# Mathematics whole school planning and progression

| Wk number | Term | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rec | Autumn | Baseline assessments | | | | | | Numbers to 3 | | | Numbers to 5 | | |
| | Spring | Numbers to 5 | | | Numbers to 8 | | | Numbers to 10 | | | Consolidation | | |
| | Summer | Numbers to 20 | | | Sequencing | | | Patterns | | | Positional language | | |
| Y1 | Autumn | Place value | | | | Addition and subtraction | | | | | Shape | Place value within 20 | |
| | Spring | Addition and subtraction | | | | Place value | | | Length and height | | Weight and volume | | Consolidation |
| | Summer | Consolidation | Multiplication and division | | | Fractions | | Position & direction | Place value | | Money | Time | |
| Y2 | Autumn | Place value | | | | Addition and subtraction | | | | | Shape | | |
| | Spring | Money | | | Multiplication and division | | | | Length and height | | Mass, capacity and temperature | | |
| | Summer | Statistics | | | Fractions | | | Position and direction | Consolidation | | Time | | |
| Y3 | Autumn | Place value | | | Addition and Subtraction | | | | | Multiplication and division | | | |
| | Spring | Multiplication and division | | | Length and perimeter | | | Fractions | | | Mass and capacity | | |
| | Summer | Fractions | | Money | | Time | | | Shape | | Statistics | | |
| Y4 | Autumn | Place value | | | | Addition and subtraction | | | Area | Multiplication and division A | | | Consolidation |
| | Spring | Multiplication and division B | | | Length and perimeter | | | Fractions | | | Decimals A | | |
| | Summer | Decimals B | | Money | | Time | | Consolidation | Shape | | Statistics | Position and direction | |
| Y5 | Autumn | Place value | | | Addition and subtraction | | | Multiplication and division | | | Fractions (A) | | |
| | Spring | Multiplication and division | | | Fractions (B) | | | Decimals and percentages | | Perimeter and area | | Statistics | |
| | Summer | Shape | | | Position and direction | | | Decimals | | Negative numbers | Converting units | | Volume |
| Y6 | Autumn | Place value | | | Addition, subtraction, multiplication and division | | | | Fractions | | | | Converting units |
| | Spring | Ratio | | Algebra | | Decimals | | Fractions, decimals and percentages | | Area, perimeter and volume | | Statistics | |
| | Summer | Shape | | | Position & direction | Consolidation of learning/projects | | | | | | | |

Mathematics Progression

| NUMBER & PLACE VALUE | | | | | | |
|---|---|---|---|---|---|---|
| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| **COUNTING** | | | | | | |
| Know number names, initially to 5, then 10, and extending to larger numbers, including crossing boundaries across 10<br><br>Say number words in sequence<br><br>Count things in irregular arrangements<br><br>Know the last number counted gives the total so far<br><br>Subitise up to 5 | Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number<br><br>Count numbers to 100 in numerals<br><br>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><br>Find 10 or 100 more or less than a given number | Count in multiples of 6, 7, 9, 25 and 1000<br><br>Count backwards through zero to include negative numbers | Count forwards or backwards in steps of powers of 10 for any given number up to 1000 000<br><br>Count forwards and backwards with positive and negative whole numbers, including through zero | Use negative numbers in context, and calculate intervals across zero |
| **REPRESENTING NUMBERS** | | | | | | |
| Can select correct numeral for 1-20 objects<br><br>Record using marks they can explain | Identify and represent numbers using objects and pictorial representations<br><br>Read and write numbers to at least 100 in numerals<br><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><br>Identify, represent and estimate numbers using different representations including the number line | Identify, represent and estimate numbers using different representations<br><br>Read and write numbers up to 1000 in numerals and in words | Identify, represent and estimate numbers using different representations<br><br>Read Roman numerals to 100 and know that over time, the numeral system changed to include the concept of zero and place value | Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit<br><br>Read Roman numerals to 1000 and recognize years written in Roman numerals | Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit |
| **PLACE VALUE & COMPARING NUMBERS** | | | | | | |
| Use the language of more than/less than<br><br>Identify equal amounts of things<br><br>Compare quantities up to 10 in different contexts | Use the language of: equal to, more than, less than (fewer), most, least<br><br>Given a number, identify one more and one less | Recognise the place value of each digit in a 2-digit number (tens, ones)<br><br>Compare and order numbers from 0 up to 100; use <, > and = signs | Recognise the place value of each digit in a 3-digit number (hundreds, tens, ones)<br><br>Compare and order numbers up to 1000 | Recognise the place value of each digit in a 4-digit number (thousands, hundreds, tens and ones)<br><br>Order and compare numbers beyond 1000<br><br>Find 1000 more or less than a given number<br><br>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 units, tenths and hundredths | Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit<br><br>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents | Read, write, order and compare numbers up to 10 000000 and determine the value of each digit<br><br>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 |

Mathematics Progression

| PROBLEM SOLVING & ROUNDING | | | | | | |
|---|---|---|---|---|---|---|
| Solve simple problems and questions involving a deep understanding of numbers to 10 | Solve place value problems by using concrete objects, arrays and pictorial representations | Use place value 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><br>Round decimals with one decimal place to the nearest whole number<br><br>Solve number and practical problems that involve all of the above and with increasingly large positive numbers | Round any number up to 1000 000 to the nearest 10, 100, 1 000, 10 000 and 100000<br><br>Round decimals with two decimal places to the nearest whole number and to one decimal place<br><br>Solve number problems and practical problems that involve all of the above | Round any whole number to a required degree of accuracy<br><br>Solve number and practical problems which require answers to be rounded to specified degrees of accuracy |

Mathematics Progression

# ADDITION AND SUBTRACTION

| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| **FACTUAL FLUENCY, REPRESENTING & USING ADDITION AND SUBTRACTION** | | | | | | |
| Find one more than a number from one to ten<br><br>Understand addition as an increase and subtraction as a decrease<br><br>Automatically recall number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts | Represent and use number bonds and related subtraction facts within 20<br><br>Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs | Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100<br><br>Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot<br><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 the inverse operations to check answers | Estimate and use inverse operations to check answers to a calculation | Use rounding to check answers to calculation and determine, in the context of a problem, levels of accuracy | Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. |
| **CALCULATIONS** | | | | | | |
| Use quantities and objects to add and subtract two single-digit numbers by counting on or back to find the answer | Add and subtract one-digit and two-digit numbers to 20, including zero | 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 one-digit 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><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 whole numbers with more than 4 digits, including using formal written methods<br><br>Add and subtract numbers mentally with increasingly large numbers | Perform mental calculations, including with mixed operations and large numbers<br><br>Use their knowledge of the order of operations to carry out calculations involving the four operations |

Mathematics Progression

| PROBLEM SOLVING | | | | | | |
|---|---|---|---|---|---|---|
| Solve problems involving doubling and halving | Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ - 9 | 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 | Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why<br><br>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign |

Mathematics Progression

# MULTIPLICATION & DIVISION

| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| **FACTUAL FLUENCY, REPRESENTING & USING MULTI-PLICATION & DIVISION** | | | | | | |
| Recall double facts and how quantities can be distributed equally | Count in multiples of twos, fives and tens<br><br>Recall multiplication and division facts for 2 and 10 and use them to solve simple problems, demonstrating and understanding of the commutativity as necessary | Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers<br><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 × 12<br><br>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<br><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><br>Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers<br><br>Establiosh whether a number up to 100 is prime and recall prime numbers up to 19<br><br>Recognise and use square numbers and cube numbers, and the notation for squared and cubed | Identify common factors, common multiples and prime numbers<br><br>Use estimation to check answers to calculations and determine, in the context of a problem an appropriate degree of accuracy |
| **CALCULATIONS** | | | | | | |
| Make equal groups using concrete materials | Make equal groups using repeated addition and begin to link with multiplication and division | Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) 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 (appears also in Mental 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 one- or two-digit number using a formal written method, including long multiplication for two-digit numbers<br><br>Multiply and divide numbers up to 4 digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context | Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication<br><br>Divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context<br><br>Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and |

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| | | | | | Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 | interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context<br><br>Perform mental calculations, including with mixed operations and large numbers |
| SOLVE PROBLEMS | | | | | | |
| Explore how quantities can be distributed equally | Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of 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<br><br>Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign<br><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<br><br>Use their knowledge of the order of operations to carry out calculation involving the four operations |

# FRACTIONS, DECIMALS AND PERCENTAGES

| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| **RECOGNISING FRACTIONS, DECIMALS & PERCENTAGES** | | | | | | |
| Recognise 'fair share' and 'not fair share' of an item (e.g. a banana) or a set of objects (e.g. some grapes). | Recognise, find and name a half as one of two equal parts of an object, shape or quantity<br><br>Recognise, find and name a quarter as one of four 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 length, shape, set of objects or quantity | Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators<br><br>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><br>Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators | Count up and down in hundredths<br><br>Recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten<br><br>Recognise and write decimal equivalents of any number of tenths or hundredths<br><br>Recognise and write decimal equivalents to $^1/_4$; $^1/_2$; $^3/_4$ | Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths<br><br>Recognise mixed numbers and improper fraction and convert from one form to another and write mathematical statements more than 1 as a mixed number<br><br>Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents<br><br>Read and write decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$)<br><br>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 | Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^3/_8$)<br><br>Use common factors to simplify fractions; use common multiples to express fractions in the same denomination |
| **COMPARING FRACTIONS, DECIMALS AND PERCENTAGES** | | | | | | |
| Can describe a part and a whole (e.g. a piece of carrot is a part, a small carrot is a whole) | Use comparative language to explore halves and quarters | Recognise the equivalence of 2/4 and 1/2 | Compare and order unit fractions, and fractions with the same denominators<br><br>Recognise and show, using diagrams, equivalent fractions with small denominators | Recognise and show, using diagrams, families of common equivalent fractions | Compare and order fractions whose denominators are all multiples of the same number<br><br>Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths | Compare and order fractions, including fractions >1<br><br>Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. |

| CALCULATIONS & PROBLEM SOLVING | | | | | | |
|---|---|---|---|---|---|---|
| n/a | n/a | Write simple fractions e.g. ½ of 6 = 3 | Add and subtract fractions with the same denominator within one whole (e.g. $^{5}/_{7} + {}^{1}/_{7} = {}^{6}/_{7}$)<br><br>Solve problems that involve all of the above | Add and subtract fractions with the same denominator<br><br>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 | Add and subtract fractions with the same denominator and multiples of the same number<br><br>Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams<br><br>Solve problems involving numbers up to three decimal places<br><br>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. | Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions<br><br>Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $^{1}/_{4} \times {}^{1}/_{2} = {}^{1}/_{8}$)<br><br>Multiply one-digit numbers with up to two decimal places by whole numbers<br><br>Divide proper fractions by whole numbers (e.g. $^{1}/_{3} \div 2 = {}^{1}/_{6}$) |

# MEASUREMENT

| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| **USING MEASURES** | | | | | | |
| Recognise specific attributes of length, capacity and weight<br><br>Directly compare lengths, capacities and weights<br><br>Begin to estimate and predict using spatial awareness and measurement<br><br>Begin to use units e.g. cm cubes, metre sticks, height charts, digital scales<br><br>Measure different properties of an item e.g. the length or weight of a parcel | Compare, describe and solve practical problems for:<br>* lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half]<br>* mass/weight [e.g. heavy/light, heavier than, lighter than]<br>* capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter]<br>* time [e.g. quicker, slower, earlier, later]<br><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 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<br><br>Compare and order lengths, mass, volume/capacity and record the results using >, < and = | Measure, compare, add and subtract: **lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml) | Estimate, compare and calculate different measures, including money in pounds and pence<br><br>Convert between different units of measure (e.g. kilometre to metre; hour to minute) | Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints<br><br>Use all four operations to solve problems involving measure (e.g. **length, mass, volume, money**) using decimal notation including scaling. | 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><br>Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate<br><br>Convert between miles and kilometres |
| **PERIMETER, AREA & VOLUME** | | | | | | |
| n/a | n/a | n/a | Measure the **perimeter** of simple 2-D shapes | Measure and calculate the **perimeter** of a rectilinear figure (including squares) in centimetres and metres<br><br>Find the area of rectilinear shapes by counting squares | Measure and calculate the **perimeter** of composite rectilinear shapes in centimetres and metres<br><br>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<br><br>Estimate volume (e.g. using 1 $cm^3$ blocks to build cubes and cuboids) and capacity (e.g. using water) | Recognise that shapes with the same areas can have different **perimeters** and vice versa<br><br>Calculate the area of parallelograms and triangles<br><br>Calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed ($cm^3$) and cubic metres ($m^3$), and extending to other units such as $mm^3$ and $km^3$.<br><br>solve problems involving the calculation and conversion of **units of measure**, using decimal notation up to three decimal places where appropriate |

Mathematics Progression

| TIME | | | | | | |
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| Begin to use time to sequence events | Recognise and use language relating to dates, including days of the week, weeks, months and years<br><br>Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times<br><br>Sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] | 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><br>Know the number of minutes in an hour and the number of hours in a day<br><br>Compare and sequence intervals of time | Know the number of seconds in a minute and the number of days in each month, year and leap year<br><br>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><br>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<br><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><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 | Solve problems involving converting between units of time |
| **MONEY** | | | | | | |
| Recognise differences between coins | 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><br>Find different combinations of coins that equal the same amounts of money<br><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 | Estimate, compare and calculate different measures, including money in pounds and pence | Use all four operations to solve problems involving measure | Use all four operations to solve complex problems involving measure |

Mathematics Progression

| GEOMETRY | | | | | | |
|---|---|---|---|---|---|---|
| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| **2D SHAPES & 3D SHAPES** | | | | | | |
| Describe properties of shape using comparisons<br><br>Show awareness of properties of shape i.e. choosing a cylinder to represent wheels because they can roll<br><br>Develop shape awareness through construction, selecting shapes to fulfil a particular need<br><br>Identify similarities between shapes | Recognise and name common 2-D and 3-D shapes, including:<br>* 2-D shapes [e.g. rectangles (including squares), circles and triangles]<br>* 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres]. | Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line<br><br>Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces<br><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><br>Compare and sort common 2-D and 3-D shapes and everyday objects | Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them | Identify lines of symmetry in 2-D shapes presented in different orientations<br><br>Complete a simple symmetric figure with respect to a specific line of symmetry<br><br>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes | Identify 3-D shapes, including cubes and other cuboids, from 2-D representations | Recognise, describe and build simple 3-D shapes, including making nets<br><br>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius<br><br>Recognise, describe and build simple 3-D shapes, including making nets |
| **ANGLES & LINES** | | | | | | |
| n/a | n/a | n/a | Recognise angles as a property of shape or a description of a turn<br><br>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<br><br>Identify horizontal and vertical lines and pairs of perpendicular and parallel lines | Identify acute and obtuse angles and compare and order angles up to two right angles by size | Draw given angles, and measure them in degrees ( $^{\circ}$ )<br><br>Use the properties of rectangles to deduce related facts and find missing lengths and angles<br><br>Distinguish between regular and irregular polygons based on reasoning about equal sides and angles<br><br>Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles<br><br>Identify:<br>* angles at a point and one whole turn (total 360o)<br>* angles at a point on a straight line and ½ a turn (total 180o)<br>other multiples of 90o | Draw 2-D shapes using given dimensions and angles<br><br>Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons<br><br>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |

| POSITION, DIRECTION AND MOVEMENT | | | | | | |
|---|---|---|---|---|---|---|
| Develop spatial awareness and recognize shapes when flipped or rotated | 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 right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)<br><br>Order and arrange combinations of mathematical objects in patterns and sequences | n/a | Describe positions on a 2-D grid as coordinates in the first quadrant<br><br>Describe movements between positions as translations of a given unit to the left/right and up/down<br><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><br>Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. |

| STATISTICS | | | | | | |
|---|---|---|---|---|---|---|
| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| **INTERPRETING, CONSTRUCTING AND PRESENTING DATA** | | | | | | |
| n/a | n/a | Interpret and construct simple pictograms, tally charts, block diagrams and simple tables<br><br>Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity<br><br>Ask and answer questions about totalling and comparing categorical data | 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 |
| **SOLVING PROBLEMS** | | | | | | |
| n/a | n/a | n/a | Solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and 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 an average |

# ALGEBRA

| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| | **EQUATIONS** | | | | | |
| n/a | Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and **missing number problems** such as 7 = □ - 9<br><br>Represent and use number bonds and related subtraction facts within 20 | Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and **missing number** problems.<br><br>Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 | Solve problems, including **missing number** problems, using number facts, place value, and more complex addition and subtraction.<br><br>Solve problems, including **missing number** problems, involving multiplication and division, including integer scaling | n/a | Use the properties of rectangles to deduce related facts and find **missing lengths and angles** | Express missing number problems algebraically<br><br>Find pairs of numbers that satisfy number sentences involving two unknowns enumerate all possibilities of combinations of two variables |

# RATIO AND PROPORTION

**Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division**

| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|
| | | | | | Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts<br><br>Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison<br><br>Solve problems involving similar shapes where the scale factor is known or can be found<br><br>Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. |