

Key Stage 3 Overview: Mathematics Year 8

	Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
Year 8	<p>University Challenge:</p> <p>I'm an engineer</p> <p>Context: Airports; runways, airspace restrictions, designing a bypass.</p> <p>Skills:</p> <ul style="list-style-type: none"> - Expanding and factorising brackets. - Simplifying expressions. - Writing, reading and plotting inequalities. - Substituting into expressions. - Scaling distances on bypass software and google earth. - Costing projects and itemising costs. - Evaluating the radii of curves to ascertain speed limits. 	<p>University Challenge:</p> <p>Theatre</p> <p>Context: The mathematics of stage & set design; areas, perimeters, angles, rectilinear shape classification.</p> <p>Skills:</p> <ul style="list-style-type: none"> - Using vocabulary of integers. - Calculating using powers and roots. - Convert standard form and vice versa. - Rounding to decimal places and significant figures. - Constructing loci with scales. - Categorising 2D rectilinear shapes by qualities. - Designing a system of notation to represent and communicate dance moves and a dance routine. 	<p>University Challenge:</p> <p>Recycling</p> <p>Context: Investigating sustainable solutions for fast food packaging.</p> <p>Skills:</p> <ul style="list-style-type: none"> - Calculating volume of cubes and cuboids. - Calculating missing dimensions from volume and given dimensions. - Evaluating 3D properties of faces, edges and vertices. - Calculating compound volumes. - Plotting graphs from equations and finding equations from graphs ($y=mx+c$). - Interpreting and evaluating graphs in a context (heat retention of a range of packaging material options). 	<p>University Challenge:</p> <p>Brunel Museum</p> <p>Context: Completing an incomplete bridge design.</p> <p>Skills:</p> <ul style="list-style-type: none"> - Calculating missing angles in straight lines, points, triangles, quadrilaterals, isosceles and equilateral triangles, and associated 'compound' diagrams. - Calculating missing angles in regular polygons. - Calculating missing angles in Parallel lines. - Using Pythagoras' theorem to find missing sides in right angled triangles. - Using SOHCAHTOA to find missing angles and sides. 	<p>University Challenge:</p> <p>Extreme Re-design</p> <p>Context: Fashion; projecting and predicting trends for future profit. Architecture; calculating loads for different floors and pillars in buildings.</p> <p>Skills:</p> <ul style="list-style-type: none"> - Plotting line graphs for realistic data e.g. weekly sales. - Completing cumulative frequency tables from frequency tables and vice versa. - Extending graphs by using a trend line to predict future values. - Presenting a fashion business plan by highlighting and explaining key calculated figures. - Solving linear equations using inverse operations, balancing and reverse order. - Solving simultaneous equations. 	<p>University Challenge:</p> <p>Community</p> <p>Context: Football tournaments; assigning/estimating probabilities based on data and calculating using tree diagrams.</p> <p>Skills:</p> <ul style="list-style-type: none"> - Using and understanding the probability scale. - Calculating missing probabilities from using a total of 1. - Using experimental data to calculate probabilities. - Using a range of data to assign/estimate probabilities. - Constructing tree diagrams to represent events. - Using tree diagrams to calculate dependent and independent probabilities.