



Year 6 Learning Objectives in Mathematics

<u>Autumn Term</u>	<u>Spring Term</u>	<u>Summer Term</u>
Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit		
<p><u>Number and Place Value</u> *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</p> <p><u>Number - Addition and Subtraction</u> *Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p> <p><u>Number - Multiplication and Division</u> *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</p>	<p><u>Number - Multiplication and Decimals</u> *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</p> <p><u>Ratio and Proportion</u> *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</p> <p><u>Measurement</u></p>	<p><u>Algebra</u> *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.</p> <p><u>Geometry - properties of shapes</u> 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</p> <p><u>Statistics</u> *Interpret and construct pie charts and line graphs and use these to solve problems</p>



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where appropriate, interpreting remainders according to the context

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

Number – Addition, Subtraction Multiplication and Division

*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 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

*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: $1/4 \times \frac{1}{2} = 1/8$)

*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 (cm³) and cubic metres (m³), and extending to other units [for example, mm³ and km³].

Geometry – Properties of shapes

*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

*Calculate and interpret the mean as an average.



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*Divide proper fractions by whole numbers [for example $1/3 \div 2 = 1/6$
*Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example $3/8$
*Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

*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.