**Year 3 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 3 and Year 4 it is important that children become increasingly fluent with whole numbers and the 4 operations, including number facts and the concept of place value. Problem solving should also include simple fractions and decimals. By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12-multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word-reading knowledge and their knowledge of spelling.

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

The mathematical strands for year 3 are:

- Number: Number & Place value
- Number: Addition and Subtraction
- Number: Multiplication and Division
- Number: Fractions
- Measures
- Geometry: Properties of Shape, Position & Direction
- Statistics

| Number: Number & Place value | | | |
|---|---|---|---|
| **All children** | **Most children** | **Some children** | **Numicon Ref** |
| Read and write numbers up to 1000 in numerals and in words. | Read and write numbers beyond 1000 in numerals and words. | Read and write numbers beyond 100,000 in numerals and words. | Number & the Number System<br>1.3 • 5.1 • 5.2 • 5.3 • 5.4 • 5.5 • 5.6 • 5.7 • 5.8 • 5.9 • 5.10 • 5.11 • 6.4 |
| Find 10 or 100 more or less than a given number. | Find 1000 more or less than a given number. | Find ½ way between two given numbers. | Pattern and Algebra<br>2.2 • 2.3 • 2.4 •2.5 • 2.6 •3.1 • 3.2 • 3.3 •3.4 • 3.5 • 3.6 • 3.7<br><br>Number & the Number System<br>3.3 • 6.2 • 6.3 • 9.1<br><br>Calculating<br>10.3 • 10.4 • 10.5 • 10.6 |
| Compare and order numbers up to 1000; use <, > and = signs | Order and compare numbers beyond 1000. | Count backwards through zero to include negative numbers. | Number & the Number System<br>1.3 • 2.2 • 2.3 • 2.4 • 2.5 • 3.3 • 5.1 • 5.2 • 5.3 • 5.4 • 5.5 • 5.6 • 5.7 • 5.8 • 5.9 • 5.10 • 5.11 |
| Recognise the place value of each digit in a three-digit number (hundreds, tens, ones), including 0 as a place holder | Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones), including 0 as a place holder | Use larger numbers to at least 1000, applying partitioning related to place value using varied and increasingly complex problems. | Number & the Number System<br>1.3 • 1.4 • 2.2 • 2.3 • 2.4 • 2.5 • 3.5 • 4.1 • 4.3 • 4.4 • 5.4 • 5.5<br><br>Calculating<br>12.1 |
| Continue to reinforce counting to develop fluency in the order and place value of numbers to 1,000.<br><br>Count from 0 in multiples of 2, 5 and 10.<br><br>Recognise odd and even numbers. | Count from 0 in multiples of 11, 9, 3, 4, 8, 100 and 1000. | Count from 0 in multiples of 6, 7, 8, 12, 25 and 50. | Pattern and Algebra<br>2.2 • 2.3 • 2.4 •2.5 • 2.6 •3.1 • 3.2 • 3.3 •3.4 • 3.5 • 3.6 • 3.7<br><br>Number & the Number System<br>3.3 • 6.2 • 6.3 • 9.1<br><br>Calculating<br>10.3 • 10.4 • 10.5 • 10.6 |
| Partition numbers to at least 1,000, considering place value using varied and increasingly complex problems, building on work in year 2 (for example, 146 = 100 + 40 + 6, 146 = 130 +16). | Partition numbers up to 100,000 in different ways. | - | |
| Round 3 digit numbers to the nearest 10/100 | Round any number to the nearest 10, 100 or 1000 | Round 2 or 3 digit numbers in a variety of context e.g. money, measurement | |
| Use Roman Numerals I to XX recognise equivalent English number system. | Use Roman Numerals I to L recognise equivalent English number system. | Use Roman Numerals I to C recognise equivalent English number system. | |
| Problem solving:<br>Identify, represent and estimate numbers using different representations.<br>Solve number problems and practical problems involving these ideas. | | | Pattern and Algebra<br>2.3 • 3.5 • 3.6 • 3.7 |

## Number: Number & Place value

| All children | Most children | Some children | Numicon Ref |
|---|---|---|---|
| | | | Number & the Number System<br>1.1 • 1.3 • 2.1 • 2.2 • 2.3 • 2.4 • 2.5 • 3.1 • 3.3 • 3.4 • 4.4 5.2 • 5.3 • 5.5 • 5.10 • 6.2 • 6.3<br><br>Calculating<br>8.4 • 12.1 |

## Number: Addition & Subtraction

| All children | Most children | Some children | Numicon Ref |
|---|---|---|---|
| Add and subtract numbers mentally, including:<br>• a two-digit number and one digit number<br>• a two-digit number and two-digit number. | Add and subtract numbers mentally, including:<br>• a three-digit number and one digit number<br>• a three-digit number and multiple of 10 or 100 | Add and subtract numbers mentally, including: a three-digit number and any two-digit number. | Calculating<br>Three-digit number and one digit number<br>3.2 • 4.5 • 9.8 • 9.9 • 9.10<br><br>Three-digit number and multiple of 10<br>8.1 • 8.2 • 8.5 • 8.6 • 8.8 • 9.6 • 9.9 • 12.1 • 12.2 • 12.3 • 14.1 •<br><br>Three-digit number and multiple of 100<br>8.1 • 8.4 • 14.2 • 14.3 • 14.4 • 14.5 |
| Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.<br><br>Use their understanding of place value and partitioning. | Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.<br><br>Use their understanding of place value and partitioning. | Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.<br><br>Use their understanding of place value and partitioning. | Calculating<br>13.1 • 13.2 • 13.3 • 13.4 • 13.5 • 13.6 • 14.1 • 14.2 • 14.3 • 14.4 • 14.5 • 14.6 |
| Estimate the answer to a calculation and use inverse operations to check answers | | | Pattern and Algebra<br>1.1 • 1.2 • 1.3 • 1.4 • 1.5 • 4.5 • 4.6<br><br>Calculating<br>2.4 • 2.9 • 2.10 • 4.1 • 7.3 • 8.4 • 9.4 • 9.6 • 14.1 • 14.5 • 14.6 |
| Problem solving:<br>Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.<br>Practise solving varied addition and subtraction questions. For mental calculations with two-digit numbers, the answers could exceed 100. | | | Pattern and Algebra<br>1.5 • 2.1 • 2.2 • 2.3 • 2.5 • 2.6<br><br>Calculating<br>1.6 • 2.9 • 2.10 • 8.3 • 8.4 • 9.12 |

| Number: Multiplication & Division | | | |
|---|---|---|---|
| **All children** | **Most children** | **Some children** | **Numicon Ref** |
| Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. | Recall multiplication and division facts for multiplication tables up to 12 × 12 | Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers | Pattern and Algebra 2.2 • 2.3 • 2.4<br><br>Calculating 6.1 • 6.2 • 6.3 • 6.4 • 6.5 • 7.4 • 10.1 • 10.4 • 10.5 • 11.3 • 15.1 • 15.2 • 15.3 • 15.4 |
| Write and calculate mathematical statements for multiplication and division for known multiplication tables e.g. 8 x 4 = 32. | Multiply and divide two-digit and three-digit numbers by a one-digit number using formal written layout, grid method. | Multiply and divide two-digit and three-digit numbers by a two-digit numbers using formal written layout, compact method. | Calculating 10.3 • 10.4 • 10.5 • 10.6 • 14.2 • 14.3 • 14.4 • 15.5 • 15.6 • 15.7 • 15.8 |
| Connect the 2, 4 and 8 multiplication tables through doubling and halving.<br><br>Develop efficient mental methods, for multiplication and division facts (for example, using 3 × 2 = 6, 6 ÷ 3 = 2 and 2 = 6 ÷ 3) | Use place value, known and derived facts to multiply and divide mentally, including: multiplying together three numbers (e.g. 3x5x6)<br><br>To derive related facts (for example, 30 × 2 = 60, 60 ÷ 3 = 20 and 20 = 60 ÷ 3). | All of the above and with increasingly large positive numbers | |
| Pupils solve simple problems in context, deciding which of the four operations to use and why. | Solve problems, including using inverse operations and missing number. | Solve problems including positive integer scaling problems and correspondence problems in which n objects are connected to m objects<br><br>e.g. On the planet Vuv there are Zios (3 legs) and Zepts (7 legs).  Nico the explorer counted 52 legs.  How many Zios and Zepts could there be? | Calculating 1.6 • 2.9 • 2.10 • 5.4 • 6.2 • 6.3 • 6.4 • 6.5 • 11.1 • 11.2 • 15.1 • 15.2 • 15.3 • 15.4 |

**Year 3 Maths Scope and Sequence**

| | | | |
|---|---|---|---|
| **Number: Fractions** | | | |
| **All children** | **Most children** | **Some children** | **Numicon Ref** |
| Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 | Connect tenths to place value, decimal measures and to division by 10. | Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. | Number & the Number System<br>7.1<br><br>Calculating<br>16.1 |
| Recognise, find and write fractions of a discrete set of objects and numbers: unit fractions and non-unit fractions with small denominators | Recognise and write any number of tenths or hundredths with visual representation and fraction notation. | Recognise fractions in the context of parts of a whole, numbers, measurements, a shape, and unit fractions as a division of a quantity. | Number & the Number System<br>8.1 • 8.2 • 8.3 • 8.4 • 8.5 • 8.6 • 8.7 • 8.8 |
| Recognise and show, using diagrams, equivalent fractions with small denominators | Begin to understand unit and non-unit fractions as numbers on the number line, and deduce relations between them, such as size and equivalence. They should go beyond the [0, 1] interval, including relating this to measure. | Recognise and show, using diagrams, families of common equivalent fractions. | Number & the Number System<br>7.4 • 7.5 • 7.6 • 7.7 • 8.6 • 8.7<br><br>Calculating<br>16.1 • 16.2 • 16.3 • 16.4 • 16.5 • 16.6 |
| Add and subtract fractions with the same denominator within one whole<br>for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$ | Add and subtract fractions with the same denominator through a variety of increasingly complex problems to improve fluency. | Add and subtract fractions, including greater than 1 through a variety of increasingly complex problems to improve fluency. | Number & the Number System<br>7.4 • 7.6 • 7.7 |
| Compare and order unit fractions, and fractions with the same denominators | Pupils understand the relation between unit fractions as operators (fractions of), and division by integers<br>e.g. $\frac{1}{4}$ of 12 is 12 ÷ 4 | Pupils use factors and multiples to recognise equivalent fractions and simplify where appropriate (for example, $\frac{6}{9} = \frac{2}{3}$ or $\frac{1}{4} = \frac{2}{8}$) | Number & the Number System<br>7.3 • 7.4 • 7.5 |
| Problem solving:<br>Solve problems involving all fraction objectives above, including mixed fractions greater than 1 ($1\frac{1}{2}$)<br>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 | | | Number & the Number System<br>7.3 • 8.3 • 8.7<br><br>Calculating<br>16.1 • 16.2 • 16.4 • 16.5 • 16.6 |

| Measurements | | | |
|---|---|---|---|
| **All children** | **Most children** | **Some children** | **Numicon Ref** |
| Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.<br><br>Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight. | Use both analogue and digital 12-hour clocks and record their times. | Read, write and convert time between analogue and digital 12- and 24-hour clocks | Measurement<br>1.1 • 1.2 • 1.3 • 1.4 • 1.5 • 2.1 |
| Know the number of seconds in a minute and the number of days in each month, year and leap year. | Compare durations of events [for example to calculate the time taken by particular events or tasks]. | Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to day and timetables. | Measurement<br>2.2 • 2.3 • 2.4 • 2.5 |
| Become fluent in recognising the value of coins.<br><br>Add and subtract amounts of money to give change, using both £ and p in practical contexts (multiples of 2, 5, 10). | Adding and subtracting amounts, including mixed units, and giving change. Record £ and p separately. | Formal decimal recording of money. Estimate, compare and calculate different measures, including money in pounds and pence (more complex numbers) | Number & the Number System<br>4.3 • 4.4 • 4.5<br><br>Calculating<br>8.1 • 8.2 • 8.3 • 8.6 • 8.7 • 8.8 • 9.1 • 13.5<br><br>Measurement<br>4.2 • 4.3 • 4.4 • 4.5 |
| Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). | Continue to measure using the appropriate tools and units, progressing to using a wider range of measures, including comparing and using mixed units (for example, 1 kg and 200g) and simple equivalents of mixed units (for example, 5m = 500cm). | Convert between different units of measure [for example, kilometre to metre; hour to minute] | Number & the Number System<br>5.4<br><br>Measurement<br>3.1 • 3.3 • 3.5 • 5.1 • 5.2 • 5.3 • 5.4 • 5.5 • 6.1 • 6.2 • 6.3 • 6.4 |
| Measure the perimeter of simple 2-D shapes by counting squares | Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. (3 x 2 = 6 cm sq.) | Find the area of rectilinear shapes by counting squares | Measurement<br>3.2 |
| Problem solving:<br>Solving problems Involving all of the above objectives.<br>Comparison of measures including simple scaling by integers (for example, a given quantity or measure is twice as long or 5 times as high) and this connects to multiplication. | | | |

| Geometry: Properties of Shape | | | |
|---|---|---|---|
| **All children** | **Most children** | **Some children** | **Numicon Ref** |
| Draw 2-D shapes and make 3-D shapes using modelling materials. | Knowledge of the properties of shapes is extended to symmetrical and non-symmetrical polygons and polyhedra. | Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. | Geometry 1.2 • 1.3 • 1.4 |
| Describe the properties of 2-D and 3-D shapes using accurate language | Recognise 3-D shapes in different orientations and describe them. | Classify triangles (for example, isosceles, equilateral, scalene) and quadrilaterals (for example, parallelogram, rhombus, trapezium). | Geometry 1.2 • 1.3 • 1.4 |
| Recognise angles as a property of shape or a description of a turn. Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. | Identify acute and obtuse angles and compare and order angles up to two right angles by size | Use degrees as a measurement of angles – recognise $180^\circ$ is a straight line, $90^\circ$ is a right angle, $360^\circ$ a full circle. | Geometry 2.1 • 2.2 • 2.3 • 2.4 • 3.1 • 3.2 • 3.3 • 3.4 |
| Identify lines of symmetry in 2-D shapes presented in different orientations. | Complete a simple symmetric figure with respect to a specific line of symmetry. | Complete a complex symmetric figure with respect to a specific line of symmetry. | |
| Draw lines and shapes using a straight edge and to a 1mm degree of measure. | Identify horizontal and vertical lines and pairs of perpendicular and parallel lines | Connect decimals and rounding to drawing and measuring straight lines in centimetres, in a variety of contexts. | Geometry 1.1 • 1.2 • 1.3 |

## Geometry: Position and Direction

| All children | Most children | Some children | Numicon Ref |
|---|---|---|---|
| Order and arrange combinations of mathematical objects in patterns and sequences<br><br>Work with patterns of shapes, including those in different orientations | Recognise the rule for the pattern | Determine the nth term based on the pattern | |
| Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line. | Use the concept and language of angles to describe 'turn' by applying rotations, including in practical contexts (for example, pupils themselves moving in turns, giving instructions to other pupils to do so, and programming robots using instructions given in right angles). | Distinguish 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. | Draw a pair of axes in one quadrant, with equal scales and integer labels. Read, write and use pairs of coordinates, for example (2, 5), including using coordinate plotting ICT tools. | Plot specified points and draw sides to complete a given polygon. | |
| Recognise and identify compass points – N, E, S, W | Recognise and identify 8 compass points. | To use co-ordinates and compass points to describe a route on a grid. | |

## Statistics

| All children | Most children | Some children | Numicon Ref |
|---|---|---|---|
| Collect, interpret and present data using tally charts, bar charts, pictograms and tables. | Understand and use simple scales (for example, 2, 5, 10 units per cm) in pictograms and bar charts with increasing accuracy. | Collect, interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. | Geometry<br>1.4 • 2.1 • 3.1 • 3.2 • 3.3 • 3.4<br><br>Measurement<br>2.4 • 3.6 • 4.5 • 5.6 • 5.7 |
| Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. | Interpret data presented in bar charts, pictograms, tables and other graph and answer one-step questions. | Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. | Measurement<br>3.6 • 5.6 |
| 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. | | | |