



# Programme of Study – Year 8 Mathematics

	Theme	Overview of key learning to take place	How learning will be assessed
Term 1	Unit 1: Number  Unit 2: Equations and formulae  Unit 3: Working with powers	<p><b>Unit 1 :</b></p> <ul style="list-style-type: none"> <li>• I can add, subtract, multiply and divide positive and negative numbers.</li> <li>• I can write the prime factor decomposition of a number.</li> <li>• I can use prime factor decomposition to find the HCF or LCM of two numbers</li> <li>• I can work out the laws of indices for positive powers.</li> <li>• I can use the laws of indices for multiplying and dividing.</li> <li>• I can carry out calculations involving powers, roots and brackets following the priority of operations</li> </ul> <p><b>Unit 2:</b></p> <ul style="list-style-type: none"> <li>• I can solve problems that involving writing and using formulae</li> <li>• I can solve problems by writing and solving equations</li> <li>• I can write and solve two-step equations.</li> <li>• I can solve 2 step linear equations (including those with one set of brackets)</li> <li>• I can write and solve equations with letters on both sides.</li> <li>• I can find numbers that satisfy an equation with two unknowns.</li> <li>• I can solve problems by writing and using formulae</li> </ul> <p><b>Unit 3:</b></p> <ul style="list-style-type: none"> <li>• I can simplify expressions involving powers and brackets.</li> <li>• I can use the index laws in algebraic calculations and expressions.</li> <li>• I can factorise algebraic expressions</li> <li>• I can expand and factorise expressions</li> <li>• I can write and simplify expressions</li> </ul>	<p><b>Examples of Formative Assessment to be used this term:</b></p> <p>There will be several modes of formative assessment. Grades are not given for these pieces of work as the focus is on supporting students to make improvements to future pieces of work.</p> <p>Pre-knowledge questions            Question worksheets            Sparx Maths            Exercise tasks            AFL questions            Checkpoint questions</p>

Term 2	Unit 4: 2D shapes and 3D solids	<ul style="list-style-type: none"> <li>I can substitute values into expressions and formulae.</li> </ul> <p><b>Unit 4:</b></p> <ul style="list-style-type: none"> <li>I can use the formula for the area of a triangle, parallelogram and trapezium</li> <li>I can calculate the area of compound shapes</li> <li>I can identify properties of 3D Solids</li> <li>I can calculate the volume of 3D shapes</li> <li>I can convert between metric measures</li> <li>I can interpret plans and elevations</li> <li>I can solve problems with 3D shapes and measures</li> </ul>	<p><b>Summative assessment</b></p> <p>Assessment to take place 2 times this term.</p> <p><b>Approximate</b> timings and units</p> <p>Week 5 - assessment Unit 1 and 2</p> <p>Week 9 - assessment Unit 3 and 4</p>
	<p>Unit 5: Graphs</p> <p>Unit 6: Fractions, decimals, ratio and proportion</p>	<p><b>Unit 5:</b></p> <ul style="list-style-type: none"> <li>I can recognise when values are in direct proportion</li> <li>I can interpret graphs from different source</li> <li>I can understand distance-time graphs.</li> <li>I can draw and interpret non-linear graphs for real life contexts.</li> <li>I can solve problems by drawing or interpreting graphs, charts or tables.</li> <li>I can draw and interpret line graphs for real life contexts</li> </ul> <p><b>Unit 6 :</b></p> <ul style="list-style-type: none"> <li>I can round numbers to two or three decimal places</li> <li>I can multiply and divide any number by 0.1, 0.01 and 0.001</li> <li>I can convert fractions to decimals by dividing the numerator by the denominator.</li> <li>I can multiply integers and fractions by a fraction</li> <li>I can write the reciprocal of a number or a fraction.</li> <li>I can add and subtract fractions with any size denominator.</li> <li>I can use the four operations with mixed numbers</li> </ul>	<p>Students will receive a mark for each assessment and personalised next steps for improvement</p>

	Theme	Overview of key learning to take place	How learning will be assessed
Term 2	Unit 7: Probability	<p><b>Unit 7:</b></p> <ul style="list-style-type: none"> <li>• I can record data from a simple experiment.</li> <li>• I can calculate the relative frequency of a value.</li> <li>• I can estimate probability based on experimental data.</li> <li>• I can make conclusions based on the results of an experiment</li> <li>• I can solve problems using experimental probability.</li> <li>• I can use experimental probability to model and predict future outcome</li> </ul>	<p><b>Examples of Formative Assessment to be used this term:</b></p> <p>There will be several modes of formative assessment. Grades are not given for these pieces of work as the focus is on supporting students to make improvements to future pieces of work.</p> <p>Pre-knowledge questions            Question worksheets            SparxMaths            Exercise tasks            AFL questions            Checkpoint questions</p> <p><b>Summative assessment</b>            Assessment to take place 2 times this term.  <b>Approximate</b> timings and units            Week 4- assessment Unit 5 and 6            Week 10- assessment Chapter 7 and 8</p>
	Unit 8: Percentages and ratios	<p><b>Unit 8:</b></p> <ul style="list-style-type: none"> <li>• I can find equivalent fractions, decimals and percentages, including mixed numbers and percentages over 100%</li> <li>• I can work out a percentage increase</li> <li>• I can work out percentage decrease.</li> <li>• I can use a multiplier to calculate percentage increase and decrease.</li> <li>• I can calculate compound interest.</li> <li>• I can simplify and use ratios involving decimals.</li> <li>• I can divide a quantity into three parts in a given ratio.</li> </ul>	
Term 3	Unit 9: Shapes and angles	<p><b>Unit 9:</b></p> <ul style="list-style-type: none"> <li>• I can identify properties of quadrilaterals</li> <li>• I can identify alternate and corresponding angles and know that they are equal</li> </ul>	<p>Students will receive a mark for each assessment and personalised next steps for improvement</p>

	Unit 10: Charts and diagrams	<ul style="list-style-type: none"> <li>• I can work out the interior and exterior angles of a polygon.</li> <li>• I can solve geometric problems using side and angle properties of quadrilaterals and other polygons</li> <li>• I can solve problems using properties of angles in intersecting and parallel lines and in polygons.</li> </ul> <p><b>Unit 10:</b></p> <ul style="list-style-type: none"> <li>• I can calculate the mean from a frequency table.</li> <li>• I can draw stem and leaf diagrams for data.</li> <li>• I can draw and interpret pie charts</li> <li>• I can compare two sets of data using statistics or the shape of the graph.</li> <li>• I can interpret and draw scatter graphs.</li> </ul>	
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	Theme	Overview of key learning to take place	How learning will be assessed
Term 3	Unit 11: Straight-line graphs	<p><b>Unit 11:</b></p> <ul style="list-style-type: none"> <li>• I can find the y-intercept of a straight-line graph.</li> <li>• I can write the equation of a straight line graph in the form <math>y = mx + c</math>.</li> <li>• I can plot straight-line graphs.</li> <li>• I can find the gradient of a straight-line graph.</li> <li>• I can use <math>y = mx + c</math>.</li> </ul>	<p>Formative Assessment</p> <p>There will be several modes of formative assessment. Grades are not given for these pieces of work as the focus is on supporting students to make improvements to future pieces of work.</p> <p>Pre-knowledge questions Question worksheets Exercise tasks SparxMaths AFL questions Checkpoint questions</p>
Term 3	<b>Revision and End of Term Assessment</b>	<p><b>Content to be revised in preparation for End of Term Assessment.</b></p>	<p>Summative assessment</p> <p>Assessment to take place 2 times this term <b>Approximate</b> timings and units Week 9- assessment Unit 9,10 and 11</p>

			<p>Students will receive a mark for end of topic assessment and personalised next steps for improvement.</p>
			<p><b>Style of the assessment- TBC</b></p>