



## 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 Acklam is split up into the following categories:

- **KS3 Design and Technology:** Design and making in wood, paper board and textiles.
- **KS3 Catering: Developing skills in cooking and exploring the main food groups.**
- **KS4 Design and Technology (Timber Specialism):** Work within specialist material areas to design and make a product to a given context.
- **KS4 Hospitality and Catering: Plan and create dishes to meet customer requirements and learning about the Hospitality & Catering industry.**

#### 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.
- 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 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.

### **What will you know and understand from your study of Catering?**

- 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 Eatwell Guide and 8 tips for healthy living.
- To explore the origin and product of food products and ingredients.
- To consider how seasons may affect foods available.

- To consider the function, nutrient profile and sensory attributes of ingredients.
- To study a range of food commodities eg. 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 fine tune 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. 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.

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 and Catering?

Throughout the 5 years in Design Technology and Hospitality and Catering 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 timely 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 GCSE courses 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

1. AO1: Identify, investigate and outline design possibilities to address needs and wants.
2. AO2: Design and make prototypes that are fit for purpose.
3. AO3: Analyse and evaluate:
  - a. design decisions and outcomes, including for prototypes made by themselves and others
  - b. wider issues in design and technology.
4. AO4: Demonstrate and apply knowledge and understanding of:
  - a. technical principles
  - b. designing and making principles.

### Assessment Objectives in Hospitality and Catering

#### Unit 1 - Exam - The Hospitality and Catering Industry

- LO1: Understand the environment in which hospitality and catering providers operate.
- LO2: Understand how hospitality and catering provision operates.
- LO3: Understand how hospitality and catering provision meets health and safety requirements.
- LO4: Know how food can cause ill health.

- LO5: Be able to propose a hospitality and catering provision to meet specific requirements (Current year 11 only)

## Unit 2 - Controlled Assessment - Hospitality and Catering in Action

- LO1: Understand the importance of nutrition when planning menus
- LO2: Understand menu planning
- LO3: Be able to cook dishes.

### Assessment Objectives Hospitality & Catering

Year 11	<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> <p>Be able to accurately portion foods.</p>
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Year 10	<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>
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### How can Design Technology support your future?

Of course, we offer the study of GCSE and Level 1/2 Vocational courses 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 applications 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 AND TECHNOLOGY PROGRESSION PATHWAY AT OUTWOOD ACADEMY ACKLAM

**NOTE: In Years 7-9 projects are taught in subject disciplines and therefore the order of projects will be completed depending upon which area of the Technology carousel students focus upon first. (Each carousel/project is a full term - roughly 12 weeks)**

	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
<b>Year 7</b>	Litter Picker Project		Essential Skills in Catering	Bread Making Project	Essential Skills in Textiles	Felt Keyring Project
<b>Year 8</b>	Catapult Project		Food & the Environment		Sugar Skull Project	
<b>Year 9</b>	Design and make in the style of an iconic designer		Food commodities commodities and the functions of ingredients		Designing and make: a themed bag using stencilling and the sewing machine.	
<b>Year 10 D&amp;T</b>	How to research a design and make project	How to generate and develop design ideas. How to communicate ideas in 2D and 3D	How to manufacture a prototype and communicate the process to a third party.	How to create a manufacturing log and evaluate a product against a specification.	Technical knowledge: to Identify, investigate, outline design possibilities, analyse and evaluate.	Demonstrate and apply knowledge and understanding of technical principles.
<b>Year 11 D&amp;T</b>	Non exam assessment	Non exam assessment	Non Exam Assessment	Identify, investigate and outline design possibilities	Revision & Exam Technique	



				Analyse and evaluate Demonstrate and apply knowledge and understanding of technical principles		
<b>Year 10 Catering</b>	How do Hospitality & Catering providers ensure food safety?	How do Hospitality & Catering providers ensure food safety?	What are the various Hospitality & Catering provisions?	What are the various Hospitality & Catering provisions?	Hospitality & Catering in Action	Hospitality & Catering in Action
<b>Year 11 Catering</b>	Non exam assessment	How do Hospitality & Catering providers operate?	How do Hospitality & Catering providers ensure health and safety?	How can Hospitality and Catering providers meet specific requirements?	Revision & Exam Technique	