

## Key Stage 4 Overview: Mathematics Year 9

	Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
<b>Year 9</b>	<p><b>University Challenge:</b></p> <p><b>Context:</b></p> <p>“Getting Down to (geometric) Business.”</p> <p><b>Skills:</b> Using the concepts of area, perimeter and missing dimensions to evaluate triangles, quadrilaterals and compound shapes.</p> <p>Calculating with and converting standard form numbers, normal numbers, primes, factors and multiples, and powers and roots.</p> <p>Estimating appropriately by using decimal places and significant figures applied to a context and calculating upper and lower bounds.</p> <p>Plotting, reading, writing and solving inequalities algebraically and graphically.</p>	<p><b>University Challenge:</b></p> <p><b>Context:</b></p> <p>“Gimme five! (and six and seven and eight and...”</p> <p><b>Skills:</b> Calculate percentages of quantities and find one quantity as a percentage of another, including using multipliers and working with single and combined (compound) percentage changes in a financial context, e.g. savings accounts.</p> <p>Represent numerical and proportional relationships in multiple formats e.g. decimal multipliers and use relational operations e.g. inverse operations in reverse percentage problems.</p> <p>To Add, subtract, divide and multiply fractions. Conversion between improper and mix numbers.</p>	<p><b>University Challenge:</b></p> <p><b>Context:</b></p> <p>“The (algebraic) building blocks of everything.”</p> <p><b>Skills:</b> Substitute into expressions and formulae; simplify, factorise and rearrange expressions and formulae, including brackets, powers and quadratic expressions and equations.</p> <p>Plotting, reading, writing and solving inequalities algebraically and graphically.</p> <p>Recognise, identify and generate sequences by using the term-to-term rule and the nth term rule, including linear and quadratic sequences.</p>	<p><b>University Challenge:</b></p> <p><b>Context:</b></p> <p>“Handling the hot podata.”</p> <p><b>Skills:</b> Use scatter graphs and other forms of statistical analysis to predict values for a certain set of data.</p> <p>Calculating mean, median, mode and range from small sets of data and reading quartiles &amp; plotting box plots from cumulative frequency diagrams).</p> <p>To complete tables and to plot the following graphs for the given information: cumulative frequency, frequency polygon and frequency density.</p> <p>To design suitable questionnaires for different types of data.</p> <p>To draw a stem and leaf diagram (using a sensible key).</p> <p>Use of different types of averages (mean, mode, median, range).</p> <p>To Work out the possible combinations of probabilities for an event. To complete a probability tree diagram and use it to work out the given probabilities.</p>	<p><b>University Challenge:</b></p> <p><b>Context:</b></p> <p>“Transforming the shape of your life.”</p> <p><b>Skills:</b> Identify congruent and similar shapes, transform congruent shapes by reflecting, rotating, translating and enlarging, and identify these transformations on coordinate axes.</p> <p>Correct use of construction and loci.</p> <p>To use basic angle skills: Straight line angles, angles in triangles and quadrilaterals, angles at a point and opposite angles to solve basic angle problems.</p> <p>To Identify and name parallel line angles and to solve problems through reasoning.</p> <p>To calculate the interior and exterior angles in polygons.</p> <p>Use of trigonometry to find the missing angles and sides (SOH CAH TOA).</p>	<p><b>University Challenge:</b></p> <p><b>Context:</b></p> <p>“Charting progression.”</p> <p><b>Skills:</b> Revision of all previous topics mods 1-5.</p>