



Topic name	Rotation	Skills developed (Research, Design, Make, Evaluate)	Link to NC subject content	Prior learning	Next link in curriculum
<p>Nutritional needs and dietary disorders</p> <p>Principles of cooking. Looking at different methods and effect on foods. Revisiting sensory evaluation</p> <p>Science and function of Chemical, mechanical and biological raising agents.</p> <p>Supermarket survey and research task – working together, linking information, wider thinking.</p>	Food & Nutrition	<p>Research: Understand government guidelines for healthy eating. Knowledge of nutrients. Understanding the link between nutrition and dietary disorders</p> <p>Research, Design, Evaluation: Understanding the process of sensory evaluating food products. They will also look at how different methods affect the outcome of different products – in particular, poaching and baking.</p> <p>Research, analysis and evaluation: Further knowledge of Raising agents – their form, function and use in food preparation.</p> <p>Research, analysis and Evaluation: Looking at foods available in the supermarkets and discussing cost, provenance, sustainability of production etc. Evaluation of results and conclusions drawn from evidence</p>	<p>Understand and apply the principles of nutrition and health.</p> <p>Combining ingredients and applying heat in different ways. Awareness of taste, texture and smell to decide how to season dishes and combine ingredients, adapting and using their own recipes.</p> <p>Understand and use the properties of materials to achieve functioning solutions. Select from a wider, more complex range of materials, components and ingredients, taking into account their properties. Use research and exploration, such as the study of different cultures, to identify and understand user needs. Develop and communicate research by oral, digital presentations and computer based tools.</p>	<p>Links from previous Y7&8 rotation: Yr 7 and 8 healthy eating and nutrition</p> <p>Yr7&8 sensory evaluation and practical activities.</p> <p>Raising agents Practical skills to reinforce theory.</p> <p>Food sourcing and food choice.</p>	<p>Link to next rotation:</p> <p>Practical sessions to reinforce correct procedures. Food choice, labels</p> <p>Function and characteristics of nutrients</p> <p>Practical skills to reinforce theory.</p> <p>Practical tasks to clarify understanding of theoretical concepts learned and reinforcing practical skills</p>



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Ikea inspired flat pack personal storage stand	Product Design	<p>Research- Ikea and flat pack products. Understanding the properties of bamboo, its sustainability, and suitability for the project, as well as choosing a wood finish that complements the material.</p> <p>Design: Using CAD software to create a design for the storage stand helps students become proficient in CAD</p> <p>Prototyping: Developing a functional prototype and iterating on the design to improve efficiency and aesthetics.</p> <p>Creativity: Designing a storage stand encourages students to consider aesthetics, user experience, and functionality, fostering creativity and design skills.</p> <p>Make: Accurate measurements are crucial for ensuring that the pieces fit together seamlessly. Laser Cutting- Operating a laser cutter, setting parameters, and ensuring that the pieces are cut with precision involves technical skills and understanding CNC processes.</p> <p>Assembly Skills: Learning how to slot the pieces together effectively without the need for adhesives or screws develops problem-solving and spatial skills. Ensuring that the stand is structurally sound and stable.</p> <p>Finishing Techniques: Applying a suitable wood finish to the bamboo enhances the aesthetic and durability of the product, requiring knowledge of woodworking and finishing techniques.</p> <p>Evaluate and Test: Students will evaluate the final product, which is part of the iterative design process.</p>	<p>Design and Creativity: This project encourages students to develop their design skills by creating a functional and aesthetically pleasing storage stand. They must consider user needs, aesthetics, and functionality in their designs.</p> <p>Materials and Properties: Introduces students to bamboo as a material and its properties, emphasising the importance of material selection in D&T.</p> <p>CAD: The use of CAD software aligns with the curriculum's emphasis on digital design and the practical use of computer-aided design tools.</p> <p>Laser Cutting CAM: This project introduces students to CAM processes through laser cutting. This aligns with the curriculum's focus on understanding and using manufacturing processes, including CNC technologies.</p> <p>Sustainability: Bamboo promotes an understanding of sustainable materials and environmental responsibility.</p> <p>Problem-Solving: Designing a structure that slots together without adhesives or screws involves problem-solving and technical knowledge related to the structural integrity of the design.</p> <p>Prototyping and Iteration: This project encourages students to create prototypes and iterate on their designs, which aligns with the iterative design process emphasised in the curriculum.</p>	<p>Links from KS2: Design: At KS2, students are introduced to basic design skills. This project allows them to build on these foundations, encouraging them to think more critically about design principles, user needs, and aesthetics.</p> <p>Materials and Properties: KS2 introduces students to different materials and their properties, this project extends that knowledge by focusing on bamboo and its suitability for the project. It reinforces the concept of material selection based on characteristics like strength, durability, and sustainability.</p> <p>Problem-Solving: Designing a structure that slots together without adhesives or screws presents a more complex problem that builds upon the problem-solving skills developed during KS2.</p> <p>Creativity and Aesthetics: This project challenges students to think more creatively about aesthetics and user experience. This builds upon the basic creative thinking and expression skills developed at KS2.</p> <p>Sustainability Awareness: KS2 may introduce students to basic concepts of sustainability. This project extends this by using bamboo, a sustainable material, and promotes a deeper understanding.</p> <p>Links from previous Y7 rotation: Food & Nutrition- Measuring and precision Textiles- Sustainability, iterative design.</p>	<p>Link to next rotation: Research Design Make Evaluate CAM/CAM Material Knowledge Problem Solving Creativity Measuring & Accuracy Sustainability Iterative Design</p>



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Interiors	Textiles Technology	<p>Research/ investigate Students will spend a large proportion of their time investigating and learning about the importance of sustainability within the design industry- across all areas of design technology. 6R's Power sources/ generation Sustainability Life cycle analysis Students will discuss these elements in small groups and feedback to the class.</p> <p>Make Students will make a interior product the utilizes upcycled fabric and is tie dyed. Students will also learn about patchwork and how to create an effective pattern using it. Students will apply skills that they have previously learnt to add embellishment to the product if they have time.</p>	<p>Design and Creativity: This project encourages students to develop their design skills by creating a functional and aesthetically pleasing product that must include tie dye and patchwork, students must consider the environmental impact of their product.</p> <p>Materials and Properties: Introduces students to different manufacturing techniques and their importance combined with fabric choice- ie cotton to dye as it is absorbent.</p> <p>Sustainability: Investigation and research into the sustainability of different products promotes environmental responsibility.</p> <p>Problem-Solving: Designing and making a product that investigates and creates a partial solution to the sustainability problem.</p>	<p>Links from previous years: Y7 and 8 Machine and overlocker skills Embellishment Pinning Ironing</p> <p>Links from previous Y9 rotation: Food & Nutrition- Measuring and precision, sustainable ingredients. Shop local- food sourcing. Product Design- Communication of ideas, working with Bamboo- sustainability.</p>	<p>Link to next rotation: Research Design Make Evaluate CAM/CAM Material Knowledge Problem Solving Creativity Measuring & Accuracy Sustainability Iterative Design</p> <p><i>Working with knitted fabrics and investigating designers – Yr 10</i></p>



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Sketching & Rendering	Core Skills	<p>Design: Students will improve their drawing skills, including the ability to create clear, accurate, and expressive visual representations of their design ideas.</p> <p>Tone and Texture Shading: Learning how to use various shading techniques to create tone and texture in drawings enhances their ability to add depth and realism to designs.</p> <p>Rendering Techniques: Rendering involves creating highly detailed and polished visual representations. Students will learn how to use rendering techniques to make their designs more visually appealing and realistic.</p> <p>Freehand 3D Sketching: Freehand 3D sketching allows students to capture three-dimensional objects and spaces quickly and accurately, helping them develop spatial awareness and the ability to convey 3D concepts on paper.</p> <p>Perspective Drawing: One-point and two-point perspective drawing skills enable students to create drawings that accurately represent three-dimensional objects.</p> <p>Isometric and Oblique Drawing: Isometric and oblique drawings provide students with alternative methods to represent three-dimensional objects with precision and consistency.</p> <p>Presentation Skills: Learning to present design ideas visually helps students convey their concepts more effectively to peers, instructors, and potential clients or employers.</p> <p>Confidence Building: Being more skilled in graphic presentation, will build confidence in their ability to communicate and express their ideas.</p>	<p>Design and Creativity: This rotation encourages students to develop their design skills by focusing on how to effectively and creatively present design ideas. This aligns with the curriculum's objective of nurturing creative thinking.</p> <p>Communication and Presentation: KS3 D&T emphasises the ability to communicate and present design ideas effectively. Enhancing graphic presentation skills directly addresses this objective by improving the students' ability to communicate their design concepts visually.</p> <p>Visualisation: Helps students visualise their design ideas more effectively, a skill emphasised in the curriculum.</p> <p>Technical Drawing Skills: Learning techniques like one-point and two-point perspective drawing, isometric drawing, and oblique drawing align with the curriculum's focus on developing technical drawing skills.</p> <p>Creativity and Aesthetics: As students explore different techniques to present their ideas, they will also consider aesthetics and the visual appeal of their presentations, in line with the curriculum's aim to foster creativity and aesthetics in design.</p> <p>Cross-Curricular: Integrate knowledge and skills from various subjects, including Art and Maths (for precise measurements and spatial relationships).</p>	<p>Links from KS2: Basic Design and Creativity: At KS2, students are introduced to fundamental design concepts. This rotation extends this by focusing on creative and effective ways to present design ideas visually.</p> <p>Communication and Presentation: KS2 D&T introduces students to basic communication of design ideas. At KS3, students enhance these skills by developing more advanced techniques for visually presenting their ideas.</p> <p>Visualisation: Builds upon the visualisation skills developed at KS2, helping students to better express their ideas and concepts through visual representations.</p> <p>Basic Drawing Skills: Students typically learn basic drawing and sketching techniques at KS2, which serve as a foundation for more advanced drawing skills at KS3.</p> <p>Creativity and Aesthetics: While KS2 introduces creativity in design, KS3 deepens students' understanding by incorporating advanced presentation techniques, emphasising aesthetics, and visual appeal.</p> <p>Time Management: Reinforces time management skills when students are required to produce detailed visual presentations within specified time constraints, aligning with time management concepts introduced in KS2.</p> <p>Links from previous Y7 rotation: Food & Nutrition- Time Management. Product Design- Drawing/presentation skills. Textiles- Drawing/presentation skills.</p>	<p>Link to next rotation: Design Presentation skills Creativity Drawing Skills Time Management</p>



West Kirby
Grammar School

Curriculum Map – Year 9 – Design Technology (2024-25)

