

Hopefully by the start of the New Year, students will have started practical work on their projects. They will all be at different points but must ensure they record the manufacturing stages they go through as they progress. They will need to comment on decisions made in their coursework, this will also help build knowledge which will be used when completing summer exams. Students should endeavour to learn, not just through what they do, but also from the experiences and processes used by their peers as they develop their understanding in the subject.

Year group: 11

Week	Lesson Topic	Independent/Home learning question 1	Independent/Home learning question 2	Key Vocab	Resources
1	Workshop practical. Students working on individual projects.	Outline the properties of ferrous metals giving examples of different types	Can you outline the environmental impact of using aluminium in common products like: bicycles, foil wrapping and laptops.	Ferrous Non Ferrous Aluminium	
2	Workshop practical. Students working on individual projects.	Cog wheels are sometimes made from nylon a. Name two properties that make it suitable for this product	Explain what CAM is	Cog Nylon CAM	
3	Workshop practical. Students working on individual projects.	Explain the disadvantages of using CAM in design	How could ICT be used to gather information from possible clients and how would this benefit the design process?	Client Research Analyse Chart Present Demonstrate	
4	Workshop practical. Students working on individual projects.	What can be used to improve the appearance and durability of manufactured boards?	Explain the advantages of using softwood in construction	Manufactured boards MDF Plywood Chipboard Veneer Laminate Foil Pine	

5	Workshop practical. Students working on individual projects.	Explain why photochromic glass might be used in a pair of glasses	Can you justify using Quantum Tunnelling Composite in a robotic hand	Smart materials QTC Photochromic Pressure	
6	Workshop practical. Students working on individual projects.	Explain how plywood is manufactured. Use sketches to help explain	Identify some advantages and disadvantages in the use of manufactured boards instead of real wood	Plywood Manufactured board Laminate Grain Veneer Warp Twist	
7	Workshop practical. Students working on individual projects.	Can you identify some wood joints? Sketch two examples	Explain the one advantage and one disadvantage of using smart glass on a modern home	Finger joint Lap joint Mortise and tenon Mitre joint Smart materials	
8	Personal evaluation against student specification	Can you explain why a card restaurant menu would be laminated?	Can you explain two advantages of using carton boards for retail packaging?	Structure Laminate Strength Shock absorbance	
9	Evaluation by others	In terms of sustainability discuss the use of unprotected steel to produce a bike frame	Why does a surface finish need to be applied to mild steel?	Paint Corrosion Aesthetics Rust Durability	
10	Record of modifications made	State three types of CNC Machine and state what you might use them to manufacture	Designers can make use of Computer Aided Design (CAD) software to produce virtual models of their designs. Explain the advantages and disadvantages of using CAD for virtual modelling instead of traditional modelling techniques	CAD CAM CNC CNC mill CNC Lathe CNC router 3D Printer Vinyl cutter Laser cutter	

11	Changes to be made if project were to be manufactured commercially	In terms of sustainability discuss the use of plastic for a milk bottle.	In terms of sustainability can you compare the use of stainless steel and biodegradable polymers as a material for the following common household product: Cutlery (knives and forks?)	Reduce Reuse Recycle Refuse Rethink Repair Product lifecycle Impact	
12	Checking and organisation of individual projects	A popular fast food chain has decided to use foil lined board for the packaging of their latest burger. Can you give reasons in relation to the foil lined boards working properties (flexibility, weight, surface finish and absorbency) why they selected this material?	Explain two advantages of using manufactured boards	Plywood MDF Veneer Flexiply Chipboard Particle board Composite material Tolerance	
13	Checking and organisation of individual projects	Explain how a 3D Printer is effective in the development of a rapid prototype design	Discuss how the use of Computer Aided Design (CAD) has helped graphic designers. Give examples to support your answer	Rapid prototyping Additive technology Layer Filament Extrude Model Thermoplastic	
14	Final submission of coursework	Give one common use of brass and explain why it is a suitable material for this use	Explain the process for galvanising a metal	Zinc Rust Corrosion	