Year 5 – Maths Long Term Plan

Autumn Term			
Place Value *(4.5 weeks)*	Addition and Subtraction (2 weeks)	Shape *(3 weeks)*	Perimeter & Area *(2 weeks)*

Spring Term		
Multiplication and Division *(4.5 weeks)*	Position and Direction *(2 weeks)*	Fractions *(5.5 weeks)*

Summer Term			
Decimals *(5.5 weeks)*	Percentages *(1.5 weeks)*	Measurement *(3.5 weeks)*	Statistics *(2 weeks)*

Year 5: Place Value

(4.5 Weeks)	
Prior knowledge: • Count from 0 in multiples 10, 100 and 1000 • Find 1, 10, 100 or 1,000 more or less than a given number • Read and write numbers up to 10,000 in numerals and in words • Count backwards through zero to include negative numbers • Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • Order and compare numbers beyond 1000 • Round any number to the nearest 10, 100 or 1000 • 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.	Vocabulary: Number, Count, Order, Compare, Numerals, Digit, Equal to, More than, Less than (Fewer), Represent, Partitioning, Recombine, Ones, Tens, Place Value, Hundreds, Ascending, Descending, Negative numbers, Integers, Round, Roman numerals, Thousands, Ten thousands, One hundred thousands, Powers of
Links to National Curriculum: • Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero • Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • Solve number problems and practical problems that involve all of the above • Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	Assessment Criteria (Ready to Progress): • Recognise the place value of each digit in numbers with up to 2 decimal places and compose and decompose numbers with up to 2 decimal places using standard and nonstandard partitioning. • Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).

Small Steps:		
1) Roman numerals to 100 2) Roman numerals to 1,000 3) Numbers to 10,000 4) Numbers to 100,000 5) Numbers to 1,000,000	6) Read and write numbers to 1,000,000 7) Powers of 10 8) 10/100/1,000/10,000/100,000 more or less 9) Partition numbers to 1,000,000 10) Number line to 1,000,000 11) Compare and order numbers to 1,000,000	12) Round to the nearest 10, 100 or 1,000 13) Round within 100,000 14) Round within 1,000,000 15) Count through zero in 1s 16) Count through zero in multiples 17) Find the difference (negative numbers)

Year 5: Addition and Subtraction *(2 Weeks)*	
Prior Knowledge:	Vocabulary:

• Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • Addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • Add and subtract numbers mentally. • Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. • Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate • Estimate and use inverse operations to check answers to a calculation • Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Add, Plus, Altogether, Total, Take away, Minus, Part, Whole, Digit, Addition, More, Sum, Subtraction, Difference, Equals, Missing number problems, Inverse, Commutative, Column addition, Column subtraction, Exchange, Estimate
Links to National Curriculum: • Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • Add and subtract numbers mentally with increasingly large numbers • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	Assessment Criteria (S): • Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).
Small Steps: 1) Mental strategies 2) Add whole numbers with more than four digits 3) Subtract whole numbers with more than four digits 4) Round to check answers 5) Inverse operations (addition and subtraction) 6) Multi-step addition and subtraction problems	

Year 5: Shape *(3 Weeks)*	
Prior Knowledge:	Vocabulary:

• Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. • Make 3-D shapes using modelling materials and recognise 3-D shapes in different orientations • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. • Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • Identify acute and obtuse angles and compare and order angles up to two right angles by size • 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.	2-D shapes, 3-D shapes, Properties, Faces, Line of symmetry, Symmetrical, Mirror line. Reflection, Edges, Vertices, Vertex, Right angle, Horizontal, Vertical, Perpendicular, Parallel, Angles, Acute, Obtuse, Polygon, Angles on a straight line, Angles around a point, Vertically opposite, Missing angles
Links to National Curriculum: • Identify 3-D shapes, including cubes and other cuboids, from 2-D representations • Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • Draw given angles, and measure them in degrees (°) • Identify: o Angles at a point and one whole turn (total 360°) o Angles at a point on a straight line and ½ a turn (total 180°) o Other multiples of 90° • Use the properties of rectangles to deduce related facts and find missing lengths and angles • Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	Assessment Criteria (Ready to Progress): • Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.
Small Steps: 1) Understand and use degrees 2) Classify angles 3) Estimate angles 4) Measure angles up to 180° 5) Draw lines and angles accurately	6) Calculate angles around a point 7) Calculate angles on a straight line 8) Lengths and angles in shapes 9) Regular and irregular polygons 10) 2-D shapes (revisiting triangles and quadrilaterals) 11) 3-D shapes

Year 5: Perimeter & Area *(2 Weeks)*	
Prior Knowledge:	Vocabulary: Measure, Centimetre cm, Metre m, Perimeter, Rectilinear shape, Area, square centimetres (cm^2), square metres (m^2)

• Measure and calculate the perimeter of simple 2-D shapes and rectilinear figures (including squares) in centimetres and metres • Find the area of rectilinear shapes by counting squares	
Links to National Curriculum: • Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m2) and estimate the area of irregular shapes	Assessment Criteria (Ready to Progress): • Compare areas and calculate the area of rectangles (including squares) using standard units.
Small Steps: 1) Perimeter of rectilinear shapes 2) Find missing lengths in rectilinear shapes 3) Calculate perimeter of rectilinear shapes (missing lengths) 4) Area of rectangles 5) Area of compound shapes 6) Estimate area	

Year 5: Multiplication and Division *(4.5 Weeks)*

Prior Knowledge:

- Recall multiplication and division facts for multiplication tables up to 12 × 12
- Recognise and use factor pairs and commutativity in mental calculations
- Multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- Divide a two-digit number by a 1 digit number beyond multiplication tables.
- 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.

Vocabulary:

Multiplication, Division, Lots of, Groups of, Times, Multiple, Multiply, Divide, Multiplication tables, Commutative, Exchange, Derived facts, Product, Factors, Scale up, Factor pairs, Remainders, Prime numbers, Square numbers, Cube numbers

Links to National Curriculum:

- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers
- Establish whether a number up to 100 is prime and recall prime numbers up to 19
- 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 and divide numbers mentally drawing upon known facts
- 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
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
- Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})
- 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 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.

Assessment Criteria (Ready to Progress):

- Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.
- Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).
- Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.
- Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.
- Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.
- Divide a number with up to 4 digits by a one-digit number using a formal written method and interpret remainders appropriately for the context.

Small Steps:

1) Multiples
2) Common multiples
3) Factors
4) Common factors
5) Prime numbers
6) Square numbers
7) Cube numbers
8) Multiply by 10, 100 and 1,000
9) Divide by 10, 100 and 1,000
10) Multiples of 10, 100 and 1,000
11) Multiply up to a 4-digit number by a 1-digit number
12) Multiply a 2-digit number by a 2-digit number
13) Multiply a 3-digit number by a 2-digit number
14) Multiply a 4-digit number by a 2-digit number
15) Short division
16) Divide a 4-digit number by a 1-digit number
17) Divide with remainders

Year 5: Position and Direction

(2 Weeks)

Prior Knowledge:

Vocabulary:

• Recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn • Describe positions on a 2-D grid as coordinates in the first quadrant • Describe movements between positions as translations of a given unit to the left/right and up/down • Plot specified points and draw sides to complete a given polygon.	Position, Direction, Movement, Whole turn, Quarter turn, Half turn, Three-quarter turn, Left, Right, Up, Down, Clockwise, Anticlockwise, Co-ordinates, Grid, Translation, Translate, Plot, X axis, Y Axis
Links to National Curriculum: • 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.	Assessment Criteria (School Set): • Translate a shape on a coordinate grid
Small Steps: 1) Read and plot coordinates 2) Problem solving with coordinates 3) Translation 4) Translation with coordinates 5) Lines of symmetry 6) Reflection in horizontal and vertical lines	

Year 5: Fractions *(5.5 Weeks)*	
Prior knowledge:	Vocabulary:

• 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 • Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators • Compare and order unit fractions, and fractions with the same denominators • Recognise and show, using diagrams, families of common equivalent fractions • Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. • 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 • Add and subtract fractions with the same denominator	Whole, Equal parts, Equivalent fractions, Unit fractions, Non unit fractions, Numerator, Denominator, Equivalent, Convert, Proper fractions, Improper fractions, Mixed numbers
Links to National Curriculum: • compare and order fractions whose denominators are all multiples of the same number • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • read and write decimal numbers as fractions.	Assessment Criteria (Ready to Progress): • Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. • Find non-unit fractions of quantities. • Find equivalent fractions and understand that they have the same value and the same position in the linear number system.

Small Steps: 1) Find equivalent fractions (fraction wall / number lines) 2) Find equivalent fractions (multiplication/division) 3) Recognise equivalent fractions 4) Convert improper fractions to mixed numbers 5) Convert mixed numbers to improper fractions 6) Compare and order fractions less than 1 7) Compare and order fractions greater than 1 8) Add and subtract fractions with the same denominator 9) Add fractions within 1 10) Add fractions with total greater than 1	11) Add to a mixed number 12) Add two mixed numbers 13) Subtract fractions 14) Subtract from a mixed number 15) Subtract from a mixed number - breaking the whole 16) Subtract two mixed numbers 17) Multiply a fraction by an integer 18) Multiply a mixed number by an integer 19) Fraction of an amount 20) Find the whole

Year 5: Decimals
(5.5 Weeks)

Prior Knowledge:	Vocabulary: One, Tenths, Decimal Equivalent, Equivalence, Convert, Improper fractions Decimals point, Hundredths, thousandths

• 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 • Recognise and write decimal equivalents of any number of tenths or hundredths • Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ • 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 • Round decimals with one decimal place to the nearest whole number • Compare numbers with the same number of decimal places up to two decimal places	
Links to National Curriculum: • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • Round decimals with two decimal places to the nearest whole number and to one decimal place • Read, write, order and compare numbers with up to three decimal places • Solve problems involving number up to three decimal places	Assessment Criteria (Ready to Progress): • Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01. • Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. • Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. • Recall decimal fraction equivalents for , , and , and for multiples of these proper fractions.

Small Steps: 1) Decimals up to 2 decimal places 2) Equivalent fractions and decimals (tenths) 3) Equivalent fractions and decimals (hundredths) 4) Thousandths as fractions 5) Thousandths as decimals 6) Thousandths on a place value chart	7) Order and compare any decimals with up to 3 decimal places 8) Round to the nearest whole number 9) Round to 1 decimal place 10) Add decimals with the same number of decimal places 11) Subtract decimals with the same number of decimal places	12) Add decimals with different numbers of decimal places 13) Subtract decimals with different numbers of decimal places 14) Multiply by 10, 100 and 1,000 15) Divide by 10, 100 and 1,000 16) Multiply and divide decimals - missing values

Year 5: Percentages *(1.5 Weeks)*	
Prior Knowledge:	Vocabulary:

• 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 • Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. • Recognise and write decimal equivalents of any number of tenths or hundredths	One, Tenths, Decimal Equivalent, Equivalence, Convert, Improper fractions Decimals point, Hundredths, Whole, Equal parts, Equivalent fractions, Unit fractions, Non unit fractions, Numerator, Denominator, Equivalent, Convert, Proper fractions, Improper fractions, Mixed numbers Percent % Percentage complements
Links to National Curriculum: • 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, and as a decimal • 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.	Assessment Criteria (School Set): • Write a fraction or decimal as a percentage
Small Steps: 1) Understand percentages 2) Percentages as fractions 3) Percentages as decimals 4) Equivalent fractions, decimals and percentages	

Year 5: Measurement *(3.5 Weeks)*	
Prior Knowledge:	Vocabulary:

• Choose and use appropriate standard units to estimate and measure mass (kg/g) and capacity (litres/ml) to the nearest appropriate unit, using scales and measuring vessels. • Convert between different units of measure [for example, kilometre to metre; hour to minute] • Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	Measure, Centimetre cm, Metre m, Millimetre mm, Weight, Capacity, Mass, Volume, Kilogram kg, Gram g, Litres L, Millimetres ml, Convert, Decimal notation, Scaling, Metric units, Imperial units, Inches, Volume, Cubic centimetres, Pounds, Pints
Links to National Curriculum: • Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] • Solve problems involving converting between units of time • Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	Assessment Criteria (School Set): • Convert between units of measure, including using common decimals and fractions.
Small Steps: 1) Convert units of length (km/m, cm/m, cm/mm) 2) Convert units of mass (g/kg) 3) Convert units of capacity (l/ml) 4) Convert between metric and imperial units 5) Convert between analogue and digital times 6) Convert units of time 7) Calculate with timetables 8) Cubic centimetres 9) Compare volume 10) Estimate volume 11) Estimate capacity 12) Calculate with money	

Year 5: Statistics *(2 Weeks)*	
Prior Knowledge:	Vocabulary:

<table>
<tr><td>• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
• Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</td><td>Pictograms, Tally chart, Represent, Category, Totalling, Comparing, Horizontal, Vertical, Table, Bar chart, Axis, Frequency table, Line graph, Comparison problem, Interpret, Timetable Two - way tables</td></tr>
<tr><td>Links to National Curriculum:

• Solve comparison, sum and difference problems using information presented in a line graph
• Complete, read and interpret information in tables, including timetables.</td><td>Assessment Criteria (School Set):

• Interpret a timetable</td></tr>
<tr><td colspan="2">Small Steps:

1) Read and interpret bar charts and pictograms
2) Draw line graphs
3) Read and interpret line graphs
4) Read and interpret tables
5) Two-way tables
6) Read and interpret timetables</td></tr>
</table>