Number and Place Value

Pupils should be taught to:

- 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 0.
- Solve number and practical problems that involve all of • the above.

Ratio and Proportion

Pupils should be taught to:

- Solve problems involving the relative sizes of 2 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 ٠ using knowledge of fractions and multiples.

Measurement

Pupils should be taught to:

- Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate.
- ٠ 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 up to 3 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 ٠ cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³].

Addition. Subtraction. Multiplication and Division

Pupils should be taught to:

- 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 4 operations.
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
- ٠ 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.

Geometry – Properties of Shapes

Pupils should be taught to:

- Draw 2-D shapes using given dimensions and angles.
- Recognise, describe and build simple 3-D shapes, including ٠ making nets.
- Compare and classify geometric shapes based on their properties ٠ and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.
- Illustrate and name parts of circles, including radius, diameter ٠ and circumference and know that the diameter is twice the radius.
- ٠ Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

Fractions (including Decimals and Percentages)

Pupils should be taught to:

- 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, $\frac{1}{x} = \frac{1}{1}$, $\frac{1}{2}$
- Divide proper fractions by whole numbers • [for example, $\frac{1}{2} \div 2 =]\frac{1}{2}$
- Associate a fraction with division and calculate decimal fraction • equivalents [for example, 0.375] for a simple fraction Ifor example. $\frac{1}{4}$
- Identify the value of each digit in numbers given to 3 decimal places • and multiply and divide numbers by 10.100 and 1.000 giving answers up to 3 decimal places.
- Multiply one-digit numbers with up to 2 decimal places by whole numbers.
- Use written division methods in cases where the answer has up to 2 • 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.

Statistics

Pupils should be taught to:

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

Geometry – Position and Direction

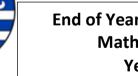
Pupils should be taught to:

- Describe positions on the full coordinate grid (all 4 quadrants). •
- Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

Algebra

Pupils should be taught to:

- Use simple formulae. .
- Generate and describe linear number sequences. •
- ٠ Express missing number problems algebraically.
- ٠ Find pairs of numbers that satisfy an equation with 2 unknowns.
- Enumerate possibilities of combinations of 2 variables.



End of Year Expectations Mathematics Year 6