

Design & Technology Curriculum Map

Intent – Design & Technology will create individuals that can make informed decisions about products and lifestyle that contribute to improved living standards and to a group involving leadership and collaboration. The Design and Technology GCSE will prepare students to participate confidently and successfully in an increasingly technological world. Students will gain awareness and learn from wider influences on Design and Technology including historical, social, cultural, environmental and economic factors. Students will get the opportunity to work creatively when designing and making and apply technical and practical expertise. All our students will explore the dynamic interplay between creativity and functionality in the world of design. They will develop a comprehensive understanding of design process, from initial concept to final product, while honing my skills in critical analysis, problem—solving, and technical proficiency. Students will engage with a variety of materials and technologies, allowing students to innovate and experiment in projects. At Conisborough College we aim to cultivate a mindset that appreciates sustainability and ethical consideration in design. Ultimately being committed to producing thoughtful, user-centered designs that reflect both a personal vision and the needs of society.

	Implementation – Students complete an 8-week projects across four rotations.		
Term	Year 7	Year 8	Year 9
	Investigation • Pop art movement • Exploring how cultures and festivals impact design. Core Technical Principles • 2D design CAD skills developed: Exploring material assembly, joining methods and production techniques. • Laser cutting CAM skills developed: Exploring how the laser cutter work, cutting, etching and how to successfully cut our shapes that assemble. Special Technical Principles • Selection of Materials and Components • Ecological and social footprint Designing and Making Principles • The work of others • Design Strategies Final Project • Jewellery Project Students learn how to investigate areas of inspiration and how to explore cultures and festivals to develop designing skills for specific audiences. Pop Art looks at a movement that inspired artist during a period where traditional artists and designers were competing with technology developments. Pop Art produced a timeless style that is still influential and present in modern day design. During this project students will explore the framework A.C.C.E.S.S.F.M and use this to generate a specification, later use it drive designs and then finally as a tool for evaluating their final product against what they originally set out to achieve. This skill acts as the fundamental layer	Investigation • Design Brief • Customer profile • Product Analysis: existing Eco and Green Buildings. Core technical Principles • CAD/CAM skill development • Sketchup: 3D Modelling • 3D printer: design artefacts Special Technical Principles • Renewable energy and Sustainable materials • Carbon footprint • Introduction to the 6 R's Design and Making Principles • The work of others • Exploring their own design ideas • Communication of design ideas Final Project • Architecture project: Green Eco Building Architecture is a very popular topic in design technology and provides aspirations for young people's lifestyle ambitions. During this project we explore what makes a successful building, how many types of buildings impact on the environment, from construction to general functions and operations. During this project students will explore other existing buildings and how design strategies drive how we can reduce our negative impact on the planet. We look at developing CAD 3D modelling skills, that will support students generating design solutions true to their ideas and help them fulfil a successful outcome that meets the needs of the audience/user. Students look at carbon footprints and how energy impacts the environment. This allows students to reflect on	Investigation • Investigation Primary and Secondary Data • Environmental, Social and Economic Challenges • The Work of Others • Communication of design. Design and Making Principles • Design Strategies • Communicating of designs ideas Final Project • AQA (adapted GCSE project): Students will undertake a design and make activity from one of three contextual challenges set by AQA. This project was designed to prepare students for the GCSE course and give them a differentiated experience of completing a "GCSE like" project that is based on a previous NEA (Non-Exam Assessment) brief. During this project students will Investigate the choices of brief and develop further understanding o the topics they would like to complete. Students will undergo training and designing giving them the skills to deliver a design solution for the audience/user. During this process students will produce a professional standard artefact that can be displayed in public for the target audience and receive feedback by the client/user. The skills learned during this project are valuable for anyone who will undertake logo design, branding, marketing or PR for either the company they work for or their own business. This is a valuable skill for life beyond education and something that can help them independently enhance their businesses footprint in the marketplace. Students will finish KS3 with a clear and precise understanding of what the course involves at KS4 and have experience of what it takes to

	to independently completing the NEA (Non-Exam Assessment) component of this subject. Students are introduced to a range of different materials from plastics group, where they begin to explore both positive and negative impacts of these materials on the environment. During the design process students will consider their target market, the design challenge and the way their product will be manufactured, to select a suitable material. This where students will start their journey to becoming individuals that can confidently make informed decisions about what makes a successful product – and we will continue to develop this skill throughout the Design & Technology course to achieve success at KS4 and beyond. Students will complete the practical component of designing a piece of jewellery that was inspired by Pop Art and produce from materials that are suitable to enhance their designs.	how they use energy at home and in everyday life. Furthermore, we expect our students to then explore how green and sustainable energy can go further when looking at the materials we use in our everyday lives and how this plugs in to the way we function and operate in life. The design skills provide building blocks for the Development section of their NEA (Non-Exam Assessment) and the special technical principles will cover key content needed for the exam at GCSE. Students will complete the design process for creating a Green Eco Building that provides a function within the local community. Students will use aspects of A.C.C.E.S.S.F.M. to consider how the function, aesthetics and materials can improve our impact on the environment both locally, nationally and globally.	complete a contextual design task that fulfils the needs of its audience/user. This experience allows students to relate to the designer, manufacturer and consumer with further knowledge of how decision making can improve the lifecycle, lifestyle and living standards of its end user.
--	---	---	---

Design and Technology						
Implementation – How is the curriculum being delivered? How are ideas, concepts and knowledge sequenced and revisited to ensure that learning is committed to long-term memory? Why are topics taught and why at that point in the curriculum? How do you ensure that Key Stage 3 serves as a preparation for further study but also provides a secure understanding for students who don't continue with individual subjects beyond KS3?						
Year 10	Unit 1 Core technical principles • New and emerging technologies • Energy generation and storage • Developments in new materials • Systems approach to designing • Mechanical devices • Materials and their working properties In this unit students explore how CAD/CAM, automation and different materials can improve the outcome for designers, manufacturers and consumers/users. Students delve deeper into systems, energy sources and storage – exploring products and production models of companies we use every day. This contributes Section A on the exam but also plugs into the investigation section of the NEA (Non-exam Assessment) and beyond education when they're making informed decisions of how companies ethically manufacture products we purchase.	Unit 2 Specialist technical principles • Selection of materials or components • Forces and stresses • Ecological and social footprint • Sources and origins Students revisit the work completed in year 7 and develop greater understanding of how materials perform under stress and how they positively and negatively impact the environment. Looking at how each material groups are sourced, produced, properties for manufacturing and how they are ethically used. This gives students the knowledge of which materials are fit for purpose, most damaging and cost effective for the GSE and beyond education.	Unit 2 Specialist technical principles • Using and working with materials • Stock forms, types and sizes • Scales of production • Specialist techniques and processes • Surface treatments and finishes Students develop their knowledge of working with different material groups, shaping and forming these materials and develop an understanding of special techniques and process that can be used in production and manufacturing. Furthermore, students identify the effectiveness and relevant treatments and finishes for a variety of material groups. This will allow them to effectively analyse and evaluate both products and design solutions they purchase or produce. In addition to this unit can be used for their NEA (Non-exam Assessment) and Section B on the GCSE paper. Understanding materials, treatments and finishes serves as a good skill to purchase well in everyday life as well as pro-longing the lifecycle of the product.	Unit 3 Designing and making principles • Investigation, primary and secondary data • Environmental, social and economic challenge • The work of others • Design strategies • Communication of design ideas During this unit students will recap the designing skills learned at KS3 to expand understanding and develop driving factors behind designing effective products for audience/users. Limitations such as financial and social can challenge designers to fulfill outcomes affectively. However, designers learn how to use a range of strategies and research methods to overcome and excel beyond these limitations. Students here will explore many limitations and challenges and look to communicate design outcomes in a professional way.	Unit 3 Designing and making principles • Prototype development • Selection of materials and components • Tolerances • Material management • Specialist tools and equipment • Specialist techniques and processes Students are introduced to complex elements of the course where they hone the skills of prototyping products and selection of materials and how they can affect the integrity of products. This builds the foundations for exploring material management, the specialist tools. Techniques and processes needed to manufacture with these materials. This contributes both the NEA (Non-Exam Assessment) and the GCSE exam (Section C).	NEA (Non-Exam Assessment) Students are introduced the NEA once the contextual design challenge is released by AQA in June. The NEA is what was once called "coursework". Here students will independently complete a portfolio of work that creates a design solution for the contextual challenge. This will show any future employer that our students can complete a design project from start to finish independently, which demonstrates organisation, resilience and project management skills.
Year 11	NEA Non-exam assessment: 30–35 hours approx. 100 marks 50% of GCSE Assessment criteria: Identifying and investigating design possibilities Producing a design brief and specification Generating design ideas				Exam Preparation In all lessons, students focus on exam practise by revising vocabulary across all topics through recall tasks and completing exam-style questions across all exam papers.	

	, Developing design ideas , Realising design ideas andn Analysing & evaluating How it's assessed Written exam: 2 hours 100 marks 50% of GCSE Questions Section A – Core technical principles (20 marks). A mixture of multiple choice and short answer questions assessing a breadth of technical knowledge and understanding. Section B – Specialist technical principles (30 marks). Several short answer questions (2–5 marks) and one extended response to assess a more in depth knowledge of technical principles. Section C – Designing and making principles (50 marks). A mixture of short answer and extended response questions.		
--	---	--	--

Impact: Formative assessment is embedded across the Design & Technology curriculum to allow teachers to access student progress and respond accordingly. At KS3 students develop their ability to independently access the workshop and improve skills that allow them to safely prototype their designs. Students will also develop their ability to peer assess work with staff providing regular feedback on both written and practical tasks. At KS4, students complete post-learning checks after each unit of study which both teachers and students use to identify gaps in knowledge and understanding, ensuring that these are addressed in subsequent lessons. There will be regular feedback given on the progress made in the four main skills: reading, listening, writing and producing.

The impact of the curriculum in developing individuals that can make informed decisions about products and lifestyle that contributes to improved living standards and to a group involving leadership and collaboration. This will also show an increase in students pursuing Design & Technology at A level, apprenticeships in product design, architecture and engineering. Furthermore, students will also be given the opportunity to transfer these skills in analytical and evaluative careers that can also utilise their practical capabilities.