

Maths

Programme of Study	Year 6 Milestones
Number: Number and Place Value	Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
	Use negative numbers in context, and calculate intervals across zero
	Round any whole number to a required degree of accuracy
	Solve number and practical problems that involve all of the above
Number: Addition and Subtraction	Add and subtract negative numbers.
	Perform mental calculations, including with mixed operations and large numbers
	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
	Solve problems involving addition, subtraction, multiplication and division
	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
Number: Multiplication and Division	Perform mental calculations, including with mixed operations and large 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 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
	Solve problems involving addition, subtraction, multiplication and division
	Use their knowledge of the order of operations to carry out calculations involving the four operations
	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
	Identify common factors, common multiples and prime numbers

Fractions, Decimals and Percentages

Compare and order fractions, including fractions > 1

Use common factors to simplify fractions; use common multiples to express fractions in the same denomination

Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions

Multiply simple pairs of proper fractions, writing the answer in its simplest form
[for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$]

Divide proper fractions by whole numbers
[for example, $\frac{1}{3} \div 2 = \frac{1}{6}$]

Solve problems which require answers to be rounded to specified degrees of accuracy

Identify the value of each digit in numbers given to three decimal places

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

Use common factors to simplify fractions; use common multiples to express fractions in the same denomination

Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$]

Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

Measurement	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
	Calculate the area of parallelograms and triangles
	Recognise when it is possible to use formulae for area and volume of shapes
	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 [for example, mm^3 and km^3]
Geometry: Properties of Shapes	Describe positions on the full coordinate grid (all four quadrants)
	Draw and translate simple shapes on the coordinate plane, and reflect them in the axes
Statistics	Interpret and construct pie charts and line graphs and use these to solve problems
	Calculate and interpret the mean as an average
Algebra	Use simple formulae
	Generate and describe linear number sequences
	Express missing number problems algebraically
	Find pairs of numbers that satisfy an equation with two unknowns
	Enumerate possibilities of combinations of two variables
Ratio and Proportion	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
	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

Geometry: Properties of Shape	Draw 2-D shapes using given dimensions and angles
	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
	Recognise, describe and build simple 3-D shapes, including making nets
	Compare and classify geometric shapes based on their properties and sizes
	Find unknown angles in any triangles, quadrilaterals, and regular polygons
	Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles