

Mathematics: Year 6 programme of study

Number and place value	Addition, subtraction, multiplication and division	Fractions (including decimals and percentages)	Ratio and proportion	Algebra	Measurement	Geometry: properties of shapes	Geometry: position, and direction	Statistics
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ round any whole number to a required degree of accuracy ▪ round decimals to the nearest decimal place ▪ use negative numbers in context, and calculate intervals across zero ▪ solve number and practical problems that involve all of the above 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ multiply multi-digit numbers up to 3 digits by a two-digit whole number using an efficient method ▪ divide numbers up to 3 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 ▪ divide numbers up to 3 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context ▪ perform mental calculations, including with mixed operations and large numbers. ▪ identify common factors, common multiples and prime numbers ▪ solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why ▪ solve problems involving addition, subtraction, multiplication and division ▪ use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ use common factors to simplify fractions; use common multiples to express fractions in the same denomination ▪ compare and order fractions, including fractions >1 ▪ identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places ▪ multiply one-digit numbers with up to two decimal places by whole numbers ▪ use written division methods in cases where the answer has up to two decimal places ▪ solve problems which require answers to be rounded to specified degrees of accuracy ▪ recall and use equivalences between simple fractions, decimals and percentages, including in different contexts ▪ convert between mixed numbers and improper fractions 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ 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 such as 15% of 360] and the use of percentages for comparison ▪ solve problems involving unequal sharing and grouping using knowledge of fractions and multiples 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ use simple formulae ▪ generate and describe linear sequences ▪ express missing number problems algebraically ▪ find pairs of numbers that satisfy an equation with two unknowns 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate ▪ 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 ▪ convert between miles and kilometres ▪ recognise that shapes with the same areas can have different perimeters and vice versa ▪ recognise when it is possible to use formulae for area and volume of shapes ▪ calculate the area of parallelograms and triangles ▪ calculate, estimate and compare volume of cubes and cuboids] 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ draw 2-D shapes using given dimensions and angles ▪ recognise, describe and build simple 3-D shapes, including making nets ▪ compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons ▪ illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius ▪ recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ describe positions on the full coordinate grid (all four quadrants) ▪ draw and translate or rotate simple shapes on the coordinate plane, and reflect them in the axes ▪ visualise patterns on 3D shapes 	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> ▪ interpret and construct pie charts and line graphs and use these to solve problems ▪ calculate and interpret the mean as an average