

## **Design & Technology GCSE**

### **GCSE Design Technology – Resistant materials**

The first section of this GCSE course involves the students completing a small mock controlled assessment piece where they are given a contextual challenge to design and make a working prototype. The aim of this is to prepare the students for the real contextual challenge they will receive in June of Year 10. Additionally, the students will be taught about the two Computer Aided Design packages we have and how to combine these with the Computer Aided Manufacturing (are these correct?) equipment such as the laser and 3D printer.

#### **Course Outline – Resistant Materials**

Exam Board	EDEXCEL	
Examination	50%	1hr 45mins
Coursework	50%	50 hrs

### **GCSE Design Technology – Textiles**

In the first year of this GCSE students will study in depth the Fabrics and Fibres Specialism content of the Design and Technology GCSE. This will allow them to explore a full range of materials, components and techniques and gain an understanding of the wider issues in textile manufacturing and design.

Environmental, social and ethical issues within the textile industry are explored within an initial controlled assessment style outcome and accompanying folder.

Students will extend their knowledge of garment and related textile manufacturing processes including awareness of CAD/CAM, printing and fabric manipulation.

Students will complete 2 practical outcomes in this year.

#### **Course Outline –Textiles focus**

Exam Board	EDEXCEL	
Examination	50%	1hr 45mins
Coursework	50%	50 hrs

## **GCSE Food Preparation and Nutrition**

This is an excellent course for students wishing to build on their key stage 3 practical skills. It is a very scientific course with detailed nutritional knowledge. It complements many other GCSE subjects such as Biology, Chemistry, P.E. and Geography. A wide range of topics are covered in theory lessons in line with the AQA syllabus for Food Prep'. They include the following:-

- The chemistry of Macro and Micronutrients.
- Diet and healthy eating.
- The detailed science of nutrients.
- Food hygiene and safety, and the safe storage of food.
- The science behind different cooking methods.
- Functional properties of food and ingredients.
- Sensory evaluation and testing of food.
- Food security and global issues surrounding food provision.
- Food Provenance: where and how foods are grown, reared and caught.
- Food processing and how it affects ingredients.
- Different ingredients and dishes from a range of countries.
- The nutritional needs of a range of consumers.
- Influences on food choice.

These topics are covered in Year 9 and 10, with a practical lesson every week. A written homework is set every week with stretch & challenge questions for higher ability students. High level practical skills are developed in line with AQA guidance. Students bring ingredients from home to cook in school, every week. A demonstration is given by the Food teacher each week.

### **Course Outline – Food Preparation and Nutrition**

Exam Board	AQA
Examination	50%
Coursework	50%

In Year 11 the Food Preparation and Nutrition students complete two pieces of coursework. They are structured as follows:

#### **NEA 1 – Investigation.**

The Food Science Investigation (15%). This is a 2000-word report of experimental practical work. It must have photographic evidence and be completed by the October half term.

#### **NEA 2 – Food Preparation Assessment.**

The Food Preparation Assessment (35%) Recommended time 20 hours (including a 3-hour practical exam at the end). This is the major piece of written coursework which includes a showcase of the students' practical skills.

## **GCSE Engineering**

The first year of this course is spend building up the students' knowledge of mechanisms and how they can be combined with material to produce a working prototype. Additionally, the adding in of an electronic element which is required in their controlled assessment. The aim of this is to build up their practical skills and get the student to think about how components can move in a design. Homework tasks are used to introduce theory content before it is move into in more detail in Year 10.

### Course Outline – Engineering

Exam Board	AQA	
Examination	50%	2hrs
Coursework	50%	30hrs

## **Year 10 Design Technology, Resistant materials focus, Textiles focus**

In this year students are taught the Core and Specialism content they need to know for their exam in year 11. The theory taught here is broken up with mini practical's to help demonstrate the theory taught and provide a more tangible experience.

In June of this year the students are provided with the contextual challenge where they will need to choose one and start thinking about a design and working prototype they can make.

## **Year 10 Engineering**

In this year students are taught the theory content they need to know for their exam in year 11. The theory content here focuses on introducing the students to Engineering calculations by working out, Stress, Strain, Youngs modulus, Pressure, costs, working life of tools etc. Additionally, students are taught about a variety of different materials and processes such as gravity and pressurised die casting, press forming and sand casting.

In June of this year the students are provided with a Design problem that they have to solve by analysing the problem, forming a solution and manufacturing a working prototype to solve the problem.

### **Year 11 Design Technology, Resistant materials focus, Textiles focus**

Year 11 is spent on the controlled assessment where the students have to choose a theme and associated contextual challenge. They spend the year forming a Design brief and Specification before developing a design, making small prototypes, forming a working prototype and evaluating their design.

From May onwards final exam preparation is prioritised providing students with necessary support before they sit their Core and Specialism paper.

### **Year 11 Engineering**

Half of year 11 is spend on the controlled assessment which is worth 40% of their final mark. The students are presented with a design problem and then have to form a design and working prototype to solve design problem.

From February onwards continued exam preparation is continued memorising Engineering equations and utilising them to solve design problems.