Subject: Design Technology

Year 10



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In Design and Technology, we aim to unlock pupil's creativity and imagination to become the designers of the future. We teach them to be inquisitive about all things design and be inspired by everything around them. We develop students into independent problem solvers, by teaching them how to independently produce bespoke products in response to a given design brief. In Year 10, students will further develop previous knowledge and gain a deeper understanding of all theory aspects of the course in preparation for the Non-Exam Assessment and external exam. Theory lessons will be delivered alongside small focused practical tasks to further embed knowledge. Lesson context is delivered in a range of ways ranging from, lesson PowerPoints, text books, YouTube clips and Seneca. Homework can vary from Seneca tasks to work in student textbooks.

The GCSE NEA commences in the summer term.

	Students get introduced to the GCSE Course and begin further developing their subject knowledge in the following areas:	Assessment		
Autumn Term 1A	 Unit 1 New and Emerging Technologies. Students must know and understand the impact of new and emerging technologies on contemporary and potential future scenarios in relation to the following areas: Industry. The impact of new and emerging technologies on design and the workplace including automation and the use of robotics. Enterprise. Enterprise based on the development of an effective business innovation. Sustainability. The impact of resource consumption on the planet. People. How technology push/market pull affects choice. Changing job roles due to the emergence of new ways of working driven by technological change. Culture. Changes in fashion and trends in relation to new and emergent technologies. Respecting people of different faiths and beliefs Society. How products are designed and made to avoid having a negative impact on others and inclusive design. Environment. Positive and negative impacts new products have on the environment. Production techniques and systems. The future use of automation, computer aided design and computer aided manufacture. Informing Design Decisions. Being made aware of design considerations including planned obsolescence. 	End of unit 1 test. Practical grade for the		
	Practical Task: Bird feeder practical project – Students to design and make a decorative bird feeder with the use of workshop tools and equipment, including the laser cutter. Focus: Health and safety, practical skills in Timber, writing a cutting list, CAD and CAM			
	Students to continue developing their subject knowledge in the following areas:	End of unit 2 test.		
Autumn Term 1B	 Unit 2 Energy generation and storage Students must know and understand how energy is generated and stored and how this is used as the basis for the selection of products and power systems. Fossil Fuels. How power is generated from: coal, gas, oil. Arguments for and against the selection of fossil fuels. Nuclear Power. How nuclear power is generated. Arguments for and against the selection of nuclear power. Renewable energy. The different types, how they are generated and Arguments for and against 			

Unit 3&5 Developments in new materials.

Students must be aware of a broad range of different materials, their properties, stock forms and how to work with these materials. They must be aware of the production techniques, finishes and enhancements for each of the following materials:

Wood and manufactured boards, Polymers, Metal and alloys.

Practical Task: Metal bottle opener practical project – Students to design and make a bottle opener with the use of workshop tools and equipment.

Focus: Health and safety, practical skills in Metal, Quality of Finish.

Practical grade for the metal bottle opener.

	Students to continue developing their subject knowledge in the following areas:	Assessment		
Spring Term 2A	 Unit 3&5 Developments in new materials. Students must be aware of a broad range of different materials, their properties, stock forms and how to work with these materials. They must be aware of the production techniques, finishes and enhancements for each of the following materials: Modern, Smart, Composite and Technical textiles 			
	 Unit 6 Design Principles Students look the different areas required to research and develop a design solution ready for manufacturing. Primary and secondary Investigation. A look into types of research required to develop a product (materials, ergonomics etc). The work of others. Students look at existing products and the work of famous designers, with a specific user group in mind (age, gender, interest etc). 			
	Practical Task: Analysis of a product – Students to critically analyse an existing product using ACCESSFMM. Focus: Critical analysis in a range of areas and formal extending writing techniques.	Analysis of a Product Grade.		
	Students to continue developing their subject knowledge in the following areas:	End of unit 6 test.		
Spring Term 2B	 Unit 6 Design Principles. Students look the different areas required to research and develop a design solution ready for manufacturing. Design Strategies. Issue designers must consider in order to create a successful product (Collaboration, inclusive design, design fixation, testing etc). Communication of Design ideas. Understanding the different ways design are communicated (sketching, Isometric drawing exploded views etc). Practical Task: Design for the future project – Students to redesign a product in order to make it more suitable for a specific group. Focus on developing creative ideas, freehand sketching 			
	techniques and presentation skills.	product.		

Summer Term 3A

Students to continue developing their subject knowledge in the following areas:

Unit 4 Common specialist technical principles.

Students must be aware of a broad range of technical principles such as:

- Mechanical devices (motions, linages, levers, cams and gears),
- Forces and stresses and calculating mechanical advantage.
- Maths content (Areas, volumes, missing lengths, missing angles, graphs, costing)

Practical Task: Solving a range on mathematic problems.

Assessment

End of unit 4 test.

Exam questions

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Introduction to the NEA and the 3 briefs set by the exam board.

Class brainstorming of all three briefs.

One on one review on chosen brief.

Quality of coursework pages.

Introduction to Section A - the 'Contextual challenge' slide

students to write up a context for their chosen brief and research into existing data to support their choice of project.

Introduction to Section A - the 'Client profile' slidestudents to identify a client to interview and inform their project throughout. This will then be written up.

Practical Task: Setting up of NEA Digital Portfolio, Complete Context page, complete Client profile page.

Useful Resources for Supporting Your Child at Home:	Homework:
AQA Assessment Objectives	Revision for ongoing theory covered in textbooks or on Seneca. Coursework with ongoing deadlines.