

Year 11 Design and Technology Sequence



	Content Taught	National Curriculum	Essential Knowledge	Assessment	Rationale
HT1	<p>Non-exam assessment</p> <p>Identify, investigate and outline design possibilities</p> <p>Identifying & investigating design possibilities</p> <p>Producing a design brief & Specification</p>	<p>4.4</p> <p>A01</p>	<p>Substantial design and make task</p> <p>By analysing the contextual challenge students will identify design possibilities, investigate client needs and wants and factors including economic and social challenges. Students should also use the work of others (past and/or present) to help them form ideas.</p>	<p>Assessments are cumulative and students are expected to draw on previous knowledge and adapt it to solve the challenges of the iterative design process.</p> <p>During the iterative design (bringing it all together) task students will have the opportunity to practice, model and showcase key skills in a variety of media, including 3D models CAD and CAM. Students showcase a final prototype</p>	<p>Contextual Design and Manufacture challenge brings many areas previously taught together and students should apply the appropriate knowledge at the correct intervals throughout the project.</p> <p>Students research topics ready to apply new knowledge to their design criteria, this will allow a full understanding of what is currently available and where improvements can be made as the process continues.</p>

			<p>'Bringing it all together' task is the gives students the opportunity to practice and model essential knowledge Students showcase all the essential knowledge learned, in a coursework format.</p> <p>Essential knowledge reading for consolidation Design Brief & Spec.</p>	<p>that solves a real-world problem.</p> <p>Assessments are cumulative and students are expected to draw on previous knowledge and adapt it to solve the challenges of the iterative design process.</p> <p>During the iterative design (bringing it all together) task students will have the opportunity to practice, model and showcase key skills in a variety of media, including</p>	
HT2	Generating design ideas	A02	<p>Students should explore a range of possible ideas for their chosen topic. These design ideas should demonstrate flair and originality and students are encouraged to take risks with their designs. Students may wish to use a variety of techniques to communicate.</p> <p>Essential knowledge reading for depth Generating Ideas.</p>		<p>Building on research previously covered and KS3 drawing techniques, this area looks for students to show creativity and avoid design fixation when producing a range of high quality ideas, this will allow students to develop ideas at the next stage of the process.</p> <p>Building on creative ideas previously produced and Ks3 Modelling, students</p>
HT3	Design and make prototypes that are fit for purpose	A02	<p>Students will develop and refine design</p>		

	Developing design ideas		<p>ideas. This may include, formal and informal 2D/3D drawing including CAD, systems and schematic diagrams, and models. Students will develop at least one model high quality model.</p> <p>Essential knowledge reading for depth Developing Ideas</p>	<p>3D models CAD and CAM. Students showcase a final prototype that solves a real-world problem.</p>	<p>are challenged to develop chosen ideas through drawing and modelling, explaining in detail decisions made, and keeping the client in mind at each stage. This will allow the most effective model to be manufactured at the next stage of the process.</p>
HT4	Realising design ideas	A02	<p>Students will work with a range of appropriate materials/components to produce prototypes that are accurate and within close tolerances. This will involve using specialist tools and equipment, which may include hand tools, machines or CAM/CNC. The prototypes will be constructed through a range of techniques, which may involve shaping, fabrication, construction and assembly.</p>	<p>Assessments are cumulative and students are expected to draw on previous knowledge and adapt it to solve the challenges of the iterative design process.</p> <p>During the iterative design (bringing it all together) task students will have the opportunity to practice, model and showcase key skills in a variety of media, including</p>	<p>The high quality manufacture of a chosen product builds on KS3 making techniques and developed ideas. Taking the completed high quality product/prototype forward to the client allows for third party input when completing the evaluation stage.</p>

				3D models CAD and CAM.	
HT5	Analyse and evaluate	A03	<p>Within this iterative design process students are expected to continuously analyse and evaluate their work, using their decisions to improve outcomes. This should include defining requirements, analysing the design brief and specifications along with the testing and evaluating of ideas produced during the generation and development stages.</p> <p>Essential knowledge reading for depth Evaluation</p>	Students showcase a final prototype that solves a real-world problem.	Evaluating the final product manufactured in the previous topic, takes the shape of client feedback, third party feedback and personal feedback on how successful the outcome was. This completes a full cycle of the iterative design process and allows students to confidently move into and future design challenges in education or the workplace.
HT6	Unit 4 Applied Commercial and Quality Principles in Engineering	Unit 4	Finalise work and review.		