

# DESIGN AND TECHNOLOGY

The Design and Technology department provides exciting opportunities for pupils of all ages and abilities to develop their creative and technical skills, knowledge and understanding. Results in Design and Technology are amongst the best in the school at KS3, GCSE, A/S and A Level, with pupils achieving well in excess of national and county averages. Department accommodation consists of three well equipped, multi-media resistant material workshops and specialist food and textiles technology rooms. Additionally we have access to an ICT room which allows access to a wide range of specialist programmes.

## Key Stage 3

All pupils have two fifty minute periods of Design and Technology per week for each year of Key Stage 3. During the year pupils will rotate around the different areas of Design and Technology in order that they can work on a range of different units of work and build up their skills, knowledge and understanding in all of the materials areas of this subject.

The exact nature of the units of work may vary from year to year but the aim is always to efficiently and effectively deliver inspiring modules of work. Pupils develop the underpinning knowledge that will enable them to progress and to achieve their potential if they choose to continue studying Design and Technology (Food, Textiles or Resistant Materials) at GCSE.

## Key Stage 4

From the GCSE option blocks pupils can select to study one material area from Design and Technology. Option choices are from Pearson's EDEXCEL Design and Technology courses for Textiles or Resistant Materials and OCR Food Preparation and Nutrition.

The specifications are detailed as follows:

### DESIGN AND TECHNOLOGY: FOOD PREPARATION AND NUTRITION (OCR/J309)

The Food Preparation and Nutrition qualification aims to equip students with the knowledge, understanding and skills required to cook a range of complex dishes. They will develop and apply the principles of food science, nutrition and healthy eating. Students will also investigate the huge challenges that we face globally to supply the world with nutritious and safe food. There is an opportunity to take the CIEH Level 2 Basic Food Hygiene certificate.

NEA (Non-examined Assessment):      Weighting 50%

Students will complete **two non-examined assessment tasks**.

#### Task 1 (15% of the final GCSE grade): **Food Investigation Task**

Students will investigate the working characteristics, functional and chemical properties of ingredients. They will then produce a written report of 2000 words to include evidence of researching and testing; to demonstrate the link between science and food production. Areas for investigation may include: yeast cookery, raising agents, ingredients used to 'brown' or glaze food surfaces and many others.

#### Task 2 (35% of the final GCSE grade): **Food Preparation Task**

Students will be required to plan and prepare a number of dishes to meet a theme published by the exam board. They will need to demonstrate food preparation and presentation skills, sensory testing, time management, costing and nutrition knowledge as well as consideration of seasonality and food provenance.

Students will prepare, cook and present three dishes within a three-hour period.

**Students will also complete a summative written examination** (50% of the final GCSE grade).

Students will be able to build on practical skills acquired in Key Stage 3 and learn how to use a range of food processing techniques through the course. Students should also practice food preparation skills at home

Much of the course will be delivered through practical experiences and will appeal to those students who are interested in food preparation, food science, nutrition and health issues, as well as students interested in a career within the food and hospitality.

**Students opting to study this subject needs to provide their own ingredients for practical lessons.**

### **DESIGN AND TECHNOLOGY: TEXTILES (EDEXCEL 1DT0)**

Building on the skills and knowledge gained from work done in Key Stage 3, students will study in greater depth the ways in which textiles (fibres, yarns, fabrics, components and 'Smart' materials), can be used in the designing and making of quality products. A wide range of practical work will be undertaken to expand student's practical knowledge and to improve their practical skills.

#### **Component 1 (Summative Written Examination): (1DT0/1E)**

Examinations: Weighting 50% (100 marks)

Students will complete a single exam paper over 1 hour 45 minutes. The exam is broken into two sections:

**Section 1** – looks at core DT knowledge ranging from knowledge of materials and processes to the use of maths and science as part of the wider subject.

**Section 2** – focuses on specific material knowledge based around fibres, yarns, fabrics and components as well as structured design questions that allow students to demonstrate their creative abilities and skills.

#### **Component 2 (Non-examined Assessment): Design and Making Practice (1DT0/02)**

NEA (Non-examined assessment): Weighting 50% (90 marks)

Students will complete **one Non-Examined Assessment Task** to be completed over 45 hours

- Students will write a design brief and specification before designing, planning and making a fully functioning quality product using textiles which they will then test and evaluate in use.

Students opting to study this subject will work on a variety of projects based around different materials and processes. They will develop skills that will deepen their understanding of textiles processes and constructional methods. This will allow students to manipulate a variety of materials with confidence and accuracy. At the same time students will be developing their ability to communicate design ideas and information with clarity and style.

Students should choose this option if they enjoy fashion and textiles. Students will study commercial fashion, home furnishing textiles products and textiles materials – fabric construction and surface decoration. Students will also learn about influential textiles designers, industrial manufacture and modern textiles applications. Students are encouraged to explore textiles in scientific, creative and aesthetic ways and to 'get involved' with practical tasks.

### **DESIGN AND TECHNOLOGY: RESISTANT MATERIALS (EDEXCEL 1DT0)**

Building on the skills and knowledge you have gained from work done in Key Stage 3, you will study in greater depth the ways in which resistant materials (woods, metals, plastics and 'Smart' materials), can be used in the designing

and making of quality products. A wide range of practical work will be undertaken to expand your practical knowledge and to improve your practical skills.

### **Component 1 (Summative Written Examination): (1DT0/1F)**

Examinations: Weighting 50% (100 marks)

Students will complete a single exam paper over 1 hour 45 minutes. The exam is broken into two sections:

**Section 1** – looks at core DT knowledge ranging from knowledge of materials and processes to the use of maths and science as part of the wider subject.

**Section 2** – focuses on specific material knowledge based around metals woods and plastics as well as structured design questions that allow students to demonstrate their creative abilities and skills.

### **Component 2 (Non-examined Assessment): Design and Making Practice (1DT0/02)**

NEA (Non-examined assessment): Weighting 50% (90 marks)

Students will complete **one Non-Examined Assessment Task** to be completed over 45 hours

- Students will write a design brief and specification before designing, planning and making a fully functioning quality product using resistant materials which they will then test and evaluate in use.

As you work on design and make tasks you will develop skills in the manipulation of a wide range of resistant materials and will deepen your understanding of processes and constructional methods. You will also develop your ability to communicate design ideas with clarity and style.

You should choose this option if you enjoy solving practical problems, working through ideas in a variety of ways and want to extend your knowledge and understanding of how woods, metals, plastics and 'Smart' materials can be used to produce solutions.

## **Sixth Form**

Following on from the successful completion of their GCSEs many students opt to continue to study A/S Design and Technology: Product Design and many also continue on into the Upper Sixth to study A2 Design and Technology: Product Design. Typically each year we are able to run two groups, each of which will be taught by experienced staff who have achieved considerable success with students of different backgrounds. Students will study Design for five periods a week for A/S and six periods per week for A2. Details of these options are as follows:

### **PRODUCT DESIGN (AS and A LEVEL) - Awarding Body EDEXCEL 8DT0/9DT0**

Students studying Product Design in the Sixth Form will have access to an extensive range of workshop facilities, ICT equipment, and computer aided design software. All man-made artefacts, systems and environments are the products of design and technological activity. Design therefore affects all our lives in many ways. This course offers students a stimulating and challenging opportunity to study design and designing by focusing on the nature of the design process and its interrelationship with the means of manufacture and the user. In this way students develop their own abilities as designers.

### **ENTRY TO THE COURSE**

A GCSE in a design based subject is normally required at grade C or above.

### **COURSE CONTENT**

## **AS Level**

### **Component 1 - Principles of Design and Technology 8DT0/01**

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

Students will be tested on their application of theoretical knowledge and understanding concerning designing and making products. This exam will also assess the abilities of students to think on their feet and employ immediate design thinking in response to a set problem.

### **Component 2 - Independent Design and Make Project 8DT0/02**

*Non-examined assessment                      50% of the qualification                      100 marks*

Students are required to analyse a given contextual challenge on an individual basis, selecting a problem to focus on, they develop a range of potential ideas and then realise one through practical making activities. Students will develop a range of potential solutions which include the use of computer aided design and evidence of modelling.

## **A Level**

### **Component 1 - Principles of Design and Technology 9DT0/01**

*Written examination: 2 hours 30 minutes                      50% of the qualification                      120 marks*

Students will be tested on their application of theoretical knowledge and understanding concerning designing and making products. This exam will also assess the abilities of students to think on their feet and employ immediate design thinking in response to a set problem.

### **Component 2 - Independent Design and Make Project 9DT0/02**

*Non-examined assessment                      50% of the qualification                      120 marks*

Students individually and/or in consultation with a client/end user identify a problem

and design context. This allows students to research and develop a design path of their own choosing that allows them to explore and use a wide range of Design tools.

## **CAREERS/FURTHER EDUCATION**

Acceptable to all Universities and Colleges. Past students have progressed onto Higher Education courses and careers in the areas of product design, fashion, architecture, graphic design and engineering.