

Welcome to the Technology Department

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Subject Overview

Design and Technology prepares students to participate in today's and tomorrow's rapidly changing technological world. Through Design and Technology, all students can become critical and informed users of products, and become designers and innovators. Students will learn to think and do something creative to improve the quality of life for everyone.

Design and Technology is about students becoming self-motivated, creative, problem solvers, and allows them to work both as individuals and as members of a team. Students will look for needs, wants and opportunities and respond to them by developing a range of design ideas and by making and evaluating products and systems. In Design and Technology students will combine practical skills with an understanding of aesthetics, social issues, environmental issues, function, and industrial practices. Students will consider the use and effects of present and past Design and Technology.

Key Stage 3: Years 7 and 8

In Key Stage 3 the department follows a modular approach through an in-house designed curriculum which covers Product Design, Graphics, Electronics, Food, Textiles and Engineering. The subject is delivered in 3 hours per week for Year 7 and 2 hours per week for Year 8.

Key Stage 4: Years 9, 10 and 11

In key stage 4 students can choose to take one GCSE from several on offer. In Year 9 Food Preparation and Nutrition (OCR) and Design and Technology (AQA) are offered. In Year 10 Graphic Products (AQA), Resistant Materials (AQA) and Food Preparation and Nutrition (OCR) are offered. In Year 11 Food Technology (OCR), Textiles Technology (OCR), Resistant Materials (AQA), Graphic Products (AQA) and Engineering (AQA) are offered. Year 9 and 10 students will complete investigations and assignments. Year 11 Technology students will be following a design process project module to complete the 60% coursework part of the examination. A 2.5 hour block of time is allocated in Years 9, 10 and 11.

Post 16

At Post 16 the department offers two courses: AS/A Product Design (AQA) and AS/A Food Technology (Edexcel). The courses have a strong uptake by students each year, and we have worked hard to develop and improve each subject profile. Five hours are allocated per week for AS and A level courses.

Teaching Aims and Objectives

Studying Design Technology will help students to:

1. Be informed on matters of Design and Technology, which are useful in everyday life in our society and, for some students, needed for further study in Design and Technology.
2. Be conscious of the impact on their lives of the rapid change in our technological society, e.g. the use of computers as a resource across the ability range, and the increased use of computer aided design and computer aided machining.
3. Have an appreciation of, and concern for, the effect of and the need to apply scientific knowledge to technical, economic, and social development.
4. Use a rational approach in order to solve practical problems.
5. Learn to predict consequences: that is, to relate cause and effect.
6. Gain improved communication skills (comprehension, literacy, numeracy, and graphicacy).
7. Exercise self-discipline, shown by students assuming personal responsibility for their actions as well as in their co-operation with others.
8. Gain improved organisational skills while working both individually, and as individuals within a group.
9. Apply scientific and mathematical principles in a technological environment and vice versa.

Course Information

Key Stage 3

Years 7 and 8: In Key Stage 3 the department follows a modular approach through an in-house designed curriculum which covers Product Design, Graphics, Electronics, Food Technology, Textiles, and Engineering. The subject is delivered in 3 hours per week for Year 7, and 2 hours per week for Year 8. The tasks that are set throughout these two years follow the design process which builds on students' experience and allows for the progression of the individual by offering tasks and outcomes that are negotiated. Students work within a design process framework that starts with an initial problem, and then goes on to design, make, test and evaluate a solution to that original problem. The solution will be an outcome that is realised in appropriate materials, mostly chosen by the student. Additional short focused practical tasks are set at appropriate times over the year to offer a valuable enrichment to our programme of study.

In Year 7 students will rotate between 4 modules in the year:
Product Design, Structures, Textiles, Electronics/Graphics and Food Technology.

In Year 8 students will rotate between 4 modules in the year in preparation for GCSE:
Engineering, Product Design, Graphics, and Food Technology.

Key Stage 4

Year 9: Students can choose to take a Design Technology course in either: Food Preparation and Nutrition or Design and Technology. Most of the specification

is taught during this year through investigations, assignments, minor projects and practical work.

Year 10: Students can choose to take a Design Technology course in either: Food Preparation and Nutrition, Graphic Products Technology or Resistant Materials Technology. Most of the specification is taught during this year through investigations, assignments, minor projects and practical work. The major coursework project is started during the half term of the summer term.

Year 11: One and a half terms are spent completing the major coursework project up to half term in the spring term. The remaining time is spent on revision and preparation for the final written papers.

Post 16

Year 12: The Product Design course encourages students to develop their graphical and presentation skills whilst concentrating on working with a variety woods, metals and plastics with relevant tools, equipment and machinery to design and make products as solutions to design problems and briefs.

In Year 12 Product Design students prepare for the Unit 2 “Learning through Designing and Making” coursework project, as part of the coursework element of the AS exam. They will also take the Unit 1 “Materials, Components and Application” written paper at the end of the year. During the last term of Year 12 students will start their major project which consists of a design study. This is then turned into a realised product (Unit 4: Design and Making Practice).

In Year 12 Food Technology students cover a wide range of elements related to industrial food products and practices. It involves the use of food in a range of commercial applications. In Year 12 units 1 and 2 are taught.

Year 13: The A2 level Design Technology can be continued in either Food Technology or Product Design.

In Year 13, Product Design students continue with their major project which consists of Major Project Unit 4: Design and Making Practice. At the end of Year 13 students also take an A2 written paper Unit 3: Design and Manufacture.

In Year 13, Food Technology students cover a wide range of elements related to industrial food products and practices. The course involves the use of food in a range of commercial applications. In Year 13 units 3 and 4 are taught.

Homework Expectations (Including ICT resources and websites)

Students in Years 7 and 8 are set homework once a week. Students will be expected to complete the design process classwork and extend their knowledge and understanding through specific homework as part of each course they are studying.

GCSE students are set homework once a week to meet the demands of the course. The homework will include completing design based tasks, past paper exam questions and tasks related to the individual specification being taught. There may be occasions when more weekly homework is necessary.

A Level students are expected to support their study with extra research and wider reading. During the coursework project phase students are expected to allocate additional time at school and at home to complete outstanding coursework.

Additional homework resources can be found at:

<http://www.howstuffworks.com/>

<http://www.technologystudent.com/>

<http://www.bbc.co.uk/schools/gcsebitesize/design/>

<http://www.design-technology.info/revisionguides/>

Extra-Curricular Opportunities

Regular after school activities for all Technology and Engineering students take place. These include Technology clubs for KS3 and KS4 students to extend and complete their coursework and classwork. Clubs in Food Technology and Product Design/Graphics/Engineering take place on Tuesdays and Thursdays after school and provide an opportunity for students to extend and complete their classwork and extend their coursework.

Marking and Assessment

Key Stage 3

Dialogic teacher/student marking/feedback/discussion forms the central assessment structure of our marking and assessment which also includes formative and summative assessment. This will inform the progress being made by each student and the areas where improvements are required. We will assess students in every way possible – verbally and written (end of product evaluation), formally and informally - and at every possible occasion to ensure progression over time.

At the start of every key stage 3 module students will target set the areas they wish to improve on. The targets can be from any attainment target within the Technology National Curriculum, or be any target related to other aspects of their work. These targets are recorded on a pink record of achievement which will be collected in at the end of a module and filed with the A3 assessment sheet belonging to the student. This target setting will be reviewed at the end of each module, and relevant progress recorded on department A3 record of achievement sheets. Formative dialogic assessment plays an important part in guiding students towards improving the quality of what they are producing, and folders are seen on as many occasions as possible during a module of work. Written feedback notes are provided for students to respond to and students transfer National Curriculum assessments onto their own record sheets at the end of a module to enable an “at a glance” overview of their own progress. This will also be built up over the Key Stage. The Assessment of Design Technology work is in accordance with National Curriculum requirements, and follows school policy on the Assessment, Recording and Reporting of students work.

At key stage 3 assessment is formally made against the Statements of Attainment for the Technology Attainment Target. This is carried out for all modules. Design and Technology subject staff will mark a module of work and due to the specialist nature of what is covered and achieved not every module will fully cover the complete design process. It is therefore possible for particular attainment target statements to be covered in particular modules due to the nature of the module.

All classwork and homework in key stage 3 are marked and graded to reflect National Curriculum achievement. Awards can be allocated to students at all levels as a continuing reward for effort and quality.

At the end of each year in key stage 3 – students will sit a “base line” test to determine their knowledge understanding of the course so far. The “base line” testing is seen as preparation for taking written papers in key stage 4. Students will also sit an end of year exam which will test generic design knowledge and more subject specific subject knowledge.

Each achievement is recorded on A3 departmental record sheets, which show exactly what each student has achieved and his or her progression.

Key Stage 4

At key stage 4 a grade from A* - G / 9 - 1 is used. In each case a qualifying comment is included, along with an overall understanding fed back to the student of what was required in order to show an improvement. This will be responded to by the student who will ensure that progress can be made with improvement over time.

Sixth Form

At key stage 5 a grade from A - E is used. In each case a qualifying comment is included, along with an overall understanding fed back to the student of what was required in order to show an improvement. This will be responded to by the student who will ensure that progress can be made with improvement over time.

Examinations

GCSE

AQA/OCR Technology and Engineering

AQA Resistant Materials: <http://www.aqa.org.uk/subjects/design-and-technology/gcse/design-and-technology-resistant-materials-4560>

AQA Graphic Products: <http://www.aqa.org.uk/subjects/design-and-technology/gcse/design-and-technology-graphic-products-4550>

AQA Engineering: <http://www.aqa.org.uk/subjects/engineering/gcse/engineering-4850>

AQA Design and Technology: <http://www.aqa.org.uk/subjects/design-and-technology/gcse/design-and-technology-8552>

OCR Food Technology: <http://www.ocr.org.uk/qualifications/gcse-design-and-technology-food-technology-j302-from-2012/>

OCR Textiles Technology: <http://www.ocr.org.uk/qualifications/gcse-design-and-technology-textiles-technology-j307-from-2012/>

OCR Food Preparation and Nutrition: <http://www.ocr.org.uk/qualifications/gcse-food-preparation-and-nutrition-j309-from-2016/>

Students take one examination and produce one Controlled Assessment over the two/three year period.

Paper 1 – (1/1 ½/2 hours) applied theory and practice. Worth 40%/50% of the GCSE

Controlled Assessment: one/two (food/textiles) two Controlled Assessments worth, in total, 60%/50% of the final grade.

A level

AQA Product Design: <http://www.aqa.org.uk/subjects/design-and-technology/as-and-a-level/design-and-technology-product-design-3d-2550>

Edexcel Food Technology: <http://qualifications.pearson.com/en/qualifications/edexcel-a-levels/design-technology-food-technology-2008.html>

AQA Product Design and Food Technology

Students take one exam and prepare one coursework project at both AS and A2 Level.

AS

Exam (2 hours): to test Materials, Components and Application written paper.
Coursework – set by the student and agreed with the exam board to cover Product Development coursework / Learning through Designing and Making coursework project.

A2

Exam (2 hours): to test Materials, Components and Application written paper.

Coursework – set by the student and agreed with the exam board to cover Product Development coursework project / Design and Making Practice.