

Key Stage 3 Overview

	Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
Year 7	<p>University Challenge: I'm an Engineer - get me in here</p> <p>Context: Replicating profiles of Engineering Tools to fit in a template, testing accuracy.</p> <p>Skills:</p> <ul style="list-style-type: none"> • Understanding correct use of cutting tools. • Being aware of Health & Safety of workshop and tools. • Correct use of measuring and marking tools. • Reading Engineering Technical Drawing's. • Creating Orthographic Views of components. • Tolerance of components. • Quality of finish. • Accuracy of finishes/cut. • Ethical Issues – whether ethical to create a kit to break into school. 	<p>University Challenge: F1 in schools Challenge</p> <p>Context: Designing & Making an F1 Racing Car.</p> <p>Skills:</p> <ul style="list-style-type: none"> • Understanding how Aerodynamics affect the speed of F1 Cars. • 3D CAD Modelling of F1 Car body. • Sketching/Concept of F1 Car/Car sports. • Use of measuring tools, cutting tools to model F1 Car design from foam and Balsa wood. • Researching Mass Manufacturers methods/cnc compared to manual methods – Pros/Cons. • Evaluating design of wingtips and effect on performance of car. 	<p>University Challenge: University Academy of Engineering Citizens of London</p> <p>Context: Designing & Making a TFL structure.</p> <p>Skills:</p> <ul style="list-style-type: none"> • Making structures using different joints. • Designing and planning structures. • Measuring and marking using tools. • Use of cutting tools. • Testing structures using weights. • Recording and evaluating identifying weak points. • Drilling holes to make pin joints. 	<p>University Challenge: STEM Inventions during the war</p> <p>Context: Redesigning a Lego Robotic Arm.</p> <p>Skills:</p> <ul style="list-style-type: none"> • Assembling Lego robot kit. • Redesigning an existing design, changing certain factors. • 3D CAD modelling a robot arm. • Testing function of arm against forces/weights. • Recording/evaluating weak point/bad design. • Making modifications based on evaluation. • Researching into types of robots/function. • Investigating movements of robots. 	<p>University Challenge: Designing and Making for our Community</p> <p>Context: Designing furniture for layout in new Post 16 Learning Area.</p> <p>Skills:</p> <ul style="list-style-type: none"> • Measuring/Surveying a room. • Making a floor plan. • Identifying purposes for a room/layout design. • Creating a product spec. • Human Ergonomic posture investigation. • Making slot joints. • Designing furniture models using Slot joint assembly. 	<p>University Challenge: Community</p> <p>Context: Making products to sell at Lonnie Betts Fun Day.</p> <p>Skills:</p> <ul style="list-style-type: none"> • Researching existing solutions for product. • Brainstorming/mind mapping of design/idea solutions. • Creating detailed plans of making process as a step by step guide. • Using measuring tools, marking tools and cutting tools to make profile shales. • Use of Joinery Techniques to make stationary container. • Redesigning a lever/arm joint based on different users. • 3D Modelling/CAD of existing design for Key Fobs. • Evaluating between manual & digital manufacturing methods.