



Maths	Autumn 1 (Half term 1)	Autumn 2 (Half term 2)	Spring 1 (Half term 3)	Spring 2 (Half term 4)	Summer 1 (Half term 5)	Summer 2 (Half term 6)
<h3>Year 9S</h3>	<p><b>Curriculum (S)</b> <b>1 Number Properties 1</b></p> <ul style="list-style-type: none"> <li>Consolidate use of written and mental methods using four operations with integers and decimals and negative numbers and fractions.</li> <li>Understand place value including both integers and decimals and the size of simple fractions and decimals.</li> <li>Order decimals and fractions</li> <li>Use BIDMAS for all calculations including increasingly complex calculations.</li> <li>Use inequality symbols correctly between numbers.</li> </ul> <p><b>2 Geometry &amp; Measures</b></p> <ul style="list-style-type: none"> <li>Understand and apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles and the angles in triangles and other properties of special triangles.</li> <li>Use the fact that triangle angles total 180° to find missing angles.</li> <li>Identify alternate and corresponding angles</li> <li>Understand a proof that the sum of the angles in a triangle is 180 degrees and a quadrilateral is 360 degrees.</li> <li>Understand how to use units of measurement to estimate, calculate and solve problems in everyday contexts involving length, area, volume, capacity, mass, time, angle and bearings.</li> <li>Understand how to convert one metric unit to another and know rough metric equivalents of imperial, reading and interpreting scales on a range of measuring instruments.</li> </ul> <p><b>3 Number Properties 2</b></p> <ul style="list-style-type: none"> <li>Understand prime factors and product of prime factors.</li> <li>Understand HCF, LCM of numbers as well as squares, cubes and roots.</li> <li>Extend knowledge of powers of 10 and multiply and divide by any power of 10.</li> </ul> <p><b>4 Algebra 1</b></p> <ul style="list-style-type: none"> <li>Use algebra to collect like terms and simplify simple algebraic expressions.</li> <li>Understand and use simple indices in algebraic expressions.</li> <li>Understand how to substitute numerical values into formulae and expressions using BIDMAS extending this to the substitution of decimals, negatives and some fractions.</li> </ul>	<p><b>Curriculum (S)</b> <b>5 Fractions, decimals, %</b></p> <ul style="list-style-type: none"> <li>Understand that fractions, decimals and percentages can be interchanged.</li> <li>Compare proportions converting between fractions, decimals and percentages when required.</li> <li>Understand methods for calculating percentage increases and decreases.</li> <li>Recognise fractions of amounts and of shapes.</li> <li>Understand how to write one number as a fraction and percentage of another and how to multiply and divide an integer by a fraction and vice versa.</li> </ul> <p><b>6 Approximation</b></p> <ul style="list-style-type: none"> <li>Know how to round to a given number of decimal places, nearest whole numbers and to significant figures.</li> <li>Use these as appropriate to estimate calculations in order to check the reasonableness of answers.</li> </ul> <p><b>7 Algebra 2</b></p> <ul style="list-style-type: none"> <li>Understand and use the vocabulary of expression, equation and term and factor and collect like terms when simplifying algebraic expressing including those with numbers, letters including negatives and expressions with powers.</li> <li>Understand how to expand single brackets and solve equations with brackets.</li> <li>Know how to derive and use formulae for perimeter and area of triangles, parallelograms, trapeziums (including compound shapes), surface area and volume of cuboids.</li> </ul> <p><b>8 Collecting &amp; Interpreting Data</b></p> <ul style="list-style-type: none"> <li>Understand how to construct and interpret different graphs and charts including Pie charts.</li> <li>Understand and be able to find the averages of mean, mode and median from a list of numbers and including data in frequency tables.</li> <li>Explain where different averages may be used &amp; use them to compare data.</li> </ul>	<p><b>Curriculum (S)</b> <b>9 Sequences and Graphs</b></p> <ul style="list-style-type: none"> <li>Recognise a sequence of numbers and explain what the rule is to get from one term to the next (term to term rule) for arithmetic and geometric sequences.</li> <li>Understand how to find and use the nth term of arithmetic sequences. Recognise special sequences.</li> <li>Understand how to generate a sequence by spotting a pattern/using a rule given algebraically or in words.</li> <li>Understand to plot co-ordinates in all four quadrants of a graph.</li> <li>Be able to recognise patterns with co-ordinates on a graph.</li> <li>Know how to generate coordinate pairs that satisfy a simple rule in order to plot the graphs of simple linear functions.</li> <li>Understand how to plot and interpret the graphs of simple linear functions arising from real-life.</li> </ul> <p><b>10 Proportion 1</b></p> <ul style="list-style-type: none"> <li>Understand ratio and the relationship between ratio and proportion.</li> <li>Recognise equivalent ratio and understand how to reduce a ratio to its lowest form including those with different units.</li> <li>Understand how to divide quantities in a given ratio and to compare proportions when given a ratio of two quantities.</li> <li>Understand the link between a ratio and fraction notation.</li> <li>Know how to convert between simple families of fractions and decimals. Use knowledge of dividing integers to write a fraction as a decimal and know the basic fraction and decimal conversions.</li> </ul> <p><b>11 Ratio and Scale</b></p> <ul style="list-style-type: none"> <li>Understand how to measure and draw accurately line segments and angles and use simple scaled maps.</li> <li>Interpret scales on a range of measuring instruments and recognise the inaccuracy of measurements.</li> <li>Understand how to construct and interpret scale drawings.</li> <li>Understand scale factors of an enlargement of a shape and link to the ratio of the lengths of two corresponding sides.</li> </ul> <p><b>12 Shape Properties</b></p> <ul style="list-style-type: none"> <li>Name and identify the properties of 2D shapes, types of angles and understand geometric conventions for labelling diagrams and properties of shapes.</li> <li>State the meaning and draw accurately, lines, parallel lines, perpendicular lines, right angles.</li> <li>Recall the properties of regular polygons including the order of rotational symmetry.</li> <li>Understand the terms supplementary and complementary for the appropriate sum of angles.</li> </ul>	<p><b>Curriculum (S)</b> <b>13 Algebra 3</b></p> <ul style="list-style-type: none"> <li>Understand how to change the subject of (re-arrange) simple formula.</li> <li>Be able to represent algebraic expressions using function machines</li> <li>Understand how to substitute values into standard formulae including areas, volumes, suvat equations and compound measures.</li> <li>Understand how to change the subject of a formula.</li> <li>Understand the difference between an identity and an equation.</li> <li>Use input and output machines including those with two stage operations.</li> </ul> <p><b>14 Transformations</b></p> <ul style="list-style-type: none"> <li>Know how to identify all the symmetries, rotational and reflection of 2-D shapes.</li> <li>Understand that if two 2-D shapes are congruent, corresponding sides and angles are equal.</li> <li>Understand how to enlarge 2-D shapes given a centre of enlargement and a positive integer scale factor with and without a grid.</li> <li>Understand how to carry out simple translations, reflections and rotations.</li> </ul> <p><b>15 Probability</b></p> <ul style="list-style-type: none"> <li>Understand how to create some simple sample space diagrams to represent outcomes and use them to calculate the probabilities.</li> <li>Understand and use the fact that the probability of an event not happening is 1 minus the probability of it happening.</li> <li>Know how to carry out probability experiments and record results &amp; understand what the results show.</li> <li>Understand that the estimate of a probability will be more accurate the more results you have.</li> </ul> <p><b>16 Triangles &amp; Construction</b></p> <ul style="list-style-type: none"> <li>Understand that a ruler and compass can be used in standard constructions.</li> <li>Know how to apply standard ruler and compass constructions in problems involving loci.</li> <li>Understand the difference between congruent and similar shapes and deduce missing lengths in similar shapes</li> </ul>	<p><b>Curriculum (S)</b> <b>17 Interpreting Data</b></p> <ul style="list-style-type: none"> <li>Understand bivariate data and describe the correlation shown by a scatter graph is the relationship between the two variables plotted.</li> <li>Understand how to draw and use a line of best fit on a scatter graph to estimate values.</li> </ul> <p><b>18 Circles</b></p> <ul style="list-style-type: none"> <li>Draw and describe parts of a circle recalling all relevant terminology.</li> <li>Understand how to calculate the area of 2D shapes and calculate the area and circumference of a circle.</li> <li>Understand how to split a compound shape into two or more recognisable shapes and calculate the area and perimeter of the compound shape.</li> </ul> <p><b>19 Proportion 2</b></p> <ul style="list-style-type: none"> <li>Understand how to solve problems involving direct proportion using the unitary method and how to solve further problems that are related to direct and inverse proportion.</li> </ul>	<p><b>Curriculum (S)</b> <b>19 Proportion 2 continued</b></p> <ul style="list-style-type: none"> <li>Extend proportion to represent simple direct and inverse proportion problems graphically.</li> </ul> <p><b>20 Solving equations and inequalities</b></p> <ul style="list-style-type: none"> <li>Understand and use the balance method to solve one and two step linear equations and those including brackets and those with the unknown on both sides of the equation.</li> <li>Understand how to form equations and solve equations from word-based problems.</li> </ul> <p><b>21 Plotting and sketching graphs</b></p> <ul style="list-style-type: none"> <li>Understand how to substitute into formulas and equations.</li> <li>Understand how to plot and recognise equations of straight lines.</li> <li>Recognise that lines in the form <math>y = mx + c</math> will always result in a straight line linear graphs and that the <math>c</math> gives the <math>y</math>-intercept and <math>m</math> is the gradient.</li> <li>Understand how to plot quadratic graphs and recognise that they will always result in a parabola.</li> <li>Understand how to plot a graph by completing and using a table of values.</li> <li>Understand the link between conversion and other similar graphs where a real-life situation can be expressed in the form <math>y = mx + c</math>.</li> </ul>