

	Autumn Term		Spring Term		Summer Term	
Area of Maths	Number & Place Value Four Operations	Fractions, Decimals & Percentages	Ratio & Proportion Algebra Statistics	Geometry Geometry: Position, Direction & Motion	Measure	Project – Based Learning
Knowledge	<ul style="list-style-type: none"> <li>• Read, write, order and compare numbers to at least 10,000,000</li> <li>• Determine the value of each digit in a number up to 10,000,000</li> <li>• Round any whole to a degree of accuracy</li> <li>• Use negative numbers in context and calculate intervals across zero</li> <li>• Read Roman numerals to 1000 and recognise years</li> <li>• Solve number and practical problems that involve number and place value</li> <li>• Perform mental calculations, including with mixed operations and larger numbers</li> <li>• Use their knowledge of the order of operations to carry out calculations involving the four operations</li> <li>• Identify common factors, common multiples and prime numbers</li> <li>• Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy</li> <li>• Multiply multi-digit by a 2-digit whole number using the formal written method of long multiplication</li> <li>• Divide numbers up to 4 digits by a 2-digit whole number using the formal written method of long division and interpret remainders as whole number remainders, fractions or by rounding</li> <li>• Divide numbers up to 4 digits by a 2-digit number using 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>• Solve problems involving addition, subtraction, multiplication and division</li> </ul>	<ul style="list-style-type: none"> <li>• Solve problems involving addition, subtraction, multiplication and division</li> <li>• Use their knowledge of the order of operations to carry out calculations involving the four operations</li> <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 or proper fractions, writing the answer in its simplest form</li> <li>• Divide proper fractions by whole numbers</li> <li>• Identify the value of each digit in numbers given to three decimal places</li> <li>• Multiply and divide numbers by 10,000 and 1000 giving answers up to three decimal places</li> <li>• Multiply 1- 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>• Associate a fraction with division and calculate decimal fraction equivalents [e.g. 0.375 for <math>\frac{3}{8}</math>]</li> <li>• Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts</li> </ul>	<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 calculation of percentages [e.g. 15% of 360] and use 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> <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> <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> </ul>	<ul style="list-style-type: none"> <li>• Draw 2D shapes using given dimensions and angles</li> <li>• Compare and classify geometric shapes based on their properties and sizes</li> <li>• Illustrate and name parts of circles, including radius, diameter, circumference and know that the diameter is twice the circumference</li> <li>• Recognise, describe and build simple 3D shapes, including making nets</li> <li>• Find unknown angles in any triangles, quadrilaterals, and regular polygons</li> <li>• Recognise angles where they meet at a point, are on a straight line, or are vertically opposite and find missing angles</li> <li>• Describe the positions on the full coordinate grid (four quadrants)</li> <li>• Draw and translate simple shapes on the coordinate plane, and reflect them in the axes</li> </ul>	<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 up to three decimal places</li> <li>• Convert between miles and kilometres</li> <li>• Use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa</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> <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 meters (<math>\text{m}^3</math>), and extending to other units [E.g <math>\text{mm}^3</math> and <math>\text{km}^3</math>]</li> </ul>	<ul style="list-style-type: none"> <li>• Consolidation and recap of required topics</li> </ul>

<b>Key Vocabulary</b> – same as previous year groups, plus:	intervals across, three decimal places, hundredths, thousandths, millions, estimation, mixed operations, BIDMAS, scale factor, long division, remainders	common factors, common multiples, decimal fraction, simplest form	pie chart, mean, average, missing number, number sentence, term, expression, possibility, equation, formula/e, linear number sequence, ratio, proportion, integer, comparison, unequal	four quadrants, radius, diameter, circumference, nets	decimal notation, cubic centimetres, cubic metres, cubic millimetres, miles, imperial, inches, pounds, yards	
<p><b>Fluency</b> - become fluent in the fundamentals of mathematics, through frequent practice with increasingly complex problems, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems.</p> <p><b>Understanding &amp; Being accurate and Efficient</b></p>		<p><b>Reasoning</b> - reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.</p> <p><b>Exploring &amp; Proving</b></p>		<p><b>Problem Solving</b> - solve problems by applying mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.</p> <p><b>Applying &amp; Persevering</b></p>		