Curriculum Progression Pathway - Design Technology

WJEC Eduqas Level 1/2 GCSE (9-1) in Design and Technology

Why is the study of Design Technology important?

GCSE Design and Technology enables you to develop and enhance their learning with challenging, engaging and exciting projects. As well as developing the learner's practical skills, it also develops their overall application of technology within society, at home and in the workshop. It contributes to building confidence and personal management skills. Opportunities for you to investigate, experiment, model/develop, test, plan and evaluate are all the ingredients of the GCSE. The GCSE will provide a range of design tasks set in a variety of materials and media which engage, challenge, stimulate and allow students to progress and consistently attain higher levels of work. Traditional methods of construction as well as new methods (ICT/CAD/CAM) will all be explored. It teaches you how to take risks with design and manufacture and develop problem-solving skills. As a result, you 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 judgements of an aesthetic, economic, moral, social, and technical nature both in your own designing and when evaluating the work of others.

What skills will the study of Design Technology teach you?

GCSE Design and Technology skills include:

- How to manufacture everyday products in the workshop using a variety of materials and a range of skills.
- How to use workshop tools and equipment safely and skilfully.
- Developing resilience by not being afraid of challenges when solving problems, but to break them down and keep trying.
- Being 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.
- Identifying how to competently use a range of practical techniques across a range of disciplines.
- Applying and using CAD/CAM equipment to design and manufacture a range of products and components considering scale of production and precision.
- Working independently and part of a team to solve complex problems.
- Constructing reasoned arguments to ethical, social and moral problems that have arisen due to technology and communicate these in an effective way.
- Identifying links between different materials and contextual references.
- Testing, evaluating and refining ideas and products against a specification, considering the views of intended users and other interested groups.
- Understanding the source, seasonality and characteristics of a broad range of ingredients.

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

The important issue to take from your Design Technology experience is how to analyse a design brief or design task and independently produce a design specification. You will then be capable of producing design ideas and developing those ideas further using the appropriate strategy. This will lead to the efficient production of a functional prototype which meets the user and target market needs. Testing and evaluating the process at the critical design stages. Other aspects of the subject you will learn, and experience are:

- 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 dependent on the task.
- Use learning from science and mathematics to help design and manufacture components and products.
- How 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.
- How to use a variety of approaches, for example biomimicry and user-centred design to generate creative ideas and avoid stereotypical responses.
- To be able 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 be able to evaluate products through disassembly to determine how they are constructed and function and consider the life cycle analysis.
- How to competently use a range of cooking techniques for example, selecting and preparing ingredients; using utensils and electrical equipment.

How can you deepen your understanding of Design Technology?

Design Technology is happening all around you. At home, school, towns and cities. Take time to discover analyse the products around you and how they have been designed. Use of the internet to investigate famous designers and design companies such as James Dyson, Phillipe Starck, Airbus, Apple and Alessi. Several problem-solving events take place during the course. There will be the Strata homes competition. This is based on interior design and the Rotary tournament which is a problem-solving team competition. The use of Google classroom and two nights of enrichment throughout the course will enable you to build on your knowledge and design and make skills.

How are you assessed in Design Technology?

There are 6 assessment points each year that we term Praising Stars©. We assess how students at their current stage of study are on track to reach their end of stage targets which are formulated on aspirational expectation from their KS2 starting points. We make an informed prediction from our holistic assessments based on our subject mapping of expectation across the Design Technology curriculum.

Component 1: Design and Technology in the 21st Century
Written examination: 2 hours 50% of qualification.

Component 2: Design and make task Non-exam assessment: approximately 35 hours 50% of qualification

Key Assessment Objectives

AO1 – Test your ability to investigate and analyse.
AO2 – Test your ability to design and make.
AO3 – Tests your ability to analyse and evaluate:
AO4 – Tests your knowledge of materials, tools and manufacturing processes

Study of Design Technology can lead to a wide range of careers:

- Graphic design
- Fashion styling
- Art and design
- Media
- Engineering
- Photography
- Construction and building services
- Motor vehicle – technology and repair

Apprenticeships:

- Junior product designer
- Theatre set carpenter
- Farrier
- Service technician
- Civil engineering technician
- Plumber
- Design and draughting technician
- Engineering model maker

WJEC Eduqas Level 1/2 GCSE (9-1) in Design and Technology Course Overview				
Term	**Year 1**		**Year 2**	
	Practical context	**Theory Element**	**Practical element**	**Theory Element**
Autumn 1	Storage project	• Paper and boards • Timbers and manufactured boards	NEA Coursework	Key topics revision
Autumn 2	Indoor furniture project	• Metals • Plastics	NEA Coursework	Key topics revision
Spring 1	Indoor furniture project	• Textiles • Modern and SMART materials	NEA Coursework	Key topics revision
Spring 2	Children's educational toys	• Mechanisms • Electronic components	NEA Coursework	Key topics revision
Summer 1	Children's educational toy	• Programmable components • Impact of new and emerging technologies	Exam preparation	Key topics revision
Summer 2	NEA Coursework	• Ethics and the environment • Renewable energy		