

## **DESIGN & TECHNOLOGY CURRICULUM INTENT**

**The Rodillian Design & Technology curriculum aims to support all learners to work on a variety of design projects, in a stimulating environment, using workshop-based tools and equipment.**

**Students work with a range of materials, giving them an understanding of their properties and how they can be used in the design and manufacture of products.**

**Using specialised tools, processes and techniques, our students are enabled to combine technological knowledge and the application of practical skills, with creativity, to design products for human needs.**

**Our students work towards engaging in the iterative process of investigating, designing, making and evaluating. Leading to the manufacture of products that consider function and purpose, whilst developing analytical thinking, problem solving, and presentation skills.**

**Students will learn about the impact that manufacturing will have on our lifestyle and the environment.**

**Empowering them to learn how to make a positive impact.**

**We aim to develop students with the confidence and resilience to apply themselves to tasks, both on their own and in groups. To evolve the lively, enquiring minds of individuals who aspire for future success**



# DESIGN & TECHNOLOGY CURRICULUM IMPLEMENTATION

## KS3 Year 7

13-week rotation. 2 lessons a week

### D&T RESISTANT MATERIALS INVESTIGATING>DESIGNING>MAKING>EVALUATING Plastics and Polymers

#### DESIGN BRIEF

- Product to hold post-it notes
- Provide protection and decoration. Allow notes to be easily removed
- For general use and suitable for a target audience
- Made from sustainable materials

#### PRACTICAL KNOWLEDGE.

##### Practise & Action

- Measuring in mm
- Draw filing
- Cross filing
- Line bending
- Follow a sequence of design and assembly

#### THEORETICAL KNOWLEDGE.

##### Concepts & Principles

- Workshop rules and safety
- Properties of materials
- Plastics. Monomers and polymers
- Plastics. Hardness, strength, flexibility, durability
- Key terms for plastics equipment

Assessment. Bronze. Silver. Gold  
resilience grade

### D&T TEXTILES INVESTIGATING>DESIGNING>MAKING>EVALUATING Fabrics and Fibres

#### DESIGN BRIEF

- Mobile phone holder
- Provide protection, decoration. Allow device to be used hands free
- For general use and suitable for target audience
- Made from sustainable materials

#### PRACTICAL KNOWLEDGE.

##### Practise & Action

- Manufacturing using a sewing machine
- Manufacturing using cotton
- Tie dye and fabric pastels for surface decoration
- Demonstrate accurate and precise drawing and making skills

#### THEORETICAL KNOWLEDGE.

##### Concepts & Principles

- Workshop rules and safety
- Textiles surface decoration techniques
- Textile equipment

- Textiles materials
- How textiles are made
- Parts of a sewing machine

Assessment. Bronze. Silver. Gold  
resilience grade

## KS3 Year 8

13-week rotation. 2 lessons a week

### D&T RESISTANT MATERIALS INVESTIGATING>DESIGNING>MAKING>EVALUATING Timbres

#### DESIGN BRIEF

- Storage box. Personal and small items
- Made from sustainable materials
- Use at least one wood joining method
- Removable lid using CAD/CAM

#### PRACTICAL KNOWLEDGE.

##### Practise & Action

- Working drawing
- Marking and cutting
- Wood Joints
- Making a lap joint
- Finishing timbres
- Follow a sequence of design and assembly
- CAD/CAM

#### THEORETICAL KNOWLEDGE.

##### Concepts & Principles

- Workshop rules and safety
- Difference between hardwoods and soft woods
- Types of wood
- Manufactured boards
- Sustainability

Assessment. Bronze. Silver. Gold resilience grade

### D&T TEXTILES INVESTIGATING>DESIGNING>MAKING>EVALUATING Fabrics and Fibres

#### DESIGN BRIEF

- Pencil case
- Safely store item of stationary
- Made from sustainable materials
- Theme of British Nature
- To be sold in a National Trust shop

#### PRACTICAL KNOWLEDGE.

##### Practise & Action

- How to create and use a mood board
- How to analyse existing products
- Working to a design criteria
- Selecting and inserting a fastening
- How to join fabrics
- Applique
- Pattern drafting
- Threading up a sewing machine

#### THEORETICAL KNOWLEDGE.

##### Concepts & Principles

- Workshop rules and safety
- Sustainability/ BRs
- Key terms for Textiles printing techniques
- Design Criteria/design work and gathering opinions

Assessment. Bronze. Silver. Gold resilience grade

# DESIGN & TECHNOLOGY IMPLEMENTATION KS3 Year 9. 2 lessons a week

## Ferrous and Non Ferrous metals

INVESTIGATING>DESIGNING>MAKING>EVALUATING

DESIGN BRIEF. Candle Holder

PRACTICAL KNOWLEDGE.

Practise & action

- Investigate the design context
- Research to inspire design ideas
- Working with design briefs and specifications
- Technical drawing. Isometric and third angle projection
- Measuring, marking and cutting materials safely and accurately
- Filing and finishing metals
- Using the brazing hearth to permanently join metals
- Follow a sequence of design and assembly

THEORETICAL KNOWLEDGE

Concepts & Principles

- Workshop rules and safety
- Properties of ferrous and non-ferrous metals
- Critically evaluate work and fitness for purpose

Assessment. Bronze. Silver. Gold Resilience grade

## Fabrics and Fibres

INVESTIGATING>DESIGNING>MAKING>EVALUATING

DESIGN BRIEF. Bag for Life

PRACTICAL KNOWLEDGE.

Practise & Action

- Investigating the design context
- Research to inspire design ideas
- Working with design briefs and specifications
- Design drawing: sketching, development drawings, final design renderings
- Pattern drafting
- Sublimation printing
- ICT CAD
- Measuring, marking and cutting materials safely and accurately
- Using the sewing machine to join fabrics
- Follow a sequence of design and assembly

THEORETICAL KNOWLEDGE

Concepts & Principles

- Workshop rules and safety
- Properties of Fabrics and fibres
- Critically evaluate work and fitness for purpose

Assessment. Bronze. Silver. Gold Resilience grade

## Timbres

INVESTIGATING>DESIGNING>MAKING>EVALUATING

DESIGN BRIEF. Storage Device

PRACTICAL KNOWLEDGE.

Practise & Action

- Investigating clients
- Technical drawing
- Following a plan of assembly
- Selecting and applying finishes

THEORETICAL KNOWLEDGE

Concepts & Principles

- Workshop rules and safety
- Properties of timbres
- Critically evaluate work and fitness for purpose
- Key terms for:
- Manufacturing techniques
- Hand tools and machine tools

Assessment. Bronze. Silver. Gold Resilience grade

## Papers and Boards

INVESTIGATING>DESIGNING>MAKING>EVALUATING

DESIGN BRIEF. Point of Sale Display

PRACTICAL KNOWLEDGE.

Practise & Action

- Computer graphics
- Photoshop
- Image manipulation
- Pattern development
- Paper/boards 3D structure
- Using a craft knife
- Using adhesives

THEORETICAL KNOWLEDGE

Concepts & Principles

- Sustainability
- How papers and boards are made
- Origins of papers/boards
- Properties of papers/boards
- Uses of papers/boards

Assessment. Bronze. Silver. Gold Resilience grade



# DESIGN & TECHNOLOGY CURRICULUM IMPLEMENTATION

## KS4 Year 10 GCSE 6 lessons a week

WJEC EDUQAS  
GCSE DESIGN & TECHNOLOGY

**Component 1: DESIGN & MAKING PRINCIPLES. TECHNICAL PRINCIPLES.**

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

**TECHNICAL PRINCIPLES. DESIGN & MAKING PRINCIPLES**

- Manufacturing techniques
- Sustainability
- Energy generation
- Polymers / metals
- Papers/ textiles
- Smart materials/ technical textile
- Timbers
- Mechanical/electrical systems

**Component 2: DESIGN AND MAKE TASK. Non-exam assessment NEA: approximately 35 hours 50% of qualification**

**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**

Graded GCSE 1 to 9

## KS4 Year 11. Technical Award 6 lessons a week

WJEC EDUQAS  
LEVEL 1/2 VOCATIONAL AWARD IN CONSTRUCTION AND THE BUILT ENVIRONMENT

**Unit 1: INTRODUCTION TO THE BUILT ENVIRONMENT. On-screen examination: 1 hour 30 minutes 40% of qualification.**

- Develop skills, knowledge and understanding in identifying, explaining and evaluating different ideas and concepts of the built environment.
- Explore a range of profession and trade roles, and structures and buildings

**Unit 3: CONSTRUCTING THE BUILT ENVIRONMENT. Controlled assessment: 30 hours 60% of qualification**

Develop skills, knowledge and understanding of three construction trade areas. including planning, undertaking and evaluating construction tasks.

Electrician, plumber, painter/decorator

- AO1 Demonstrate knowledge and understanding
- AO2 Apply practical skills, knowledge and understanding in a variety of contexts
- AO3 Analyse and evaluate. Present conclusions

Graded Level 1 Pass, Level 1 Merit, Level 1 Distinction, Level 1 Distinction\*, Level 2 Pass, Level 2 Merit, Level 2 Distinction, Level 2 Distinction\*

