

Year 9 Design Technology Curriculum Rationale

“Ethical design, environment and culture”. Four design-and-make projects are taught across the year. The theme for all projects is “Ethical design, environment and culture”, and each project has been designed to give learners a pertinent focus and help them to appreciate the wider impact of design on individuals, communities and the environment. META-COGNITION is key in all projects as we aim to give students the ability to transfer knowledge/learning from one design area to another, by explicitly highlighting these transferable skills and knowledge.

Unit:	Core knowledge/skill development:	Sequence:	Assessment:	Literacy, numeracy, PSHE, FBV, other links	ACP and VAA development:	Home learning and enrichment
Product Design <i>Clock</i> 16.5 hours	<ul style="list-style-type: none"> -be able to use iterative design strategy to produce original ideas -be able to use a variety of hand tools such as scalpels, coping saws and files -be able to use machines such as the band facer -display safe working practices in the workshop -the difference between natural timbers and manmade timber materials and the ethical factors involved in sourcing them 	<ul style="list-style-type: none"> -Build on iterative design skills learnt in years 7 and 8 -introduce more complex wood joining techniques which build on the skills and techniques learnt in year 8 	<p>FA1 – Design ideas</p> <p>FA2 – Practical assessment</p> <p>End of unit test – Sources of materials</p>	<p>-Ethical design and the environment – the effect of consumerism and ‘throwaway culture’. Students will learn how poorly designed products can have a negative impact on the environment and waste natural resources. The environmental footprint of plastics.</p>	<p>-CREATING – <i>Fluent and flexible thinking</i> when designing iteratively</p> <p>-REALISING – Focussing on <i>accuracy</i> to produce a quality outcome</p> <p>-META-THINKING – <i>self-regulation</i> – be able to judge the quality of your own work and decide upon steps needed to improve (what is expected quality?)</p>	<p>HW1 – Materials research sheet</p> <p>HW2 – EBL task – How does product manufacture of plastic products affect the environment.</p> <p>HW3 – Revise for end of unit test</p>

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Textiles Pencil case 16.5 hours	-understand the importance of using a design strategy to avoid design fixation -understand how to use impact printing technique to produce a unique design -learn how to use zip fixing -be able to use applique to emphasise and add detail to practical work	-build on iterative design techniques introduced in year 7 -Introduce the impact printing process as an alternative to batik process used in Years 7 and 8	FA1 – Design ideas FA2 – Practical assessment End of unit test – Textiles materials and sources	SMSC -Cultural and ethical factors of fashion trends including: -avoiding offence -suitability for market -use of colour and language -consumer society -effects of mass production	- CREATING – <i>Fluent and flexible thinking</i> when designing iteratively - REALISING – Focussing on <i>accuracy</i> to produce a quality outcome META-THINKING self-regulation and taking risks EMPATHETIC – concerned for society	HW1 – Materials research sheet HW2 – EBL task – the cultural impact of fast-fashion HW3 – Revise for end of unit test
Graphics/CAD Lantern 16.5 hours	-be able to use iterative design strategy to produce original ideas -display safe working practices in the workshop -Understand the process of CAD/CAM as applied to 2D Design, OnShape and the laser cutter	-Build on iterative design skills taught in Years 7 and 8. -build on safe working practices learnt in previous projects -Introduce concept of parametric 3D modelling including component design, assembly techniques and orthographic projection	FA1 – Design ideas (CAD skills focus) FA2 – Practical assessment End of unit test – Quantity production	SMSC -Ethical design – the effect of mass production on society -standard components and reducing waste -sustainable sources of materials NUMERACY	- CREATING – <i>Fluent and flexible thinking</i> when designing iteratively - REALISING – -Focussing on <i>accuracy</i> to produce a quality outcome. -developing AUTOMATICITY when using CAD software META-THINKING – using self-regulation to	HW1 – Materials research sheet HW2 – EBL task – How can we reduce waste when designing products? HW3 – Revise for end of unit test

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	<p>- understand some of the ethical impacts of mass production -understand how the use of standard components can benefit companies, consumers and the environment</p>			<p>-parametric 3D modelling – using dimensioning tools to create accurate components by understanding dimensional constraints, angles and radii.</p>	<p>monitor progress and manage tasks when using 2D Design and Onshape packages</p>	
<p>Food <i>16.5 hours</i></p>	<p>-Be able to use provided ingredient lists to make a variety of recipes -Be able to safely use knives, hobs and ovens -Learn how to work in a hygienic manner in the food room -Learn how to prevent the cross-contamination of a variety of foods -Learn about different religions linked to food and different cultures</p> <p>Recipes:</p>	<p>-in Year 9, the recipes are designed to be more technically difficult than those in Years 7 and 8, while building on previously learned skills such as safe and accurate use of knives, safe use of hobs and ovens, a variety of mixing techniques (manual and mechanical), organisation of different stages of preparation and cooking and</p>	<p>SA 1- student-designed and planned meal</p> <p>SA 2- Student-designed and planned meal</p> <p>Planning and preparation – how well have students planned their practical assessment, including ingredients, method and timings?</p>	<p>LITERACY – correct interpretation of ingredients labels and method statements</p> <p>NUMERACY – correctly reading and weighing ingredients using scales and volume measuring equipment. Correct use of timings, adapting if needed.</p>	<p>LINKING – Be able to transfer knowledge and skills to other recipes using different foods and ingredients</p> <p>META-THINKING – <i>self regulation</i> – being able to make decisions about the progress of dishes and practical cooking including timings and ingredient quantities, including being able to adapt or modify dishes if necessary</p> <p>REALISING – being able to follow recipes <i>accurately</i> and be able to carefully prepare and cook food.</p>	<p>HW1 – Food safety and hygiene sheet</p> <p>HW2 – EBL task – Bread as a staple food?</p> <p>HW3 – Design and plan practical assessments 1 and 2.</p>

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	<p>Bread – multiple options of presentation</p> <p>Pizza – using similar ingredients to bread practical, students allowed to adapt recipe and toppings.</p> <p>Belgian buns – builds on bread practical but adds more technical challenge and extra preparation requirements.</p> <p>Chickpea and spinach curry – combines a variety of cooking and chopping techniques.</p> <p>2 ‘student choice’ assessments – students must design/adapt a challenging practical task that includes a variety of preparation techniques learnt in this module, including knife skills and mixing of ingredients,</p>	<p>hygiene management.</p>	<p>Practical – How well have students executed the cooking and presentation of their dish?</p>	<p>PSHE – importance of being able to create and prepare healthy meals</p>	<p>Work within the rules of a domain</p>	

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	showing a variety of skills					