



**KIRKHAM**  
GRAMMAR SCHOOL

## **DESIGN & TECHNOLOGY**

**Examination Board:**                      **AQA**

The Design and Technology Department offers one subject at GCSE level but allows two specialisms to choose from:

Product Design or Design Engineering.

Pupils are allowed to opt for only ONE of these specialisms.

### **INTRODUCTION**

**Product Design** enables pupils to design and make products with creativity and originality, using a range of materials and techniques. Packaging, labelling and instructions are encouraged as part of the complete design proposal and advertising, points of sale can be used to supplement the making experience and help create products which can be evaluated for their commercial viability.

**Design Engineering** enables pupils to design and make quality electronic products with creativity, originality and flair using a wide range of electronic components with appropriate materials to package the electronic circuit. The packaging of the electronic circuit can include individually designed cases made from a range of resistant materials, textiles, card or recycled materials. The pupils will develop their ability to consider sustainability and environmental impact on their designing. It also provides the candidate with the opportunity to design and make an electronic product using new technologies and modern electronic devices.

### **PRODUCT DESIGN**

#### **Assessment:**

The work undertaken in the GCSE Design & Technology: Product Design course is assessed as two separate parts:

Coursework: 50%                      Examination: 50%

The examination tests the pupils' knowledge of product design and of materials, tools and production techniques in a single 2 hour paper.

The coursework comprises a single, high quality small-scale design-and-make project, the focus of which is chosen by the pupil in consultation with the teacher. The production of the design folio and the practical work for this project will typically involve a total of 35 hours of work in class under controlled assessment spread over a year.



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### **Course:**

During the first two terms of the Fourth Year pupils will develop their knowledge of a range of graphical communication techniques and their skills in working with resistant materials through a number of small integrated projects. The use of the Techsoft 2D and Autodesk Inventor 3D CAD package will be covered in depth and there will be opportunity to produce work using the department's CAM machinery.

During the Summer Term of the Fourth Year pupils will, in consultation with their teacher, identify a suitable real life problem for which they can design and realise a 3-Dimensional graphical and/or resistant material based solution. Once a suitable project outline has been identified, pupils will spend the remaining time of the Fourth Year and the first two terms of the Fifth Year designing, manufacturing, testing and evaluating their project.

## **DESIGN ENGINEERING**

### **Assessment:**

The work undertaken in the GCSE Design & Technology: Design Engineering course is assessed as two separate parts:

Coursework: 50%      Examination: 50%

The examination tests the pupils' knowledge of electronic design skills, materials, tools and production techniques in a single 2 hour paper.

The coursework comprises of a single major electronic design and make project, the focus of which is chosen by the pupil in consultation with their teacher. The production of the design folio and the practical work for this project will typically involve a total of 35 hours of work in class under controlled assessment spread over a year.

### **Course:**

During the first two terms of the Fourth Year pupils will learn about basic electronic systems 'building blocks' through a number of structured practical projects. The practical work in the Fourth Year will require pupils to work on both prototyping board and computer simulations and to produce, using computer aided design (CAD) packages, Printed Circuit Boards onto which they will build their electronic circuits. Pupils will also develop their knowledge of Programmable Integrated Circuits from previous year's projects. During the course pupils will also develop their knowledge of workshop materials, tools and processes in order that they will be confident in the design and production of suitable casings for their designs. The use of the Techsoft 2D and Autodesk Inventor 3D CAD package will be covered and there will be opportunity to produce work using the department's CAM machinery.

During the Summer Term of the Fourth Year pupils will, in consultation with their teacher, identify a suitable real life problem for which they can design and realise a working electronic solution. The project should be based upon the knowledge gained in the previous two terms, but could



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involve new areas of work of interest to the pupil. Once a suitable project outline has been identified, pupils will spend the remaining time of the Fourth Year and the first two terms of the Fifth Year designing, manufacturing, testing and evaluating their project.