

Long Term Plan Year 7 Design & Technology

During Key Stage 3, students are taught as part of a 'carousel' system, where classes of students rotate around the Technology staff and classrooms every 12 weeks.

Year 7 Intent / End Point Control & Resistant Materials- Year 7 is all about ensuring the pupils are equipped with the basic knowledge and skills they will need to work safely and effectively in the workshop. They will learn how to measure accurately, and how to record their measurements correctly on their design work. They will learn about Timber, and the methods available to work with it to create high quality products. They will also be introduced to Systems design and learn how it can be used to select the most suitable electronic components to create a working product. At the end of Year 7 pupils should be able to work confidently and safely in the workshop, when making products that they have designed themselves.

Year 7 Intent / End Point Food Tech: By the end of Year 7, students will be fully aware of food safety and hygiene and the basic principles of a balanced diet This knowledge will enable them to adapt and modify recipes to make them suitable for any dietary needs. Students will be able to put this knowledge into practice by cooking safely regularly a mixture of savoury and sweet dishes.

		<u>Learning Phase 1</u>		<u>Learning Phase 2</u>		<u>Learning Phase 3</u>	
<u>Unit title</u>		<u>Food Technology Hygiene and Nutrition</u>		<u>Control Sensors & Circuits</u>		<u>Resistant Materials Woods & Measuring Accurately</u>	
Principles that underpin the curriculum	<u>Knowledge</u>	<ul style="list-style-type: none"> Understand hazards in the food room and hygiene Understand the principles that underpin a healthy diet and nutrition Understand how to modify recipes by adapting the nutrients used. Understand intolerances and food allergies 		<ul style="list-style-type: none"> Primary & Secondary research. Annotation & Labelling. Basic circuit theory Use of sensors and systems diagrams. Electronic components, resistor colour codes Safety in the workshop, soldering safely, Testing circuit integrity using a multi-meter 		<ul style="list-style-type: none"> Types of wood & their characteristics, Wood Joints, Wood Finishes, British standard for adding dimensions, Vacuum forming Safety in the workshop Properties of PVA Evaluating Products 	
	<u>Application (Design and Make)</u>	<ul style="list-style-type: none"> <u>Practical 1</u>- Fruit Crumble Knife skills and rubbing in method <u>Practical 2</u>- Chicken Goujons Handling skills and preparing meat safely <u>Practical 3</u>- Couscous Salad Knife skills, incorporating 5-a-day <u>Practical 4</u>- Mini Pizza Rubbing in method & shaping dough <u>Practical 5</u>- Making butter focus on one of the key macronutrients <u>Practical 6</u>- Oat Cookies Creaming method and dish modification 		Design: <ul style="list-style-type: none"> Freehand sketching Intro to Rendering Make: <ul style="list-style-type: none"> Modelling from card. Subtractive manufacture using wood. Creating a quality finish. Soldering. Circuit testing 		Design: <ul style="list-style-type: none"> Use researched measurements to create 2 suitable designs. Rendering Make: <ul style="list-style-type: none"> Using the mitre saw, creating accurate right angles, gluing, creating a quality finish. Vacuum forming 	
	<u>Evaluate</u>	Evaluate <ul style="list-style-type: none"> Students will complete an evaluation task after each practical, which will outline areas that work well, as well as areas for improvement 		Evaluate: <ul style="list-style-type: none"> Using user feedback Comparison of product against criteria 		Evaluate: Comparison of product against criteria	
Middle Stake Testing	<ul style="list-style-type: none"> Bacteria/hazards Theory Assessment Practical Assessment 	<ul style="list-style-type: none"> Cookie Modification Theory assessment. Practical Assessment 	<ul style="list-style-type: none"> Design Task Theory Assessment 	<ul style="list-style-type: none"> Practical assessment Theory Assessment 	<ul style="list-style-type: none"> Design Task Theory Assessment 	<ul style="list-style-type: none"> Practical assessment 	
High Stake Testing	Assessment 1 – Mid year point					Assessment 2- End of Year	
Skills development	<p>In Control and Resistant Materials, pupils will focus on developing graphics skills through designing, and building their confidence when working with tools and machinery in the workshop.</p> <p>In Food technology, students will develop safe working practices in the kitchen with a focus on knife skills. They will be able to prepare ingredients skilfully and safely using the bridge and claw grip. They will develop preparation skills by learning the rubbing in method to create 'short' or crumbly products, and they will learn how to create light spongy textured products using the creaming method. They will develop the skill of modification to improve products in terms of taste, texture and nutrition.</p>						

Long Term Plan Year 8 Design & Technology

Year 8 Intent / End Point: In Year 8 pupils will continue to build on the foundations they covered in Year 7. They will learn how to create more complex products which include an element of movement, and how to work with a highly resistant material, mild steel.

Year 8 Intent / End Point Food Tech:

By the end of Year 8, students will fully understand the principles behind the planning of balanced meals; the function of key ingredients and how to use them in food preparation; the calorie impact of different types of food and what our bodies need to do to utilise the energy from. They will also understand the science behind how starch can be used as a thickening agent to enhance the viscosity of a range of dishes.

		<u>Learning Phase 1</u>		<u>Learning Phase 2</u>		<u>Learning Phase 3</u>	
<u>Unit title</u>		<u>Food Technology Functions of Ingredients</u>		<u>Control Mechanisms & Levers</u>		<u>Resistant Materials Metals & Ergonomics</u>	
Principles that underpin the curriculum	<u>Knowledge</u>	<ul style="list-style-type: none"> Understand of how to plan balanced meals Understand the functions of ingredients Understand the energy value of the 3 main macronutrients and how our bodies make use of them Understand the science behind how starch can be used to thicken a liquid 		<ul style="list-style-type: none"> Target user/market. Types of motion. Types of mechanism. Levers. Safety in the workshop, 		<ul style="list-style-type: none"> Types of metal & their Characteristics. Working & Physical properties. Anthropometrics & Ergonomics Safety in the workshop Riveting 	
	<u>Application (Design and Make)</u>	<ul style="list-style-type: none"> <u>Practical 1</u>- cheesy Pasta Sauce making, using stove and managing varying temperatures <u>Practical 2</u>- Pizza Bread making and shaping <u>Practical 3</u>- Sausage Rolls Working with standard components and high risk ingredients <u>Practical 4</u>- Fruit cupcakes The creaming method <u>Practical 5</u>- Fajitas Bread making, shaping, dry frying <u>Practical 6</u>- Fruit Pies Pastry making 		<p>Design: Freehand sketching Intro to Rendering</p> <p>Make: Modelling from card. Creating movement using mechanisms.</p> <p>Subtractive manufacture using wood. Creating a quality finish. Creating movement through fixed and floating pivots.</p>		<p>Make: Subtractive using metal. Cross/draw filing.</p> <p>Marking on metal. Using templates. Centre punching. Safe work piece clamping. Rivetting.</p>	
	<u>Evaluate</u>	<p>Evaluate</p> <ul style="list-style-type: none"> Students will complete an evaluation task after each practical, which will outline areas that work well as well as areas for improvement 		<p>Evaluate:</p> <ul style="list-style-type: none"> Using user feedback <p>Evaluate:</p> <ul style="list-style-type: none"> Comparison of product against criteria 		<p>Evaluate:</p> <ul style="list-style-type: none"> Comparison of product against criteria 	
Middle Stake Testing	<ul style="list-style-type: none"> Function of Ingredients Theory Test Practical Assessment 	<ul style="list-style-type: none"> Gelatinisation Theory Test Practical Assessment 	<ul style="list-style-type: none"> Design Task Mechanisms Theory Assessment 	<ul style="list-style-type: none"> Practical assessment Theory Assessment 	<ul style="list-style-type: none"> Design Task Theory Assessment 	<ul style="list-style-type: none"> Practical assessment 	
High Stake Testing	<u>Assessment 1 Mid Year Assessment</u>					Assessment 2 – End of Year test	
Skills development	<p>Control & Resistant Materials Pupils will develop their skills of analysis and application by investigating how mechanisms create movement, and using their findings to design products that move as intended. They will also be encouraged to work more independently in the workshop through the use of jigs and templates to enable them to create accurate high quality products.</p> <p>Food Technology Students will continue to develop confidence in handling kitchen equipment safely. They will develop their food preparation skills by learning sauce making and how to make bread dough using a raising agent</p>						

Long Term Plan Year 9 Design & Technology

Year 9 Intent / End Point Control & Resistant Materials:

They will learn how to create realistic 3D imagery using a variety of techniques to present their design ideas. They will be introduced to CAD/CAM and discover how this can be used to create complex designs quickly and accurately. They will learn the categories, uses and main features of Polymers, including the environmental impact they can have when used in products.

Year 9 Intent / End Point Food Tech:

By the end of Year 9, students will have a good knowledge of the special dietary needs of different groups of people and how to cater for them. Students will also be able to make the strong connection between diet and how it links to the maintenance of good health, and how poor dietary choices can contribute to poor health, disease and illness. Students will also have a clear understanding of where the food we eat comes from, how it is produced, as well as the moral and ethical issues that influence our food choices.

		<u>Learning Phase 1</u>		<u>Learning Phase 2</u>		<u>Learning Phase 3</u>	
<u>Unit title</u>		<u>Food Technology Food Choices & Provenance</u>		<u>Control The work of others</u>		<u>Resistant Materials Polymers & CAD/CAM</u>	
Principles that underpin the curriculum	<u>Knowledge</u>	<ul style="list-style-type: none"> Discover the special dietary needs of a range of groups and to learn how dietary choice can impact disease risk Explore ethical principles that govern our food choice Food provenance: learning where our food originally comes from; deepening the understanding of ethical food choice and compromise. 		<ul style="list-style-type: none"> Design Movements. Iconic Designs. Flashing circuits. How to make plywood 		<ul style="list-style-type: none"> Types of plastic & their properties Life Cycle Assessment. Modelling. CAD/CAM Safety in the workshop Riveting 	
	<u>Application (Design and Make)</u>	<ul style="list-style-type: none"> <u>Practical 1</u>- Sweet and Sour Sauce making, working with high risk food and vegetables, hygiene <u>Practical 2</u>- Choc chip muffins Weighing, 'all-in-one' method, portion control, quality control <u>Practical 3</u>- Quiche Pastry making, shaping, blind baking <u>Practical 4</u>- Marble cake Creaming method, presentation skills <u>Practical 5</u>- Spring Rolls Using stove, assembling, multiple cooking and finishing methods (frying, melting, baking, glazing) <u>Practical 6</u>- Own choice dish One that brings together a range of cooking methods and allows students to work independently 		<p>Design:</p> <ul style="list-style-type: none"> 2 Point perspective drawing. Isometric Drawing <p>Make:</p> <ul style="list-style-type: none"> Subtractive manufacture with wood. Flashing Circuit. Shaping polymers 		<p>Design:</p> <ul style="list-style-type: none"> Using 2D v 3D design software <p>Make:</p> <ul style="list-style-type: none"> Modelling. Line bending 3D Printing 	
	<u>Evaluate</u>	<p>Evaluate</p> <ul style="list-style-type: none"> Students will complete an evaluation task after each practical, which will outline areas that work well as well as areas for improvement 		<p>Evaluate:</p> <ul style="list-style-type: none"> Using user feedback Comparison of product against criteria 		<p>Evaluate:</p> <ul style="list-style-type: none"> Comparison of product made using 2D & 3D design techniques 	
Middle Stake Testing	<ul style="list-style-type: none"> Diet Related Illnesses Assessment Practical Assessment 	<ul style="list-style-type: none"> Food provenance assessment Practical Assessment 	<ul style="list-style-type: none"> Design Task Mechanisms Theory Assessment 	<ul style="list-style-type: none"> Practical assessment Theory Assessment 	<ul style="list-style-type: none"> Design Task Plastics Theory Assessment 	<ul style="list-style-type: none"> Practical assessment 	
High Stake Testing		<u>Assessment 1 Mid Year Assessment</u>				Assessment 2 – End of Year test	
Skills development	<p><u>Control & Resistant Materials</u> Pupils will develop their software skills enabling them to use 2D & 3D modelling packages to generate product designs. They will also improve their making skills by incorporating the use of Computer aided manufacture including 3D printing and laser cutting.</p> <p><u>Intent / End Point Food Tech:</u> Students will at this stage have developed to the point whereby they can work independently to create a dish of their own choosing that brings together some of the different skills and cooking methods they have practised over the previous two years.</p>						

Long Term Plan Y10 Design & Technology

Year 10 Intent / End Point: In Year 10 students will learn about new and emerging technologies, designing, manufacturing processes, material properties and working with timber. They will build on the foundations gained in Year 9 and will become more confident and independent product designers, making their own decisions about how the product will be made and what materials they will use. This knowledge will help them successfully complete their NEA (coursework component) and final exam.

	<u>HT1</u>	<u>HT2</u>	<u>HT3</u>	<u>HT4</u>	<u>HT5</u>	<u>HT6</u>
Unit title	<u>Timber – Encouraging Wildlife into the garden</u>		<u>More about materials</u>	<u>New & Emerging technology</u>	<u>Designing</u>	<u>NEA</u>
<u>Knowledge</u>	<ul style="list-style-type: none"> Sources & Origins Working with Timber Commercial Manufacturing Understanding user needs 	<ul style="list-style-type: none"> Market research Design briefs and Specifications Wood Joints Wood finishes 	<ul style="list-style-type: none"> Selecting materials Forces & Stresses Quality Control Mechanisms 	<ul style="list-style-type: none"> Products in society Product sustainability & social issues Production Systems & CAD/CAM 	<ul style="list-style-type: none"> Product Analysis. Looking at the work of others More drawing techniques 	<ul style="list-style-type: none"> Generating & Storing energy
<u>Application (Design and Make)</u>	<ul style="list-style-type: none"> Freehand sketching Isometric drawing Exploded Drawing Cutting Lists 	<ul style="list-style-type: none"> Working with wood Line Bending Selecting suitable finishes 	Modelling mechanisms from card.	<ul style="list-style-type: none"> 3D design using ONSHAPE Additive manufacture using 3D printer. Egg holder on Laser Cutter Line Bending 	<ul style="list-style-type: none"> 2 point perspective drawing Orthographic Drawing 	<ul style="list-style-type: none"> Analysing the Context Research Research Analysis Design Brief Specification Initial Ideas
<u>Evaluate</u>	<ul style="list-style-type: none"> Evaluate their final product against the design specification User Feedback 		<ul style="list-style-type: none"> Compare the process of manufacturing using CAD/CAM with traditional methods 	<ul style="list-style-type: none"> Analyse survey results Research Analysis 		
Middle Stake Testing	<ul style="list-style-type: none"> Theory Test Design Assessment 	<ul style="list-style-type: none"> Theory Test Practical Assessment 	<ul style="list-style-type: none"> Theory Test 	<ul style="list-style-type: none"> Theory Test CAD drawing assessment 	<ul style="list-style-type: none"> Design skills Task Theory Assessment 	
High Stake Testing		<u>Assessment 1</u> <u>Mid year point</u>				<u>Assessment 2</u> <u>End of Year</u>
Skills development	Pupils will gain a thorough knowledge of the theoretical principles behind D&T. They will also have used several design strategies such collaborative, iterative and user centred, and drawing techniques such as two point perspective, isometric and orthographic, to enable them to develop two successful products using a wide range of practical skills based on subtractive manufacturing.					

Principles that underpin the curriculum

Long Term Plan Y11 Design & Technology

Year 11 Intent / End Point: In Year 11 pupils will continue to work on their NEA (coursework), aiming to complete it as early as possible in HT4. After this, pupils will focus on the theory part of the course and will be able to recall the year 10 content on new and emerging technologies, materials properties, manufacturing processes and design strategies. They will build on this by exploring energy generation and storage as well as the impact on product design in society and the environment

	<u>HT1</u>	<u>HT2</u>	<u>HT3</u>	<u>HT4</u>	<u>HT5</u>	<u>HT6</u>
<u>Unit title</u>	<u>NEA - Generating Design Ideas / Developing Design Ideas</u>		<u>NEA - Realising Design Ideas</u>	<u>NEA - Analysing & Evaluating Design Ideas</u>	<u>Revision</u>	
Principles that underpin the curriculum	<u>Knowledge</u>	<ul style="list-style-type: none"> Revision Homework 	<ul style="list-style-type: none"> Revision homework 	<ul style="list-style-type: none"> Selecting materials Forces & Stresses Quality Control Mechanisms 	<ul style="list-style-type: none"> Products in society Product sustainability & social issues Production Systems & CAD/CAM 	
	<u>Application (Design and Make)</u>	<ul style="list-style-type: none"> Freehand sketching Isometric drawing Annotation Getting Feedback 	<ul style="list-style-type: none"> Using feedback to enhance ideas Modelling Manufacturing Specification 	<ul style="list-style-type: none"> Making final product 		
	<u>Evaluate</u>	<ul style="list-style-type: none"> Evaluate their final product against the design specification User Feedback 	<ul style="list-style-type: none"> Comparing against specification Getting user feedback Evaluating suitability of the product Ideas for further development 			
	Middle Stake Testing	<ul style="list-style-type: none"> Mark & Feedback on Initial ideas 	<ul style="list-style-type: none"> Mark and feedback on development 	<ul style="list-style-type: none"> Mark and feedback on realisation 	<ul style="list-style-type: none"> Mark and feedback on evaluation 	
High Stake Testing		<u>Practice Exam 1</u>		<u>Practice Exam 2</u>	<u>Final Exam</u>	
Skills development	Students will put all the skills developed in Year 10 into practice to complete their NEA. They will use research and analysis skills to create their Design Brief and Specification. They will then use the design strategies, in particular iterative and user centred design, to create a range of suitable design ideas that will satisfy the users' needs. They will then use their practical and materials selection skills to make the chosen product or a prototype. Finally, they will use their evaluation skills to evaluate how successful their product has been.					