



Year 10 curriculum – 2025 - 2026

	Autumn Term		Spring Term		Summer Term	
	1	2	1	2	1	2
Key Concepts	Wood: -Desk Tidy Students will develop their theory knowledge while manufacturing a wooden desk tidy. This will include a range of hand tools/machines, finishing processes and CAD. Within this project students will look at the following areas: -Material properties and sustainability -The life cycle of products -Finishes -Producing design ideas -Developing design ideas	Metal: -Tea Light Holder -Hook -Casted Keyring Students will continue to develop their theory knowledge while manufacturing a range of metal based products. Within this project students will look at the following areas: -Material properties and stockform.	Plastic: Alessi Egg Cup Students will complete ongoing theory based work while manufacturing an egg cup holder inspired by Alessi. Within this project students will look at the following areas: -Material properties and origins -CAD (Onshape) -CAM (3D Printer) -Work of others -Maths -Development of new and smart materials.	Mini Project: Lamp Students will continue theory based work while completing a mini project to aid structure for NEA. Students will be manufacturing a bookend which provides light. Within this project students will look at the following areas: -Technical drawing (isometric and orthographic) -Mechanisms -Forces and Stresses -CAD/CAM -Hand tools -Risk assessments	Mini Project: Lamp Students will continue theory based work while completing a mini project to aid structure for NEA. Students will be manufacturing a bookend which provides light. Within this project students will look at the following areas: -Technical drawing (isometric and orthographic) -Mechanisms -Forces and Stresses -CAD/CAM -Hand tools -Risk assessments	NEA Students begin their NEA (Non-Exam Assessment). Students will be given a choice of three briefs, they must pick one and design a solution that fits the brief.



	-Manufacture and assembly of the desk tidy.	-Manufacturing methods -Design Movements -CAD/CAM (2D Design and 3D Printer)	-Innovative design cycle	-Manufacturing diary / production plan	-Manufacturing diary / production plan	
Knowledge & Understanding (National Curriculum) <i>Skills are across the whole year.</i>	Students know and understand how to: 3.1 Core technical principles In order to make effective design choices students will need a breadth of core technical knowledge and understanding that consists of: • new and emerging technologies • energy generation and storage • developments in new materials • systems approach to designing • mechanical devices • materials and their working properties. 3.2 Specialist technical principles In addition to the core technical principles, all students should develop an in-depth knowledge and understanding of the following specialist technical principles: • selection of materials or components • forces and stresses / ecological and social footprint • sources and origins • using and working with materials • stock forms, types and sizes • scales of production • specialist techniques and processes • surface treatments and finishes. Each specialist technical principle through timber based materials, metal based materials & polymers 3.3 Designing and making principles Students should know and understand that all design and technology activities take place within a wide range of contexts. They should also understand how the prototypes they develop must satisfy wants or needs and be fit for their intended use. For example, the home, school, work or leisure. They will need to demonstrate and apply knowledge and understanding of designing and making principles in relation to the following areas: • investigation, primary and secondary data • environmental, social and economic challenge • the work of others					



	• design strategies • communication of design ideas • prototype development - selection of materials and components • tolerances • material management • specialist tools and equipment • specialist techniques and processes.	
Skills	R <i>Develop</i> RESILIENCE	★ <i>Students develop the ability to overcome challenges, persist through difficulties, and learn from failures</i> ★ <i>Students are encouraged to be reflective Practitioners, encouraging regular reflection on what worked, what didn't, and why, fostering a habit of learning from every experience.</i> ★ <i>Students are taught the principles of a growth mindset, emphasising that abilities can be developed through effort and learning.</i>
	A <i>Possess</i> AMBITION	★ <i>Students are inspired to set high goals, take initiative, and pursue their aspirations with determination and passion.</i> ★ <i>Students are taught practical applications of engineering principles in the curriculum.</i>
	I <i>Demonstrate</i> INTEGRITY	★ <i>Faculty members model integrity in their interactions with students and colleagues.</i>



				★ <i>Students foster accountability for their own controlled assessments, theory work and practical pieces.</i>	
	S <i>Embed Self-Discovery</i>			★ <i>Students are inspired to set high goals, take initiative, and pursue their aspirations with determination and passion.</i> ★ <i>Students are taught practical applications of engineering principles in the curriculum.</i>	
	E <i>Display EMPATHY</i>			★ <i>Faculty members model integrity in their interactions with students and colleagues.</i> ★ <i>Students foster accountability for their own controlled assessments, theory work and practical pieces.</i>	
Curriculum Links	Building upon the D&T curriculum in year 7-9, students are introduced to more complex machinery and materials in this first term, ready for the controlled assessment next Half Term. This project builds foundational knowledge of metals	This project builds on students' understanding of wood materials introduced in Year 8, with a deeper focus on theory from Year 9. It embeds key knowledge about timber types,	Building on students' initial knowledge of plastics, this project deepens and embeds theoretical understanding of material properties, including thermoplastics and thermosetting plastics. It introduces key	The Lamp Project serves as a mini NEA, allowing students to consolidate and apply their knowledge of materials, processes, and design principles taught throughout Key Stage 3. It integrates theory and practical skills by challenging students to design and manufacture a functional lamp using woods, metals, and plastics. The project reinforces CAD skills through Onshape, introduces 3D printing, and supports NEA preparation by following the	The NEA in Design and Technology brings together key knowledge and skills developed throughout Key Stage 3 and 4. It requires students to apply their understanding of materials, sustainability, user needs, and manufacturing processes in a real-world design context. The project strengthens skills in



	introduced in Year 7 and deepens theoretical understanding from Year 9. It embeds core concepts such as material properties, sustainability, and manufacturing processes. Through hands-on practical tasks, students develop new skills that support the Non-Exam Assessment (NEA) requirements in Year 11. Strong cross-curricular links are made with science, particularly in areas such as the structure and properties of metals, conductivity, and the reactivity series.	sustainability, and manufacturing techniques. Practical tasks are designed to develop new skills in measuring, marking out, cutting, and joining wood, all of which directly support the practical demands of the NEA in Year 11. The project also reinforces links with science through topics such as natural materials, forces, and environmental impact.	design and manufacturing technologies such as 3D printing and CAD using Onshape software. Students develop practical skills in digital modelling, prototyping, and safe workshop practice. These skills provide a foundation for the iterative design process and technical competencies required for the NEA in Year 11. The project also supports cross-curricular links with Science (material properties and environmental impact) and Computing (CAD/CAM and digital literacy).	Strong cross-curricular links are made with science	research, problem-solving, iterative design, and evaluation. It integrates CAD/CAM, including software such as Onshape and 3D printing, and reinforces cross-curricular links with science (e.g. material properties, forces, electronics) and computing (e.g. digital modelling and technical communication).
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Assessment	Designing - Design ideas and development of desk tidy Making - Desk tidy Knowing - Mini Mock based on theory learnt	Designing - CAD Work (2D Design) Making - Keyring Knowing - Mini Mock based on theory learnt	Designing - Development of egg holder inspired by Alessi Making - Final egg holder Knowing - Mini Mock based on theory learnt	Students sit full mock exam	Response, Review and Retake - Full Mock Exam	Coursework - NEA
Aspirations & Careers	Design and Technology (D&T) GCSE offers a solid foundation for students interested in creative, practical, and problem-solving careers. • Designer (Product, Graphic, Fashion, Interior) • Engineer (Mechanical, Civil, Automotive) • Architect • CAD Technician / 3D Modeller • Craftsperson (Carpenter, Metalworker, Jeweller) • Sustainable Design / Urban Planning • Apprenticeships, T-Levels, or A-Levels • University or Design School • Entrepreneur / Start a business					