Henlow Academy DT Curriculum Information

Intent

Key Stage 3
- To develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- To learn and build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.
- To critique, evaluate and test their ideas and products and the work of others.
- To establish the 'Design Process' concepts in DT.

Key Stage 4
The GCSE in Design and Technology enables students to understand and apply iterative design processes through which they explore, create and evaluate a range of outcomes. The qualification enables students to use creativity and imagination to design and make prototypes (together with evidence of modelling to develop and prove product concept and function) that solve real and relevant problems, considering their own and others' needs, wants and values. It gives students opportunities to apply knowledge from other disciplines, including mathematics, science, art and design, computing and the humanities.

Students will acquire subject knowledge in design and technology that builds on Key Stage 3, incorporating knowledge and understanding of different materials and manufacturing processes in order to design and make, with confidence, prototypes in response to issues, needs, problems and opportunities.

Students learn how to take design risks, helping them to become resourceful, innovative and enterprising citizens. They should develop an awareness of practices from the creative, engineering and manufacturing industries. Through the critique of the outcomes of design and technology activity, both historic and present day, students should develop an understanding of its impact on daily life and the wider world and understand that high-quality design and technology is important to the creativity, culture, sustainability, wealth and wellbeing of the nation and the global community. In the context of this document, the term 'prototype' refers to a functioning design outcome. A final prototype could be a highly-finished product, made as proof of concept before manufacture, or working scale models of a system where a full-size product would be impractical.

Implementation

Key Stage 3
- All follow the 'Design Process' within KS3 and complete a booklet along side their practical piece.
- Year 7 and Year 8 follow approximately a nine-week rotation throughout the academic year. This includes DT, Food, Art and Textiles.
- Year 9 students will choose their options and are taught throughout the year to gain further depth into this subject. This will build the foundations for GCSE in Design & Technology. Homework is set this year.
- Optional topics to enrich and enthuse the students' enjoyment of DT last year included the 'Travel Game' and 'Pop-up book' projects and this year we are designing and making wreaths.

Key Stage 4
Course break down
50% exam
50% coursework
Submission for both is in Year 11

Exam assessment overview
There will be Maths questions throughout the paper and calculators will be needed for the exam.
Section A: Core
This section is 40 marks and contains a mixture of different question styles, including open-response, graphical, calculation and extended-open-response questions.
There will be 10 marks of calculation questions in Section A.
Section B: Timbers.
This section is 60 marks and contains a mixture of different question styles, including open-response, graphical, calculation and extended-open-response questions.
There will be 5 marks of calculation questions in Section B.

Coursework assessment overview
Students will undertake a project based on a contextual challenge released by the exam board.
This will be released on 1st June in Year 10.
The project will test students' skills in investigating, designing, making and evaluating a prototype of a product.
A portfolio of approximately 20 x A3 pages and a practical piece will be submitted to the exam board.

Impact

Qualification aims and objectives
The study of design and technology seeks to prepare students to participate confidently and successfully in an increasingly technological world. It helps students to be aware of, and learn from, wider influences on design and technology, including historical, social/cultural, environmental and economic factors. The aims and objectives of this qualification are to enable students to:
- demonstrate their understanding that all design and technological activity takes place in contexts that influence the outcomes of design practice
- develop realistic design proposals as a result of the exploration of design opportunities and users' needs, wants and values
- use imagination, experimentation and combine ideas when designing
- develop the skills to critique and refine their own ideas while designing and making
- communicate their design ideas and decisions using different media and techniques, as appropriate for different audiences at key points in their designing
- develop decision-making skills, including the planning and organisation of time and resources when managing their own project work
- develop a broad knowledge of materials, components and technologies and practical skills to develop high-quality, imaginative and functional prototypes
- be ambitious and open to explore and take design risks in order to stretch the development of design proposals, avoiding clichéd or stereotypical responses
- consider the costs, commercial viability and marketing of products
- demonstrate safe working practices in design and technology use key design and technology terminology, including those related to: designing, innovation and communication; materials and technologies; making, manufacture and production; critiquing, values and ethics.

Year 7 Curriculum Plan

Project		
Theme	**Pencil Box**	
Key Concepts	**Brief Research Analysis Specification Design & Development**	• Task Analysis • ACCESS FM • Research themes linked to a client.
		• Identifying the needs of a client
		• Writing a specification in relation to the needs of a client.
		• Designing and understanding the needs of a client.
		• Develop and communicate design ideas using annotated sketches.
	Manufacture	• Working with a selection of hand tools and machinery. • Using Jigs
	Make	• Risk assessment/ Machines /Tools and equipment • Health and safety practice - Personal responsibilities • Manufacture plan
	Evaluate	• Analyse the work of past and present professionals and others to develop and broaden their understanding. • Looking at careers under the Design & Technology umbrella.
		• Test and evaluate their ideas • Peer evaluation
SMSC and British Values	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 make an essential contribution to the creativity, culture, wealth, sustainability (Fair trade, FSC logo) and well-being of the nation. **Career link: Students can explore a range of careers linked to Design Technology at www.technologystudent.com**	
Parental Support	Look at everyday products and design process to it in terms of the needs of the client and the designer/manufacture perspective.	

Year 8 Curriculum Plan

Project		
Theme	**Sweet Dispenser**	
Key Concepts	**Brief** **Research** **Analysis** **Specification** **Design & Development**	• Task Analysis • ACCESS FM • Research themes linked to a client.
		• Identifying the needs of a client
		• Writing a specification in relation to the needs of a client.
		• Designing and understanding the needs of a client using CAD work to produce the designs.
		• Develop and communicate design ideas using annotated sketches.
	Manufacture	• Working with a selection of hand tools and machinery. • Using Jigs
	Make	• Risk assessment/ Machines /Tools and equipment • Health and safety practice - Personal responsibilities • Manufacture plan
	Evaluate	• Analyse the work of past and present professionals and others to develop and broaden their understanding. • Looking at careers under the Design & Technology umbrella.
		• Test and evaluate their ideas • Peer evaluation
SMSC and British Values	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 make an essential contribution to the creativity, culture, wealth, sustainability (Fair trade, FSC logo) and well-being of the nation. **Career link: Students can explore a range of careers linked to Design Technology at www.technologystudent.com**	
Parental Support	Look at everyday products and design process to it in terms of the needs of the client and the designer/manufacture perspective.	

Year 9 Curriculum Plan

	Project		
Theme	**Term 1** **Mood Light**	**Term 2** **Pewter Keyring & Packaging**	**Term 3** **Abstract Clock**
Key Concepts	**Brief** **Research** **Analysis** **Specification** **Design & Development**	• Task Analysis • ACCESS FM • Research themes linked to a client. • Identifying the needs of a client • Writing a specification in relation to the needs of a client. • Designing and understanding the needs of a client. • Develop and communicate design ideas using annotated sketches.	
	Manufacture	• Using a selection of different materials and processes • Working with a selection of hand tools and machinery. • Using Jigs	
	Make	• Risk assessment/ Machines /Tools and equipment • Health and safety practice - Personal responsibilities • Manufacture plan	
	Evaluate	• Analyse the work of past and present professionals and others to develop and broaden their understanding. • Looking at careers under the Design & Technology umbrella. • Test and evaluate their ideas • Peer evaluation	
SMSC and British Values	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 make an essential contribution to the creativity, culture, wealth, sustainability (Fair trade, FSC logo) and well-being of the nation. **Career link: Students can explore a range of careers linked to Design Technology at** www.technologystudent.com		
Parental Support	Look at everyday products and design process to it in terms of the needs of the client and the designer/manufacture perspective.		

Year 10 Curriculum Plan

	Autumn (Theory and Practical)		Spring		Summer
Theme	**Timbers Theory** **Practical**		**Core Theory** **Practical**		**GCSE Coursework – Investigation, Brief and Specification**
Key Concepts	• Description of materials properties • Soft woods • Sources of timbers • Social footprint • Selection of timber • Social, cultural and ethical factors • Forces and stresses • Hardwoods • Manufactured boards • The physical characteristics of Timber • Deforestation • Cost factors	• Stock form and sizes • Scales of production • Hand tools for marking • Shaping –drilling machinery • Preparation of wood • Wood joints • Surface treatments • Machinery • Techniques for quantity production • Shaping –drilling tools • Cutting • Fabricating and constructing • Assembling and ironmongery **Maths skills** **Money Box practical**	1.1 The impact of new and emerging technologies 1.2 Evaluating new and emerging technologies to inform design decisions 1.3 Energy: generation, storage and choosing appropriate sources 1.4 Smart and composite materials, and technical textiles 1.5 Mechanical devices used to product movement 1.6 Electronic systems 1.7 Programmable components 1.8 Categorisation of ferrous and non-ferrous metals 1.9 Papers and boards 1.10 Thermoforming and thermosetting polymers	1.11 The categorisation of fibres, and textiles 1.13 All design and technological practice takes place within contexts which inform outcomes 1.14 Challenges that influence the processes of design and making 1.15 Investigate and analyse the work of professional and companies to inform design 1.16 Use of different design strategies 1.16 Use of different design strategies 1.17 Using communication techniques to present design ideas **Practical Work**	Coursework – theme set by the exam board • Task analysis • Questionnaires/interviews • Research techniques • Brief • Specification
SMSC and British Values	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 make an essential contribution to the creativity, culture, wealth, sustainability (Fair trade, FSC logo) and well-being of the nation. **Career link: Students can explore a range of careers linked to Design Technology at www.technologystudent.com**				
Parental Support	Ensuring all work is completed on time. Shop visit Revision				

Year 11 Curriculum Plan

	Autumn Term	Spring Term	Summer Term
Theme	Continuation of coursework Design , Development and Make	Continuation of coursework Make and Evaluation	Revision and Final Exam
Key Concepts	Design and Development Coursework Practical piece Revision of theory	Continuation of practical piece Evaluation Revision of theory	Revision Exam
SMSC and British Values	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 make an essential contribution to the creativity, culture, wealth, sustainability (Fair trade, FSC logo) and well-being of the nation. **Career link: Students can explore a range of careers linked to Design Technology at** www.technologystudent.com		
Parental Support	Coursework deadline is due in before the Easter holidays – Date to be confirmed Ensuring all work is completed on time. Revision		

Assessment Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7						First 3 specialisms end of project teacher review
Year 8						First 3 specialisms end of project teacher review
Year 9		End of project teacher review		End of project teacher review		End of project teacher review
Year 10		GCSE Timbers Mock Exam			GCSE Core Mock Exam	
Year 11			GCSE Whole Paper Mock	Coursework deadline		Final Exam