

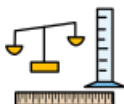
	Pre-school	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value 	Recite numbers past 5. Say one number for each item in order: 1, 2, 3, 4, 5. Show 'finger numbers' up to 5. Join in and sing counting songs and number rhymes. Listen to and enjoy stories that involve counting. Subitise up to 3. Link numerals and amounts in order and match one number name to each item. Estimate and guess how many there might be before counting. Use vocabulary 'more than', 'less than', 'fewer', 'the same as', 'equal' Become familiar with some 2-digit numbers and start to notice patterns within them.	Have a deep understanding of number to 10; including the composition of each number. Subitise (recognise quantities without counting) up to 5. Verbally count beyond 20, recognising the pattern of the counting system. Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. Explore and represent patterns within numbers up to 10, including evens and odds. Estimate and guess how many there might be before counting. Join in and sing counting songs and number rhymes. Listen to and enjoy stories that involve counting. Become familiar with some 2-digit numbers and start to notice patterns within them. Link the number symbol (numeral) with its cardinal number value.	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count numbers to 100 in numerals. Count in multiples of 2, 5 and 10. Identify and represent numbers using objects and pictorial representations. Read and write numbers to 100 in numerals. Read and write numbers from 1-20 in numerals and words. Given a number, identify one more and one less.	Count in steps of 2, 3 and 5 from 0 and count in 10s from any number, forward and backward. Read and write numbers to at least 100 in numerals and words. Identify, represent and estimate numbers using different representations, including the number line. Recognise the place value of each digit in a two-digit number (tens, ones). Compare and order numbers from 0 up to 100; use <, > and = signs. Use place value and number facts to solve problems.	Count from 0 in multiples of 4, 8, 50 and 100. Find 10 or 100 more or less than a given number. Identify, represent and estimate numbers using different representations. Read and write numbers to at least 1000 in numerals and words. Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). Compare and order numbers up to 1000. Solve number problems and practical problems involving these ideas.	Count in multiples of 6, 7, 9, 25 and 1000. Count backwards through 0 to include negative numbers. Identify, represent and estimate numbers using different representations. Read Roman numerals to 100 (I to C) and know that over time the numeral system changed to include the concept of 0 and place value. Find 1000 more or less than a given number. Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, ones). Order and compare numbers beyond 1000. Round any number to the nearest 10, 100 or 1000. Solve number and practical problems involving all of the above and with increasingly large positive numbers.	Count forwards and backwards in steps of powers of 10 for any given number up to 1000000. Count forwards and backwards with positive and negative whole numbers, including through 0. Read, write, order and compare numbers to at least 1000000 and determine the value of each digit. Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. Interpret negative numbers in context. Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000. Solve number and practical problems that involve all of the above.	Read, write, order and compare numbers up to 10000000 and determine the value of each digit. Round any whole number to a required degree of accuracy. Use negative numbers in context and calculate intervals across 0. Solve number and practical problems that involve all of the above.
Addition and Subtraction 		Automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10. Understand the 'one more than/one less than' relationship between consecutive numbers.	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs. Represent and use number bonds and related subtraction facts to 20. Add and subtract one-digit and two-digit numbers to 20, including 0. Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$.	Recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100. Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. Add and subtract numbers using concrete objects, pictorial representations and mentally, including: - A two-digit number and ones - A two-digit number and tens - Two two-digit numbers - Adding three one-digit numbers Solve problems with addition and subtraction: - Using concrete objects and pictorial representations, including those involving numbers, quantities and measures	Estimate the answer to a calculation and use inverse operations to check answers. Add and subtract numbers mentally including: - A three-digit number and ones - A three-digit number and tens - A three-digit number and hundreds Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. Solve problems including missing number problems, using number facts, place value and more complex addition and subtraction.	Estimate and use inverse operations to check answers to calculations. Add and subtract numbers with up to four digits using methods of columnar addition and subtraction where appropriate. Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Use rounding to check answers to calculations and determine, in the context of the problem, levels of accuracy. Add and subtract whole numbers with more than four digits, including using formal written methods (columnar addition and subtractions). Add and subtract numbers mentally with increasingly large numbers. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.	Perform mental calculations, including with mixed operations and large numbers. Use their knowledge of the order of operations to carry out calculations involving the four operations. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

				Applying their knowledge of mental and written methods.				
Multiplication and Division 	Distribute items evenly from a group.	Know some double facts within 10. Explore and represent patterns within numbers up to 10, including double/half facts and how quantities can be distributed equally.	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of a teacher.	Recall and use the multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs. Solve problems involving multiplication and division, using arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	Recall multiplication and division facts for multiplication tables up to 12x12. Use place value, known and derived facts to multiply and divide mentally, including: - multiplying by 0 and 1 - dividing by 1 - multiplying together three numbers. 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. Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit number by one-digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	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 (non-prime) numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19. Recognise and use square numbers and cube numbers, and notation for squared (2) and cubed (3). Multiply numbers up to four-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 four 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. Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. Solve problems involving addition, subtraction, multiplication, and division and a combination of these, including understanding the meaning of the equals sign.	Identify common factors, common multiples and prime numbers. Use estimation to check answers to calculations and determine, in the context of the problem, an appropriate degree of accuracy. Multiply multi-digit numbers up to four digits by a two-digit whole number using the formal written method of long multiplication. Divide numbers up to four digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions or by rounding, as appropriate for the context. Divide numbers up to four digits by a one-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context. Perform mental calculations, including with mixed operations and large numbers. Solve problems involving all four operations. Use their knowledge of the order of operations to carry out calculations involving all four operations.
Fractions 			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 $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity. Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$. Write simple fractions, for example; $\frac{1}{2}$ of 6 = 3.	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, find and write fractions of a discrete set of objects: unit fractions and non-	Count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10. Recognise and show, using diagrams, families of common equivalent fractions. Add and subtract fractions with the same denominator.	Identify, name and 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.	Use common factors to simplify fractions. Use common multiples to express fractions in the same denomination. Compare and order fractions, including fractions >1. Add and subtract fractions with different denominators and

					unit fractions with small denominators. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. Recognise and show, using diagrams, equivalent fractions with small denominators. Compare and order unit fractions and fractions with the same denominators. Add and subtract fractions with the same denominator within one whole. Solve problems that involve all of the above.	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.	Compare and order fractions whose denominators are small multiples of the same number. Add and subtract fractions with the same denominator and denominators that are multiples of the same number. Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	mixed numbers, using the concept of equivalent fractions. Multiply simple pairs of proper fractions, writing the answer in its simplest form. Divide proper fractions by whole numbers.
Fractions, Decimals and Percentages 						Recognise and write decimal equivalents to any number of tenths or hundredths. Recognise and write decimal equivalents to $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$. 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. 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. Solve simple measure and money problems involving fractions and decimals to two decimal places.	Read and write decimal numbers as fractions. 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. Recognise the percent symbol (%) and understand that percent 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 $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$ and $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25.	Identify the value of each digit in numbers given to three decimal places. Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. Multiply one-digit numbers with up to two decimal places by whole numbers. Use written division methods in cases where the answer has up to two decimal places. Solve problems which require answers to be rounded to specified degrees of accuracy. Associate a fraction with division and calculate decimal equivalents for a simple fraction. Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
Ratio and Proportion 								Solve problems involving the relative sizes of two quantities where missing values can be found using integer multiplication and division facts. Solve problems involving the calculation of percentages and the 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.
Algebra 			(Exemplified by the 'missing number' objectives.)	(Exemplified by the 'missing number' objectives.)	(Exemplified by the 'missing number' objectives.)			Use simple formulae Generate and describe linear sequences. Express missing number problems algebraically. Find pairs of numbers that satisfy an equation with two unknowns. Enumerate possibilities of combinations of two variables.

		Nursery	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Geometry 	2D Shapes	Talk about and explore 2D shapes using informal and mathematical language: 'sides', 'corners', 'straight', 'flat', 'round' Extend and create ABAB patterns. Talk about and identify patterns around them.	Know that triangles have one curved side and recognise these shapes on everyday objects. Know that triangles have 3 straight sides and recognise these shapes on everyday objects. Know that squares and rectangles have 4 straight sides and 4 corners and recognise these shapes in everyday objects. Develop more complex patterns such as: ABBABB, AABBAABB,	Recognise and name common 2D shapes.	Identify and describe the properties of 2D shapes, including the number of sides and line symmetry in a vertical line. Identify 2D shapes on the surface of 3D shapes. Compare and sort common 2D shapes and everyday objects.	Draw 2D shapes.	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. Identify lines of symmetry in 2D shapes presented in different orientations.	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 missing lengths angles.	Draw 2D shapes using given dimensions and angles. Compare and classify geometric shapes based on their properties and sizes. Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.
	3D Shapes	Select shapes appropriately for building. Extend and create ABAB patterns.	Compose and decompose shapes so that children recognise a shape can have shapes within it, just as numbers can. Know which shapes stack and which shapes roll and begin to describe why this is. Introduced to the names of 3D shapes and explore the similarities and differences of these.	Recognise and name common 3D shapes.	Recognise and name common 3D shapes. Compare and sort common 3D shapes and everyday objects.	Make 3D shapes using modelling materials. Recognise 3D shapes in different orientations and describe them.		Identify 3D shapes, including cubes and other cuboids, from 2D representations.	Recognise, describe and build simple 3D shapes, including making nets.
	Angles and Lines					Recognise angles as a property of a 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.	Identify acute and obtuse angles and compare and order angles up to two right angles by size. Identify lines of symmetry in 2D shapes presented in different orientations. Complete a simple symmetric figure with respect to a specific line of symmetry.	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. • Angles at a point on a straight line and $\frac{1}{2}$ a turn. • Other multiples of 90°.	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.

	Position and Direction	Describe a familiar route and the order of things seen on the way. Understand position through words alone – for example, “the bag is under the table” – with no pointing.	Select, rotate and manipulate shapes in order to develop spatial reasoning skills. Continue, copy and create repeating patterns. Describe how items are positioned in relation to other items. Represent real places they have visited or places in stories with models, drawings or maps.	Describe position, direction and movement including whole, half, quarter and three-quarter turns.	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).		Describe positions on a 2D 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.	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.	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.
Measurement 	Using Measures	Make comparisons between objects relating to size, length, weight and capacity.	Compare length, mass and capacity using language such as: 'longer/shorter', 'wider/narrower'. Describe length and height using vocabulary such as: 'tall', 'short'.	Compare, describe and solve practical problems for: • lengths and heights (e.g. long/short, double/half) • mass/weight (e.g. heavy/light) • capacity and volume (e.g. full/empty) • time (e.g. quicker/slower) Measure and begin to record the following: • Lengths and heights • Mass/weight • Capacity and volume • Time (hours, minutes and seconds)	Choose and use appropriate standard units to estimate and measure, to the nearest appropriate unit: • Length/height (m/cm) using rulers • Mass (Kg/g) using scales • Temperature (°C) using thermometers • Capacity (l/ml) using measuring vessels Compare and order lengths, mass, volume/capacity and record the results using <, > and =.	Measure, compare, add and subtract: • Lengths (m/cm/mm) • Mass (Kg/g) • Volume/capacity (l/ml)	Convert between different units of measure. Estimate, compare and calculate different measures.	Convert between different units of metric measure. Understand and use approximate equivalences between metric units and common imperial units (inches/pounds/pints). Use all four operations to solve problems involving measure, using decimal notation, including scaling.	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit to a larger unit and vice versa, using decimal notation up to three decimal places. Convert between miles and kilometres.
	Money			Recognise and know the value of different denominations of coins and notes.	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 money. Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.	Add and subtract amounts of money to give change, using both £ and p in practical contexts.	Estimate, compare and calculate different amounts of money in £ and p.	Use all four operations to solve problems involving money.	
	Time	Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then'	Talk about night and day. Order key events in a daily routine using language such as: 'afternoon', 'morning', 'before', 'after', 'today', 'tomorrow'. Begin to measure time in simple ways e.g. number of sleeps until an event. Know the days of the week in order and understand which days we normally come to school and which we normally stay at home on. Order and sequence important times using language such as: 'now', 'then', 'next', 'after'. Know that regular events happen on the same day and use vocabulary to describe this such as: 'yesterday', 'tomorrow', 'today'.	Sequence events in chronological order using language such as: before/after/next/first/today/evening. Recognise and use language relating to dates: • Days of the week • Weeks • Months • Years Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	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.	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12- 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, am/pm, morning, afternoon, 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.	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 and weeks to days.	Solve problems involving converting between units of time.	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.



Starcross Primary School - Maths Progression

Learning for life

	Perimeter, Area and Volume					Measure the perimeter of simple 2D 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.	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 (m ²) and estimate the area of irregular shapes. Estimate volume and capacity.	Recognise that shapes with the same area 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 such as km ³ .
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 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.