

### Long Term Plan for Maths at SPJS / Year 6 statutory Programme of Study

<p><b>Number – Number &amp; Place Value</b></p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</li> <li>▪ round any whole number to a required degree of accuracy</li> <li>▪ use negative numbers in context, and calculate intervals across zero</li> <li>▪ solve number and practical problems that involve all of the above.</li> </ul>
<p><b>Number – Addition &amp; Subtraction, Multiplication &amp; Division</b></p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</li> <li>▪ 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</li> <li>▪ 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</li> <li>▪ perform mental calculations, including with mixed operations and large numbers</li> <li>▪ identify common factors, common multiples and prime numbers</li> <li>▪ use their knowledge of the order of operations to carry out calculations involving the four operations</li> <li>▪ solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li> <li>▪ solve problems involving addition, subtraction, multiplication and division</li> <li>▪ use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</li> </ul>
<p><b>Number – Fractions (including decimals &amp; percentages)</b></p>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ use common factors to simplify fractions; use common multiples to express fractions in the same denomination</li> <li>▪ compare and order fractions, including fractions <math>&gt; 1</math></li> <li>▪ add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions</li> <li>▪ multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, <math>\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}</math>]</li> <li>▪ divide proper fractions by whole numbers [for example, <math>\frac{1}{3} \div 2 = \frac{1}{6}</math>]</li> </ul>

	<ul style="list-style-type: none"> <li>▪ associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, <math>\frac{3}{8}</math> ]</li> <li>▪ 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</li> <li>▪ multiply one-digit numbers with up to two decimal places by whole numbers</li> <li>▪ use written division methods in cases where the answer has up to two decimal places</li> <li>▪ solve problems which require answers to be rounded to specified degrees of accuracy</li> <li>▪ recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</li> </ul>
<b>Ratio &amp; Proportion</b>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</li> <li>▪ solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison</li> <li>▪ solve problems involving similar shapes where the scale factor is known or can be found</li> <li>▪ solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</li> </ul>
<b>Algebra</b>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ use simple formulae</li> <li>▪ generate and describe linear number sequences</li> <li>▪ express missing number problems algebraically</li> <li>▪ find pairs of numbers that satisfy an equation with two unknowns</li> <li>▪ enumerate possibilities of combinations of two variables.</li> </ul>
<b>Measurement</b>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate</li> <li>▪ 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</li> <li>▪ convert between miles and kilometres</li> <li>▪ recognise that shapes with the same areas can have different perimeters and vice versa</li> <li>▪ recognise when it is possible to use formulae for area and volume of shapes</li> </ul>

	<ul style="list-style-type: none"> <li>▪ calculate the area of parallelograms and triangles</li> <li>▪ calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (<math>\text{cm}^3</math>) and cubic metres (<math>\text{m}^3</math>), and extending to other units [for example, <math>\text{mm}^3</math> and <math>\text{km}^3</math>].</li> </ul>
<b>Geometry – properties of shapes</b>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ draw 2-D shapes using given dimensions and angles</li> <li>▪ recognise, describe and build simple 3-D shapes, including making nets</li> <li>▪ compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons</li> <li>▪ illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</li> <li>▪ recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.</li> </ul>
<b>Geometry – position &amp; Direction</b>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ describe positions on the full coordinate grid (all four quadrants)</li> <li>▪ draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</li> </ul>
<b>Statistics</b>	<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>▪ interpret and construct pie charts and line graphs and use these to solve problems</li> <li>▪ calculate and interpret the mean as an average.</li> </ul>