

Year: 11

Subject: GCSE Design and Technology

Autumn Term		
Overarching Topic:		
What has come before and what comes later:	From June the 1 st of year 10, students started their NEA with a weighting of 50%. Prior to this, students completed a mock NEA project whilst building knowledge of common specialist principles and the work of others. This term will focus on refining research in order to produce a detailed specification. This will be used to design, develop and model a possible design solution to the NEA problem identified.	
	Core	Extension
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	<ul style="list-style-type: none"> Why is a specification so important to a designer/user? What would you expect to see in a product specification and why? What is the purpose of making prototypes? What methods of prototyping are there and which is best? You must explain your answer What materials might you use and why? What alternate materials could be used? Why is it important to regularly check developmental work against the specification? What problems have you encountered and how have you solved them? (This question should be able to be answered multiple times throughout development stages) How has your product developed in light of prototyping? (This question should be able to be answered multiple times throughout development stages) What specific processes have you used in the development of your prototype and why? (This question should be able to be answered multiple times throughout development stages) Explain why a 3rd angle orthographic projection is so important do manufacturers and what would the drawing show? 	<ul style="list-style-type: none"> What are the advantages/disadvantages of virtual modelling? Outline the advantages of buying materials in standard form. Explain why dimensioning on a 3rd angle orthographic projection should conform to standards.
	Skill/Technique	How students will develop and demonstrate this
Key skills	<ul style="list-style-type: none"> NEA - Design- development- analyse and evaluate. NEA - Prototyping - analyse and evaluate - cutting lists - specification for manufacture 	<ul style="list-style-type: none"> NEA design portfolio

Year: 11

Subject: GCSE Design and Technology

Spring Term		
Overarching Topic:		
What has come before and what comes later:	Students have developed their final proposal through various design iterations. Research/brief/specification/design/develop/modelling/final solutions.	
	Core	Extension
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	<ul style="list-style-type: none"> • Why have you chosen that specific materials for manufacture? • What alternate materials could have been used and why? • Why have you chosen that specific method of manufacture? • Explain how you have used tools specifically to your project skilfully. • Explain how you have ensured safety throughout the manufacture of your product. • What alternate methods of manufacture could have been used? • Why are finishes applied to materials? • What specific finishes will be applied to your product and why? • How have you considered safety in when choosing and applying your finish? • How has CAD/CAM improved the design and development of new products? • Explain how to be safe when using a belt sander. • Explain how to be safe when using a pillar drill. • Explain the importance for manufacturers having a 3rd angle orthographic drawing to work from. • How has your product changed from your final design and why? • What is the next stage of manufacture? • How do you know your product is fit for purpose? • How does your product impact on the environment? • How could you reduce its impact? • 	<ul style="list-style-type: none"> • How would your material/manufacturing decisions change have based on progress so far? • How would you adapt your product to allow commercial manufacture? • Evaluate the use of CAD/CAM when designing and developing new products.

Year: 11

Subject: GCSE Design and Technology

	•	
	Skill/Technique	How students will develop and demonstrate this
Key skills	Share manufacturing skills NEA - Manufacture – diary NEA - Manufacture - diary - testing NEA – life cycle assessment	<ul style="list-style-type: none"> NEA design portfolio/manufactured product

Year: 11

Subject: GCSE Design and Technology

Summer Term		
Overarching Topic:		
What has come before and what comes later:	Students have completed their NEA 50% of the GCSE grade. Students must now refresh and review prior learning in preparation for final examination – remaining 50%.	
	Core	Extension
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	<ul style="list-style-type: none"> • Explain how a tree is made into a workable timber. • What are the advantages and disadvantages of kiln seasoning over natural? • Explain why Beech is the best suited material for children's toys? • What advantages do softwoods have over hardwoods? • What advantages do hardwoods have over softwoods? • What are the advantages of buying materials in stock form? Use examples in your answer • What is the FSC and why should we purchase FSC approved materials? • Why is recycling the worst of the 6Rs? • What can be done in home to reduce our carbon footprint? • What can be done in industry to reduce its carbon footprint? • When batch producing products, why use jigs? • Why do we need mechanisms? • What would a gear ratio of 1:2 tell you? • What would a gear ratio of 3:1 tell you? • How do you work out a percentage? • When would you apply Pythagoras instead or trigonometry? • 	<ul style="list-style-type: none"> • What is the ecological impact of obsolescence? • What technological developments have led to the miniaturisation of products? • What is the impact of deforestation?
	Skill/Technique	How students will develop and demonstrate this

Year: 11

Subject: GCSE Design and Technology

Key skills	<ul style="list-style-type: none">• Understand how to answer state, outline, describe, explain, analyse and evaluate questions.• Skill of selecting the most easily developed reason• Exam prep - Sample papers – Exam technique	<ul style="list-style-type: none">• Examination style questions/Answers
------------	--	---