Key Stage 2 Mathematics Curriculum Year 1

Number - Number and Place Value

Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit

Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000

Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero

Round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000

Solve number problems and practical problems that involve all of the above

Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

Number - Addition and Subtraction

Add and subtract whole numbers with more than 4 digits, including using formal written methods

Add and subtract numbers mentally with increasingly large numbers

Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy

Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Number - Multiplication and Division

Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers

Know and use the vocabulary of prime numbers, prime factors and composite numbers

Establish whether a number up to 100 is prime and recall prime numbers up to 19

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

Multiply and divide numbers mentally drawing upon known facts

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

Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000

Recognise and use square numbers and cube numbers, and the notation for squared and cubed

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 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.

Number - Fractions

Compare and order fractions whose denominators are all multiples of the same number

Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths

Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements greater than 1 as a mixed number

Add and subtract fractions with the same denominator and denominators that are multiples of the same number

Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams

Read and write decimal numbers as fractions

Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents

Round decimals with two decimal places to the nearest whole number and to one decimal place

Read, write, order and compare numbers with up to three decimal places

Solve problems involving number up to three decimal places

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, and as a decimal

Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5, and those fractions with a denominator of a multiple of 10 or 25

Geometry - Properties of Shape

Identify 3D shapes, including cubes and other cuboids, from 2D representations

Use the properties of rectangles to deduce related facts and find missing lengths and angles

Distinguish between regular and irregular polygons based on reasoning about equal sides and angles

Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles

Draw given angles, and measure them in degrees

Identify: angles at a point and one whole turn; angles at a point on a straight line and a turn; other multiples of 90

Measurement

Convert between different units of metric measure

Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints

Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres

Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres and square metres and estimate the area of irregular shapes

Estimate volume and capacity

Solve problems involving converting between units of time

Use all four operations to solve problems involving measure using decimal notation, including scaling

Geometry - Position and Direction

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

Statistics

Solve comparison, sum and difference problems using information presented in a line graph

Key Stage 2 Mathematics Curriculum Year 2

Number - Number and Place Value

Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit

Round any whole number to a required degree of accuracy

Use negative numbers in context, and calculate intervals across zero

Solve number and practical problems that involve all of the above

Number - Addition, Subtraction, Multiplication and Division

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

Perform mental calculations, including with mixed operations and large numbers

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

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

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

Identify common factors, common multiples and prime numbers

Number - Fractions

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

Compare and order fractions

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

Divide Proper Fractions by Whole Numbers

Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction

Identify the value of each digit in numbers given 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.

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.

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 and the use of percentages for comparison

Year 6 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

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

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 using standard units, including cubic centimetres and cubic metres, and extending to other units

Geometry - Properties of Shape

Draw 2D shapes using given dimensions and angles

Recognise, describe and build simple 3D 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.

Geometry - Position and Direction

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