




		Year:	10	Subject:	Product Design	Spring 2 & Summer 1 – Flat pack furniture	Summer 2
Intent	Subject Concepts (Substantive knowledge) 	<ul style="list-style-type: none"> Core technical principles 	New and emerging technologies Materials & their working properties Developments in new materials	Prior Knowledge: <ul style="list-style-type: none"> The difference between natural and man made timbers How to draw nets accurately An awareness of how prototypes are made to scale 	Takeaway Learning: <ul style="list-style-type: none"> Exploration of the impact of resource consumption on the planet The advantages and disadvantages of automation Explore how job roles have changed due to the emergence of new ways of working driven by technological change Ethical factors and consideration of ecological and social footprint Sources & origins, working properties and finishes of papers, board, natural and manufactured timbers 		
	<ul style="list-style-type: none"> Specific technical processes 	Forces & stresses Ecological & social footprint Sources and origins Using and working with materials Scales of production Specialist techniques and processes	Prior Knowledge: <ul style="list-style-type: none"> An understanding of different types of contact and non-contact force Awareness of the six Rs The use of production aids 	Takeaway Learning: <ul style="list-style-type: none"> Investigating how materials and objects can be manipulated to resist and work with forces and stresses Investigating the primary sources of metals and the main processes involved in converting into workable forms Looking at how materials can be modified for specific purposes Researching commercially available types and sizes of materials and components. Exploring how products are produced in different volumes and the reasons why different manufacturing methods are used for different production volumes Exploring how production aids are used in industry Looking at the preparation and application of treatments and finishes to enhance functional and aesthetic properties 			
	<ul style="list-style-type: none"> Designing and making principles 	Investigation, primary and secondary data Design strategies Prototype development Tolerances	Prior Knowledge: <ul style="list-style-type: none"> An understanding of the types of needs a client may have: Who, What, Where, Why, How Experience of how to write a design brief and produce a design and manufacturing specification 	Takeaway Learning: <ul style="list-style-type: none"> Use primary and secondary data to understand client and or user needs Generate imaginative and creative design ideas using a range of different design strategies Communicate design intentions through scaled working drawings including orthographic and isometric Design and develop prototypes in response to client wants and needs Work accurately using tolerances To select and use specialist techniques and processes appropriate for the material and/or task and use them to the requires level of accuracy in order to complete quality outcomes. 	Investigation, primary and secondary data Environmental, social and economic challenge The work of others	Prior Knowledge: <ul style="list-style-type: none"> How to carry out primary and secondary research How to complete a product analysis using ACCESSFM 	Takeaway Learning: <ul style="list-style-type: none"> Design possibilities identified and thoroughly explored, directly linked to a contextual challenge demonstrating excellent understanding of the problems/opportunities. A user/client has been clearly identified and is entirely relevant in all aspects to the contextual challenge and student has undertaken a comprehensive investigation of their needs and wants, with a clear explanation and justification of all aspects of these. Comprehensive investigation into the work of others that clearly informs ideas. Excellent design focus and full understanding of the impact on society including; economic and social effects.
	Disciplinary Knowledge	<ul style="list-style-type: none"> How to identify different wood joints How to describe the physical and working properties of different timbers and manufactured boards How to duplicate shapes within 2D design How to strengthen and reinforce materials How to scale up and scale down design ideas How products are manufactured on different scales 	<ul style="list-style-type: none"> How to select an appropriate client for the NEA How to communicate effectively with client (written and verbal) How to analyse research effectively in order to draw conclusions How to evaluate the social and economic impact of products and contexts. How to collect anthropometric data 				
Imple	Common Misconceptions	<ul style="list-style-type: none"> All products are designed without the ability to disassemble Any timber can be selected for any use (they all have the same properties) The larger the scale of manufacture, the more expensive the product 					

	Enabling or Adapting the Curriculum		SEND Students	<ul style="list-style-type: none"> One to one demonstrations Handouts to support verbal instructions Specific time frames Vocabulary lists Access to exemplar work 	<ul style="list-style-type: none"> Access to exemplar work Clear deadlines for each section (and shared with parents/carers) One to one intervention/small group intervention during lessons from STEM TA 	
			Disadvantaged Students	<ul style="list-style-type: none"> Access to examples of designer work Afterschool support 	<ul style="list-style-type: none"> Revision guides issued 	
			More Able Students	<ul style="list-style-type: none"> Additional challenge criteria Extension tasks provided 	<ul style="list-style-type: none"> Most able grouped together Grade 9 exemplar work shared 	
	Literacy/Numeracy Skills		LITERACY	Vocab:	Timber, manufactured board, hardwood, softwood, oak, ash, pine, sapele, MDF, Spruce, Plywood, Chipboard, grain, joining technique, lap joint, comb joint, finger joint, mortise & tenon, housing joint, dowel joint, mitre joint, replicate, tessellate, one off, batch, mass, continuous production, scale of manufacture	Research, Primary, secondary, Client, context, solution, explore, anthropometrics, analyse, ACCESSFM, Evaluate, Floor plan, design brief, specification,
				Reading:	<ul style="list-style-type: none"> Summer 1 Week 5 – DT PCAS Reading task 	<ul style="list-style-type: none"> Specification & support guides
				Writing:	<ul style="list-style-type: none"> Written assessment question 	<ul style="list-style-type: none"> NEA write up
				Oracy:	<ul style="list-style-type: none"> Offering verbal feedback to peers Students to provide verbal instructions/recaps on use of laser cutter 	<ul style="list-style-type: none"> Liaising and interviewing with client at all stages
		NUMERACY	<ul style="list-style-type: none"> Marking up of material Calculating material use/creating cuttings list using basic geometry Scaling up/down 	<ul style="list-style-type: none"> Collecting and comparing anthropometric data 		
Digital Strategy				<ul style="list-style-type: none"> Use of CAD packages 2D design Importing and exporting different file types to laser cutter Use of internet for secondary research 	<ul style="list-style-type: none"> NEA recorded on powerpoint and saved on Onedrive 	
Home Learning		<ul style="list-style-type: none"> Seneca assignments (set weekly) Exploring the manufacturing methods used to make a particular product 		<ul style="list-style-type: none"> Completion of Section A and B 		
Impact	Composite Assessment		Content	Date	Content	Date
			Written composite assessment	End of spring 2	NEA Section A & B	End of June
			Manufacturing plan including quality control & H&S	End of summer 1	Mock exam:	July