

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, students 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 students 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

Try to make things at home

Think carefully about products before buying them

Keep an ideas book

Use Food a 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 and Technology
WJEC Hospitality and Catering

| | Year 7 | Year 8 | Year 9 | Year 10 | Year 11 |
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| Autumn 1 DESIGN TECHNOLOGY | <p>Coaster and Phonestand</p> <p>Develop basic manufacturing skills.</p> <p>Be able to demonstrate good workshop health and safety, using a range of basic tools, machines, equipment and materials to manufacture a range of simple products.</p> | <p>Aluminium Tealight Holder</p> <p>Build on the knowledge and skills from Y7 to follow the full design process to design and make a tealight holder.</p> <p>Select and use appropriate tools and machinery. Develop understanding of the properties of metals.</p> <p>Engineering Week 10-12 October</p> | <p>Aluminium Coat Hook</p> <p>Be able to translate working drawings to produce a practical piece within a set tolerance.</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>Junk Robot</p> <p>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</p> | <p>LED light</p> <p>Through the use of the design process, develop a range of innovative ideas that can be developed and communicated using a range of techniques including CAD. Show understanding of how different materials and</p> | <p>Electronics - Speaker</p> <p>Develop electronics and soldering knowledge and skills.</p> <p>Design, develop and make a mono amplifier casing using a pre existing circuit.</p> | <p>Develop specialist technical knowledge - Challenging topics.</p> <p>Careers - material development and material engineering careers, electrical, mechanical, and structural engineering, construction, and the work of technology companies such as</p> | <p>NEA - Part 2. Careers - understanding how a real life product designer/maker works to research, design, develop and make a prototype.</p> |

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| | <p>product.</p> <p>Understand the use of Wood, its properties and suitability for the project.</p> <p>Know how to use a range of woodworking tools and machinery correctly, safely and effectively to produce an outcome.</p> <p>Test and evaluate outcome against specification and intended user.</p> | <p>components can be combined to produce an appealing and functional product.</p> | | <p>Apple.</p> | |
| <p>Spring 1 DESIGN TECHNOLOGY</p> | <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>LED Light</p> <p>Select and use the correct tools, equipment and machinery for specific materials.</p> <p>Understand how to use CAD / CAM to produce a professional outcome.</p> | <p>Computer aided design</p> <p>Develop core CAD knowledge and skills in 2D design.</p> | <p>Develop specialist technical knowledge and skills - 6 Rs of sustainability and ethical and environmental issues in design and manufacturing. Careers - understanding how a real life product designer/maker works to research, design,</p> | <p>NEA - Part 3. Careers - understanding how a real life product designer/maker works to research, design, develop and make a prototype.</p> |

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| | | | | develop and make a prototype. | |
| Spring 2 DESIGN TECHNOLOGY | <p>3D Sketching & Modelling</p> <p>Develop understanding of formal drawing techniques and how these are used to present 3D modelling and mathematical modelling</p> | <p>Technical Drawing</p> <p>Developing understanding of technical drawings through disassembly of a product.</p> | <p>Set design project</p> <p>Identify and solve a real life design problem, carry out research to inform, creative, innovative and functional design that responds to the needs and wants of the client.</p> <p>Develop and communicate design ideas using annotated sketches, detailed plans, 3D and mathematical modelling, and select from and use specialist tools, techniques, processes, equipment and machinery precisely.</p> | <p>Develop specialist technical knowledge and skills - Communication of design ideas - Isometric / Perspective / Exploded Diagrams / Working Drawings.</p> <p>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>Race to the line competition</p> <p>Develop understanding of</p> | <p>Textile Pencil case</p> <p>Develop an understanding of textiles to design a fabric tie dye</p> | <p>Fragrance packaging</p> <p>Design a range of innovative ideas that can be developed and</p> | <p>Develop specialist technical knowledge and skills - CAD/CAM.</p> <p>Careers - understanding how a</p> | <p>Final exam preparation and support.</p> |

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| | <p>aerodynamics and biomimicry, and their influence on the design of products.</p> <p>Be able to apply their learning to solve design problems. Be able to select from and use a range of specialist tools and equipment to manufacture a fully functioning prototype.</p> | <p>pencil case with a zip.</p> <p>Understand the needs of a user through research and a detailed specification.</p> <p>Design using a range of different types of modelling.</p> | <p>communicated using techniques such as 2D nets and vacuum forming.</p> <p>Show understanding of how different materials and components can be combined to produce an appealing and functional product.</p> | <p>real life product designer/maker works to research, design, develop and make a prototype, and industrial manufacturing careers and how roles have changed over the years with the increased use of CAD/CAM</p> | |
| <p>Summer 2 DESIGN TECHNOLOGY</p> | <p>Race to the line competition</p> <p>Develop understanding of aerodynamics and biomimicry, and their influence on the design of products.</p> <p>Be able to apply their learning to solve design problems. Be able to select from and use a range of specialist tools and</p> | <p>Textile Pencil case</p> <p>Develop an understanding of textiles to design a fabric tie dye pencil case with a zip.</p> <p>Understand the needs of a user through research and a detailed specification.</p> <p>Design using a range of different types of modelling.</p> | <p>Fragrance packaging</p> <p>Design a range of innovative ideas that can be developed and communicated using techniques such as 2D nets and vacuum forming.</p> <p>Show understanding of how different materials and components can be combined to produce an appealing and functional product.</p> | <p>NEA - Introduction of the NEA Contexts. 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> |

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| | equipment to manufacture a fully functioning prototype. | Understand what can be learnt from evaluating and testing a prototype. | | | |
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CURRICULUM PROGRESSION PATHWAY

| | Year 7 | Year 8 | Year 9 | Year 10 | Year 11 |
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| 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</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> |

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| | | | | boundaries for their practical cook exam in year 11 | |
| Autumn 2 FOOD TECHNOLOGY | <p>Development of understanding of different cooking methods and techniques</p> <p>Knowledge of the cooker</p> <p>Practical element - layered pasta salad</p> <p>Skills - boiling, cutting</p> | <p>Food commodities - Meat - types and cuts of meat, storage and preparation and Meat & the consumer</p> <p>Practical Element - Chow Mein</p> <p>Skills - cutting, slicing, frying</p> | <p>Healthy Eating - dietary requirements and recipe adaptations to support healthier eating or dietary requirements</p> <p>Practical Element - Fajitas (chicken or Quorn)</p> <p>Skills - cutting, slicing, frying and heating</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> |
| Spring 1 FOOD TECHNOLOGY | <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>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</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> |

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| | Skills - grilling, cutting | | | year 11 | |
| Spring 2 FOOD TECHNOLOGY | <p>Development of understanding of different cooking methods and techniques</p> <p>Understanding cross contamination /bacteria Practical Element - Flapjack</p> <p>Skills - melting on the hob and baking</p> | <p>Food Commodities - Cereals - what are cereals?, bread industrial processes and the science of bread making</p> <p>Practical Element - Bread Rolls</p> <p>Skills - using yeast, kneading, mixing, using the oven</p> | <p>Food Wastage - impact on society, use of food banks, best before dates and effects of packaging</p> <p>Practical Elements - Dutch Apple Cake</p> <p>Skills - slicing, mixing and baking</p> | <p>1.12 This term is to focus on working in the hospitality and catering industry directly linking to WOW. Practical skills are to develop a high level of skills set to enable students to achieve the highest grade in their practical exam.</p> | <p>After completing their controlled assessment they are now ready to finalise their knowledge 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> |
| Summer 1 FOOD TECHNOLOGY | <p>Development of understanding of different cooking methods and techniques</p> <p>Eatwell Plate and Healthy eating</p> <p>Practical Element -</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>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 -</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 a high level of skills set to enable students to achieve the highest grade in their practical</p> | <p>Final exam preparation and support.</p> |

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| | <p>Cheese and Onion Triangles</p> <p>Skills - rubbing in method, grating and slicing</p> | <p>Skills - boiling, making a sauce, baking, grating and slicing</p> | <p>Pancakes</p> <p>Skills - frying, cutting, slicing, grating</p> | <p>exam.</p> | |
| <p>Summer 2 FOOD TECHNOLOGY</p> | <p>Develop 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, baking</p> | <p>Food commodities - Fruit and vegetables - seasonality, growing food and 5 a day</p> <p>Practical element - Beef burgers</p> <p>Skills - working with raw meat, cutting, shallow frying</p> | <p>Genetically modified foods, Fairtrade and Smart and Functional Food.</p> <p>Practical Element - Chicken nuggets using chicken thighs</p> <p>Skills - deboning, cutting, using a food processor, baking</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> |