

5 Year Curriculum Plan Design and Technology/Food Preparation and Nutrition

KS3	Autumn	Spring	Summer
Year 7	<p><u>Timber/Systems and Control</u></p> <p>(Skateboard: Bending plywood to shape the board of a skateboard. Cutting and shaping MDF to form wheels. Working with Dowel and shaping trucks)</p> <p>3.2.5: <i>Shaping, cutting, drilling and sanding Timber</i></p> <p>3.2.8: <i>Lamination of plywood- accurate measuring</i></p> <p>3.2.2: <i>Forces and Stresses on materials + Stiffened materials</i></p> <p>3.2.9: <i>Varnishing of materials</i></p> <p>3.1.6: <i>Material Properties</i></p> <p>3.3.5: <i>Drawing Skills (Freehand Sketching)</i></p> <p>(Robotics: Using inputs and outputs to programme robots to work autonomously)</p> <p>3.1.4: <i>Inputs, processes, outputs</i></p> <p>3.1.1: <i>Industry: Automation, Job roles due to automation, production techniques and systems</i></p> <p>3.2.8: <i>The application and use of quality control to include measurable and quantitative systems used during manufacturing</i></p> <p>3.3.5: <i>Drawing Skills (1-point perspective)</i></p>	<p><u>Metal/Polymer</u></p> <p>(Jewellery Casting: Using CAD/CAM techniques to produce a mould to cast pewter to create a piece of Jewellery)</p> <p>3.1.1: <i>Production techniques and systems</i></p> <p>3.1.6.2: <i>Material Properties</i></p> <p>3.2.4: <i>Metal based materials (extraction and refining)</i></p> <p>3.2.5: <i>How to shape and form metal</i></p> <p>3.2.7: <i>Scales of production</i></p> <p>3.2.8: <i>The use of production aids – Tools, equipment and processes</i></p> <p>3.1.3: <i>Composite Materials</i></p> <p>3.3.5: <i>Drawing Skills (Oblique Perspective)</i></p> <p>(Torch: Ergonomic Design using Polymer and basic electronics students shape and create an ergonomically designed torch)</p> <p>3.1.1: <i>Sustainability of materials – Enterprise – Sales</i></p> <p>3.1.4: <i>Input-process-output</i></p> <p>3.1.6: <i>Material Properties-Strength, Toughness</i></p> <p>3.2.1: <i>Material Selection</i></p> <p>3.2.4: <i>Sources of plastics</i></p> <p>3.2.5: <i>Properties of polymers</i></p> <p>3.2.6: <i>Sizes, Thicknesses</i></p> <p>3.2.8: <i>Tools used – bending, wastage, construction</i></p> <p>3.2.9: <i>Surface treatments, finishes, polishing</i></p> <p>3.3.5: <i>Drawing Skills (2-point perspective/Exploded Views)</i></p>	<p><u>Food Preparation and Nutrition</u></p> <p><i>FOOD PREPERATION SKILLS</i></p> <p>Skill 1: General practical skills Techniques</p> <p>Skill 2: Knife skills</p> <p>Skill 3: Preparing fruit and vegetable preparation skills Techniques</p> <p>Skill 4: Use of the cooker</p> <p>Skill 5: Use of equipment preparation skills Techniques</p> <p>Skill 6: Cooking method preparation skills Techniques</p> <p>Skill 7: Prepare, combine and shape</p> <p>Skill 8: Sauce making preparation skills Techniques</p> <p>Skill 9: Tenderise and marinate on skills Techniques</p> <p>Skill 10: Dough preparation skills Techniques</p> <p>Skill 11: Raising agent preparation skills Techniques</p> <p>Skill 12: Setting mixture preparation skills Techniques</p> <p><u>3.2 Food, nutrition and health</u></p> <p>3.2.1 Macronutrients</p> <ul style="list-style-type: none"> • 3.2.1.1 Protein • 3.2.1.2 Fats • 3.2.1.3 Carbohydrates <p>3.2.2 Micronutrients</p> <ul style="list-style-type: none"> • 3.2.2.1 Vitamins • 3.2.2.2 Minerals • 3.2.2.3 Water <p>3.2.3 Nutritional needs and health</p> <ul style="list-style-type: none"> • 3.2.3.1 Making informed choices for a varied and balanced diet <p>3.2.3.2 Energy needsdents must know and</p> <ul style="list-style-type: none"> • 3.2.3.3 How to carry out nutritional analysis • 3.2.3.4 Diet, nutrition and health <p><u>3.4 Food safety</u></p> <p>3.4.1 Food spoilage and contamination</p> <ul style="list-style-type: none"> • 3.4.1.1 Microorganisms and enzymes • 3.4.1.2 The signs of food spoilage • 3.4.1.3 Microorganisms in food production

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			<ul style="list-style-type: none"> 3.4.1.4 Bacterial contamination <p>3.4.2 Principles of food safety</p> <ul style="list-style-type: none"> 3.4.2.1 Buying and storing food 3.4.2.2 Preparing, cooking and serving food
Year 8	<u>Timber/Textiles</u>	<u>Metal/Electronics</u>	<u>Food Perpetration and Nutrition</u>
	<p>(Wildlife house: Students create a wooden wildlife house and learn about the types of timber, the properties of timber and how it is manufactured)</p> <p>3.2.3: <i>The 6 r's</i></p> <p>3.2.6: <i>Stock forms and sizes</i></p> <p>3.2.4: <i>Sources and origins</i></p> <p>3.2.5: <i>Properties of materials and Cutting and shaping timber</i></p> <p>3.2.9: <i>Finishes materials, Varnishing Timber</i></p> <p>3.3.5: <i>Drawing Skills (Isometric)</i></p> <p>3.1.1: <i>Society and the Environment</i></p> <p>(Fabric Bag: Creation of a fabric bag using semi-automated manufacturing processes)</p> <p>3.1.1: <i>Enterprise, People, Culture, Society</i></p> <p>3.1.2: <i>Technical Textiles</i></p> <p>3.1.6.2: <i>Material Properties</i></p> <p>3.2.1: <i>Selection of Materials</i></p> <p>3.2.3: <i>Ecological issues in the design and manufacture of products</i></p> <p>3.2.4: <i>Sources and origins of fabric</i></p> <p>3.2.5: <i>Using and working with materials (Flame retardant material, sportswear, furnishing, work wear)</i></p> <p>3.2.6: <i>Stock forms</i></p> <p>3.2.8: <i>Specialist techniques and processes</i></p> <p>3.3.5: <i>Drawing Skills (Template Design)</i></p>	<p>(Metal Toolbox: The use of sheet steel to produce a 3-d representation of a scaled down tool box)</p> <p>3.1.6: <i>Materials and their working properties</i></p> <p>3.2.2: <i>Forces and stresses all (Net development, bending and folding)</i></p> <p>3.2.4: <i>Sources and origins</i></p> <p>3.2.5: <i>Using and working with materials</i></p> <p>3.2.6: <i>Stock forms, types and sizes</i></p> <p>3.2.8: <i>Specialist techniques (How materials can be formed to a tolerance)</i></p> <p>3.3.5: <i>Drawing Skills (Orthographic Drawings, Working Drawings, Modelling)</i></p> <p>3.2.3: <i>Social Issues</i></p> <p>(Electronic Draw Alarm: Producing an electronic draw alarm using electronic components and copper circuit board)</p> <p>3.1.2: <i>Energy generation and storage</i></p> <p>3.2.8: <i>Specialist techniques and processes</i></p> <p>3.1.1: <i>New and emerging technologies (How critical evaluation etc..)</i></p> <p>3.2.5: <i>Properties of materials, How to cut, shape and form using cutting, abrasion and addition</i></p> <p>3.2.6: <i>Stock forms, types and sizes</i></p> <p>3.2.8: <i>Commercial processes</i></p> <p>3.2.1: <i>Selection of materials or components</i></p> <p>3.3.5: <i>Drawing Skills (Drawing circuit board diagrams)</i></p> <p>3.1.3: <i>Smart and modern materials</i></p>	<p><i>FOOD PREPERATION SKILLS</i></p> <p>Skill 1: General practical skills Techniques</p> <p>Skill 2: Knife skills</p> <p>Skill 3: Preparing fruit and vegetable preparation skills Techniques</p> <p>Skill 4: Use of the cooker</p> <p>Skill 5: Use of equipment preparation skills Techniques</p> <p>Skill 6: Cooking method preparation skills Techniques</p> <p>Skill 7: Prepare, combine and shape</p> <p>Skill 8: Sauce making preparation skills Techniques</p> <p>Skill 9: Tenderise and marinate on skills Techniques</p> <p>Skill 10: Dough preparation skills Techniques</p> <p>Skill 11: Raising agent preparation skills Techniques</p> <p>Skill 12: Setting mixture preparation skills Techniques</p> <p><u>3.5 Food choice</u></p> <ul style="list-style-type: none"> 3.5.1 Factors affecting food choice 3.5.1.1 Factors which influence food choicentent Students must ow 3.5.1.2 Food choicesondents must know and 3.5.1.3 Food labelling and marketing influencentand 3.5.2 British and international cuisines 3.5.3 Sensory evaluation
GCSE Design and Technology			
KS4	Autumn	Spring	Summer
Year 8	<u>Educational Toy</u> (Timber)	<u>Enterprise Product</u> (Card)	<u>Mini Contextual Challenge</u> (Acrylic Based)

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	<p>To design and make a Children’s educational Toy which must include CAM/Linkages. The project uses an NEA approach</p> <p>3.3.1: Primary and Secondary Research, How to write a Design Brief, Investigate a Problem</p> <p>3.3.2: Social (H+S needs)</p> <p>3.3.4: Design stages (Avoiding Design Fixation, iterative design) Modelling</p> <p>3.3.5: Communication of design ideas</p> <p>3.3.6: Practical Prototype Production</p> <p>3.3.7: Selection of Materials etc</p> <p>3.3.9: Marking out</p> <p>3.3.11: Machines and Finishes</p> <p>3.1.4: Changing magnitude and force</p>	<p>To design and make a 3-D card based product which is aimed at producing a 3-D product which can be sold to generate profit. The project uses an NEA approach</p> <p>3.3.1: Primary and Secondary Research, How to write a Design Brief, Investigate a Problem</p> <p>3.3.2: Social (H+S needs)</p> <p>3.3.3: Work of others</p> <p>3.3.4: Design stages (Avoiding Design Fixation, iterative design) Modelling</p> <p>3.3.5: Communication of design ideas</p> <p>3.3.6: Practical Prototype Production</p> <p>3.3.7: Selection of Materials etc</p> <p>3.3.9: Marking out</p> <p>3.3.11: Machines and Finishes</p>	<p>Students will generate their own Problem and Design Brief based on an overall Contextual Challenge. The only limiting factor is that the project must be created using Acrylic</p> <p>(The skills completed will repeated based on results of assessment over the Autumn and Spring term)</p>
Year 10	<p><u>Stool Based Project/Core Technical Principles/Specialist Technical Principles</u></p>	<p><u>Stool Based Project/Core Technical Principles/Specialist Technical Principles</u></p>	<p><u>Stool Based Project/Core Technical Principles/Specialist Technical Principles/ NEA(Non Examined Assessment)</u></p>
	<p>CORE AND SPECIALIST TECHNICAL PRINCIPLES</p> <p>3.1.6: Materials and their working properties</p> <p>3.1.6.1: Material categories</p> <p>3.1.6.2: Material properties (NATURAL AND MANUFACTURED TIMBERS)</p> <p>3.1.6: Materials and their working properties</p> <p>3.1.6.1: Material categories</p> <p>3.1.6.2: Material properties (METALS AND ALLOYS)</p> <p>3.1.6: Materials and their working properties</p> <p>3.1.6.1: Material categories</p> <p>3.1.6.2: Material properties (POLYMERS)</p> <p>3.1.3: Developments in new materials (MODERN MATERIALS, SMART MATERIALS, COMPOSITE MATERIALS, TECHNICAL TEXTILES)</p> <p>3.1.6: Materials and their working properties</p> <p>3.1.6.1: Material categories</p> <p>3.1.6.2: Material properties (PAPERS AND BOARDS, TEXTILES)</p> <p>3.1.1: New and emerging technologies (INDUSTRY, ENTERPRISE, SUSTAINABILITY, PEOPLE, CULTURE, SOCIETY, ENVIRONMENT, PRODUCTION TECHNIQUES AND SYSTEMS, HOW THE CRITICAL EVALUATION OF NEW AND EMERGING TECHNOLOGIES INFORMS DESIGN DECISIONS)</p> <p>3.1.2: Energy generation and storage (FOSSIL FUELS, NUCLEAR POWER, RENEWABLE ENERGY, ENERGY STORAGE SYSTEMS)</p>	<p>CORE AND SPECIALIST TECHNICAL PRINCIPLES</p> <p>3.1.4: Systems approach to designing (INPUTS, PROCESSES, OUTPUTS)</p> <p>3.1.5: Mechanical devices (DIFFERENT TYPES OF MOVEMENT, CHANGING MAGNITUDE AND DIRECTION OF FORCE)</p> <p>3.2.1: Selection of materials or components</p> <p>3.2.2: Forces and stresses (Materials and objects can be manipulated to resist and work with forces and stresses, Materials can be enhanced to resist and work with forces and stresses to improve Functionality)</p> <p>3.2.3: Ecological and social footprint (Ecological issues in the design and manufacture of products, The six Rs, Social issues in the design and manufacture of products)</p> <p>3.2.4: Sources and origins</p> <p>DESIGN PRINCIPLES</p> <p>3.3.1: Investigation, primary and secondary data (Use primary and secondary data to understand client and/or user needs, How to write a design brief and produce a design and manufacturing specification, Carry out investigations in order to identify problems and needs)</p> <p>3.3.2: Environmental, social and economic challenge</p> <p>3.3.3: The work of others</p> <p>3.3.4: Design strategies (Generate imaginative and creative design</p>	<p>CORE AND SPECIALIST TECHNICAL PRINCIPLES</p> <p>3.2.5: Using and working with materials (Properties of materials, The modification of properties for specific purposes, How to shape and form using cutting, abrasion and addition)</p> <p>3.2.6: Stock forms, types and sizes</p> <p>3.2.7: Scales of production</p> <p>3.2.8: Specialist techniques and processes (The use of production aids, Tools, equipment and processes, How materials are cut shaped and formed to a tolerance, Commercial processes, The application and use of Quality Control to include measurable and quantitative systems used during manufacture)</p> <p>3.2.9: Surface treatments and finishes</p> <p>DESIGN PRINCIPLES</p> <p>3.3.8: Tolerances</p> <p>3.3.9: Material management (Cut materials efficiently and minimise waste, Use appropriate marking out methods, data points and coordinates)</p> <p>3.3.10: Specialist tools and equipment (Surface treatments and finishes)</p> <p>3.3.1: Investigation, primary and secondary data (Use primary and secondary data to understand client and/or user needs, How to write a design brief and produce a design and manufacturing specification, Carry out investigations in order to identify</p>

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	<p>INCLUDING BATTERIES) 3.1.5: Mechanical devices (DIFFERENT TYPES OF MOVEMENT, CHANGING MAGNITUDE AND DIRECTION OF FORCE)</p> <p>STOOL PROJECT PRACTICAL 3.3.5 Communication of design ideas 3.3.6 Prototype development-In relation to Timber 3.3.6 Prototype development-In relation to Timber (MAKING THE STOOL)</p>	<p>ideas using a range of different design Strategies, Explore and develop their own ideas) 3.3.5: Communication of design ideas 3.3.6: Prototype development-In relation to Timber 3.3.7: Selection of materials and components</p>	<p>problems and needs)</p> <p>NEA (NON EXAMINED ASSESSMENT) 4.4.4.1 Section A: Identifying & investigating design possibilities (10 marks) 4.4.4.2 Section B: Producing a design brief & specification (10 marks)</p>
Year 11	<p><u>NEA(Non Examined Assessment)</u></p>	<p><u>NEA(Non Examined Assessment)/Exam Revision</u></p>	<p><u>Exam Revision</u></p>
	<p>NEA (NON EXAMINED ASSESSMENT) 4.4.4.3 Section C: Generating design ideas (20 marks) 4.4.4.4 Section D: Developing design ideas (20 marks) 4.4.4.5 Section E: Realising design ideas (20 marks)</p>	<p>NEA (NON EXAMINED ASSESSMENT) 4.4.4.6 Section F: Analysing & evaluating (20 marks)</p> <p>EXAM REVISION Unit 1: Core Technical Principles (3.1) Unit 2: Specialist Technical Principles (3.2) (Taught through specialist area TIMBER BASED MATERIALS)</p>	<p>EXAM REVISION Unit 2: Specialist Technical Principles (3.2) (Taught through specialist area TIMBER BASED MATERIALS) Unit 3: Designing and Making Principles (3.3) (Student led revision based on feedback)</p>
GCSE Food Preparation and Nutrition			
KS4	Autumn	Spring	Summer
Year 9	<p>FOOD PREPERATION SKILLS Skill 1: General practical skills Techniques Skill 2: Knife skills Skill 3: Preparing fruit and vegetable preparation skills Techniques Skill 4: Use of the cooker Skill 5: Use of equipment preparation skills Techniques Skill 6: Cooking method preparation skills Techniques Skill 7: Prepare, combine and shape Skill 8: Sauce making preparation skills Techniques Skill 9: Tenderise and marinate on skills Techniques Skill 10: Dough preparation skills Techniques Skill 11: Raising agent preparation skills Techniques Skill 12: Setting mixture preparation skills Techniques</p> <p><u>3.3 Food science</u> 3.3.1 Cooking of food and heat transfer <ul style="list-style-type: none"> 3.3.1.1 Why food is cooked and how heat is transferred to food </p>	<p>FOOD PREPERATION SKILLS Skill 1: General practical skills Techniques Skill 2: Knife skills Skill 3: Preparing fruit and vegetable preparation skills Techniques Skill 4: Use of the cooker Skill 5: Use of equipment preparation skills Techniques Skill 6: Cooking method preparation skills Techniques Skill 7: Prepare, combine and shape Skill 8: Sauce making preparation skills Techniques Skill 9: Tenderise and marinate on skills Techniques Skill 10: Dough preparation skills Techniques Skill 11: Raising agent preparation skills Techniques Skill 12: Setting mixture preparation skills Techniques</p> <p><u>3.6 Food provenance</u> <ul style="list-style-type: none"> 3.6.1 Environmental impact and sustainability of food 3.6.1.1 Food Sourcesntent Students must know </p>	<p>FOOD PREPERATION SKILLS Skill 1: General practical skills Techniques Skill 2: Knife skills Skill 3: Preparing fruit and vegetable preparation skills Techniques Skill 4: Use of the cooker Skill 5: Use of equipment preparation skills Techniques Skill 6: Cooking method preparation skills Techniques Skill 7: Prepare, combine and shape Skill 8: Sauce making preparation skills Techniques Skill 9: Tenderise and marinate on skills Techniques Skill 10: Dough preparation skills Techniques Skill 11: Raising agent preparation skills Techniques Skill 12: Setting mixture preparation skills Techniques</p>

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	<ul style="list-style-type: none"> 3.3.1.2 Selecting appropriate cooking methods <p>3.3.2 Functional and chemical properties of food</p> <ul style="list-style-type: none"> 3.3.2.1 Proteins 3.3.2.2 Carbohydrates 3.3.2.3 Fats and oils 3.3.2.4 Fruit and Vegetables 3.3.2.5 Raising agents 	<p>and</p> <ul style="list-style-type: none"> 3.6.1.2 Food and the environment 3.6.1.3 Sustainability of food must know and 3.6.2 Food processing and production 3.6.2.1 Food production 3.6.2.2 Technological developments associated with better health and food production 	
Year 10	<p>Exam Knowledge: 3.4.1 FOOD SPOILAGE AND CONTAMINATION 3.2 FOOD NUTRITION AND HEALTH</p> <p>Food Prep Skills: Skills 1- Weights & Measurements Skills 1- Temperatures Skills 5- Using equipment Skills 3- Prepare fruit & Veg Skills 2-Knife- Fruit & Veg (cutting fruit/ veg) Skills 9- Tenderise & marinate Skills 2- Knife- Meat & Fish Skills 8- Sauces Skills 7- Prepare, Combine & Shape</p> <p>Science: Science- Research, Hypothesis, method Science Raising agent sugar and reaction on yeast Science enzyme browning fruit & veg Gelatine- pineapple Science different methods of cooking different foods for textures and taste</p>	<p>Exam Knowledge: 3.4.2 PRINCIPLES OF FOOD SAFETY 3.2.3 NUTRITIONAL NEEDS AND HEALTH</p> <p>Food Prep Skills: Skills 11- Raising Agents Skills 10- Dough- different methods Skills 4 & 6 - Using a cooker Skills 12- Setting mixtures</p> <p>Science: Science Best flour for bread making Science yeast/ raising agent Science emulsion Science 3.3.1.1 food & heat transfer experiment - peanut, steak, caramelisation Science Research emulsion making butter Experiment</p>	<p>EXAM KNOWLEDGE: 3.5.1 FACTOR EFFECTING FOOD CHOICE 3.5.2 BRITISH & INTERNATIONAL CUISINES 3.5.3 SENSORY EVALUATION 3.6.1 ENVIRONMENTAL IMPACT & SUSTAINABILITY OF FOOD 3.6.2 FOOD PROCESSING AND PRODUCTION</p> <p>Food Prep Skills: Skills recap based on test findings</p> <p>Science: Science Research emulsion making butter Science emulsion Science Research Egg based: experiment Science Research- Fats in Pastry: experiment Science Research- Whipped cream: experiment Science Research- Sweetener/ sugar: experiment</p>
Year 11	<p>NEA 1 (FOOD INVESTIGATION) Food Investigation – Introduction Food Investigation- Research Food Investigation- Planning Investigations x3/4 Food Investigation- Practical (x3) Food Investigation- Analysis Food Investigation- Completion</p> <p>NEA 2 (FOOD PREPERATION)</p>	<p>NEA 2 (FOOD PREPERATION) Continued Food Preparation – feedback Food Preparation – Practical Exam week Food Preparation- Analysis and evaluation Food Preparation- Submission Food Preparation- Feedback</p> <p>REVIEW OF EXAM KNOWLEDGE/TECHNIQUE</p>	<p>EXAM REVISION AND EXAM TECHNIQUE 3.4.1 FOOD SPOILAGE AND CONTAMINATION 3.2 FOOD NUTRITION AND HEALTH 3.5.1 FACTOR EFFECTING FOOD CHOICE 3.5.2 BRITISH & INTERNATIONAL CUISINES 3.5.3 SENSORY EVALUATION 3.6.1 ENVIRONMENTAL IMPACT & SUSTAINABILITY OF FOOD 3.6.2 FOOD PROCESSING AND PRODUCTION</p>

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<i>Food Preparation-Introduction</i> <i>Food Preparation – Demonstrating skills/ techniques</i> <i>Food Preparation –Time Plan</i> <i>Food Preparation – Write up</i>		<i>3.4.2 PRINCIPLES OF FOOD SAFETY</i> <i>3.2.3 NUTRITIONAL NEEDS AND HEALTH</i>
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KS3: Each student completes one term of each specialism (The numbers next to each skill taught refers to the skills taken from the AQA GCSE Design and Technology Specification)

KS4: D+T/Food Perpetration and Nutrition are optional and students will complete each term with the same teacher