

# Maths Progression Document



**The purpose of this document is to assist teachers and leaders in ensuring progression across the mathematics curriculum from Reception through to Year 6.**

**From Year 1 to Year 6, individual strands of national curriculum mathematics are mapped across the year groups. This clearly shows prior learning and future learning beyond the current year group.**

**For Reception, you will see Early Learning Goals and statements taken from our Trust Ready document linked to the strands in the National Curriculum for KS1 and KS2.**

**Key**

Early Learning Goals (ELG) for Reception and National Curriculum Objectives for Years 1-6

*National Curriculum Objectives that appear in another mathematical strand*

Key concepts that are specific to our school to ensure solid foundations are built in order to allow successful progression across year groups (statements taken from our Trust Ready document for Reception)

\*These statements show that children are achieving above and beyond in Reception

# Number and Place Value

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
COUNTING	Verbally count beyond 20, recognising the pattern of the counting system. (ELG)	Count to and across 100, forwards and backwards, beginning with 0 and 1, or from any given number			Count backwards through zero to include negative numbers	Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	Use negative numbers in context, and calculate intervals across zero
	Pronounce teen numbers correctly – sixteen not sixty						
	Count to/back in 1s from 20						
	Display accurate 1:1 correspondence to 10 using concrete apparatus						
	Subitise (recognise quantities without counting) up to 5 (ELG)						
	Subitise to 10 (through use of [patterns such as numicon, ten frame, bar model])						

	Count by rote in 2s forwards past 10	Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forwards and backwards	Count from 0 in multiples of 3, 4, 8, 50 and 100	Count in multiples of 6, 7, 9, 25 and 1000	Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	
	Explore counting in twos, fives and tens through songs, nursery rhymes and stories						
	Understand 1 more and 1 less for numbers to 10*	Given a number, identify one more and one less		Find 10 or 100 more or less than a given number	Find 1000 more or less than a given number		
IDENTIFYING, REPRESENTING AND ESTIMATING	Explore and represent patterns with numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally (ELG)	Identify and represent numbers using objects and pictorial representations including the number line	Identify, represent and estimate numbers using different representations, including the number line	Identify, represent and estimate numbers using different representations	Identify, represent and estimate numbers using different representations		
	Match numerals to quantity up to 10 (including numbers out of sequence)						
COMPARING NUMBERS	Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity (ELG)	Use the language of: equal to, more than, less than (fewer), most, least	Compare and order numbers from 0 up to 100; use <, > and = signs	Compare and order numbers up to 1000	Order and compare numbers beyond 1000	Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
	Understand and use the vocabulary more, most, greater than, fewer, less than and equals, the same as with quantities up to 10*				<i>Compare numbers with the same number of decimal places up to two decimal places (fractions)</i>		

READING AND WRITING NUMBERS	Match numeral to quantity up to 10 (including numbers out of sequence)	Read and write numbers from 1 to 20 in numerals and words (phonetically plausible)	Read and write numbers to at least 100 in numerals and in words (phonetically plausible)	Read and write numbers up to 1000 in numerals and in words		Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
	Recognise and read numbers to 10 – including when not in order and show that they understand the relationship between them						
	Form the digits 0-10 accurately*						
ROMAN NUMERALS				<i>Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks (measurement)</i>	Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value	Read Roman numerals to 1000 (M) and recognise years written in Roman numerals	
UNDERSTANDING PLACE VALUE	Have a deep understanding of number to 10, including the composition of each number (ELG)	Recognise the place value of digits in numbers 1-20 (tens and ones)	Recognise the place value of each digit in two-digit numbers (tens and ones)	Recognise the place value of each digit in a three-digit number (hundreds, tens and ones)	Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones)	Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
	Verbally count beyond 20, recognising the pattern of the counting system. (ELG)		Partition into different combinations of tens and ones		<i>Find the effect of dividing a one or two-digit number by 10 or 100, identifying the value of the digits in the answer as units, tenths and hundredths (fractions)</i>		

ROUNDING					Round any number to the nearest 10, 100 or 1000	Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	Round any whole number to a required degree of accuracy
					<i>Round decimals with one decimal place to the nearest whole number (fractions)</i>	<i>Round decimals with two decimal places to the nearest whole number and to one decimal place (fractions)</i>	<i>Solve problems which require answers to be rounded to specified degrees of accuracy (fractions)</i>
PROBLEM SOLVING			Use place value and number facts to solve problems	Solve number problems and practical problems involving these ideas	Solve number and practical problems that involve all of the above and with increasingly large positive numbers	Solve number problems and practical problems that include all of the above	Solve number and practical problems that include all of the above

# Addition and Subtraction

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
NUMBER BONDS	Automatically recall (without reference to rhymes, counting and other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts (ELG)	Represent and use number bonds and related subtraction facts within 20	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100				
MENTAL CALCULATIONS	Automatically recall (without reference to rhymes, counting and other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double fact (ELG)	Add and subtract one-digit and two-digit numbers to 20, including zero	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <ul style="list-style-type: none"> <li>a two-digit number and ones</li> <li>a two-digit number and tens</li> <li>two two-digit numbers</li> <li>adding three one-digit numbers</li> </ul>	Add and subtract mentally, including: <ul style="list-style-type: none"> <li>a three-digit number and ones</li> <li>a three-digit number and tens</li> <li>a three-digit number and hundreds</li> </ul>		Add and subtract numbers mentally with increasingly large numbers	Use their knowledge of the order of operations to carry out calculations involving four operations
	Use the vocabulary of addition and subtraction including comparison of quantities – altogether, add, total, plus, more than, take away,	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs					

	subtract, less than, fewer than, greater than, equals, the same as*						
WRITTEN METHODS	Calculate addition bonds and subtraction facts to/within 10 using apparatus and/or number line if needed	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs		Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	Add and subtract whole numbers with more than 4 digits, including formal written methods (columnar addition and subtraction)	
	Know that = means it must balance or is worth the same as						
	Solve addition and subtraction calculations when = is presented in different places (e.g. $10=7+3$ )						
INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS	Know that addition and subtraction are related (inverse operations to 10)*		Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot	Estimate the answer to a calculation and use inverse operations to check answers	Estimate and use inverse operations to check answers to a calculation	Use rounding to check answers and determine, in the context of a problem, levels of accuracy	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
	Make sensible estimates within 20 using subitising		Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems				



**PROBLEM SOLVING**

Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as  $7 = \_ - 9$

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

*Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change (measurement)*

Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction

Solve addition and subtraction two-step problems in contexts, deciding which operation and methods to use and why

Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Solve 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

# Multiplication and Division

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
MULTIPLICATION AND DIVISION FACTS	Explore counting in twos, fives and tens through songs, nursery rhymes and stories	Count in multiples of twos, fives and tens (number and place value)	Count in steps of 2, 3 and 5 from 0, and in tens from any number, forwards or backwards (number and place value)	Count from 0 in multiples of 4, 8, 50 and 100 (number and place value)	Count in multiples of 6, 7, 9, 25 and 1000 (number and place value)	Count forwards and backwards in steps of powers of 10 for any given number up to 1000000 (number and place value)	
	Explore and represent patterns within numbers up to 10, including evens and odds, doubles facts and how quantities can be distributed equally (ELG)		Recall and use multiplication facts and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	Recall multiplication and division facts for multiplication tables up to 12x12		
	Instant recognition of odd and even numbers to 10 represented by structures e.g. dots, even numbers always have a partner/pairs						

MENTAL CALCULATION	Mentally, quickly recall all doubles to 5 and half of 2, 4, 6, 8 and 10*		Can quickly recall doubling and halving facts to 20	Write and calculate mathematical statements for multiplication and division using multiplication tables that we know, including for two-digit numbers, using mental and progressing to formal written methods	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	Multiply and divide numbers mentally drawing upon known facts	Perform mental calculations, including with mixed operations and large numbers
	Know that doubling and halving are related (inverse operation)		Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot		Recognise and use factor pairs and commutativity in mental calculations	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	<i>Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. <math>\frac{3}{8}</math>) (fractions)</i>
WRITTEN CALCULATION			Calculate multiplication statements for multiplication and division within multiplication tables and write them using the multiplication (x), division ( $\div$ ) and equals (=) signs	Write and calculate mathematical statements for multiplication and division using multiplication tables that we know, including for two-digit numbers, using mental and progressing to formal written methods	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	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 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 one-digit number using formal written method of short division and interpret remainders appropriately for the context	Divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context 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 appropriate for the context
							<i>Use written division methods in cases where the answer has up to two decimal places (fractions)</i>
<b>PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS</b>					Recognise and use factor pairs and commutativity in mental calculations	Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.	Identify common factors, common multiples and prime numbers
						Know and use the vocabulary of prime numbers, prime factors and composite (non - prime) numbers	<i>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination (fractions)</i>

						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 for squared ( <sup>2</sup> ) and cubed ( <sup>3</sup> )	<i>Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units such as mm<sup>3</sup> and km<sup>3</sup> (measures)</i>
<b>ORDER OF OPERATIONS</b>							Use their knowledge of the order of operations to carry out calculations involving the four operations
<b>INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS</b>				<i>Estimate the answer to a calculation and use inverse operations to check answers (Addition and Subtraction)</i>	<i>estimate and use inverse operations to check answers to a calculation (Addition and Subtraction)</i>		Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy
<b>PROBLEM SOLVING</b>		Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts,	Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and	Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes	Solve problems involving addition, subtraction, multiplication and division

		arrays with the support of the teacher	including problems in contexts	correspondence problems in which n objects are connected to m objects	correspondence problems such as n objects are connected to m objects	Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	
						Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	<i>Solve problems involving similar shapes where the scale factor is known or can be found (Ratio and Proportion)</i>

# Fractions (including decimals and percentages)

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
COUNTING IN FRACTIONAL STEPS			Pupils should 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 (Non-Statutory Guidance)	Count up and down in tenths	Count up and down in hundredths		
RECOGNISING FRACTIONS		<p>Recognise, find and name a half as one of two equal parts of an object, shape or quantity</p> <p>Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity</p>	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	<p>Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</p> <p>Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10</p> <p>Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</p>	Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	

COMPARING FRACTIONS				Compare and order unit fractions, and fractions with the same denominators		Compare and order fractions whose denominators are all multiples of the same number	Compare and order fractions, including fractions >1
	COMPARING DECIMALS				Compare numbers with the same number of decimal places up to two decimal places	Read, write, order and compare numbers with up to three decimal places	Identify the value of each digit in numbers given to three decimal places
	ROUNDING INCLUDING DECIMALS				Round decimals with one decimal place to the nearest whole number	Round decimals with two decimal places to the nearest whole number and to one decimal place	Solve problems which require answers to be rounded to specified degrees of accuracy
EQUIVALENCE (INCLUDING FRACTIONS, DECIMALS AND PERCENTAGES)			Write simple fractions e.g. $\frac{1}{6}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$	Recognise and show, using diagrams, equivalent fractions with small denominators	Recognise and show, using diagrams, families of common equivalent fractions	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
					Recognise and write decimal equivalents of any number of tenths or hundredths	Read and write decimal numbers as fractions (e.g. 0.71 = $\frac{71}{100}$ )  Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{4}$ )
					Recognise and write decimals equivalent to $\frac{1}{4}$ ; $\frac{1}{2}$ ; $\frac{3}{4}$	Recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts



						fraction with denominator 100 as a decimal fraction	
ADDITION AND SUBTRACTIN OF FRACTIONS				Add and subtract fractions with the same denominator within one whole (e.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$ )	Add and subtract fractions with the same denominator	Add and subtract fractions with the same denominator and multiples of the same number	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
						Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements $>1$ as a mixed number (e.g. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$ )	
MULTIPLICATION AND DIVISION OF FRACTIONS						Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$ )
							Multiply one-digit numbers with up to two decimal places by whole numbers
							Divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$ )
							Multiply one-digit numbers with up to two decimal places by whole numbers

					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		Multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
							Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
							Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375 for a simple fraction (e.g. $\frac{3}{8}$ ))
							Use written division methods in cases where the answer has up to two decimal places
<b>PROBLEM SOLVING</b>				Solve problems that involve all of the above	Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number	Solve problems involving numbers up to three decimal places	

					Solve simple measure and money problems involving fractions and decimals to two decimal places	Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{5}$ , $\frac{2}{5}$ , $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25	
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# Ratio and Proportion

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division						
						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

# Measurement

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
COMPARING AND ESTIMATING	Understand largest, most, smallest, least, fewest and number in between up to 20	Compare, describe and solve practical problems for: <ul style="list-style-type: none"> <li>lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half]</li> <li>mass/weight [e.g. heavy/light, heavier than, lighter than]</li> <li>capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter]</li> <li>time [e.g. quicker, slower, earlier, later]</li> </ul>	Compare and order lengths, mass, volume/capacity and record the results using $>$ , $<$ and $=$		Estimate, compare and calculate different measures, including money in pounds and pence	Calculate and compare the area of squares and rectangles including using standard units, square centimetres ( $\text{cm}^2$ ) and square metres ( $\text{m}^2$ ) and estimate the area of irregular shapes (also included in measuring)	Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed ( $\text{cm}^3$ ) and cubic metres ( $\text{m}^3$ ), and extending to other units such as $\text{mm}^3$ and $\text{km}^3$ .
	Order and compare up to 3 objects according to length, height, mass*						
	Understand and use the vocabulary longer, taller, wider, shorter, narrower, heavier, lighter, deep, shallow						
	Recognise the verbal abbreviation for ordinal numbers and relate this to date of own birthday, months of the year and finishing positions in a race						
	Link ordinal numbers to months/days of the week	Sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]	Compare and sequence intervals of time	Compare durations of events, for example to calculate the time taken by particular events or tasks			

				Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight			
MEASURING AND CALCULATING	Begin to use non-standard units to measure objects e.g. cubes, wooden planks, buckets, spoons	Measure and begin to record the following: <ul style="list-style-type: none"> <li>lengths and heights</li> <li>mass/weight</li> <li>capacity and volume</li> <li>time (hours, minutes, seconds)</li> </ul>	Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels	Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	Estimate, compare and calculate different measures, including money in pounds and pence	Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
				Measure the perimeter of simple 2-D shapes	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	Recognise that shapes with the same areas can have different perimeters and vice versa
	Recognise and calculate using coins - 1p, 2p, 5p, 10p and 20p	Recognise and know the value of different denominations of coins and notes	Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value	Add and subtract amounts of money to give change, using both £ and p in practical contexts			

			Find different combinations of coins that equal the same amounts of money				
			Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change				
					Find the area of rectilinear shapes by counting squares	Calculate and compare the area of squares and rectangles including using standard units, square centimetres ( $\text{cm}^2$ ) and square metres ( $\text{m}^2$ ) and estimate the area of irregular shapes	Calculate the area of parallelograms and triangles
						<i>Recognise and use square numbers and cube numbers, and the notation for squared ( 2 ) and cubed ( 3 ) (Multiplication and Division)</i>	Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres ( $\text{cm}^3$ ) and cubic metres ( $\text{m}^3$ ), and extending to other units [e.g. $\text{mm}^3$ and $\text{km}^3$ ].
TELLING THE TIME	Become aware of language associated with time (long hand, short hand, hour, minutes, clock, watch)	Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	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.	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks	Read, write and convert time between analogue and digital 12 and 24-hour clocks		Recognise when it is possible to use formulae for area and volume of shapes

	<p>Becoming aware of the analogue clock counting around the clock to 12 and recognise and read o'clock times</p>							
	<p>Know which month/day comes before/after a given month/day</p>	<p>Recognise and use language relating to dates, including days of the week, weeks, months and years</p>	<p>Know the number of minutes in an hour and the number of hours in a day</p>	<p>Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight</p>				
	<p>Chant the months of the year by heart*</p>		<p>Compare and sequence intervals of time</p>					
	<p>Chant the days of the week</p>							
	<p>Know there are 7 days in a week and which day comes before/after a given day</p>							
	<p>Name the four seasons</p>							
					<p>Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days</p>	<p>Solve problems involving converting between units of time</p>		
<p><b>CONVERTING</b></p>			<p>Know the number of minutes in an hour and the number of hours in a day.</p>	<p>Know the number of seconds in a minute and the number of days in each month, year and leap year</p>	<p>Convert between different units of measure (e.g. kilometre to metre; hour to minute)</p>	<p>Convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)</p>	<p>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</p>	



							notation to up to three decimal places
					Read, write and convert time between analogue and digital 12 and 24-hour clocks	Solve problems involving converting between units of time	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate
					Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints	Convert between miles and kilometres

# Geometry: Properties of Shapes

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
IDENTIFYING SHAPES AND THEIR PROPERTIES	Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can	Recognise and name common 2-D and 3-D shapes, including: <ul style="list-style-type: none"> <li>2-D shapes [e.g. rectangles (including squares), circles and triangles]</li> <li>3-D shapes [e.g. cuboids (including cubes), pyramids and spheres]</li> </ul>	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line		Identify lines of symmetry in 2-D shapes presented in different orientations	Identify 3-D shapes, including cubes and other cuboids, from 2-D representations	Recognise, describe and build simple 3-D shapes, including making nets
	Name and describe common solid shapes including cube, cuboid. Use the language solid, face, edges		Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces				Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
	Sort objects using two criterias e.g. sort solid shapes into straight edges and curved edges		Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]				
DRAWING AND CONSTRUCTING	Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can			Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	Complete a simple symmetric figure with respect to a specific line of symmetry	Draw given angles, and measure them in degrees ( ° )	Draw 2-D shapes using given dimensions and angles
							Recognise, describe and build simple 3-D shapes, including making nets

COMPARING AND CLASSIFYING			Compare and sort common 2-D and 3-D shapes and everyday objects		Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	Use the properties of rectangles to deduce related facts and find missing lengths and angles	Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
						Distinguish between regular and irregular polygons based on reasoning about equal sides and angles	
ANGLES				Recognise angles as a property of shape or a description of a turn		Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	
				Identify right angles, recognise that two right angles make a halfturn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle	Identify acute and obtuse angles and compare and order angles up to two right angles by size	Identify: <ul style="list-style-type: none"> <li>angles at a point and one whole turn (total <math>360^\circ</math>)</li> <li>angles at a point on a straight line and <math>\frac{1}{2}</math> a turn (total <math>180^\circ</math>)</li> <li>other multiples of <math>90^\circ</math></li> </ul>	Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
				Identify horizontal and vertical lines and pairs of perpendicular and parallel lines			

# Geometry: Position and Direction

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
POSITION, DIRECTION AND MOVEMENT	Understand position through words e.g. "The bag is under the table." Using the vocabulary of under, on top, next to, behind and in front.	Describe position, direction and movement, including half, quarter and three-quarter turns  Use vocabulary such as left, right, top, middle and bottom, above, in front of, between around, near, close and far, up and down, forwards and backwards, inside and outside  Make whole, half, quarter, three-quarter turns in both directions and connect turning clockwise with movements on a clock face	Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)		Describe positions on a 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	Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	Describe positions on the full coordinate grid (all four quadrants)  Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
					Plot specified points and draw sides to complete a given polygon		
PATTERN	Create own repeating patterns	Recognise and create repeating patterns with objects and with shapes	Order and arrange combinations of mathematical objects in patterns and sequences				

# Statistics

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
INTERPRETING, CONSTRUCTING AND PRESENTING DATA		Interpret and construct simple pictograms, simple tally charts and block diagrams	Interpret and construct simple pictograms, tally charts, block diagrams and simple tables	Interpret and present data using bar charts, pictograms and tables	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	Complete, read and interpret information in tables, including timetables	Interpret and construct pie charts and line graphs and use these to solve problems
			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				
SOLVING PROBLEMS				Solve one-step and twostep questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	Solve comparison, sum and difference problems using information presented in a line graph	Calculate and interpret the mean as an average

# Algebra

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
EQUATIONS		<i>Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and <b>missing number problems</b> such as <math>7 = \_ - 9</math> (Addition and Subtraction)</i>	<i>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and <b>missing number problems</b>. (Addition and Subtraction)</i>	<i>Solve problems, including <b>missing number</b> problems, using number facts, place value, and more complex addition and subtraction. (Addition and Subtraction)</i>		<i>Use the properties of rectangles to deduce related facts and find <b>missing lengths and angles</b> (copied from Geometry: Properties of Shapes)</i>	Express missing number problems algebraically
				<i>Solve problems, including <b>missing number</b> problems, involving multiplication and division, including integer scaling (Multiplication and Division)</i>			
	Automatically recall (without reference to rhymes, counting and other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts (ELG)	<i>Represent and use number bonds and related subtraction facts within 20 (Addition and Subtraction)</i>	<i>Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 (Addition and Subtraction)</i>				
							Enumerate all possibilities of combinations of two variables

FORMULAE					Perimeter can be expressed algebraically as $2(a + b)$ where $a$ and $b$ are the dimensions in the same unit. (Copied from NSG measurement)		Use simple formulae  <i>Recognise when it is possible to use formulae for area and volume of shapes (Measurement)</i>
	SEQUENCES		Sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening (Measurement)	Compare and sequence intervals of time (Measurement)			Generate and describe linear number sequences
Order and arrange combinations of mathematical objects in patterns (Geometry: position and direction)							