Y12 Product Design - Long term planning – (Autumn 2022)

(5 lessons/2weeks)

Term1 – Mini Projects (Tools and materials focus) and Paper1-Technical Principles, (exam prep.)

Wk No:	L.O.	Date:	Activity:	Assessment:
1		5th Sept	Introduction to Product Design, content and assessment, with focus on NEA element of course. Potato peeler, designing and modelling activity, introduce: - Show previous year 13 NEA examples. - Model designing/sketching - Students complete design sketches	-A3 design ideas sheet -Evaluating safety and ergonomics - Paper 2 Exam Q
2		12thSept	Potato peeler, design and model activity: - Explain purpose of modelling. - Introduce suitable modelling materials and production methods. - Students complete modelling	-Electronic presentation showing justification and explanation of modelling evidence started - Polymorph and material properties -Paper1 Exam Q
3		19thSept	Potato peeler, design and model activity: - Record, explain, justify purpose of modelling activity, (NEA modelling practice task)	-Electronic presentation showing justification and explanation of modelling evidence completed
4		26th Sept	Introducing engineering materials (PPt Lesson 2 metals) Focus on metals: - Classification of materials - Defining material groups - Introducing metals – ferrous, non-ferrous, alloys, pure metals. - Introduction to mechanical testing of materials.	Completion of linked written activities in Classroom. (add to PPt on classroom)
5		3rd Oct	Mechanical Testing of materials (Tests start)	Observation and questioning to check understanding. Exam Q – Materials testing
6		10th Oct	Mechanical Testing of materials (Tests completed)	Observation and questioning to check understanding. Exam Q – Classification of materials
7		17th Oct	Write up of Testing methods and results	Written report (worksheet: Materials testing – Metals)
			HALF TERM	

8		31st Oct	Investigating metal processing: (PPt Lesson 2 metals) - Researching metal processing methods - Modelling a selected metal processing method and explaining this, (paired activity).	Written report Completion of basic model. Presentation of model, (in pairs). Exam Q –Metal processing
9		7th Nov	Introducing engineering materials (PPt Lesson 5 woods & Pt2, Pt4) Focus on woods: - Introduction to timber - Different types of wood, (softwood, hardwood, manufactured board). - Toxicity of wood - Seasoning of woods - Stock forms Joining woods – introduction to practical activity.	Completion of linked questions in Classroom. (add to PPt on classroom) Exam Q – performance characteristics of wood Exam Q – wood processes
10		14th Nov	Joining woods – practical, (finger joints)	Observation of skills and competency.
11		21st Nov	Joining woods – practical, (lap joints)	Observation of skills and competency.
12		28thNov	Joining woods – practical, (lap joints)	Observation of skills and competency.
13		5th Dec	Joining woods – research, select and compete final wood joint (Assemble as 4 sides of box) Finishing of woods – testing techniques	Observation of skills and competency. Rationale for joining and finishing methods.
14		12th Dec	Finishing of woods – applying finishes (PPt Lesson 4 Wood finishing processes)	Exam Q – wood finishing

Term 2 - Mini Projects (CAD/CAM focus) and Paper1-Technical Principles, (exam prep.)

Wk No:	**L.O.**	**Date:**	**Activity:**	**Assessment:**
15		2nd Jan	Introducing Engineering materials (PPt Lesson 6 Plastics) Focus on plastics: - Production of polymers - Advantages and disadvantages of using polymers	Written report linked to PPt questions Exam Q – Biodegradable polymers Exam Q – Performance characteristics of polymers

			- Classification of polymers - Bio polymers and biodegradable polymers	
16		9th Jan	Polymer processes: (PPt Lesson 7 Plastics processing) - Research processes Practical experimentation: - Using vacuum forming - Using the line bender - Using the laser cutter (CAD/CAM)	Written report linked to PPt questions Exam Q – Polymer processes
17		16th Jan	Polymer processing- practical, designing and making a polymer box lid (CAD/CAM opportunity)	Observation of skills and competency.
18		23rd Jan	Polymer processing- practical, designing and making a polymer box lid.	Observation of skills and competency.
19		30th Jan	Polymer processing- practical, designing and making a polymer box lid.	Observation of skills and competency.
20		6th Feb	Enhancement of materials, (plastics, metals): (PPt Lesson 7b Material Enhancement) - Answer question raised on PPt Practical demonstration: - Heat treatment of metals	Written report linked to PPt questions Exam Q – Polymer enhancement Exam Q – Metal enhancement
			HALF TERM	
21		20th Feb		
22		27th Feb		
23		6th Mar		
24		13thMar		
25		20thMar		
26		27thMar		
			EASTER	