



Mathematics Medium Term Plan – Year 5

Unit	National Curriculum End of Year 5 Statutory Requirements	Learning Objectives	Small Steps
Autumn Term			
Place Value	<ul style="list-style-type: none"> To be able to read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit To be able to count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 To be able to interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero To be able to round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100000 To solve number problems and practical problems that involve all of the above To be able to read Roman numerals to 1000 (M) and recognise years written in Roman numerals. 	<ol style="list-style-type: none"> To be able to read and write numbers to 1,000 in Roman numerals To be able to read, write and partition numbers to 10,000 To be able to read, write and partition numbers to 100,000 To be able to identify the place value of numbers up to 1,000,000 To be able to read and write number to 1,000,000 To be able to use powers of 10 to understand place value in numbers up to 1,000,000 To be able to find 10/100/1000/10000/100000 more or less than a number within 1,000,000 To be able to partition numbers to 1,000,000 To be able to place numbers to 1,000,000 on a number line To be able to compare and order numbers to 100,000 To be able to compare and order numbers to 1,000,000 To be able to round numbers within 1,000,000 to the nearest 10, 100 or 1,000 To be able to round numbers within 100,000 To be able to round numbers within 1,000,000 	<ol style="list-style-type: none"> Roman numerals to 1,000 Numbers to 10,000 Numbers to 100,000 Numbers to 1,000,000 Read and write numbers to 1,000,000 Powers of 10 10/100/1,000/10,000/100,000 more or less Partition numbers to 1,000,000 Number line to 1,000,000 Compare and order numbers to 100,000 Compare and order numbers to 1,000,000 Round to the nearest 10, 100 or 1,000 Round within 100,000 Round within 1,000,000
Addition and Subtraction	<ul style="list-style-type: none"> To be able to add and subtract whole numbers with more than 4 digits, 	<ol style="list-style-type: none"> To be able to mentally calculate sums and difference To be able to add whole numbers with more than four digits 	<ol style="list-style-type: none"> Mental strategies

	<p>including using formal written methods (columnar addition and subtraction)</p> <ul style="list-style-type: none"> To be able to add and subtract numbers mentally with increasingly large numbers To be able to use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy To be able to solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. 	<ol style="list-style-type: none"> To be able to subtract whole numbers with more than four digits To be able to estimate answers using rounding To be able to use inverse operations to solve addition and subtraction problems To be able to solve multi-step addition and subtraction problems To be able to compare calculations using knowledge of number structure To be able to find missing numbers in addition and subtraction calculations 	<ol style="list-style-type: none"> Add whole numbers with more than four digits Subtract whole numbers with more than four digits Round to check answers Inverse operations (addition and subtraction) Multi-step addition and subtraction problems Compare calculations Find missing numbers
<p>Multiplication and Division</p>	<ul style="list-style-type: none"> To be able to identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers To be able to know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers To be able to establish whether a number up to 100 is prime and recall prime numbers up to 19 To be able to multiply and divide numbers mentally drawing upon known facts To be able to multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 To recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) To be able to solve problems involving multiplication and division including 	<ol style="list-style-type: none"> To be able to find sets of multiples for given numbers To be able to find common multiples of any pair of numbers To be able to find factors of given numbers To be able to find common factors or any pair of numbers To be able to recall and describe prime numbers To be able to recall and describe square numbers To be able to recall and describe cube numbers To be able to multiply whole numbers by 10, 100 and 1,000 To be able to divide whole numbers by 10, 100 and 1,000 To be able to multiply and divide by multiples of 10, 100 and 1,000 	<ol style="list-style-type: none"> Multiples Common multiples Factors Common factors Prime numbers Square numbers Cube numbers Multiply by 10, 100 and 1,000 Divide by 10, 100 and 1,000 Multiples of 10, 100 and 1,000

	using their knowledge of factors and multiples, squares and cubes		
Fractions	<ul style="list-style-type: none"> To be able to compare and order fractions whose denominators are all multiples of the same number To be able to identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths To be able to recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number To be able to add and subtract fractions with the same denominator and denominators that are multiples of the same number 	<ol style="list-style-type: none"> To be able to find fractions equivalent to a unit fraction To be able to find fractions equivalent to a non-unit fraction To be able to recognise equivalent fractions To be able to convert improper fractions to mixed numbers To be able to convert mixed numbers to improper fractions To be able to compare fractions less than 1 To be able to order fractions less than 1 To be able to compare and order fractions greater than 1 To be able to add and subtraction fractions with the same denominator To be able to add fractions within 1 To be able to add fractions with a total greater than 1 To be able to add to a mixed number To be able to add two mixed numbers To be able to subtract fractions To be able to subtract from a mixed number To be able to subtract from a mixed number – breaking the whole To be able to subtract two mixed numbers 	<ol style="list-style-type: none"> 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 subtraction fractions with the same denominator Add fractions within 1 Add fractions with a total greater than 1 Add 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
Spring			
Multiplication and Division	<ul style="list-style-type: none"> To be able to 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 To be able to multiply and divide numbers mentally drawing upon known facts 	<ol style="list-style-type: none"> To be able to multiply up to a 4-digit number by a 1-digit number To be able to multiply a 2-digit number by a 2-digit number using the area model To be able to multiply a 2-digit number by a 2-digit number To be able to multiply a 3-digit number by a 2-digit number To be able to multiply a 4-digit number by a 2-digit number To be able to solve problems with multiplication 	<ol style="list-style-type: none"> 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

	<ul style="list-style-type: none"> To be able to 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 To be able to solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign To be able to solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. 	<ol style="list-style-type: none"> To be able to calculate short division To be able to divide a 4-digit number by a 1-digit number To be able to divide with remainders To be able to divide choosing the most efficient method To be able to solve problems with multiplication and division 	<ol style="list-style-type: none"> Multiply a 4-digit number by a 2-digit number Solve problems with multiplication Short division Divide a 4-digit number by a 1-digit number Divide with remainders Efficient division Solve problems with multiplication and division
Fractions	<ul style="list-style-type: none"> To be able to multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams 	<ol style="list-style-type: none"> To be able to multiply a unit fraction by an integer To be able to multiply a non-unit fraction by an integer To be able to multiply a mixed number by an integer To be able to calculate a fraction of a quantity To be able to find a fraction of an amount To be able to find the whole using a fraction of an amount To be able to use fractions as operators 	<ol style="list-style-type: none"> 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 Fraction of an amount Find the whole Use fractions as operators
Decimals and Percentages	<ul style="list-style-type: none"> To be able to read and write decimal numbers as fractions [for example, $0.71 = 71/100$] To be able to recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents To be able to round decimals with two decimal places to the nearest whole number and to one decimal place 	<ol style="list-style-type: none"> To be able to make, read and write decimal numbers up to 2 decimal places To be able to recognise equivalent fractions and decimals (tenths) To be able to recognise equivalent fractions and decimals (hundredths) To be able to recognise equivalent fractions and decimals focussing on halves, quarters, fifths and tenths To be able to recognise, read and write thousandths as fractions To be able to recognise, read and write thousandths as decimals 	<ol style="list-style-type: none"> Decimals up to 2 decimal places Equivalent fractions and decimals (tenths) Equivalent fractions and decimals (hundredths) Equivalent fractions and decimals Thousandths as fractions Thousandths as decimals Thousandths on a place value chart

	<ul style="list-style-type: none"> To be able to read, write, order and compare numbers with up to three decimal places To be able to solve problems involving number up to three decimal places To be able to 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 To be able to 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. 	<ol style="list-style-type: none"> To be able to recognise and represent thousandths on a place value chart To be able to order and compare decimals with the same number of decimal places To be able to order and compare any decimals with up to 3 decimal places To be able to round decimal numbers to the nearest whole number To be able to round decimal numbers to 1 decimal place To be able to recognise, represent and understand percentages To be able to convert percentages to fractions To be able to compare percentages to decimals To be able to find equivalent fractions, decimals and percentages 	<ol style="list-style-type: none"> Order and compare decimals (same number of decimal places) Order and compare any decimals with up to 3 decimal places Round to the nearest whole number Round to 1 decimal place Understand percentages Percentages as fractions Percentages as decimals Equivalent fractions, decimals and percentages
Perimeter and Area	<ul style="list-style-type: none"> To be able to measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres To be able to calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes 	<ol style="list-style-type: none"> To be able to calculate the perimeter of rectangles To be able to calculate the perimeter of rectilinear shapes To be able to calculate the perimeter of polygons To be able to calculate the area of rectangles To be able to calculate the area of compound shapes To be able to estimate area 	<ol style="list-style-type: none"> Perimeter of rectangles Perimeter of rectilinear shapes Perimeter of polygons Area of rectangles Area of compound shapes Estimate area
Statistics	<ul style="list-style-type: none"> To be able to solve comparison, sum and difference problems using information presented in a line graph To be able to complete, read and interpret information in tables, including timetables 	<ol style="list-style-type: none"> To be able to draw line graphs To be able to read and interpret line graphs To be able to read and interpret tables To be able to read and interpret two-way tables To be able to read and interpret timetables 	<ol style="list-style-type: none"> Draw line graphs Read and interpret line graphs Read and interpret tables Two-way tables Read and interpret timetables
Summer Term			
Shape	<ul style="list-style-type: none"> To be able to identify 3-D shapes, including cubes and other cuboids, from 2-D representations 	<ol style="list-style-type: none"> To be able to understand and use degrees To be able to classify angles To be able to estimate angles 	<ol style="list-style-type: none"> Understand and use degrees Classify angles Estimate angles

	<ul style="list-style-type: none"> To be able to know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles To be able to draw given angles, and measure them in degrees ($^{\circ}$) To be able to identify: <ul style="list-style-type: none"> angles at a point and one whole turn (total 360°) angles at a point on a straight line and $\frac{1}{2}$ turn (total 180°) other multiples of 90° To be able to use the properties of rectangles to deduce related facts and find missing lengths and angles To be able to distinguish between regular and irregular polygons based on reasoning about equal sides and angles. 	<ol style="list-style-type: none"> To be able to measure angles up to 180 degrees To be able to draw lines and angles accurately To be able to calculate angles around a point To be able to calculate angles on a straight line To be able to calculate lengths and angles in shapes To be able to identify describe and draw regular and irregular polygons To be able to describe the properties of 3-D shapes 	<ol style="list-style-type: none"> Measure angles up to 180 degrees Draw lines and angles accurately Calculate angles around a point Calculate angles on a straight line Lengths and angles in shapes Regular and irregular polygons 3-D shapes
Position and Direction	<ul style="list-style-type: none"> To be able to 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. 	<ol style="list-style-type: none"> To be able to read and plot coordinates To be able to solve problems with coordinates To be able to translate shapes on a grid To be able to translate shapes with coordinates To be able to identify and draw lines of symmetry To be able to reflect a shape in horizontal and vertical lines 	<ol style="list-style-type: none"> Read and plot coordinates Problem solving with coordinates Translation Translation with coordinates Lines of symmetry Reflection in horizontal and vertical lines
Decimals	<ul style="list-style-type: none"> To be able to recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents To be able to solve problems involving number up to three decimal places To be able to read, write, order and compare numbers with up to three decimal places 	<ol style="list-style-type: none"> To be able to use known facts to add and subtract decimals within 1 To be able to find complements to 1 for numbers with up to 3 decimal places To be able to add and subtract decimals across 1 To be able to add decimals with the same number of decimal places To be able to subtract decimals with the same number of decimal places 	<ol style="list-style-type: none"> Use known facts to add and subtract decimals within 1 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

	<ul style="list-style-type: none"> To be able to multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 	<ol style="list-style-type: none"> To be able to add decimals with different numbers of decimal places To be able to subtract decimals with different numbers of decimal places To be able to choose efficient strategies for adding and subtracting decimals To be able to identify, read and write decimal sequences To be able to multiply decimals by 10, 100 and 1,000 To be able to divide decimals by 10, 100 and 1,000 To be able to multiply and divide decimals including missing values 	<ol style="list-style-type: none"> Add decimals with different numbers of decimal places Subtract decimals with different numbers of decimal places Efficient strategies for adding and subtracting decimals Decimal sequences Multiply by 10, 100 and 1,000 Divide by 10, 100 and 1,000 Multiply and divide decimals – missing values
Negative Numbers	<ul style="list-style-type: none"> To be able to interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero 	<ol style="list-style-type: none"> To be able to read, write and understand negative numbers To be able to count through zero in 1s To be able to count through zero in multiples To be able to compare and order negative numbers To be able to find the difference between numbers including negative numbers 	<ol style="list-style-type: none"> Understand negative numbers Count through zero in 1s Count through zero in multiples Compare and order negative numbers Find the difference
Converting Units	<ul style="list-style-type: none"> To be able to convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) To be able to understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints To be able to solve problems involving converting between units of time 	<ol style="list-style-type: none"> To be able to describe kilograms and kilometres and their relationship with grams and metres To be able to convert metres and millimetres and litres and millilitres To be able to convert units of length To be able to convert between metric and imperial units To be able to convert units of time To be able to calculate with timetables 	<ol style="list-style-type: none"> Kilograms and kilometres Millimetres and millilitres Convert units of length Convert between metric and imperial units Convert units of time Calculate with timetables
Measurement - Volume	<ul style="list-style-type: none"> To be able to estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water] 	<ol style="list-style-type: none"> To be able to measure volume using cubic centimetres To be able to compare volume To be able to estimate volume To be able to estimate capacity 	<ol style="list-style-type: none"> Cubic centimetres Compare volume Estimate volume Estimate capacity