



## DESIGN TECHNOLOGY

### Why is the study of Design and Technology important?

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

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

- **Food technology:** Design recipes and create food products while learning about nutrition, the Hospitality and Catering Industry and the job opportunities the industry provides.
- **Resistant materials technology:** Work with materials like metals, plastic, wood, and use them to make interesting products.
- **Electronic products:** Use electronic materials to build interesting devices.
- **Graphics:** Learn how to use 2D and 3D modelling programs and technical drawing to plan and design products. Work with paper and board to make interesting outcomes and design prototypes.
- **Textiles technology (within Art & Design):** Learn about different fabrics, how they are made, and ways you can use them to create 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 including smart materials and discuss their physical properties.
- How to use simple electronic circuits incorporating inputs and outputs.
- How to manufacture products with reference to their material's physical properties.
- How to use and adjust equipment and machinery depending on the 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, preventing 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 students' study of other subjects, as so many of the skills they will acquire in Design Technology are transferable. Design Technology disciplines will develop their focus, resilience, self-expression, teamwork, mathematical skills and problem solving and communication skills, which will help students in **all** of their other subjects. It will give students an opportunity for creative expression and practical thinking and encourage them to think about how to improve 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 students' work in lessons, there will be times when we explore the professional workplace and wider design practices and materials. This will deepen their understanding of professional work and introduce them to new techniques and ideas.

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

There may also be an opportunity to participate in trips to local restaurants and have visiting speakers from a range of industries relating to technology, as well as exhibiting their own work within the Academy. Occasionally, there will be opportunities to enter national or Trust competitions to gain additional audiences and recognition for their work such as the Rotary club tournament.

### **How are you assessed in Design Technology?**

Throughout the 5 years in Design Technology students are assessed using the following assessment objectives which ensure that they can cumulatively build their subject understanding in preparation for future GCSE and A Level study. For KS3 there are 3 assessment points and 6 in years 10 and 11. 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 prediction from our holistic assessments based on our subject mapping of expectation across the Design Technology curriculum.

### Assessment Objectives Design and Technology

	Component 1	Component 2	Component 3
KS4- BTEC Engineering	<p>Exploring Engineering Sectors and Design Applications (Internally assessed)</p> <p>Learners will explore the links between the various engineering sectors and the role of design in the production of engineered products.</p> <p>Learners will examine organisations, functions and job roles, developing their understanding of how these contribute to career progression in engineering.</p> <p><b>A.2P1</b> Describe engineering sectors and an engineered product they produce</p> <p><b>A.2P2</b> Describe different sized engineering organisations and typical job roles.</p>	<p>Investigating an Engineering Project (Internally assessed)</p> <p>Learners will investigate the selection of materials, proprietary components, making processes and disassembly of a given engineered product. They will plan, reproduce, inspect and test a single component.</p> <p><b>B.2D2</b> Justify the development of an improved final solution and evaluate use of the design process, with reference to the engineering brief and peer review.</p> <p><b>A.2P2</b> Describe engineering processes used to make given engineered products.</p> <p><b>A.2MI</b> Explain why engineering materials and proprietary components are used in given engineered products.</p>	<p>Responding to an Engineering Brief (Externally assessed)</p> <p>Learners will investigate and create solutions to problems in response to given engineering briefs.</p> <p>Understand how to respond to an engineering brief</p> <p>Select skills and techniques in response to an engineering brief</p> <p>Apply skills and techniques in response to an engineering brief</p> <p>Evaluate and review the outcomes of the application of skills and techniques in response to an engineering brief</p>

	<p>. <b>A.2M1</b> Explain how engineers from different sectors generate an engineered product, with reference to sizes of organisations and the job roles involved.</p> <p><b>A.2D1</b> Evaluate how engineers from different sectors cooperate to generate an engineered product, with reference to sizes of organisations and the job roles involved.</p> <p><b>B.2P3</b> Produce design proposals, compare in relation to the engineering brief and use CAD to produce a final solution.</p> <p><b>B.2P4</b> Describe successful features of the design process, with reference to the engineering brief and some reference to peer review.</p> <p><b>B.2D2</b> Justify the development of an improved final solution and evaluate use of the design process, with reference to the</p>	<p><b>A.2M2</b> Explain why engineering processes are used to make given engineered products.</p> <p><b>A.2D1</b> Evaluate engineering materials, proprietary components and processes used when making given engineered products.</p> <p><b>B.2P3</b> Systematically disassemble an engineered product, describe the main components and produce a product design specification.</p> <p><b>B.2M3</b> Systematically disassemble an engineered product, describe the purpose of each of its main components and produce a detailed and realistic product design specification.</p> <p><b>B.2D2</b> Systematically disassemble an engineered product, describe how each of its main components links together and justify a detailed product design specification.</p> <p><b>C.2P4</b> Create a plan to produce an engineered component in a suitable sequence that covers processes, equipment and materials.</p> <p><b>C.2P5</b> Produce an engineered component using a range of processes and inspect against given quality standards.</p>	
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	engineering brief and peer review.	<p><b>C.2M4</b> Create a detailed plan to produce an engineered component in the correct sequence that covers the correct processes, equipment, materials and inspection techniques.</p> <p><b>C.2M5</b> Effectively produce an engineered component using a range of processes and inspect against given quality standards to confirm compliance.</p> <p><b>C.2D3</b> Evaluate the success of the planning and production of an engineered component and make recommendations for improvements to the process.</p>		
	<b>Design</b>	<b>Make</b>	<b>Evaluate</b>	<b>Technical Knowledge</b>
	<p>Use research and <b>begin to explore</b>, such as the study of different cultures, to identify and <b>begin to understand</b> user needs.</p> <p>To identify and solve issues within a design development task.</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>Select appropriate methods to evaluate their products in use and modify them to improve performance.</p> <p>Produce short reports making suggestions for improvements.</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>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>Consider additional factors such as ergonomics and anthropometrics.</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>Apply a range of finishing techniques to a broad range of materials.</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</p>	<p>How to use software and hardware to 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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			products to their own designing and making.	
	<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 informed by stimulus using annotations to explain key features relating to brief/specification.</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>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</p>	<p>How to classify materials by structure e.g hard woods, soft wood, ferrous and non-ferrous, thermoplastics and thermosetting plastics.</p> <p>Consider the physical properties of materials. e.g brittleness and 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</p>

	<p>Consider additional factors such as ergonomics and anthropometrics.</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 craft skills and machinery to manufacture products precisely.</p> <p>Apply a range of finishing techniques to a broad range of materials.</p>	<p>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>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>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

KS4 – WJEC Hospitality and Catering  Unit 1  The hospitality and catering industry	<b>LO1</b> Understand the environment in which hospitality and catering providers operate	<b>LO2</b> Understand how hospitality and catering provision operates	<b>LO3</b> Understand how hospitality and catering provision meets health and safety requirements	<b>LO4</b> Know how food can cause ill health	<b>LO5</b> Be able to propose a hospitality and catering provision to meet specific requirements
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	<p><b>AC1.1</b> describe the structure of the <b>hospitality and catering industry</b></p> <p><b>AC1.2</b> analyse job <b>requirements</b> within the hospitality and catering industry</p> <p><b>AC1.3</b> describe <b>working conditions</b> of different job roles across the hospitality and catering industry</p> <p><b>AC1.4</b> explain <b>factors</b> affecting the success of hospitality and catering providers</p>	<p><b>AC2.1</b> describe the <b>operation</b> of the kitchen</p> <p><b>AC2.2</b> describe the <b>operation</b> of front of house</p> <p><b>AC2.3</b> explain how hospitality and catering provision meet <b>customer requirements</b></p>	<p><b>AC3.1</b> describe personal safety <b>responsibilities</b> in the workplace</p> <p><b>AC3.2</b> identify <b>risks</b> to personal safety in hospitality and catering</p> <p><b>AC3.3</b> recommend personal safety <b>control measures</b> for hospitality and catering provision</p>	<p><b>AC4.1</b> describe food related <b>causes</b> of ill health</p> <p><b>AC4.2</b> describe the <b>role</b> and <b>responsibilities</b> of the Environmental Health Officer (EHO)</p> <p><b>AC4.3</b> describe food safety <b>legislation</b></p> <p><b>AC4.4</b> describe <b>common types</b> of food poisoning</p> <p><b>AC4.5</b> describe the <b>symptoms</b> of <b>food induced ill health</b></p>	<p><b>AC5.1 review</b> options for hospitality and catering provision</p> <p><b>AC5.2 recommend</b> options for hospitality provision</p>
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<p>Unit 2</p> <p>Hospitality and catering in action</p>	<p><b>LO1</b> understand the importance of nutrition when planning menus.</p>	<p><b>LO2</b> understand menu planning</p>	<p><b>LO3</b> be able to cook dishes</p>		
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	<p><b>AC1.1</b> describe functions of <b>nutrients</b> in the human body</p> <p><b>AC1.2</b> compare nutritional needs of <b>specific groups</b></p> <p><b>AC1.3</b> explain <b>characteristics</b> of <b>unsatisfactory</b> nutritional intake</p> <p><b>AC1.4</b> explain how <b>cooking methods</b> impact on nutritional value</p>	<p><b>AC2.1</b> explain <b>factors</b> to consider when proposing dishes for menus</p> <p><b>AC2.2</b> explain how <b>dishes</b> on a menu address <b>environmental issues</b></p> <p><b>AC2.3</b> explain how menu dishes meet customer <b>needs</b></p> <p><b>AC2.4</b> <b>plan</b> production of dishes for a menu</p>	<p><b>AC3.1</b> use <b>techniques</b> in preparation of <b>commodities</b></p> <p><b>AC3.2</b> assure <b>quality</b> of commodities to be used in food preparation</p> <p><b>AC3.3</b> use <b>techniques</b> in cooking of commodities</p> <p><b>AC3.4</b> complete dishes using <b>presentation techniques</b></p> <p><b>AC3.5</b> use food safety practices</p>		
<p><b>KS3</b> Programmes of Study for</p>	<p><b>AO1: Understand</b> health and safety relating to food and cookery</p>	<p><b>AO2: Understand</b> and apply the principles of</p>	<p><b>AO3: Understand</b> the source, seasonality and characteristics of a</p>	<p><b>AO4: Understand</b> factors relating to food choice (so that they are able to feed themselves</p>	<p><b>AO5: Develop</b> practical cooking skills (so that they become competent in a range</p>

<p><b>cooking and nutrition</b></p> <p>Key messages, advice and explanatory notes (1-8) for schools</p>	<p>(Explanatory note 2)</p>	<p><b>nutrition and health</b></p> <p>(Explanatory notes 1 &amp;4)</p>	<p><b>broad range of ingredients</b></p> <p>(Explanatory notes 5,7&amp;8)</p>	<p><b>and others a healthy and varied diet).</b></p> <p>(Explanatory note 3 &amp;6)</p>	<p><b>of cooking techniques and able to cook a repertoire of predominantly savoury dishes)</b></p> <p>(Explanatory note 2)</p>
	<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"> <li>-Making/shaping doughs</li> <li>-Sauce making</li> <li>- Blending</li> <li>- Frying</li> <li>-Whisking</li> <li>-Seasoning</li> <li>-Test for readiness</li> </ul>

	<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"> <li>-Weighing/measuring</li> <li>-Knife skills (bridge/ claw)</li> <li>-Peeling</li> <li>- Segmenting</li> <li>-Boiling/ simmering</li> <li>-Rubbing in</li> <li>-Creaming/ all-in-one</li> <li>- Melting</li> <li>- Folding</li> <li>- Baking</li> </ul>
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**How can Design Technology support your future?**

Of course, we offer **GCSE Level courses**, and we encourage students to continue studying in this fantastic subject. Yet we know that choice and personal interest are important aspects of worthy study. Whether students have continued their study of a discipline of Design Technology into GCSE or A level or not they will have gained access to this wide enriching subject and its study of the various disciplines will have taught them 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 students have been able to study creative thinking, problem solving, planning and design principles will help their 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 RIPON

Please note there are separate overviews for courses studied at Level 2

	YEAR 7	YEAR 8	YEAR 9
	<p style="text-align: center;"><b>Year 7 D&amp;T - CREATE</b></p> <p>Students will have <b>1 hours</b> of D&amp;T a week which will be split over the different elements of D&amp;T to ensure a broad curriculum is achieved where the key focus is learning about <b>core materials</b>. Students operate on a carousel system throughout the academic year.</p>	<p style="text-align: center;"><b>Year 8 D&amp;T - INNOVATE</b></p> <p>Students will have <b>two hours</b> of D&amp;T a week which will be split over the different elements of D&amp;T to ensure a broad curriculum is achieved where the key focus is developing <b>design</b> skills / strategies whilst building on their technical knowledge. In 2022-23 the 2 hours will be split into specialist teaching areas with 1 hour being in food and nutrition and the second hour within design and technology</p>	<p style="text-align: center;"><b>Year 9 D&amp;T - EXPLORE</b></p> <p>Taster group students will have 1 hour of D&amp;T a week studying either Food Technology, or Resistant Materials.</p> <p><b>Food Technology:</b> Their key focus is to enhance students' existing knowledge of safe cooking and nutrition, in order to design and produce dishes for different clientele.</p> <p><b>Resistant Materials:</b> The key focus is enhancing existing knowledge of design to produce practical outcomes that meet the requirements of each project design brief.</p>
Autumn Term 1  Autumn Term 2	<p><b><u>Food and nutrition -</u></b> <i>In year 7 students will develop a basic understanding of nutrition and culinary skills, building on existing knowledge obtained from key stage 2 Design and Technology. Split into topics including food safety, culinary skills, heat transfer, commodities, food science and food choice.</i></p>	<p><b><u>Food and Nutrition -</u></b> <i>In year 8 students will develop confidence in cooking a range of dishes and make informed decisions about food choice. Reflecting and building on existing knowledge through exploration of the topics Nutrition, Food poisoning, food choice and culinary skills embedded in the projects below.</i></p>	<p><b><u>Food and Nutrition-</u></b> <i>Year 9 is a preparatory year where students will develop their making and presentational skills that demonstrate an understanding of the hospitality industry. Students will explore a range of chef challenges that ask them to design menus and consider plate presentation to cook and present restaurant quality food. Students will expand on their</i></p>

<p>Spring Term 1 &amp; 2</p>	<p><b><u>What are the basic skills every chef should master?</u></b> The aim of this project is to give Year 7 students the opportunity to learn where food comes from, how to cook a range of dishes safely and hygienically and to apply their knowledge of healthy eating. Knowledge and skills include use of basic equipment and tools, basic practical skills such as weighing, chopping, heat transfer explored using a gas and electric oven / hob, portion control, origin and simple functions of ingredients, healthy eating and The Eatwell Guide, food choice. Students will also consider environmental factors and look at food miles and sources of food. Alongside exploring dietary requirements and choices.</p> <p><b><u>DT - Intro to DT</u></b> In the first few week's students are given a health and safety induction and introduced to the areas of study in design technology, Whilst developing students' knowledge of what Design and Technology is.</p> <p><b><u>DT - Woodbot Robot</u></b> This project is an introduction for students into the workshop / practical area. The project is based around the film 'Robots' where students are challenged to design and make a model of a robot to be sold in</p>	<p><b><u>The science of food</u></b> This project allows students to explore how food works to distinguish a whole process of how food is produced, the science that occurs and whether the food is good for you. The aim of this project is to look at food hygiene, roles within the kitchen and how ingredients react with each other to create food products. Students will conduct experiments for example making butter in a jar, spherification to produce honey caviar and also look at bacteria and food poisoning alongside the risks associated with how we use and store food. Students will also learn about allergies and intolerances, how food supports a healthy body and the nutritional value of food groups, with a main focus on macro and micronutrients. Whilst exploring food labelling and how to calculate the nutritional breakdown of food. Students will develop their core knowledge within food and nutrition , whilst also understanding the importance of hygiene, teamwork and roles within a kitchen.</p> <p><b><u>Food and Nutrition: Global Cuisine</u></b> This project takes students around the world looking at food from different cultures. Exploring the different practices, attitudes, and beliefs as well as the networks and institutions surrounding the production, distribution, and consumption of <b>food</b>. Students build on the basic food skills learnt in Year 7 but challenge students to produce more</p>	<p><b>understanding of seasonality and nutrition when creating their dishes. They will look at successful chefs and the style of dishes they create fusing nutrition and creativity together.</b></p> <p><b><u>DT - Moneybox</u></b> This project is based around a brief from John Lewis that asks students to design a money box inspired by one of four Design movements.. Students have to identify a clear user, research their needs, write a specification and design a solution for their primary user. The emphasis of this project is accuracy and quality. Students use Jigs and Formers to produce a similar project but are allowed to adapt the original design to meet their identified need. Students will carry out primary research throughout to ensure their user is happy. Students will produce the moneybox using their knowledge of core materials learnt in Year 7 and 8. Students will be taught how to use more traditional hand skills such as coping saws, hammers, adhesives, finishing techniques but will be shown CAD (2D design) and CAM (Laser Cutter) to personalise the central design feature on their moneybox, in order to communicate the design movement they have been influenced by.</p>
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	toy stores around the world. Students will be guided through the Faculty	complex and rounded meals suitable for feeding a family. This project aims to expand the range of foods that students know how to cook by providing balanced and nutritional meals for the	
Summer Term 1	Expectations and policies put in place to ensure every student knows the code of conduct. Students will use the key machines and tools that will be used throughout their 5 years at OAR and will leave with their H&S passport signed off if	they have met our expectations when using machines and equipment. Throughout the project students will be guided through the design process by analysing the design problem, writing their own specification and responding to this by designing different solutions. Students will be using jigs and templates to manufacture a robot to a high standard using the two core materials (Timbers and Metals) students should know the different categories of two materials, the origins of the materials and some examples of each.	<b>DT - Sustainable portable speaker project</b>
Summer Term 2	<b>DT - Emoji Door Hanger (Graphics based project)</b>	<p>The complexity of techniques used becomes more challenging with students being asked to prepare a range of pastries, prepare sauces from scratch, use professional chopping methods, through paired tasks to prepare a range of multi element dishes using a range of cooking methods and asking for critical evaluation of their finished product.</p> <p>By the end of the project, students will have a better understanding of where their ingredients come from, the function of different nutrients and the limitations that different faiths, religions, beliefs have on a dish.</p> <p><b>Resistant Materials</b></p> <p><i>In year 8 students will develop confidence exploring different design briefs, whilst using the design process to develop outcomes using a range of manufacturing methods and techniques. Reflecting and building on existing knowledge through exploration of materials, handheld tools, machinery and modern manufacturing techniques.</i></p>	<p>The emphasis on this project will be sustainability and the importance of the 6r's, the design process and the use of cad /cam in industry, exploring quality assurance and quality control and a range of manufacturing methods. Students will consider the aesthetics of design alongside the functionality of the product.</p> <p>Throughout this project, students will develop their understanding of the importance of sustainability, enhance their knowledge of Electronic circuitry, CAD design software , whilst developing their understanding of materials and their properties, handheld tools and machinery and the ability to follow and respond to instructions accurately.</p> <p><b>DT - Pewter Cast keyring/ Pendent.</b></p> <p>Within this project pupils will work out their ideas with some precision, taking into account how products will be used, who will use them, the process that will be used and their appearance. They will develop their understanding of designing and making and expand their practical skills. They will use computers, including computer-aided design and manufacture, as an integral part of designing and making. The main aim of this project is to</p>

	<p><b>DT - Engineering time</b></p> <p>Students are tasked with designing and making a clock based around the de stijl art and design movement</p> <p>The iterative design process will be key in this project and students will write up their findings along the way and using their core materials knowledge on timbers and plastics, they will come up with a final solution. Students will briefly cover isometric drawings and corporate ID / colour theory, but the aim will be on the functioning of the prototype.</p> <p>The emphasis on this project will be the design process and the use of cad /cam in industry, exploring qa/qc and also manufacturing methods. Students will consider the aesthetics of design alongside the functionality of the product.</p> <p><b>DT - Designing for play</b></p> <p>This is a graphic design-based project where the students will design and create a board game for Hasbro influenced by the work of Elizabeth Magie and Kohner Bros. The design focus for this project will be on the use of typography, and overall design aesthetic to produce a digital board game graphic. Whilst exploring corporate identity, typography, logo design and colour theory. Students will also explore</p>	<p>develop pupils' understanding of designing and manufacturing. The students' challenge will be to design and make a key-ring / pendant. Students will be given standard size pieces of MDF in which to cut out and shape their design, using CAD/CAM. Pupils will be introduced to the use of computer-aided design and computer-aided manufacture by using a Laser cutter and 2D Techsoft design to draw and cut their template. These moulds will then be used to cast the product from Pewter. Students are asked to select and decide who they are going to design the key-ring / pendant for and explore how it could be marketed.</p>
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	<p>graphic design materials and manufacturing processes.</p> <p>Students will also explore modern methods of manufacture and learn how to produce 3-D outcomes using CAD design software to design and 3-D print a dice using Tinkercad to accompany their board game.</p> <p><b>DT: Illumination:</b></p> <p>This project is a technology driven design brief and an introduction into electronics and systems. Students are tasked with designing and manufacturing a light based around LED technology.</p> <p>By the end of the project students will know what a closed loop and open loop system is, what an I,O and P is, they will understand finite and non-finite energy sources, how power stations work and the origins of this power. Students will understand basic components and the functions of these and the basics of soldering to create their own circuit.</p> <p>The design element of this project is with the graphic / pattern they chose to laser cut onto the cast acrylic. Students will focus on using three techniques for designing (Biomimicry,</p>	
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design movements and inspirational design) to help them design their graphics. Students will be taught how to use cordless drills, different fixing (permanent and none permanent) techniques such as adhesives and screws. Recap of knowledge of timbers and polymers will be used with the introduction of new equipment such as files, scroll saws and oscillating sanders.

