



Curriculum Map



Subject: Product Design

Year: 11

group:

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Content</p> <p><i>Declarative Knowledge – ‘Know What’</i></p>	<p>Subject/Topic:</p> <p>content Non-exam Assessment (NEA)</p> <p>Core technical principles</p> <ul style="list-style-type: none"> Specialist technical principles Designing and making principles Explore and develop their own ideas using an iterative process including: sketching, modelling, testing, evaluation of their work to improve outcomes Use of computer based tools to develop and communicate design ideas <p>The NEA is broken into the following areas: Analysis of the context Task Investigation Design Brief and Specification</p> <p>Core technical principles and specialist technical principles – Subject Theory</p>	<p>Subject/Topic:</p> <p>content Non-exam Assessment (NEA)</p> <p>Continue development of Design Ideas, detailed and client focused annotation of ideas. Review of ideas against the specification Design development and modelling including CAD where appropriate Final Design completed in sufficient detail, including Isometric, Perspective and Orthographic drawings. Detailed and comprehensive cutting list of all parts produced.</p> <p>Core technical principles and specialist technical principles – Subject Theory</p>	<p>Subject/Topic:</p> <p>content Non-exam Assessment (NEA)</p> <p>Manufacturing Specification and Cutting List checked and submitted to Technician. Manufacture of prototype by student supported where necessary by Teacher/Technician.</p> <p>The substantive part of the practical outcome should be completed during Spring 1.</p> <p>Core technical principles and specialist technical principles – Subject Theory</p> <ul style="list-style-type: none"> Classification of the types and properties of 	<p>Subject/Topic:</p> <p>content Non-exam Assessment (NEA)</p> <p>Complete manufacture of prototype. Detailed Evaluation and Testing of completed prototype against Specification and criteria established with the client. Ensure the client is engaged with the Evaluation process. Students submit NEA content for final assessment, moderation and submission after Easter.</p> <p>Core technical principles and specialist technical principles – Subject Theory</p> <ul style="list-style-type: none"> The use of production aids 	<p>Subject/Topic:</p> <p>content Exam Preparation</p> <p>Revisit: Core Technical Principles Specialist Technical Principles Designing & Making Principles Submission of final NEA Grades (5th May) Revisit key areas of curriculum for exam preparation. Identify weak areas to cover. Use all resources available to embed core knowledge. Students sit final exam (or after H/T) Utilise Countdown Calendar.</p> <p>Core technical principles and specialist technical principles – Subject Theory</p> <p><i>Reinforce knowledge and understanding in areas</i></p>	<p>Subject/Topic:</p> <p>content Final Exam</p> <p>Students sit for the final exam.</p>



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	<p>Working properties of natural and manufactured timbers</p> <ul style="list-style-type: none"> • Sources, origins and properties of timber based materials • Working to a tolerance with timber based materials <p>• Key mathematical content including scaling, geometry, trigonometry, data interpretation and calculating quantities and costs</p> <p>Key focus areas following the PPE: Processes, Mathematical skills, Graphical skills (Orthographic and Isometric drawings), Modelling and Key terminology</p> <p>Key terminology:</p> <p>Automation Client Commercial process Commercial product Conceptual stages (of design) Continuous improvement Co-operative Crowdfunding</p>	<ul style="list-style-type: none"> • <i>Ecological issues in the design and manufacture of products</i> • <i>Stock forms of timber based materials</i> <p>• <i>Key mathematical content including scaling, geometry, trigonometry, data interpretation and calculating quantities and costs</i></p> <p><i>Key focus areas following the PPE:</i> <i>Processes, Mathematical skills, Graphical skills (Orthographic and Isometric drawings), Modelling and Key terminology</i></p> <p>Key terminology:</p> <p>Ecological Ethics Fabricate Finite Functionality Fusibility Iterative design Lean manufacturing Life cycle assessment</p>	<p><i>polymers: thermoforming, thermosetting</i></p> <ul style="list-style-type: none"> • <i>Working properties of polymers</i> • <i>How to shape and form using cutting, abrasion and addition: polymers, paper and board</i> • <i>Stock forms of polymers</i> <p>• <i>Key mathematical content including scaling, geometry, trigonometry, data interpretation and calculating quantities and costs</i></p> <p><i>Key focus areas following the PPE:</i> <i>Processes, Mathematical skills, Graphical skills (Orthographic and Isometric drawings), Modelling and Key terminology</i></p> <p>Key terminology:</p> <p>Market pull Mechanical device Nesting Physical properties Planned obsolescence Primary source Primary source (of materials) Product</p>	<ul style="list-style-type: none"> • <i>Tools, equipment and processes</i> • <i>How materials are cut, shaped and formed to a tolerance</i> • <i>Key mathematical content including scaling, geometry, trigonometry, data interpretation and calculating quantities and costs</i> <p><i>Key focus areas following the PPE:</i> <i>Processes, Mathematical skills, Graphical skills (Orthographic and Isometric drawings), Modelling and Key terminology</i></p> <p>Key terminology:</p> <p>Prototype Schematic diagram Social footprint Social responsibility Stock form Technology push Tolerance User User centred design Working properties</p>	<p><i>identified through PPE and ongoing teacher assessment. Link to past paper questions. Identify and discuss exam question structure - key words and terms.</i></p> <p>Key terminology:</p> <p>Re-visit all relevant key terminology to check understanding. Reinforce contextualising key words and terms. Link to prior exam content.</p>	
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Curriculum Map



<p>Skills</p> <p><i>Procedural Knowledge – ‘Know How’</i></p>	<ul style="list-style-type: none"> ● Investigation skills ● Design skills (CAD) ● Analysis skills ● Evaluation skills ● Practical skills through making Product analysis skills <ul style="list-style-type: none"> ● Understanding and interpreting examination questions ● Structuring answers to examination questions ● Developing and revising subject terminology (especially with regards to materials and processes) ● Mathematical skills for Design & Technology 	<ul style="list-style-type: none"> ● Investigation skills ● Design skills (CAD) ● Analysis skills ● Evaluation skills ● Practical skills through making Product analysis skills <ul style="list-style-type: none"> ● Understanding and interpreting examination questions ● Structuring answers to examination questions ● Developing and revising subject terminology (especially with regards to materials and processes) ● Mathematical skills for Design & Technology 	<ul style="list-style-type: none"> ● Investigation skills ● Design skills (CAD) ● Analysis skills ● Evaluation skills ● Practical skills through making Product analysis skills <ul style="list-style-type: none"> ● Understanding and interpreting examination questions ● Structuring answers to examination questions ● Developing and revising subject terminology (especially with regards to materials and processes) ● Mathematical skills for Design & Technology 	<ul style="list-style-type: none"> ● Investigation skills ● Design skills (CAD) ● Analysis skills ● Evaluation skills ● Practical skills through making Product analysis skills <ul style="list-style-type: none"> ● Understanding and interpreting examination questions ● Structuring answers to examination questions ● Developing and revising subject terminology (especially with regards to materials and processes) ● Mathematical skills for Design & Technology 		
<p>Assessment</p>	<p>NEA hand in/ on-going Assessment of work: Unit assessments:</p>	<p>NEA hand in/ on-going Assessment of work: Unit assessments:</p>	<p>NEA hand in/ on-going Assessment of work: Unit assessments:</p>	<p>NEA Final assessment of folder work: Final made product assessment:</p>		
<p>Rationale</p>	<p>Demonstrate their understanding that all design and technological activity takes place within contexts that influence the outcomes of design practice</p> <p>Develop realistic design proposals as a result of the exploration of design opportunities and users' needs, wants and values</p>	<p>Use imagination, experimentation and combine ideas when designing</p> <p>Develop the skills to critique and refine their own ideas whilst designing and making</p> <p>Communicate their design ideas and decisions using different media and techniques, as appropriate for different audiences at key points in their designing</p>	<p>develop decision making skills, including the planning and organisation of time and resources when managing their own project work</p> <p>develop a broad knowledge of materials, components and technologies and practical skills to develop high quality, imaginative and functional prototypes</p> <p>be ambitious and open to explore and take design risks in order to stretch the development of design proposals,</p>	<p>consider the costs, commercial viability and marketing of products</p> <p>demonstrate safe working practices in design and technology</p> <p>use key design and technology terminology including those related to: designing, innovation and communication; materials and technologies; making, manufacture and production; critiquing, values and ethics.</p>		



Curriculum Map



			avoiding clichéd or stereotypical responses				
Literacy/Numeracy/ SMSC/Character	Literacy Focus: To use speaking, reading and listening to develop subject learning and effectively communicate creative ideas. Guided reading	Literacy focus: To use speaking, reading and listening to develop subject learning and effectively communicate creative ideas. Guided reading	Literacy focus: To use speaking, reading and listening to develop subject learning and effectively communicate creative ideas. Guided reading	Literacy focus: To use speaking, reading and listening to develop subject learning and effectively communicate creative ideas. Guided reading	Literacy focus: To use speaking, reading and listening to develop subject learning and effectively communicate creative ideas. Guided reading	Literacy focus: To use speaking, reading and listening to develop subject learning and effectively communicate creative ideas. Guided reading	
	SMSC/Character: Opportunity to contribute to the Ridgeway Academy Design and Technology department tackle on waste, using the design principles of the 6 R's.	SMSC/Character: Opportunity to contribute to the Ridgeway Academy Design and Technology department tackle on waste, using the design principles of the 6 R's.	SMSC/Character: Opportunity to contribute to the Ridgeway Academy Design and Technology department tackle on waste, using the design principles of the 6 R's.	SMSC/Character: Opportunity to contribute to the Ridgeway Academy Design and Technology department tackle on waste, using the design principles of the 6 R's.	SMSC/Character: Opportunity to contribute to the Ridgeway Academy Design and Technology department tackle on waste, using the design principles of the 6 R's.	SMSC/Character: Opportunity to contribute to the Ridgeway Academy Design and Technology department tackle on waste, using the design principles of the 6 R's.	SMSC/Character: Opportunity to contribute to the Ridgeway Academy Design and Technology department tackle on waste, using the design principles of the 6 R's.
	Weekly after school intervention offered plus additional support when and where required to complete aspects of the NEA.	Weekly after school intervention offered plus additional support when and where required to complete aspects of the NEA.	Weekly after school intervention offered plus additional support when and where required to complete aspects of the NEA.	Weekly after school intervention offered plus additional support when and where required to complete aspects of the NEA.	Weekly after school intervention offered plus additional support when and where required to complete aspects of the NEA.	Weekly after school intervention offered plus additional support when and where required to complete aspects of the NEA.	Weekly after school intervention offered plus additional support when and where required to complete aspects of the NEA.
	Why is consideration of the environment and the impact that design can have on it critical to the Design and manufacturing process?	Why is consideration of the environment and the impact that design can have on it critical to the Design and manufacturing process?	Why is consideration of the environment and the impact that design can have on it critical to the Design and manufacturing process?	Why is consideration of the environment and the impact that design can have on it critical to the Design and Manufacturing process?	Why is consideration of the environment and the impact that design can have on it critical to the Design and Manufacturing process?	Why is consideration of the environment and the impact that design can have on it critical to the Design and Manufacturing process?	
Rationale & Links to learning	Students use the iterative design skills learnt in year 10 to conceptualise a solution to the design challenge (AQA Specification)	Students respond to design challenges, critically analysing and evaluating their own work, making appropriate design decisions and developments.	Students use prototyping and model making the development process and				