DESIGN TECHNOLOGY

Design and Technology is an important area of study for all students, not only those wishing to follow Design or Engineering based courses at university. An important feature of this subject is the intrinsic motivation needed to initiate, research and develop a project using one's own resources. Their progress towards a solution gives students direct feedback about the quality of their work, enabling them to learn directly from their experience. The subject has close links with many areas of the curriculum, especially Mathematics, Science and Art.

The courses require the student to become creative problem solvers; skilled at analysing, synthesising and evaluating, with knowledge of modern technology and able to fluently communicate their ideas. These skills enable student to feel at home and participate in tomorrow's rapidly changing society, becoming informed and discriminating consumers or, hopefully, free thinking and dynamic innovators.

DESIGN AND TECHNOLOGY IN THE LOWER AND MIDDLE SCHOOL (First, Second & Third Years)

The aim of all technology lessons in this age range is to get students designing and making as soon as possible. It starts in the first year with a simple project and progresses through to the third year with the introduction of different materials and processes and a mixture of more complicated design tasks and problems.

First Years

The year group is divided into three teaching groups, with one group taking resistant materials, one group taking food and one group ICT. Each group then has a five week session in each area, completing two rotations within the year. During the year students are following the theme of the "gift shop". Initially, in Resistant Materials, they will be working with and exploring the memory properties of acrylic, and they will design and make a range of key fobs. In the second module they are set a theme, and they design and make a clock, using the process of vacuum forming. In Food Technology the students base their work on snack-type food. The notion of quality is very important for both gifts and snacks.

Second Year

In the Second Year the students do three rotations with ICT. Their first project involves the use of acrylic and the designing of a picture frame or candle holder and making of molds for casting of polyester resin. The second project is a competitive "egg race" with vehicles having to survive a crash and also travel the furthest distance to win. Student's individual scores are added to their house total in the Science Quiz. The third project involves the marketing of an LCD thermometer or a watch. Food Technologists are in a rotation with Art; they have to consider and prepare suitable items for a buffet

Third Year

In the third year the students are given the theme of storage. They spend time researching a need before designing and developing a product. This project relies heavily on the use of machine tools. At the same time the they have the task of designing an item of jewellery which they cast in pewter, and they also make a ring using silver. The year is rounded off with either an hydraulics or a structures project, where it is not unusual to see 15 grams of balsa wood, and card support a weight of over 5Kg. For Food Technology, students investigate the possibilities of the student diet on a budget.

DESIGN AND TECHNOLOGY IN THE UPPER SCHOOL (Fourth & Fifth Years)

The Department is in the fortunate position of being at the centre of modern fashion trends. Both food and aspects of design are the mainstay of current television schedules and the depth of interest is taken further, especially in the case of food, by the publishing industry. It is therefore one of the aims of the Department to reflect what is going on in society and give the students a chance to emulate the real world in the work they do.

In our increasingly technological age, there is a real need for students to be aware of technology, how it affects our lives and how we can apply it to our own advantage. Students interested in engineering, industry, product design, architecture, graphics for advertising and interior design or in he huge range of opportunities offered by the food industry will all benefit from such a course.

Design and Technology requires students to combine their designing and making skills with knowledge and understanding in order to design and make projects. They can choose to work in one of two areas: either Resistant Materials Technology or Food Technology. There is a common syllabus content which requires students to study such areas as: Products & Applications, Quality, Information Technology and Health & Safety.

Aims of the Course

- To develop knowledge, skill and understanding of technology.
- To encourage students to identify opportunities for technological activity and apply their skills safely and effectively.
- To develop the confidence and capability to design, make and critically analyse and evaluate systems, artifacts and environments.
- To develop the knowledge and skills required for the effective and safe organisation and management of relevant resources, and the use of tools, equipment and materials safely and efficiently.
- To ensure quality through thorough planning and testing.
- To apply and develop a high level of ICT capacity in order to communicate and also to support

Syllabus AQA Design and Technology Syllabus number 3545

either Materials Technology
or Food Technology

Assessment

A coursework project	60%
A written paper	40%

Coursework Project (40 hours)

Students choose their own design brief and work in their preferred material, i.e. materials or food. The aim is to produce an integrated project, using knowledge and skills from the preferred material. It is important that the students are able to think creatively. It is not enough simply to copy a design or recipe, but they may take an existing object or idea as a starting point and develop it further. All their work is recorded in a design folder.

Written paper (1½ hours)

Students will be tested on their knowledge and understanding of designing and making in the material of their choice (that is materials or food). A preparation sheet is issued at the beginning of March in the year of the examination, which will give advance notice of the design context of the questions.

DESIGN TECHNOLOGY IN THE SIXTH FORM

A level

Aims

- provide an opportunity for students to develop their own creativity, capability, entrepreneurial skills, develop critical thinking and collaborative skills;
- encourage the development of independent learning, creativity and innovation;
- support the integration of work-related learning and links to the industrial and commercial world;
- provide opportunities for developing and generating evidence for assessing the six Key Skills of: communication, number, ICT, problem solving, working with others and self assessment;
- encourage the use of initiative, risk taking and decision making: skills, identified by the CBI, that many students lack;

- develop a critical understanding of the influences of the processes and products of design and technological activity from a historical perspective and in current practice;
- apply essential knowledge, understanding and skills of design production processes to a range of technological activities and develop an understanding of industrial practices;
- use Information and Communications Technology (ICT) to enhance their design and technological capability;
- develop as discerning consumers, able to make informed choices.

Syllabus Edexcel 8094 (AS) and 9094 (A2)

Assessment pattern

	Product Design	Food Technology
AS Unit 1	Product Development I Project chosen by the student, designed and made by her. Covers all of the skills related to Designing and Making, i.e. researching, generating and developing ideas, solving problems, detail designing, communicating ideas and information, planning, evaluating, using ICT and working with materials. Recent work has included: furniture, storage, games and aids for the elderly.	Product Development I Project chosen by the student, researched, designed and prepared by her. Examples include: low fat desserts, sports drinks, children's teatime meals, omega 3 rich dishes for teenagers.
AS Unit 2	Knowledge & Understanding of Product Design Learning about materials and components, processes, manufacture and quality and design in practice.	Knowledge & Understanding of Food Technology Manufacturing and production processes, packaging and distribution, food additives, macro nutrients, the consumer and society.
AS Unit 3	Further Study of Product Design The study of modern technologies and materials, such as smart materials, product manufacture, design in practice and advertising and marketing.	Further Study of Food Technology Food commodities, microbiology, selection of materials, nutrition and value issues.
AS Unit 4	Product Development II This project can either be a completely new project or development of the project from unit 1 but with emphasis on working for a client, commercial techniques and scales of production.	Product Development II A development of unit 1 with the emphasis on a client driven brief and mass production.

Careers include:
- Product Design, 3D Design, Furniture Design, Industrial Design, Interior Design, Materials Science
- Food Science, Food Technology, Food and Consumer Studies, Food Economics, Food Marketing Management