## Maths 2022-2023 Progression Map

## Place Value

|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Count to and across 100, forwards and backwards, beginning with 0 or 1 , or from any given number. <br> Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens. | Count in steps of 2,3 , and 5 from 0 , and in tens from any number, forward and backward. | Count from 0 in multiples of 4,8 , 50 and 100. <br> Find 10 or 100 more or less than a given number. | Count in multiples of 6 , <br> 7,9, 25 and 1000. <br> Count backwards through zero to include negative number. | Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. <br> Count forwards and backwards with positive and negative whole numbers, including through zero. |  |
| $\begin{aligned} & \text { è } \\ & \stackrel{\rightharpoonup}{5} \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | Identify and represent numbers using objects and pictorial representations. <br> Read and write number to 100 in numerals. <br> Read and write numbers from 1 to 20 in numerals. and words. | Read and write numbers to at least 100 in numerals and in words. <br> Identify, represent and estimate numbers using different representations, including the number line. | Identify, represent and estimate numbers using different representations. <br> Read and write numbers up to 1,000 in numerals. and in words. | Identify, represent and estimate numbers using different representations. <br> Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. | Read and write numbers to at least 1 000000 and determine the value of each digit. <br> Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. | Read and write, numbers up to 10 000000 and determine the value of each digit |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Given a number, identify one more and one less. | Recognise the place value of each digit in a two-digit number (tens, ones). <br> Compare and order numbers from 0 up to 100; use <,> and $=$ signs. | Recognise the place value of each digit in a threedigit number (hundreds, tens, ones). <br> Compare and order numbers up to 1000. | Find 1,000 more or less than a given number. <br> Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). <br> Order and compare numbers beyond 1000. | Order and compare numbers to at least 1000000 and determine the value of each digit. | Order and compare numbers up to 10,000,000 and determine the value of each digit. |
|  |  | Use place value facts and number facts to solve problems. | Solve number problems and practical problems involving these ideas. | Round any number to the nearest 10,100 or 1000. <br> Solve number and practical problems that involve all of the above and with increasingly large positive numbers. | Interpret negative numbers in context. <br> Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000. <br> Solve number problems and practical problems that involve all of the above | Round any whole number to a required degree of accuracy <br> Use negative numbers in context, and calculate intervals across zero. <br> Solve number and practical problems that involve all of the above. |

## Addition \& Subtraction

|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Read, write and interpret mathematical statements involving addition, subtraction and equals signs. <br> Represent and use number bonds and related subtraction facts within 20. | Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 <br> Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot <br> Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. | Estimate the answer to a calculation and use inverse operations to check answers. | Estimate and use inverse operations to check answers to a calculation | Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. |  |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: <br> - a two-digit number and ones <br> - a two-digit number and tens. <br> - two two-digit numbers <br> - adding three onedigit numbers | Add and subtract numbers mentally, including: <br> - a three-digit number and ones <br> - a three-digit number and tens <br> - a three-digit number and hundreds <br> Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. | Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. | Add and subtract whote numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). <br> Add and subtract numbers mentally with increasingly large numbers. | Perform mental calculations, including with mixed operations and large numbers. <br> Use their knowledge of the order of operations to carry out calculations involving the four operations. |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Solve problems with addition and subtraction: <br> - using concrete objects and pictorial representations, including those involving numbers, quantities and measures. <br> - applying their increasing knowledge of mental and written methods. | Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. | Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. | Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. <br> Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. | Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. |

Multiplication \& Division

|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Recall and use multiplication and division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers. <br> Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. | Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. | Recall multiplication and division facts for multiplication tables up to $12 \times 12$. <br> Use place value, known and derived facts to multiply and divide mentally, including: <br> multiplying by 0 and <br> 1; dividing by 1 ; multiplying together three numbers. <br> Recognise and use factor pairs and commutativity in mental calculations. | Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. <br> 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. <br> Recognise and use square numbers and cube numbers, and the notation for squared ( ${ }^{2}$ ) and aubed ( ${ }^{3}$ ) | Identify common factors, common multiples and prime numbers. <br> Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Multiplication\& Division: Calculations |  | Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $x$ ), division ( $\div$ ) and equals (=) signs. | Write and calculate mathematical statements for multiplication and division using the multiplication tables. that they know, including for two-digit numbers times onedigit numbers, using mental and progressing to formal written methods. | Multiply twodigit and threedigit numbers by a one-digit number using formal written layout. | Multiply numbers up to 4 digits by a oneor two-digit number using a formal written method, including: <br> - long multiplication for two-digit numbers <br> - multiply and divide numbers mentally drawing upon known facts <br> - 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 <br> - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 | Multiply multi-digit numbers up to 4 digits by a two-digit whote number using the formal written method of long multiplication. <br> Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whote number remainders, <br> fractions, or by rounding, as appropriate for the context. <br> 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. <br> Perform mental calculations, including with mixed operations and large numbers. |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. | Solve problems, including <br> missing number problems, involving <br> multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. | 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. | Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. <br> Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. | Solve problems involving addition, subtraction, multiplication and division. |
|  |  |  |  |  | Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign. | Use their knowledge of the order of operations to carry out calculations. involving the four operations. |

# Fractions, Decimals \& 

 Percentages|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Recognise, find, name and write fractions 31,4 1,42 and 43 of a length, shape, set of objects or quantity | 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. <br> Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. <br> Recognise and use fractions as numbers: unit fractions and nonunit fractions with small denominators. | Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. | Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths. and hundredths. <br> Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number. |  |
|  |  | Recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$. | Recognise and show, using diagrams, equivalent fractions with small denominators <br> Compare and order unit fractions, and fractions with the same denominators. | Recognise and show, using diagrams, families of common equivalent fractions. | Compare and order fractions whose denominators are all multiples of the same number. | Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. <br> Compare and order fractions, including fractions > 1 |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Write simple fractions for example, $\frac{1}{2}$ of $6=3$ | Add and subtract fractions with the same denominator within one whole (for example, $\frac{5}{7}+\frac{1}{7}=\frac{6}{7}$ ) | Add and subtract fractions with the same denominator. | Add and subtract fractions with the same denominator and denominators that are multiples of the same number. <br> Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. | Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. <br> Multiply simple pairs of proper fractions, writing the answer in its simplest form. <br> Divide proper fractions by whole numbers. |
|  |  |  | 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 |  |  |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| วبیM pum əspuhosay:spuụra |  |  |  | Recognise and write decimal equivalents of any number of tenths or hundredths recognise and write decimal equivalents to $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}$ | Read and write decimal numbers as fractions [for example, $0.71=\frac{71}{100}$ ] <br> Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. | Identify the value of each digit in numbers giving answers up to three decimal places. |
| anochuos:spurra |  |  |  | Round decimals with one decimal place to the nearest whole number. | Round decimals with two decimal places to the nearest whole number and to one decimal place. <br> Read, write, order and compare numbers with up to three decimal places. |  |


|  | Year1 | Year 2 | Year 3 | Year 4 | Year 5 |
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|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| :--- | :---: | :---: | :---: | :---: | :---: |

## Ratio \& Proportion

$\left.\begin{array}{|l|l|l|l|l|l|}\hline \text { Year 1 } & \text { Year 2 } & \text { Year 3 } & \text { Year 4 } & \text { Year 5 } & \begin{array}{c}\text { Year } 6\end{array} \\ \hline & & & \begin{array}{c}\text { Solve problems involving the } \\ \text { relative sizes of two quantities } \\ \text { where missing values can be } \\ \text { found by using integer }\end{array} \\ \text { multiplication and division facts. } \\ \text { Solve problems involving the } \\ \text { calculation of percentages [for } \\ \text { example, of measures, and such } \\ \text { as 15\% of 360] and the use of } \\ \text { percentages for comparison. }\end{array}\right\}$

## Algebra

|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \frac{\vec{e}}{d} \\ & \frac{2}{d} \\ & \frac{0^{\prime}}{\mathbb{1}} \end{aligned}$ | Solve one-step problems that involve addition and subtraction, using concrete 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. |  |  | Use simple formulae <br> Generate and describe linear number sequences express missing number problems algebraically. |
|  | Note - although algebraic notation is not introduced until Y6, algebraic thinking starts much earlier as exemplified by the 'missing number' objectives from Y1/2/3. |  |  |  |  | Find pairs of numbers that satisfy an equation with two unknowns. <br> Enumerate possibilities of combinations of two variables. |

Measure

|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Compare, describe and solve practical problems for: <br> - lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] <br> - mass/weight [for example, heavy/light, heavier than, lighter than] <br> - capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] <br> - time [for example, quicker, slower, earlier, later] <br> - measure and begin to record the following: <br> $>$ lengths and heights <br> > mass/weight <br> > capacity and volume <br> > time (hours, minutes, seconds) | Choose and use appropriate <br> standard units to estimate and measure <br> length/height in any direction ( $\mathrm{m} / \mathrm{cm}$ ); mass (kg/g); <br> temperature $\left({ }^{\circ} \mathrm{C}\right)$; capacity <br> (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels <br> Compare and order lengths, mass, volume/capacity and record the results using >, < and = | Measure, compare, add and subtract: lengths ( $\mathrm{m} / \mathrm{cm} / \mathrm{mm}$ ); mass (kg/g); volume/capacity ( $\mathrm{l} / \mathrm{ml}$ ), | Convert between different units of measure [for example, kilometre to metre; hour to minute]. <br> Estimate, compare and calculate different measures, including money in pounds and pence. | Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). <br> Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pint. <br> Use all four operations to solve problems involving measure [for example, length, mass, volume, money] 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. <br> 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 three decimal places. <br> Convert between miles and kilometres. |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2 0 0 2 2 0 0 0 0 0 0 2 | Recognise and know the value of different denominations of coins and notes. | Recognise and use symbols for pounds <br> $(£)$ and pence (p); combine amounts to make a particular value. <br> Find different combinations of coins that equal the same amounts of money. <br> Sotve 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 measures, including money in pounds and pence. | Use all four operations to solve problems involving measure [for example, money). |  |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]. <br> Recognise and use language relating to dates, including days, of the week, weeks, months and years. <br> 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. <br> 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. <br> 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-hour and 24-hour clocks. <br> 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 know the number of seconds in a minute and the number of days in each month, year and leap year. <br> Compare durations of events [for example to calculate the time taken by particular events or tasks]. | Read, write and convert time between analogue and digital 12- and 24-hour clocks. <br> Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. | Solve problems involving converting between units of time. | 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. |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Measure the perimeter of simple 2-D shapes. | Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. <br> Find the area of rectilinear shapes by counting squares. | Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. <br> Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres ( $\mathrm{cm}^{2}$ ) and square metres ( $m^{2}$ ) and estimate the area of irregular shapes. <br> Estimate volume [for example, using $1 \mathrm{~cm}^{3}$ blocks to build cuboids (including cubes)] and capacity [for example, using water]. | Recognise that shapes with the same areas can have different perimeters and vice versa. <br> Recognise when it is possible to use formulae for area and volume of shapes. <br> Calculate the area of parallelograms and triangles. <br> Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres ( $\mathrm{cm}^{3}$ ) and cubic metres ( $\mathrm{m}^{3}$ ), and extending to other units [for example, $\mathrm{mm3}$ and $\mathrm{km}^{3}$ ]. |

## Geometry

|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Geometry:2-D Shapes | Recognise and name common 2-D shapes, including: <br> - 2-D shapes [for example, rectangles (including squares), circles and triangles. | Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. <br> Identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid). <br> Compare and sort common 2-D shapes and everyday objects. | Draw 2-D shapes. | Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. <br> Identify lines of symmetry in 2-D shapes presented in different orientations. | Use the properties of rectangles to deduce related facts and find missing lengths and angles. <br> Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. | Draw 2-D shapes using given dimensions and angles. <br> Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. <br> Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. |
| Geometry: 3-D Shapes | Recognise and name common 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. | Recognise and name common 3-D shapes (for example, cuboids, (including cubes), pyramids and spheres). <br> Compare and sort common 3-D shapes and everyday objects. | Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. |  | Identify 3-D shapes, including cubes and other cuboids, from 2D representations. | Recognise, describe and build simple 3-D shapes, including making nets. |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Recognise angles as a property of shape or a description of a turn. | Identify acute and obtuse angles and compare and order angles up to two right angles by size. | Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. | Find unknown angles in any triangles, quadrilaterals, and regular polygons. |
|  |  |  | Identify right angles, recognise that two right angles make a | Identify lines of symmetry in 2-D | Draw given angles, and measure them in degrees ( ${ }^{\circ}$ ) | gles |
|  |  |  | half-turn, three make three quarters of a turn and four a complete turn; identify whether | shapes presented in different orientations. | Identify: <br> - angles at a point and one whole turn (total $360^{\circ}$ ) <br> - angles at a point on a | where they meet at a point, are on a straight line, or are vertically opposite, and find missing |
|  |  |  | Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. | symmetry. |  |  |


|  | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Describe position, direction and movement, including whote, half, quarter and three-quarter turns. | Order and arrange combinations of mathematical objects in patterns and sequences. <br> 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 2-D grid as coordinates in the first quadrant. <br> Describe movements between positions as translations of a given unit to the left/right and up/down. <br> 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) <br> Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. |

## Statistics



