



Curriculum Map

Subject: Design and Technology

Year group: 12 & 13

Time period	September (3 weeks) Fusion 360	Sept - January Flat pack products	September -April NEA (Practise)	May - March Year 13 NEA
Content <i>Declarative Knowledge – ‘Know What’</i>	<p>Students will cover a short project, which will expand their skills on CAD by teaching them how to use the advanced Fusion 360 program.</p> <p>Students will design a torch and lego brick as well as learn how to render and run stress and impact tests on their CAD outcomes and analyse their results.</p>	<p>Students will start a small project with the focus of introducing them to the NEA task as well as the structure that it takes at A-level. The project covers research and design with a heavy focus on the section C development process in order to help students develop the crucial knowledge for this part of the NEA.</p>	<p>Students will complete a practise NEA project with the focus of getting them to work to a brief and strict deadline. The project covers research and design with a heavy focus on the sections A & B s in order to help students develop the crucial understanding of how to conduct primary and secondary sources of research as well as how to analyse and draw conclusions from their findings.</p> <p>Students will pick from 3 contexts, set by the exam board.</p>	<p>This is the final year NEA for students. They will conduct their own studies utilising the skills they have learnt over the course of the year. The project should include a challenging brief and context set by the student, as well as them producing a demanding final outcome.</p>
Skills <i>Procedural Knowledge – ‘Know How’</i>	<p>The main focus of this project is the CAD program, which will allow students to achieve the following:</p> <ul style="list-style-type: none"> • Create complex structures • High Level Renders • Run Simulations & Tests • Animate moving joints 	<p>Students will look at how the NEA should be laid out and then produce a 20-25 page portfolio covering</p> <ul style="list-style-type: none"> • Section A - Initial investigations • Section B - Design Brief and Spec • Section C - Development • Section D - Making • Section E - Evaluation 	<p>Students will look at how the NEA should be laid out and then produce a 30 page portfolio covering</p> <ul style="list-style-type: none"> • Section A - Initial investigations • Section B - Design Brief and Spec • Section C - Development • Section D - Making • Section E - Evaluation 	<p>Students will apply what we have covered from the previous projects to produce a 45 page NEA portfolio on a context of their own choosing. They will need to plan all aspects of their project and plan their time accordingly.</p> <p>Students will cover the following</p>

Throughout both years Exam Practise and content
<p>Students will cover the wide range of theory associated with the course. The content builds on from what we have covered on the GCSE course and there is an overlap with subjects such as Geography, Science and Business studies which provides opportunities for cross curricular learning.</p> <p>There is also the mathematics content which accounts for 15% of the exam questions.</p>
<p>The topics covered are as follows. Each topic has a link to all of the sub topics for that section</p> <p>3.1 Technical principles - Paper 1</p>



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	<ul style="list-style-type: none"> Create design sheets to showcase their work. <p>Depending on students ambitions, there are additional sessions available on Revit (architecture) and AutoCAD (engineering and design)</p>	There will be a focus on sections A and C in this project as these will be areas that students can capitalise and achieve the majority of their marks.	There will be a focus on sections A, B and D in this project as these will be areas that students can capitalise and achieve the majority of their marks.	<ul style="list-style-type: none"> Section A - Initial investigations Section B - Design Brief and Spec Section C - Development Section D - Making Section E - Evaluation
Key Questions	<p>What is the difference between a local and cloud rendering server? What is a component? How can we combine components so they interact with each other? What is a live or dead load? What does 'non-destructive' testing mean and how can we conduct one?</p>	<p>What is relevant research and what does it look like? How should you conduct primary and secondary sources of research? Why do we need regular feedback and dialogue with our consumer? How do we present our initial ideas and develop them?</p>	<p>What does a challenging brief and context look like? What ways can we gather primary research? How do you draw higher level conclusions from your findings? How do we collect and present Data? How can we communicate our ideas?</p>	
Assessment	<p>Students will submit the following for assessment</p> <p>CAD models and renderings Manufacturing Sheets 3D printed model</p> <p>Students will be assessed on the above as well as their Summer task.</p>	<p>Students will be assessed on the following sections with the marks broken down like so.</p> <ul style="list-style-type: none"> Section A - Initial investigations (10) Section B - Design Brief and Spec (5) Section C - Development (20) Section D - Making (10) Section E - Evaluation (10) <p>They will also be assessed on the following two exams.</p> <ol style="list-style-type: none"> Materials and their properties (Woods, 	<p>Students will be assessed on the following sections with the marks broken down like so.</p> <ul style="list-style-type: none"> Section A - Initial investigations (15) Section B - Design Brief and Spec (10) Section C - Development (20) Section D - Making (15) Section E - Evaluation (15) <p>They will also be assessed on the following exams.</p> <ol style="list-style-type: none"> Design Theory Factors and influences on the 	<p>Students will be assessed on the following sections with the marks broken down like so.</p> <ul style="list-style-type: none"> Section A - Initial investigations (20) Section B - Design Brief and Spec (10) Section C - Development (25) Section D - Making (25) Section E - Evaluation (20) <p>They will also be assessed on the following exams.</p> <ol style="list-style-type: none"> Legislation and Law in design

<p>3.2 Designing and making principles - Paper 2</p> <p>We also develop the students skills in answering exam questions ranging from the short 4 mark questions to the extensive 20 mark essay style questions.</p>
<p>How do you plan an essay style question? What are the command words for your exam paper? How do you effectively evaluate a product?</p>
<p>They will also be assessed on the following two exams.</p> <ol style="list-style-type: none"> Materials and their properties (Woods, Metals and Polymers) Materials and their properties (Paper, Card, Smart, Modern and Composite materials.) Design Theory Factors and influences on the design and manufacturing process Threshold exam Legislation and Law in design Design and the environment



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		<p>Metals and Polymers)</p> <p>2) Materials and their properties (Paper, Card, Smart, Modern and Composite materials.)</p>	<p>design and manufacturing process</p> <p>3) Threshold exam.</p>	<p>2) Design and the environment</p> <p>3) Mock Exam</p> <p>4) Mini Mocks (x3)</p>
<p>Literacy/Numeracy/ SMSC/Character</p>				

<p>8) Mock Exam</p> <p>9) Mini Mocks (x3)</p>