

Key Stage 3 Overview: Mathematics Year 7

	Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
Year 7	<p>University Challenge:</p> <p>I'm an Engineer - get me in here</p> <p>Context: Business Planning; market research, data analysis, product design and packaging design. (Smoothies)</p> <p>Skills:</p> <ul style="list-style-type: none"> - Writing a questionnaire. - Collecting & recording data. - Presenting data in charts. - Using a spreadsheet for multiplication. - Proportional reasoning in recipes. - Writing formulae in MS excel. - Calculating mean, mode, median & range. - Designing appropriate nets for a given context. - Presenting a business plan and making a presentation. 	<p>University Challenge:</p> <p>F1 in schools Challenge</p> <p>Context: Speed, distance, time. Car crash testing. Reducing road accidents. Maths in motion (F1 race planning).</p> <p>Skills:</p> <ul style="list-style-type: none"> - Calculating speed using ratio. - Plotting distance-time graphs. - Creating and testing hypotheses. - Calculating percentages of amounts. - Simplifying fractions. - Simplifying ratios. - Managing a database by filtering. - Selecting data according to a purpose. - Using a scale. - Measuring angles. - Scaling up and down using multiplication and division. - Making pie charts in MS excel. 	<p>University Challenge:</p> <p>University Academy of Engineering Citizens of London</p> <p>Context: Creating a taxi app. Designing a UK tour. Planning a festival.</p> <p>Skills:</p> <ul style="list-style-type: none"> - Substituting values into expressions. - Solving linear equations. - Designing formulae for a purpose. - Calculating the area of rectilinear and circles. - Interpreting timetables and making itineraries. - Budgeting for large groups. - Calculating the volume of cubes and cuboids. - Estimating large amounts from diagrams. - Designing estimation methods. 	<p>University Challenge:</p> <p>STEM Inventions during the war</p> <p>Context: Outbreak of a deadly virus; locating infected people, mixing antidotes and distributing antidotes throughout the population.</p> <p>Skills:</p> <ul style="list-style-type: none"> - Plotting coordinates. - Plotting 3-figure bearings. - Using a scale. - Using Pythagoras' theorem. - Dividing amounts into ratios. - Calculating percentages using a variety of calculator and non-calculator methods. - Completing ratios and finding totals given one side. - Using trial and error to keep within a budget. - Making ethical balance decisions. 	<p>University Challenge:</p> <p>Designing and Making for our Community</p> <p>Context: Deforestation (spying on an illegal logging company).</p> <p>Skills:</p> <ul style="list-style-type: none"> - Explaining decisions mathematically. - Using a range of mathematical information to make a decision. - Scaling up using tables and arrows. - Working with large numbers. - Using real-world info to scale up. - Creating graphically appealing and statistic-rich infographics. - Solving numerical puzzles and explaining solutions diagrammatically. 	<p>University Challenge:</p> <p>Community</p> <p>Context: Islamic geometry (Ramadan), sequential geometric patterns, football.</p> <p>Skills:</p> <ul style="list-style-type: none"> - Drawing lines of symmetry on rectilinear shapes and real-life examples. - Finding order of rotational symmetry. - Reflecting shapes in mirror lines. - Finding the equations of mirror lines. - Translating shapes by a given vector. - Rotating shapes around a centre of rotation. - Enlarging shapes by a given scale factor. - Recording and categorising data. - Using a compass to draw intersecting circles. - Tessellating shapes. - Creating and interpreting scatter graphs.