Mathematics End of Year 6 Expectations

By the end of year 6 children are expected to:

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

▪ 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

▪ perform mental calculations, including with mixed operations and large numbers

▪ identify common factors, common multiples and prime numbers

▪ use their knowledge of the order of operations to carry out calculations involving the four operations

- 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.

Number – Fractions (including decimals and percentages)

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

- compare and order fractions, including fractions > 1

- 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, $\frac{1}{3} \div 2 = \frac{1}{6}$]

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

- 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.

Mathematics End of Year 6 Expectations
By the end of year 6 children are expected to:

Statistics

- interpret and construct pie charts and line graphs and use these to solve problems
  - calculate and interpret the mean as an average.

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 (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].

Geometry – Properties of Shapes

- 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.

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.

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.

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.