



# Redfield Edge Primary

## Maths Progression Document



### Place Value

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Counting</b>					
count to and across 100, forwards and backwards, beginning with 0 or 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
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, forward or backward	count from 0 in multiples of 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 1000 000	
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		
<b>Comparing Numbers</b>					
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 000000 and determine the value of each digit
<b>Identifying, Representing and Estimating Numbers</b>					
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		

## Reading and Writing Numbers (Including Roman Numerals)

read and write numbers from 1 to 20 in numerals and words.	read and write numbers to at least 100 in numerals and in words	read and write numbers up to 1000 in numerals and in words	read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
				read Roman numerals to 1000 (M) and recognise years written in Roman numerals	

## Understanding Place Value

	recognise the place value of each digit in a two-digit number (tens, ones)	recognise the place value of each digit in a threedigit number (hundreds, tens, 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
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## Rounding

			round any number to the nearest 10, 100 or 1 000	round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000	round any whole number to a required degree of accuracy
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## 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 involve all of the above	solve number and practical problems that involve all of the above
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## New Sticky Mathematical Vocabulary

number, zero, one, two, three to twenty and beyond, none, count	<u>In addition to previous year groups</u> numbers to one hundred, hundreds, partition,	<u>In addition to previous year groups</u>	<u>In addition to previous year groups</u> thousands, recombine, rounding, round up , round	<u>In addition to previous year groups</u>	<u>In addition to previous year groups</u> ten million, estimate, approximately, exactly
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(on/up/to/from/down), before, after, more, less, many, few, fewer, least, fewest, smallest, greater, lesser, equal to, the same as odd, even, pair units, ones, tens, ten more/less, digit, numeral, figure(s), compare, order, different order, size, value, between, halfway between, above, below	combine, recombine, hundred more/ less, place value grid, more, least, greatest	hundred, hundreds, 100, 100's, number line, sequence	down, negative number, positive number, rule	ten thousands, hundred thousands, roman numerals, million	
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## Addition and Subtraction

<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
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### Number Bonds

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				
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### Mental Calculation

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: * a two-digit number and ones * a two-digit number and tens * two two-digit numbers * adding three one-digit numbers	add and subtract numbers mentally, including: * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds		add and subtract numbers mentally with increasingly large numbers	perform mental calculations, including with mixed operations and large numbers
read, write and interpret mathematical statements involving addition (+),	show that addition of two numbers can be done in any order (commutative) and subtraction of one				use their knowledge of the order of operations to carry out calculations involving the four operations

subtraction (-) and equals (=) signs	number from another cannot				
<b>Written Methods</b>					
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 using formal written methods (columnar addition and subtraction)	
<b>Inverse Operations, Estimating and Checking Answers</b>					
	recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	estimate the answer to a calculation and use inverse operations to check answers	estimate and use inverse operations to check answers to a calculation	use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	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 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 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 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 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

## New Sticky Mathematical Vocabulary

<p>in total, sum, added, plus, or +, count, count on, missing, missing part, number bonds, number pairs, number stories, how many left, take away, remain, in total, begin with</p>	<p><u>In addition to previous year groups</u> exchange, compare, greater than, less than, more, less,(&gt;), (,), ones, ten, 10 less, place value, column, 1-digit number, 2- digit number, number sentence, known fact, fact family, calculation, (+), count back, subtract, take away, minus, (-), bar model, partition, minus, efficient</p>	<p><u>In addition to previous year groups</u> difference , pattern, variation, column method, mental method, number line,, calculations, regroup, solutions place value, fact family, related facts, number statements, method, order hundreds (100s), tens (10s), ones (1s), digits, zero (0) multiple of 10, multiples of 100, 3-digit number, 10 ones, 10 tens</p>	<p><u>In addition to previous year groups</u> 1,000s (thousands) , exchange, estimate, accurate, efficient, exact strategy diagram</p>	<p><u>In addition to previous year groups</u> 10,000s (ten thousands), difference, inverse, round, mentally, carry</p>	<p><u>In addition to previous year groups</u> method, column, columnar</p>
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## Multiplication and Division

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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### Multiplication and Division Facts

<p>count in multiples of twos, fives and tens</p>	<p>count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward</p>	<p>count from 0 in multiples of 4, 8, 50 and 100</p>	<p>count in multiples of 6, 7, 9, 25 and 1 000</p>	<p>count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</p>	
	<p>recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers</p>	<p>recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</p>	<p>recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></p>		

### Mental Calculation

		<p>write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times onedigit numbers, using</p>	<p>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>multiply and divide numbers mentally drawing upon known facts</p>	<p>perform mental calculations, including with mixed operations and large numbers</p>
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		mental and progressing to formal written methods and progressing to formal written methods			
	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	associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3 /8)

## Written Calculation

	calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	multiply two-digit and three-digit numbers by a onedigit 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 a one-digit number using the 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
					use written division methods in cases where the answer has up to two decimal places

## Properties of Numbers: Multiples, Factors, Primes, Square and Cube Numbers

		count from 0 in multiples of 4, 8, 50 and 100	recognise and use factor pairs and commutativity in mental calculations (repeated)	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	use common factors to simplify fractions; use common multiples to express fractions in the same denomination
				establish whether a number up to 100 is prime and recall prime numbers up to 19	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>
				recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)	

## Order of Operations

					use their knowledge of the order of operations to carry out calculations involving the four operations
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## Inverse Operations, Estimating and Checking Answers

		estimate the answer to a calculation and use inverse operations to check answers	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 estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy
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## Problem Solving

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	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	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
				solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	solve problems involving similar shapes where the scale factor is known or can be found
				solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	

## New Sticky Mathematical Vocabulary

array , row, column, twice, total, equal groups, same, different share, sharing equally, fairly, total, altogether, each ,division	<u>In addition to previous year groups</u> repeated addition, skip counting, number in a group, number of groups, times, times-table, multiply/multiplication ( $\times$ ),	<u>In addition to previous year groups</u> unequal groups, statement, multiplication fact, multiplication sentence, divide ( $\div$ ), division statement, division fact ,	<u>In addition to previous year groups</u> grouping, groups of, lots of, sets of, grouped, x groups of y , number facts, number sentences, multiplication facts/ sentences, division	<u>In addition to previous year groups</u> multiple, factor, prime number, composite number, square ( $^2$ ), cube ( $^3$ ), inverse operation, place	<u>In addition to previous year groups</u> common factor, common multiple, prime, brackets, product, approximation, short division, long division,
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	more than, less than, bar model, equal parts, number of equal parts, times bigger/times taller/ times greater, twice as big	whole, leftover, remainder ,one-step, two-step, multi-step, number line ,pattern , count up, total, double, method ,repeated addition	facts/sentences, fact family, ones (1s), tens (10s), hundreds (100s), zero (0), how many, method, calculation, exchange, solve, less then ( ), added, sort, sum, recall	value , thousands, tens of thousands	divisor, dividend, inverse grid method
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## Fractions

<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
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### 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		
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### Recognise Fractions

recognise, find and name a half as one of two equal parts of an object, shape or quantity	recognise, find, name and write fractions $\frac{1}{3}$ , $\frac{1}{4}$ , $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators	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	
recognise, find and name a quarter as one of four equal parts of an object, shape or quantity		recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10			
		recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators			

## 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 $>1$
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## 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
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## 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
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## Equivalence (Including Fractions, Decimals and Percentages)

	write simple fractions e.g. $\frac{1}{2}$ 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. $0.71 = \frac{71}{100}$ )	associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$ )
			recognise and write decimal equivalents to $\frac{1}{4}$ ; $\frac{1}{2}$ ; $\frac{3}{4}$	recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
				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 as a decimal fraction	
<b>Addition and Subtraction of Fractions</b>					
		add and subtract fractions with the same denominator within one whole (e.g. $5/7 + 1/7 = 6/7$ )	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 fractions and improper fractions and convert from one form to the other and write mathematical statements $> 1$ as a mixed number (e.g. $2/5 + 4/5 = 6/5 = 1\ 1/5$ )	
<b>Multiplication and Division of Fractions</b>					
				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. $1/4 \times 1/2 = 1/8$ )
					multiply one-digit numbers with up to two decimal places by whole numbers
					divide proper fractions by whole numbers (e.g. $1/3 \div 2 = 1/6$ )
<b>Multiplication and division of Decimals</b>					
			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 one-digit numbers with up to two decimal places by whole numbers
					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

### Problem Solving

		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	

### New Sticky Mathematical Vocabulary

half, halves, quarter, equal share, split ,part, whole	<u>In addition to previous year groups</u> how many, different	<u>In addition to previous year groups</u> equal parts, fraction, unit fraction, non-unit fraction, denominator, numerator partition, group, interval, combine, count on, count back, represent halves,	<u>In addition to previous year groups</u> hundredth, improper fraction, simplify, simplest fraction, proper fraction, fraction strip, represent, number line, diagram,	<u>In addition to previous year groups</u> expand, remainder, divisor, dividend, quotient, percent (%), decimal place, common multiple	<u>In addition to previous year groups</u> factor, highest common factor, lowest common multiple, convert, placeholder, percentage
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		thirds, quarters, fifths, sixths, sevenths, eighths, ninths, tenths, elevenths, twelfths mixed number, whole number, fractional part, integer, set of objects	problem solving, decimal point, whole, tenths, hundredths, integer, tenths column, hundredths column one more, one less, greater than, less than, increase, decrease divide, regroup, equivalent, partition. decimal point, decimal place, 0·1, 0·01 equivalent, number bond, equivalent fraction whole number, digit ,order, compare, statement, ascending, convert		
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**Ratio and Proportion**

<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
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**Ratio and Proportion**

					solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
					solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
					solve problems involving similar shapes where the scale factor is known or can be found

					solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
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**New Sticky Mathematical Vocabulary**

					ratio, ratio notation, 1 : 2, proportion , part, whole, total , group , fraction , unequal, equal simplest form, simplify , for every x there are y, similar ,enlarge, enlargement scale, map scale, scale factor
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**Algebra**

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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**Equations**

solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = * - 9$	recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.		use the properties of rectangles to deduce related facts and find missing lengths and angles	express missing number problems algebraically
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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	solve problems, including missing number problems, involving multiplication and division, including integer scaling			find pairs of numbers that satisfy number sentences involving two unknowns
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					enumerate all possibilities of combinations of two variables
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**Formulae**

			Perimeter can be expressed algebraically as $2(a + b)$		use simple formulae
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			where a and b are the dimensions in the same unit		
					recognise when it is possible to use formulae for area and volume of shapes
					generate and describe linear number sequences

### Sequences

sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening	compare and sequence intervals of time				generate and describe linear number sequences
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### New Sticky Mathematical Vocabulary

				length, opposite, angle, properties	pattern, growing pattern, sequence, rule, term, algebra, algebraic expression , formula, formulae , substitute , generalise , operation, calculation, calculate, equation, inverse solution, represent, value
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## Measurement

<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
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### Comparing and Estimating

compare, describe and solve practical problems for:	compare and order lengths, mass, volume/capacity and	compare durations of events, for example to	estimate, compare and calculate different	calculate and compare the area of squares and rectangles including using	calculate, estimate and compare volume of cubes and cuboids using standard
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<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>	record the results using >, < and =	calculate the time taken by particular events or tasks	measures, including money in pounds and pence	standard units, square centimetres (cm <sup>2</sup> ) and square metres (m <sup>2</sup> ) and estimate the area of irregular shapes	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> .
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	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		estimate volume (e.g. using 1 cm <sup>3</sup> blocks to build cubes and cuboids) and capacity (e.g. using water)	

## Measuring and Calculation

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 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 (cm <sup>2</sup> ) and square metres (m <sup>2</sup> ) and estimate the area of irregular shapes	calculate the area of parallelograms and triangles
				recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)	calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm <sup>3</sup> ) and cubic metres (m <sup>3</sup> ), and extending to other units [e.g. mm <sup>3</sup> and km <sup>3</sup> ]
					recognise when it is possible to use formulae for area and volume of shapes

**Telling the Time**

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	solve problems involving converting between units of time	
recognise and use language relating to dates, including days of the week, weeks, months and years	know the number of minutes in an hour and the number of hours in a day	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	solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days		

## Converting

	know the number of minutes in an hour and the number of hours in a day.	know the number of seconds in a minute and the number of days in each month, year and leap year	convert between different units of measure (e.g. kilometre to metre; hour to minute)	convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	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
			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

## New Sticky Mathematical Vocabulary

long, longer, longest short, shorter, shortest, tall, taller, tallest, length, height compare, comparison, measure, distance unit, non-standard units, ruler, centimetre (cm), total, difference, weight, weigh capacity, volume, contains, container heavier, heaviest, lighter, lightest more, most, fewer, less, least, addition, subtraction balance scales, balanced compare, measure, estimate empty, full, amount, half, faster, slower, shorter, longer, earlier, later, yesterday, today, tomorrow, day, week, month, year, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, calendar, date minute hand, hour hand, second hand, o'clock, half past, second, minute, hour, pound, penny, pennies, pence coins, notes, banknotes £, p

In addition to previous year groups  
 notes, change, left, right, money, buy(s), spend, step how much?, value, amount, total, altogether, parts, between, difference, count on, sort, match, compare, add, addition, calculate, subtraction, width, distance long, longer, short, shorter tall metres (m), centimetres (cm) order, ruler, metre stick, measure, zero, analogue, quarter past, quarter to, quarter of an hour, almost, same, units, last, convert, how long, passed, shorter, longer, fastest, slowest five, ten, fifteen, twenty, twenty-five, thirty, thirty-five, forty, forty-five, fifty, fifty-five, sixty, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, time, start time, end time, duration, time taken, finish, forwards, backwards, twice, 24 hours, day, daytime, night time, around the clock, am, pm midday, midnight, morning, afternoon, balance, comparing, estimating, reasoning, accurately, total, scale, interval, mass, grams (g), kilograms (kg), kilos, volume, capacity, millilitres (ml), litres (l) temperature, thermometer, degrees Celsius (°C), hotter, Maths

In addition to previous year groups  
 total, amount, millimetres (mm), diagonal, perimeter, ascending, predict, leap year, midnight, midday/noon, Roman numerals, left, passed, fastest, slowest 12-hour clock, 24-hour clock, daytime, night time, around the clock.

In addition to previous year groups  
 kilometres, distance, around, reflection, rotation, cheaper, more expensive, over estimate, under estimate, equal to (=)

In addition to previous year groups  
 area, scale, square centimetres (cm<sup>2</sup>), square metres (m<sup>2</sup>), metric units, gram (g), kilogram (kg), millilitre (ml), litre (L), millimetre (ml), centimetre (cm), metre (m), kilometre (km), imperial units, ounce (oz), pound (lb), stone (st), pint (pt), gallon (gal), inch (in), foot (f), yard (yd), layer, slice

In addition to previous year groups  
 conversion table, conversion graph,

Vocabulary Progression  
Document hottest, warmer,  
warmest, colder, coldest,  
cooler, coolest

## Properties of Shapes

**Year 1**

**Year 2**

**Year 3**

**Year 4**

**Year 5**

**Year 6**

### Identifying Shapes and their Properties

recognise and name common 2-D and 3-D shapes, including:  
\* 2-D shapes [e.g. rectangles (including squares), circles and triangles]  
\* 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres]

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

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 identify 2-D shapes on the radius

identify 2-D shapes on the radius surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]

### Drawing and Constructing

draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different

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

		orientations and describe them			
		recognise 3-D shapes in different orientations and describe them			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	identify acute and obtuse angles and compare and order angles up to two right angles by size	know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing 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: * angles at a point and one whole turn (total 360 o ) * angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180 o ) * other multiples of 90 o	

		identify horizontal and vertical lines and pairs of perpendicular and parallel lines			
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**New Sticky Mathematical Vocabulary**

2D, 3D, cube, cuboid, sphere, cylinder, pyramid, cone, circle, triangle, square, rectangle	<u>In addition to previous year groups</u> quadrilateral ,polygon, pentagon, hexagon ,vertex, vertices, line of symmetry ,symmetrical, octagon ,hemisphere, curved surface, edge, prism	<u>In addition to previous year groups</u> right angle, perpendicular, acute, obtuse	<u>In addition to previous year groups</u> interior angle, regular, irregular, isosceles, scalene, equilateral, reflective, symmetry	<u>In addition to previous year groups</u> degree (°), interior angle	<u>In addition to previous year groups</u> quadrant, reflect, translate, vertically opposite angles, radius, concentric, diameter, circumference, net, tetrahedron
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**Geometry: Position and Direction**

<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
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**Position, Direction and Movement**

describe position, direction and movement, including half, quarter and three-quarter turns.	use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)		describe positions on a 2-D grid as coordinates in the first quadrant	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)
			describe movements between positions as translations of a given unit to the left/right and up/down		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		

<b>Pattern</b>					
	order and arrange combinations of mathematical objects in patterns and sequences				
<b><u>New Sticky Mathematical Vocabulary</u></b>					
pattern, repeat, turn, position, direction half turn, quarter turn, three-quarter turn, whole turn, left , right, in between, forwards, backwards, below, top, middle, bottom, up, down	<u>In addition to previous year groups</u> anti-clockwise, clockwise	<u>In addition to previous year groups</u> horizontal, vertical, parallel	<u>In addition to previous year groups</u> grid, coordinates	<u>In addition to previous year groups</u> top view, plan view, side view, mirror line, translation	<u>In addition to previous year groups</u> quadrant, x-axis, y-axis
<b>Statistics</b>					
<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>
<b>Interpreting, Constructing and Presenting Data</b>					
	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
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## New Sticky Mathematical Vocabulary

		pictogram, key	<u>In addition to previous year groups</u> bar chart, vertical, axis, scale	<u>In addition to previous year groups</u> line graph, continuous	<u>In addition to previous year groups</u> two-way table, dual line graph	<u>In addition to previous year groups</u> average, mean, pie chart, segment
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