

Curriculum Plans: Year 8 Design & Technology

	Knowledge: By the end of the unit students will know:	Skills: What skills will students have developed by the end of this unit?	Key terms: What new key terms and vocabulary will be learnt in this unit?	Summative Assessment: How will pupils be assessed in this unit?
Toy Plane Project Theory & Manufacture	<ul style="list-style-type: none"> By the end of the unit, students will understand the different parts of a toy plane and their functions. They will know how to accurately measure and mark out materials for cutting. Students will be aware of different types of wood and their properties, and how to safely use basic workshop tools (such as the pillar drill and belt sander). They will also understand how to apply simple wood joints like dowel joints. 	<ul style="list-style-type: none"> Accurately measuring and marking wood using a ruler, try square, and marking gauge. Safely using tools like the pillar drill, saws, and sanders. Applying dowel joints for joining wood pieces. Refining hand skills for sanding and smoothing wood surfaces. Assembling the toy plane with precision. 	<p style="text-align: center;">Dowel joint Try square Pillar drill Vertical stabiliser Sanding Assembly Grit (for sandpaper) Marking gauge</p>	<ul style="list-style-type: none"> Pupils will be assessed on their ability to complete the toy plane project, focusing on the accuracy of their measurements, clean cuts, and overall construction. Assessment will include the quality of finishing and adherence to safety procedures in the workshop. Students will also be required to reflect on the project, discussing what they have learned and how they would improve their work.
Toy Plane Project Design skills & Computer Aided Design (CAD)	<ul style="list-style-type: none"> The principles of isometric drawing and how it's used to represent 3D objects on a 2D plane. The importance of crating in sketching, which helps build the framework for accurate proportions. - How to apply weighted lines and shading to enhance depth and realism in their sketches. Techniques for rendering, including the addition of textures (e.g., wood grain) to their designs. How to generate multiple design ideas and evaluate their feasibility. The fundamentals of CAD software like Techsoft 2D Design and SketchUp for technical and 3D modelling. How to transition from freehand sketches to digital designs, maintaining accuracy and precision throughout the process. 	<ul style="list-style-type: none"> Isometric sketching: Drawing 3D objects, like the toy plane, from different angles using crating and accurate proportions. Shading and rendering: Adding depth to their drawings by applying shadow and texture, making their designs look realistic. Generating design ideas: Creating multiple designs for their toy plane, considering different shapes, proportions, and materials. Computer-Aided Design (CAD): Using Techsoft 2D Design for 2D technical drawings and SketchUp to create 3D models of their toy plane. Detailing in CAD: Creating accurate technical representations of their designs, including cutouts and detailed features, in both 2D and 3D. 3D Modelling: Building components of the toy plane in SketchUp, manipulating forms, and assembling them into a complete 3D model. 	<p>Isometric Drawing: A method of drawing objects in 3D on a 2D plane using 30-degree angles.</p> <p>Crating: Creating the basic framework for an isometric drawing to maintain proportion and accuracy.</p> <p>Weighted Lines: Using thick and thin lines to emphasize different parts of the drawing, making it appear more realistic.</p> <p>Shading: Adding light and dark areas to create the illusion of depth.</p> <p>Rendering: The process of adding textures and shading to make a drawing appear more realistic.</p> <p>CAD (Computer-Aided Design): Software used to create precise 2D and 3D digital models.</p> <p>Techsoft 2D Design: A CAD software used for creating 2D technical drawings with accurate dimensions.</p> <p>SketchUp: A 3D modelling software used to build and visualize objects in three dimensions.</p> <p>Texture Mapping: Applying textures (e.g., wood grain) to a 3D model to enhance realism.</p>	<p>Practical Assessment (Drawing Skills): Students will submit their isometric sketches of the toy plane. They will be assessed on:</p> <ul style="list-style-type: none"> Crating and proportion accuracy. Use of weighted lines and application of shading. Quality of rendering (textures and materials). <p>Design Portfolio: Submission of a range of design ideas for their toy plane, assessed on creativity, practicality, and the quality of annotations and explanations.</p> <p>CAD Projects: Students will submit both Techsoft 2D technical drawings and SketchUp 3D models of their toy plane. They will be assessed on accuracy, use of CAD tools, and the level of detail included.</p> <p>Final Evaluation: Students will reflect on their design journey and the use of both hand-drawing and CAD in creating their toy plane. The written evaluation will cover what they learned, challenges faced, and areas for improvement.</p> <p>Formative assessment: Ongoing feedback during sketching, design ideation, and CAD tasks, including peer reviews and teacher critiques.</p>

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Food Technology	<ul style="list-style-type: none"> • How to use the hob safely including controlling temperature, adjusting cooking times and consideration of evaporation and addition of water to adjust viscosity of sauces. • Learning the advantages and disadvantages of ceramic and induction hobs. • Introduction to safe food storage and cross contamination avoidance principles from NHS England and Food Standards Agency. • Including ambient, chilled and frozen storage, with retrieval from year 7 regarding 'use-by' and 'best before' dates and food products. • Students will learn basic nutrition and healthy eating using the government Eatwell guide and NHS '8 healthy Tips'. • They will then move onto the importance of protein and types of vegetarian diets, learning about high and low biological proteins and identifying animal and plant sources of protein. 	<ul style="list-style-type: none"> • Practical cooking skills: Continue to develop knife skills, safe equipment use, some new equipment introduced, learn new preparation methods and techniques for cooking various types of food (e.g. meats, bread, pastry, whisked cakes). • Time management: Organising tasks efficiently in a practical cooking session to ensure a timely finish whilst working in a team collaboratively. 	<p>Skills: Creaming method, baking, sautéing, seasoning using herbs and spices, preservation of fruit, gelatinization, sterilisation, using a handheld stick blender and shallow frying.</p> <p>Food Safety: All procedures and practices followed to prevent cross contamination, safe equipment use. Ceramic and induction hobs, high and low risk foods, food storage temperatures, macro and micronutrients, Eatwell guide, high biological value protein, low biological value protein.</p>	<p>Practical assessment (50% mark): Students assessed against the following criteria: Practical preparation: Accuracy, speed & execution. Hygiene & safety: safe knife use, cross contamination avoided, hygienic practices. Procedure: Ability to follow practical recipe, work independently and collaboratively when required. Outcome: Palatable dish produced. Post Practical: Hygienically clean up, in an organised manner working collaboratively. Written test (50% of mark) 20-minute test that assesses all areas of the year 8 course. Formative assessment: Self and peer assessments of practical work, online practical preparation learning (homework video) assessed via a quiz. Teacher offering constructive feedback to practical and written work.</p>