Maths Knowledge Progression Map

Year 2	Year 3	Year 4	Year 5	Year 6
Place Value **Children will:** - Numbers to 20 - Count objects to 100 by making 10s - Recognise tens and ones - Use a place value chart - Partition numbers to 100 - Write numbers to 100 in words - Flexibly partition numbers to 100 - Write numbers to 100 in expanded form - 10s on the number line to 100 - 10s and 1s on the number line to 100 - Estimate numbers on a number line - Compare objects - Compare numbers - Order objects and numbers - Count in 2s, 5s and 10s - Count in 3s	**Place Value** Children will: - Represent numbers to 100 - Partition numbers to 100 (3NPV-1) - Use number lines to 100 - Count in 100's - Represent numbers to 1000 (3NPV-2) - Partition numbers to 1000 - Find 1, 10 and 100 less and more (3NPV-3) - Use number lines to 1000 - Estimate on a number line to 1000 - Compare numbers to 1000 - Order numbers to 1000 - Count in 50's - Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. (3NPV-4)	**Place Value** Children will: - Represent numbers to 1000 (4NPV-2) - Partition numbers to 1000 (4NPV-1) - Use number lines to 1000 - Count in thousands (NPV-3) - Represent number to 10,000 - Partition numbers to 10,000 - Partition numbers flexibly to 10,000 - Find 1, 10, 100, 100 more or less - Use number lines to 10,000 - Estimate on a number to 10,000 - Compare numbers to 10,000 - Order numbers to 10,000 - Identify roman numerals - Round to nearest 10 - Round to nearest 100 - Round to nearest 1000 - Round to nearest 10, 100 or 1000 (NPV-3) - Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. (4NPV-4)	**Place Value** Children will: - Use roman numerals to 1000 - Identify numbers to 10,000 - Identify numbers to 100,000 - Identify numbers to 1,000,000 - Read and write numbers to 1,000,000 - Use powers of 10 - Find 10/100/1000/10,000/100,000 more or less - Partition numbers to 1,000,000 - Use number lines to 1,000,000 - Compare and order numbers 100,000 - Compare and order numbers to 1,000,000 - Round to the nearest 10, 100 or 1000 - Round within 100,000 - Round within 1,000,000 **Negative numbers** - **Understand negative numbers** - **Count through zero in 1s** - **Count through zero in multiples** - **Compare and order negative numbers** - **Find the difference**	**Place value** Children will: - Identify numbers to 1,000,000 - Identify numbers to 10,000,000 - Read and write numbers to 10,000,000 - Use powers of 10 - Use number lines to 10,000,000 - Compare and order and integers - Round any integers - Use negative numbers -

Addition and subtraction	Addition and subtraction	Addition and subtraction	Addition and subtraction	Addition and subtraction
Children will: - Bonds to 10 - Fact families – addition and subtraction bonds within 20 - Related facts - Bonds to 100 (tens) - Add and subtract 1s - Add by making 10 - Add three 1-digit numbers - Add to the next 10 - Add across a 10 - Subtract across 10 - Subtract from a 10 - Subtract a 1-digit number from a 2-digit number - (across a 10) - 10 more, 10 less - Add and subtract 10s - Add two 2-digit numbers (not across a 10) - Add two 2-digit numbers (across a 10) - Subtract two 2-digit numbers (not across a 10) - Subtract two 2-digit numbers (across a 10) - Mixed addition and subtraction - Compare number sentences - Missing number problems	Children will: - Apply number bonds within 10 - Add and subtract 1s - Add and subtract 10s - Add and subtract 100s - Spot patterns - Add 1s across a 10 (3NF-1) - Add 10s across a 100 (3NF-1) - Subtract 1s across a 10 (3NF-1) - Subtract 10s across 100 (3NF-1) - Make connections - Add two numbers no exchanging - Subtract two numbers no exchanging - Add two numbers across a 10 - Add two numbers across a 100 - Subtract two numbers across a 10 - Subtract two numbers across a hundred - Add 2-digit and 3 digit numbers (3AS-2) - Subtract a 2-digit number from a 3-digit number (3AS-2) - Find complements to 100 (3AS-1) - Estimate answers - Use inverse operations (3AS-3) - Make decisions	Children will: - Add and subtract 1s, 10s, 100s and 1000s - Add up to two 4-digit numbers no exchanging - Add two 4-digit numbers one exchange - Add two 4-digit numbers more than one exchange - Subtract two 4-digit numbers no exchanging - Subtract two 4-digit numbers one exchange - Subtract two 4-digit numbers more than one exchange - Subtract with efficiency - Estimate answers - Use checking strategies	Children will: - Use mental strategies - Add whole numbers with more than 4 digits - Subtract whole numbers with more than 4 digits - Round to check - Use inverse operations (add and subtract) - Answer multi-step problems involving addition and subtraction questions - Compare calculations - Find missing numbers	Children will: - Add and subtract integers - Use known facts - Mental calculations and estimations - Solve multi-step words problems in context

Multiplication and division	Multiplication and division	Multiplication and division	Multiplication and division	Multiplication and division
Children will: - Recognise equal groups - Make equal groups - Add equal groups - Introduce the multiplication symbol - Multiplication sentences - Use arrays - Make equal groups – grouping - Make equal groups – sharing - The 2 times-table - Divide by 2 - Doubling and halving - Odd and even numbers - The 10 times-table - Divide by 10 - The 5 times-table - Divide by 5 - The 5 and 10 times-tables	Children will: - Find equal groups - Use arrays - Count in multiples of 2 - Count in multiples of 10 (3NF-2) - Know how to share and group - Multiply by 3 - Divide by 3 - Learn the 3 times-tables - Multiply by 4 - Divide by 4 - Learn the 4 times-tables - Multiply by 8 - Divide by 8 - Learn the 8 times-tables - Learn the 2, 4 and 8 times-tables (3NF-2) - Know multiples of 10 - Know related calculations (3MD-1) - To reason about multiplication - Multiply a 2-digit number by a 1-digit number, no exchanging - Multiply a 2-digit number by a 1-digit number, with exchanging - To link multiplication and division - Divide a 2-digit number by a 1-digit number, no exchanging - Divide a 2-digit number by a 1-digit number, flexible partitioning - Divide a 2-digit number by a 1-digit number, with remainders - Using scaling to multiply (3NF-3) - Using correspondence to find totals	Children will: - Learn multiples of 3 - Multiply and divide by 6 - Learn 6 times-table and division facts - Multiply and divide by 9 - Learn 9 times-tables and division facts - Know the 3, 6 and 9 times tables - Multiply and divide by 7 - Learn 7 times-tables and division facts - Learn 11 times-tables and division facts - Learn 12 times-tables and division facts - Multiply by 1 and 0 - Divide by 1 and itself - Multiply 3 numbers - Find factor pairs - Use factor pairs - Multiply by 10, 100 (4MD-1) - Divide by 10 and 100 (4MD-1) - Find related facts for multiplication and division (4MD-2) - Use informal written methods for multiplication - Multiply a 2-digit number by a 1-digit number - Multiply a 3-digit number by a 1-digit number - Divide a 2-digit number by a 1-digit number (4NF-2) - Divide a 3-digit number by a 1-digit number - Explore correspondence problems (4NF-3) - Learn efficient methods for multiplication	Children will: - Find multiples - Find common multiples - Find factors - Find common factors - Identify prime numbers - Find square numbers - Find cube numbers - Multiply by 10, 100 and 1000 - Divide by 10, 100 and 1000 - Multiples of 10, 100 and 1000 - Multiply up to a 4-digit number by a 1-digit number - Multiply a 2-digit number by a 2-digit number (area model) - Multiply a 2-digit number by a 2-digit number - Multiply a 3-digit number by a 2-digit number - Multiply a 4-digit number by a 2-digit number - Solve problems with multiplication - Understand short division - Divide a 4-digit number by a 1-digit number - Understand dividing with remainders - Learn efficient methods for division - Solve problems with multiplication and division	Children will: - Find common factors - Find common multiples - Use divisibility rules - Find primes to 100 - Find Square and Cube numbers - Multiply up to a 4-digit number by a 2-digit number - Solve problems with multiplication - Use short division - Divide using factors - Learn long division - Learn long division with remainders - Solve problems with division - Solve multi-step problems - Use order of operations - Use mental calculations and estimations - Learn the reasons for known facts

Fractions	Fractions	Fractions	Fractions	Fractions
Children will: - Introduction to parts and whole - Equal and unequal parts - Recognise a half - Find a half - Recognise a quarter - Find a quarter - Recognise a third - Find a third - Find the whole - Unit fractions - Non-unit fractions - Recognise the equivalence of a half and two-quarters - Recognise three-quarters - Find three-quarters - Count in fractions up to a whole	Children will: - Understand the denominators of unit fractions - Compare and order unit fractions - Understand the numerators of a non- unit fractions (3F-1) - To understand a whole - Compare and order non-unit fractions (3F-3) - Identify fractions and scales - Identify fractions on scaled number lines (3F-3) - Count in fractions on number lines - Find equivalent fractions on a number line - Find equivalent fractions using bar models - Add fractions (3F-5) - Subtract fractions (3F-5) - Partition the whole - Find a unit fraction of a set of objects - Find a non-unit fraction of a set of objects - Reason with fractions of amounts (3F-2)	Children will: - Understand what a whole is - Count beyond 1 - Partition a mixed number - Put mixed numbers on number lines - Compare and order mixed numbers (4F-1) - Understand improper fractions - Convert mixed numbers to improper fractions (4F-2) - Convert improper fractions to mixed numbers (4F-2) - Put equivalent fractions on a number line - Recognise equivalent fraction families - Add two or more fractions - Add fractions with mixed numbers (4F-3) - Subtract two fractions - Subtract fractions from whole amounts - Subtract fractions from mixed numbers (4F-3)	Children will: - Find fractions equivalent to a unit fraction - Find fractions equivalent to a non-unit fraction - Recognise equivalent fractions - Convert improper fractions to mixed numbers - Convert mixed numbers to improper fractions - Compare fractions less than 1 - Order fractions less than 1 - Compare and order fractions greater than 1 - Add and subtract fractions with the same denominator - Add fractions within 1 - Add fractions with total greater than 1 - Add fractions to a mixed number - Add two mixed numbers - Subtract fractions - Subtract from a mixed number - Subtract from a mixed number – breaking the whole - Subtract two mixed numbers - Multiply a unit fraction by an integer - Multiply a non-unit fraction by an integer - Multiply a mixed number by an integer - Calculate a fraction of a quantity - Find a fraction of an amount - Find the whole - Use fractions as operators	Children will: - Find equivalent fractions and simplify - Find equivalent fractions on a number line - Compare and order denominators - Compare and order numerators - Add and subtract simple fractions - Add and subtract any two fractions - Add mixed numbers - Subtract mixed numbers - Work out multi-step problems - Multiply fractions by integers - Multiply fractions by fractions - Divide a fraction by an integer - Divide any fraction by an integer - Answer mixed questions with fractions - Find a fraction of an amount - Find a fraction of an amount – finding the whole number - Use fractions as divisions

	Decimals	**Decimals**	**Decimals**	**Decimals**
		Children will: - Explore tenths as fractions - Explore tenths as decimals - Put tenths on a place value chart - Put tenths on a number line - Divide a 1-digit number by 10 - Divide a 2-digit number by 10 - Explore hundredths as fractions - Explore hundredths as decimals - Put hundredths on a place value chart - Divide a 1 or 2-digit number by 100 - Make a whole with tenths - Make a whole with hundredths - Partition decimals - Flexibly partition decimals - Compare decimals - Order decimals - Round to the nearest whole number - Find halves and quarters as decimals	Children will: - Find decimals up to 2 decimal places - Find equivalent fractions and decimals (tenths) - Find equivalent fractions and decimals (hundredths) - Find equivalent fractions and decimals - Change thousandths to fractions - Change thousandth to decimals - Plot thousandths on a place value chart - Order and compare decimal to the same number of decimal places - Order and compare any decimals up to 3 decimal places - Round to the nearest whole number - Round to 1 decimal place - Use known facts and add and subtract decimals within 1 - Find complements to 1 - Add and subtract decimals across 1 - Add decimals with the same number of decimal places - Subtract decimals with the same number of decimal places - Add decimals with a different number of decimal places - Subtract decimals with a different number of decimal places - Efficient strategies of adding and subtracting decimals - Find decimal sequences - Multiply and divide by 10, 100 and 1000 - Multiply and divide decimals with missing values	Children will: - Find place values less than 1 - Find place values for integers and decimals - Round decimals - Add and subtract with decimals - Multiply by 10, 100 and 1000 - Divide by 10, 100 and 1000 - Multiply decimals by integers - Divide decimals by integers - Multiply and divide decimals in context - Find decimal fraction equivalents -

	Percentages	**Percentages**	**Percentages**	**Percentages**
			Children will: - Understand percentages - Convert percentages into fractions - Convert percentages into decimals - Find equivalent fractions, decimals and percentages	Children will: - Understand percentages - Covert fractions to percentages - Find equivalent fractions, decimals and percentages - Order fractions, decimals and percentages - Find percentage of an amount (1-step) - Find percentage of an amount (2-steps) - Find percentages of missing values
	Ratio	**Ratio**	**Ratio**	**Ratio**
				Children will: - Decide to add or multiply - Use ratio language - Know the ratio symbol - Learn ration and fractions - Use scale drawings - Use scale factors - Use similar shapes - Complete ratio problems - Complete proportion problems - Reason with recipes

	Algebra	**Algebra**	**Algebra**	**Algebra**
				Children will: - Use 1-step function machines - Use 2-step function machines - Form expressions - Use substitution - Create formulae - Form equations - Solve 1-step equations - Solve 2-step equations - Find pairs of values - Solve problems with two unknowns

Measure

Year 2	Year 3	Year 4	Year 5	Year 6
	Area	**Area**	**Area**	**Area**
		Children will: - Know what is area - Count squares - Make shapes - Compare areas	Children will: - Find the area of rectangles - Find the area of compound shapes - Estimate the area	Children will: - Find shapes with similar areas - Find a shapes area - Find a triangles area (counting squares) - Area of a right-angle triangle - Find the area of any triangle - Find the area of a parallelogram
Length	**Length**	**Length**	**Length**	**Length**
Children will: - Measure in centimetres - Measure in metres - Compare lengths and heights - Order lengths and heights - Four operations with lengths and heights	Children will: - Measure in metres and centimetres - Measure in millimetres - Measure in centimetres and millimetres - Choosing the appropriate unit of measurement (mm, cm or m) - Find equivalent lengths (cm and m) - Find equivalent lengths (cm and mm) - Compare lengths (mm, cm and m) - Add lengths - Subtract lengths	Children will: - Measure in Kilometres and metres - Find equivalent lengths (km and m)	Children will: - Revise Kilograms and kilometre - Revise millimetres and millilitres - Know metric units - Know imperial units - Calculate units of time - Revise the conversion between Kilometres and metres - Revise the conversion between millimetres and metres - Convert between mm, cm and m - Use all four operations to solve problems involving length - Convert between imperial and metric units of length	Children will: - Choose appropriate metric measurements - Convert metric measurements, weight, length and capacity - Calculate with metric measurements weight, length and capacity - Convert between miles and kilometres Use Imperial measurements

	Perimeter	**Perimeter**	**Perimeter**	**Perimeter**
	Children will: - Know what the perimeter is - Measure perimeters - Calculate perimeters	Children will: - Find the perimeter on a grid - Find the perimeter of a rectangle - Find the perimeter of rectilinear shapes - Find the missing lengths of rectilinear shapes - Calculate the perimeter of rectilinear shapes - Find the perimeter of regular polygons - Find the perimeter of polygons	Children will: - Calculate the perimeter of rectangles - Calculate the perimeter of rectilinear shapes - Calculate the perimeter of polygons	Children will: - Find a shapes perimeter
Mass	**Mass**	**Mass**	**Mass**	**Mass**
Children will: - Compare mass - Measure in grams - Measure in kilograms - Four operations with mass	Children will: - Measure mass in grams - Measure mass in grams and kilograms - Find the equivalent masses from grams to kilograms - Compare mass (g and kg) - Add and subtract mass		Children will: - Revise the difference between grams and kilograms - Convert between imperial and metric measures for mass	Children will: - 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

Capacity/volume	Capacity/volume	Capacity/volume	Capacity/volume	Capacity/volume
Children will: - Compare volume and capacity - Measure in millilitres - Measure in litres - Four operations with volume and capacity	Children will: - Measure capacity and volume in millilitres - Measure capacity and volume in millilitres and litres - Find equivalent capacities and volumes (ml and L) - Compare capacity and volume (ml and L) - Add and subtract capacity and volume (ml and L)		Children will: - Find cubic centimetres - Compare volumes - Estimate volume - Estimate capacity	Children will: - Find the volume (counting cubes) - Find the volume of a cuboid
Money	**Money**	**Money**	**Money**	**Money**
Children will: - Count money - pence - Count money - pounds (notes and coins) - Count money - pounds and pence - Choose notes and coins - Make the same amount - Compare amounts of money - Calculate with money - Make a pound - Find change - Two-step problems	Children will: - Find pounds and pence - Convert between pounds and pence - Add money - Subtract money - Find change	Children will: - Write money using decimals - Convert between pounds and pence - Compare amounts of money - Estimate with money - Calculate with money - Solve problems with money -	Children will: - use all four operations to solve problems involving money – within decimal lessons.	Children will: - Use all four operations to solve problems involving measure.

Time	Time	Time	Time	Time
Children will: - O'clock and half past - Quarter past and quarter to - Tell time past the hour - Tell time to the hour - Tell the time to 5 minutes - Minutes in an hour - Hours in a day	Children will: - Roman numerals to 12 - Tell the time to 5 minutes - Tell the time to the minute - Read time on a digital clock - Use am and pm - Identify years, months and days - Find days and hours - Use hours and minutes to start and end times - Use hours and minutes to understand duration - To use minutes and seconds - Understand units of time - To solve problems with time	Children will: - Understand years, months, weeks and days - Understand hours, minutes and seconds - Convert between analogue and digital times - Convert to the 24-hour clock - Convert from the 24-hour clock	Children will: - Convert between units of time - Calculate with timetables	Children will: - Use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa.

Geometry

Year 2	Year 3	Year 4	Year 5	Year 6
Shape	**Shapes**	**Shapes**	**Shapes**	**Shapes**
Children will: - Recognise 2-D and 3-D shapes - Count sides on 2-D shapes - Count vertices on 2-D shapes - Draw 2-D shapes - Lines of symmetry on shapes - Use lines of symmetry to complete shapes - Sort 2-D shapes - Count faces on 3-D shapes - Count edges on 3-D shapes - Count vertices on 3-D shapes - Sort 3-D shapes - Make patterns with 2-D and 3-D shapes	Children will: - Understand turns and angles (3G-1) - Know right angles (3G-1) - Compare angles - Measure and draw accurately - Draw horizontal and vertical lines - Draw parallel and perpendicular lines (3G-2) - Recognise and describe 2-D shapes - Draw polygons (3G-2) - Recognise and describe 3-D shapes - Make 3D shapes	Children will: - Understand angles as turns - Identify different angles - Compare and order angles - Know different triangles (4G-2) - Know different quadrilaterals - Know different polygons - Find lines of symmetry (4G-3) - Complete a symmetrical figure (4G-3)	Children will: - Understand and use degrees - Classify angles - Estimate angles - Measure angles up to 180 degrees - Draw lines and angles accurately - Calculate angles around a point - Calculate angles on a straight line - Find lengths and angles in shapes - Identify regular and irregular polygons - 3-D shapes properties	Children will: - Measure and classify angles - Calculate angles - Calculate vertically opposite angles - Find angles in a triangle - Find angles inside triangles – special cases - Find angles inside a triangle – missing angles - Find angles in quadrilaterals - Find angles in polygons - Find circles - Draw shapes accurately - Find nets of 3-D shapes
Position and Direction	**Position and Direction**	**Position and Direction**	**Position and Direction**	**Position and Direction**
Children will: - Language of position - Describe movement - Describe turns - Describe movement and turns - Shape patterns with turns		Children will: - Describe position using coordinates - Plot coordinates - Draw 2-D shapes on a grid (4G-1) - Translate on a grid (4G-1) - Describe translation on a grid	Children will: - Read and plot coordinates - Problem solve with coordinates - Translation - Translation with coordinates - Find lines of symmetry - Reflect in horizontal and vertical lines	Children will: - Understand the first quadrant - Read and plot points in four quadrants - Solve problems with coordinates - Draw translations - Draw reflections

Statistics

Year 2	Year 3	Year 4	Year 5	Year 6
Statistics	**Statistics**	**Statistics**	**Statistics**	**Statistics**
Children will: - Make tally charts - Tables - Block diagrams - Draw pictograms (1-1) - Interpret pictograms (1-1) - Draw pictograms (2, 5 and 10) - Interpret pictograms (2, 5 and 10)	Children will: - Interpret pictograms - Draw pictograms - Interpret bar charts - Draw bar charts - Collect and represent data - Read two-way tables	Children will: - Interpret charts - Compare charts finding the sum and the difference - Interpret line graphs - Draw line graphs	Children will: - Draw line graphs - Read and interpret line graphs - Read and interpret tables - Two-way tables - Read and interpret timetables	Children will: - Draw line graphs - Draw dual bar charts - Read and interpret pie charts - Understand pie charts with percentages - Draw pie charts - Find the mean

Key
Red – ready to progress objectives