## Maths Whole School Progression

f
*For EYFS also see half termly progression document

| Progression | EYFS* | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Number and Place Value |  |  |  |  |  |  |  |
| Counting | Count objects, actions and sounds | Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number |  |  | Count backwards through zero to include negative number | Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero | Use negative numbers in context, and calculate intervals across zero |
|  | Count beyond ten | 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 or backward | Count from 0 in multiples of 4, 8,50 and 100 ; | Count in multiples of $6,7,9,25$ and 1 000 | Count forwards or backwards in steps of powers of 10 for any given number up to 1 000000 |  |
|  | Understand 1 more than, 1 less than relationship between consecutive numbers | Given a number identify one more and one less |  | Find 10 or 100 more or less than a given number | Find 1000 more or less than a given number |  |  |
| Comparing Numbers | Compare numbers (to ten) | Use the language of: equal to, more than, less than (fewer), most, least | Compare and order numbers from 0 up to 100; use <, > and = signs | Compare and order numbers up to 1000 | Order and compare numbers beyond 1000 | Read, write, order and compare numbers to at least 1 000000 and determine the value of each digit (appears also in Reading and Writing Numbers) | Read, write, order and compare numbers up to 10000000 and determine the value of each digit /appears also in Reading and Writing Numbers) |
|  |  |  |  |  | Compare numbers with the same number of decimal places up to two decimal places |  |  |


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


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

## Addition and Subtraction



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


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


|  | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Multiplication and Division |  |  |  |  |  |  |  |
| Multiplication and Division Facts | Distribute quantities evenly | 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 or backward Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers | Count from 0 in multiples of 4, 8, 50 and 100 | Count in multiples of $6,7,9,25$ and 1 000 | Count forwards or backwards in steps of powers of 10 for any given number up to 1 000000 |  |
|  |  |  |  | Recall and use multiplication and division facts for the 3,4 and 8 multiplication tables | Recall <br> multiplication and division facts for multiplication tables up to $12 \times$ 12 |  |  |
| Mental Calculation |  |  |  | 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 (appears also in Written Methods) | 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 | Multiply and divide numbers mentally drawing upon known facts | Perform mental calculations, including with mixed operations and large numbers |
|  |  |  | Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot |  | Recognise and use factor pairs and commutativity in mental calculations | Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 | Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3 /8) |


|  | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Written Calculation |  |  | Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), 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 one-digit numbers, using mental and progressing to formal written methods | Multiply two-digit and three-digit 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 long multiplication for two-digit numbers | Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication |
|  |  |  |  |  |  | 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 | Divide numbers up to 4-digits by a 2-digit whole number using the formal written method of short division where appropriate for the context divide numbers up to 4 digits by a 2-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 |
|  |  |  |  |  |  |  | Use written division methods in cases where the answer has up to two decimal places. |


|  | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Properties of numbers: <br> Multiples, factors, prime, square and cube numbers |  |  |  |  | Recognise and use factor pairs and commutativity in mental calculations (repeated) | Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. | Identify common factors, common multiples and prime numbers <br> Use common factors to simplify fractions; use common multiples to express fractions in the same denomination |
|  |  |  |  |  |  | Know and use the vocabulary of prime numbers, prime factors and composite (non prime) number |  |
|  |  |  |  |  |  | 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 for squared ( 2 ) and cubed (3) | Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm 3) and cubic metres (m3), and extending to other units such as mm 3 and km 3 |
| Order of operations |  |  |  |  |  |  | Use their knowledge of the order of operations to carry out calculations involving the four operations |
| Inverse operations, estimating and checking answers |  |  |  | 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 estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy |


|  | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Problem Solving |  | 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 | 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 missing number problems, involving 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 | 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 |  |
|  |  |  |  |  |  | Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates | Solve problems involving similar shapes where the scale factor is known or can be found |
| FRACTIONS (including DECIMALS AND PERCENTAGES) |  |  |  |  |  |  |  |
| Counting in fractional steps |  |  | Pupils should count in fractions up to 10 , starting from any number and using the $1 / 2$ and $2 / 4$ equivalence on the number line (Non Statutory Guidance) | Count up and down in tenths | Count up and down in hundredths |  |  |
| Recognising Fractions |  | Recognise, find and name a half as one of two equal parts of an object, shape or quantity | Recognise, find, name and write fractions $1 / 3,1 / 4$, $2 / 4$ and $3 / 4$ of a | Recognise, find and write fractions of a discrete set of objects: unit fractions and non- | Recognise that hundredths arise when dividing an object by one hundred and | Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents |  |


| Recognising Fractions |  | Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity | length, shape, set of objects or quantity | unit fractions with small denominators <br> Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one - digit numbers or quantities by 10. Recognise and use fractions as numbers: unit fractions and nonunit fractions with small denominators | dividing tenths by ten |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Comparing Fractions |  |  |  | Compare and order unit fractions, and fractions with the same denominators |  | Compare and order fractions whose denominators are all multiples of the same number | Compare and order fractions, including fractions >1 |
| Comparing Decimals |  |  |  |  | Compare numbers with the same number of decimal places up to two decimal places | Read, write, order and compare numbers with up to three decimal places | Identify the value of each digit in numbers given to three decimal places |
| Rounding, including decimals |  |  |  |  | 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 | Solve problems which require answers to be rounded to specified degrees of accuracy |
| Equivalence, including |  |  | Write simple fractions e.g. $1 / 2$ of $6=3$ and recognise the equivalence of 2 / 4 and $1 / 2$. | Recognise and show, using diagrams, equivalent fractions with small denominators | Recognise and show, using diagrams, families of common equivalent fractions | Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths | Use common factors to simplify fractions; use common multiples to express fractions in the same denomination |
| decimals and percentages |  |  |  |  | Recognise and write decimal equivalents of any number of tenths or hundredths | read and write decimal numbers as fractions (e.g. $0.71=$ 71 / 100 ) <br> Recognise and use thousandths and relate them to tenths, | Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3 / 8 ) |


|  |  |  |  |  |  | hundredths and decimal equivalents |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | $\begin{aligned} & \text { Recognise and } \\ & \text { write decimal } \\ & \text { equivalents to } 1 / 4 \\ & ; 1 / 2 ; 3 / 4 \end{aligned}$ | Recognise the per cent symbol (\%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator 100 as a decimal fraction | Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. |
|  |  |  |  | Add and subtract fractions with the same denominator within one whole (e.g. $5 / 7+1 / 7=$ | Add and subtract fractions with the same denominator | Add and subtract fractions with the same denominator and multiples of the same number | Add and subtract fractions with different denominators and mixed numbers, using the concept of |
| Addition and Subtraction of Fractions |  |  |  | 6/7) |  | Recognise mixed numbers fractions and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. 2 $/ 5+4 / 5=6 / 5=11$ /5) | equivalent |
| Multiplication and Division of Fractions |  |  |  |  |  | Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams | Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. 1 $/ 4 \times 1 / 2=1 / 8)$ |
|  |  |  |  |  |  |  | Multiply one-digit numbers with up to two decimal places by whole numbers |
|  |  |  |  |  |  |  | Divide proper fractions by whole numbers (e.g. $1 / 3 \div 2=1 / 6$ ) |


|  | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Multiplication and division of decimals |  |  |  |  |  |  | Multiply one-digit numbers with up to two decimal places by whole numbers |
|  |  |  |  |  | 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 |  | Multiply and divide numbers by 10,100 and 1000 where the answers are up to three decimal places |
|  |  |  |  |  |  |  | Identify the value of each digit to three decimal places and multiply and divide numbers by 10,100 and 1000 where the answers are up to three decimal places |
|  |  |  |  |  |  |  | Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3 /8) |
|  |  |  |  |  |  |  | Use written division methods in cases where the answer has up to two decimal places |


|  | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Problem Solving |  |  |  | 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 | Solve problems involving numbers up to three decimal places |  |
|  |  |  |  |  | Solve simple measure and money problems involving fractions and decimals to two decimal places. | Solve problems which require knowing percentage and decimal equivalents of $1 / 2,1 / 4,1 / 5$, $2 / 5,4 / 5$ and those with a denominator of a multiple of 10 or 25 |  |

RATIO AND PROPORTION
Statements only appear in Y6 but should be connected to previous learning, particularly fractions and multiplication and division

|  |  |  |  |  |  |  | solve problems Involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  | solve problems involving the calculation of percentages [for example, of measures, and such as $15 \%$ of 360] and the use of percentages for comparison |


|  | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Ratio and Proportion |  |  |  |  |  |  | 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 |
| Measurement |  |  |  |  |  |  |  |
| Comparing and Estimating | Compare length, weight and capacity | Compare, describe and solve practical problems for: * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. heavy/light, heavier than, lighter than] * capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter] * time [e.g. quicker, slower, earlier, later] | Compare and order lengths, mass, volume/capacity and record the results using >, < and $=$ |  | Estimate, compare and calculate different measures, including money in pounds and pence | Calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm 2 ) and square metres (m 2 ) and estimate the area of irregular shapes | Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm 3) and cubic metres (m3), and extending to other units such as mm 3 and km 3 . |
|  |  |  |  |  |  | Estimate volume (e.g. using 1 cm 3 blocks to build cubes and cuboids) and capacity (e.g. using water) |  |
|  |  | Sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] | Compare and sequence intervals of time | Compare durations of events, for example to calculate the time taken by particular events or tasks |  |  |  |


| Comparing and Estimating |  |  |  | Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Measuring and Calculating |  | Measure and begin to record the following: <br> * lengths and heights * mass/weight <br> * capacity and volume <br> * time (hours, minutes, seconds) | Choose and use appropriate standard units to estimate and measure length/height in any direction ( $\mathrm{m} / \mathrm{cm}$ ); mass (kg/g); temperature $\left({ }^{\circ} \mathrm{C}\right)$; capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels | Measure, <br> compare, add <br> and subtract: <br> lengths <br> ( $\mathrm{m} / \mathrm{cm} / \mathrm{mm}$ ); <br> mass (kg/g); <br> volume/capacity <br> ( $1 / \mathrm{ml}$ ) | Estimate, compare and calculate different measures, including money in pounds and pence |  |  |
|  |  |  |  | Measure the perimeter of simple 2-D shapes | Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres |  |  |


| Measuring and Calculating |  | 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 <br> Find different combinations of coins that equal the same amounts of money <br> 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 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | Find the area of rectilinear shapes by counting squares | Calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm 2 ) and square metres (m 2 ) and estimate the area of irregular shapes recognise and use square numbers and cube numbers, and the notation for squared ( 2 ) and cubed (3) | Calculate the area of parallelograms and triangles <br> 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 [e.g. mm 3 and km 3 ]. |


|  |  |  |  |  |  |  | Recognise when it is possible to use formulae for area and volume of shapes |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. | 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 | Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24hour clocks | Read, write and convert time between analogue and digital 12 and 24 hour clocks |  |  |
| Telling the Time |  | Recognise and use language relating to dates, including days of the week, weeks, months and years | Know the number of minutes in an hour and the number of hours in a day. | Estimate and <br> read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight |  |  |  |
| Telling the Time |  |  |  |  | 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 |  |





|  |  |  |  | angles are greater than or less than a right angle |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Identify horizontal and vertical lines and pairs of perpendicular and parallel line |  |  |  |
| GEOMETRY - POSITION AND DIRECTION |  |  |  |  |  |  |  |
| Position, Direction and Movement | Select, rotate and manipulate shapes to develop spatial reasoning skills | Describe position, direction and movement including half, quarter and three quarter turns | 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 a right angle for quarter, half and three quarter turns (clockwise and anti-clockwise) |  | Describe positions on a 2d grid as coordinates in the first quadrant <br> Describe movements between positions as translations of a given movement to the left / right and up / down | 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 axis |
|  |  |  |  |  | Plot specified points and draw sides to complete a given polygon |  |  |


|  | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Pattern | Continue and copy a repeating pattern |  | Order and arrange combinations of mathematical objects in patterns and sequences |  |  |  |  |
| STATISTICS |  |  |  |  |  |  |  |
| Interpreting, constructing and presenting data |  |  | Interpret and construct simple pictograms, tally charts, block diagrams and simple tables | Interpret and present data using bar charts, pictograms and tables | Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs | Complete, read and interpret information in tables, including timetables | Interpret and construct pie charts and line graphs and use these to solve problems |
|  |  |  | 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 |  |  |  |  |
| Solving problems |  |  |  | Solve one-step and 2 step questions using information presented in scaled bar charts, pictograms and tables | Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs | Solve comparison, sum and difference problems using information presented in a line graph | Calculate and interpret the mean as average |


|  | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ALGEBRA |  |  |  |  |  |  |  |
| Equations |  | Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations and missing number problems | Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems | Solve problems including missing number problems using number facts, place value and more complex addition and subtraction Solve problems including missing number problems involving multiplication and division, including integer scaling |  | Use the properties of rectangles to deduce related facts and find missing lengths and angles | Express missing number problems algebraically |
|  |  |  | Recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100 |  |  |  | Find pairs of numbers that satisfy number sentences involving two unknowns |
|  |  | Represent and use number bonds and related subtraction facts within 20 |  |  |  |  | Enumerate all possibilities of combinations of two variables |
| Formulae |  |  |  |  | Perimeter can be expressed algebraically as $2(a+b)$ where a and $b$ are the dimensions in the same unit |  | Use simple formulae <br> Recognise when it is possible to use formulae for area and volume of shapes |


|  | EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sequences | Explore and represent patterns in numbers up to 10, including even and odd and doubles facts | Sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening | Compare and sequence intervals of time <br> Order and arrange combinations of mathematical objects in patterns |  |  |  | Generate and describe linear number sequences |

