Compare and order fractions whose denominators are all multiples of the same number. • Add and subtract fractions with the same denominator and denominators that are 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. • 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. • Divide proper fractions by whole numbers. • Use their knowledge of the order of operations to carry out

				• Solve problems that involve all of the above. • Recognise and show, using diagrams, equivalent fractions with small denominators. • Add and subtract fractions with the same denominator within one whole .	equivalents of any number of tenths or hundredths. • Solve simple measure and money problems involving fractions and decimals to two decimal places. • 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. • Recognise and write decimal equivalents of any number of tenths or hundredths. • Compare numbers with the same number of decimal places up to two decimal places. • Round decimals with one decimal place to the nearest whole number. • Recognise and write decimal equivalents to 1 quarter , 1 half and 3 quarters.	• Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. • Read, write, order and compare numbers with up to three decimal places. • Read and write decimal numbers as fractions. • Round decimals with two decimal places to the nearest whole number and to one decimal place. • 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 1 half , 1 quarter	calculations involving the four operations. • Use written division methods in cases where the answer has up to two decimal places. • Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to three decimal places.

						, 1 fifth , 2 fifths , 4 fifths and those fractions with a denominator of a multiple of 10 or 25. • Solve problems involving number up to three decimal places. • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000.	
Properties of Shape	• Children explore characteristics of everyday objects and shapes and use mathematical language to describe them. • Children recognise, create and describe patterns.	• Recognise and name common 2D and 3D shapes, including: - 2D shapes (for example, rectangles (including squares), circles and triangles) - 3D shapes (for example, cuboids.	• Compare and sort common 2D and 3D shapes and everyday objects. • Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line. • Order and arrange combinations of mathematical objects in patterns and sequences.	• 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	• Identify acute and obtuse angles and compare and order angles up to two right angles by size. • Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. • Identify lines of symmetry in 2D shapes presented in	• Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. • Identify - angles at a point and one whole turn (total 360°) - angles at a point on a straight line and 1 2 a turn (total 180°) - other multiples of 90°. • Draw given angles,	• Draw 2D shapes using given dimensions and angles. • Compare and classify geometric shapes based on their properties and sizes, and find unknown angles in any triangles, quadrilaterals and regular polygons. • Recognise angles where they meet at a point, are on a

			• Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces.	than or less than a right angle. • Draw 2D shapes and make 3D shapes using modelling materials; recognise 3D shapes in different orientations and describe them. • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	different orientations. • Complete a simple symmetric figure with respect to a specific line of symmetry.	and measure them in degrees (°). • Use the properties of rectangles to deduce related facts and find missing lengths and angles. • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. • Identify 3D shapes, including cubes and other cuboids, from 2D representations.	straight line, or are vertically opposite, and find missing 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 3D shapes, including making nets.
Position and Direction	• Use positional language to describe how items are positioned in relation to other items.	• Describe position, direction and movement, including whole, half, quarter and three-quarter turns	• 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 anticlockwise).	• 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.	• Describe positions on a 2D 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.	• 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 axis.

		• Order and arrange combinations of mathematical objects in patterns and sequences.				
Measurement	• Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems.	• Compare, describe and solve practical problems for: - lengths and heights (for example, long/short, longer/shorter, tall/short, double/half) - mass/weight (for example, heavy/light, heavier than, lighter than) - capacity and volume (for example, full/empty, more than, less than, half, half full, quarter) - time (for example, quicker, slower, earlier, later). • Measure and begin to record the following: - lengths and heights - mass/weight - capacity and volume - time (hours, minutes, seconds). • Sequence events in chronological order using language (for example, before and after, next, first,	• Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. • Find different combinations of coins 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. • 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,	• Add and subtract amounts of money to give change, using both £ and p in practical contexts. • Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). • Measure the perimeter of simple 2D shapes. • 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	• Convert between different units of measure (for example, kilometre to metre; hour to minute). • Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. • Find the area of rectilinear shapes by counting squares. • Estimate, compare and calculate different measures, including money in pounds and pence. • Solve simple measure and money problems involving fractions and decimals to two decimal places. • Read, write and convert time between analogue	• Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. • Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of regular shapes. • Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). • Use all four operations to solve problems involving measure (for example, length,	• 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 to up to three decimal places. • Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. • Convert between miles and kilometres. • Recognise that shapes with the same areas can have different perimeters and vice versa.

today, yesterday, tomorrow morning, afternoon and 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. • Recognise and know the value of different denominations of coins and notes.	thermometers and measuring vessels. • Compare and order lengths, mass, volume/capacity and record the results using >, < and =. • 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 the number of hours in a day. • Compare and sequence intervals of time.	as o'clock, a.m./p.m., morning, afternoon, noon and midnight 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 events or tasks).	and digital 12- and 24-hour clocks.	mass, volume, money) using decimal notation, including scaling. • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. • Solve problems involving converting between units of time. • Complete, read and interpret information in tables, including timetables. • Use all four operations to solve problems involving measure (for example, length, mass, volume, money) using decimal notation, including scaling. • Estimate volume (for example, using 1 cm3 blocks to build cuboids (including cubes)) and capacity (for example, using water).	• Recognise when it is possible to use formulae for area and volume of shapes. • Calculate the area of parallelograms and triangles. • Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units (for example, mm3 and km3)

		N/A	N/A	• Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. • 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.	• 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 and time graphs. • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	• Complete, read and interpret information including timetables. • Solve comparison, sum and difference problems using information presented in a line graph.	• Calculate and interpret the mean as an average. •Interpret and construct pie charts and line graphs and use these to solve problems. • Solve comparison, sum and difference problems using information presented in a line graph.
Statistics								
Algebra		N/A	N/A	N/A	N/A	N/A	N/A	• Use simple formulae. • Generate and describe linear number sequences. • Express missing number problems algebraically. • Enumerate possibilities of combinations of two variables. • Express missing number problems algebraically. • Find pairs of numbers that satisfy an equation with two unknowns.

						• Enumerate possibilities of combinations of two variables.
Ratio and Proportion	N/A	N/A	N/A	N/A	N/A	N/A	• 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 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. • Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.