



### SUBJECT & QUALIFICATION:

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

#### Why is the study of Design and Technology - Resistant Materials important?

GCSE Design and Technology is a practical and skills based subject. It enables students to actively contribute to the creativity, culture, wealth and well-being of themselves, their community and their nation. It teaches 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.

#### What skills will the study of Design and Technology - Resistant Materials teach you?

- 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 and 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 in an effective way.
- Identify links between different materials and contextual references.
- Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups.

#### What will you know and understand from your study of Design and Technology - Resistant Materials

- You will know and understand the properties of a range of materials and how to select those materials for manufacture from investigating their properties
- How to classify materials including smart materials and discuss their physical properties.
- How to use simple electronic circuits incorporating inputs and outputs.



## OPEN ELEMENT SUBJECT OVERVIEW

- How to manufacture products with reference to their material's physical properties.
- Students will learn 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.
- Students will learn to consider the influence of a range of lifestyle factors and consumer choices when designing and analysing products.
- Students will know and understand additional factors to consider such as ergonomics and anthropometrics.
- Students will be able to evaluate products through disassembly to determine how they are constructed and function and consider the life cycle analysis.

### How can you deepen your understanding of Design and Technology - Resistant Materials

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. During enrichment clubs, you will have the opportunity to meet food enthusiasts from other year groups, where you can share ideas, critique each other's work and continue to develop your technique.

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 and Technology - Resistant Materials

The subject content for GCSE Design and Technology will be assessed in the written examination and non-exam assessment (NEA).

Design and Technology in the 21st Century:

Written examination: 2 hours - 50% of the qualification 100 marks

Design and make task:

NEA Coursework approximately 35 hours - 50% of the qualification 100 marks



## OPEN ELEMENT SUBJECT OVERVIEW

## Key Assessment Objectives

**AO1** Identify, investigate and outline design possibilities to address needs and wants

**AO2** Design and make prototypes that are fit for purpose

**AO3** Analyse and evaluate:

- *design decision and outcomes including for prototypes made by themselves and others*
- *wider issues in design and technology*

**AO4** Demonstrate and apply knowledge and understanding of:

- *technical principles*
- *designing and making principles*

## Coursework requirements

Assessment Criteria		Marks	Assessment objective
(a)	Identifying and investigating design possibilities.	10	AO 1
(b)	Developing a design brief and specification.	10	
(c)	Generating and developing design ideas.	30	AO 2
(d)	Manufacturing a prototype.	30	
(e)	Analysing and evaluating design decisions and prototypes.	20	AO 3
Total		100	

## How can you support your future?

The study of GCSE Design and Technology can help you on your career pathway into a number of occupations. It can also lead to one of the apprentices listed below:

## Apprenticeships:

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



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

The study of GCSE Design and Technology can help you on your career pathway into the following occupations.

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

### Design and Technology - Resistant Materials Course Overview

Term	Year 1	Year 2
Autumn 1	Toolbox design and construction	NEA GCSE Coursework
Autumn 2	Lamp design and construction	NEA GCSE Coursework
Spring 1	Table design and construction	NEA GCSE Coursework
Spring 2	Children's learning toy design and construction (mock coursework)	NEA GCSE Coursework
Summer 1	Children's learning toy design and construction (mock coursework)	Examination revision.
Summer 2	Start of the NEA coursework	