

Design and Technology at Key Stage 3 at Cottenham Village College aims to resource our learners with the skills and resources to make a positive impact on society. We want to provide them with the experience of the changing face of design and engineering and the impact our design decisions make on people, the environment and society. The curriculum is designed to build a foundation of material knowledge underpinned with a focus on sustainability that allows students to explore a user-centred design approach leading to creative thinkers with empathy and consideration of others.

At Cottenham VC we routinely use a range of strategies to formatively assess and give feedback to students about their progress. In Design and Technology these strategies include rotational knowledge quizzes to assess understanding of technical concepts and key vocabulary. Whole class feedback used to aid the development of new practical skills.

	Rotation 1	Rotation 2	Rotation 3	Rotation 4
Key subject knowledge: Developing further knowledge of material categories and design methods.	Design from different starting points, Fundamentals of Biomimetic design, using evaluative language to inform design thinking, model making,	Fundamentals of polymer materials, fundamentals of metals, fabrication of polymer and metals, introduction to electronic components.	Food and Nutrition, Micro and Macro Nutrients, creating balanced recipes, developing preparation skills.	Fundamentals of Textiles materials, hand sewing skills, pattern making and construction allowances, material management, design movements and the work of others.
Key disciplinary knowledge: Key skills and technical knowledge	Investigation of Biomimetic design and the impacts on the technologies that we are familiar with. Approaching the design process from different starting points including, morphing, design from structures, direct observation. Model making as a form of design development.	Using product analysis as a form of investigation. Develop a basic introduction to tools and machines used to work metal and polymer materials. Introduction to vacuum forming and industrial processes used in producing polymer products. Introduction to electronic components and production skills such as soldering	The importance of balanced nutrient based on the eat well guide. Introduction to effects on nutrients on the body and where they are found in the ingredients that we use. Development of food preparation skills and working with more complex recipes	The working properties of natural and synthetic textile materials. The methods of turning raw fibres into usable fabrics. Construction methods including the use of appropriate adhesives and hand sewing skills. Responding to design history. Planning a textile outcome including making patterns and including seam allowances.
Summative Assessment Strategies	Baseline technical knowledge quiz. Model made to the requirements of a product design brief, looking at the interpretation of 2D ideas into 3D models, constructions skills, scale, and proportion planning.	Completed project demonstrating the following skills. Realisation of design intentions, safe working practice, accuracy of construction skills.	Cold knowledge quiz Demonstrating appropriate practical skills Assessment of independent working practice, End of unit test based on technical knowledge.	Technical knowledge test Demonstration of independent working skills. Assessment of practical production skills and tool uses.

<p>How does this unit prepare students for future study? (Why does this unit go here and not elsewhere in your curriculum)</p>	<p>The placement of this unit aims give students a wider experience of how to begin the ideation process and how to use investigation and inspiration to develop novel ideas.</p>	<p>This project is focused on the making skills and allows students to consider production techniques while they are designing outcomes. Introducing hands on experience with the materials helps to develop their conceptual model of how they can be utilized in their products.</p>	<p>Students will further investigate and explore the nutritional content of ingredients and recipes. Recipes and techniques will introduce more complex skills and allow students to make adaptations to meet individual needs.</p>	<p>Students will gain an understanding of textiles as a material category and extend their conceptual model of how textiles are utilized in product design. Hands on experience with the materials will provide a foundation for the potential use in future projects.</p>
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