Maths

Maths Progression

Knowledge/ Skills

(Declarative, Procedural and Conditional Knowledge)

	Nursery	Reception	Year 1	Year 2
Number and Place Value	**Take part** in finger rhymes with numbers. **React** to changes of amount in a group of up to three items. **Demonstrate** counting-like behaviour. **Count** in everyday contexts. **Recognise** up to 3 objects. **Recite** numbers past 5. **Say** one number for each item in order. **Know** that the last number reached when counting is the total. **Show** 'finger numbers' up to 5. **Link** numerals and amounts up to 5.	**Count** objects, actions and sounds **Link** the numeral with its cardinal number value **Count** beyond ten. **Understand** number to 10, including the composition of each number. **Subitise** (recognise quantities without counting) up to 5. **Count** verbally 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. **Explore** and **represent** patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	**Count** to and across 100, forward and backwards, beginning with 0 or 1 from any number. **Count** in multiples of 2, 5 and 10. **Count, read** and **write** numbers to 100 in numerals. **Say** one more or one less than any number. **Read** and **write** numbers from 1 to 20 in numerals and words. **Identify** and **represent** numbers using objects and pictures.	**Count** in steps of 2, 3 and 5 from 0, and in tens from any number, forward and backward. **Read** and **write** numbers to at least 100 in numerals and in words. **Compare** and **order** numbers from 0 up to 100; using < > = signs. **Recognise** the place value of each digit in a 2-digit number. **Identify, represent** and **estimate** numbers using different representations, including the number line. **Use** place value and number facts to solve problems.
Calculations	**Combine** objects like stacking blocks and cups. **Compare** amounts, saying 'lots', 'more' or 'same'.	**Understand** the 'one more than/one less than' relationship between consecutive numbers **Explore** the composition of numbers to 10.	**Represent** and **use** number bonds and related subtraction facts to 20. **Add** and **subtract** 1-digit and 2-digit numbers to 20,	**Recall** and **use** addition and subtraction facts to 20. **Derive** and **use** related facts up to 100. **Add** and **subtract**

	Compare quantities using language: 'more than', 'fewer than'. **Experiment** with their own symbols and marks as well as numerals. **Solve** real world mathematical problems with numbers up to 5.	**Recall** number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.	including zero. **Read, write** and **interpret** mathematical statements involving addition, subtraction and equals signs. **Solve** one-step problems that involve addition and subtraction, using objects and pictorial representations. **Solve** missing number problems. **Solve** one-step problems involving multiplication and division, by using concrete objects, pictorial representations and arrays.	mentally, including 2-digit number and ones, 2-digit number and tens and two 2-digit numbers **Add** three 1-digit numbers **Add** and **subtract** numbers using concrete objects and pictorial representations. **Recognise** and **use** the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. **Solve** problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures. **Solve** problems with addition and subtraction applying my increasing knowledge of mental and written methods. **Recall** and **use** multiplication and division facts for the 2, 5 and 10x tables, including recognising odd and even

				numbers. **Calculate** and write mathematical statements for multiplication and division. Solve problems involving multiplication and division. **Know** that multiplication and addition are commutative.
Fractions			**Recognise, find** and **name** a half of an object, shape or quantity. **Recognise, find** and **name** a quarter 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. **Write** simple fractions. **Recognise** the equivalence of 2/4 and 1/2.
Measurement	**Compare** sizes, weights etc. using gesture and language. **Compare** objects relating to size, length, weight and capacity.	**Compare** length, weight and capacity.	**Compare, describe** and **solve** practical problems for lengths/ heights, mass/weight, capacity/ volume and time. **Measure** and begin to record lengths/ heights/ mass/weight/capacity/ volume and time. **Recognise** and **know** the value of different coins and notes.	**Compare** and **order** lengths, mass, volume/capacity and record the results using > < and =. **Use** standard units to estimate and measure length/height in m and cm using rulers. **Use** standard units to estimate and measure mass in kg and g using

			Tell the time to the hour and half past the hour. **Draw** hands on a clock face to show these times. **Sequence** events in chronological order using language. **Recognise** and **use** language relating to dates, including days, weeks, months and years	scales. **Use** standard units to estimate and measure temperature in ºC using thermometers. **Use** standard units to estimate and measure capacity in l and ml using measuring vessels. **Read** scales in divisions of one, twos, fives and tens in a practical context. **Recognise** and **use** symbols for £ and p and combine amounts to make a particular value. **Find** different combinations of coins that equal the same amount of money. **Tell** and **write** the time to five minutes and draw the hands on a clock face. **Compare** and **sequence** intervals of time. **Know** the number of minutes in an hour and the number of hours in a day. **Solve** simple problems in a practical context involving addition and subtraction of money including giving

				change.
Geometry – properties of shapes	**Climb** and squeeze selves into different types of spaces. **Build** with a range of resources. **Complete** inset puzzles. **Notice** patterns and arranges things in patterns. **Talk** about and explore 2D and 3D shapes using informal and mathematical language. **Select** shapes appropriately: flat surfaces for building, a triangular prism for a roof etc. **Combine** shapes to make new ones. **Extend** and **create** ABAB patterns – stick, leaf, stick, leaf. **Notice** and **correct** an error in a repeating pattern.	**Select, rotate** and **manipulate** shapes in order to develop spatial reasoning skills. **Compose** and **decompose** shapes so that children recognise a shape can have other shapes within it, just as numbers can. **Continue, copy** and **create** repeating patterns.	**Recognise** and **name** common 2D and 3d shapes.	**Compare** and **sort** common 2D shapes and 3d shapes. **Identify** and **describe** the properties of 2D shapes and 3d shapes. **Identify** 2D shapes on the surface of 3D shapes.
Geometry – position and direction	**Understand** position through words alone. **Describe** a familiar route. **Discuss** routes and locations, using words like 'in front of' and 'behind'		**Describe** position, directions and movement, including 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.
Statistics				**Interpret** and **construct** simple pictograms. **Interpret** and **construct** tally charts.

				Interpret and **construct** block diagrams. **Interpret** and **construct** 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.
Speaking	**Understand** a question or instruction that has two parts **Understand** 'why' questions. **Use** a wider range of vocabulary	**Understand** how to listen carefully and why listening is important **Learn** new vocabulary **Ask** questions to find out more and to check they understand what has been said to them. **Articulate** their ideas and thoughts in well-formed sentences **Use** talk to help work out problems and organise thinking	**Speak** clearly and confidently in front of people in my class. **Ask** questions in order to get more information. **Listen** carefully to the things other people have to say in a group. **Join** in with conversations in a group.	**Ask** question to get more information and clarify meaning. **Talk** in complete sentences. **Decide** when I need to use specific vocabulary. **Take turns** when talking in pairs or a small group.

	Year 3	Year 4	Year 5	Year 6
Number, Place Value, Approximation and Estimation/Rounding	**Count** from 0 in multiples of 4, 8, 50 and 100 **Compare** and **order** numbers up to 1,000. **Read** and **write** numbers to 1,000 in numerals and words. **Find** 10 or 100 more or less than a given number. **Recognise** the place value of each digit in a 3-digit number. **Identify, represent** and **estimate** numbers using different representations. **Solve** number problems and practical problems using above.	**Count** in multiples of 6, 7, 9, 25 and 1,000. **Order** and **compare** numbers beyond 1,000. **Find** 1,000 more or less than a given number. **Recognise** the place value of each digit in a 4-digit number. **Read** Roman numerals to 100 **Identify, represent** and **estimate** numbers using different representations. **Round** any number to the nearest 10, 100 or 1,000. **Count** backwards through zero including negative numbers. **Solve** number and practical problems involving ordering numbers to 1000 and to the nearest 10, 100 or 1000.	**Count** forwards or backwards in steps of powers of 10 up to 1,000,000. **Read, write, order** and **compare** numbers to at least 1,000,000. **Determine** the value of each digit in numbers up to 1,000,000. **Read** Roman numerals to 1,000 **Round** any number up to 1,000,000 to the nearest 10, 100, 1000, 10000 and 100000. **Interpret** negative numbers in context. **Solve** number problems and practical problems with the above.	**Read, write, order** and **compare** numbers up to10,000,000. **Determine** the value of each digit in numbers up to 10,000,000. **Round** any whole number. **Use** negative numbers in context, and calculate intervals across zero. **Solve** number problems and practical problems with the above.
Calculations	**Add** and **subtract** mentally, including a 3-digit number and ones , a 3-digit number and tens and a 3-digit number and hundreds **Add** and **subtract** numbers with three digits, using a formal written methods	**Add** and **subtract** numbers with up to 4-digits using a the formal written **Estimate** and use inverse operations to check answers in a calculation. **Solve** addition and subtraction 2-step problems	**Add** and **subtract** numbers mentally with increasingly large numbers. **Add** and **subtract** whole numbers with more than 4 digits. **Use** rounding to check answers to calculations	**Use** estimation to check answers to calculations with accuracy. **Solve** addition and subtraction multi-step problems in context. **Identify** common factors, common multiples and

	Estimate the answer to a calculation and use inverse operation to check. **Solve** problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. **Recall** and **use** multiplication and division facts for the 3, 4 and 8x tables. **Write** and **calculate** multiplication and division facts using the multiplication tables, including for 2-digit numbers mentally and using a formal method. **Solve** problems involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.	in context. **Recall** multiplication and division facts up to 12x12. **Use** place value, known and derived facts to multiply and divide mentally. **Recognise** and **use** factor pairs and commutativity in mental calculations. **Multiply** 2-digit numbers by a 1-digit number using a formal method. **Solve** problems involving multiplying and adding, including using the distributive law to multiply 2-digit numbers by 1-digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	when solving problems. **Solve** addition and subtraction multi-step problems in context. **Identify** multiples and factors, including finding all factor pairs or a number and common factor pairs of two numbers. **Use** the vocabulary of prime numbers, prime factors and composite 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 the notation. **Multiply** and **divide** numbers mentally drawing on known facts **Multiply** and **divide** whole numbers and those involving decimals by 10, 100 and 1000. **Multiply** numbers up to 4 digits by a 1-digit or 2-digit number, including long multiplication for 2-digit numbers. **Divide** numbers up to 4	prime numbers. **Perform** mental calculations, including with mixed operations and large numbers. **Multiply** multi-digit numbers up to 4 digits by a 2 digit whole number using long multiplication. **Divide** numbers up to 4 digits by a 2 digit whole number using long division and interpret remainders. **Divide** numbers up to 4 digits by a 2 digit number using short division. **Solve** problems involving addition, subtraction, multiplication and division. **Use** my knowledge of the order of operations to carry out calculations involving the four operations.

			digits using short division and interpret remainders. **Solve** problems involving multiplication and division including using knowledge of factors and multiples, squares and cubes. **Solve** problems involving addition, subtraction, multiplication and division and a combination of these. **Solve** problems involving multiplication and division including scaling by simple fractions.	
Fractions, Decimals and Percentages	**Coun**t up and down in tenths. **Recognise** that tenths arise from dividing an object into 10 equal parts. **Recognise**, **find** and **write** factions of a discrete set of objects. **Compare** and order unit fractions and factions with the same denominators. **Add and subtract** fractions with the same denominator within one whole. **Solve** problems involving the above.	**Count** up and down in hundredths. **Recognise** that hundredths arise when dividing an object by a hundred. **Recognise** families of common equivalent fractions. **Add and subtract** factions within the same denominator. **Recognise** and **write** decimal equivalents to 1/4, 1/2 and ¾. **Recognise** and **write** decimal equivalents of any	**Recognise** mixed numbers and improper fractions and convert from one form to the other. **Write** mathematical statements >1 as a mixed number. **Identify**, **name** and **write** equivalent fractions of a given fraction, represented visually, including tenths and hundredths. **Compare** and **order** fractions whose denominators are multiples of the same number.	**Use** common factors to simplify fractions and 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 mixed numbers. **Multiply** simple pairs of proper fractions, writing the answer in the simplest form. **Divide** proper fractions by whole numbers.

		number of tenths or hundredths. **Round** decimals with one decimal place to the nearest whole number. **Compare** numbers with the same number of decimal places up to 2 decimal places. **Find** the effect of dividing a 1-digit or 2-digit number by 10 and 100. **Solve** problems involving increasingly harder factions and fractions to divide quantities. **Solve** simple measure and money problems involving fractions and decimals to 2 decimal places.	**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. **Read** and **write** decimal numbers as fractions. **Recognise** and **use** thousandths. **Round** decimals with 2 decimal places to the nearest whole number and 1 decimal place. **Read, write, order** and **compare** numbers with up to 3 decimal places. **Solve** problems involving numbers up to 3 decimal places. **Recognise** and **understand** the percent symbol. **Write** percentages as a fraction and as a decimal. **Solve** problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5.	**Associate** a fraction with division to calculate decimal fractions equivalents for a simple fraction. **Identify** the value of each digit to 3 decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to 3 decimal places. **Multiply** 1-digit numbers with up to 2 decimal places by whole numbers. **Use** written division methods in cases where the answer has up to 2 decimal places. **Solve** problems which require answers to be rounded accurately. **Recall** and **use** equivalences between simple fractions, decimals and percentages in context.
Measurement	**Compare** lengths using m,	**Compare** different	**Solve** problems involving	**Use, read, write** and

	cm &mm. **Compare** mass using kg & g. **Compare** volume/capacity using l & ml. **Measure** lengths using m, cm & mm. **Measure** mass using kg & g. **Measure** volume/capacity using l & ml. **Add and subtract** lengths using m, cm & mm. **Add and subtract** mass using kg & g. **Add and subtract** volume/capacity using l & ml. **Tell and write** the time from an analogue clock (12 hour) **Tell and write** the time from an analogue clock (24 hour) **Tell and write** the time from an analogue clock (Roman numerals). **Estimate** and read time to the nearest minute. **Record** and **compare** time in terms of seconds, minutes and hours. **Use** the following vocabulary: o'clock, am, pm, morning, afternoon, noon & midnight. **Know** the number of seconds in a minute.	measures, including money in £ and p. **Estimate** different measures, including money in £ and p. **Calculate** different measures. Including money in £ and p. **Read, write and convert** time between analogue and **Read, write and convert** time between analogue and digital 24 hour clocks. **Solve** problems involving converting from hours to minutes, minutes to seconds, years to months and weeks to days. **Convert** between different units of measurements **Measure** and calculate the perimeter of a rectilinear figure in cm and m. **Find** the area of rectilinear shapes by counting squares. **Calculate** different measures	converting between units of time. **Convert** between different units of metric measure. **Understand** and **use** approximate equivalences between metric units and common imperial units. **Measure** and calculate the perimeter of rectangles in cm and m. **Calculate** and **compare** the area of rectangles using standard units (cm^2 and cm^3) to estimate the area of irregular shapes. **Estimate** volume and capacity. **Use** all four operations to solve problems involving money, length, mass, volume and time, using decimal notation, including scaling.	**convert** between standard units, converting measurements up to 3 decimal places. **Convert** between miles and kilometres. **Recognise** that shapes with the same areas can have different perimeters. **Calculate** the area of parallelograms and triangles. **Recognise** when it is possible to use the formulae for the area of shapes. **Calculate**, estimate and compare volume of cubes and cuboids, using standard units. **Recognise** when it is possible to use the formulae for the volume of shapes. **Solve** problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places.

	Know the number of days in each month, year and leap year. **Compare** the duration of events. **Measure** the perimeter of simple 2D shapes. **Add and subtract** amounts of money to give change, using both £ and p in a practical context.			
Geometry – properties of shapes	**Identify** horizontal, vertical lines and pairs of perpendicular and parallel lines. **Draw** 2D shapes. **Make** 3D shapes using modelling materials. **Recognise** and **describe** 3D shapes in different orientations. **Recognise** that angles are a property of shape or a description of a turn.	**Compare** and **classify** geometric shapes based on their properties, sizes, line of symmetry and the angles within them. **Identify** lines of symmetry in 2D shapes presented in different orientations. **Identify compare** and **order** acute and obtuse angles.	**Use** the properties of rectangles to deduce related facts and find missing lengths and angles. **Distinguish** between regular and irregular polygons. **Identify** 3D shapes from 2D representations. **Know** that angles are measured in degrees. **Estimate** and **compare** acute, obtuse and reflex angles. **Identify** angles at a point and one whole turn. **Identify** angles at a point on a straight line and ½ a turn. **Identify** other multiples of 90º.	**Compare** and **classify** geometric shapes based on the properties and sizes. **Describe** simple 3D shapes. **Draw** 2D shapes given dimensions and angles. **Recognise** and build simple 3D shapes, including making nets. **Find** unknown angles in any triangle, quadrilateral or regular polygon. **Recognise** angles where they meet at a point, on a straight line, are vertically opposite and find missing angles. **Illustrate** and **name** parts of circles, including radius, diameter and

			Draw given angles and measure them in degrees.	circumference. **Know** the diameter is twice the radius.
Geometry – position and direction	**Recognise** that angles are a description of a turn. **Identify** right angles. **Recognise** that two right angles make a half-turn & three make a three quarter turn. **Identify** whether angles are greater than or less than a right angle.	**Describe** movements between positions as translations of a given unit to the left/right and up/down. **Describe** positions on a 2D grid as coordinates in the first quadrant. **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.	**Draw** and **translate** simple shapes on the co-ordinate plane and reflect them on the axes. **Describe** positions on the full co-ordinate grid (all four quadrants).
Statistics	**Interpret** and **present** data using bar charts, pictograms and tables. **Solve** one-step and two-step questions using information presented in scaled bar charts, 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.
Speaking	**Sequence** and **communicate** ideas in an organised and logical way, always using complete sentences. **Vary** the amount of detail and	**Ask** questions to clarify or develop my understanding. **Sequence, develop** and **communicate** ideas in an organised and logical way, always using complete	**Develop** my ideas and opinions, providing relevant detail. **Express** my point of view. **Listen** carefully in	**Ask** questions to develop ideas and take account of others' views. **Explain** ideas and opinions giving reasons and

	choice of vocabulary, depending on the purpose and the audience. **Participate** fully in paired and group discussions. **Listen** carefully and make relevant comments.	sentences. **Show** that I know that language choices vary in different contexts. **Justify** an answer by giving evidence.	discussions. I make contributions and ask questions that are responsive to others' ideas and views. **Use** hypothetical language to consider more than one possible outcome or solution.	evidence. **Contribute** to discussions, evaluating others' ideas and respond to them. **Express** possibilities using hypothetical and speculative language.