

Curriculum Progression Pathway for DT

Subject Intent:

To develop design and technology capability by:-

- developing the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- building and applying a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook

Specifically at KS4 AQA GCSE Design and Technology-

- prepare students to participate confidently and successfully in an increasingly technological world.
- gain awareness and learn from wider influences on Design and Technology including historical, social, cultural, environmental and economic factors.
- work creatively when designing and making and apply technical and practical expertise.

Why is the study of DT important?

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. Students acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Students learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Specifically at KS4

AQA GCSE Design and Technology-

GCSE Design and Technology prepares students with the skills and knowledge for a wide range of career opportunities from product design, interior design, architecture, engineering, graphic design, advertising and marketing, to fashion design. Design and Technology provides students with the opportunity to apply knowledge from other subjects such as maths and science to real life situations. Students learn how to solve problems in a creative way, whilst developing their independence and resilience. Students learn about topical issues such as the environment, use of finite resources, renewable energy and global warming, and how products can be designed to improve lives and lower the negative impact humans have on the environment.

WJEC Level 1/2 Vocational Award in Hospitality and Catering-

According to the British Hospitality Association, hospitality and catering is Britain's fourth largest industry and accounts for around 10% of the total workforce. Since 2010, over 25% of all new jobs have been within the hospitality and catering sector. The ability to plan, prepare and present food is an essential skill within the hospitality and catering industry. The WJEC Vocational Award in Hospitality and Catering equips learners with theoretical knowledge about the industry as well as enabling them to develop practical skills in planning, preparing and cooking a variety of dishes.

What skills will the study of DT teach you?

Developing the skills the students have learned at KS1 and KS2 in order that student are able to:

Designing

- uses research and exploration, such as the study of different cultures, to identify and understand user needs
- identify and solve their own design problems and understand how to reformulate problems given to them
- develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations
- use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas
- develop and communicate design ideas using annotated sketches, detailed plans, 3-D and modelling, oral and digital presentations and computer-based tools

Making

- select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture
- select from and use a wide range of materials, components and ingredients, taking into account their properties

Evaluating

- analyse the work of past and present professionals and others to develop and broaden their understanding
- investigate new and emerging technologies test, evaluate and refine ideas and products against a specification, taking into account the views of intended users and other interested groups
- understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists

Cooking and Nutrition

- cook and apply the principles of nutrition and healthy eating.
- cook a repertoire of predominantly savoury dishes so that students are able to feed themselves and others a healthy and varied diet
- become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways;
- using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes

Specifically at KS4 AQA GCSE Design and Technology-

Demonstrate and apply knowledge and understanding of designing and making principles.

Develop an in-depth knowledge and understanding of specialist technical principles.

Develop a core technical knowledge and understanding that consists of:

- new and emerging technologies
- energy generation and storage
- developments in new materials
- systems approach to designing
- mechanical devices
- materials and their working properties.

WJEC Level 1/2 Vocational Award in Hospitality and Catering-

- To develop in learners the knowledge and understanding related to a range of hospitality and catering providers; how they operate and what they have to take into account to be successful.
- Learn about issues related to nutrition and food safety and how they affect successful hospitality and catering operations.

- Have the opportunity to develop some food preparation and cooking skills as well as transferable skills of problem-solving, organisation and time management, planning and communication.

What will you know and understand from your study of DT?

- understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists
- understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
- understand how mechanical systems can be used to enable changes in movement and force
- understand how electrical and electronic systems can be powered and used
- understand and apply the principles of nutrition and health
- understand the source, seasonality and characteristics of a broad range of ingredients

All to allow students to be able to access the range of technological apprenticeships and post 16 educational opportunities in the area.

How does your study of DT support your learning in other subjects?

“Design and technology is a phenomenally important subject. Logical, creative and practical, it’s the only opportunity students have to apply what they learn in maths and science - directly preparing them for a career in engineering.” *DATA patron James Dyson,*

Design and Technology draws on additional disciplines such as mathematics, science, engineering, computing and art, complementing and enhancing student knowledge in these areas.

How can you deepen your understanding of (DT)?

Use Focus on DT software
Having a go at making things at home
Thinking carefully about products before buying
Keep an ideas book
Use Food Fact of life website
Cook at home

Watch TV chefs
Visit the supermarket and look carefully at ingredients
Question what you eat and where the ingredients used to make it come from

How can DT support your future?

Everything that we own or consume is designed and made by someone or something out of a material. We can become discerning consumers and creators.

“Design and technology gives young people the skills and abilities to engage positively with the designed and made world and to harness the benefits of technology. They learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them” *Design and Technology Association 2022*

“Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation” *Mary Myatt 2022*

“Knowing how to prepare and cook your own food is a skill that everyone should possess. It’s also a fun skill to learn!
Teaching children how to prepare fresh, healthy food in schools is a skill that can be used both inside and outside the classroom, and is something that will last a lifetime.” *Foodforlife.org.uk 2022*

Possible career pathways include:

Engineer; Developer; Product Designer; Architect; Advertising & Marketing; Graphic designer; Materials engineer; Product manager; Production designer; Purchasing manager; Stylist/Interior designer; Prototyping/concept work.

Exam board used in Y10 & Y11

AQA Design Technology
WJEC Hospitality and Catering

CURRICULUM PROGRESSION PATHWAY

	Year 7	Year 8	Year 9	Year 10	Year 11
Autumn 1 DESIGN TECHNOLOGY	<p>Sketching, 2D to 3D</p> <p>Introduction as to how to communicate design ideas effectively using a range of different drawing and rendering techniques.</p>	<p>Technical Drawing</p> <p>Developing understanding of technical drawings through disassembly of a product.</p> <p>Be able to refer to material choices with regards properties and evaluate product effectiveness and suggest developments for improvement</p> <p>Engineering Week 11-13 October</p>	<p>Understanding and analysing a brief.</p> <p>Be able to consider the physical, intellectual, emotional and social effects of toys and books on a user.</p> <p>understand how mechanical systems used in their products enable changes in movement and force</p>	<p>Develop specialist technical knowledge - Challenging topics.</p> <p>Careers - industrial manufacturing careers and how roles have changed over the years with the increased use of automation and robotics.</p>	<p>NEA - Part 1. Careers - understanding how a real life product designer/maker works to research, design, develop and make a prototype.</p>
Autumn 2 DESIGN TECHNOLOGY	<p>Develop understanding of formal drawing techniques and how these are used to</p>	<p>Through use of the design process develop a range of innovative ideas that can be developed and</p>	<p>Designing, modelling and making a book for a child.</p> <p>Developing movement</p>	<p>Develop specialist technical knowledge - Challenging topics.</p> <p>Careers - material development and</p>	<p>NEA - Part 2. Careers - understanding how a real life product designer/maker works to research, design,</p>

	present 3D modelling and mathematical modelling	communicated using a range of techniques including CAD. Show understanding of how different materials and components can be combined to produce an appealing and functional product.	through selected mechanisms. Evaluate their outcome against a specification and specific user group.	material engineering careers, electrical, mechanical, and structural engineering, construction, and the work of technology companies such as Apple.	develop and make a prototype.
Spring 1 DESIGN TECHNOLOGY	Use research to identify and understand user needs. Develop a specification to inform designing. Use a range of techniques to communicate ideas and develop a product.	Select and use the correct tools, equipment and machinery for specific materials. Understand how to use CAD / CAM to produce a professional outcome. Creating	Designing for specific needs, anthropometric, ergonomics, electronic product. Developing skills in electronics and circuit building.	Develop specialist technical knowledge and skills - 6R's of sustainability and ethical and environmental issues in design and manufacturing. Careers - understanding how a real life product designer/maker works to research, design, develop and make a prototype.	NEA - Part 3. Careers - understanding how a real life product designer/maker works to research, design, develop and make a prototype.

Spring 2 DESIGN TECHNOLOGY	<p>Understand the use of Wood, its properties and suitability for the project. Know how to use a range of wood working tools and machinery correctly, safely and effectively to produce an outcome.</p> <p>Test and evaluate outcome against specification and intended user.</p>	<p>Building on the understanding of fabric to design a Worry monster. Understand the needs of a user through research and detailed specification. Design using a range of different types of modelling</p>	<p>Using knowledge and understanding to develop ideas that are innovative.</p> <p>Understand the different plastic processes with the key focus on the Vacuum former to create casing.</p>	<p>Develop specialist technical knowledge and skills - Communication of design ideas - Isometric / Perspective / Exploded Diagrams / Working Drawings. Careers - understanding how a real life product designer/maker works to research, design, develop and make a prototype.</p>	<p>NEA - Part 4. Careers - understanding how a real life product designer/maker works to research, design, develop and make a prototype.</p>
Summer 1 DESIGN TECHNOLOGY	<p>Developing understanding of Fabric construction and the different properties of materials. Cultural fabrics and ethical sourcing of materials and wastage.</p>	<p>Select and use a range of different techniques to make the Worry Monster. Evaluate outcomes against a specification.</p>	<p>Knowledge and understanding of the 3 key materials used in Design Technology.</p> <p>Build knowledge and understanding of sources, properties,</p>	<p>Develop specialist technical knowledge and skills - CAD/CAM. Careers - understanding how a real life product designer/maker works to research, design, develop and make a prototype,</p>	<p>Final exam preparation and support.</p>

	Use a range of specialist techniques, processes and equipment to embellish materials.		types and uses of each material.	and industrial manufacturing careers and how roles have changed over the years with the increased use of CAD/CAM	
Summer 2 DESIGN TECHNOLOGY	Understand the basic functions of electronic components and how they are used to develop simple circuits to create, movement, light and sound.	Use the knowledge, skills and understanding to follow the full design process to design and make a wire wrap. Select and use appropriate tools and machinery. Develop understanding of the properties of Plastics.	Understanding working drawings and cutting lists. Know how to use working drawings and cutting lists to cost, order and reproduce products. Know the basic mathematical skills required to calculate material costs.	NEA - Introduction of the NEA Contexts. Careers - understanding how a real life product designer/maker works to research, design, develop and make a prototype.	Final exam preparation and support.

CURRICULUM PROGRESSION PATHWAY

	Year 7	Year 8	Year 9	Year 10	Year 11
Autumn 1 FOOD TECHNOLOGY	<p>Developing cutting skills and understanding of kitchen hygiene</p> <p>Practical element - cutting skills using a potato, carrot and orange.</p> <p>Skills - grating, slicing, dicing, cutting and segmenting</p>	<p>Food Commodities - Sugar - growing, processing and functionality Rice - production around the world</p> <p>Practical element - Pizza Wheels</p> <p>Skills - using yeast, slicing, dicing and kneading</p>	<p>The digestive process - system, stages and function</p> <p>Practical element - Pizza</p> <p>Skills - making a dough base, cutting, slicing and use of the oven</p>	<p>Learners have developed basic practical skills in the kitchen and learnt about the main food groups and commodities. This term will focus on unit 1 of the specification which directly links to "WOW" within the hospitality and Catering Industry Practical lessons will consist on further development of kitchen skills that will be reflected in the grade boundaries for their practical cook exam in year 11</p>	<p>Completion of preparation of controlled assessments AC1.1 - AC1.4 and 2.1 - 2.4. Careers link - all roles in the hospitality industry including restaurants and hotels</p>
Autumn 2 FOOD TECHNOLOGY	<p>Development of understanding of different cooking methods and techniques</p>	<p>Food commodities - Meat - types and cuts of meat, storage and preparation and Meat & the consumer</p>	<p>Healthy Eating - dietary requirements and recipe adaptations to support healthier eating or dietary requirements</p>	<p>This term will focus on unit 1 of the specification which directly links to "WOW" within the hospitality</p>	<p>Completion of preparation of controlled assessments AC1.1 - AC1.4 and 2.1 - 2.4.</p>

	<p>Knowledge of the cooker</p> <p>Practical element - layered pasta salad</p> <p>Skills - boiling, cutting</p>	<p>Practical Element - Chow Mein</p> <p>Skills - cutting, slicing, frying</p>	<p>Practical Element - Fajitas (chicken or Quorn)</p> <p>Skills - cutting, slicing, frying and heating</p>	<p>and Catering Industry</p> <p>Practical lessons will consist on further development of kitchen skills that will be reflected in the grade boundaries for their practical cook exam in year 11</p>	<p>Careers link - all roles in the hospitality industry including restaurants and hotels</p>
<p>Spring 1 FOOD TECHNOLOGY</p>	<p>Development of understanding of different cooking methods and techniques.</p> <p>Understanding Fridge and freezer safety</p> <p>Practical element - Pizza toast</p> <p>Skills - grilling, cutting</p>	<p>Food Commodities - poultry & eggs - egg labelling, poultry farming, rearing/broiler/breeding farms</p> <p>Practical Element - Quorn Curry</p> <p>Skills - heating on the hob, frying, cutting, slicing</p>	<p>Labelling - Allergen, Food and nutritional labelling. Legal requirements</p> <p>Practical Element - Spaghetti Bolognese</p> <p>Skills - cutting, slicing, dicing, boiling and frying</p>	<p>This term will focus on unit 1 of the specification which directly links to "WOW" within the hospitality and Catering Industry</p> <p>Practical lessons will consist on further development of kitchen skills that will be reflected in the grade boundaries for their practical cook exam in year 11</p>	<p>Completion of preparation of controlled assessments AC1.1 - AC1.4 and 2.1 - 2.4.</p> <p>Careers link - all roles in the hospitality industry including restaurants and hotels.</p>
<p>Spring 2 FOOD TECHNOLOGY</p>	<p>Development of understanding of different cooking methods and techniques</p>	<p>Food Commodities - Cereals - what are cereals?, bread industrial processes and the science of bread</p>	<p>Food Wastage - impact on society, use of food banks, best before dates and effects of packaging</p>	<p>1.12 This term is to focus on working in the hospitality and catering industry directly linking to</p>	<p>After completing their controlled assessment they are now ready to finalise their knowledge</p>

	<p>Understanding cross contamination /bacteria Practical Element - Flapjack</p> <p>Skills - melting on the hob / baking</p>	<p>making</p> <p>Practical Element - Bread Rolls</p> <p>Skills - using yeast, kneading, mixing, using the oven</p>	<p>Practical Elements - Dutch Apple Cake</p> <p>Skills - slicing, mixing and baking</p>	<p>WOW Practical skills are to develop high level of skills set to enable students to achieve the highest grade in their practical exam.</p>	<p>requirements for their written exam. They will be used as a variety of revision materials every week and use past papers to be familiar with the type of questioning used. RET and DEAR will be used each lesson to support this. Careers link - all roles in the hospitality industry including restaurants and hotels</p>
<p>Summer 1 FOOD TECHNOLOGY</p>	<p>Development of understanding of different cooking methods and techniques</p> <p>Eatwell Plate and Healthy eating</p> <p>Practical Element - Cheese and Onion Triangles</p> <p>Skills - rubbing in method, grating and slicing</p>	<p>Food commodities - Potatoes and Dairy - potato farming and potato varieties, milk production, dairy farming and milk processing</p> <p>Practical Element - Mac 'n' Cheese</p> <p>Skills - boiling, making a sauce, baking, grating and slicing</p>	<p>Fish and Seafood - sustainability, preparation and cooking</p> <p>Design task to allow students to adapt a recipe and decide on the fillings</p> <p>Practical Element - Pancakes</p> <p>Skills - frying, cutting, slicing, grating</p>	<p>1.13 This term is to focus on working in the hospitality and catering industry directly linking to WOW Practical skills are to develop high level of skills set to enable students to achieve the highest grade in their practical exam.</p>	<p>Final exam preparation and support.</p>

<p>Summer 2 FOOD TECHNOLOGY</p>	<p>Development of understanding of different cooking methods and techniques</p> <p>Types of dietary requirements</p> <p>Practical Element - Cheese Scones</p> <p>Skills - grating, rubbing in method and mixing</p>	<p>Food commodities - Fruit and vegetables - seasonality, growing food and 5 a day</p>	<p>Genetically modified foods, Fairtrade and Smart and Functional Food.</p> <p>Practical Element - Thai Green Curry Using chicken thigh</p> <p>Skills - deboning, cutting, heating</p>	<p>1.14 This term will focus on planning a menu linked to a brief, costing, health and safety and presentation in preparation of the exam in year 11</p>	<p>Final exam preparation and support.</p>
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