Wentworth Primary School
Key Skills & Knowledge Progression Map
'Striving for Excellence'
Maths
[For Foundation, see EYFS key skills and progression map]

	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value		Count within 100, forwards and backwards, starting with any number Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =	Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10	Know that 10 tens are equivalent to hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning Reason about the location of any three-digit number in the linear number system, including identifying the previous and next	Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100 Recognise the place value of each digit in four-digit numbers, and compose and decompose four-digit numbers using standard and non-standard partitioning Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and	Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1; 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01; 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01 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 non-standard partitioning Reason about the location of any number with up to 2 decimals places in the	Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000) Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning Reason about the location of any number up to 10 million, including decimal fractions, in

				multiple of 100 and 10 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	100, and rounding to the nearest of each 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	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 Convert between units of measure, including using common decimals and fractions	the linear number system, and round numbers, as appropriate, including in contexts Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts
<u>Addition, Subtraction, Multiplication, Division</u>		Develop fluency in addition and subtraction facts within 10 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers	Secure fluency in addition and subtraction facts within 10, through continued practice Add and subtract across 10 Recognise the subtraction structure of 'difference' and answer questions of the form, "How any more…? Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones	Secure fluency in addition and subtraction facts that bridge 10, through continued practice Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number Apply place-value knowledge to known	Recall multiplication and division facts up to 12 × 12 and recognise products in multiplication tables as multiples of the corresponding number Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context Apply place-value knowledge to known additive and multiplicative number	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	Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number) Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding

		Read, write and interpret equations containing addition (+), subtraction (–) and equals (=) symbols, and relate additive expressions and equations to real-life contexts Develop fluency in addition and subtraction facts within 10 Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers	or only tens to/from a two-digit number Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division)	additive and multiplicative number facts (scaling facts by 10) Calculate complements to 100 Add and subtract up to three-digit numbers using columnar methods Manipulate the additive relationship: understand the inverse relationship between addition and subtraction, and how both relate to the part-part-whole structure; understand and use the commutative property of addition, and understand the related property for subtraction Secure fluency in addition and subtraction facts that bridge 10, through continued practice Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables,	facts (scaling facts by 100) Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication Understand and apply the distributive property of multiplication	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	Solve problems involving ratio relationships Solve problems with 2 unknowns Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding Solve problems involving ratio relationships Solve problems with 2 unknowns

				and recognise products in these multiplication tables as multiples of the corresponding number Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10) Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division			
<u>Fractions, Decimals, Percentages</u>		Recognise, find and name a half as one of two equal parts of an object, shape or quantity Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity Recognise the equivalence of 2/4 and 1/2 write simple fractions for example, 1/2 of 6 = 3	Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts Find unit fractions of quantities using known division facts (multiplication tables fluency) Reason about the location of any fraction within 1 in the linear number system	Reason about the location of mixed numbers in the linear number system Convert mixed numbers to improper fractions and vice versa Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers	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 Recall decimal fraction equivalents for 1/4, 1/2, 1/5 and 1/10 and for multiples of these proper fractions	Recognise when fractions can be simplified, and use common factors to simplify fractions Express fractions in a common denomination and use this to compare fractions that are similar in value Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose

				Add and subtract fractions with the same denominator, within 1			between reasoning and common denomination as a comparison strategy
Ratio and Proportion, Algebra		Solve one-step problems that involve addition and subtraction, using concrete objects and Pictorial representations, and missing number problems such as 7 = • - 9	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	Solve problems, including missing number problems			Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts Solve problems involving the calculation/use of percentages for comparison Solve problems involving similar shapes where the scale factor is known or can be found Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples Use simple formulae Generate and describe linear number sequences Express missing number problems algebraically

							Find pairs of numbers that satisfy an equation with two unknowns Enumerate possibilities of combinations of two variables
Measurement		Compare, describe and solve practical problems for: lengths and heights; mass/weight; capacity and volume; time Measure and begin to record the following: lengths and heights; mass/weight; capacity and Volume; time (hours, minutes, seconds) Recognise and know the value of different denominations of coins and notes Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] Recognise and use	Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels Compare and order lengths, mass, volume/capacity and record the results using >, < and = Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value Find different combinations of coins that equal the same amounts of	Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) Add and subtract amounts of money to give change, using both £ and p in practical contexts Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks 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,	Convert between different units of measure [for example, kilometre to metre; hour to minute] Estimate, compare and calculate different measures Estimate, compare and calculate different measures, including money in pounds and pence Read, write and convert time between analogue and digital 12- and 24-hour clocks Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	Convert between different units of metric measure Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling Use all four operations to solve problems involving measure [for example, money] Solve problems involving converting between units of time Measure and calculate the perimeter of	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 d.p. where appropriate 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 3 d.p. Convert between miles and kilometres 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

		language relating to dates, including days of the week, weeks, months and years Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	money Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change Compare and sequence intervals of time Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times Know the number of minutes in an hour and the number of hours in a day	noon and midnight 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] Measure the perimeter of simple 2-D shapes	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres Find the area of rectilinear shapes by counting squares	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 (m^2) and estimate the area of irregular shapes Estimate volume [for example, using blocks to build cuboids] and capacity [for example, using water]	Recognise that shapes with the same areas can have different perimeters and vice versa Recognise when it is possible to use formulae for area and volume of shapes Calculate the area of parallelograms and triangles Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units
Geometry		Recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles] Recognise and name common 3-D shapes [for example,	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line Identify 2-D shapes on the surface of	Draw 2-D shapes Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes Identify lines of symmetry in 2-D	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles Use the properties of rectangles to deduce related facts and find	Draw 2-D shapes using given dimensions and angles Compare and classify geometric shapes based on their properties and sizes

		cuboids (including cubes), pyramids and spheres] Describe position, direction and movement, including whole, half, quarter and three-quarter turns	3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] Compare and sort common 2-D shapes and everyday objects Recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] Compare and sort common 3-D shapes and everyday objects Order and arrange combinations of mathematical objects in patterns and sequences Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise)	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 horizontal and vertical lines and pairs of perpendicular and parallel lines	shapes presented in different orientations 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 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	missing lengths and angles 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: angles at a point and one whole turn (total 360°); angles at a point on a straight line and ½ a turn (total 180°); other multiples of 90° 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	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius Recognise, describe and build simple 3-D shapes, including making nets Find unknown angles in any triangles, quadrilaterals, and regular polygons Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles describe positions on the full coordinate grid (all four quadrants) Draw and translate simple shapes on the coordinate plane, and reflect them in the axes

Statistics			Interpret and construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and comparing categorical data	Interpret and present data using bar charts, pictograms and tables 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 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	Complete, read and interpret information in tables, including timetables Solve comparison, sum and difference problems using information presented in a line graph	Interpret and construct pie charts and line graphs and use these to solve problems Calculate and interpret the mean as an average
Key Vocabulary		Place Value compare, count on, digit, fewest, greater than, greatest, less than, most, one(s), order, partition, represent, ten(s), ordinal numbers (first, second, third, etc) Addition, Subtraction, Multiplication, Division addition, add together, subtraction/subtract, difference, double, efficient, equal to, fact family, greater,	Place Value exchange, interval, least, multiple, value Addition, Subtraction, Multiplication, Division calculation, exchange, method, multiple, one(s), operation, partition, related facts, ten(s), value, increase, decrease, sum, divide, even, half, lots of, multiply, odd, twice, times, times-table	Place Value ascending, descending, hundred(s), part, whole Addition, Subtraction, Multiplication, Division column, addition, column, subtraction, digit, estimate, exchange, hundred(s), inverse, crossing the 10, crossing the 100, commutative, inverse, multiple, product, remainder, scaling	Place Value place holder, roman, numeral, round, thousands Addition, Subtraction, Multiplication, Division efficient, inverse, round, thousand(s), factor, factor pair, inverse, triple, efficient Fractions, Decimals, Percentages decimal equivalent, decimal place, decimal point, hundredths, improper, fractions,	Place Value hundred, thousand(s), integer, negative number, millions, power of 10, ten thousand Addition, Subtraction, Multiplication, Division accurate, approximate, constant difference, strategy, common multiple, common factor, cube number, prime number, square number	Place Value ten million Addition, Subtraction, Multiplication, Division order of operations, composite number, powers of Fractions, Decimals, Percentages simplify, simplest form, recurring Ratio and Proportion, Algebra additive, enlargement, multiplicative, proportion, ratio, scale

		group, inverse, less, minus, near double, number bond, plus, symbol, systematic, total, array, divide, repeated, addition Fractions, Decimals, Percentages equal parts, half, quarter, whole Measurement amount, coin, note, money, pence (p), pound (£), unitise, value, centimetres, ruler, capacity, container, non-standard, volume, half past, hour, month, o'clock, second, watch, week Geometry properties, far, full turn, half turn, left, near, quarter turn, right, three-quarter turn, direction	Fractions, Decimals, Percentages numerator, denominator, equivalent, unit fraction, non-unit fraction, third, two-quarters, three-quarters Measurement change, cost, worth, metres, celsius, circular scales, degrees, grams, kilograms, litres, millilitres, temperature, thermometer, five-minute intervals, midnight, noon, quarter past, quarter to Geometry edge, line of symmetry, symmetrical, vertex, vertices, anti-clockwise, between, clockwise Statistics block diagram, key, pictogram, table, tally chart, collect, record Pattern decreasing, increasing sequence	Fractions, Decimals, Percentages scale, compare, convert Measurement convert, millimetres, perimeter, analogue clock, 12-hour clock, 24-hour clock, digital clock, duration, leap year, am, pm, roman numerals Geometry acute, obtuse, angle, vertical, horizontal, parallel, perpendicular, polygon, right angle Statistics axis, bar chart, cell, horizontal axis, label, scale, two-way table, title, vertical axis	mixed numbers, proper fractions, round, tenths Measurement decimal, area, kilometres, rectilinear, width Geometry equilateral, regular, irregular, isosceles, parallelogram, quadrilateral, rhombus, scalene, trapezium, coordinates, grid, reflection, translation Statistics data, estimate, line graph	Fractions, Decimals, Percentages common denominator, fractional part, percentage, thousandth Measurement Imperial, inches, metric, volume, cubic, centimetres, imperial, metric, pints, pounds, Geometry adjacent, degrees, reflex angle, quadrant Statistics timetable, variable	factor, scaling, simplest form, algebra, equation, expression, function, input, linear, output, rule, solve, substitution, value Measurement formula, gallon, ounces, tonnes, Geometry base, circumference, diameter, dimensions, interior angles, intersect, net, opposite, angles, radius, x-axis, y-axis Statistics average, dual bar chart, mean, pie chart