

Knebworth Primary School Maths Matrix






For all children to become confident, fluent and flexible mathematicians.

"The only way to learn maths is to do maths".

Paul Halmos

AIMS

-  Have a solid understanding of the fundamental principles which underpin Mathematics
-  Develop the ability to challenge, to question and to reason
-  Show resilience, solve problems and communicate effectively in order to thrive in the challenges of the world today

<i>Deep Roots</i>		Autumn	Spring	Summer			
EYFS	Nursery	The maths curriculum in Nursery focuses on Number and Numerical Patterns. It is delivered through the daily routine, adult led activities such as songs and games, as well as through continuous and enhanced provision in independent learning time.					
	Number	Uses some number names and number language within play. In everyday situations, takes or gives two or three objects from a group.	Shows an interest in counting. Begins to count on their fingers. Begins to notice and recognise some numerals.	Recognises numerals in their environment. Counts to find out how many things they have by pointing or touching (tagging) each item, saying one number for each item, using the stable order of 1,2,3,4,5.	Begins to use understanding of number to solve practical problems in play and meaningful activities. Shows 'finger numbers' up to 5. Recites numbers to 5.	Begins to recognise numerals 0 to 5. Explores using a range of their own marks and signs to which they ascribe mathematical meanings. Through play and exploration, begins to learn that numbers are composed of smaller numbers.	Counts up to five items, recognising that the last number said represents the total counted so far (cardinal principle). Links numerals with amounts up to 5. Experiments with their own symbols and marks as well as numerals. Solve real world mathematical problems with numbers up to 5.
	Numerical Patterns	Uses mathematical language in their play e.g. big, small, heavy, light. Talks about and identifies the patterns around them. Uses informal language like 'pointy', 'spotty', etc. Notices who has more or less. Chooses puzzle pieces and tries to fit them in.	Begins to compare and recognise changes in numbers of things, using words like 'more', 'lots' or 'same'. Shows awareness of shape similarities and differences between objects. Shows interest in what happens next using the pattern of everyday routines. Begins to copy simple linear patterns of two or three repeating items (AB).	Notices and compares size, weight and capacity in their play, exploring differences. Joins in with simple patterns in sounds, actions, dancing and movement, predicting what comes next. Begins to recognise that each counting number is one more than the one before. Extends and creates simple linear patterns of two or three repeating items (AB or ABC).	Responds to some spatial and positional language. Compares two small groups of up to five objects using language 'more than', 'fewer than', or saying when there are the same number of objects in each group. Recalls a sequence of events in everyday life and stories. Notices and corrects an error in a repeating pattern.	Discusses routes and locations, using words like 'in front of' and 'behind'. Develops fast recognition of up to 3 objects, without having to count them individually ('subitising'). Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same. Developing spatial awareness: experiencing different viewpoints e.g. riding trikes around routes, remote control vehicles, tangrams and jigsaws. Partitions or combines 2D and 3D shapes to make new ones - an arch, a	Responds to and uses language of position and direction. Predicts, moves and rotates objects to fit the space or create the shape they would like. Copies, extends, corrects and creates their own spatial patterns showing some organisation or regularity. Develop spatial vocabulary.

											bigger triangle etc.					
	Reception	The maths curriculum in Reception focuses on Number and Numerical Patterns and progresses towards the ELGs at the end of the year. It links to 6 key mathematical ideas. The first 4 are prioritised. 1. Cardinality and counting 2. Comparison 3. Composition 4. Pattern 5. Measure 6. Shape The skills in BLACK link to the ELGs as specified in the Statutory Framework. The skills in BLUE are key skills that we want children to develop for the progression of their mathematical understanding but are not directly linked to the ELGs.														
	Number	Recognise numbers of personal significance Start to recognise number patterns Uses rhymes to develop number sense, to explore 1:1 counting and support the understanding of subitising	Count 1:1 accurately to 5 Uses a dice counting the pattern in the dice Starts to explore number bonds to 3	Explore composition of 5 and recognising numerals Use a dice, recognising the pattern without counting Start to explore number bonds to 5	Count 1:1 accurately to 10 Begin to recognise patterns of everyday objects Start to explore number bonds to 6,7,8	Explore composition of 10 and recognise numerals Use a tens frame to subitise Start to explore number bonds to 9 and 10	Recognise that numbers to 10 can be composed of differing amounts Begin to recognise quantities within quantities e.g. (2+2+1 in 5) Begin to explore double facts linked to numerical patterns									
	Numerical Patterns	Recite numbers up to 5 confidently Share small quantities Tap a repeating pattern with body percussion <i>Develop shape awareness through construction.</i>	Count backwards from 5 confidently Start to recognise when a child has a greater quantity Use every day routines to establish numerical patterns <i>Represent spatial relationships.</i>	Count up to 10 confidently Begin to share small quantities with a peer so each has an equal amount Identify patterns within the environment <i>Identify similarities between shapes.</i>	Count backwards from 10 confidently Recognise quantities in pictorial representations Begin to identify numerical patterns in pictorial representations <i>Show awareness of properties of shape.</i>	Count up to 20 confidently Begin to compare quantities when objects are the same size or larger than themselves when organising into two groups. Begin to recognise that evens and odds are a pattern <i>Describe properties of shape.</i>	Count backwards from 20 confidently Talk about quantities and estimate when one group is larger than another. Share an amount, using equal, more than, less than, fewer, less than. Talk about when it isn't able to be distributed evenly. <i>Develop an awareness of relationships between shapes.</i>									
KS1	Y1	Place Value within 10	Addition and Subtraction	Shape	Place Value (within 20)	Addition and subtraction (within 20)	Place value (within 50)	Length and Height	Mass and volume	Multiplication and Division	Fractions	Position and Direction	Place value (within 100)	Money	Time	
	Y2	Place Value	Addition and Subtraction	Money	Multiplication and Division	Fractions	Length and Height	Mass, capacity temperature	Shape	Time	Statistics	Position and Direction	Consolidation			
KS2	Y3	Place Value	Addition and Subtraction	Multiplication and Division A	Multiplication and Division B	Length and perimeter	Fractions A	Mass and capacity	Fractions B	Money	Time	Shape	Statistics			
	Y4	Place Value	Addition and Subtraction	Area	Multiplication and Division A	Multiplication and Division B	Length and Perimeter	Fractions	Decimals A	Decimals B	Money	Time	Shape	Statistics	Position and Direction	
	Y5	Place Value	Addition and Subtraction	Multiplication and Division	Fractions A	Multiplication and Division B	Fractions B	Decimals and Percentages	Perimeter and area	Statistics	Shape	Position and Direction	Decimals	Negative Numbers	Converting Units	Volume
	Y6	Place Value	Addition, subtraction, multiplication and division	Fractions A	Fractions B	Decimals	Fractions, Decimals, Percentages	Ratio	Converting Units	Area, Perimeter and Volume	Algebra	Shape	Position and Direction	Statistics	Consolidation, investigations and secondary transition	

The units of work highlighted in yellow are the prioritised areas of the mathematics curriculum.

Knebworth Primary School: Mathematics Whole-School Curriculum Progression Map

Mathematical Vocabulary	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mathematical Vocabulary	<p>Use informal language like 'pointy', 'spotty', 'blobs' etc.</p> <p>Use mathematical language in their play e.g. big, small, heavy, light.</p> <p>Compare two small groups of up to five objects using language 'more than', 'fewer than', or saying when there are the same number of objects in each group.</p>	<p>Talk about their mathematical activity and introduce them to relevant mathematical language in context.</p> <p>Use equal, more than, less than, fewer.</p>		<p>To read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at year 1.</p>	<p>To read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.</p>	<p>To read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.</p>	<p>To read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.</p>	<p>To read, spell and pronounce mathematical vocabulary correctly.</p>	<p>To read, spell and pronounce mathematical vocabulary correctly.</p>

Number and Place Value	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>				
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Counting	<p>Show an interest in counting.</p> <p>Begin to count on their fingers.</p> <p>Recite numbers to 5 in sequence.</p> <p>Count up to five items tagging each digit, recognising that the last number said represents the total counted so far</p>	<p>Count 1:1 accurately to 10.</p> <p>Count up to 20 and back confidently.</p> <p>Know the 'one more than/one less than' relationship between counting numbers.</p>	<p>Verbally count beyond 20, recognising the pattern of the counting system.</p>	<p>To count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.</p> <p>To identify one more and one less than a given number.</p> <p><i>To count in multiples of twos, fives and tens from different multiples to develop their recognition of patterns in the number system, including varied and frequent practice through increasingly complex questions.</i></p> <p><i>To recognise and create repeating patterns with objects and with shapes.</i></p>	<p>To count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.</p>	<p><i>To continue to count in ones, tens and hundreds, so that pupils become fluent in the order and place value of numbers to 1000.</i></p> <p>To count from 0 in multiples of 4, 8, 50 and 100.</p>	<p><i>To count in tens and hundreds, and maintain fluency in other multiples through varied and frequent practice.</i></p> <p>To count in multiples of 6, 7, 9, 25 and 1000.</p> <p>To count backwards through zero to include negative numbers.</p> <p>To find 1000 more or less than a given number.</p>	<p>To count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.</p> <p>To interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.</p>		

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	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Identifying, Representing and Estimating Numbers	<p>Through play and exploration, begin to learn that numbers are composed of smaller numbers.</p> <p>Develop fast recognition of up to 3 objects, without having to count them individually</p> <p>Separate a group of three or four objects in different ways, beginning to recognise that the total is still the same.</p>	<p>Use manipulatives to represent quantities through familiar stories and rhymes</p> <p>Explore composition of numbers up to 10.</p> <p>Use a tens frame to subitise.</p> <p>Recognise small amounts (up to five) when they are not in the 'regular' arrangement.</p> <p>Talk about quantities and estimate when one group is larger than another.</p>	<p>Have a deep understanding of number to 10, including the composition of each number.</p> <p>Subitise up to 5.</p>						

<p>Reading and Writing Numerals</p>	<p>Experiment with their own symbols and marks as well as numerals.</p> <p>Link numerals with amounts up to 5.</p>	<p>Recognise numbers of personal significance.</p> <p>Link mathematical symbolisation to practical tasks such as scoring in games.</p> <p>Recognise numerals.</p>		<p>To read and write numbers from 1 to 20 in numerals and words.</p> <p>To count, read and write numbers to 100 in numerals.</p>	<p>To read and write numbers to at least 100 in numerals and in words.</p>	<p>To read and write numbers up to 1000 in numerals and in words.</p>		<p>To read and write numbers to at least 1 000 000 and determine the value of each digit.</p>	<p>To say, read and write, numbers up to 10 000 000 <i>accurately</i> and determine the value of each digit.</p>
<p>Compare and Order Numerals</p>	<p>Talk about which group has more things.</p> <p>Check that groups are equal, by matching objects on a one-to-one basis.</p>	<p>Use everyday routines to establish numerical patterns</p> <p>Talk about quantities and estimate when one group is larger than another.</p>	<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>		<p>To compare and order numbers from 0 up to 100; use <, > and = signs.</p>	<p>To compare and order numbers up to 1000.</p>	<p>To order and compare numbers beyond 1000.</p>	<p>To order and compare numbers to at least 1 000 000 and determine the value of each digit.</p>	<p>To order and compare numbers up to 10 000 000 <i>accurately</i> and determine the value of each digit.</p>
<p>Understanding Place Value</p>					<p>To recognise the place value of each digit in a two-digit number (tens, ones) to <i>become fluent and apply their knowledge of numbers to reason with, discuss and solve problems.</i></p> <p>To begin to understand zero as a place holder.</p>	<p>To recognise the place value of each digit in a three-digit number (hundreds, tens, ones) and apply partitioning related to place value using varied and increasingly complex problems, building on work in year 2 (for example, $146 = 100 + 40$ and 6, $146 = 130 + 16$).</p>	<p>To recognise the place value of each digit in a four-digit number.</p> <p>To begin to extend their knowledge of the number system to include the decimal numbers and fractions that they have met so far.</p>	<p>To extend and apply their understanding of the number system to the decimal numbers and fractions that they have met so far.</p>	<p>To use negative numbers in context, and calculate intervals across zero.</p>

Rounding							To round any number to the nearest 10, 100 or 1000. <i>To connect estimation and rounding numbers to the use of measuring instruments.</i>	To round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.	To round any whole number to a required degree of accuracy.
Number and Place Value	EYFS			KS1 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance Teacher Assessment Framework		KS2 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Roman Numerals							To 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.	To read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	
Solve Problems				<i>To practise ordinal numbers and solve simple concrete problems.</i>	To use place value and number facts to solve related problems to develop fluency.	To solve number problems and practical problems involving these ideas.	To solve number and practical problems that involve all of the above and with increasingly large positive numbers.	To solve number problems and practical problems that involve all of the above.	To solve number and practical problems that involve all of the above.

Addition and Subtraction	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mental Calculations		<p>Begin to recognise quantities within quantities.</p> <p>Recognise quantities in pictorial representations</p>		<p>To add and subtract one-digit and two-digit numbers to 20, including zero.</p> <p><i>To realise the effect of adding or subtracting zero.</i></p>	<p><i>To extend the language of addition and subtraction to include sum and difference.</i></p> <p>To show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.</p> <p><i>To add and subtract numbers using an efficient strategy, explaining their method verbally</i> using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and tens, <i>two two-digit numbers</i>, add three one-digit numbers.</p>	<p>To add and subtract numbers mentally, including: <i>two-digit numbers, where the answers could exceed 100</i>, a three-digit number and ones, a three-digit number and tens and a three-digit number and hundreds.</p>	<p><i>To continue to practise both mental methods and columnar addition and subtraction with increasingly large numbers to aid fluency.</i></p>	<p>To add and subtract numbers mentally with increasingly large numbers.</p>	<p>To perform mental calculations, including with mixed operations and large numbers.</p>

Addition and Subtraction	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Number Bonds		<p>Explore composition of numbers up to 10.</p> <p>Explore a range of ways to partition a whole number.</p> <p>Explore number bonds up to 10.</p> <p>Explore double facts linked to numerical patterns</p>	<p>Automaticall y 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>To <i>memorise</i>, represent and use number bonds and related subtraction facts within 20.</p>	<p>To recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships.</p> <p>To recall and use addition and subtraction facts to 20 to become fluent in deriving associative facts (e.g. $10 - 7 = 3$, $100 - 70 = 30$) and derive and use related facts up to 100.</p>				
Written Calculations		<p>Recognise quantities in pictorial representations .</p> <p>Begin to recognise quantities within quantities.</p>		<p>To read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.</p>	<p>To begin to record addition and subtraction in columns to support place value and prepare for formal written methods with larger numbers.</p>	<p>To use the understanding of place value and partitioning to enable adding and subtracting numbers with up to three digits, using formal written methods of columnar addition and subtraction to become fluent.</p>	<p>To add and subtract numbers with up to four digits using the formal written methods of columnar addition and subtraction where appropriate.</p>	<p>To add and subtract whole numbers with more than four digits, including using formal written methods of columnar addition and subtraction fluently.</p>	

Addition and Subtraction	EYFS (30 - 50mths to ELGs)			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Inverse Operations, Estimating and Checking		Partition a number of things into two groups, and recognise that those groups can be recombined to make the same total.			To recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	To estimate the answer to a calculation and use inverse operations to check answers.	To estimate and use inverse operations to check answers to a calculation.	To use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	<i>To round answers to a specified degree of accuracy, for example, to the nearest 10, 20, 50 etc. but not to a specified number of significant figures.</i>
Order of Operations									To use their knowledge of the order of operations to carry out calculations involving the four operations.
Solve Problems	Solve real world mathematical problems with numbers up to 5.	Recognise amounts that have been rearranged and to generalise that, if nothing has been added or taken away, then the amount is the same.		<i>To discuss and solve one-step problems (in familiar practical contexts) that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems. Problems include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are able to use these operations flexibly.</i>	To solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods.				

Multiplication and Division	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mental Calculations					<p><i>To begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations.</i></p> <p><i>To begin to relate multiplication and division facts to fractions and measures (e.g., $40 \div 2 = 20$, 20 is a half of 40).</i></p> <p>To show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot, to develop <i>multiplicative reasoning</i>.</p>	<p>To 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 <i>efficient mental methods, for example, using commutativity and associativity</i>, and progressing to formal <i>reliable</i> written methods of <i>short multiplication and division</i>.</p>	<p><i>To combine their knowledge of number facts and rules of arithmetic to solve mental and written calculations, e.g. $2 \times 6 \times 5 = 10 \times 6 = 60$.</i></p> <p><i>To practise mental methods and extend this to three-digit numbers to derive associative facts, (e.g. $600 \div 3 = 200$ can be derived from $2 \times 3 = 6$).</i></p> <p>To recognise and use factor pairs and commutativity in mental calculations.</p> <p>To 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.</p>	<p>To multiply and divide numbers mentally drawing upon known facts.</p>	<p>To perform mental calculations, including with mixed operations and large numbers.</p>

Multiplication and Division	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplication and Division Facts		<p>Start to recognise number patterns.</p> <p>Begin to recognise that evens and odds are a pattern</p> <p>Begin to share small quantities so each has an equal amount.</p>	<p>Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</p>	<p><i>To make connections between arrays, number patterns, and counting in twos, fives and tens.</i></p> <p><i>Through grouping and sharing small quantities, pupils begin to understand: multiplication and division; doubling numbers and quantities; and finding simple fractions of objects, numbers and quantities.</i></p>	<p><i>To use a variety of language to describe multiplication and division.</i></p> <p>To count from 0 in multiples of 4, 8, 50 and 100.</p> <p>To recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers and use them to solve simple problems, demonstrating an understanding of commutativity as necessary.</p> <p><i>To connect the 10 multiplication table to place value, and the 5 multiplication table to the divisions on the clock face.</i></p>	<p>To recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables when they are calculating mathematical statements in order to improve fluency.</p> <p><i>To connect the 2, 4 and 8 multiplication tables through doubling.</i></p>	<p>To recall multiplication and division facts for multiplication tables up to 12×12 to aid fluency.</p> <p><i>To write statements about the equality of expressions (for example, use the distributive law $39 \times 7 = 30 \times 7 + 9 \times 7$ and associative law $(2 \times 3) \times 4 = 2 \times (3 \times 4)$).</i></p>	<p><i>To apply all the multiplication tables and related division facts frequently, commit them to memory and use them confidently to make larger calculations.</i></p>	<p><i>To continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency.</i></p>

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	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Written Calculation		Recognise quantities in pictorial representations			<p>To calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs.</p> <p><i>To begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations.</i></p>	<p>To 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 <i>efficient</i> mental methods, for example, using commutativity and associativity, and progressing to formal <i>reliable</i> written methods of <i>short multiplication and division</i>. (included in mental calculation section)</p>	<p>To multiply two-digit and three-digit numbers by a one-digit number using the formal written layout of <i>short multiplication with exact answers</i>.</p> <p><i>To become fluent in the formal written method of short division with exact answers.</i></p>	<p>To multiply numbers up to four digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers fluently.</p> <p>To divide numbers up to four digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context fluently.</p> <p>To multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.</p>	<p>To multiply multi-digit numbers up to four digits by a two-digit whole number using the formal written method of long multiplication.</p> <p>To divide numbers up to four digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.</p> <p>To divide numbers up to four digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. Perform mental calculations, including with mixed operations and large numbers.</p>

Multiplication and Division	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Properties of Numbers								<p><i>To use and understand the terms factor, multiple and prime, square and cube numbers and use them to construct equivalence statements.</i></p> <p>To identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</p> <p>To know and use the vocabulary of prime numbers, prime factors and composite</p> <p>(non-prime) numbers. To establish whether a number up to 100 is prime and recall prime numbers up to 19.</p> <p>To recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³).</p>	To identify common factors, common multiples and prime numbers.

Multiplication and Division	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Order of Operations									To use their knowledge of the order of operations to carry out calculations involving the four operations.
Solve Problems				To 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.	To solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	To solve <i>simple</i> problems <i>in contexts</i> , <i>deciding which of the four operations to use and why</i> . These include missing number problems, involving multiplication and division, including <i>measuring</i> and positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	To solve <i>two-step</i> problems <i>in contexts</i> 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.	To solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. To solve problems, <i>including in missing number problems</i> , involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign (<i>to indicate equivalence</i>) To solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	To solve problems involving addition, subtraction, multiplication and division. To use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Fractions, Decimals and Percentages	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting					<i>To count in fractions up to 10, starting from any number and using the $\frac{1}{2}$ and $\frac{2}{4}$ equivalence on the number line.</i>	To 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 ten.	To count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	<i>To extend counting from year 4, using decimals and fractions including bridging zero, for example on a number line.</i> <i>To continue to practise counting forwards and backwards in simple fractions.</i>	
Recognising, Finding and Naming Fractions				To recognise, find and name a half as one of two equal parts of an object, shape or quantity <i>by solving problems.</i> To recognise, find and name a quarter as one of four equal parts of an object, shape or quantity <i>by solving problems.</i> <i>To connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.</i>	To recognise, find, name, identify and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ of a length, number, shape, set of objects or quantity and know that all parts must be equal parts of the whole. <i>To connect unit fractions to equal sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantities, sets of objects or shapes. They meet $\frac{3}{4}$ as the first example of a non-unit fraction.</i>	<i>To understand the relation between unit fractions as operators (fractions of), and division by integers.</i> To recognise, <i>understand</i> and use fractions as numbers: unit fractions and non-unit fractions with small denominators <i>as numbers on the number line (going beyond 0 -1 and relating this to measure), and deduce relations between them, such as size and equivalence.</i> To recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.	<i>To make connections between fractions of a length, of a shape and as a representation of one whole or set of quantities.</i> <i>To know that decimals and fractions are different ways of expressing numbers and proportions.</i> <i>To understand the relation between non-unit fractions and multiplication and division of quantities, with particular emphasis on tenths and hundredths.</i>	To identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.	

F, D, P	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Comparing and Ordering Fractions						To compare and order unit fractions, and fractions with the same denominators.		To compare and order fractions whose denominators are all multiples of the same number.	To compare and order fractions, including fractions > 1.
Adding and Subtracting Fractions						To add and subtract fractions with the same denominator within one whole <i>through a variety of increasingly complex problems to improve fluency.</i>	To add and subtract fractions with the same denominator <i>to become fluent through a variety of increasingly complex problems beyond one whole.</i>	To add and subtract fractions with the same denominator and denominators that are multiples of the same number <i>to become fluent through a variety of increasingly complex problems.</i> To recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number.	To add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions <i>starting with fractions where the denominator of one fraction is a multiple of the other and progress to varied and increasingly complex problems.</i>

F, D, P	EYFS			KS1 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance Teacher Assessment Framework		KS2 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplying and Dividing Fractions								<p>To continue to develop their understanding of fractions as numbers, measures and operators by finding fractions of numbers and quantities.</p> <p>To multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</p>	<p>To multiply simple pairs of proper fractions, writing the answer in its simplest form using a variety of images to support their understanding of multiplication with fractions.</p> <p>To divide proper fractions by whole numbers.</p>
Equivalence					<p>To write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence $\frac{2}{4}$ and $\frac{1}{2}$.</p>	<p>To recognise and show, using diagrams, equivalent fractions with small denominators.</p>	<p>To use factors and multiples to recognise equivalent fractions and simplify where appropriate.</p> <p>To recognise and show, using diagrams, families of common equivalent fractions.</p> <p>To recognise and write decimal equivalents of any number of tenths or hundredths.</p> <p>To recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$.</p>	<p>To read and write decimal numbers as fractions.</p> <p>To recognise and use thousandths and relate them to tenths, hundredths, decimal equivalents <i>and measures</i>.</p> <p>To 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.</p>	<p>To recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p> <p>To use common factors to simplify fractions; use common multiples to express fractions in the same denomination.</p>

F, D, P	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Comparing and Ordering Decimals							<p>To learn decimal notation and the language associated with it, including in the context of measurements.</p> <p>To represent numbers with one or two decimal places in several ways, such as on number lines.</p> <p>To compare numbers, amounts and quantities with the same number of decimal places up to two decimal places.</p>	To read, <i>say</i> , write, order and compare numbers with up to three decimal places.	To identify the value of each digit in numbers given to three decimal places.
Rounding Decimals							To round decimals with one decimal place to the nearest whole number.	To round decimals with two decimal places to the nearest whole number and to one decimal place.	

Fractions, Decimals and Percentages	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Adding and Subtracting Decimals								<p><i>To mentally add and subtract tenths, and one-digit whole numbers and tenths.</i></p> <p><i>To practise adding and subtracting decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1.</i></p>	
Multiplying and Dividing Decimals							<p>To 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.</p>		<p>To multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.</p> <p>To associate a fraction with division and calculate decimal fraction equivalents for a simple fraction.</p> <p>To multiply one-digit numbers with up to two decimal places by whole numbers <i>in practical contexts, such as measures and money.</i></p>

Fractions, Decimals and Percentages	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Multiplying and Dividing Decimals									<p><i>To multiply and divide numbers with up to two decimal places by one-digit and two-digit whole numbers in practical contexts involving measures and money.</i></p> <p><i>To use written division methods in cases where the answer has up to two decimal places.</i></p> <p><i>To recognise division calculations as the inverse of multiplication.</i></p>
Solve Problems						To solve problems that involve all of the above.	<p>To 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.</p> <p>To solve simple measure and money problems involving fractions and decimals to two decimal places.</p>	<p>To solve problems involving numbers up to three decimal places.</p> <p><i>To make connections between percentages, fractions and decimals and relate this to finding 'fractions of' to 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.</i></p>	<p>To solve problems which require answers to be rounded to specified degrees of accuracy <i>and checking the reasonableness of their answers.</i></p>

Algebra	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>				
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Algebra	<p>Copy, extend, correct and create their own spatial patterns showing some organisation or regularity.</p> <p>Continue and copy an AB pattern and then ABC pattern.</p> <p>Make their own AB pattern.</p> <p>Spot an error in an AB pattern.</p> <p>Identify the 'unit of repeat.'</p>	<p>Continue a pattern which ends mid-unit.</p> <p>Make own patterns and record.</p> <p>Spot an error in a pattern.</p> <p>Describe the rule for a pattern and recreate it.</p> <p>Make a pattern which repeats around a circle.</p> <p>Make a pattern around a border with a fixed number of spaces.</p> <p>Spot and study patterns in the environment</p>			<p>To order and arrange combinations of mathematical objects and <i>shapes</i>, including those in different orientations, in patterns and sequences.</p>					<p>To introduce the language of algebra as a means for solving a variety of problems.</p> <p><i>To introduce the use of symbols and letters to represent variables and unknowns in mathematical familiar situations, such as: missing numbers, lengths, coordinates and angles.</i></p> <p>To use simple formulae.</p> <p>To generate and describe linear number sequences.</p> <p>To express missing number problems algebraically.</p> <p>To find pairs of numbers that satisfy an equation with two unknowns.</p> <p>To enumerate possibilities of combinations of two variables.</p>

Measurement	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Describe, Measure, Compare and Solve (All Strands)	<p>Recognise specific attributes e.g. length – that a stick is long; adults are tall.</p> <p>Compare amounts of continuous quantities (length, capacity, weight), pointing to items that are big, tall, full or heavy</p> <p>Notice and compare size, weight and capacity in their play, exploring differences to find the longer/shorter, heavier/lighter and more/less full of two items.</p>	<p>Talk about quantities and estimate when one group is larger than another.</p> <p>Compare sizes, lengths, weights and capacities verbally and begin to use more specific terms, e.g. ‘taller’, ‘heavier’, ‘lighter’, and ‘holds more than’</p> <p>Show awareness of comparison in estimating and predicting.</p> <p>Recognise the relationship between the size and number of units.</p>		<p>To compare, describe and solve practical problems for: lengths and heights, mass/weight, capacity and volume, time.</p> <p>To measure and begin to record the following: lengths and heights, mass/weight, capacity and volume, time.</p> <p><i>To move from using and comparing different types of quantities and measures using non-standard units, including discrete (for example, counting) and continuous (for example, liquid) measurement, to using manageable common standard units using measuring tools, such as a ruler, weighing scales and containers.</i></p>	<p>To choose and use appropriate standard units with increasing accuracy using their knowledge of the number system 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.</p> <p><i>To use the appropriate language and record using standard abbreviations.</i></p> <p>To compare and order lengths, mass, volume/capacity and record the results using >, < and =.</p> <p><i>To compare measures including simple multiples such as ‘half as high’; ‘twice as wide’.</i></p>	<p>To measure using the appropriate tools and units, compare (including simple scaling by integers) add and subtract using mixed units: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</p>	<p>To estimate, compare and calculate different measures, including money in pounds and pence.</p>	<p>To use all four operations to solve problems involving measure using decimal notation, including scaling and conversions.</p>	<p><i>To use a number line, to add and subtract positive and negative integers for measures such as temperature.</i></p> <p>To solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.</p>

Measurement	EYFS			KS1 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance Teacher Assessment Framework		KS2 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Converting Units of Measure (All Strands)							<p>To use multiplication to convert from larger to smaller units.</p> <p>To convert between different units of measure and build on their understanding of place value and decimal notation to record metric measures, including money.</p>	<p>To use the knowledge of place value and multiplication and division to convert between standard units.</p> <p>To convert between different units of metric measure.</p> <p>To understand and use approximate equivalences between metric units and common imperial units.</p>	<p>To 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.</p> <p>To convert between miles and kilometres.</p> <p>To know approximate conversions to tell if an answer is sensible.</p>

Measurement	EYFS			KS1 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance Teacher Assessment Framework		KS2 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance				
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
Telling the Time	<p>Talk about sequenced activities, important times in their day, and some sequences of time that are significant to them.</p> <p>Recall a sequence of events in everyday life and stories.</p>	<p>Use everyday routines to establish numerical patterns</p> <p>Understand vocabulary that supports the positional language of 'before', 'after', 'next', 'yesterday' and 'tomorrow'</p> <p>Know the days of the week.</p> <p>Experience specific time spans in order to start to develop an overall sense of time.</p> <p>Direct children's attention to the short hand, pointing to a number on a clock face, and identify what we are doing at that time.</p>		<p>To sequence events in chronological order using language.</p> <p>To recognise and use language relating to dates, including days of the week, weeks, months and years.</p> <p>To tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</p>	<p>To read, tell and write the time to five minutes, including quarter past/to the hour/half hour and draw the hands on a clock face to show these times.</p> <p><i>To become fluent in telling the time on analogue clocks and recording it.</i></p> <p>To know the number of minutes in an hour and the number of hours in a day.</p> <p>To compare and sequence intervals of time.</p>	<p>To tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.</p> <p><i>To begin to use digital 12-hour clocks and record their times in preparation for using digital 24-hour clocks in year 4.</i></p> <p>To estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours.</p> <p>To use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.</p> <p>To know the number of seconds in a minute and the number of days in each month, year and leap year.</p> <p>To compare durations of events.</p>	<p>To read, write and convert time between analogue and digital 12- and 24-hour clocks.</p> <p>To solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.</p>	<p>To solve problems involving converting between units of time.</p>		

Measurement	EYFS			KS1 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance Teacher Assessment Framework		KS2 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Money				To recognise and know the value of different denominations of coins and notes.	<p>To become fluent in counting and recognising coins.</p> <p>To recognise and use symbols for pounds (£) and pence (p) accurately, recording pounds and pence separately; combine amounts to make a particular value.</p> <p>To find and use different combinations of coins that equal the same amounts of money.</p> <p>To solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</p>	<p>To become fluent in recognising the value of coins.</p> <p>To add and subtract manageable amounts of money, including mixed units, to give change, using both £ and p in practical contexts.</p>			

Measurement	EYFS			KS1 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance Teacher Assessment Framework		KS2 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Perimeter, Area and Volume						<p>To measure the perimeter of simple 2D shapes.</p>	<p>To measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.</p> <p><i>To know perimeter can be expressed algebraically as $2(a + b)$ where a and b are the dimensions in the same unit.</i></p> <p>To find the area of rectilinear shapes by counting squares.</p> <p><i>To relate area to arrays and multiplication.</i></p>	<p>To measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres <i>including using the relations of perimeter. Note: Missing measures questions can be expressed algebraically.</i></p> <p>To calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2), use the <i>area of rectangles to find unknown lengths</i> and estimate the area of irregular shapes. <i>Note: Missing measures questions can be expressed algebraically.</i></p> <p><i>To calculate the area from scale drawings using given measurements.</i></p> <p>To estimate volume.</p>	<p>To recognise that shapes with the same areas can have different perimeters and vice versa.</p> <p>To recognise when it is possible to use formulae for area and volume of shapes.</p> <p><i>To relate the area of rectangles to parallelograms and triangles and calculate their areas, understanding and using the formulae (in words or symbols) to do this.</i></p> <p>To calculate the area of parallelograms and triangles.</p> <p>To 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 (for example, mm^3 and km^3).</p>

Properties of Shapes	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Recognise 2D and 3D Shapes and Their Properties	<p>Move themselves and objects around, so they see things from different perspectives.</p> <p>Make constructions, patterns and pictures, and select shapes which will fit when rotated or flipped in insert boards, shape sorters and jigsaws.</p> <p>Predict, move and rotate objects to fit the space or create the shape they would like.</p>	<p>Through play – particularly in construction – children have lots of opportunities to explore shapes, the attributes of particular shapes, and to select shapes to fulfil a particular need.</p> <p>Describe properties of shape using informal language</p> <p>Recognise shapes within shapes.</p>		<p>To recognise, <i>handle</i> and name common 2D and 3D shapes in different orientations/sizes and relate everyday objects fluently.</p> <p>To recognise that rectangles, triangles, cuboids and pyramids are not always similar to each other.</p>	<p>Pupils read and write names for shapes that are appropriate for their word reading and spelling.</p> <p>To handle, identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line.</p> <p>To handle, identify and describe the properties of 3D shapes, including the number of edges, vertices and faces.</p> <p>To identify 2D shapes on the surface of 3D shapes.</p>	<p>To describe the properties of 2D and 3D shapes using accurate language.</p> <p>To extend knowledge of the properties of shapes is extended at this stage to symmetrical and non-symmetrical polygon and polyhedron.</p> <p>To recognise 3D shapes in different orientations and describe them.</p>	<p>To identify lines of symmetry in 2D shapes presented in different orientations.</p> <p>To recognise line symmetry in a variety of diagrams, including where the line of symmetry does not dissect the original shape.</p>	<p>To identify 3D shapes, including cubes and other cuboids, from 2D representations.</p>	<p>To illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.</p> <p>To express algebraically the relationship between angles and lengths.</p>

Properties of Shapes	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Compare and Classify Shapes	Show awareness of similarities of shapes in the environment.	Develop an awareness of relationships between shapes.			To <i>identify</i> , compare and sort common 2D and 3D shapes and everyday objects <i>on the basis of their properties and use vocabulary precisely</i> .		To <i>compare lengths and angles to decide if a polygon is regular or irregular</i> . To compare and classify geometric shapes, including <i>different</i> quadrilaterals and triangles, based on their properties and sizes.	To distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	To compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons <i>using known measurements</i> .
Drawing 2D Shapes and Constructing 3D Shapes	Partition or combine 2D and 3D shapes to make new ones.				<i>Pupils draw lines and shapes using a straight edge</i> .	To <i>connect decimals and rounding to drawing and measuring straight lines in centimetres, in a variety of contexts</i> . To identify horizontal and vertical lines and pairs of perpendicular and parallel lines. To draw 2D shapes and make 3D shapes using modelling materials.	To draw with increasing accuracy and develop mathematical reasoning to analyse shapes and their properties and confidently describe the relationships between them. To complete a simple symmetric figure with respect to a specific line of symmetry.	To <i>become accurate in drawing lines with a ruler to the nearest millimetre, and measuring with a protractor</i> . To <i>use conventional markings for parallel lines and right angles</i> .	To draw 2D shapes and nets accurately using given dimensions and angles <i>using measuring tools, conventional markings and labels for lines and angles</i> . To recognise, describe and build simple 3D shapes, including making nets.

Properties of Shapes	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Angles						<p>To recognise angles as a property of shape or a description of a turn.</p> <p>To identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn</p> <p>To identify whether angles are greater than or less than a right angle.</p>	<p>To identify acute and obtuse angles and compare and order angles up to two right angles by size <i>in preparation for using a protractor.</i></p>	<p>To know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles. To draw given angles, and measure them in degrees.</p> <p>To identify: angles at a point and one whole turn (total 360°), angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) and other multiples of 90°.</p> <p><i>To use the term diagonal and make conjectures about the angles formed between sides, and between diagonals and parallel sides.</i></p> <p>To use the properties of rectangles to deduce related facts and find missing lengths and angles by <i>using angle sum facts and other properties to make deductions about missing angles and relate these to missing number problems.</i></p>	<p>To recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</p>

Position and Direction	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Position, Direction and Movement	Respond to and use some language of position and direction.	Use some language of position and direction: 'in', 'on', 'under' 'up', 'down', 'across'. Use terms which are relative to their viewpoint: 'in front of', 'behind', 'forwards', 'backwards'		To describe position, direction and movement, including whole, half, quarter and three-quarter turns <i>in both directions and connect clockwise with the movement on a clock face.</i> <i>To use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside.</i>	To 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).		To describe positions on a 2D grid as coordinates in the first quadrant. <i>To draw a pair of axes in one quadrant, with equal scales and integer labels.</i> <i>To read, write and use pairs of coordinates, including using coordinate plotting ICT tools.</i> To plot specified points and draw sides to complete a given polygon. To describe movements between positions as translations of a given unit to the left/right and up/down.	To identify, describe and represent the position of a shape following a reflection (<i>in lines that are parallel to the axes</i>) or translation, using the appropriate language, and know that the shape has not changed.	<i>To draw and label a pair of axes in all four quadrants with equal scaling.</i> To describe positions on the full coordinate grid (all four quadrants). To draw and label simple shapes – rectangles (including squares), parallelograms and rhombuses, specified by coordinates in the four quadrants, predicting missing coordinates using the properties of shapes. To translate simple shapes where coordinates may be expressed algebraically on the coordinate plane and reflect them in the axes.

Statistics	EYFS			KS1 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance Teacher Assessment Framework		KS2 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Record, Present and Interpret Data					<p>To record, interpret, collate, organise and compare information.</p> <p>To interpret and construct simple pictograms, tally charts, block diagrams and simple tables (e.g. many-to-one correspondence in pictograms with simple ratios 2, 5, 10 scales).</p> <p>To ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</p> <p>To ask and answer questions about totalling and comparing categorical data.</p>	<p>To interpret and present data using bar charts, pictograms and tables and use simple scales with increasing accuracy.</p>	<p>To understand and use a greater range of scales in data representations.</p> <p>To interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p>	<p>To begin to decide which representations of data are most appropriate and why.</p> <p>To connect coordinates and scales to the interpretation of time graphs.</p> <p>To complete, read and interpret information in tables, including timetables.</p>	<p>To connect conversion from kilometres to miles in measurement to its graphical representation.</p> <p>To connect work on angles, fractions and percentages to the interpretation of pie charts.</p> <p>To interpret and construct pie charts and line graphs (relating to two variables) and use these to solve problems.</p>

Statistics	EYFS			KS1 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i> Teacher Assessment Framework		KS2 Statutory Curriculum Guidance <i>Non-Statutory Curriculum Guidance</i>			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Solve Problems						To solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables.	To solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	To solve comparison, sum and difference problems using information presented in a line graph.	<i>To know when it is appropriate to find the mean of a data set.</i> To calculate and interpret the mean as an average.

Ratio and Proportion	EYFS			KS1 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance Teacher Assessment Framework		KS2 Statutory Curriculum Guidance Non-Statutory Curriculum Guidance			
	Nursery	Rec	ELGs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
									<p>To recognise proportionality in contexts when the relations between quantities are in the same ratio, e.g. recipes.</p> <p>To solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.</p> <p>To solve problems involving the calculation of percentages and the use of percentages for comparison <i>including linking percentages or 360° to calculating angles of pie chart.</i></p> <p>To solve problems involving similar shapes where the scale factor is known or can be found. To solve problems involving unequal quantities, sharing and grouping using knowledge of fractions and multiples.</p>