



DESIGN TECHNOLOGY

Design Technology

Why is the study of Design and Technology important?

Design and Technology is a practical and valuable subject. It enables you to actively contribute to the creativity, culture, wealth and well-being of yourself, your community and your nation. It teaches you how to take risks and so become more resourceful, innovative, enterprising and capable. You will develop a critical understanding of the impact of design and technology on daily life and the wider world. Additionally, it provides excellent opportunities for you to develop and apply value judgments of an aesthetic, economic, moral, social, and technical nature both in your own designing and when evaluating the work of others.

The subject at Outwood Academy Hemsworth is split up into the following categories:

- **Food Technology:** Design recipes and create food products while learning about nutrition.
- **Textiles Technology:** Learn hand sewing techniques and how to use the sewing machine to design and make products.
- **Resistant Materials Technology:** Work with materials like metals, plastic, wood, and use them to make interesting products.

What skills will the study of Design and Technology teach you?

Design and Technology applies knowledge, skills and understanding from within the subject itself, and also a wide range of other sources such as science and mathematics. Design and Technology will teach you to:

- Develop resilience by not being afraid of challenges when solving problems, but to break them down and keep trying.
- Be creative in developing solutions to real world problems.
- Use modelling and annotated sketches to develop and communicate ideas.
- How to act responsibly within a practical environment thinking of the safety of yourself and others.
- Identify how to competently use a range of practical techniques across a range of disciplines.
- Apply and use CAD/CAM equipment to design and manufacture a range of products /components considering scale of production and precision.
- Work independently and part of a team to solve complex problems.
- Construct reasoned arguments to ethical, social and moral problems that have arisen due to technology and communicate these effectively.
- Identify links between different materials and contextual references.
- Test, evaluate and refine ideas and products against a specification, taking into account the views of intended users and other interested groups.
- Understand and apply the principles of nutrition and health.
- Cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet.
- Become competent in a range of cooking techniques e.g. selecting and preparing ingredients: using utensils and equipment, applying heat in different ways: awareness of taste, texture and smell to decide how to season dishes and combine ingredients, adapting and using their recipes.
- Understand the source, seasonality and characteristics of a broad range of ingredients

What will you know and understand from your study of Design and Technology?

- How to classify materials and discuss their physical properties.
- How to manufacture products with reference to their materials physical properties.
- How to use and adjust equipment and machinery dependent on task.
- Use learning from science and mathematics to help design and manufacture components and products.
- To consider the influence of a range of lifestyle factors and consumer choices when designing and analysing products.
- To know and understand additional factors to consider such as ergonomics, anthropometrics or dietary needs.
- To use a variety of approaches, for example biomimicry and user-centred design to generate creative ideas and avoid stereotypical responses.
- To evaluate their work against an increasing range of designers, engineers, chefs, technologists and manufacturers and be able to relate their product to their own designing and making.
- To evaluate products through disassembly to determine how they are constructed and function and consider the life cycle analysis.
- To competently use a range of cooking techniques for example, selecting and preparing ingredients; using utensils and electrical equipment.
- The principles of nutrition and health including energy, nutrients, water, fibre, diet and health and nutritional needs throughout life and the risks of an unbalanced diet.
- A repertoire of predominantly savoury dishes in line with the principles of the Eatwell guide.
- To feed oneself taking into account personal preference, socio-economic aspects, nutritional and health needs.
- Healthy and varied diets as depicted in the eat-well plate and 8 tips for healthy eating.
- To explore the origin and product of food products and ingredients.
- To consider how seasons may affect the food available.
- To consider the function, nutrient profile and sensory attributes of ingredients.
- To study a range of food commodities e.g. cereals, fruits, vegetables, meat, fish, eggs, fats/oils, milk dairy food products.
- To develop a range of preparation, cooking and presentation skills.
- To plan menus for a range of individual and nutritional needs.
- To prepare and cook safely to prevent food poisoning.
- To explore the effect of advertising, marketing and packaging on food choice.

How does your study of Design Technology support your study in other subjects?

Design Technology develops a number of skills that will support your study of other subjects, as so many of the skills you will acquire in Design Technology are transferable. Design Technology disciplines will develop your focus, resilience, self-expression, teamwork, mathematical skills and problem solving and communication skills, which will help you in **all** of your other subjects. It will give you an opportunity for creative expression and practical thinking and encourage you to think about how to improve and home designs and encourage healthy eating etc. Some students may take this even further and discover a subject that provides them with a life-long hobby or career that enhances their life for years to come all students will gain an understanding of healthy diets etc. The ability to think creatively and problem solve are crucial in Engineering, Mathematics and Science. It will foster an interest and skill in cooking and may lead to study of subjects such as catering etc.

How can you deepen your understanding of Design Technology?

To enhance your work in lessons, there will be times when we explore the professional workplace and wider design practices and materials. This will deepen your understanding of professional work and introduce you to new techniques and ideas.

You will also have the opportunity to deepen your understanding of Design Technology disciplines through extracurricular opportunities, where you can continue to develop your creative ideas, or work on specific design projects. During enrichment clubs, you will have the opportunity to meet enthusiasts from other year groups, where you can share ideas, critique each other's work and continue to develop your technique.

There may also be an opportunity to participate in trips as well as exhibiting your own work within the Academy. Occasionally, there will be opportunities to enter national or Trust competitions to gain additional audiences and recognition for your work.

How are you assessed in Design Technology?

Throughout the 5 years in Design Technology you are assessed using the following assessment objectives which ensure that you can cumulatively build your subject understanding in preparation for future GCSE and A Level study. There are 6 assessment points each year that we term Praising Stars©. In the lower years before certificated study we assess how students are performing against age related expectation and as students' progress on to Level 1 and 2 courses such as GCSE and BTEC we assess how their current stage of study reflects how they are on track to reach their end of KS4 targets which are formulated on aspirational expectation from their KS2 starting points. For both lower and upper years we make an informed judgement from our holistic assessments based on our subject mapping of expectation across the Design Technology curriculum.

Assessment Objectives Design and Technology

	Design	Make	Evaluate	Technical Knowledge
KS4	<p>Understand that all design and technological practice takes place within contexts which inform outcomes</p> <p>Investigate and analyse the work of past and present professionals and companies in the area of design and technology in order to help inform their own ideas</p>	<p>Develop and apply in-depth knowledge by selecting and working with appropriate materials and components in order to produce a prototype</p> <p>Apply in depth knowledge using appropriate and accurate marking out methods including: measuring and use of reference points, lines and surfaces; use</p>	<p>Test, evaluate and refine their ideas and products against the specification taking into account the views of intended users and other interested groups.</p> <p>Critically evaluate new and emerging technologies to inform design decisions; considering contemporary and potential future scenarios from different</p>	<p>Understand the impact of new and emerging technologies on industry, enterprise, sustainability, people, culture, society and the environment, production techniques and systems.</p> <p>Know how energy is generated and stored in order to choose and use appropriate</p>

	<p>Use different design strategies, such as collaboration, user-centred design and systems thinking, to generate initial ideas and avoid design fixation.</p> <p>Design and develop at least one prototype that responds to needs and/or wants and is fit for purpose, demonstrating functionality, aesthetics, marketability and consideration of innovation</p> <p>Consider additional factors such as ergonomics and anthropometrics.</p>	<p>templates, jigs and/or patterns; work within tolerances; understand efficient cutting and how to minimise waste.</p> <p>Follow procedures for safety and write risk assessments.</p> <p>Use specialist techniques and processes to shape, fabricate, construct and assemble a high quality prototype, including techniques such as wastage, addition, deforming and reforming, as appropriate to the materials and/or components being used</p> <p>Use appropriate surface treatments and finishes for functional and aesthetic purposes</p>	<p>perspectives, such as ethics and the environment.</p> <p>Evaluate an increasing range of designers, engineers, technologists and manufacturers and be able to relate their products to their own designing and making.</p>	<p>sources to make products and to power systems.</p> <p>Understand developments in modern and smart materials, composite materials and technical textiles.</p> <p>Understand how electronic systems provide functionality to products and processes, including sensors and control devices to respond to a variety of inputs, and devices to produce a range of outputs</p> <p>Understand how the use of programmable components are used to embed functionality into products in order to enhance and customise their operation</p> <p>Understand the functions of mechanical devices, to produce different sorts of movement, changing the magnitude and direction of forces:</p> <p>Know how to make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines.</p> <p>Use learning from science and maths to help design and make products that work.</p>
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<p>KS4</p>	<p>Work confidently within a range of relevant domestic, local and industrial contexts, such as the home, health, leisure, culture, engineering, manufacture etc.</p> <p>Consider the influence of a range of lifestyle and consumer choices when designing products.</p> <p>Take creative risks when making design decisions.</p> <p>Analyse where human values may conflict and compromise has to be achieved.</p> <p>Decide which design criteria clash and determine which should take priority.</p> <p>Consider additional factors such as ergonomics and anthropometrics.</p>	<p>Produce costings spreadsheets for products they design and make.</p> <p>Match and select suitable materials and their fitness for purpose.</p> <p>Adapt their method of manufacture to changing circumstances.</p> <p>Recognise when it is necessary to develop a new skill or technique.</p> <p>Follow procedures for safety and understand the process of risk assessments.</p> <p>Make independent choices when selecting and using a broad range of manufacturing techniques including hand craft skills and machinery to manufacture products precisely.</p> <p>Apply a range of finishing techniques to a broad range of materials.</p>	<p>Evaluate the concept of circular economy approaches in relation to product development and consumption.</p> <p>Test, evaluate and refine their ideas and products against the specification taking into account the views of intended users and other interested groups.</p> <p>Evaluate new and emerging technologies.</p> <p>Evaluate an increasing range of designers, engineers, technologists and manufacturers and be able to relate their products to their own designing and making.</p>	<p>How to construct and use simple and compound gear trains to drive mechanical systems from a high revving motor.</p> <p>How to make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines.</p> <p>Use learning from science and maths to help design and make products that work.</p> <p>Understand the properties of materials, including smart materials, and how they can be used to advantage.</p>
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<p>Y9</p>	<p>Work confidently within a range of relevant domestic, local and industrial contexts, such as the home, health, leisure, culture, engineering, manufacture etc.</p> <p>Consider the influence of a range of lifestyle and consumer choices when designing products.</p> <p>Take creative risks when making design decisions.</p> <p>Analyse where human values may conflict and compromise has to be achieved.</p> <p>Decide which design criteria clash and determine which should take priority.</p> <p>Consider additional factors such as ergonomics and anthropometrics.</p>	<p>Produce costings spreadsheets for products they design and make.</p> <p>Match and select suitable materials and their fitness for purpose.</p> <p>Adapt their method of manufacture to changing circumstances.</p> <p>Recognise when it is necessary to develop a new skill or technique.</p> <p>Follow procedures for safety and understand the process of risk assessments.</p> <p>Make independent choices when selecting and using a broad range of manufacturing techniques including hand craft skills and machinery to manufacture products precisely.</p> <p>Apply a range of finishing techniques to a broad range of materials.</p>	<p>Evaluate the concept of circular economy approaches in relation to product development and consumption.</p> <p>Test, evaluate and refine their ideas and products against the specification taking into account the views of intended users and other interested groups.</p> <p>Evaluate new and emerging technologies.</p> <p>Evaluate an increasing range of designers, engineers, technologists and manufacturers and be able to relate their products to their own designing and making.</p>	<p>How to construct and use simple and compound gear trains to drive mechanical systems from a high revving motor.</p> <p>How to make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines.</p> <p>Use learning from science and maths to help design and make products that work.</p> <p>Understand the properties of materials, including smart materials, and how they can be used to advantage.</p>
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<p>Y8</p>	<p>Use research and begin to exploration, such as the study of different cultures, to identify and begin to understand user needs.</p> <p>To identify and solve issues within a design development task.</p> <p>Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of uses.</p> <p>Use a variety of influences, to generate creative ideas and avoid stereotypical responses.</p> <p>Use 2D and 3D to model and develop their ideas.</p> <p>Use CAD software to validate their designs in advance of manufacture.</p> <p>Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools.</p>	<p>Select from a wider, more complex range of materials and components, taking into account their properties.</p> <p>Make simple use of planning tools for instance Gantt charts, communicate their plans clearly so that others can implement them.</p> <p>Use a broad range of material joining techniques including stitching, mechanical fastenings, heat processes and adhesives.</p> <p>Make independent choices when selecting and using CAD/CAM to manufacture products/components and apply surface finishing techniques to increase the standard of quality.</p> <p>Follow procedures for safety and understand the process of risk assessments.</p> <p>Make independent choices when selecting and using a broad range of manufacturing techniques including hand craft skills and machinery to manufacture products precisely.</p>	<p>Select appropriate methods to evaluate their products in use and modify them to improve performance.</p> <p>Produce shorts reports making suggestions for improvements.</p> <p>Evaluate products that they are less familiar with using themselves.</p> <p>Evaluate products considering life cycle analysis.</p> <p>Evaluate how products can be developed considering the concept of cradle to grave.</p> <p>Test, evaluate and refine their ideas and products against the specification taking into account the views of intended users and other interested groups.</p> <p>Evaluate new and emerging technologies.</p> <p>Evaluate an increasing range of designers, engineers, technologists and manufacturers and be able to relate their products to their own designing and making.</p>	<p>How to apply computing and use electronics to embed intelligence in products that respond to inputs.</p> <p>How to control outputs such as actuators and motors.</p> <p>How to use software and hardware to develop programmes and transfer these programmable components for example, microcontrollers.</p> <p>How to make use of microcontrollers in products they design and manufacture themselves.</p> <p>How to make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines.</p> <p>Use learning from science and maths to help design and make products that work.</p> <p>Understand the properties of materials, including smart materials, and how they can be used to advantage.</p>
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	Consider additional factors such as ergonomics and anthropometrics.	Apply a range of finishing techniques to a broad range of materials.		
Y7	<p>Use research, such as the study of different cultures, to identify user needs.</p> <p>Be able to outline a simple specification to inform design ideas and guide their thinking.</p> <p>Use 2D packages to model their ideas.</p> <p>Produce models of their ideas using CAM to test ideas.</p> <p>Be able to independently generate creative ideas inform by stimulus using annotations to explain key features relating to brief/specification.</p> <p>Consider additional factors such as ergonomics and anthropometrics.</p>	<p>Produce ordered sequences and schedules for manufacturing products they design detailing resources required.</p> <p>Make use of specialist equipment to mark out materials.</p> <p>Use a broad range of material joining techniques including stitching, mechanical fastenings, heat processes and adhesives.</p> <p>Select and use CAD/CAM to manufacture products/components and apply surface finishing techniques to increase the standard of quality.</p> <p>Investigate and develop skills in modifying the appearance of materials including textiles and other manufactured materials.</p> <p>Follow procedures for safety and understand the process of risk assessments.</p> <p>Select and use a broad range of manufacturing techniques including hand</p>	<p>Evaluate their products against their original specification and identify ways to improve them.</p> <p>Actively involve others in the testing of their products.</p> <p>Evaluate products through disassembly to determine how they are constructed and function.</p> <p>Evaluate the positive and negative impact that products can have in the wider world.</p> <p>Test, evaluate and refine their ideas and products against the specification taking into account the views of intended users and other interested groups.</p> <p>Evaluate new and emerging technologies.</p> <p>Evaluate an increasing range of designers, engineers, technologists and manufacturers and be able to relate their</p>	<p>How to classify materials by structure e.g hard words, soft wood, ferrous and non-ferrous, thermoplastics and thermosetting plastics.</p> <p>Consider the physical properties of materials. E.g brittleness malleability.</p> <p>How to use simple electronic circuits incorporating inputs and outputs.</p> <p>Consider textile fibre sources eg. natural and synthetic.</p> <p>How materials can be cast in moulds.</p> <p>Make use of sensors to detect heat, light etc such as thermistors and light dependent resistors.</p> <p>How to make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines.</p>

		<p>craft skills and machinery to manufacture products precisely.</p> <p>Apply a range of finishing techniques to a broad range of materials.</p>	<p>products to their own designing and making.</p>	<p>Use learning from science and maths to help design and make products that work.</p> <p>Understand the properties of materials, including smart materials, and how they can be used to advantage.</p>
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Assessment Objectives Cooking and Nutrition

KS3 Programmes of Study for cooking and nutrition Key messages, advice and explanatory notes (1-8) for schools	AO1: Understand health and safety relating to food and cookery (Explanatory note 2)	AO2: Understand and apply the principles of nutrition and health (Explanatory notes 1 &4)	AO3: Understand the source, seasonality and characteristics of a broad range of ingredients (Explanatory notes 5,7&8)	AO4: Understand factors relating to food choice (so that they are able to feed themselves and others a healthy and varied diet). (Explanatory note 3 &6)	AO5: Develop practical cooking skills (so that they become competent in a range of cooking techniques and able to cook a repertoire of predominantly savoury dishes) (Explanatory note 2)
Year 10	<p>Be able to explain food safety legislation and the role of the Environmental Health Officer.</p> <p>Know and understand the HACCP system and the purpose for food businesses.</p>	<p>Be able to analyse and evaluate diets and make recommendations for improving nutritional profile.</p> <p>Be able to calculate energy and nutritional content of recipes</p> <p>Be able to explain health risks of an unbalanced diet and give sound nutritional advice on how to improve it</p>	<p>Know and understand how cooking methods affect the nutritional content of dishes</p> <p>Know and understand why and how food is cooked and the chemical and physical changes that occur.</p>	<p>Know and understand how medical conditions determine food choices:</p> <p>Cardiovascular, obesity, bone health, dental health, type 2 diabetes, iron deficiency anaemia bowel disorders, allergies and intolerances.</p>	<p>Learners are able to organise their time, dovetailing planning to produce more than one complex dish in the time available.</p> <p>They are able to use equipment, including electrical equipment, with confidence.</p> <p>They are able to use presentation and food styling techniques independently.</p>

					Be able to accurately portion foods.
Year 9	<p>Know and understand the factors that affect bacterial growth and their control (including temperatures)</p> <p>Know and understand the main causes of food contamination and the steps that need to be taken to prevent food poisoning.</p>	<p>Know and understand the causes and effects of an unbalanced diet</p> <p>Know and understand how to amend and develop a recipe to suit nutritional needs of individuals.</p>	<p>Know and understand how processing affects the physical, sensory and nutritional properties of foods.</p>	<p>Know and understand how economic factors determine food choices and nutritional health:</p> <p>High and low budgets</p> <p>effects of food poverty</p> <p>Know how to make informed choices about food from packaging and labelling.</p>	<p>Learners continue to develop their food preparation and cooking skills making complex dishes that meet the needs of users</p> <p>They are able to follow recipes independently.</p> <p>They are developing presentation and styling techniques.</p>
Year 8	<p>Know and understand how to identify risks (food poisoning, cross contamination) and minimise hazards in the cooking environment.</p> <p>Know and understand the difference between use by and best before dates)</p> <p>Know and understand the principles of safe storage, cooking and reheating foods.</p>	<p>Know and understand how nutritional requirements differ for specific groups of people (Life stages, allergies and intolerances)</p> <p>To understand how nutritional information and allergy advice on food packaging can be used to help make healthy choices (traffic lights).</p>	<p>Know and understand how ingredients have different effects in a recipe and be able to describe the sensory, nutritional and physical functions of ingredients in recipes.</p>	<p>Know and understand the range of cultural and ethical factors that determine food choices:</p> <p>Religion</p> <p>Vegetarian/vegan</p> <p>Fair trade</p> <p>Animal welfare</p> <p>Advertising/marketing.</p>	<p>Learners will make dishes of increasing complexity that further develop their food preparation and cooking skills and use a range of commodities.</p> <ul style="list-style-type: none"> -Making/shaping doughs -Sauce making - Blending - Frying -Whisking -Seasoning -Test for readiness

Year 7	<p>Know and understand safe and hygienic working practices and the practical steps they can take to remain safe and hygienic.</p> <p>Know and understand safe preparation, usage, cleaning and storage of utensils and equipment</p>	<p>Know and understand what is meant by a balanced diet using the current UK dietary recommendations (Eatwell guide and 8 Tips)</p> <p>Know the sources and understand the functions of the nutrients that make up a balanced diet</p> <p>Know and understand the importance of exercise and energy balance in maintaining a healthy weight.</p>	<p>Know and understand the main food groups and examples of foods for each group (cereals, fruit, vegetables, meat, fish, eggs, fats/oils, milk/dairy food products)</p> <p>Know and understand that foods come from a range of sources (caught, reared, grown).</p> <p>Know and understand that raw ingredients are processed to create food products (primary, secondary processing)</p>	<p>Know and understand the range of social and environmental factors that determine food choices:</p> <p>Personal/family preference</p> <p>Availability (seasonal/locality)</p> <p>Food miles</p> <p>Organics</p> <p>Food waste</p> <p>Packaging and recycling</p>	<p>Learners will be able to demonstrate a range of basic food preparation and cooking skills using a variety of food commodities</p> <ul style="list-style-type: none"> -Weighing/measuring -Knife skills (bridge/ claw) -Peeling - Segmenting -Boiling/ simmering -Rubbing in -Creaming/ all-in-one - Melting - Folding - Baking
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How can Design Technology support your future?

Of course, we offer a range of vocational courses at both KS4 and KS5 and we encourage your continued study in this fantastic subject. Yet we know that choice and personal interest are important aspects of worthy study. Whether you have continued to study a discipline of Design Technology into GCSE or A-Level or not you will have gained access to this wide enriching subject and its study of the various disciplines will have taught you to think differently and deeply.

Design courses are offered at most prestigious universities and there are many technical and vocational qualifications that can be studied in engineering, product design, graphics, electronics, catering, nutrition etc. as well as routes into apprenticeships etc. The very fact that you have been able to study creative thinking, problem solving, planning and design principles will help your future application be they for colleges, universities, apprenticeships or employment.

Careers linked to Design Technology:

- Product Designer
- Civil engineer
- Quantity Surveyor
- Graphic Designer
- Fashion Designer
- Branding designer
- Software Engineer
- Catering
- Nutritionist
- Food technologist
- Manufacturing Engineer / manager
- Architect
- Construction
- Aerospace engineer

The list is endless as study of Design Technology opens up a world of opportunities

DESIGN TECHNOLOGY CURRICULUM PROGRESSION OVERVIEW OUTWOOD ACADEMY HEMSWORTH			
	YEAR 7	YEAR 8	YEAR 9
	<p align="center">Year 7 D&T</p> <p>Students will have two hours of D&T a week which will be split over the different elements of D&T to ensure a broad curriculum is achieved where the key focus is learning about core materials. Students operate on a carousel system throughout the academic year.</p>	<p align="center">Year 8 D&T</p> <p>Students will have two hours of D&T a week which will be split over the different elements of D&T to ensure a broad curriculum is achieved where the key focus is developing design and manufacturing proficiency whilst</p>	<p align="center">Year 9 D&T</p> <p>Students will have one hour of D&T a week of their chosen subject specialism.</p>

		building on their technical knowledge. Students operate on a carousel system throughout the academic year.	
Resistant Materials	<p>Chalkboard project.</p> <p>The focus of the project is to introduce the students to Resistant Materials and health and safety in the workshop. This project helps to build Students confidence and skills with working with different tools and operating machinery. Students are introduced to woods and how to measure and mark out accurately. In this project students learn how to use coping saws, files and the pillar drill. The chalkboard is then evaluated considering how it can be improved.</p> <p>Mobile Phone Holder project.</p> <p>During this project students will learn all about plastic and will design and make a mobile phone holder using a 2D computer design programme (CAD) and the laser cutter to cut out their design (CAM). Students are introduced to basic electronic circuits and they will build their own circuit to light up the phone holder.</p> <p>Tea Light Holder project.</p> <p>This is a two week mini project, which gives students the opportunity to work with two different types of metal. Students will learn about the properties of metals and will design and make a simple tea light holder. Students will get the opportunity to work with junior hacksaws and to rivet the base to the holder.</p> <p>7Design 4, 5, 6.</p> <p>7Making 1, 2, 3, 4, 6, 7, 8.</p> <p>7Evaluate 1, 2, 3, 5, 6.</p>	<p>LED Night Light project.</p> <p>This project is designed to build on students' existing knowledge and skills but also to challenge students further by independent working and problem solving. Before the project is introduced, students will delve further into plastics and look at the impact plastic has on the environment and will look into ways we can become more sustainable. Students will look into life cycle analysis, the 6R's and will evaluate new and emerging technologies. Students carry out a variety of focused practical tasks where they will learn more about plastic properties and will make a sustainable product out of old plastic waste. Students analyse a design brief and respond to the client's needs by developing a specification for an LED Night Light. Students analyse existing products and will carry out primary and secondary research to help with their brief. Students build on their existing practical skills by constructing the base out of wood and choosing an appropriate wood joint and tools. They will build a complex circuit with an LDR and will solder the components safely, problem solving along the way. The perspex design will be designed on Techsoft 2D Design (CAD) and will be manufactured using the laser cutter (CAM). Students will complete a Gantt chart to help with their planning. They will also evaluate their final product against the design specification.</p> <p>Chinese Puzzle</p> <p>During this project students will develop their knowledge and understanding of different working properties of a variety of woods. Students will develop existing practical skills to refine their outcome to be more accurate and</p>	<p>Wooden Table</p> <p>Students will continue to develop existing skills working with wood and will be able to apply different manufacturing processes to create their wooden table. They will work to a design brief and will consider the influence of a range of lifestyle and consumer choices when designing the product. Students will produce costings spreadsheets for the product they design and make, ensuring they select materials that are fit for purpose. Students will use a broad range of manufacturing techniques including hand craft skills and machinery to manufacture their wooden table precisely. Students will also apply a range of finishing techniques to a broad range of materials that they have used in the project.</p> <p>Metal Bike Multi-tool</p> <p>This project will look into different Engineering processes. It will build on students' existing knowledge of metals and they will design, taking into consideration additional factors such as ergonomics and anthropometric data. Students will investigate which design criteria clash and will develop the ability to determine which should take priority. In this project students will evaluate new and emerging technologies and evaluate a range of designers, engineers, technologists and manufacturers and be able to relate their products to their own designing and making.</p> <p>9Design 1, 2, 3, 4, 5, 6.</p> <p>9Making 1, 2, 3, 4, 5, 6, 7.</p>

	<p>7Technical knowledge 2.</p>	<p>precise. Students will get the opportunity to work with different wood working tools and develop their practical skills by making different wood joints.</p> <p>Metal Bottle Opener</p> <p>Use a variety of influences, to generate creative ideas for their bottle opener and learn how to avoid stereotypical responses. They will use 2D and 3D models to help develop their ideas and prototype.</p> <p>Students will Select appropriate methods to evaluate their products in use and modify them to improve performance.</p> <p>Students will evaluate products that they are less familiar with using themselves by looking at a range of designers, engineers, technologists and manufacturers and be able to relate their products to their own designing and making. Students will also apply science and maths to help design and make their bottle opener that works.</p> <p>8Design 1, 2, 3, 4, 5, 6, 7, 8.</p> <p>8Making 1, 2, 3, 4, 5, 6, 7 .</p> <p>8Evaluate 1, 2, 3, 4, 5, 6, 7, 8.</p> <p>8Technical knowledge 1, 2, 3, 4, 5, 6, 7.</p>	<p>9Evaluate 1, 2, 3, 4.</p> <p>9Technical knowledge 1, 2, 3, 4.</p>
Food Technology	<p>Introduction to Food Technology</p> <p>In this unit students are introduced to the Food Technology rooms, the equipment and safe working practices required for practical work. They learn to follow basic recipes and develop a range of practical food preparation and cooking skills. They also learn safe</p>	<p>Nutrition and Health</p> <p>This unit builds on the knowledge gained in year 7 and students begin to develop their knowledge of basic nutrition by considering the function in the body and sources of a range of nutrients. They consider how our nutritional needs change over time and learn about the special dietary needs of different groups. They start to</p>	<p>Food Safety and Food Poisoning</p> <p>This unit builds on the knowledge and understanding of the factors that affect bacterial growth and their control (including temperatures)</p>

	<p>storage, preparation and cooking of foods and about the causes of food poisoning and how it can be prevented.</p> <p>Healthy Eating. In this second unit students learn about healthy eating models including the Eatwell Guide and the 8 Tips for Healthy Eating. They are introduced to energy balance and the impact of poor diet on health. Alongside this, they continue to develop practical food preparation and cooking skills.</p> <p>Where does my food come from? In this unit students learn about classifying food by commodity and by how food is caught, reared or grown. They are also introduced to how foods are processed from raw ingredients to complex products. They continue to develop practical preparation and cooking skills.</p> <p>Food Choice Students begin to consider the range of complex factors that influence our choice of foods including social, economic and ethical considerations. They start to think about issues of sustainability and the impact of our food choices on the environment as well as considering how food waste can be reduced. They continue to develop practical preparation and cooking skills.</p> <ul style="list-style-type: none"> ● AO1 - Food hygiene and safety (1,2) ● AO2 - Healthy eating (1,2,3) AO2 - Healthy Eating (1,2,3) ● AO3 - Food provenance (1,2,3) ● AO4 - Food choice (1) ● AO5 - Basic food preparation and cooking skills (1) 	<p>adapt diet plans to make them suitable for different groups. They learn about how to read and understand food labels and how they can be used to help make healthy choices. They continue to develop their practical food preparation skills and start to follow more complex recipes.</p> <p>The Effects of Cooking Students start to consider the physical, sensory and nutritional functions of the ingredients in their dishes. They are introduced to a range of cooking methods and consider the impact of these on health. They begin to learn how to adapt the cooking methods used in a recipe to make it healthier. They further refine their knowledge of food poisoning bacteria and suggest rules for preventing outbreaks.</p> <p>Food Choice In this unit students consider the ethical choices some people make looking particularly at vegetarian and vegan diets. They adapt recipes to make them suitable for particular groups. They then go on to look at how our choices of products are influenced by advertising, marketing and packaging. They continue to develop their practical food preparation skills and start to follow more complex recipes.</p> <ul style="list-style-type: none"> ● AO1 - Food Safety (1,2,3) ● AO2 - Diet through life and special diets (1, 2) ● AO3 - Ingredients (1) ● AO4 - Food choice (1) ● AO5 - Development of a range of more complex cooking skills (1) 	<p>Students will develop an understanding of the main causes of food contamination and the steps that need to be taken to prevent food poisoning.</p> <p>Basic Nutritional Function and Sources of Nutrients Students will develop an understanding of how processing affects the physical, sensory and nutritional properties of foods.</p> <p>Students will develop an understanding of how economic factors determine food choices and nutritional health including: High and low budgets effects of food poverty</p> <p>Specialist Diets In this unit students will develop an understanding of the causes and effects of an unbalanced diet and will develop skills on how to amend and develop a recipe to suit nutritional needs of individuals.</p> <p>Recipe Developments Students to continue to develop their food preparation and cooking skills making complex dishes that meet the needs of users They will be able to follow recipes independently and they will continue to develop presentation and styling techniques.</p> <p>Packaging and Labelling In this unit, students will learn how to make informed choices about food from packaging and labelling.</p> <ul style="list-style-type: none"> ● AO1 - Food Safety and food poisoning (1,2,) ● AO2 - Specialist diets (1, 2)
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