



Mathematics Progression Grid



Concept	FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value - How does place value underpin the understanding of our number system?	<p>Count objects, actions and sounds.</p> <p>Count beyond ten.</p> <p>Understand the 'one more than/one less than' relationship between consecutive numbers.</p> <p>Explore the composition of numbers to 10.</p> <p>Link the number symbol (numeral) with its cardinal number value.</p> <p>Subitise.</p>	<p>Count: Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.</p> <p>Represent: Count numbers to 100 in numerals; count in multiples of twos, fives and tens.</p> <p>Represent: Identify and represent numbers using objects and pictorial representations.</p> <p>Read and write numbers to 100 in numerals.</p> <p>Read and write numbers from 1 to 20 in numerals and words.</p> <p>Use and Compare: Given a number, identify one more and one less.</p>	<p>Count: Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.</p> <p>Represent: Read and write numbers to at least 100 in numerals and in words.</p> <p>Identify, represent and estimate numbers using different representations, including the number line.</p> <p>Identify, represent and estimate numbers using different representations.</p> <p>Read and write numbers up to 1000 in numerals and in words.</p>	<p>Count: Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.</p> <p>Represent: Identify, represent and estimate numbers using different representations.</p> <p>Read and write numbers up to 1000 in numerals and in words.</p> <p>Use and Compare: Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).</p>	<p>Count: Count in multiples of 6, 7, 9, 25 and 1000.</p> <p>Count backwards through zero to include negative numbers.</p>	<p>Count: Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000</p> <p>Count forwards and backwards with positive and negative whole numbers, including through zero.</p>	<p>Represent: Read, write, (order and compare) numbers up to 10 000 000 and determine the value of each digit.</p> <p>Use and Compare: (Read, write), order and compare numbers up to 10 000 000 and determine the value of each digit.</p> <p>Problems/Rounding: Round any whole number to a required degree of accuracy.</p> <p>Use negative numbers in context, and calculate intervals across zero.</p> <p>Solve number and practical problems that involve all of the above.</p>

			<p>(tens, ones).</p> <p>Compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs.</p> <p>Problems/Rounding: Use place value and number facts to solve problems.</p>		<p>hundreds, tens, and ones).</p> <p>Order and compare numbers beyond 1000.</p> <p>Problems/Rounding: Round any number to the nearest 10, 100 or 1000.</p> <p>Solve number and practical problems that involve all of the above and with increasingly large positive numbers.</p>	<p>Problems/Rounding: Interpret negative numbers in context.</p> <p>Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.</p> <p>Solve number problems and practical problems that involve all of the above.</p>	
<p>Calculation - How can we use the four rules to improve number fluency and solve Mathematical problems?</p>	<p>Automatically recall number bonds for numbers 0-5 and some to 10.</p> <p>Solve real world mathematical problems with numbers up to 5.</p> <p>Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher</p>	<p>Addition and Subtraction: Add and subtract one-digit and two digit numbers to 20, including zero.</p> <p>Algebra: Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \underline{\hspace{1cm}} - 9$.</p>	<p>Addition and Subtraction: Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> ➢ a two-digit number and ones ➢ a two-digit number and tens ➢ two two-digit numbers ➢ adding three one digit numbers <p>Solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> ➢ using concrete objects and pictorial representations, including those 	<p>Addition and Subtraction: Add and subtract numbers mentally, including:</p> <ul style="list-style-type: none"> ➢ a three-digit number and ones ➢ a three-digit number and tens ➢ a three-digit number and hundreds. <p>Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.</p> <p>Solve problems, including missing number problems,</p>	<p>Addition and Subtraction: Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.</p> <p>Solve addition and subtraction two step problems in contexts, deciding which operations and methods to use and why.</p> <p>Multiplication and Division: Recall multiplication and division facts for</p>	<p>Addition and Subtraction: Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).</p> <p>Add and subtract numbers mentally with increasingly large numbers.</p> <p>Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.</p> <p>Multiplication and Division: Identify common factors, common multiples and prime numbers.</p> <p>Use estimation to check answers to</p>	<p>Addition and Subtraction: Perform mental calculations, including with mixed operations and large numbers.</p> <p>Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why.</p> <p>Multiplication and Division: Identify common factors, common multiples and prime numbers.</p> <p>Use estimation to check answers to</p>

		<p>involving numbers, quantities and measures</p> <p>➢ applying their increasing knowledge of mental and written methods</p> <p>Algebra: Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p> <p>Multiplication and Division: Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</p> <p>Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.</p> <p>Calculate mathematical statements for multiplication and</p>	<p>using number facts, place value, and more complex addition and subtraction.</p> <p>Multiplication and Division: Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.</p> <p>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.</p> <p>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.</p> <p>Algebra: Solve problems,</p>	<p>multiplication tables up to 12×12.</p> <p>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.</p> <p>Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.</p> <p>Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</p>	<p>Multiplication and Division: Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</p> <p>Know and use the vocabulary of prime numbers, prime factors and composite (non prime) numbers.</p> <p>Establish whether a number up to 100 is prime and recall prime numbers up to 19.</p> <p>Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).</p> <p>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></p> <p>Multiply and divide numbers mentally drawing upon known facts.</p>	<p>calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p>Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.</p> <p>Divide numbers up to 4 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.</p> <p>Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.</p> <p>Perform mental calculations, including with mixed operations and large numbers</p> <p>Solve problems involving addition, subtraction,</p>
--	--	---	---	--	---	---

		<p>division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.</p> <p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</p>	<p>including missing number problems.</p>		<p>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.</p> <p>Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.</p> <p>Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.</p> <p>Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p> <p>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.</p>	<p>multiplication and division .</p> <p>Use their knowledge of the order of operations to carry out calculations involving the four operations.</p> <p>Algebra: Use simple formulae.</p> <p>Generate and describe linear number sequences.</p> <p>Express missing number problems algebraically.</p> <p>Find pairs of numbers that satisfy an equation with two unknowns.</p> <p>Enumerate possibilities of combinations of two variables.</p>
--	--	--	---	--	---	--

<p>Fractions and Decimals - How can we represent amounts that are less than a whole?</p>	<p>Fractions: Recognise, find and name a half as one of two equal parts of an object, shape or quantity.</p> <p>Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.</p>	<p>Fractions: Recognise, find, name and write fractions $1/3$, $1/4$, $2/4$ and $3/4$ of a length, shape, set of objects or quantity.</p> <p>Recognise the equivalence of $2/4$ and $1/2$.</p> <p>Write simple fractions for example, $1/2$ of $6 = 3$.</p>	<p>Fractions: Count up and down in tenths</p> <p>Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.</p> <p>Recognise, find and write fractions of a discrete set of objects: unit fractions and non unit fractions with small denominators.</p> <p>Recognise and use fractions as numbers: unit fractions and non unit fractions with small denominators.</p> <p>Recognise and show, using diagrams, equivalent fractions with small denominators.</p> <p>Compare and order unit fractions, and fractions with the same denominators.</p> <p>Add and subtract fractions with the same denominator.</p>	<p>Fractions: Count up and down in hundredths</p> <p>Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.</p> <p>Recognise and show, using diagrams, families of common equivalent fractions.</p> <p>Add and subtract fractions with the same denominator.</p> <p>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.</p>	<p>Fractions: Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.</p> <p>Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number, for example, $2/5 + 4/5 = 6/5 = 1\ 1/5$,</p> <p>Compare and order fractions whose denominators are all multiples of the same number.</p> <p>Add and subtract fractions with the same denominator and denominators that are multiples of the same number.</p> <p>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.</p>	<p>Fractions: Use common factors to simplify fractions</p> <p>Use common multiples to express fractions in the same denomination</p> <p>Compare and order fractions, including fractions > 1</p> <p>Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</p> <p>Multiply simple pairs of proper fractions, writing the answer in its simplest form, for example, $1/4 \times 1/2 = 1/8$,</p> <p>Divide proper fractions by whole numbers, for example $1/3 \div 2 = 1/6$.</p> <p>Decimals identify the value of each digit in numbers given to three decimal places</p> <p>Percentages Associate a fraction with division and calculate decimal fraction equivalents, for example, 0.375 and for a simple fraction, for example, $3/8$.</p>
---	---	--	---	---	--	--

			<p>Solve problems that involve all of the above.</p>	<p>write decimal equivalents to $1/4$, $1/2$, $3/4$.</p> <p>Round decimals with one decimal place to the nearest whole number.</p> <p>Compare numbers with the same number of decimal places up to two decimal places.</p> <p>Solve simple measure and money problems involving fractions and decimals to two decimal places.</p>	<p>fractions, for example, $0.71 = 71/100$.</p> <p>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.</p> <p>Round decimals with two decimal places to the nearest whole number and to one decimal place.</p> <p>Read, write, order and compare numbers with up to three decimal places.</p>	<p>Ratio and Proportion</p> <p>Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.</p> <p>Percentage</p> <p>Solve problems involving similar shapes where the scale factor is known or can be found.</p> <p>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p>
--	--	--	--	---	---	---

Measurement - How can we quantify and describe amounts?	<p>Compare length, weight and capacity.</p> <p>Begin to describe a sequence of events, real or fictional, using words, such as 'first', 'then',</p> <p>Measure and begin to record the following:</p> <ul style="list-style-type: none"> ➢ lengths and heights ➢ mass/weight ➢ capacity and volume ➢ time <p>Money: Recognise and know the value of different denominations of coins and notes.</p> <p>Time: Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening].</p> <p>Recognise and use language relating to dates, including days</p>	<p>Understanding Measures: Compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> ➢ lengths and heights ➢ mass/weight ➢ capacity and volume ➢ time <p>Measure and begin to record the following:</p> <ul style="list-style-type: none"> ➢ lengths and heights ➢ mass/weight ➢ capacity and volume ➢ time (hours, minutes, seconds) <p>Money: Recognise and know the value of different denominations of coins and notes.</p> <p>Time: Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening].</p> <p>Recognise and use language relating to dates, including days</p>	<p>Understanding Measures: 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.</p> <p>Compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$</p> <p>Money: Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.</p> <p>Find different combinations of coins that equal the same amounts of money.</p> <p>Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</p>	<p>Understanding Measures: Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).</p> <p>Money: Add and subtract amounts of money to give change, using both £ and p in practical contexts.</p> <p>Time: Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.</p> <p>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, noon and midnight.</p> <p>Know the number of seconds in a minute and the number of days in each month, year and leap year.</p>	<p>Understanding Measures: Convert between different units of measure [for example, kilometre to metre; hour to minute].</p> <p>Money: Estimate, compare and calculate different measures.</p> <p>Time: Read, write and convert time between analogue and digital 12- and 24-hour clocks.</p> <p>Perimeter and Area: Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and</p>	<p>Understanding Measures: Convert between different units of metric measure.</p> <p>Money: Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.</p> <p>Time: Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.</p> <p>Money: Use all four operations to solve problems involving measure [for example, money].</p> <p>Time: Read, write and convert time between analogue and digital 12- and 24-hour clocks.</p> <p>Perimeter, Area and Volume: Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and</p>	<p>Understanding Measures: Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 d.p. where appropriate.</p> <p>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.</p> <p>Convert between miles and kilometres.</p> <p>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.</p> <p>Perimeter, Area and Volume: Recognise that shapes with the same areas can have different perimeters and vice versa.</p>
---	--	--	--	--	---	--	---

		<p>of the week, weeks, months and years.</p> <p>Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.</p>	<p>Time</p> <p>Compare and sequence intervals of time.</p> <p>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.</p> <p>Know the number of minutes in an hour and the number of hours in a day.</p>	<p>Compare durations of events [for example to calculate the time taken by particular events or tasks].</p> <p>Perimeter, Area, Volume:</p> <p>Measure the perimeter of simple 2-D shapes.</p>	<p>metres.</p> <p>Find the area of rectilinear shapes by counting squares</p>	<p>shapes in centimetres and metres.</p> <p>Calculate and compare the area of rectangles (including squares) and include standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes.</p> <p>Estimate volume [for example, using blocks to build cuboids] and capacity [for example, using water].</p>	<p>Recognise when it is possible to use formulae for area and volume of shapes.</p> <p>Calculate the area of parallelograms and triangles.</p> <p>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.</p>
<p>Statistics - How can we collect and use data to form conclusions about the world we live in?</p>	<p>Experiment with their own symbols and marks, as well as numerals.</p>		<p>Represent and Interpret Data:</p> <p>Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.</p> <p>Solve Statistical Problems:</p> <p>Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</p> <p>Ask and answer questions about totalling and</p>	<p>Represent and Interpret Data:</p> <p>Interpret and present data using bar charts, pictograms and tables.</p> <p>Solve Statistical Problems:</p> <p>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.</p>	<p>Represent and Interpret Data:</p> <p>Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.</p> <p>Solve Statistical Problems:</p> <p>Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p>	<p>Represent and Interpret Data:</p> <p>Complete, read and interpret information in tables, including timetables.</p> <p>Solve Statistical Problems:</p> <p>Solve comparison, sum and difference problems using information presented in a line graph.</p>	<p>Represent and Interpret Data:</p> <p>Interpret and construct pie charts and line graphs and use these to solve problems.</p> <p>Solve Statistical Problems:</p> <p>Calculate and interpret the mean as an average.</p>

			comparing categorical data.				
Geometry - What are the relationships between the size, shape and position of objects in the world around us?	<p>Compose and decompose shapes so that children can recognise a shape can have other shapes within it, just as numbers can.</p> <p>Select, rotate and manipulate shapes in order to develop spatial reasoning skills.</p> <p>Draw information from a simple map</p>	<p>2-D shapes: Recognise and name common 2- D shapes [for example, rectangles (including squares), circles and triangles].</p> <p>3-D shapes: Recognise and name common 3- D shapes [for example, cuboids (including cubes), pyramids and spheres].</p> <p>Position and direction: Describe position, direction and movement, including whole, half, quarter and three-quarter turns.</p>	<p>2-D shapes: Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.</p> <p>3-D shapes: Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid].</p> <p>Compare and sort common 2-D shapes and everyday objects.</p> <p>3-D shapes: Recognise and name common 3- D shapes [for example, cuboids (including cubes), pyramids and spheres].</p> <p>Compare and sort common 3-D shapes and everyday objects.</p> <p>Position and direction: Order and arrange combinations of mathematical objects in patterns and sequences.</p> <p>Use mathematical vocabulary to</p>	<p>2-D shapes: Draw 2-D shapes.</p> <p>3-D shapes: Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them.</p> <p>Angles and Lines: Recognise angles as a property of shape or a description of a turn.</p> <p>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.</p> <p>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</p>	<p>2-D shapes: Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.</p> <p>Angles and Lines: Identify lines of symmetry in 2-D shapes presented in different orientations.</p> <p>Angles and Lines: Identify acute and obtuse angles and compare and order angles up to two right angles by size.</p> <p>Angles and Lines: Identify lines of symmetry in 2-D shapes presented in different orientations.</p> <p>Complete a simple symmetric figure with respect to a specific line of symmetry.</p> <p>Position and direction: Describe positions on a 2-D grid as coordinates in the first quadrant.</p>	<p>2-D shapes: Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</p> <p>Use the properties of rectangles to deduce related facts and find missing lengths and angles.</p> <p>3-D shapes: Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.</p> <p>Angles and Lines: Know that angles are measured in degrees; estimate and compare acute, obtuse and reflex angles.</p> <p>Draw given angles, and measure them in degrees.</p> <p>Identify: ➢ angles at a point and one whole turn (total 360°) ➢ angles at a point on a straight line and $1/2$ a turn (total 180°) ➢ other multiples of</p>	<p>2-D shapes: Draw 2-D shapes using given dimensions and angles.</p> <p>Compare and classify geometric shapes based on their properties and sizes.</p> <p>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.</p> <p>3-D shapes: Recognise, describe and build simple 3-D shapes, including making nets.</p> <p>Angles and Lines: Find unknown angles in any triangles, quadrilaterals, and regular polygons.</p> <p>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</p> <p>Position and direction: Describe positions on the full coordinate grid (all four quadrants).</p>

			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 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.	90° Position and direction 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.	Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
--	--	--	--	--	--	--	---

