

Rossemere Academy



**Rossmere
Academy**
ENRICHING EDUCATION

Nursery - Year 6

Maths Progression Document

Place Value Progression

	Nursery	Reception ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value: Counting	<ul style="list-style-type: none"> Introduce counting principles; <ul style="list-style-type: none"> ➤ The one-one principle ➤ The stable-order principle ➤ The cardinal principle ➤ The abstraction principle ➤ The order-irrelevance principle 	<p>Verbally count beyond 20, recognising the pattern of the counting system</p> <ul style="list-style-type: none"> Count to 20 forwards and backwards Count forwards and backwards within 20 from any starting point Count verbally beyond 20 	<ul style="list-style-type: none"> Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count numbers to 100 in numerals; count in multiples of twos, fives and tens 	<ul style="list-style-type: none"> Count in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward 	<ul style="list-style-type: none"> Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number 	<ul style="list-style-type: none"> Count in multiples of 6, 7, 9, 25 and 1000 Count backwards through zero to include negative numbers 	<ul style="list-style-type: none"> Count forwards and backwards in steps of 10 for any given number up to 1000000 Count forwards and backwards with positive and negative whole numbers, including through zero 	
Place Value: Represent	<ul style="list-style-type: none"> Explore and understand numbers 1-6 <ul style="list-style-type: none"> ➤ Use objects ➤ Subitise within 5 ➤ Introduce numerals ➤ Drawings to represent numbers 	<p>Subitise (recognise quantities without counting) up to 5;</p> <ul style="list-style-type: none"> Matching objects Sort objects into groups Represent numbers to 20 using objects, pictorial 	<ul style="list-style-type: none"> Identify and represent numbers using objects and pictorial representations Read and write numbers to 100 in numerals Read and write numbers from 1 to 20 in numerals and words 	<ul style="list-style-type: none"> Read and write numbers to at least 100 in numerals and words Identify, represent and estimate numbers using different representations, including the number line 	<ul style="list-style-type: none"> Identify, represent and estimate numbers using different representations Read and write numbers up to 1000 in numerals and words 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Read, write, (order and compare) numbers to at least 1000000 and determine the value of each digit Read Roman Numerals to 1000 (M) and recognise years written in Roman Numerals 	<ul style="list-style-type: none"> Read, write, (order and compare) numbers to at least 10000000 and determine the value of each digit

		<p>representations and in numerals</p> <ul style="list-style-type: none"> • Make, build and identify numbers to 20 • Match number names (given verbally) to the numerical number • Subitise numbers to and within 10 • Introduce 0 				concept of zero and place value		
Place Value: Use PV and Compare	<ul style="list-style-type: none"> • Perceptual comparing (comparing without counting) • Comparing - begin to talk about which group has more things (more/fewer) and then different items with the same quantity (same/equal) 	<p>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity</p> <ul style="list-style-type: none"> • Compare amounts of real life objects using more and less • Compare numbers to 10 using more than, less than and equal to 	<ul style="list-style-type: none"> • Given a number, identify one more and one less 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • Compare and order numbers up to 1000 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • (read, write) order and compare numbers to at least 1000000 and determine the value of each digit 	<ul style="list-style-type: none"> • (read, write) order and compare numbers to at least 10000000 and determine the value of each digit

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Place Value: Problems and Rounding</p>				<ul style="list-style-type: none"> • Use place value and number facts to solve problems 	<ul style="list-style-type: none"> • Solve number problems and practical problems involving these ideas 	<ul style="list-style-type: none"> • Round any number to the nearest 10, 100 or 1000 • Solve number and practical problems that involve all of the above and with increasingly large positive numbers 	<ul style="list-style-type: none"> • Interpret negative numbers in context • Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 1000000 • Solve number problems and practical problems that involve all of the above 	<ul style="list-style-type: none"> • Round any whole number to a required degree of accuracy • Use negative numbers in contexts and calculate intervals across zero • Solve number and practical problems that involve all of the above
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Addition and Subtraction Progression

	Nursery	Reception ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition and Subtraction: Recall, Represent, Use		<p>Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.</p> <p>Have a deep understanding of number to 10, including the composition of each number</p> <ul style="list-style-type: none"> Recall the composition of numbers to 10 Recall number bands to 10 using objects 	<ul style="list-style-type: none"> Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs Represent and use number bonds and related subtraction facts within 20 	<ul style="list-style-type: none"> Recall and use addition and subtraction facts fluently, and derive and use related facts 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 	<ul style="list-style-type: none"> Estimate the answer to a calculation and use inverse operations to check answers 	<ul style="list-style-type: none"> Estimate and use inverse operations to check answers to calculations 	<ul style="list-style-type: none"> Use rounding to check the answers to calculations and determine, in the context of a problem, levels of accuracy 	

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Addition and Subtraction: Calculations</p>		<ul style="list-style-type: none"> Combine 2 groups of objects to introduce addition Use real objects to add more (count on) Use real objects to take away (count back) Introduce the vocabulary first, then, now to show addition and subtraction 	<ul style="list-style-type: none"> Add and subtract one-digit and two-digit numbers to 20, including zero 	<ul style="list-style-type: none"> Add and subtract numbers using concrete objects, pictorial representations and mentally, including: <ul style="list-style-type: none"> A two-digit number and ones A two-digit number and tens Two two-digit numbers Adding three one-digit numbers 	<ul style="list-style-type: none"> Add and subtract numbers mentally including: <ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Addition and Subtraction: Solve Problems</p>			<ul style="list-style-type: none"> Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = _ - 9$ 	<ul style="list-style-type: none"> Solve problems with addition and subtraction: <ul style="list-style-type: none"> Using concrete objects and pictorial representations, including those involving numbers, quantities and measures Apply their increasing knowledge of mental and written methods 	<ul style="list-style-type: none"> Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction 	<ul style="list-style-type: none"> Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why 	<ul style="list-style-type: none"> 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 and a combination of these including understanding the 	<ul style="list-style-type: none"> Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

							meaning of the equals sign	
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Multiplication and Division Progression

	Nursery	Reception ELG	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication and Division: Recall, Represent and Use		<p>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally</p> <ul style="list-style-type: none"> Introduce pairs and a pair is 2 Doubling means 'twice' Build doubles with real life objects and mathematical equipment Recall double facts up to double 5 Introduce sharing and grouping Share objects using real life objects and mathematical 		<ul style="list-style-type: none"> Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot 	<ul style="list-style-type: none"> Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables 	<ul style="list-style-type: none"> Recall and use 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 on mental calculations 	<ul style="list-style-type: none"> 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 numbers and cube numbers, and the notation squared (2) and cubed (3) 	<ul style="list-style-type: none"> 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

		<p>equipment into equal and not equal groups</p> <ul style="list-style-type: none"> • Make equal groups • Introduce odd and even numbers - notice the structure on a number shape to help represent this 						
<p>Multiplication and Division: Calculations</p>				<ul style="list-style-type: none"> • Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout 	<ul style="list-style-type: none"> • 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 formal written method of short division and interpret remainders 	<ul style="list-style-type: none"> • 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

							<p>appropriately for the context</p> <ul style="list-style-type: none"> • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 	<p>appropriate for the context</p> <ul style="list-style-type: none"> • Divide numbers up to 4 digits by a two-digit whole number using the formal written method of short division where appropriate, and interpret remainders according to the context • Perform mental calculations, including with mixed operations and large numbers
<p>Multiplication and Division: Solve Problems</p>		<ul style="list-style-type: none"> • Resolve non equal groups using real life objects and mathematical equipment 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Solve problems involving addition, subtraction, multiplication and division

						connected to m objects	problems involving simple rates	
Multiplication and Division: Combined Operations							<ul style="list-style-type: none"> Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign 	<ul style="list-style-type: none"> Use their knowledge of the order of operations to carry out calculations involving the four operations

Fractions, Decimals and Percentages Progression

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fractions: Recognise and Write			<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 quantity 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten 	<ul style="list-style-type: none"> Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths Recognise mixed numbers and improper fractions and convert them from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1 \frac{1}{5}$] 	

Fractions: Compare				<ul style="list-style-type: none"> Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ 	<ul style="list-style-type: none"> Recognise and show, using diagrams, equivalent fractions with small denominators Compare and order unit fractions, and fractions with the same denominators 	<ul style="list-style-type: none"> Recognise and show, using diagrams, families of common equivalent fractions 	<ul style="list-style-type: none"> Compare and order fractions whose denominators are small multiples of the same number 	<ul style="list-style-type: none"> Use common fractions to simplify fractions; use common multiples to express fractions in the same denomination Compare and order fractions, including fractions > 1
Fractions: Calculations				<ul style="list-style-type: none"> Write simple fractions for example $\frac{1}{2}$ of $6 = 3$ 	<ul style="list-style-type: none"> Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] 	<ul style="list-style-type: none"> Add and subtract fractions with the same denominator 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$] Divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$]

Fractions: Solve Problems					<ul style="list-style-type: none"> Solve problems that involve all of the above 	<ul style="list-style-type: none"> 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 and Write						<ul style="list-style-type: none"> Recognise and write decimal equivalents of any number of tenths or hundredths Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ 	<ul style="list-style-type: none"> Read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents 	<ul style="list-style-type: none"> Identify the value of each digit in numbers given to three decimal places
Decimals: Compare						<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Round decimals with two decimal places to the nearest whole number and o one decimal place Read, write, order and compare numbers with up to three decimal places 	

<p>Decimals: Calculations and Problems</p>						<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Solve problems involving numbers up to three decimal places 	<ul style="list-style-type: none"> Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places Multiply one-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
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<p>Fractions, Decimals and Percentages</p>						<ul style="list-style-type: none"> Solve simple measures and money problems involving fractions and decimals to two decimal places 	<ul style="list-style-type: none"> 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 percentages 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 15 	<ul style="list-style-type: none"> Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$] Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
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Ratio and Proportion Progression

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Ratio and Proportion								<ul style="list-style-type: none"> • 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
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Algebra Progression

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Algebra			<ul style="list-style-type: none"> Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = _ - 9$ 	<ul style="list-style-type: none"> Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems 	<ul style="list-style-type: none"> Solve problems including missing numbers 			<ul style="list-style-type: none"> 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 Enumerate possibilities of combinations of two variables

NOTE: although algebraic notation is not introduced until Year 6, algebraic thinking starts much earlier as exemplified by the 'missing number' objectives in Year 1, 2 and 3.

Measurement Progression

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Measurement: Using Measures	<ul style="list-style-type: none"> Using the language of size, use real life objects that are large and small in relation to each other <ul style="list-style-type: none"> ➤ Large/big ➤ Small/little ➤ Smaller/larger Length and height introduced <ul style="list-style-type: none"> ➤ Long/short/tall to describe examples (a bus is long; an adult is tall; grass is short) Find objects that are longer/shorter than a given item and compare verbally (longer/taller/shorter) 	<ul style="list-style-type: none"> Compare sizes, mass and capacity in practical activities Compare mass using the vocabulary, heavy, light, heaviest, lightest Compare capacity using the vocabulary, full, empty, half full, nearly full, nearly empty Compare length using the vocabulary, long, short, longest, shortest Compare height using the vocabulary, tall, short, tallest, shortest 	<ul style="list-style-type: none"> Compare, describe and solve practical problems for: <ul style="list-style-type: none"> ➤ 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: <ul style="list-style-type: none"> ➤ Lengths and heights 	<ul style="list-style-type: none"> Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (l/ml) to the nearest appropriate unit, using rules, scales, thermometers and measuring vessels Compare and order lengths, mass, volume/capacity and record the results using >, < and = 	<ul style="list-style-type: none"> Measure, compare, add and subtract lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) 	<ul style="list-style-type: none"> Convert between different units of measure [for example kilometre to metre; hour to minute] Estimate, compare and calculate measures 	<ul style="list-style-type: none"> Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; millimetre; gram and kilogram; litre and millilitre) Understand and use the approximate equivalences between metric units and common imperial units such as inches, pounds and pints Use all four operations to solve problems involving [for example, length, mass, volume, money] using decimal notation, including scaling 	<ul style="list-style-type: none"> Solve problems using 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

	<ul style="list-style-type: none"> • Introduce weight (heavy/light) • Compare weights (heavier than/lighter than, balanced) ➤ Use the balance scales to represent this • Introduce capacity and explore (full, empty, half full) • Compare capacity (most/least) 		<ul style="list-style-type: none"> ➤ Mass/weight ➤ Capacity and volume ➤ Time (hours, minutes, seconds) 					
Measurement: Money			<ul style="list-style-type: none"> • Recognise and know the value of different denominations of coins and notes 	<ul style="list-style-type: none"> • Recognise and use the 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 	<ul style="list-style-type: none"> • Add and subtract amounts of money to give change, using both £ and p in practical contexts 	<ul style="list-style-type: none"> • Estimate, compare and calculate different measures, including money in pounds and pence 	<ul style="list-style-type: none"> • Use all four operations to solve problems involving measure [for example, money] 	

				practical context involving addition and subtraction of money of the same unit, including giving change				
Measurement: Time	<ul style="list-style-type: none"> Ordering events of the day Talk and order events of the day such as waking up, coming to school, dinner, bed time. Encourage vocabulary first, next, then, last 	<ul style="list-style-type: none"> Night and day - sequence daily routines (day, night, morning, before, after) Sequence important times in a day Introduce the days of the week 	<ul style="list-style-type: none"> Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] Recognise and use the 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 	<ul style="list-style-type: none"> 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 the number of hours in a day 	<ul style="list-style-type: none"> Tell and write the time from an analogue clock, including using Roman Numerals from I to XI, 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 and midnight Know the number of second in a minute and the number of days in each month, year and leap year Compare durations of events [for example to calculate 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Solve problems involving converting between units of time 	<ul style="list-style-type: none"> 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

					the time taken by particular events of tasks]			
Measurement: Perimeter, Area, Volume					<ul style="list-style-type: none"> Measure the perimeter of simple 2-D shapes 	<ul style="list-style-type: none"> Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Find the area of rectilinear shapes by counting shapes 	<ul style="list-style-type: none"> Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres Calculate the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and squared metres (m^2) and estimate the area of irregular shapes Estimate the volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for 	<ul style="list-style-type: none"> 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 Calculate the area of parallelograms and triangles Calculate, estimate and compare the volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]

							example, using water]	
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Geometry Progression

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Geometry: 2-D Shapes		<ul style="list-style-type: none"> Introduce the names of 2-D shapes (circle, triangle, rectangle, square) Observe properties of shapes (curved, straight) Look for 2-D shapes within everyday items 	<ul style="list-style-type: none"> Recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles] 	<ul style="list-style-type: none"> Identify and describe the - properties of 2D shapes, including the number of sides and line of symmetry in a vertical line Identify 2D shapes on the surface of 3-D shapes [for example, a circle on a cylinder and a triangle on a pyramid] Compare and sort common 2-D shapes and everyday objects 	<ul style="list-style-type: none"> Draw 2D shapes 	<ul style="list-style-type: none"> Compare and classify geometric shapes including quadrilaterals and triangles, based on their properties and size Identify lines of symmetry on 2-D shapes presented in different orientations 	<ul style="list-style-type: none"> Distinguish between regular and irregular polygons based on reasoning about equal sides and angles Use the properties rectangles to deduce related facts and find missing lengths and angles 	<ul style="list-style-type: none"> Draw 2-D 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 and circumference and know that the diameter is twice the radius
Geometry: 3-D Shapes		<ul style="list-style-type: none"> Introduce the names of 3-D shapes (cylinder, cuboid, cube, sphere, cone, pyramid) Build using 3-D shapes 	<ul style="list-style-type: none"> Recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] 	<ul style="list-style-type: none"> Recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] Compare and sort common 3-D shapes and everyday objects 	<ul style="list-style-type: none"> Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them 		<ul style="list-style-type: none"> Identify 3-D shapes, including cubes and other cuboids, from 2-D representations 	<ul style="list-style-type: none"> Recognise, describe and build simple 3-D shapes, including making nets

<p style="text-align: center;">Geometry: Angles and Lines</p>					<ul style="list-style-type: none"> 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 of a turn and four make 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 	<ul style="list-style-type: none"> Identify acute and obtuse angles and compare and order angles up to two right angles by size 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 	<ul style="list-style-type: none"> Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles, and measure them in degrees Identify: <ul style="list-style-type: none"> Angles at a point and one whole turn (total 360°) Angles at a point on a straight line and ½ a turn (total 180°) Other multiples of 90° 	<ul style="list-style-type: none"> Find known 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
<p style="text-align: center;">Geometry: Position and Direction</p>	<ul style="list-style-type: none"> Expose and use the language of position and direction (position - in, on, under) (direction - up, down, across) Use terms which are relative (in front of, 	<ul style="list-style-type: none"> Use positional language to describe how something is positioned (including over, under, around, through) Use spatial reasoning to describe positional language 	<ul style="list-style-type: none"> Describe position, direction and movement, including whole, half, quarter and three-quarter turns 	<ul style="list-style-type: none"> Order and arrange combinations of mathematical objects on patterns and sequences Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing 		<ul style="list-style-type: none"> Describe positions on a 2-D 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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

	<p>behind, on top of)</p> <ul style="list-style-type: none"> • Make simple patterns (using 2 units to repeat) • Make complex patterns (using 3 units to repeat) • Use spatial reasoning to select and rotate shapes to fit • Use spatial reasoning to show that shapes can be combined and separated to make new shapes • Use spatial reasoning to show when shapes fit together and break apart, new shapes are made 		<p>between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)</p>		<p>sides to complete a given polygon</p>		
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Statistics Progression

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Statistics: Present and Interpret				<ul style="list-style-type: none"> Interpret and construct simple pictograms, tally charts, block diagrams and simple tables 	<ul style="list-style-type: none"> Interpret and present data using bar charts, pictograms and tables 	<ul style="list-style-type: none"> Interpret and present discrete and continuous data using appropriate graphical methods including bar charts and time graphs 	<ul style="list-style-type: none"> Complete, read and interpret information in tables, including timetables 	<ul style="list-style-type: none"> Interpret and construct pie charts and line graphs and use these to solve problems
Statistics: Solve Problems				<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Solve comparison sum and difference problems using information presented in bar charts, pictograms, tables and other graphs 	<ul style="list-style-type: none"> Solve comparison sum and difference problems using information presented in a line graph 	<ul style="list-style-type: none"> Calculate and interpret the mean as an average

NOTES

EYFS - Although there are only ELG linked to number, EYFS follow a broad and balanced mathematics curriculum covering many areas. Nursery follow Mater the Curriculum, which is progressive and follows the whole school Small Steps approach. This also links to White Rose Maths, that the rest of the school follow. Reception follow the White Rose Maths Scheme of Work, which includes the Small Steps approach for each Phase.

To deepen understanding children need opportunities to engage and extend problem solving and develop critical thinking skills

Y1-Y6 - Follow White Rose Maths Schemes of Work, which includes the Small Steps approach. They need to complete fluency, reasoning and problem solving activities for the Small Steps.