

Year: 12

Subject: A Level Design and Technology: Product Design

Autumn Term		
Overarching Topic:		
What has come before and what comes later:	Students were given the task during remote learning (lockdown) and over the summer to complete online SENECA learning tools to continue to build knowledge of GCSE content as students finished year 11 before all content had been covered. Students had independent task to focus on the work of designers and refine design skills following a series of online tutorials. Students this term will focus on new technologies and be producing a product for inclusive design and refining wood skills through a series of focussed practical tasks. Usually, students would undertake a design skills project on metals but due to restrictions, this will be covered at a later stage in the course.	
	Core	Extension
The Big Questions (What questions will students be able to answer upon mastery of the topic?)	<ul style="list-style-type: none"> • 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) • How would you ensure your third angle orthographic projections conforms to British standards? Consider dimensioning. • Explain why dimensioning on a 3rd angle orthographic projection should conform to British standards. • What is green design and why is it important? • Why does technology change? (explain your reasons) • Why is it important to consider different cultures/countries when designing new products? • What are the benefits of automation? • What are the advantages and disadvantages for a business designing products using CAD? 	<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 a 3rd angle orthographic projection is so important do manufacturers and what would the drawing show?

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	<ul style="list-style-type: none"> • Why might CAM not be suitable for large scale manufacture but good for batch production? • What is the difference between technology push and market pull? Use examples in your response. • When would it be appropriate to use Pythagoras? • When would you use the Sine Rule? • How would you find out the area of a right angle triangle? 	
	Skill/Technique	How students will develop and demonstrate this
Key skills	<ul style="list-style-type: none"> • Lathe work / centre / wood • Modelling techniques including 3D CAD and CAM • Drawing techniques / styles • Joining metals / woods / plastics 	<ul style="list-style-type: none"> • Design portfolio • Manufactured products