

Beths Grammar School KS3 Design Technology Curriculum Map

Term	INTENT	IMPLEMENTATION	IMPACT
	Substantive Knowledge This is the specific, factual content for the topic, which should be connected into a careful sequence of learning.	Disciplinary Knowledge (Skills) This is the action taken within a particular topic in order to gain substantive knowledge.	Assessment opportunities What assessments will be used to measure student progress? Evidence of how well students have learned the intended content.
Year 7 Rotation 1			Baseline Test – Still life drawing Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)

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Year 7 Rotation 1	<u>Intent</u> Card engineering – To be able to learn different methods of cutting and folding (different types of folds) to create a moving 3D shape once the books has opened. <i>Introduction CAD and Drawing Skills</i> Introduction different types of drawing techniques and explore different examples. Introduce the crating technique. Learn the basics of <u>crating</u> and sketching. Isometric Shading Drawing Shapes in Isometric 2D Design Introduction – Basic Shapes A link with literacy as the pupils has to plan and create their own story. <i>POPUP Book</i> Introduction to Pop up books and story ideas How inspiration & Storyboard creation The definition of graphics & what make a good storyboard page. Learn the basics of rendering and page layout. Analysis a story book cover. Identify good & bad page layout and how this happens. Introduction to Mechanisms Learn how to make Mouth Cut & Page layout. Learn how to evaluate each other's work. Evaluate own work and skills in relation to GCSE. Unit test of Knowledge learnt.	• Understand different types of drawing techniques and how to apply them. • To develop an understanding of freehand and crating sketching strategies. • To be able to use the crating method to draw an object in 3D and 2D. • To be able to make an effective drawing of an object. • Understand how to use isometric drawings to show measurements and how components fit together. • Explore different rendering and shading techniques. • To understand the basics of 2D design • To understand the advantages and disadvantages of CAD • Understand what a Popup book is targeted users. • Learn how to produce an inspiration page and how it can be used. • Planning and visually organising thoughts through story boarding, to enable pupils to see a story from different perspectives. • Demonstrating an understanding of the design process, critical thinking skills, research methodologies and creative ideation as a means of problem-solving and enhancing visual communication. • To be able to understand how to use innovative layout and enhance the reader's experience. • To incorporate box folds, mouth folds, sliders, lift-up flaps, rotators and paper springs in their designs • Demonstrate joining methods of paper & card for prototype manufacture. • Practice test condition and understanding Q&A. • To think reflectively about their work, evaluate their finished projects or prototypes in order to test whether they work well and if the design can be improved.	Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)
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Year 7 Rotation 3	<u>Intent</u> This project is designed to build pupils knowledge of production when working with engineering materials (metal). The project introduces different skills sets that are required in the real world, when working with mild steel. The project will cover the Tools and Equipment, Technical Knowledge and the Skills in the Manufacture of the bottle opener. <i>Introduction CAD and Drawing Skills</i> Introduction different types of drawing techniques and explore different examples. Introduce the crating technique. Learn the basics of <u>crating</u> and sketching. Isometric Shading Drawing Shapes in Isometric 2D Design Introduction – Basic Shapes <i>The Bottle Opener</i> Introduction to the project What is a Background Problem/Need? Discussion To be able to use Write a Design Brief and Specification H&S Rules of the Workshop Write down what Background Problem/Need for the product. Write a Design Brief & Specification Introduction the Working Drawings Risk Assessment Concise production schedule Materials and Manufacturing Techniques Mild steel and Corian	• Designers use a brief to give them guidance and focus. • A brief help define the design problem and gives details on important considerations and constraints. • Select and use tools and equipment safely and accurately in order manufactures a high-quality prototype that demonstrated the skills taught. • To understand the importance of design briefs and specifications. • To develop qualitative criteria and constraints for briefs. • To understand how designers use a working drawing to help them build a project and why it is used in the project. • To understand the properties of mild steel • To learns about manufacturing techniques and safe working procedures in the workshop. • Test recorded results and included modifications for improvement. • To think reflectively about their work, evaluate their finished projects or prototypes to test whether they work well and if the design can be improved.	Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)
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Year 7 Rotation 4	Intent Learning about electronic components and how they can be used to build a circuit. This included capacitors, resistors, and LEDs. Main techniques taught are drilling PCBs and soldering in components for a circuit that they have designed. Pupils simulate the circuit-on-circuit wizard before – to check that it works. In addition, they learn about plastic forming and laser cutting in CAD. Moisture Sensor The intention of this project is to design and manufacture a functional moisture sensor housed within a vacuum-formed plastic case. Students will learn how electronic products are developed by soldering pre-made electronic components onto a printed circuit board (PCB) to create a working moisture sensor. They will then design and produce a durable, aesthetically pleasing vacuum-formed enclosure that protects the electronics and improves the product's appearance. Throughout the project, students will develop skills in electronics assembly, soldering, CAD/CAM design, vacuum forming, and product evaluation, resulting in a practical device capable of detecting moisture levels. Message Board Assessment criteria Header sheets for PP Basic electronics: voltage (battery- Input), current, resistance, Ohms law, Resistors How to use 2D design How to vectorise an image Drawing to scale	• Understanding of circuit block diagram as input, process, output • Appreciation of capacitors • To be able to explore the importance of designing an authentic product for a client, to meet their specific need. • Understanding of how electronic products are assembled. • Investigate the different types of plastics and their used in design technology. • To be able to define scale drawings and identify real life applications of scale drawings. • Consolidate theory and practical skills from unit. • To learn about manufacturing techniques and safe working procedures in the workshop. • Test recorded results and included modifications for improvement. • To think reflectively about their work, evaluate their finished projects or prototypes to test whether they work well and if the design can be improved.	Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)
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	Vectorising, offset lines, known Ø circles, Filleting, text, fill & line colour. Colour coded cutter control. Knowledge of thermoplastics & thermosets. Able to line bend acrylic. How to setup and use the Laser Cutter Line Bending Test Peer evaluation Self-evaluation		
Year 7 Rotation 4	Food Tech Through a variety of creative and practical activities, pupils will gain the knowledge understanding and skills needed to engage in an iterative process of designing and making. Layout of the food room. Name and locate tools and equipment in the food room. Food and hygiene safety practices. Fruit Fusion – knife skills and using small equipment. Eatwell guide, diet and 5 a day message Spicy Tomato Soup – knives, kettle and hob Carbohydrates, where they come from and why they are important. Energy and energy balance. Lifestyle and culture Apple Crumble – weighing, measuring, grating, knife skills, rubbing-in, mixing and stirring, assembling and layering. Oven skills (baking). Cous-cous salad: understanding of different spices and odours, cost and portion sizes. Croque monsieur – understanding proteins. Product analysis and modifying recipes.	• To describe the expectations for working in the food room including food hygiene and safety practices. • To describe sensory evaluation and list the sensory descriptors for a salad. • To acquire and demonstrate knife skills and using small equipment to prepare and make a deli salad. • To acquire and demonstrate the principles of food hygiene and safety focusing on using knives, the kettle (if using), grater, peeler and other small equipment. • To define the senses, how they are used in tasting food and drink and develop descriptive vocabulary. • To describe the principles of The Eatwell Guide and relate this to their own diet. • To name the key nutrients provided by The Eatwell Guide food groups. • To explain and apply the 8 tips for healthy eating, the 5 A Day message and portion size. • To acquire and demonstrate the principles of food hygiene and safety, focusing on using knives, the kettle (hot water), and the hob. • To investigate and evaluate the effects of cooking vegetables. • To explain where potatoes, bread, rice, pasta and other starchy carbohydrates come from and why they are important in the diet. • To discuss energy and energy balance. • To identify how lifestyle and culture can affect food choice. • To investigate what happens to starchy foods when heat is applied.	Fortnightly homework Classwork Marked Peer and self-assessment

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	Blueberry and cinnamon Muffins, – weighing, measuring, peeling, grating, mixing, folding and oven skills. Factors that affect food choice. Seasoning and flavouring. Raisin and Banana Cookies- measuring and calculating quantities, combine ingredients thoroughly	• To acquire and demonstrate weighing and measuring, grating, knife skills, rubbing-in, mixing and stirring, assembling and layering, and using the oven (baking) to prepare and cook a savoury crumble. • To acquire and demonstrate weighing, measuring, grating, slicing, spreading and using the grill to prepare and cook pizza toast. • To compare the ingredients, cost and portion size of their pizza toast with restaurant /takeaway pizza. • To explain where beans, pulses, fish, eggs, meat and other proteins come from and their importance in the diet. • To list the food choices available for vegetarians and explain how their dietary needs are met. • To investigate the characteristics of beans, pulses, fish, eggs, meat and other proteins foods in cooking. • To acquire and demonstrate the principles of food hygiene and safety, focusing on knife skills, handling and cooking fish (if using), and using the oven. • To perform a simple product analysis, including an overview of the functional properties of the ingredients, and sensory evaluation. • To investigate ways in which recipes can be modified. • To write a recipe for fruit or savoury breakfast muffins. • To acquire and demonstrate weighing and measuring, peeling, grating, mixing. • To investigate some of the factors that affect food choice. To investigate ways in which food can be made appetising, including seasoning, flavouring, visual appearance, presentation. To investigate the nutritional requirements for teenagers and plan a suitable main meal dish. • To calculate the energy and nutrients provided by the dish. • To acquire and demonstrate the principles of food hygiene and safety, focusing on using knives and the hob. • To evaluate their dish and the practical activity. • To calculate the energy and nutrients provided by their dish. • To appraise and evaluate their learning journey. • To evaluate their practical cooking experiences.	
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Year 8 Rotation 1	Intent Students are introduced to a range of different process such a drilling, these are included on the specification for NCFE Engineering. Students are given 'design freedom' and encouraged to use a variety of skills and materials in their final piece. Being able to produce design solutions independently is an important skill required at KS4. Recap CAD and Drawing Skills Introduction different types of drawing techniques and explore different examples. Introduce the crating technique. Learn the basics of <u>crating</u> and sketching. Isometric Shading Drawing Shapes in Isometric 2D Design Introduction – Basic Shapes Use of Nets/Development Technical Drawings-Orthographic Block Head Design brief, Isometric Recap: Visual communication Initial design ideas (Theme, accessories, colour theme) Rendering Techniques (Tone, shading, highlight, and shadow) Surfaces and textures Design development Oblique Orthographic, Dimensioning CAD Designs NETs Project Plan Tools and equipment, tenon saw, coping saw, wood bench, lazer cutter and file. Pillar Drill RA	• Drawing scale, freehand drawing think & thin line 3D shapes. • Drawing in isometric / Oblique / Rendering. • To understand the importance of rendering surfaces and textures in the design process as a way to communicate their ideas with non-designers. • To build upon previous rendering skills learnt in year 7 and apply them to recording different surfaces and textures. • To understand the concept of orthographic projection. • Recording designs from multiple perspectives. • Test and review work / Drawing Skills Evaluate. • Select and use tools and equipment safely and accurately in order manufactures a high-quality prototype that demonstrated the skills taught. • To be able to use CAD to refine a design/ design. • To be able to make changes which improve the product in some way. • To understand the different properties and understand why soft wood is used. • Understand how to identify units of measure and how to convert them. Label dimensions correctly on a steel rule. • Using hand tools in metal work to mark lines on workpieces prior to machining and cutting. • To recognise hazards in a Design and Technology environment. • Respond appropriately to safety rules, signs and other safety instructions. • To understand the role of making in design technology. • Explore how to convert a material in a useable product and improve its performance through finishing. • Test recorded results and included modifications for improvement. • To think reflectively about their work, evaluate their finished projects or prototypes to test whether they work well and if the design can be improved.	Baseline Test – Still life drawing Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)
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	Marking out work Making Finishing Evaluation		
Year 8 Rotation 2	Intent <i>The focus of the project is on mechanism, levers and linkages. Pupils plan and build a litter picker that is themed. Project is approached in two ways. The head can be laser cut or traditionally by hand. Grabber/litter Picker</i> Design and make a product using mechanism that can pick up a variety of litter or grab an object. Introduction to the project To be able to plan work effectively. To be able to use research to inform design. Write a Design Brief that outlines the needs of the user. Write a specification that identifies key areas for design and manufacture. Produce a range of ideas for the grabber head and handle. Ideas evaluated against the specification Develop Idea and draw in 2D design using the template. Set up and use the laser cutter. Cutting using Hand tools and the Fret Saw Drilled Holes Finishing	- To be able to explore the importance of designing an authentic product for a client, to meet their specific need. - To build upon drawing techniques learnt in year 7 and to incorporate more complex techniques in the work. - To explore in more depth the importance of designing an authentic product for a client, to meet their specific need. - To demonstrate a working knowledge of visual design and composition principles through the use of 2D design. - To ensure more accurate marking out when producing a product. - To understand in more depth the process of transferring a design onto a material or workpiece before manufacturing begins. - To understand levers and linkages are used and how they need to be attached in the making of a product. - Cut Mild steel and/or Aluminium modelling wire. - Using photographs to record the making process visually. - Explore how to convert a material into a useable product and improve its performance through finishing. - To recognise hazards in a Design and Technology environment. - Respond appropriately to safety rules, signs and other safety instructions. - To identify the health and safety requirements when using a pillar drill.	Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)

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	Take photos of work for Diary. Testing of final product including evaluation against the design specification.	Show evidence of through testing of the final product against the specification.	
Year 8 Rotation 3	Intent A resistant materials workshop that builds a casing for the circuit. The materials used are acrylic tubing, pine, and plywood. They learn about different treatments for different materials. They then build an electronic circuit that build upon the basic (capacitors and resistors) by introducing and LDR sensor. Moisture Sensor The intention of this project is to design and manufacture a functional moisture sensor housed within a vacuum-formed plastic case. Students will learn how electronic products are developed by soldering pre-made electronic components onto a printed circuit board (PCB) to create a working moisture sensor. They will then design and produce a durable, aesthetically pleasing vacuum-formed enclosure that protects the electronics and improves the product's appearance. Throughout the project, students will develop skills in electronics assembly, soldering, CAD/CAM design, vacuum forming, and product evaluation, resulting in a practical device capable of detecting moisture levels. Light Sensor Project [Electronics and Design Technology] Understand what voltage, current and resistance are and know their units and symbols.	- Manufacture a Light Sensor using Circuits and main body manufactured using resistant materials in the Workshop. - To develop an understanding of electronic circuits and systems. - Join and combine additional materials and components accurately in temporary and permanent ways. - To design, use and interconnect simple mechanical, electrical, electronic and pneumatic systems and sub systems. - To use sensors in switching circuits. - To understand in more depth the process of transferring a design onto a material or workpiece before manufacturing begins. - Understanding electronic components, soldering, parallel/series circuits, diagrams and symbols. To refine construction of parts, marking out, cutting assembling and finishing. - To be able to draw upon their own experiences in order to make decisions. - To become proficient in the skilled use of hand tools and equipment. - Understanding and making effective lighting units. - To recall the health and safety requirements when using a pillar drill, hand tools and other equipment. - Test recorded results and included modifications for improvement. - To think reflectively about their work, evaluate their finished projects or prototypes to test whether they work well and if the design can be improved.	Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)

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	Know what a resistor and an LED is, and why resistors are needed with LEDs. Understand what a breadboard is and how to use it to be able to build a simple circuit. Understand what a voltmeter is and how to use it. Understand that voltages around a circuit add up. Be able to recognise when components are in series or in parallel. Recognise the symbols for cells, batteries, resistors, LEDs and volt meters. Pillar drill RA Marking out work Making Finishing Evaluation		
Year 8 Rotation 4	Food Technology Pupils will develop and demonstrate a range of food skills, increasing in complexity and accuracy, to cook a range of dishes, safely and hygienically, and to apply their knowledge of nutrition and food provenance. In addition, they will consider the factors that affect food choice, food availability and food waste. Recall the principles of The Eatwell Guide Main Nutrients and healthy diet. Importance of hydration. Vegetable Frittatas - demonstrate measuring, knife skills, and using the oven[baking] Energy and diet. Lemon Drizzle cake - demonstrate measuring, knife skills, grating, cake making, and using the oven (baking) Chicken Stir Fry- knife skills, Sources, types and functions of protein	• To recall and apply the principles of The Eatwell guide and the 8 tips for healthy eating. • To explain energy and how needs change through life. • To be able to name the key nutrients, sources and functions. • To adapt and follow recipes using a variety of ingredients and equipment to prepare and cook a range of more complex dishes. • To develop and demonstrate a wider range of food skills and techniques. • Pupils will develop and demonstrate the principles of food hygiene and safety in a range of situations. • To recall and explain the factors that affect food and drink choice. • To demonstrate the knowledge, understanding and skills needed to engage in an iterative process of planning and making. • To develop and apply their knowledge and understanding of food science. • To apply and consolidate their literacy and numeracy skills by using them purposefully in real-life scenarios; · track their	Baseline Test – Still life drawing Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)

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	Pizza Wheels - - demonstrate knife skills, forming, kneading and shaping yeast dough, and using the oven (baking). Seasonality of food. Reducing food waste. Spicey Tomato Pasta (or vegetarian alternative) - demonstrate knife skills, using the hob (boiling and simmering), the all-in-one sauce method. Dietary needs of young people. School food standards and school lunches. Sausage Chilli Cha Cha Cha (or vegetarian alternative) - demonstrate knife skills, using the hob (frying, boiling and simmering). Ginger Cake- demonstrate measuring, knife skills, grating, cake making, and using the oven (baking)	progress using the My learning journey booklet (food skills, cooking, nutrition, food provenance, ingredients, and creativity). • To describe energy and explain why it is needed. To identify sources of energy in the diet. • To develop and demonstrate measuring, knife skills, and using the hob (boiling and simmering). • To develop and demonstrate the principles of food hygiene and safety, focusing on handling eggs, using small pieces of electrical equipment and the hob/oven. To calculate the nutritional content information for a recipe and create a food label for a dish. • To explain the term 'seasonality' and how to reduce the waste of fruit, vegetables and bread in the home and at school. • To name the key micronutrients and state why they are needed in the diet. To explain the sources, types and functions of vitamins A, D, B-group (Thiamin, Riboflavin and Niacin) and C. To explain the sources, types and functions of calcium, iron and sodium. To explain the process of gelatinisation in sauce making. • To consider ways recipes can be modified to meet the nutritional needs of young people. • To develop and demonstrate the principles of food hygiene and safety, focusing on handling and cooking raw meat, using knives and the hob. • To explain the sources, types and functions of carbohydrate (including fibre). • To describe the dietary recommendations for carbohydrate (including fibre) and how it relates to their diet. • To investigate how and why food is wasted; suggest ways in which food waste can be reduced. Prior learning • Pupils will build on their learning in Year 7: knowledge and skills. • Describing and applying The Eatwell Guide and the 8 tips for healthy eating.	
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		- Explaining energy and energy balance, key nutrients, their sources and functions. - Using and adapting recipes. - Using appropriate ingredients and equipment to prepare and cook a range of dishes. - Acquiring and demonstrating a range of food skills and techniques. - Acquiring and demonstrating the principles of food hygiene and safety. - Acquiring and demonstrating a knowledge of the source, seasonality and characteristics of a range of ingredients. - Acquiring and demonstrating the knowledge, understanding and skills needed to engage in an iterative process of planning and making.	
Year 9 Rotation 1	Food Technology Pupils will develop and demonstrate a range of food skills, increasing in complexity and accuracy, to cook a range of dishes, safely and hygienically, and to apply their knowledge of nutrition and food provenance. In addition, they will consider the factors that affect food choice, food availability and food waste. Recall the principles of The Eatwell Guide Main Nutrients and healthy diet. Importance of hydration. Vegetable Frittatas - demonstrate measuring, knife skills, and using the oven[baking] Energy and diet. Lemon Drizzle cake - demonstrate measuring, knife skills, grating, cake making, and using the oven (baking) Chicken Stir Fry- knife skills, Sources, types and functions of protein	- To recall and apply the principles of The Eatwell guide and the 8 tips for healthy eating. - To explain energy and how needs change through life. - To be able to name the key nutrients, sources and functions. - To adapt and follow recipes using a variety of ingredients and equipment to prepare and cook a range of more complex dishes. - To develop and demonstrate a wider range of food skills and techniques. - Pupils will develop and demonstrate the principles of food hygiene and safety in a range of situations. - To recall and explain the factors that affect food and drink choice. - To demonstrate the knowledge, understanding and skills needed to engage in an iterative process of planning and making. - To develop and apply their knowledge and understanding of food science. - To apply and consolidate their literacy and numeracy skills by using them purposefully in real-life scenarios; · track their progress using the My learning journey booklet (food skills,	Baseline Test – Still life drawing Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)

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	Pizza Wheels - - demonstrate knife skills, forming, kneading and shaping yeast dough, and using the oven (baking). Seasonality of food. Reducing food waste. Spicey Tomato Pasta (or vegetarian alternative) - demonstrate knife skills, using the hob (boiling and simmering), the all-in-one sauce method. Dietary needs of young people. School food standards and school lunches. Sausage Chilli Cha Cha Cha (or vegetarian alternative) - demonstrate knife skills, using the hob (frying, boiling and simmering). Ginger Cake- demonstrate measuring, knife skills, grating, cake making, and using the oven (baking)	cooking, nutrition, food provenance, ingredients, and creativity). • To describe energy and explain why it is needed. To identify sources of energy in the diet. • To develop and demonstrate measuring, knife skills, and using the hob (boiling and simmering). • To develop and demonstrate the principles of food hygiene and safety, focusing on handling eggs, using small pieces of electrical equipment and the hob/oven. To calculate the nutritional content information for a recipe and create a food label for a dish. • To explain the term 'seasonality' and how to reduce the waste of fruit, vegetables and bread in the home and at school. • To name the key micronutrients and state why they are needed in the diet. To explain the sources, types and functions of vitamins A, D, B-group (Thiamin, Riboflavin and Niacin) and C. To explain the sources, types and functions of calcium, iron and sodium. To explain the process of gelatinisation in sauce making. • To consider ways recipes can be modified to meet the nutritional needs of young people. • To develop and demonstrate the principles of food hygiene and safety, focusing on handling and cooking raw meat, using knives and the hob. • To explain the sources, types and functions of carbohydrate (including fibre). • To describe the dietary recommendations for carbohydrate (including fibre) and how it relates to their diet. • To investigate how and why food is wasted; suggest ways in which food waste can be reduced. Prior learning • Pupils will build on their learning in Year 7: knowledge and skills. • Describing and applying The Eatwell Guide and the 8 tips for healthy eating. • Explaining energy and energy balance, key nutrients, their sources and functions.	
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		• Using and adapting recipes. • Using appropriate ingredients and equipment to prepare and cook a range of dishes. • Acquiring and demonstrating a range of food skills and techniques. • Acquiring and demonstrating the principles of food hygiene and safety. • Acquiring and demonstrating a knowledge of the source, seasonality and characteristics of a range of ingredients. • Acquiring and demonstrating the knowledge, understanding and skills needed to engage in an iterative process of planning and making.	
Year 9 Rotation 2	<u>Intent</u> A focus on electronics – building upon your basic components by including chips that count. This time they look at how they can securely mount the PCB safely. They work from a template and have to have holes drilled in the correct position in order for components to fit. Moisture Sensor The intention of this project is to design and manufacture a functional moisture sensor housed within a vacuum-formed plastic case. Students will learn how electronic products are developed by soldering pre-made electronic components onto a printed circuit board (PCB) to create a working moisture sensor. They will then design and produce a durable, aesthetically pleasing vacuum-formed enclosure that protects the electronics and improves the product's appearance. Throughout the project, students will develop skills in electronics assembly, soldering, CAD/CAM design, vacuum forming, and product evaluation, resulting in a	• To build upon existing knowledge and understanding of electronic circuits and systems. • Join and combine additional materials and components accurately in temporary and permanent ways. • To design, use and interconnect simple mechanical, electrical, electronic and pneumatic systems and sub systems. • To understand that a printed circuit board is an essential part of any electrical product. • To understand how to use a PCB in a project. • To understand in more depth the process of transferring a design onto a material or workpiece before manufacturing begins. • Understanding electronic components, soldering, parallel/series circuits, diagrams and symbols. To refine construction of parts, marking out, cutting assembling and finishing. • To understand the process of line bending and how it can be used to make precise folds in plastic components. • To become proficient in the skilled use of hand tools and equipment. • Understanding and make a steady hand game. • To recall the health and safety requirements when using a line bender, hand tools and other equipment. • Test recorded results and included modifications for improvement.	Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)

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	practical device capable of detecting moisture levels. This is a re-cap on the techniques that they learnt in year 7. Steady Hand Game [Electronics with Design and Technology] Focus on the user requirements for the Steady Hand Game. Recap on CAD skills in 2D Design. Design an acrylic enclosure for our circuit that appeals to the user and securely mounts the PCB. To understand workshop health, safety and expectations. Why do we use PCBs, and how are they made? Recap on how to drill Printed Circuit Boards (PCBs). To create and use a drilling Risk Assessment. Pillar Drill RA Marking out work Making Finishing Evaluation	To think reflectively about their work, evaluate their finished projects or prototypes to test whether they work well and if the design can be improved.	
Year 9 Rotation 3	<u>Intent</u> The intention of this project is to design and make a small wooden jewellery box that is both attractive and practical for storing jewellery and small personal items. The box will be constructed using comb joints at the corners, providing strength, durability, and an attractive decorative feature. The design will focus on accurate measuring, marking, cutting, and assembly techniques to create a neat, high-quality product. The finished jewellery box should be aesthetically pleasing, functional, and	- To explore in more depth the importance of designing an authentic product for a client, to meet their specific need. - Research into a range of design factors, including economic, social and aesthetics influencing the design process and how these elements have developed and changed over time. - To be able to use research to inform design. - Pupils will learn that prototypes help designers learn about the manufacturing process of a product, how people will use the product, and how the product could fail or break. - Identify common materials suitable for laser cutting, and their use in manufacturing of materials.	Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)

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	suitable for everyday use while demonstrating effective woodworking skills and craftsmanship Jewellery Box Introduction to the project Research. Understand the requirements of a Design Brief and how to write a specification [Measurable and Technical] Identify the Investigate Design Possibilities. To understand workshop health, safety and expectations. Marking out work Making Finishing Evaluation	• Development, testing and Modelling of a product. • To be able to photograph of a model and evaluate against the specification. • To become proficient in the skilled use of hand tools and equipment. • Understanding and make a mobile device holder. • To learn about the different ways in which we can join materials together and to practise these techniques. • To recall the health and safety requirements when using a line bender, hand tools and other equipment. • Test recorded results and included modifications for improvement. • To think reflectively about their work, evaluate their finished projects or prototypes to test whether they work well and if the design can be improved.	
Year 9 Rotation 4	<u>Intent</u> <i>Students explore more complicate mechanism such as cams, gears, cranks, and sliders. They have previously only looked at leavers and linkages in year 8.</i> Mechanical Toy Create a product using different types of mechanisms. The types of movement will be Linear, Reciprocating, Rotary and Oscillation. The main areas of focus that are linked to GCSE Design and Technology Research Analysis	• To explore the importance of designing an authentic product for a client, to meet their specific need. • Research into a range of design factors, including economic, social and aesthetics influencing the design process and how these elements have developed and changed over time. • To be able to use research to inform design. • To learn that task analysis is one of the most critical components in which learning goals, objectives, types of task and requirements to perform the specific tasks are identified. • To be able to use the specification in order to produce a first draft. • Demonstrate innovation and creativity in response to a need/problem, using a range of 2D and 3D techniques to produce fully annotated and rendered initial ideas. • To consider the characteristics of the cam mechanism when designing the moving part of their toy. • To demonstrate and build upon a range of drawing techniques learnt in year 7 and 8 (Oblique, Isometric etc.)	Fortnightly homework Classwork Marked Peer and self-assessment End of project assessment (Final Piece)

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	Development Technical Planning Modifying Make Reflect	• To recognise the movement of a mechanism within a toy or model. • To understand that a cam will change rotary motion into linear motion. • To understand that different shaped cams produce different movements. • To understand the relationship between a cam and a follower • To learn about the different ways in which we can join materials together and to practise these techniques. • To recall the health and safety requirements when using a line bender, hand tools and other equipment. • Test recorded results and included modifications for improvement. • To think reflectively about their work, evaluate their finished projects or prototypes to test whether they work well and if the design can be improved.	
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