



AIM AND PURPOSE

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of all students at The Totteridge Academy.

HOW DOES THE CURRICULUM INDUCT STUDENTS INTO THE DISCIPLINE OF THE SUBJECT?

At The Totteridge Academy, students of Design and Technology will improve their manual dexterity, problem solving and spatial perception, whilst engaged in designing and making a variety of products for many and varied contexts. Pupils will learn about wood, polymers, metals and food through a series of design and make projects that are taught on a carousel in KS3. This means that students will spend a term learning about one material, such as polymers, or Food, and then go on the next term to a new teacher and topic area.

Consequently, Design and Technology is unique amongst subjects as it teaches craft and machine skills alongside critical thinking, creativity, a sense of aesthetics and problem solving.





OVERVIEW

KS3 Design and Technology follows a carousel system and in Year 7 pupils will rotate between Product Design and Food and Nutrition. All pupils in Year 7 will design and make products in their respective rotation subject. Within the Year 7 curriculum, elements of the AQA GCSE in Design and Technology course are introduced in Product Design lessons and projects are delivered to get pupils prepared for GCSE style NEA coursework. This allows pupils to be more familiar in the style and type of work that is expected at GCSE level. Pupils will complete all theory and design work in booklets and product a piece of practical work, which will be assessed at the end of the rotation. Pupils are assessed in their ability to be: Skilful, Analytical and Creative.

Rotation

Focus

Assessment

Product Design

- **Jitterbot project (Electronics & Polymers)**
 - Electronic circuits, systems and symbols
 - Vacuum forming and mould making
 - Designing products
 - Thermoplastics
 - Soldering Safety and Tools
 - Evaluating
 - This project will be a mini-GCSE type project that follows the GCSE format of Investigation-Design-Making-Evaluating

Assessment against Skilful, Creative, Analytical headings during rotation

Product Design

- **Clock (Timber)**
 - GCSE standard tolerances in measuring
 - Developing ideas
 - Designing in groups/consultancies
 - Workshop practice
 - Woodworking tools and use
 - Health and Safety
 - Tool recognition

Assessment Against Skilful, Creative, Analytical headings during rotation

Food and Nutrition

- **Food**
 - Hygiene and Safety
 - The Eatwell Guide
 - Healthy Eating
 - Food Storage
 - Practical making recipes including salads, scones
 - Practical experience of using kitchen equipment, weights and measures to produce a variety of dishes.

Assessment Against Skilful, Creative, Analytical headings during rotation

Home Learning:

- Fortnightly homework in each project

Useful resources:

- www.technologystudent.com
- www.sketchup.com



OVERVIEW

KS3 Design and Technology follows a carousel system and in Year 8 pupils will rotate between Product Design and Food and Nutrition. All pupils in Year 8 will design and make products in their retrospective rotation subject. Within the Year 8 curriculum, elements of the AQA GCSE in Design and Technology course are introduced in Product Design lessons and projects are delivered to get pupils prepared for GCSE style NEA coursework. This allows pupils to be more familiar in the style and type of work that is expected at GCSE level. Pupils will complete all theory and design work in booklets and product a piece of practical work, which will be assessed at the end of the rotation. Pupils are assessed in their ability to be: Skilful, Analytical and Creative.

Rotation

Focus

Assessment

Product Design

- **Acrylic Phone holder project**
 - Design work and drawing skill
 - CAD using 2dDesign
 - Advanced machinery
 - Acrylic thermoforming
 - Polymer recycling
 - This project will be a mini-GCSE type project that follows the GCSE format of Investigation-Design-Making-Evaluating

Assessment
Against
Skilful,
Creative,
Analytical
headings during
rotation

Product Design

- **Cams and Levers**
 - Computer aided design / Computer aided manufacture
 - Workshop practice and joinery
 - Woodworking tools and use
 - Types of motion / levers
 - Health and Safety
 - Tool recognition
 - Health and Safety
 - Categorisation of Timbers

Assessment
Against
Skilful,
Creative,
Analytical
headings during
rotation

Food and Nutrition

- **Food Science rotation**
 - Food Sustainability using fresh, local ingredients
 - Food sources and origins
 - Food Safety
 - Macro and Micronutrients
 - Introducing special equipment such as Food Processors
 - Practical making a variety of recipes such as chicken fajitas
 - Food Tech rooms health and safety – including hygiene

Assessment
Against
Skilful,
Creative,
Analytical
headings during
rotation

Home Learning:

- Design and CAD based homework.
- Creating and developing recipes homework

Useful resources:

- www.technologystudent.com
- www.sketchup.com



OVERVIEW

KS3 Design and Technology follows a carousel system and in Year 9 pupils will rotate between Product Design and Food and Nutrition. All pupils in Year 9 will design and make products in their retrospective rotation subject. Within the Year 9 curriculum, elements of the AQA GCSE in Design and Technology course are introduced in Product Design lessons and projects are delivered to get pupils prepared for GCSE style NEA coursework. This allows pupils to be more familiar in the style and type of work that is expected at GCSE level. Pupils will complete all theory and design work in booklets and product a piece of practical work, which will be assessed at the end of the rotation. Pupils are assessed in their ability to be: Skilful, Analytical and Creative.

Rotation

Focus

Assessment

Product Design

- **Desk top lamp**
 - CAD/CAM
 - Multi material application in the workshop
 - Plastics recycling
 - Metal categorisation
 - Advanced workshop skill
 - Electronic circuit
 - This project will be a mini-GCSE type project that follows the GCSE format of Investigation-Design-Making-Evaluating

Assessment
Against
Skilful,
Creative,
Analytical
headings
during rotation

Product Design

- **Structures and Rollercoaster**
 - shell and frame structures
 - Buildings around the world
 - Beams, columns and cantilevers
 - Designing
 - teamworking
 - Building a working rollercoaster
 - Papers and boards
 - modelmaking

Assessment
Against
Skilful,
Creative,
Analytical
headings
during rotation

Food and Nutrition

- **Diet and Nutrition rotation**
 - Nutritional analysis
 - Nutrients
 - Sensory analysis
 - Elasticity, thickeners and raising agents
 - Cooking techniques and heat transfer
 - Practical making recipes such as stir fry and spring rolls
 - Food Tech rooms health and safety – including hygiene
 - Practical experience of using special equipment such as electric whisks

Assessment
Against
Skilful,
Creative,
Analytical
headings
during rotation

Home Learning:

- Design and CAD based homework.
- Creating and developing recipes homework

Useful resources:

- www.technologystudent.com
- www.sketchup.com



OVERVIEW

In Year 10 pupils are introduced fully to the AQA GCSE Specification in Food and Nutrition. Lessons are constructed around mini projects that focus on the 12 practical AQA specification skills. These projects are completed alongside the theory part of the course. The theory comprises food investigation tasks such as Food, Nutrition and Health, Food Provenance and Food Science Skills.

Term	Focus	Assessment
Aut 1	Mini Project: Food Science Skills - Students investigate ingredients for a particular food product. For example, investigating different raising agents and their effect on ingredients. Core Theory Food Science and Food Safety	On going assessment
Aut 2	Mini Project: Food, Nutrition and Health Students investigate the properties of different nutrients and critically evaluate their work. Core Theory Nutrition and Health Mock exams	On going assessment Assessment
Spr 1	Mini Project: Environmental and Sustainability Task (Fairtrade Research) Students learn how to apply sustainable cooking methods to their own practice. Core Theory Food Provenance.	On going assessment Mock exam
Spr 2	Mini Project: Introduction to Food Preparation task (Trial NEA). Students hone their primary and secondary research skills, building up a portfolio and creating their own menus Core Theory Nutrition and Health, Food Safety and Food Choice.	On going assessment
Sum 1	Mini Project: Introduction to Food Preparation task (Trial NEA). continued	On going assessment
Sum 2	Summer 1 Continued. Practical Mock exam Introduction to Y11 NEA	On going Assessment Year end exam

Home Learning:

- Research
- Planning activities, booklet work

Useful resources:

- www.senecalearning.com
- BBC Bite size GCSE AQA Food and Nutrition



OVERVIEW

In Year 10 pupils are introduced to the AQA GCSE Specification in Design and Technology. Lessons are constructed around the 50% split between theory and project work. There is no external exam in Year 10. Students study the core theory around materials, industry and enterprise, sustainability, manufacturing

Term	Focus	Assessment
Aut 1	Project: Skills box - Pupils make a wooden box with different wood joints to improve their manual dexterity through using hand tools. Core Theory	On going assessment
Aut 2	Project: Skills box - Continued. Practical with CAD/CAM applied to correct tolerances for lid and base. Core Theory Mock exams	On going assessment
Spr 1	Biomimicry inspired LED lamp Trial NEA project 15-page folder and made product Specialist Wood and wood products Theory	On going assessment Mid year exam
Spr 2	Biomimicry inspired LED lamp Trial NEA project 15-page folder and made product Designing and Making Principles	On going assessment
Sum 1	Biomimicry inspired LED lamp Trial NEA project 15-page folder and made product Designing and Making Principles	On going assessment
Sum 2	NEA – GCSE • Once NEA themes have been released pupils will start their final project. • Section 1 Investigating and research • End of year exam	Year end exam

Home Learning:

- Research
- Designing activities

Useful resources:

- www.senecalearning.com
- BBC Bite size GCSE AQA Design and Technology



OVERVIEW

In Year 11 pupils continue to undertake their final NEA project which contributes to 50% of their final GCSE grade. Recap and revision of Units 1, 2 and 3 takes place in conjunction of the NEA final assessment in preparation for the exam. The exam element is also worth 50% of their final GCSE mark.

Term	Focus	Assessment
Aut 1	NEA – GCSE <ul style="list-style-type: none">• Investigations• Design brief and Specification• Generating Design Ideas	On going NEA assessment
Aut 2	NEA – GCSE <ul style="list-style-type: none">• Developing Design Ideas.• Mock exams	On going NEA assessment
Spr 1	NEA – GCSE <ul style="list-style-type: none">• Realising Design Ideas• Evaluating the whole Project.• Mock exam	On going NEA assessment
Spr 2	Core Theory revision <ul style="list-style-type: none">• Specialist Technical Theory revision.• Designing and Making Principles revision	On going assessment
Sum 1	Exam practice <ul style="list-style-type: none">• Further Revision• Exam.	On going assessment
Sum 2		

Home Learning:

- Quizzes
- Revision activities

Useful resources:

- www.senecalearning.com
- BBC Bite size GCSE Design and Technology