

Key Stage 3 Design and Technology. Design & Technology Materials.

Term	Year 7			Year 8			Year 9		
	Topic	Knowledge	Skills/Assessment	Topic	Knowledge	Skills/Assessment	Topic	Knowledge	Skills/Assessment
Term 1	<p>Design and Technology: Spinner Project. (Specialist Rooms (DT2 & CADCAM))</p> <p>The project focusses on the structure of a frame work for a child's spinner toy where a handle is turned to rotate a character around a top axel. A wood based product where CADCAM is used to create a character front on the laser cutter.</p> <p>Skills based project to introduce the students to the workshop. Pupils will be introduced to the design process and how it is used to create new designs and products in the expanding current industry.</p>	<p>Pupils will produce skills using a number of different hand tools and fixing procedures to familiarise them with wood working skills. Pupils will also learn how to work safely in a workshop environment and how to recognise dangers. Pupils will also learn different finishing techniques to finalise a finished product.</p>	<p>Pupils will complete a baseline test at the start of the year. Throughout the project pupils will assess other pupils work through peer marking and also produce a final self-assessment through the completion of their evaluation.</p> <ul style="list-style-type: none"> • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment • End of project summative assessment. <p>Final rotation assessment will be completed to acknowledge understanding of the topic.</p>	<p>Design and Technology: Night Light Project. (Specialist rooms DT2 & CADCAM)</p> <p>The project is a light activated circuit with LED to enhance an acrylic character. Wood work skills are also used to create the base.</p> <p>Skills based project to introduce the students to the workshop. Pupils will reengage with the design process and how it is used to create new designs and products in the expanding current industry by focusing on Briefs, Analysis, Design Ideas and Evaluations.</p>	<p>Pupils will produce skills using a number of different hand and power tools with an overview of fixing procedures to familiarise them with wood working skills. Pupils will undergo an electronics task where they will be introduced to the soldering process and how system and control circuits are produced to create a working product. Pupils will also learn how to work safely in a workshop environment and how to recognise dangers. Pupils will also learn different finishing techniques to finalise a finished product.</p>	<p>Pupils will complete a baseline test at the start of the year. Throughout the project pupils will assess other pupils work through peer marking and also produce a final self-assessment through the completion of their evaluation.</p> <ul style="list-style-type: none"> • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment • End of project summative assessment. <p>Final rotation assessment will be completed to acknowledge understanding of the topic.</p>	<p>Starter Topic – Pencil Box</p> <p>The project is a pencil / trinket box focusing on measuring, cutting and joining skills. The item has a routed base with a sliding lid.</p> <p>Pupils will be introduced the subject with a small practical starter focusing of the use of the workshop environment. The topic will introduce the pupils to health and safety and how to function correctly with an understanding on how to use certain hand and power tools and how to create certain fixing joints throughout practical lessons.</p>	<p>Pupils will start to learn how to handle certain tools correctly and safely, how to mark out with precision ruler skills and try square and produce basic joining techniques. Pupils will also be introduced to the theory side of the subject reviewing key points that have a connection to the practical task:-</p> <ul style="list-style-type: none"> • Woods (Timber) • Boards • Cuts and Grain • Hand Tools • Joints • Dimensions • Health and Safety • Properties • 2D CADCAM • Adhesives 	<p>Skills</p> <ul style="list-style-type: none"> • Patience and concentration. • Tool and machine handling. • Wood working shaping and forming • Measuring and marking out. <p>Ongoing assessment throughout the term will be completed by:-</p> <ul style="list-style-type: none"> • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment • Final assessment of exam type questions completed each term based on theory content covered in lesson.
	Term 2						<p>Advance Topic – Holder/ Carrier</p> <p>The project is a carrier that can be used to carry any small item. Pupils will build on more advanced skills in using templates, producing finger joints and learning how to use the pillar drill correctly.</p> <p>Pupils will continue with another small practical task with continued focus on the use of the workshop environment. The topic will embed the pupils knowledge to health and safety</p>	<p>Pupils will advance further by being introduced to new tools and power tool equipment following health and safety guides, marking out using templates and further their knowledge with more complicated joining techniques. Pupils will also continue with the theory side of the subject reviewing key points that have a connection to the practical task:-</p> <ul style="list-style-type: none"> • Ergonomics • Pillar Drill • Drill Bits • Power Tools • Sanding • Templates etc • Testing • Quality 	<p>Skills</p> <ul style="list-style-type: none"> • Cutting and drilling techniques. • Wood joint manufacture • Timing • Wood and metal understanding <p>Ongoing assessment throughout the term will be completed by:-</p> <ul style="list-style-type: none"> • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment <p>Final assessment of exam type questions completed each term</p>

							<p>and how to function correctly with an understanding on how to use other hand and power tools and how to create certain fixing joints throughout practical lessons.</p>	<ul style="list-style-type: none"> • Production Techniques • Wood fixings • Metal Types • Metal Stock forms • Casting and shaping processes • Welding 	<p>based on theory content covered in lesson.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Term 3</p>							<p>Mini NEA – Desk Tidy Project. An introduction to how the NEA is set out in GCSE. Students will complete a smaller version of the NEA which will include a chance to research designers work, create a product analysis, design and develop their ideas, model a final outcome and evaluate their work. Students will research independently to ensure they are justifying their designs. Students will also have the opportunity to choose and design for a specific target market or client and will refer back to their client needs throughout the project.</p>	<p>Pupils will learn how to follow the design process to complete a briefed task that they must achieve. Using prior knowledge of practical skills, pupils must design model and create their final design. Pupils will gain further knowledge of materials and joining techniques. Pupils will also continue with the theory side of the subject reviewing key points that have a connection to the practical task:-</p> <ul style="list-style-type: none"> • Sketching and Drawing Skills • Modelling Techniques • Designer & Design Influence • Biomimicry 	<p>Skills</p> <ul style="list-style-type: none"> • Independence • Designing • Modelling • Design process • Planning & research • Manufacture • Resourcing <p>Ongoing assessment throughout the term will be completed by:-</p> <ul style="list-style-type: none"> • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment • Final outcome teacher feedback • Final assessment of exam type questions. • Mini NEA of independent project assessed for final year assessment.

Design and Technology: Food and Nutrition.

In Year 7 students will learn how to store, prepare and cook food safely and hygienically. Students will also understand how to make healthy food choices for everyday life and refer to the Eatwell guide.

Pupils will develop basic knife skills, weighing and measuring accurately and how to use equipment safely and correctly. Students will also learn in-depth about the Eatwell guide and apply the information to adapt recipes for different dietary needs.

Skills

- Using hob and oven safely
- Weighing and measuring
- Knife skills
- Combining ingredients
- Rubbing in method
- Glazing
- Coating

Assessment

Pupils will complete a baseline test at the start of the year.

- Constant verbal feedback.
- Ongoing teacher, self and peer formative assessment
- End of project summative assessment.

Food Preparation and Nutrition:

Students will continue to develop their practical skills in Food Preparation and Nutrition. They will also have a greater understanding of food science and investigate enzymic browning.

Pupils will learn about different dietary needs and what food choices they should be applying to have a healthy and balanced lifestyle. Students will have a further understanding about where food comes from and the impact the industry is having on the environment. Students will also investigate the science behind food.

Skills

- Using hob and oven safely
- Weighing and measuring
- Knife skills
- Rubbing in method
- Coating
- Rolling out
- Kneading
- Cutting out
- Using a temperature probe
- Use of electrical equipment

Assessment

Pupils will complete a baseline test at the start of the year.

- Constant verbal feedback.
- Ongoing teacher, self and peer formative assessment
- End of project summative assessment.
- End of project practical assessment (Food)

Intro Topic – Food Safety
Key words-

Pupils will be introduced to the option taster, Food and Nutrition., They will begin with reviewing the importance of Health and Safety and how to act in a Kitchen environment.

The signs of food spoilage. The growth conditions for microorganisms and enzymes and the control of food spoilage

Identify high risk foods

Bacterial contamination

The food safety principles when preparing, cooking and serving food.

Nutrition and Dietary Needs

Food Preparation and cooking skills

Pupils will also undergo a Variety of practical tasks to ensure they can make shortcrust pastry, ruff puff and choux pastry.

Food Science – Shortening, Laminating

Dietary needs

Dietary needs and nutrition

Students will focus on linking food nutrition to meal planning for different age groups and dietary needs.

Skills

- Weighing and measuring
- Advanced knife skills
- Kneading
- Rubbing in method
- Roux
- Creaming
- Melting
- Use of electrical equipment
- Reduction
- Combining

Assessment

- Constant verbal feedback.
- Ongoing teacher, self and peer formative assessment
- End of topic summative assessment.

Term 2

The Food Environment & Types of Farming

Students will study the different environmental issues which food is grown and the types of farming which take place.

An introduction to NEA 1 – raising agents

Students will investigate the chemical and functional properties of raising agents in baked products.

The Food Environment & Types of Farming

Why is it important that we learn about the main environmental issues linked with foods today? Discussion to include:

- reducing food miles and transportation x organic foods
- importance of buying locally sourced foods
- the issues linked to food waste
- the environmental issues linked to packaging of foods.

An introduction to NEA 1.

Students will research and conduct an experiment into raising agents. This will be in the style of NEA 1 which is completed on the GCSE course. The project will include:

- Research
- Practical investigation
- Evaluation

Students will independently conduct their research and evaluation and they will be in small groups to complete their investigation.

Skills

- Weighing and measuring
- Advanced knife skills
- Kneading
- Use of electrical equipment
- Piping
- Shaping
- Creaming method
- Conducting investigation
- Research
- Evaluation
- Use of raising agents

Assessment

- Constant verbal feedback.
- Ongoing teacher, self and peer formative assessment
- Exam questions.

Term 3

Foods from around the world

Students will investigate and research different cultures cuisine and demonstrate how to successfully make traditional dishes.

Final practical assessment.

Students will be given a brief and will independently research, plan, cook

Foods from around the world

Students will learn about different traditional foods from around the world and how they are made. They will be given briefs and will then make independent decisions on dishes however, they will be guided and challenged. During this time students will complete the research, planning and evaluating sections of NEA 2 which they will be assessed on

Final practical assessment.

Students will plan, prepare, cook and present a range of

Skills

- Weighing and measuring
- Advanced knife skills
- Kneading
- Use of electrical equipment
- Pastry making
- Pasta making
- Piping
- Shaping
- Creaming method
- Planning

Term 2									
Term 3									

Term		Year 10/11 – One Year GCSE Design Technology	
	Topic	Knowledge	Skills/Assessment
Term 1	<p>Building Theory knowledge and Basic Skills. Pupils will be introduced to the subject with a small practical starter focusing of the use of the workshop environment. The topic will introduce the pupils to health and safety and how to function correctly with an understanding on how to use certain hand and power tools and how to create certain fixing joints throughout practical lessons.</p> <p>NON EXAM ASSESSMENT NEA – Introduction working through each section.</p> <p>September - Completed by February half term. Working through the NEA exploring their chosen brief to design and make an appropriate product. The product will be currently non-existent and will be designed to fit a purpose or solve a problem. Students will research, plan, design, make a model and evaluate their product.</p> <p>Theory lessons and exam preparation beginning January up until mid April.</p> <p>Focus will be back to the NEA. Ensuring final modelling of prototype is completed by February.</p> <p>All lessons covering NEA until Easter half term. Responding to feedback and making improvements.</p>	<p>Pupils will start to learn how to handle certain tools correctly and safely, how to mark out with precision ruler and try square and produce basic joining techniques.</p> <p>Pupils will also be introduced to the theory side of the subject reviewing key points that have a connection to the practical task:-</p> <ul style="list-style-type: none"> • Woods (Timber) • Boards • Cuts and Grain • Hand Tools • Joints • Dimensions/ Tolerances • 2D CAD/CAM • Adhesives • Health & Safety/ Quality Control • Production methods. <p>Pupils will start to complete the 20 sheet coursework portfolio following the design process to answer the given brief and design and make a final product. Substantial design and make task</p> <ul style="list-style-type: none"> • Assessment criteria: • Identifying and investigating design possibilities • Producing a design brief and specification • Generating design ideas • Developing design ideas • Realising design ideas • Analysing & evaluating <p>Students will produce a prototype and a portfolio of evidence. Work will be marked by teachers and moderated by AQA.</p> <p>Pupils will focus on the first 3 sections of the NEA looking at completing modules A,B & C.</p>	<p style="text-align: center;">SKILLS</p> <ul style="list-style-type: none"> • Workshop Safety • Hand Tools • Machine Forming Safety • Joints and Fixings • Dimensions and Markings • Independent Thinking • Design Process Understanding <p style="text-align: center;">ASSESSMENT</p> <ul style="list-style-type: none"> • Constant verbal feedback • Mid-project assessments based on class theory. • Ongoing teacher, self and peer formative assessment • Summative assessments every 2-3 weeks based on theory content covered. • Termly GCSE Mock exam • Independent improvements to NEA and responding to feedback • NEA overall grade worth 50% of final GCSE
	Term 2	<p>NON EXAM ASSESSMENT NEA – Continuation working through each section.</p> <p>September - Completed by February half term. Working through the NEA exploring their chosen brief to design and make an appropriate product. The product will be currently non-existent and will be designed to fit a purpose or solve a problem. Students will research, plan, design, make a model and evaluate their product.</p> <p>Theory lessons and exam preparation beginning January up until mid April.</p> <p>From mid November – Focus will be back to the NEA. Ensuring final modelling of prototype is completed by February.</p> <p>All lessons covering NEA until Easter half term. Responding to feedback and making improvements.</p>	<p>Pupils will continue to complete the 20 sheet coursework portfolio following the design process to answer the given brief and design and make a final product. Substantial design and make task</p> <ul style="list-style-type: none"> • Assessment criteria: • Identifying and investigating design possibilities • Producing a design brief and specification • Generating design ideas • Developing design ideas • Realising design ideas • Analysing & evaluating <p>Students will produce a prototype and a portfolio of evidence. Work will be marked by teachers and moderated by AQA.</p> <p>Pupils will focus on the completion of the final 3 sections of the NEA looking at completing modules D,E & F.</p> <p>Pupils will also continue with the theory side of the subject reviewing key points that have a connection to the specification:-</p> <ul style="list-style-type: none"> • Environment & Eco Design • Production Techniques • Drawing Skills • Metals & Processes • Plastics and Processes • Smart Materials • Paper & Board • Textiles

		<ul style="list-style-type: none"> • Motion & Forces 	
<p style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 2em; font-weight: bold;">Term 3</p>	<p>Six lessons a week: Exam Revision</p> <p><u>5 revision booklets will be issued throughout the year to support with mock exams and revision.</u></p> <p>Revision Topics:</p> <ul style="list-style-type: none"> • Review of existing theory • Materials and their working properties • Robotics, automation and production • Enterprise and business • Society and sustainability • Energy generation • Core technical principles • Systems and Electronic systems • Mechanical systems • Developments in new materials • Material properties and selecting materials <p>Independent revision when not in lessons. Exam time: 2 hours</p> <p>Intervention lessons for specific NEA page completion and improvements OR extra exam support.</p>	<p>Pupils will complete revision tasks and learn how to break down exam questions to maximise answers in order to achieve full marks. Pupils will review past theory work to the guidelines of the AQA specification to prepare for exam assessment.</p> <p>What's assessed</p> <ul style="list-style-type: none"> • Core technical principles • Specialist technical principles • Designing and making principles <p>In addition:</p> <ul style="list-style-type: none"> • at least 15% of the exam will assess maths • at least 10% of the exam will assess science. <p>How it's assessed</p> <ul style="list-style-type: none"> • Written exam: 2 hours • 100 marks • 50% of GCSE 	<p style="text-align: center;">SKILLS</p> <ul style="list-style-type: none"> • Revision Techniques • Breaking down and understanding exam questions • Key words and general knowledge in technology <p style="text-align: center;">ASSESSMENT</p> <ul style="list-style-type: none"> • Constant verbal feedback • Mid-revision assessments based on class theory. • Ongoing teacher, self and peer formative assessment • End of term revision assessment • GCSE Written exam (2 hours)

Key Stage 4 Food and Nutrition

Term	Year 10/11 – One Year GCSE Food & Nutrition		
	Topic	Knowledge	Skills/Assessment
Term 1	<p><u>Building theory knowledge and skills</u> Students will have 6 lessons a week of Food preparation and nutrition. 3-4 lessons per week they will be learning the content for the written exam. Students will then have 2-3 lessons per week developing their food preparation and practical skills.</p>	<p>Students will begin to have a deeper understanding of the 5 theory topics and develop their prior knowledge from KS3 which is needed for the written exam. This 5 topics include:</p> <ul style="list-style-type: none"> • Food Nutrition • Food Safety • Food Science • Food Provenance • Food Choice <p>Students will also develop the basic and medium skills they learnt in KS3 and develop them into medium and complex skills to prepare them for the NEA practical exam in term 2.</p>	<p><u>Skills</u></p> <ul style="list-style-type: none"> • Weighing and measuring • Advanced knife skills • Kneading • Use of electrical equipment • Pastry making • Pasta making • Piping • Shaping • Melting • Meringue • Setting • Planning • Research • Evaluation • Food presentation <p>ASSESSMENT</p> <ul style="list-style-type: none"> • Constant verbal feedback • Mid-project assessments based on class theory. • Ongoing teacher, self and peer formative assessment • End of term assessment • Termly GCSE Mock exam
Term 2	<p><u>NEA1 15%</u> 2000 word report of the chemical and functional properties of ingredients. Briefs will be published by AQA 1st September. Students will be assessed on the below sections:</p> <ul style="list-style-type: none"> • Research • Investigations • Analysis and evaluation <p>Students will independently complete each section of the NEA, this will be completed by Christmas.</p> <p><u>NEA 2 -35% of overall GCSE grade.</u> Food preparation task, Students will be given a brief and will research, develop, plan, prepare and cook and evaluate. This will be 50% of students overall GCSE grade. As part of their NEA students will complete a 3 hour practical exam to demonstrate a range of complex and medium skills they have learnt throughout their time in food, this will be completed by February half term. Students will work independently throughout to produce their NEA 2 to a high standard.</p> <p>Intervention lessons for specific NEA page completion and improvements</p>	<p>Pupils with start to complete the 20 sheet coursework portfolio to answer the given brief to plan, prepare, cook and present a range of dishes.</p> <p>Assessment criteria:</p> <ul style="list-style-type: none"> • Research • Selecting dishes • Developing technical skills • Planning for the final menu • Prepare and cook final menu • Analysis and evaluation <p>Students will produce a portfolio. Work will be marked by teachers and moderated by AQA.</p>	<p><u>Skills</u></p> <ul style="list-style-type: none"> • Weighing and measuring • Advanced knife skills • Kneading • Use of electrical equipment • Pastry making • Pasta making • Piping • Shaping • melting • Meringue • Portioning chicken • Filleting fish • Setting • Planning • Research • Evaluation • Food presentation <p>ASSESSMENT</p> <ul style="list-style-type: none"> • Constant verbal feedback • Ongoing teacher, self and peer formative assessment • Homework set and feedback given (revision booklet) • Independent improvements to NEA and responding to feedback • NEA 50% of overall grade

	<p>Food science - students will learn and investigate the chemical and functional properties of macronutrients and apply this to exam questions.</p> <p>Intervention lessons for extra exam support.</p>	<p>Food science</p> <p>Students will learn about the chemical and functional properties of fats, protein and carbohydrates. Students will also learn the science of how and why food is cooked and the. Finally, students will understand how successful raising agents work and can be used in baked products.</p>	
Term 3	<p>Revision and exam preparation</p> <p>During term 3 students will revise all of the exam topics and practice their exam techniques and apply them to a range of exam questions in preparation for the summer exam. Students will learn through individual, group and practical work.</p> <p>1 hour 45 minute GCSE exam 100 marks Section A – 20 marks multiple choice Section B – 80 marks written</p> <p>Intervention lessons for extra exam support.</p>	<p>Exam 50% - Revision of all 5 GCSE topics and exam technique preparation for the final exam.</p> <p>Revision topics include:</p> <ul style="list-style-type: none"> • Food Nutrition • Food Science • Food Safety • Food Choice • Food Provenance <p>Students will develop their exam techniques and apply it to a range of exam questions. Independent revision when not in lessons.</p>	<p>Skills</p> <ul style="list-style-type: none"> • Short and long exam questions • Subject vocabulary • Understanding command words <p style="text-align: center;">ASSESSMENT</p> <ul style="list-style-type: none"> • Constant verbal feedback • Mid-revision assessments based on class theory. • Ongoing teacher, self and peer formative assessment • End of term revision assessment • GCSE exam