

Design Technology Key Stage 3 Curriculum

	Manufacturing	Materials/ Computer Aided Manufacture	Computer Aided Design	Food and Nutrition
Y7	<p>Block Bot Project</p> <p>Introduction to the workshop Workshop health and safety Marking out and measuring Selecting and using the correct tools Using machinery safely Thumb nail sketch designing Research and analysis of existing products</p>	<p>Maze Game Project</p> <p>Introduction to plastics and adhesives Learning about the design process Introduction to 2 D design software Demonstrating and understanding vacuum forming, the use of heat to manipulate plastic</p>	<p>Fridge Magnet Project</p> <p>Introduction to Sketch up 3D Modelling software Introduction to CAD CAM What is a Client, what is User centred research? Creating a specification Oblique freehand sketching CAM machine set up- print settings for 3D printer Evaluating a design against a specification</p>	<p>Flapjacks – Caramelisation. Safe and tidy use of the kitchen</p> <p>Fruit scones – dextrinization. Safe and tidy use of the kitchen space.</p> <p>Beef Ragù – Maillard Reaction 1. Reduction. Slow cooking to develop flavour and texture. Independent cooking (stage 1)</p> <p>The perfect steak – Maillard Reaction 2. Resting. Seasoning. Pan Control. Preparation of equipment.</p> <p>Epic Fish –Maillard Reaction 3. Seasoning. Pan control. Preparation of Equipment.</p> <p>Lasagne – gelatinisation and gelation. Using leftovers. Adapting for nutrition.</p> <p>Fajita Wraps – Maillard Reaction 4. Deglazing. Reduction. Seasoning. Balancing flavour and texture.</p> <p>Introduction to nutrition – Why we eat, what we eat. Micro & Macro Nutrients.</p> <p>Kitchen Safety – Completion of ‘kitchen passport’</p>

Y8	<p>Lighting Project</p> <p>Revisit Health and Safety Introducing electronic components Soldering and testing Woodworking- marking out, measuring and using machine tools Fixtures and fittings- wood screws and machine screws. Vacuum forming Line bending</p>	<p>Clock Project</p> <p>Further development of Computer Aided Design CAD Skills Further development of Computer Aided Manufacture CAM Design Constraints Studying Design Movements and companies Bought in components Combining Materials Working with adhesives</p>	<p>Recycling units and Sustainable Design</p> <p>Study of sustainable design 6R's of sustainability Introduction to Product lifecycles Researching and analysing existing products ACCESS FM design specification Initial design and sketching TechSoft CAD Drawing 3D Net modelling Rendering and graphic enhancing techniques</p>	<p>Stroganoff - Maillard Reaction. Deglazing. Reduction Sauce. Beef/Veggie Chilli - Layers of flavour. Texture. Simple to complex. Roasting Veg. Maillard Reaction. Caramelisation. Reduction. Sustainability. Thai Stir Fry Veg Prep. Maillard Reaction. Reduction. Seasoning. Spice. Organisation. Fried Rice Food thrift. Preparation. Organisation. CLUB - Designer Sandwich/Wrap Texture. Maillard Reaction. Basting. Ratio. Toad In The Hole/Yorkshire Pudding - Independent Work. Portioning. Dextrinisation. Roasting. Duck Rendering Fat. Fry-Roast. Resting. Glazes Brownies Using a Bain Marie.</p>
Y9	<p>Linking CAD CAM to manufacture</p> <p>Designer and design movement study Isometric sketching Cardboard modelling Scrap material prototyping Researching and analysing existing products. TechSoft CAD drawing</p>	<p>Introduction to Pewter Casting</p> <p>Researching Natural forms Researching existing designers Developing a design/refining a design Modelling in plasticine/fymo TechSoft CAD drawing Mould making in silicone/plywood/kinetic sand Manufacturing in metal-pewter QC-quality control, finishing a product to achieve a high standard of finish.</p>	<p>DEC Award in Architectural Design</p> <p>Developing CAD skills using Sketchup Analysing users needs through case study Meeting design standards/inclusive design Foam core and small timber modelling Working to scale.</p>	<p>Bistro Design/Research Project</p> <ul style="list-style-type: none"> • Sensory analysis • Nutritional analysis software. • Researching, planning and evaluating practical work. • Photographic evidence. <p>Bangers and mash.</p> <ul style="list-style-type: none"> • Reduction sauces • Caramelisation • Deglazing • Emulsification using mustard <p>Tagine</p> <ul style="list-style-type: none"> • Slow cooking • Sweet spices, North African/Moorish food.

Roles and careers within the building industry

Eggs – intro.

- Basics, scramble, poach, omelette
- Setting agent
- Gelling agent
- Aeration.

Sicilian Pasta Recipes

- Using the food processors.
- Making simple pestos and sauces.
- Eating healthily on a low budget.
- Fresh and dried pasta.
- Key larder items.

Béchamel Sauce (and associated dishes)

- Gelatinisation and gelation

Grains

- Wholegrain vs refined.
- Fibre
- Eatwell guide.

Key Assessments:

- **Design/Research Project – introduces methodology to be used at GCSE.**
- **Individual portfolio with photographic evidence of each practical outcome and write up for each unit.**
- **In class assessment of practical work.**

Design and Technology GCSE Curriculum Overview

	Autumn Term	Spring Term	Summer Term
Y10	<p>CAD/CAM PROJECT Further development of Computer Aided Design and Manufacture. Laser cutter instruction Plotter cutter instruction CNC Router instructions Freehand isometric sketching practice Materials research Designer and Design movement study Card and foamboard modelling AQA theory lessons Section 1/2 New and emerging technologies. Energy, Materials, Systems and Devices End of unit assessments.</p>	<p>Metal Man Project Soldering, bending, heating and annealing, tapping and die cutting. An introduction to the centre lathe. Further development of casting including aluminium and resin. An introduction to Smart Materials, Polymorph modelling lessons. An introduction to Solidworks CAD software (industry standard) Industrial Visit</p>	<p>Bluetooth Amplifier Project Holistic project where students design the casing for a bought in Bluetooth amplifier. Combining the use of all materials and exploring the suitability of new ones Combining all skills taught throughout KS3/4</p> <p>AQA theory lessons Sections 5A/ Paper and Boards 5B/ Timber based materials/5C metal Based Materials 5D Polymers 5E Textile Based Materials</p>
Y11	<p>Introduction to the NEA 20 Page A3 Powerpoint Section 1 Identifying and Investigating Design Possibilities (6 lessons 10 Marks) Section 2 Design Brief and Specification (4 lessons 10 marks)</p>	<p>Continuation of the NEA Section 3 Generating Ideas (8 lessons 20 marks) Section 4 Developing design Ideas (8 lessons 20 marks) Section 5 Realising Design Ideas (10 lessons 20 marks)</p>	<p>Completion of NEA Evaluation and Modifications (8 lessons 20 Marks) Refresh knowledge and Understanding of Sections 1 to 7 Revision and preparation for exam.</p>

Design & Technology A level Curriculum Overview

	Autumn Term	Spring Term	Summer Term
Y12	<p>Mini project: Design and manufacture Bike Light. Practice NEA Skills/ Product Analysis/ Exploded Isometric Sketching and rendering Skills. Solidworks CAD software.</p> <p>OCR Theory units</p> <ol style="list-style-type: none"> 1) Identifying Requirements 2) Learning from Existing Products 3) Implications of wider issues. <p>End of unit assessments</p>	<p>Mini project:</p> <p>OCR Theory units</p> <ol style="list-style-type: none"> 4) Design Thinking and Communication 5) Material and Component Considerations 6) Technical Understanding 	<p>Mini project:</p> <p>OCR Theory units</p> <ol style="list-style-type: none"> 7) Manufacturing Processes and Techniques 8) Viability of Design Solutions 9) Health and Safety
Y13	<p>Non Exam Assessment – Product Development</p>		<p>Revision & Exam Skills</p>