



Design & Technology



Key Stage 3

Year 7 Graphic Products- Pop-up mechanism

Pupils will be designing and making a pop-card mechanism following a given design brief. Looking at design skills through a variety of technical drawing skills, rendering, evaluative techniques and developmental stages towards their final prototype. This unit of work will allow pupils to be aware of the skills involved in developing mechanical techniques through a range of movement. To demonstrate how 'a story' can be transferred into a moving mechanism via the use of tools and materials.

Year 8 Graphic Products- Hand-held game

Pupils will be designing and making an innovative hand-held maze game which will take the form of a chosen theme, decided by the pupils, but based around the design brief investigation:

As part of a promotion campaign to encourage young children to purchase magazines, a local company has commissioned you to design and make a hand-held game (*maze with ball bearing*) in blister packaging. The packaging will be attached to the front of a magazine. Pupils will use 2D design software to produce their final design, and then transfer the design to be cut on a laser machine using acrylic material.

Year 9 Graphic Products- Interior design

During this unit, students will make use of most modelling materials. These include: foam board/ corrugated/ 750gsm-to produce a scale model of an interior of their choice from: arena, canteen or social area. The unit will incorporate their knowledge and understating of other materials, scaling, presentation drawings 3D software, which will also incorporate the use of IT to enhance design work and Dtp. The use of ICT to enhance their design work is a strong element in this work. Throughout their work, students will be gathering relevant research, conducting a mini site survey and assessing themselves through peer and self-assessment, ending with a dragons den type test and a scaled model of the outcome for their project.

Year 7 Resistant Materials- Funky Box

In this introductory project students develop a design and make brief within a specific context. Using research tasks to understand the needs of an end user they develop a detailed design portfolio and design specification to guide their learning. This project introduces them to the workshop, in which they develop a key understanding of hazard and risk assessment to ensure safe working practice. Pupils develop knowledge of a range of materials and their properties. They use a variety of manufacturing techniques from more traditional skills to state of the art CAD CAM to realise their practical work. Pupils understand the importance of design development and produce concept sketches and develop these using specialist industry level computer software used including Google Sketchup and 2D Design. This scheme of work facilitates the understanding of electrical components and pupils make their own electrical circuits to be incorporated into their final outcome. The balance of portfolio and practical work allow pupils to work towards a creative outcome and develop key skills leading towards their GCSE qualification.

Year 8 Resistant Materials- Steady Hand Game

In year 8 Resistant Materials learners develop their knowledge of materials and components that they gained in Year 7. This is through the development of a Steady Hand game, to help improve and develop hand eye co-ordination. Learners are expected to design and make their own game by investigating materials, using tools and machinery, such as a vacuum former and scroll saw. The product itself is made from a combination of plastic and timber as well as an electronic component. The electronic component is progressively more challenging than the one learner's were first introduced to in Year 7. Learners are set challenging homework tasks, which heavily involve English, Maths and Science. Learners get an opportunity to make the cross-curricular links with many other subjects

Year 9 Resistant Materials- Sustainable Lighting

In preparation for their GCSE qualification pupils engage fully with the idea of sustainable design. This project is designed to stretch their imaginations and consider more complex design tools including biomimicary & design movements in addition to considering in detail the wider impact of their roles as designers including social, moral cultural and environmental impact. Pupils will use a range of modelling techniques from detailed concept sketches, modelling techniques before producing their prototype.

Year 7 Food Technology

Students carry out a range of activities including research, design, planning, making and evaluation. Nutrition and healthy eating are a major focus. Dishes made are predominantly savoury, including Spaghetti Bolognese, with a design and make task for a savoury salad.

Year 8 Food Technology

Students continue to develop the skills listed in the Year 7 course. They have the opportunity to widen their repertoire of dishes such as Risotto and there is a design and make activity where a fusion stir-fry is created for a user of their choice.

Year 9 Food Technology- Jamie Oliver Level 1

Students have the opportunity to take the BTEC Level 1 Jamie Oliver's Home Cooking Skills course. Learners develop their practical skills further, underpinned with nutrition, hygiene and food safety. The course aims to give learners the skills and confidence to enjoy cooking at home

Key Stage 4

Food- Level 2- Jamie Oliver's Home Cooking Skills

In Year's 10 and 11, BTEC Level 2 Jamie Oliver's Home Cooking Skills is offered. The course aims to develop student's confidence in practical skills, furthering their knowledge of food, nutrition, hygiene and safety. Learners will gain understanding of how to economise when planning meals to cook at home.

There is no written examination but in Year 11, there is a practical task which students will prepare for. They have to select and cook and present two dishes of their choice, following a plan that they have made, showing understanding of nutrition.

More information: www.jamieshomecookingskills.com

GCSE: Design & Technology – Product Design – AQA (4555)

This specification encourages students to be able to design and make products with creativity and originality, using a range of materials and techniques. Students will be enthused and challenged by the range of design and practical activities from traditional skills to state of the art CAD CAM processes, including laser cutting and 3D printing.

Students design and make quality outcomes fostering awareness of our young designers of the need to consider sustainability and the environmental impact.

Students specialise in one of the following areas

- Graphic Products
- Applied Innovation Materials
- Food Technology

The course requirements are outlined in the diagram opposite taken directly from the AQA specification which can be found at the address below.

Unit 1- Written paper 40%

2 hours

120 marks

Unit 2- Controlled Assessment

60%

45 hours 90 marks

More information: <http://www.aqa.org.uk/subjects/design-and-technology/gcse/design-and-technology-product-design-4555>

BTEC Level 2 First Award in Engineering

The Edexcel BTEC Level 2 First Award in Engineering gives learners the opportunity to gain a broad understanding and knowledge of the engineering sector as well as a more focused understanding of engineering through the selection of core and optional specialist units

It gives opportunities for learners to achieve a nationally recognised level 1 or level 2 engineering qualification. This qualification gives learners the opportunity to enter potential employment within a wide range of engineering sectors such as mechanical, automotive and electrical.

The Edexcel BTEC Level 2 First Award in Engineering provides an engaging, robust, broad-based introduction to engineering. It provides underpinning knowledge, understanding and practical skills that reflect the needs of employers and higher and further education professionals. It presents knowledge, skills and understanding in a meaningful work-related context, to allow learners to understand theory and application.

Learners cover 3 units:

Core Units: -

Unit 1: The Engineered World (Externally Assessed, 25% of overall grade)

In this unit, learners will discover the world of engineering. Learners will investigate the processes used to manufacture modern products within different engineering sectors. Engineers must be aware that products and processes may require the use of scarce resources that could have an impact on the environment. When an engineered product is made, used and disposed of, any waste of energy and environmental damage must be minimised at all stages. .

Unit 2: Investigating an Engineered Product (Internally Assessed, 25% of overall grade)

In this unit learners will investigate a manufactured product to learn what considerations a designer would keep in mind when writing a technical specification. Learners will investigate the materials and commercial production processes used to manufacture the product, in order to learn why they were used in preference to others that might also have been appropriate. Learners will also learn how certain materials and processes can affect the environment. In studying quality issues, learners will come to understand how the quality of a product is assured throughout its manufacture, and learners will understand how specific forms of quality control contribute to overall quality assurance.

Optional Unit: -

Unit 7: Machining Techniques (Internally Assessed, 50% of overall grade)

This unit will help learners to understand the engineering processes that we use to generate and form shapes through machining techniques. Learners will learn how to select, investigate and use machining techniques that involve shaping or forming with loss of volume. Learners will also use work-holding devices and a range of tools so that they can carry out a variety of machining processes. Learners will learn how to set the machines before they use them and how to monitor the machines while they are using them. Learners will also learn how to inspect the items they produce for compliance and accuracy. Health and safety is vital. Therefore, they will also learn how to operate machinery safely.

More information: www.edexcel.com/quals/firsts2012/engineering/Pages/default.aspx

Key Stage 5

A Level Design & Technology: Graphics with Materials (9GR01)

The Edexcel specification brings the study of Good design as being a vital part to our world and economy. It develops understanding of industrial and commercial practices through the investigation of products. Students analyse a range of manufactured products, to gain an in depth understanding of product design, development and manufacture. Students predominantly specialise in Architecture or Interior design type projects for the whole of their design and make module during the A2 year.

The course develop students' knowledge and understanding of, and skills and application in, product design: develop students' ability to design and make products that are fit for purpose, satisfy wants or needs, and enhance our day-to-day lives: give students the opportunity to demonstrate their design and technology capability, and develop skills in planning, research, analysis, product development, project planning and evaluation.

AS: Unit 1: Title: Portfolio of Creative Skills 90 marks for portfolio submission	AS: Unit 2: Title: Design and Technology in Practice 1.5 hours exam. 70 marks paper
A2: Unit 3 Title: Designing for the Future 2 hours exam. 70 marks paper	A2: Unit 4 Title: Commercial Design 90 marks for portfolio submission

More information: www.edexcel.com/quals/gce/gce08/dt/product/Pages/default.aspx

This vocational course is centred around event hospitality and catering and at Level 3 there are a number of exciting units that can be studied. The units studied are comprised of compulsory units as well as optional ones. During this course students will be assessed in a variety of ways which suit the tasks they are doing. All units chosen will require a practical experience of hands on catering and hospitality. During Year 12 students study 30 credits worth of units. This will mean that students will have achieved the Level 3 Certificate, which is equivalent to a GCE AS Level. During Year 13 students study further units to raise their credit value to achieve a Subsidiary Diploma which is equivalent to one A Level. Students follow the Edexcel BTEC Hospitality specification <http://www.edexcel.com/quals/nationals10/hosp/Pages/default.aspx>

Certificate Award (AS LEVEL)

The Hospitality Industry (Compulsory)	The Principles of Food Safety Supervision for Catering
Asian Food	European Food

Subsidiary Diploma (A2 LEVEL)

Principles of Supervising Customer Service Performance (Compulsory)	Providing Customer Service in Hospitality. (Compulsory)
Contemporary World Food	Advanced Skills and Techniques in Producing Desserts and Petit Fours

For further information, please contact Mrs L. Devi, Curriculum Leader for Design & Technology