



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.

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, students complete Product Design projects in order to acquire the skills and knowledge required to become creative and proficient designers, makers and craftspeople. Pupils will complete all theory and design work in booklets and produce 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 respective rotation subject. Within the Year 8 curriculum, students complete Product Design projects in order to acquire the skills and knowledge required to become creative and proficient designers, makers and craftspeople. Pupils will complete all theory and design work in booklets and produce 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

- **Investigating Acrylic project**
 - Design work and drawing skills
 - 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 respective rotation subject. Within the Year 9 curriculum, students complete Product Design projects in order to acquire the skills and knowledge required to become creative and proficient designers, makers and craftspeople. Pupils will complete all theory and design work in booklets and produce 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 skills
 - 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

- **Geometric Jewellery**
 - Investigate the work of Marianne Brandt and Raymond Templier
 - Drawn and annotated designs
 - Learning how to use 2dDesign for laser-cut drawings
 - Produce finished CAD designs and cutline templates
 - Learn how to 'chase,' file and polish pewter
 - Learn how to use jewellery findings
 - Evaluate project in folder

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 to the AQA GCSE Specification in Food and Nutrition. Students are introduced to Oriental and Middle Eastern cuisines that specialise in complex spices and unusual cooking skills such as cooking in a wok and dry frying of spices. Students learn skills in preparing specialised diets such as those for medical conditions and sports people. Students learn food investigation tasks to compare different baking methods.

Term	Focus	Assessment
Aut 1	<p>Mini Project: Food Science Skills</p> <ul style="list-style-type: none"> 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 	Ongoing assessment
Aut 2	<p>Mini Project: Food, Nutrition and Health</p> <ul style="list-style-type: none"> Students investigate the properties of different nutrients and critically evaluate their work. Core Theory: Nutrition and Health Mock exams 	Ongoing assessment Assessment
Spr 1	<p>Mini Project: Environmental and Sustainability Task (Fairtrade Research)</p> <ul style="list-style-type: none"> Students learn how to apply sustainable cooking methods to their own practice. Core Theory: Food Provenance. 	Ongoing assessment Mock exam
Spr 2	<p>Mini Project: Introduction to Food Preparation task (Trial NEA).</p> <ul style="list-style-type: none"> 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. 	Ongoing assessment
Sum 1	<p>Mini Project: Introduction to Food Preparation task (Trial NEA). continued</p>	Ongoing assessment
Sum 2	<p>Summer 1 Continued. Practical Mock exam</p> <p>Introduction to Y11 NEA</p>	Ongoing 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 EDUQAS 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 wood theory and core theory around materials, industry and enterprise, sustainability and manufacturing.

Term	Focus	Assessment
Aut 1	Project: Skills box <ul style="list-style-type: none">Pupils make a wooden box with different wood joints to improve their manual dexterity through using hand tools.Theory: Specialist Wood and wood products	Ongoing assessment
Aut 2	Project: Skills box - Continued. <ul style="list-style-type: none">Practical with CAD/CAM applied to correct tolerances for lid and base.Theory: Specialist Wood and wood products	Ongoing assessment
Spr 1	<ul style="list-style-type: none">Biomimicry inspired LED lamp Trial NEA project - 15-page folder and made productCore Theory	Ongoing assessment Mid year exam
Spr 2	<ul style="list-style-type: none">Biomimicry inspired LED lamp Trial NEA project 15-page folder and made productCore Theory	Ongoing assessment
Sum 1	<ul style="list-style-type: none">Biomimicry inspired LED lamp Trial NEA project 15-page folder and made productDesigning and Making Principles	Ongoing assessment
Sum 2	NEA – GCSE <ul style="list-style-type: none">Once NEA themes have been released, pupils will start their final project.Section 1 Investigating and researchEnd of year exam	End of year exam

Home Learning:

- Research
- Designing activities

Useful resources:

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



OVERVIEW

In Year 10, pupils are introduced to the EDUQAS Vocational qualification in Construction. We will focus on teaching 3 different skills and make a variety of projects throughout the year. Pupils will learn about working safely on building sites. Students will also learn about Building Law in the anticipation that they will go on to full time employment on building sites in the local area. As with the GCSE, there is no examined work in Y10 but the project themes will be released in the final summer term for work in y11.

Term	Focus	Assessment
Aut 1	Woodworking skills <ul style="list-style-type: none"> Students will learn a range of different wood working skills and create projects demonstrating their skills in different wood joints. Unit 1 Theory: The Sector, The Built Environment life Cycle 	Ongoing assessment
Aut 2	Woodworking skills <ul style="list-style-type: none"> Students will learn a range of different wood working skills and create projects demonstrating their skills in different wood joints. Unit 1 Theory: Types of Building and Structure, Technologies and Materials 	On going assessment
Spr 1	Painting and Decorating Skills <ul style="list-style-type: none"> Students will learn how to prepare and paint walls and woodwork and work on real projects within the school. Unit 1 Theory: Building Structures and Forms, Sustainable Construction Methods 	Ongoing assessment Mid year exam
Spr 2	Plumbing skills <ul style="list-style-type: none"> Students will learn a range of plumbing skills including soldering, plastic pipes and compression fittings Unit 1 Theory: Trades Employment and Careers, Health and Safety 	Ongoing assessment
Sum 1	Plumbing skills <ul style="list-style-type: none"> Students will learn a range of plumbing skills including soldering, plastic pipes and compression fittings Unit 1 Theory: Revision 	Ongoing assessment
Sum 2	Unit 3 60% of the award <ul style="list-style-type: none"> EDUQAS EXAM BOARD TO RELEASE TOPIC FOR CONSTRUCTION PROJECT Students to begin work on this project which will take 30hrs. 	End of year exam

Home Learning: A range of homework tasks will be set relating to students' current project or to aid revision of relevant theory

Useful resources:

www.Constructionnews.co.uk



OVERVIEW

The Year 11 Food Preparation and Nutrition course allows students to undertake the whole AQA GCSE specification as a mock run for a final exam on May. 12 practical AQA specification skills will be assessed throughout the year. The course has been set out to teach the students the demands of GCSE Food Preparation and Nutrition, both theory and practical skills.

Term	Focus	Assessment
Aut 1	Food Investigation Task <ul style="list-style-type: none"> 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 	Ongoing assessment Exam practice
Aut 2	Three dishes menu planning coursework <ul style="list-style-type: none"> Students aim to start their coursework to plan prepare and present a dish in three hours. Students learn to demonstrate a variety of food preparation/technical skills; learn how to accurately analyse and evaluate their work including with sensory evaluations. Learn how to produce a time plan 	On going assessment Exam practice
Spr 1	Three dishes menu planning coursework <ul style="list-style-type: none"> Students continue with their coursework to plan prepare and present a dish in three hours. Students learn to demonstrate a variety of food preparation/technical skills; learn how to accurately analyse and evaluate their work including with sensory evaluations. Learn how to produce a time plan 	Ongoing assessment Exam practice
Spr 2	Three dishes menu planning coursework <ul style="list-style-type: none"> Students practise their final dishes and ensure they can be produced in 3 hours. Exam practice revision sessions Final coursework practice before final submission by the end of Spring 2 term 	Ongoing assessment Exam practice
Sum 1	Exam practice and final exams <ul style="list-style-type: none"> Further Revision 	Exam practice AQA exam
Sum 2		

Home Learning:

- Research, coursework project
- Planning activities, booklet work, GCSE CGP books

Useful resources:

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



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 with the NEA final assessment in preparation for the exam.

The 2hr 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 and Developing Design Ideas	Ongoing NEA assessment
Aut 2	NEA – GCSE <ul style="list-style-type: none">• Generating and Developing Design Ideas.• Realising Design Ideas• Preparation for mock exams	Ongoing NEA assessment Mock exams
Spr 1	NEA – GCSE <ul style="list-style-type: none">• Realising Design Ideas• Completion of NEA	Ongoing NEA assessment
Spr 2	Core Theory revision <ul style="list-style-type: none">• Evaluating the NEA project• Specialist Technical Theory revision• Designing and Making Principles revision	Ongoing assessment Mock exams
Sum 1	Exam practice <ul style="list-style-type: none">• Further Revision• Final exams	Ongoing assessment
Sum 2		

Home Learning:

- Quizzes
- Revision activities

Useful resources:

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