



Year 5 Maths Scope and Sequence

Aim:

Our aim is for all students to develop a mathematical mind and be able to tackle real life problems. Maths is organised into distinct strands; however, connections should continually be made across the mathematical curriculum to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. We teach a spiral curriculum maths where every strand is taught each term, the basics are revisited and when children are secure new concepts are introduced.

In year 5 and 6 it is important that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. Pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. Pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

The scope and sequence comprises objectives from the National Curriculum and ISEB 11+ curriculum.

A minimum of 5 hours of mathematics should be taught each week.

The mathematical strands for year 5 are:

- Number: Number & Place value
- Number: Addition and Subtraction
- Number: Multiplication and Division
- Number: Fractions, Decimals and Percentages
- Ratio & Proportion (Extension into Year 6)
- Algebra (Extension into Year 6)
- Measurements
- Geometry: Properties of Shape
- Geometry: Position & Direction
- Statistics



Year 5 Maths Scope and Sequence

Number: Number & Place value			
All children	Most children	Some children	Numicon Ref
Read, write, order, compare, estimate and check numbers to at least 1 000 000 and determine the value of each digit. To include partitioning, place value and inverse operations.	Read, write numbers to at least 10 000 000. Order and compare and compare numbers to at least 1 000 000.	Read, write, order and compare numbers to at least 10 000 000 and determine the value of each digit.	Pattern & Algebra 1.1–1.3 • 3.1 • 4.1 • 5.1 • 5.2 • 6.1–6.3 Number & the Number System 1.1–1.5 • 1.7 • 4.2 • 4.3 Calculating 3.1–3.3 • 5.1 • 6.1
Use knowledge of place value and addition and subtraction of two-digit numbers to derive sums and differences and doubles and halves of decimals (e.g. $6.5 + 2.7$, half of 5.6, double 0.34).	Use knowledge to add and subtract three-digit numbers, including those with 2 decimal places.	Use knowledge to quadruple numbers, and divide by 4, including numbers to 2dp, and numbers ending in an odd (e.g. $2.7 \div 4$).	
Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.	Count forwards in steps of powers of 10 for any given number up to 10 000 000. Count backwards in steps of powers of 10 for any given number up to 1 000 000.	Count forwards or backwards in steps of powers of 10 for any given number up to 10 000 000.	Pattern & Algebra 1.3 Number & the Number System 1.3 • 1.6
Recognise and describe linear number sequences (for example, 3, $3 \frac{1}{2}$, 4, $4 \frac{1}{2}$...), including those involving fractions and decimals	Find the term-to-term rule in words (for example, add $\frac{1}{2}$).	Complete number functions / sequences where more than operation / rule has been applied.	
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.	Use mathematical rules to perform calculations involving negative numbers (eg. $-2 \times 4 = -8$; $-3 \times -5 = 15$; $4 - (-3) = 7$).	Number & the Number System 5.1–5.6
Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.	Round any number up to 10 000 000 to the nearest 10, 100, 1000, 10 000, 100 000 and 1 000 000.	Round any whole number to a required degree of accuracy.	Number & the Number System 4.2–4.4 • 4.7 • 4.8 Calculating 3.2
Recall quickly multiplication facts 12 x 12 and use them to multiply pairs of multiples of 10 and 100; derive quickly corresponding division facts.	Recall quickly multiplication facts up to 12 x 12 and the corresponding inverses (divisions).	Use knowledge of multiplication facts (up to 12 x 12) and corresponding inverses to multiply and divide numbers.	



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Number: Number & Place value			
All children	Most children	Some children	Numicon Ref
Extend mental methods for whole number calculations, for example to multiply a two digit by a one digit number e.g. 12×9 , to multiply by 25, to subtract one near multiple of 1000 from another e.g. $6070 - 4097$.	To know a range of mental strategies to perform all four operations, e.g. $\times 20$ ($\times 4 \times 5$, or $\times 2 \times 10$), -96 ($-100 + 4$).	To select a strategy to employ to solve a problem, explaining why a strategy has or has not been use to solve the problem.	
Use a calculator to solve problems, including those involving decimals or fractions e.g. to find $\frac{3}{4}$ of 150g.	Use a calculator to solve problems and interpret the display correctly in the context of measurement.	Use a calculator to solve problems, including problems involving rounding up and down, and money (to 2dps).	
Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	Read and write Roman numerals to 1000 (M).	Read and write Roman numerals up to 3999 (MMMCMXCIX).	Number & the Number System 1.8
Problem solving: Solve number problems & practical problems that involve all of the above			Pattern & Algebra 1.1–1.3 • 3.1 • 4.1 • 5.1 • 5.2 • 6.1 • 6.4 • 6.5 Number & the Number System 1.2 • 1.7 • 4.1 • 4.6–4.8 • 5.3–5.6 Calculating 3.1–3.3 • 5.1 • 6.1



Year 5 Maths Scope and Sequence

Number: Addition & Subtraction			
All children	Most children	Some children	Numicon Ref
Add and subtract whole numbers with 4 digits, including using formal written methods (column addition and subtraction). Written addition inc. money. Subtraction inc. finding change.	Add and subtract whole numbers with 5 digits, including using formal written methods (column addition and subtraction). Written addition inc. money. Subtraction inc. finding change.	Apply formal written methods of addition and subtraction when solving problems involving numbers up to 5 digits. Written addition inc. money. Subtraction inc. finding change.	Pattern & Algebra 2.4 Calculating 3.5 • 3.6 • 5.1–5.4 • 6.1–6.3
Add and subtract numbers mentally with 3 digits, across the tens and hundreds.	Add and subtract numbers mentally with 4 digits, across the tens, hundreds and thousands.	Practise mental calculations with increasingly large numbers to aid fluency (for example, $12,462 - 2,300 = 10,162$).	Pattern & Algebra 1.2 • 1.3 • 5.1–5.5 Calculating 1.1–1.3 • 1.7 • 2.1 • 2.2 • 3.1–3.3 • 5.1 • 6.1 • 11.3
Use rounding to check answers to calculations.	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, an appropriate degree of accuracy.	Pattern & Algebra 5.1 • 5.2 Number & the Number System 4.1 • 4.6–4.8 Calculating 2.1 • 2.2 • 3.2 • 3.3 • 5.1 • 5.3 • 6.2
Solve addition and subtraction two-step problems in contexts, deciding which operations to use and why.	Solve addition and subtraction multi-step problems in contexts deciding which operations to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Pattern & Algebra 1.1–1.6 • 2.1–2.7 • 3.2 • 4.2 • 5.1–5.6 • 6.1 • 6.4 • 6.5 Calculating 1.1–1.3 • 1.5 • 1.7 • 3.2 • 3.3 • 5.4 • 5.5 • 6.2 • 6.3
-	-	Explore the order of operations using brackets; for example, $2 + 1 \times 3 = 5$ and $(2 + 1) \times 3 = 9$.	



Year 5 Maths Scope and Sequence

Number: Multiplication & Division			
All children	Most children	Some children	Numicon Ref
Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.	Identify common factors and common multiples and prime numbers.	Identify lower common denominators, highest common factors and prime factors.	Pattern & Algebra GS.1 • 2.1 • 2.2 • 2.4 • 2.7 • 3.1 • 3.3–3.5 • 4.1 • 4.3 • 4.6 • 5.7 • 6.1–6.3 Number & the Number System 6.4 • 6.5 Calculating 4.1–4.4 Measurement 3.2
Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.	Establish whether a number up to 100 is prime and recall prime numbers up to 19	Use divisibility rules to determine whether a number is prime (eg. 2889 is not prime as it is divisible by 3 -> 2 + 8 + 8 + 9 = 27 which is in the 3 times table).	Pattern & Algebra 3.6 • 3.7 • 5.7 Measurement 3.2
Multiply numbers up to 4 digits by a one- or two- digit whole 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.	To solve word problems requiring the use of long multiplication.	Calculating 4.5 • 8.2 • 8.3 • 12.1 • 12.3–12.5
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 number using the formal written methods of long and short division, and interpret remainders appropriately for the context.	Interpret non-integer answers to division by expressing results in different ways according to the context, including with remainders, as fractions, as decimals or by rounding (for example, $98 \div 4 = \frac{98}{4} = 24 \text{ r } 2 = 24 \frac{1}{2} = 24.5 \approx 25$). Interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.	Calculating 4.6 • 8.4 • 9.1–9.5 • 9.7 • 13.1–13.6
Multiply and divide numbers mentally drawing upon known facts including decimals by 10, 100 and 1000.	Multiply and divide whole numbers and those involving decimals by 10, 100, 1000 and 10 000.	Multiply and divide whole numbers and those involving decimals by 0.1, 10, 100, 1000 and 10 000.	Pattern & Algebra 2.1–2.3 • 2.6 • 2.7 • 3.2 • 3.3 Calculating 4.1–4.4 • 4.8 • 4.9 • 7.1 - 7.6 • 8.1–8.5 • 9.1–9.7 • 10.1 • 10.2 • 10.5 • 12.1 • 12.2 • 12.3 • 13.1 • 13.2
Use and understand the terms factor, multiple and prime, square and cube numbers and the notation for squared and cubed.	Recognise all powers/indices, and write them correctly.	Multiply and divide indices (eg. $2^3 \times 2^4 = 2^7$).	Pattern & Algebra 4.4–4.7 Measurement 3.2 • 4.3



Year 5 Maths Scope and Sequence

Number: Multiplication & Division			
All children	Most children	Some children	Numicon Ref
Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.	Use their knowledge of the order of operations to carry out calculations involving the four operations (BIDMAS).	Use knowledge of BIDMAS to solve simple linear, algebraic equations (eg. $y = 4x + 3$).	Pattern & Algebra GS.1 • 1.1–1.7 • 2.1–2.7 • 4.2 • 4.3 • 5.1–5.6 • 6.2 Number & the Number System 5.5 • 5.6 Calculating 1.1–1.5 • 3.2 • 3.3 • 7.1–7.6 • 9.1–9.7 • 16.1–16.4
Use sequences to scale numbers up or down; solve problems involving proportions of quantities (e.g. decrease quantities in a recipe designed to feed six people).	Use sequences to scale numbers up and down – solving problems by dividing down before multiplying up (eg. Recipe serves 8, how many required to serve 20?).	Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.	
Use and explain the equals sign to indicate equivalence, including in missing number problems (for example $13 + 24 = 12 + 25$; $33 = 5 \times ?$).	Distributive law: Distributivity can be expressed as $a(b + c) = ab + ac$.		
Problem solving: Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes Solve problems involving +, -, \times and \div , 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. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.			Pattern & Algebra 2.1 • 2.2 • 2.4 • 2.7 • 3.2–3.4 • 4.1 • 4.3–4.7 • 5.7 • 6.2 • 6.3 Number & the Number System 2.6 • 6.2 • 6.4 • 6.5 Calculating 4.3 • 4.4 • 7.1 • 7.2 • 8.1–8.5 • 9.1–9.5 • 10.1 • 10.2 • 10.4 • 12.1 • 12.4 • 13.1–13.5 Measurement 3.2 • 6.1–6.4



Year 5 Maths Scope and Sequence

Number: Fractions, Decimals & Percentages

All children	Most children	Some children	Numicon Ref
<p>Read and write decimal numbers as fractions for example</p> $0.71 = \frac{71}{100}$	<p>Calculate decimals and percentages of 'simple' fractions (e.g. $1/5 = 0.2$; $1/25 = 0.04$ or 4%).</p>	<p>Associate a fraction with division and calculate decimal fraction equivalents and percentages [for example, 0.375 or 37.5%] for a simple fraction [for example, $3/8$].</p>	<p>Number & the Number System 3.2 • 3.3 • 3.5</p>
<p>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</p>	<p>Identify how many tenths there are in a number (e.g. in 3.5 there are 35 tenths) and how many hundredths (e.g. in 0.45 there are 45 hundredths).</p>	<p>Identify how many thousandths there are in a number, including those that do not extend to the thousandths column (e.g. how many in 0.67?).</p>	<p>Pattern & Algebra 1.4 • 1.5</p> <p>Number & the Number System 3.6–3.8</p>
<p>Round decimals with two decimal places to the nearest whole number and to one decimal place.</p>	<p>Round decimals with three places to the nearest whole number and to one or two decimal places.</p>	<p>Round decimals to a specified degree of accuracy.</p>	<p>Number & the Number System 4.5 • 4.6</p> <p>Calculating 13.4</p>
<p>Read, write, order and compare numbers with up to three decimal places.</p>	<p>Order given fractions, decimals and percentages, with common denominators or powers of 10 as a denominator.</p>	<p>Order fractions, decimals and percentages, using division to convert these and compare.</p>	<p>Pattern & Algebra GS.1 • 1.4 • 1.5</p> <p>Number & the Number System 3.1 • 3.4 • 3.5 • 3.7</p> <p>Calculating 13.3 • 13.4 • 13.6</p>
<p>To add and subtract numbers up to 3 decimal places, doubling and halving decimals.</p> <p>Mentally add and subtract tenths, and one-digit whole numbers and tenths.</p>	<p>Multiply and divide numbers with up to two decimal places by whole numbers.</p>	<p>Solve problems involving number up to 3 decimal places</p>	<p>Pattern & Algebra 1.4 • 1.5 • 2.5</p> <p>Number & the Number System 3.4 • 3.5 • 3.7 • 3.8</p> <p>Calculating 1.5 • 1.6 • 2.5 • 2.6 • 3.4 • 4.8 • 4.9 • 6.5 • 8.3 • 12.3 • 13.3–13.6</p>
<p>Compare and order fractions whose denominators are all multiples of the same number.</p> <p>Practise counting forwards and backwards in simple fractions.</p>	<p>Compare and order fractions with different denominators.</p>	<p>Compare and order fractions, including fractions > 1.</p>	<p>Pattern & Algebra 1.6 • 1.7</p> <p>Number & the Number System 2.7 • 6.1–6.5</p>
<p>Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.</p> <p>Find equivalent fractions (e.g. $7/10 = 14/20$ or $19/10 = 1\ 9/10$)</p>	<p>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.</p>	<p>Use common factors to simplify mixed numbers; use common multiples to express mixed numbers in the same denomination.</p>	<p>Pattern & Algebra 1.7</p> <p>Number & the Number System 2.1 • 2.2 • 2.5–2.7 • 6.2 • 6.4 • 6.5</p> <p>Calculating 11.4</p>



Year 5 Maths Scope and Sequence

Number: Fractions, Decimals & Percentages			
All children	Most children	Some children	Numicon Ref
relate fractions to their decimal representations.			
Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$]	To write mixed numbers and improper fractions in their lowest terms, simplifying them when appropriate.	To convert mixed numbers and improper fractions to decimals and percentages.	Pattern & Algebra 1.6 Number & the Number System 2.1 - 2.4 Calculating 1.4 • 2.4 • 9.6 • 9.7
Add and subtract fractions with the same denominator and denominators which are multiples of the same number.	Add and subtract fractions with different denominators.	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.	Pattern & Algebra 1.6 • 2.1 Number & the Number System 2.6 Calculating 1.4 • 2.4 • 15.1–15.4
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.	Divide proper fractions by whole numbers.	Calculating 4.7 • 14.1–14.5 • 15.5
Find fractions using division (e.g. 1/100 of 5kg) and percentages of numbers (e.g. 10%, 5%, 15% of £80) multiples of 5.	Use mathematical knowledge to calculate percentages of numbers (eg. 35% of 60 = 25% of 60 + 10% of 60 = 15 + 6 = 21).	Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison.	
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 of 10 or 100, and as a decimal.	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	Write percentages with up to 1 dp as a fraction and a decimal (eg. 34.5% = $\frac{345}{1000} = 0.345$).	Number & the Number System 7.1–7.6 Calculating 11.1–11.6
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.	Solve problems which require knowing percentage and decimal equivalents of fractions with a denominator with a multiple of 5 (eg. 5%, 10%, 15%, etc).	Solve problems which require knowing percentages and decimal equivalents of fractions with 1dp, eg. 17.5% of 60, or 0.1% of 15 000).	Number & the Number System 7.1–7.6 Calculating 11.2–11.4 • 11.6
Solve problems involving measurement and money and beyond this e.g. solving puzzles involving decimals. Taught throughout this unit that percentages, decimals and fractions are different ways of expressing proportions.			



Year 5 Maths Scope and Sequence

Number: Fractions, Decimals & Percentages

All children	Most children	Some children	Numicon Ref
Make connections between percentages, fractions and decimals (for example, 100% represents a whole quantity and 1% is $\frac{1}{100}$, 50% is $\frac{50}{100}$, 25% is $\frac{25}{100}$) and relate this to finding 'fractions of'.			

Ratio & Proportion (Extension into Year 6)

All children	Most children	Some children	Numicon Ref
-	-	Solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts	Calculating (Y6) 3.4 • 7.1–7.3 • 10.1 Measurement (Y6) 4.4 • 4.5
-	-	Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison	Calculating (Y6) 5.1–5.5 • 7.4 • 7.5 Investigating (Y6) GMS 3.1 Measurement (Y6) 1.5 • 2.5
-	-	Solve problems involving similar shapes where the scale factor is known or can be found	Calculating (Y6) 7.3
-	-	Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples	Calculating (Y6) 7.3
-	-	Recognise proportionality in contexts when the relations between quantities are in the same ratio (for example, similar shapes and recipes).	
-	-	Link percentages or 360° to calculating angles of pie charts.	
-	-	Consolidate their understanding of ratio when comparing quantities, sizes and scale drawings by solving a variety of problems. They might use the notation a:b to record their work.	
-	-	Solve problems involving unequal quantities, for example, 'for every egg you	



Year 5 Maths Scope and Sequence

Ratio & Proportion (Extension into Year 6)

All children	Most children	Some children	Numicon Ref
		<p>need 3 spoonfuls of flour', ' $\frac{3}{5}$ of the class are boys'.</p> <p>These problems are the foundation for later formal approaches to ratio and proportion.</p>	

Algebra (Extension into Year 6)

All children	Most children	Some children	Numicon Ref
-	-	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ○ use simple formulae ○ generate and describe linear number sequences ○ express missing number problems algebraically ○ find pairs of numbers that satisfy an equation with 2 unknowns ○ enumerate possibilities of combinations of 2 variables 	<p>Pattern & Algebra (Y6) 2.1 • 2.5 • 3.2–3.5 • 4.1–4.4 • 4.6</p> <p>Investigating (Y6) GMS 3.2</p> <p>Geometry 1.5 • 2.1</p> <p>Measurement (Y6) 2.3 • 2.4 • 4.1 • 4.2</p>
-	-	<p>Introduced to the use of symbols and letters to represent variables and unknowns in mathematical situations that they already understand, such as:</p> <ul style="list-style-type: none"> ○ missing numbers, lengths, coordinates and angles ○ formulae in mathematics and science ○ equivalent expressions (for example, $a + b = b + a$) ○ generalisations of number patterns ○ number puzzles (for example, what 2 numbers can add up to) 	



Year 5 Maths Scope and Sequence

Measurements			
All children	Most children	Some children	Numicon Ref
Tell the time using analogue and digital clocks, answering in 12-hour and 24-hour times.	Solve time duration problems.	Solve problems involving converting between units of time e.g. calendars, 24-hour clock.	Calculating 2.3 Measurement 7.2
Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals.	Solve problems involving timetables (time duration, missing times).	Solve problems involving time, including time zones.	
Revision: Become fluent in recognising the value of coins. Add and subtract amounts of money to give change, using both £ and p in practical contexts (multiples of 2, 5, 10).	Revision: Adding and subtracting amounts, including mixed units, and giving change. Record £ and p separately.	Revision: Formal decimal recording of money. Estimate, compare and calculate different measures, including money in pounds and pence (more complex numbers)	
Draw and measure lines to the nearest millimetre.	Measure lines to the nearest millimetre, that do not start at 0 (eg. length from 3.4cm to 5.1cm = 17mm).	Use a given scale to draw lines (eg. 1mm = 5cm).	
Measure and calculate the perimeter of regular and irregular polygons in millimetres, centimetres and metres. Recognise that shapes with the same areas can have different perimeters and vice versa	Use the relations of perimeter or area to find unknown lengths. Missing measures questions such as these can be expressed algebraically, for example $4 + 2b = 20$ for a rectangle of sides 2 cm and b cm and perimeter of 20cm.	Measure and calculate the circumference of a circle.	Measurement 3.1–3.4 • 5.1 • 5.4
Calculate the area of composite rectilinear shapes. Use standard units, square centimetres (cm ²) and square metres (m ²) and estimate the area of irregular shapes	Use the formula to calculate the area of a triangle and a parallelogram.	Calculate the area of a circle. Calculate the area from scale drawings using given measurements.	Measurement 1.1 • 1.3 • 3.1–3.4 • 5.1–5.4 Calculating (Y6) 3.5 Measurements (Y6) 2.1–2.5 • 3.3 • 4.1–4.5
Read, write and convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).	Use, 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	Connect conversion (for example, from kilometres to miles) to a graphical representation as preparation for understanding linear/proportional graphs.	Number & the Number System 3.1 Calculating 10.3 • 10.5 • 13.4 Measurement 1.1 • 1.4 • 4.4 • 6.1–6.4 • 7.1



Year 5 Maths Scope and Sequence

Measurements			
All children	Most children	Some children	Numicon Ref
	decimal notation to up to three decimal places.		
Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	Convert between metric units and other imperial units of measure. Know approximate conversions and are able to tell if an answer is sensible.	Use metric and imperial units of measure to create conversion graphs and use these to answer conversion questions. Convert between miles and kilometres	Measurement 1.2 • 1.3 • 1.5
Estimate volume [for example, using 1-cm ³ blocks to build cuboids (including cubes)] and capacity [for example, using water].	Know and use the formula for calculating the volume of cubes and cuboids, answering in mm ³ , cm ³ , m ³ and km ³ .	Recognise when it is possible to use formulae for volume of shapes. Calculate, estimate and compare volume of cubes and cuboids using standard units, including cm ³ and m ³ and extending to others unit for example, mm ³ and km ³ .	Measurement 1.1 • 1.5 • 4.1 • 4.3–4.6
Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation up to 3 decimal places where appropriate, including scaling. And involving time and money, including conversions (for example, days to weeks, expressing the answer as weeks and days).	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to two decimal places where appropriate.	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.	Pattern & Algebra 2.5 • 5.4 Number & the Number System 7.5 • 7.6 Calculating 1.2 • 1.3 • 2.3 • 2.5 • 2.6 • 3.3 • 3.4 • 5.4 • 5.5 • 6.3–6.5 • 8.5 • 10.1–10.4 • 12.2 • 12.3 • 13.3 • 13.5 • 14.3 • 14.4 • 16.1–16.4 Measurement 1.2–1.5 • 4.5 • 4.6 • 5.1–5.4 • 6.1–6.4 • 7.1–7.5
-	Using the number line, add and subtract positive and negative integers for measures such as temperature.	Add and subtract positive and negative integers for measures such as temperature using equations.	



Year 5 Maths Scope and Sequence

Geometry Properties of Shape			
All children	Most children	Some children	Numicon Ref
Identify, visualise and describe properties of rectangles, triangles and regular polygons.	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles	Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.	Geometry 3.5
Identify, visualise and describe properties (faces, edges, vertices) of 3D solid shapes.	Identify the shapes of faces of irregular 3D solid shapes. Identify 3-D shapes, including cubes & other cuboids, from 2-D representations	Identify properties of 3D solid shapes, including planes of symmetry.	Measurement 4.2 • 4.3
Become accurate in drawing lines with a ruler to the nearest millimetre, and measuring with a protractor. Use knowledge of properties to draw 2D shapes.	Use isosceles triangles to draw regular 2D shapes.	Use a ruler and protractor to draw a range of regular and irregular 2D shapes.	
Identify and draw nets of 3D shapes.	Identify different nets of the same 3D shape.	Make/draw different nets of a range of 3D shapes.	
Know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles.	Measure acute, obtuse and right-angles using a protractor to a high degree of accuracy.	Measure and calculate reflex angles (by adding 180° to a measured obtuse or acute angle).	Geometry 1.1–1.3 • 3.1–3.4 Measurement 2.6
Draw given angles, and measure them in degrees ($^\circ$).	Draw angles (at an angle) and angles about a point.	Draw 2-D shapes using given dimensions and angles.	Geometry 1.2 • 1.3 • 3.2 • 3.3 Measurement 2.6
Identify: <ul style="list-style-type: none"> angles at a point and one whole turn (total 360°) angles on a straight line and a half turn (total 180°) other multiples of 90° (eg. right angle) 	Calculate missing angles: <ul style="list-style-type: none"> at a point and one whole turn (total 360°) on a straight line and a half turn (total 180°) other multiples of 90° (eg. right angle) 	Recognise angles where they meet at a point, are on a straight line, or are vertically opposite angles and angles in a triangle, and find missing angles.	Geometry 1.3–1.5 • 3.1–3.4
Use the term diagonal and make conjectures about the angles formed between sides, and between diagonals and parallel sides, and other properties of	-	-	



Year 5 Maths Scope and Sequence

Geometry Properties of Shape			
All children	Most children	Some children	Numicon Ref
quadrilaterals, for example using dynamic geometry ICT tools.			
-	-	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.	
Use the properties of rectangles to deduce related facts.	Use properties of 2D shapes to determine missing lengths and/or angles.	Use properties of 2D shapes to solve problems.	Geometry 3.5 Measurement 5.3 • 5.4
Complete patterns with up to two lines of symmetry.	Complete patterns with one line of symmetry (at an angle).	Create patterns to be reflected, with up to two lines of symmetry.	
Recognise parallel and perpendicular lines.	Identify parallel and perpendicular lines in 2D shapes. Use conventional markings for parallel lines and right angles.	Use knowledge of parallel and perpendicular lines to calculate angles in 2D shapes.	



Geometry Position & Direction			
All children	Most children	Some children	Numicon Ref
Identify, describe and represent the position of a shape following a reflection, using the appropriate language, and know that the shape has not changed.	Reflect shapes using a diagonal line of reflection.	Reflect shapes using a given equation of a line, eg. Reflect shape using the line $x = 4$, or $y = 3$.	Geometry 2.1–2.4
Identify, describe and represent the position of a shape following a translation, using the appropriate language, and know that the shape has not changed.	Translate a shape using a given vector.	Translate a shape using all 4 quadrants, using given vector.	Geometry (Y6) 3.3 • 3.4
Identify shapes following a rotation in a certain direction and by a specified angle (multiple of 90°).	Rotate shapes in a specified direction and a given magnitude of rotation (multiple of 90°).	Rotate shapes around a centre of rotation, using a specified magnitude of rotation and in a specified direction.	
Enlarge shapes using a given scale factor (could also be <1 to decrease the size).	Enlarge shapes using a scale factor and a centre of enlargement.	Solve problems involving similar shapes where the scale factor is known or can be found.	
Describe positions on the coordinate grid (positive x).	Describe positions on the full coordinate grid (all four quadrants).	Use knowledge of shapes and coordinates to solve problems on a coordinate grid (including completing missing points of a shape). These might be expressed algebraically for example, translating vertex (a, b) to $(a - 2, b + 3)$; (a, b) and $(a + d, b + d)$ being opposite vertices of a square of side d .	Geometry (Y6) 3.1–3.4
-	-	Draw and label a pair of axes in all 4 quadrants with equal scaling. This extends their knowledge of one quadrant to all 4 quadrants, including the use of negative numbers	



Year 5 Maths Scope and Sequence

Statistics			
All children	Most children	Some children	Numicon Ref
Solve comparison, sum and difference problems using information presented in a line graph.	Solve problems using data presented in a range of graphs and charts (eg. Bar charts, line graphs, pictograms, etc).	Interpret (and construct) pie charts and line graphs and use these to solve problems. Connect their work on angles, fractions and percentages to the interpretation of pie charts.	Calculating 10.5 Measurements 2.2–2.4 • 7.3 • 7.4 Pattern & Algebra (Y6) 2.1 • 2.5 Calculating (Y6) 4.1 Investigating (Y6) GMS 3.1 Measurement (Y6) 1.3–1.5
Complete, read and interpret information in tables.	Use information presented in tables (including frequency tables) to construct graphs and charts.	Use information presented in tables to calculate the mode, median, range and mean.	Measurements 2.5
Interpret a reading that lies between two unnumbered divisions on a scale (integers).	Interpret a reading that lies between two unnumbered divisions on a scale (up to 3 dp).	Connect their work on coordinates and scales to their interpretation of time graphs.	
Find and interpret the mode of a set of data.	Calculate and interpret the median and range of a set of data.	Calculate and interpret the mean as the average of a set of data.	Calculating (Y6) 4.1 Investigating (Y6) NPC 5 • GMS 3.5 Geometry (Y6) 2.2 • 2.3 Measurement (Y6) 1.1 • 1.2
Determine the probability of an event. Describe the occurrence of familiar events using the language of chance or likelihood.	Represent the probability of an event occurring mathematically (using fractions, decimals and percentages).	Calculate the probability of an event occurring, including those with two factors (eg. rolling a 7 with two dice).	
<p>Problem solving: Answer a set of related questions by collecting, selecting and organising relevant data; draw conclusions, using computing to present features, and identify further questions to ask. Begin to decide which representations of data are most appropriate and why.</p>			