

Holy Family Catholic School – Faculty of Mathematics Subject –Design and Technology

Autumn Half-Term 1

Year 11

Learning Intention	Vocab	Concept	Retrieval	Success Criteria	Hinge question	Red Zone
Week 1 1 - Understanding the course expectations	Expectations, NEA	Course expectations	Expectations, Components,	I can understand the content and expectations of the course. I can understand NEA component 1 and NEA component 2.	Na	Complete the planning sheet concerning how to structure and plan your NEA component
2 – Forces and stresses in materials	Tension, compression, torsion, shear, stresses, forces	Specialist technical principles	Tension, compression, torsion, shear, stresses, forces	I can recognise 4 main forces I can describe their effect on materials I can explain the difference between dynamic and static loads	A designer is selecting a material for a bridge. Which property is most important for resisting tensile stress? A. The material's ability to withstand being pulled apart without breaking. B. The material's ability to resist scratching and wear. C. The material's ability to conduct electricity efficiently.	Complete the worksheet on forces and stresses
3 – Practical learning Wood-based materials	Rulers Try squares Marking gauges Metric accuracy	Applying material knowledge and techniques	Rulers Try squares Marking gauges Metric accuracy	I can select appropriate marking tools I can use the tools appropriately and accurately	Na	Complete the practical tasks using the correct tools and equipment to accurately mark your work

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Week 2 4 - Material functionality	Enhance, resist, forces, stresses, functionality	Specialist technical principles	Enhance, resist, forces, stresses, functionality	I can define the term functionality I can explain how materials can be enhanced to resist forces I can identify common enhancement techniques	A designer is choosing a material for a saucepan handle. Which factor is the most important when considering the material's functionality? A. The material should be a poor conductor of heat to keep the handle safe to hold. B. The material should be the most expensive available. C. The material should match the colour of the saucepan.	Complete the worksheet on material functionality
5 – NEA component	Design possibilities Investigation Justification Societal impact Economic and social effects	Identifying and investigating design possibilities	Design possibilities Investigation Justification Societal impact Economic and social effects	I can identify design possibilities I can investigate possible design options I can outline the possibilities and solutions available		Analyse the contextual challenge to identify design possibilities, investigate client needs and wants and consider factors including economic and social challenges.
Week 3 6- Ecological and social footprint	Greenhouse gases, Carbon Product miles Pollution	Specialist technical principles	Greenhouse gases, Carbon Product miles Pollution	I can define carbon footprint I can explain the role of greenhouse gases in global warming I can identify the impact of consumer society on the environment	Which design decision would most effectively reduce a product's ecological and social footprint? A. Using ethically sourced, recycled materials and ensuring workers are paid fair wages throughout the supply chain.	Complete the worksheet on ecological and social footprint

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					B. Increasing packaging to make the product appear more premium. C. Manufacturing the product as quickly as possible, regardless of resource use or working conditions.	
7- Practical learning Wood based materials	PPE Safety Workshop Machinery Behaviour	Applying material knowledge and techniques	PPE Safety Workshop Machinery Behaviour	I can select appropriate PPE I can use machinery in a safe manner I can show appropriate behaviour and attitudes in the workshop	Na	Complete the practical tasks using the correct tools and equipment to accurately shape and cut your work while showing awareness of safety in the workshop
8 – NEA component	Design possibilities Investigation Justification Societal impact Economic and social effects	Identifying and investigating design possibilities	Design possibilities Investigation Justification Societal impact Economic and social effects	I can identify design possibilities I can investigate possible design options I can outline the possibilities and solutions available		Analyse the contextual challenge to identify design possibilities, investigate client needs and wants and consider factors including economic and social challenges
Week 4 9- The 6 R's	Consumers Waste Finite resources Hierarchy Sustainable	Specialist technical principles	Consumers Waste Finite resources Hierarchy Sustainable	I can describe the 6R's I can explain their role in reducing waste and demand on resources I can describe the hierarchy of options in sustainable design	A designer wants to apply the 6 Rs of sustainability to reduce environmental impact. Which action best demonstrates the principle of Reuse?	Complete the worksheet the 6R's

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					A. Designing a glass bottle that can be cleaned and used many times before being recycled. B. Melting down aluminium cans to make new products. C. Using less material when manufacturing a product.	
10 – Practical learning Wood based materials	Joining Screws Nails Adhesives Joints Tools	Applying material knowledge and techniques	Joining Screws Nails Adhesives Joints Tools	I can use screws, nails, adhesives I am able to describe other joining techniques I can select tools appropriately	Na	Complete the practical tasks using the correct tools and equipment to accurately join your workpieces together
Week 5 11- Scales of production	Products Volumes Manufacturing methods Processes Levels of production	Specialist technical principles	Products Volumes Manufacturing methods Processes Levels of production	I can explain how products are produced in different volumes I can describe different manufacturing processes I can identify relevant processes to the specific level of production	A designer wants to apply the 6 Rs of sustainability to reduce environmental impact. Which action best demonstrates the principle of Reuse? A. Designing a glass bottle that can be cleaned and used many times before being recycled. B. Melting down aluminium cans to make new products. C. Using less material when manufacturing a product.	Complete the worksheet on scales of production
12 – Practical learning	Safety Machinery Planning	Applying material knowledge	Safety Machinery Planning	I can select appropriate PPE	Na	Complete the practical learning lesson demonstrating safety awareness and utilising

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Wood based materials	Modification PPE	and techniques	Modification PPE	I can use machinery in a safe manner I am able to demonstrate appropriate behaviour and attitudes in the workshop		appropriate techniques to complete the task
13 – NEA component	Design possibilities Investigation Justification Societal impact Economic and social effects	Identifying and investigating design possibilities	Design possibilities Investigation Justification Societal impact Economic and social effects	I can identify design possibilities I can investigate possible design options I can outline the possibilities and solutions available		Analyse the contextual challenge to identify design possibilities, investigate client needs and wants and consider factors including economic and social challenges
Week 6 14 – Practical learning Wood based materials	Safety Machinery Planning Modification PPE	Applying material knowledge and techniques	Safety Machinery Planning Modification PPE	I can select appropriate finishes such as paint, varnish and stain I can select finishes appropriate to specific materials	Na	Complete the practical learning lesson demonstrating safety awareness and utilising appropriate finishing techniques to complete the task
15 – Papers and boards – production, use and manufacturing	Primary sources Papers Boards Ecological Commercial products	Specialist technical principles	Primary sources Papers Boards Ecological Commercial products	I can identify primary sources of papers and boards I can explain the ecological issues in manufacturing and recycling paper and boards	A designer is creating packaging for a heavy electronic product. Which paper-based material would be the most suitable for providing strength and protection? A. Tissue paper, because it is lightweight and soft.	Complete the worksheet on papers and boards

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				I can describe the different properties of papers and boards	B. Corrugated board, because its layered structure provides strength and cushioning. C. Tracing paper, because it is transparent and flexible.	
Week 7 16 - Papers and boards – shaping, cutting and processing	Marking out Sizing Waste Deform Reform finish	Specialist technical principles	Marking out Sizing Waste Deform Reform finish	I can explain the process of shaping and cutting paper and boards I can describe the techniques used I can identify the standard components used	A designer needs a material to create a high-quality presentation model that is stiff, easy to cut, and has a smooth surface for mounting drawings. Which material is most suitable? A. Mount board B. Tissue paper C. Corrugated board	Complete the worksheet papers and boards
17 – NEA component	Design possibilities Investigation Justification Societal impact Economic and social effects	Identifying and investigating design possibilities	Design possibilities Investigation Justification Societal impact Economic and social effects	I can identify design possibilities I can investigate possible design options I can outline the possibilities and solutions available		Analyse the contextual challenge to identify design possibilities, investigate client needs and wants and consider factors including economic and social challenges
18 – Practical learning Wood based materials - continued	Finish Stain Protection Enhancement Specific	Applying material knowledge and techniques	Finish Stain Protection Enhancement Specific	I can select appropriate finishes such as paint, varnish and stain I can select finishes appropriate to specific materials	Na	Complete the practical learning lesson demonstrating safety awareness and utilising appropriate finishing techniques to complete the task

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Week 8 19 – Timber based materials – production, use and manufacturing	Stock forms Components Quantities Forming Processing	Specialist technical principles	Stock forms Components Quantities Forming Processing	I can identify primary sources of timber materials I can explain the ecological issues in manufacturing and recycling timber materials I can describe the different properties of timber materials	A designer needs a material to create a high-quality presentation model that is stiff, easy to cut, and has a smooth surface for mounting drawings. Which material is most suitable? A. Mount board B. Tissue paper C. Corrugated board	Complete the worksheet on timber-based materials
20 – Practical learning final lesson	Finish Stain Protection Modifications Conclusions	Applying material knowledge and techniques	Finish Stain Protection Modifications Conclusions	I can select appropriate finishes such as paint, varnish and stain I can select finishes appropriate to specific materials	Na	Complete the practical learning lesson demonstrating safety awareness and utilising appropriate finishing techniques to complete the task