

Year 10 Design and Technology

Year 10 students will be exploring a wide range of materials and processes throughout their first year of the GCSE Design Technology. Students will develop their investigative and problem-solving skills in order to prepare them for their non-examined assessment (NEA) at the start of June. Students will continue working on their non-examined assessment (NEA) before revisiting their theory in preparation for the summer exams.

The Key Stage 4 Design Technology GCSE at Northallerton School & Sixth Form College has been carefully selected from a range of examining bodies to provide flexibility, enjoyment and the right level of challenge to match the needs of the individual.

Methods of deepening and securing knowledge:

Retrieval practice	Theory and practical sessions are used as opportunities to revisit prior learning. Before students embark on any new project, they are reminded of the links to the key theory covered in the course. Students will frequently revisit theory and skills they have used in previous tasks, building knowledge through questioning and further application of tasks. The practical work itself allows students to apply their prior learning in real-life contexts, which helps to secure students' understanding.
Elaboration	Through exciting new projects students are able to elaborate on new making methods and techniques to extend skills further.
Concrete examples	Demonstrations are used to consolidate understanding of processes and techniques.
Knowledge organisers	Knowledge organisers are used to inform students of the skills and techniques used throughout the project and develop research skills needed in the tasks.

	Autumn term 1	Autumn term 2	Spring term 1
Topic(s)	<p>Computer Mouse Project</p> <p>Students will design and make a development model for a computer mouse. During this project students will study Core Technical Principles, Specialist Technical Principles and Designing and Making Principles. To do this students will complete drawing techniques and a theory booklet.</p> <p>Links to GCSE Design Technology</p>	<p>USB Project</p> <p>Students will design and make a USB stick. During this project students will study Core Technical Principles, Specialist Technical Principles and Designing and Making Principles. To do this students will complete a design booklet and a theory booklet.</p> <p>Links to GCSE Design Technology Specification: 3.1.1 New and emerging Technologies</p>	<p>Y10 Mock Exam Preparation</p> <p>Students will use this short term to carry out revision tasks and to consolidate learning in order to prepare for their forthcoming mock exam. Students will use the theory booklets from the mouse and USB projects to form the basis of their revision.</p>

	<p>Specification:</p> <p>3.1.1 New and emerging Technologies</p> <p>3.1.3 Developments in new materials</p> <p>3.1.6.2 Material properties</p> <p>3.3 Designing and making principles</p> <p>3.3.1 Investigation, primary and secondary data</p> <p>3.3.4 Design strategies</p> <p>3.3.5 Communication of design ideas</p> <p>3.3.6 Prototype development</p> <p>3.3.11 Specialist techniques and processes</p>	<p>3.1.6.1 Material categories</p> <p>3.1.6.2 Material properties</p> <p>3.2.4 Sources and origins</p> <p>3.2.5 Using and working with materials</p> <p>3.2.6 Stock forms, types and sizes</p> <p>3.2.7 Scales of production</p> <p>3.2.8 Specialist techniques and processes</p> <p>3.2.9 Surface treatments and finishes</p> <p>3.3 Designing and making principles</p> <p>3.3.1 Investigation, primary and secondary data</p> <p>3.3.4 Design strategies</p> <p>3.3.5 Communication of design ideas</p> <p>3.3.6 Prototype development</p> <p>3.3.7 Selection of materials and components</p> <p>3.3.8 Tolerances</p> <p>3.3.9 Material management</p> <p>3.3.10 Specialist tools and equipment</p> <p>3.3.11 Specialist techniques and processes</p>	
Assessment	Assessment by end of unit test and ongoing assessment.	Assessment by end of unit test and ongoing assessment.	Y10 Mock exam.
CEIAG <i>(Careers that are linked to that topic)</i>	Looking at careers in the automotive industry.	Job opportunities in plastic manufacturing.	

	Spring term 2	Summer term 1	Summer term 2
Topic(s)	<p>Mobile Phone Project</p> <p>Students will design and make a mobile phone model. During this project students will study Core Technical Principles, Specialist Technical Principles and Designing and Making Principles. To do this students will complete a design booklet and a theory booklet.</p>	<p>NEA Preparation (Non-Examination Assessment)</p> <p>Students will use this time to complete the fourth theory booklet and look at past NEA's to research what makes up a good quality portfolio and what a poor one looks like. Principles. To do this students will complete a design booklet and a theory booklet.</p>	<p>Introduction of NEA.</p> <p>Non-Examination Assessment</p> <p>A design and make task completed by the students based on a theme given by the exam board.</p> <p>This task is worth 50% of their overall GCSE Grade.</p>

	<p>Links to GCSE Design Technology Specification:</p> <p>3.1.6.1 Material Categories 3.1.6.2 Material Properties 3.2.4 Sources and origins 3.2.5 Using and working with materials 3.2.6 Stock forms, types and sizes 3.2.8 Specialist techniques and processes 3.2.9 Surface treatments and finishes 3.3 Designing and making principles 3.3.3 The work of others 3.3.4 Design strategies 3.3.5 Communication of design ideas 3.3.6 Prototype development 3.3.9 Material management 3.3.10 Specialist tools and equipment 3.3.11 Specialist techniques and processes</p>	<p>Links to GCSE Design Technology Specification:</p> <p>Core Technical Principles, Specialist Technical Principles and Designing and Making Principles. 3.1.3 Developments in new materials 3.1.6 Materials and their working properties 3.1.6.2 Material properties 3.2 Specialist technical principles 3.2.1 Selection of materials or components 3.2.2 Forces and stresses 3.2.4 Sources and origins 3.2.5 Using and working with materials 3.2.6 Stock forms, types and sizes 3.2.8 Specialist techniques and processes 3.2.9 Surface treatments and finishes 3.3 Designing and making principles 3.3.9 Material management</p>	<p>It will be presented in approximately 20 Pages of A3 written or digital.</p> <p>Students will receive 3 Contextual themes. These change every year. Students will do some research on all 3 before picking one.</p> <p>Students should complete half of the research tasks before the end of the summer term.</p>
Assessment	Assessment by end of unit test and ongoing assessment.	Assessment by end of unit test and ongoing assessment.	Assessment will be ongoing based on their NEA progress..
CEIAG <i>(Careers that are linked to that topic)</i>	Job opportunities in the sustainable timber industry.	Job opportunities in the plastics working industries.	Recognise the place of analysts in industry.

Independent Study

Students in Year 10 have access to the course materials through Google Classroom. Independent study is accessible through this platform and is given either each week or once a fortnight. Independent study is generally used to secure prior learning through practice to develop confidence and memory.