Curriculum Overview

Design and Technology

Our mission is to inspire and equip students with the knowledge, skills, and confidence to become creative, independent, and informed individuals within Food & Nutrition and Design & Technology. We aim to deliver a curriculum that is ambitious, relevant, and rooted in real-world application, enabling students to understand how products are designed, made, and used, and how food choices impact health and wellbeing.

Through high-quality teaching, practical experiences, and a focus on continuous improvement, we develop students who can think critically, solve problems, and communicate ideas effectively. We are committed to creating an inclusive environment where all learners are supported to achieve their potential, with high expectations maintained for every student.

As a department, we value collaboration, innovation, and professionalism, ensuring that staff are continually developing their subject knowledge and pedagogy. Ultimately, we strive to prepare students not only for further study and careers, but for life as thoughtful, skilled, and responsible members of society.

Rationale:
Behind our Curriculum Design - Structure

Our Design and Technology curriculum, including Food, is carefully sequenced to support long-term memory, enabling pupils to build knowledge progressively from foundational skills in Year 7 to more complex technical, nutritional and systems understanding in Year 9.
It is structured around the **design–make–evaluate cycle**, with clearly defined end points in each unit that identify what pupils should know and be able to do across materials, graphics, electronics and food preparation/nutrition. Core and hinterland knowledge are explicitly planned to develop both technical expertise and wider disciplinary understanding.
Teaching embeds **retrieval practice, modelling and practical application**, ensuring

Rationale:
Behind our Curriculum Design – Content

Our Key Stage 3 curriculum develops students as creative, practical, and informed individuals who understand how the designed and food-related world is shaped. By combining Design & Technology with Food & Nutrition, it provides a broad and relevant education that connects technical knowledge, creativity, and essential life skills, rooted in the understanding that all products are the result of purposeful design decisions.

Students build strong foundations in materials, nutrition, health, manufacturing, and design principles. In

Key Structures

Our curriculum is supported by a range of key structures that ensure it is **well-planned, coherent, and continually improving**. Curriculum maps, or long-term plans (LTPs), are in place across all Key Stages and clearly sequence knowledge, skills, and assessment. These maps ensure that learning builds logically over time and that there is clarity around what is taught, when, and why.

Assessment is carefully aligned to this sequencing so that it accurately reflects what students have been taught. This allows staff to monitor progress effectively, identify gaps in

Key Practices: How the Curriculum is Delivered

Lessons across Food & Nutrition and Design & Technology follow a consistent structure that supports clarity, engagement, and effective learning, while reflecting the practical nature of the subjects. Each lesson begins with a *Warm, Welcoming and Friendly (WWF)* approach, followed by a *Do Now* retrieval task to reinforce key knowledge such as food safety, nutrition, or design theory.

Explicit Vocabulary Instruction (EVI) is embedded early, ensuring students can access and use subject-specific terminology confidently in both practical and theoretical contexts.

knowledge is revisited and applied in a range of contexts, including designing and making products and preparing dishes. Assessment is integrated through ongoing feedback, low-stakes testing and end-of-unit milestones. The curriculum is broad, inclusive and aligned to National Curriculum expectations, prioritising subject-specific vocabulary and reading so that all pupils can access, succeed in, and progress confidently to Key Stage 4 in all areas of Design and Technology, including Food.	Food & Nutrition, they learn how diet impacts the body, how to make healthy choices, and how to work safely. In Design & Technology, they learn how ideas are communicated and how products are designed and made, enabling them to understand both how things work and why they are created in particular ways. Practical learning is central. Students develop confidence through making, using tools and equipment safely and accurately, and applying knowledge in meaningful contexts. Alongside this, they develop design thinking by identifying problems, understanding users, and refining solutions through an iterative process of modelling, testing, and evaluation. The curriculum is carefully sequenced from foundational knowledge to independent application, with a strong focus on real-world relevance, including health, sustainability, and the impact of design decisions. By the end of Key Stage 3, students are equipped to think creatively, solve problems, and make informed decisions as both designers and consumers.	understanding, and adapt teaching to meet the needs of students. Assessment is therefore not separate from the curriculum, but an integral part of how it is delivered and reviewed. Departmental self-evaluation (SEF) and development planning (SDP) play a central role in driving improvement. These documents are used to reflect on strengths and areas for development, ensuring that the curriculum remains ambitious, relevant, and effective in meeting students' needs. Priorities identified through SEF and SDP directly inform curriculum adaptations and teaching approaches. A robust quality assurance (QA) cycle underpins the delivery of the curriculum. This includes regular curriculum reviews to ensure content remains accurate, sequenced effectively, and aligned with national expectations. Internal moderation ensures consistency in assessment within the department, while cross-trust moderation strengthens this further by providing external validation and sharing best practice. Together, these structures ensure that the curriculum is **consistent, high-**	New learning is delivered in small, carefully sequenced steps. Teachers model processes clearly—whether demonstrating a cooking method, drawing technique, or equipment use—before moving through guided to independent practice. Students apply learning through making, testing, drawing, and refining, with regular review to support retention. Assessment and feedback are continuous and responsive. Teachers check understanding through questioning and observation, providing immediate, often verbal feedback to correct techniques and improve accuracy. Feedback is clear and actionable, enabling students to refine their work in real time. Teaching is underpinned by strong subject knowledge and high-quality explanations, with resources designed to support SEND and reduce cognitive load. Assessment informs both in-lesson adaptation and longer-term planning, ensuring teaching remains responsive. Overall, this structured approach develops confident, independent learners who can apply knowledge in practical and real-world contexts.

		quality, and responsive, with clear systems in place to support teaching, monitor impact, and drive continuous improvement.	
Adaptive teaching is embedded across Food & Nutrition and Design & Technology to ensure that all students can access the curriculum and make progress. This is underpinned by a consistent **universal offer**, where planning routinely considers a range of needs including communication, cognition, SEMH, and sensory or physical requirements. Teachers use a range of strategies to remove barriers to learning, supported by One Page Profiles (OPPs), which provide clear, personalised guidance on how best to support individual pupils in lessons. In practice, this means adapting teaching while maintaining a common curriculum ambition. For example, key vocabulary is pre-taught and revisited regularly so that students are not encountering complex terminology for the first time during lessons. Instructions are broken down into small, manageable steps, often supported by visual aids, checklists, and modelling to reduce cognitive load. In both Food and Design contexts, this is particularly important when introducing practical processes or technical	**Staff Development** Staff development is collaborative, targeted, and ongoing, ensuring high-quality teaching across Food & Nutrition and Design & Technology. Faculty meetings focus on curriculum review, moderation, and the practical operational demands of the subject, including equipment use, resource planning, and preparation for practical delivery. Time is used purposefully to review schemes of work, align assessment, and ensure staff are confident in delivering both theory and practical elements safely and effectively. Collaboration underpins development. Regular book looks, moderation, and joint planning sessions support consistency in expectations and enable staff to share effective practice. This is particularly important for non-specialist teachers, who are supported through regular in-house CPD and structured check-ins led by the Head of	**Quality Assurance: Seeing It in Action** The Head of Department and SLT evaluate the impact of the curriculum through a range of regular and structured activities. Student books and assessment outcomes are reviewed to ensure that learning is sequenced as intended and that progress is evident over time. Learning walks, drop-ins, and observations provide insight into how the curriculum is delivered in practice, including the quality of teaching, modelling, and student engagement. Pupil voice and book studies are used to understand the student experience, ensuring learners can explain what they are learning and demonstrate this in their work. There is a clear focus on curriculum presence, with long-term plans visible in books through the sequence of knowledge, skills, and outcomes.	**The Lived Experience (Student Perspective)** From a student perspective, learning in Food & Nutrition and Design & Technology is clear, purposeful, and structured. Students understand what they are learning and why, as lessons begin with clear objectives linked to real-world contexts, such as health, food choices, or designing for users. This helps students see the relevance of their learning and how it applies beyond the classroom. Lessons follow consistent routines, which support confidence and independence. Students experience clear modelling from teachers, whether this is demonstrating a cooking technique, a CAD process, or a drawing method. This is supported by scaffolds such as step-by-step instructions, visual aids, and examples, enabling all students to access learning and build skills progressively. Regular checkpoints are embedded throughout lessons to ensure students know how well they are doing. Through questioning, observation, and practical outcomes, teachers

drawing skills, ensuring students can follow sequences safely and accurately. Teachers make use of structured scaffolding strategies such as knowledge organisers, sentence stems, writing frames, and visual examples to support understanding and independence. In Design & Technology, this includes the use of prompts, diagrams, and ICT demonstrations broken into stages, while in Food, modelling and step-by-step guidance are used to support practical success. These approaches help students to access complex tasks without lowering expectations. Responsive teaching is central to adaptation. Teachers continually check for understanding through questioning, observation, and practical outcomes, adjusting their approach in real time. This may include re-explaining processes, providing additional modelling, or offering targeted support to individuals or small groups. Opportunities for overlearning and repetition are built in to strengthen retention, particularly for students with working memory difficulties. Adaptations also consider the classroom environment and emotional needs of students. Seating plans are carefully considered to minimise distraction and support communication, while routines and expectations are kept clear and consistent. Strategies such as movement breaks, calm	Department, building subject knowledge, practical confidence, and consistency in delivery. Professional learning is further strengthened through external opportunities such as the *Big D&T Meet*, ensuring staff remain up to date with national developments and subject-specific best practice. Health and safety training is a key priority, with external consultants providing specialist CPD and all staff using workshop equipment maintaining DATA accreditation, renewed every five years. Overall, staff development is structured, supportive, and responsive, ensuring all staff are equipped to deliver a safe, ambitious, and effective curriculum.	Together, these approaches provide a clear, triangulated picture of curriculum implementation and impact, enabling both the Head of Department and SLT to identify strengths and drive ongoing improvement.	provide immediate feedback, often verbally, so students can refine their work in real time. This is particularly important in practical subjects, where students can adjust techniques, improve accuracy, and deepen understanding during the learning process. Feedback is clear and actionable, helping students understand what they have done well, what needs improving, and what to do next. All students are supported to achieve ambitious outcomes through adaptive teaching and high expectations. Strategies such as pre-teaching vocabulary, breaking tasks into manageable steps, and using individual One Page Profiles ensure that barriers to learning are reduced while maintaining challenge. Students are encouraged to develop independence and resilience, improving their work through iterative processes of making, testing, and refining. Beyond the classroom, students benefit from opportunities that enrich their experience of the subject. This may include practical projects, links to real-world design and food contexts, and exposure to potential career pathways within hospitality, catering, and design industries. These experiences help students to recognise the value of their

spaces, and check-ins with key students support regulation and engagement, particularly in practical spaces where safety and focus are essential. In practical subjects, adaptations are also linked to safety and access to equipment. This includes pre-teaching how to use tools, adapting materials where needed, and providing increased supervision or alternative approaches for students with specific needs. Sensory considerations, such as noise, smell, or lighting, are also taken into account to ensure all students can work comfortably and safely. Overall, adaptive teaching ensures that all students, including those with SEND, can access the curriculum, participate fully, and achieve success. Through the use of universal strategies, personalised support from OPPs, and responsive teaching, barriers to learning are reduced while high expectations are maintained for all learners.			learning and see themselves as future designers, makers, and informed consumers.

	Design and Technology Long-Term Plan *Subject Mission Statement*		
Key Stage 3 Long-Term Plan	Year 7	Year 8	Year 9
Autumn	This unit aims to develop students' confidence, independence, and understanding of basic food preparation and nutrition. It introduces essential knowledge of hygiene, safety, and food handling to ensure students can work responsibly in a kitchen environment. Throughout the unit, students build practical skills such as knife work, food preparation, and baking, while applying safe and hygienic practices. In addition, the unit develops their understanding of healthy eating, including the Eatwell Guide, food provenance, and the role of fruit and vegetables in a balanced diet. By the end of the unit, students should be able to prepare simple dishes safely, make informed food choices, and demonstrate a clear understanding of how food, nutrition, and safety are linked.	This unit builds on prior learning by deepening students' understanding of nutrition, food science, and cooking skills. Students explore how nutrients function in the body, how food choices affect health, and how to interpret food labels. Practical lessons develop more advanced preparation and cooking skills, including working with dough, sauces, and raw meat. The unit also introduces evaluation and sensory analysis, encouraging students to reflect critically on their work. By the end of the unit, students will have a greater understanding of how diet, health, and food preparation are connected.	This unit develops students' understanding of food safety, dietary needs, and wider issues surrounding food in society. Students explore contamination, allergies, and intolerances to understand how food can impact health. The unit also introduces the role of food professionals and regulations in maintaining safety standards. In addition, students investigate ethical and environmental issues such as Fairtrade, food waste, and sustainability. Practical lessons allow students to apply their knowledge through more advanced cooking techniques. By the end of the unit, students will have a deeper understanding of how food choices affect health, society, and the environment.
Autumn 1 Assessment:	Assessment Point 1 (7/9/26-18/9/26)	***Students' progress will be assessed through short retrieval activities, in-class discussion, and ongoing monitoring of their work in books.***	Science only (05/10/26-16/10/26)
Autumn 2			
Autumn 2 Assessment:		Assessment Point 1 (01/09/2026-20/11/26)	

Spring 1	This unit will focus on the specialist materials area of timbers and will lead to a design and make task. Learning will begin with developing knowledge of wood types, properties and sources. Students will use this knowledge to help understand the importance of material selection by property when designing and making using timbers. This leads onto a design and make activity where students will manufacture a wooden trinket box with a multi material laminated lid that push fits into the box carcase..	Students will learn the basic fundamentals of producing technical drawings by hand using traditional drafting skills that is required learning for GCSE Design Technology. New learning will begin with building a conceptional understanding of 3D form through the layout of Isometric drawing. This will introduce students to a way of communicating in 3 Dimensions using a standard form. Students will practise freehand and develop further onto Isometric grid. This will lead onto learning how to apply render through colour, tone and shading techniques. Students will develop skills converting 3D drawings into working drawings (Orthographic) and building 1 and 2 point perspective drawing.. An understanding of papers and board type, properties and commercial use will be built around the practical skill associated with drawing, scoring, cutting and assembling nets with appropriate links to mathematics.	This unit will introduce students to electricity and electronics. Students will gain knowledge into what electricity is, how it is generated through fossil and alternative energies and the dangers associated with mains electricity. Students will learn the difference between electricity and electronics by exploring a range of discrete components alongside their function and use. Simple series and parallel circuits will be prototyped onto breadboards and simulated virtually on a computer which will also give the opportunity to see how components work in a circuit. This knowledge will be developed further through the assembly of a PCB that uses a 555 integrated circuit to produce a monostable timing device.
Spring 1 Assessment:			Assessment Point 1 (01/02/27-26/02/27)
Spring 2			
Spring 2 Assessment:		Assessment Point 2 (22/03/27- 16/04/27)	
Summer 1	This unit teaches students how to use CAD/CAM to solve a real design problem by taking a product from initial idea through research, specification and creative design, into accurate digital modelling using CAD software, and finally into manufacture using CAM processes such as laser cutting, while developing their understanding of user needs, technical drawing skills, and the importance of evaluating and refining designs to ensure they are fit for purpose.	This unit will focus on the specialist materials area of Metals and will lead to a design and make task. Learning will begin with developing knowledge of metal types, properties and sources. Students will use this knowledge to help understand the importance of material selection by property when designing and making using metals. This leads onto a design and make activity where students will design a small piece of jewelry that would be suitable to casting using pewter. Students will be expected to apply their prior experience of designing by drafting and CAD so that a mould can be laser cut ahead of casting. Once cast, students will learn how to refine and finish metals in	This unit introduces students to user-centred product design by focusing on creating an accessible controller. It begins by developing an understanding of empathy and ergonomics, helping students consider the needs of different users, particularly those with reduced hand mobility. Students then analyse existing products using structured frameworks to understand what makes designs successful. The unit moves on to human factors, where students learn about anthropometrics and how body measurements are used to design products that are safe, comfortable, and practical. They then define a clear design problem and generate a range of creative ideas to solve it. Students develop their ideas through modelling, both

		the workshop.	physically and digitally, using materials like plasticine and CAD software such as SolidWorks. They gradually build more advanced skills in 3D modelling and prepare their designs for manufacture using processes like 3D printing. Finally, students test, evaluate, and refine their designs, learning how designers improve products through iteration. Overall, the unit guides students through the complete design process, from understanding user needs to creating and improving a functional product.
Summer 1 Assessment:	Assessment Point 2 (17/05/27-28/05/27)		
Summer 2			
Summer 2 Assessment:			Assessment Point 2 07/06/27-18/06/27
What will a student know by the end of each year? Why?	By the end of Year 7, students will have developed secure foundations in both **Food & Nutrition** and **Design & Technology**, enabling them to work safely, confidently and creatively when designing and making products. Students will understand the importance of **food hygiene, health and safety, and safe food handling**. They will know the principles of healthy eating, including the Eatwell	By the end of Year 8, students will have broadened and deepened their understanding of **Food & Nutrition** and **Design & Technology**, building on the foundations established in Year 7. They will be able to apply their knowledge more independently, make informed design decisions, and demonstrate increasing accuracy in practical work. Students will understand the functions of key **nutrients** in the body and how food choices can affect health and wellbeing.	By the end of Year 9, students will have developed a deeper understanding of how **design, technology and food impact individuals, society and the wider world**. They will be able to apply their knowledge independently to solve design problems, evaluate outcomes critically and make informed decisions as designers, makers and consumers. Students will understand the principles of **food safety and food-related health issues**, including contamination, allergies and

	Guide, food provenance, and the role of fruit and vegetables in a balanced diet. Through practical cooking experiences, they will have developed basic food preparation skills, including knife skills, food preparation techniques and baking methods, allowing them to prepare simple dishes independently and make informed food choices. In Design & Technology, students will understand the characteristics of **timber materials**, including different wood types, their properties, sources and suitability for particular products. They will understand why designers select materials based on their properties and will apply this knowledge when designing and manufacturing a timber-based product. Through the production of a wooden trinket box, students will gain experience of the design–make–evaluate process and understand how accuracy, quality and	They will know how to interpret food labels and use this information to make healthier dietary choices. Through practical cooking activities, students will develop more advanced preparation and cooking skills, including working with doughs, sauces and raw meat safely. They will also understand the importance of sensory evaluation and be able to assess and improve food products using feedback and testing. In Design & Technology, students will develop an understanding of **technical drawing and graphical communication**. They will know how designers communicate ideas using isometric drawing, orthographic projection and perspective drawing. Students will understand how colour, tone and shading can be used to communicate form and appearance, and they will develop confidence in producing accurate drawings that convey design intent. Students will also gain knowledge of **papers, boards and packaging materials**, including their properties, uses and suitability for different applications. They	intolerances. They will know how food legislation and professional practices help to maintain food safety standards and will understand the role of food professionals within the food industry. Students will also understand wider issues surrounding food production and consumption, including Fairtrade, food waste, sustainability and environmental responsibility. Through practical cooking activities, they will continue to develop their food preparation and cooking skills while applying their theoretical knowledge in meaningful contexts. In Design & Technology, students will develop a secure understanding of **electricity and electronics**. They will know how electricity is generated, the differences between renewable and non-renewable energy sources, and the dangers associated with mains electricity. Students will understand the difference between electrical and electronic systems and will be able to identify and explain the function of a range of electronic components. They will understand how series and parallel circuits operate and apply this knowledge

	craftsmanship contribute to successful outcomes. Students will also understand how **Computer Aided Design (CAD)** and **Computer Aided Manufacture (CAM)** are used to solve real-world design problems. They will know how designers research user needs, write specifications, generate ideas, create digital models and manufacture products using technologies such as laser cutting. They will understand that successful products are developed through testing, evaluation and refinement. Across all projects, students will develop an understanding of the **design process**, including researching, designing, making, testing and evaluating. They will begin to use subject-specific vocabulary confidently and recognise how designers and food professionals make decisions based on function, safety, user needs and	will understand the relationship between design, manufacture and material selection, using practical skills such as scoring, cutting and assembling nets to produce accurate outcomes. Within the specialist materials area of **metals**, students will understand the different types, properties and sources of metals and how these influence material selection. They will apply this knowledge through the design and manufacture of a cast pewter jewellery product, combining traditional workshop skills with CAD and laser-cut manufacturing processes. Students will understand how digital technologies can support modern manufacturing and improve accuracy and efficiency. Across the year, students will strengthen their understanding of the **design–make–evaluate process**, developing greater independence when researching, generating ideas, selecting materials, manufacturing products and evaluating outcomes. They will increasingly justify their	through circuit simulation, breadboarding and the manufacture of a printed circuit board incorporating a 555 timer integrated circuit. Students will also understand the importance of **user-centred design**, empathy and ergonomics when designing products. They will learn how designers collect and use anthropometric data to create products that are safe, accessible and comfortable for users. Through the design of an accessible controller, students will understand how products can be adapted to meet the needs of specific user groups, particularly those with reduced hand mobility. The year will also develop students' understanding of **Computer Aided Design (CAD)**, modelling and modern manufacturing technologies. They will learn how designers communicate ideas through physical and digital models, develop competence in 3D CAD software and understand how designs can be manufactured using technologies such as 3D printing. Students will appreciate the iterative nature of design, using testing, evaluation and feedback to refine and

	purpose. **Why?** The Year 7 curriculum is designed to establish the essential knowledge, skills and confidence that students need for future success in Design & Technology and Food & Nutrition. It provides the foundations of safe practice, material knowledge, nutrition, designing and manufacturing, ensuring students can build progressively towards the more complex nutritional, technical, graphical and engineering concepts studied in Years 8 and 9. By securing these fundamentals early, students become more independent learners, better problem-solvers and more informed designers, makers and consumers.	decisions using technical knowledge and evidence gathered through testing and evaluation. **Why?** The Year 8 curriculum is designed to build upon the foundational knowledge and skills developed in Year 7, while preparing students for the more complex technical, electronic, and user-centred design concepts encountered in Year 9. Students develop a deeper understanding of nutrition, materials, graphical communication and manufacturing processes, enabling them to make more informed decisions as designers and consumers. By the end of the year, they have the confidence and competence to apply knowledge independently, communicate ideas accurately, and produce high-quality outcomes through increasingly sophisticated design and making activities.	improve their solutions. Across all projects, students will demonstrate a secure understanding of the **design–make–evaluate process**, selecting appropriate materials, components and manufacturing methods while considering user needs, functionality, sustainability and product performance. **Why?** The Year 9 curriculum is designed to prepare students for the transition to Key Stage 4 by developing a deeper understanding of technical principles, user-centred design and wider social, ethical and environmental issues. Students build on the knowledge and skills gained in Years 7 and 8, applying them to increasingly complex challenges that require critical thinking, independence and creativity. By the end of the year, students have a strong foundation in food, electronics, design thinking and digital manufacturing, ensuring they are well prepared for further study in GCSE Design & Technology and able to understand how technology and design

			influence the world around them.
Extra-Curricular Opportunities **Extra curricular opportunities within FAD include textiles, enrichment and STEM opportunities.**			

	Design and Technology Long-Term Plan *Subject Mission Statement*	
Key Stage 3 Long-Term Plan	Year 10	Year 11
Autumn 1	During Autumn Half Term 1, students are introduced to the fundamental concepts that underpin GCSE Design and Technology. The curriculum begins with **New and Emerging Technologies**, providing learners with an understanding of how technology has	**Autumn Term 1 – NEA: Identifying, Investigating and Developing Design Opportunities** During Autumn Term 1, students begin the AQA GCSE Design and Technology Non-Exam Assessment (NEA) by

	evolved from early innovations to modern automated systems. Students explore the Industrial Revolution, the Digital Revolution, automation, robotics and the changing nature of manufacturing and workplaces. Building on this foundation, students investigate how technology influences **people, culture and society**, including the concepts of technology push and market pull, changing job roles, inclusive design and the need to consider diverse users when designing products. Learners then examine the ethical and environmental implications of design decisions through the study of **planned obsolescence**, **sustainability**, **Life Cycle Assessment (LCA)** and the **Six Rs of Sustainability**. Students consolidate their understanding through a structured retrieval lesson before being introduced to **product analysis** using ACCESS FM. They learn how designers analyse existing products to inform future design decisions and conduct both practical and digital product analysis activities. The term then moves into a practical exploration of engineering through the **Dyson Engineering Box**, allowing students to reverse engineer commercial products and investigate how designers and engineers solve problems. This is followed by a study of **mechanical systems**, specifically gears and mechanisms, linking design theory to real-world products. Students also begin to investigate the work of influential designers through an independent research project, developing an understanding of how designers shape products, industries and	exploring the contextual challenges released by the examination board. Learners investigate the chosen context in depth, identifying design opportunities, analysing problems and developing an understanding of the users, clients and environments connected to their project. Students undertake a range of primary and secondary research activities, including context analysis, user research, client interviews, product analysis and investigations into the work of designers and companies. Learners are encouraged to avoid focusing on a specific product too early and instead develop a thorough understanding of a genuine problem that requires a design solution. Through structured research and analysis, students identify client needs, user requirements and wider social, economic and environmental considerations that may influence future design decisions. The second half of the term focuses on translating research into design requirements. Students produce a design brief and detailed specification before generating a wide range of imaginative design ideas. Learners apply sketching, rendering, annotation and graphical communication skills developed throughout the GCSE course to communicate potential solutions. Design ideas are continuously evaluated against user needs and specification criteria, encouraging students to avoid design fixation and develop

	society. The second half of the term focuses on **design communication skills**. Students are introduced to sketching techniques, progress to marker rendering and visual presentation methods, and finally revisit isometric drawing through a structured refresher that introduces the technique of crating. These graphical skills establish the foundations required for future design development and NEA work.	creative, innovative responses to the chosen design problem. By the end of the term, students should have completed Sections A, B and C of the NEA portfolio, demonstrating a clear understanding of their design problem, the needs of their client and a range of well-developed design proposals ready for further development and modelling in the Spring Term.
Autumn 1 Assessment:	Students will complete a **40-mark end-of-unit assessment** designed to evaluate both knowledge and practical Design and Technology skills. The assessment consists of: • **Section A: Knowledge Test (20 marks)** – short-answer and multiple-choice questions covering new and emerging technologies, sustainability, product analysis, designers, engineering and mechanisms. • **Section B: Product Analysis (10 marks)** – analysis of an unfamiliar product using the ACCESS FM framework. • **Section C: Graphic Communication (10 marks)** – an annotated isometric sketch demonstrating drawing and communication skills. This assessment reflects the balance of knowledge, analysis and design communication skills developed throughout the half term and provides a foundation for future GCSE Design and Technology study.	

Autumn 2	During Autumn Term 2, students develop their understanding of **design communication, digital design and practical manufacturing**. The term builds upon the foundations established in the first half of the year by moving from product analysis and engineering theory into the graphical and manufacturing skills required by designers and engineers. Students begin by revisiting a range of graphical communication methods used within Design and Technology. They develop sketching skills through structured drawing exercises, progressing from tracing and refinement activities to the use of rendering techniques that communicate form, materials and depth. Learners then revisit **isometric drawing**, **crating**, **orthographic projection** and **perspective drawing**, strengthening their ability to communicate design ideas using professional graphical techniques. Alongside graphical communication, students continue to investigate modern manufacturing technologies through the study of **Computer Aided Design (CAD)** and **Computer Aided Manufacture (CAM)**. Learners explore the advantages and limitations of digital design and manufacturing systems, including CNC technology, Flexible Manufacturing Systems (FMS), Lean Manufacturing and Just in Time (JIT) production. Students then apply this knowledge through a practical CAD/CAM project using **TechSoft Design** and a **TechSoft MDX-30 CNC milling machine**. Learners design and manufacture personalised dog tags, gaining experience of the complete digital manufacturing process from CAD modelling to CNC production.	**Autumn Term 2 – NEA: Developing Design Ideas and Preparing for Manufacture** During Autumn Term 2, students focus on the development and refinement of their chosen design concept, building upon the research, design brief, specification and initial ideas produced during the first term. Learners engage in an iterative design process, using feedback, testing and evaluation to improve their proposed solutions and ensure they effectively address the identified design problem. Students develop their ideas through a range of communication techniques, including annotated sketches, modelling, CAD and graphical presentations. Learners investigate materials, components, manufacturing processes and construction methods, justifying their decisions using evidence gathered throughout their research. Physical and digital modelling activities allow students to test functionality, ergonomics, aesthetics and usability, whilst client feedback helps inform further modifications and refinements. As designs progress, students produce detailed development work demonstrating how and why ideas have evolved. Learners create manufacturing specifications, research appropriate materials and components, and prepare accurate technical information for production.

	The final part of the term focuses on a substantial practical project in which students design and manufacture a **folding wooden stool**. Learners revisit **SolidWorks** to create digital models before moving into the workshop environment. Throughout the project, students develop practical manufacturing skills including measuring, marking out, cutting, shaping, drilling, assembly and finishing timber components. During manufacture, students are introduced to industrial manufacturing concepts such as **jigs and templates**, quality control, accuracy and repeatability. They learn to use a range of workshop tools and machinery safely and develop an understanding of how professional manufacturing processes are used to ensure consistency and efficiency.	Emphasis is placed on demonstrating iterative design, supported by testing, evaluation and ongoing analysis, reflecting the requirements of Section D of the AQA NEA. By the end of the term, students should have completed Section D of their portfolio, producing a thoroughly developed final design proposal supported by modelling, testing and justification. They will be fully prepared to move into the manufacturing stage of the project in the Spring Term.
Autumn 2 Assessment:	Students will complete a **50-mark end-of-term assessment** designed to assess their understanding of design theory, product analysis, graphical communication and manufacturing processes. The assessment consists of: • **Section A: Knowledge Recall (15 marks)** – multiple-choice and short-answer questions covering product analysis, designers, gears and mechanisms, graphical communication, CAD/CAM and manufacturing systems. • **Section B: Product Analysis (10 marks)** – analysis and evaluation of an unfamiliar product using the ACCESS FM framework. • **Section C: CAD/CAM Workflow (10 marks)** – explanation	Assessment Point 1 (30/11/26-18/12/26)

	of the stages involved in manufacturing a product using CAD software, toolpaths and CNC machinery. • **Section D: Design Communication (10 marks)** – an annotated isometric sketch demonstrating graphical communication skills. • **Section E: Manufacturing Reflection (5 marks)** – evaluation of the practical stool project, including workshop skills, accuracy, jigs and templates, and safe working practices. This assessment reflects the balance of theoretical knowledge, design communication and practical manufacturing skills developed throughout the term and provides preparation for both the written examination and future NEA work.	
Spring 1	During Spring Term 1, students transition from design communication and product analysis into a deeper exploration of materials, engineering and manufacturing. Building upon the practical and digital skills developed during the autumn term, learners begin investigating the properties and applications of timber and metals, developing the specialist knowledge required for GCSE Design and Technology. The term begins with the study of timber, where students learn to distinguish between hardwoods and softwoods, examine manufactured boards and explore how material properties influence product performance and material selection. Learners then revisit and extend their CAD capabilities through SolidWorks assembly	**Spring Term 1 – NEA: Realising Design Ideas** During Spring Term 1, students move into the manufacturing stage of the AQA GCSE Design and Technology NEA. Learners use the design work, modelling activities and manufacturing specifications developed during Autumn Term 2 to produce a high-quality prototype that addresses the identified needs of their client and responds effectively to the chosen design problem. Students apply a range of practical skills and manufacturing processes to produce their final outcome.

	modelling and rendering, developing an understanding of how products are digitally assembled and communicated before manufacture. Students are subsequently introduced to metals, investigating their extraction, classification and properties. Through theory lessons and practical application, learners explore ferrous and non-ferrous metals, alloys and the working properties that influence material choice. This knowledge is reinforced through a workshop-based bottle opener project, where students develop practical metalworking skills including marking out, cutting, shaping, drilling, finishing and quality control whilst following safe workshop practices. The term concludes with an introduction to polymers and polymer manufacturing processes. Students investigate thermoplastics and thermosetting plastics, compare their properties and applications, and explore commercial manufacturing techniques such as injection moulding, extrusion, blow moulding and vacuum forming. Learners then apply their knowledge through a CAD-based chocolate mould design project, preparing digital models for manufacture using modern technologies. Across the term, students strengthen their understanding of material properties, manufacturing processes, CAD/CAM technologies and industrial practice whilst continuing to develop the analytical and practical skills required for GCSE success. Theory is consistently linked to real-world manufacturing contexts, ensuring learners understand how designers and engineers select materials and processes to create successful products.	Learners select and use appropriate materials, components, tools and equipment whilst following detailed manufacturing plans developed during the design phase. Throughout manufacture, students are encouraged to work accurately and safely, maintaining high standards of quality control and ensuring that components are produced within appropriate tolerances. The term emphasises the importance of iterative making, allowing students to refine and improve their products as manufacture progresses. Learners record changes made during production, justify modifications and evaluate how these decisions improve the final outcome. Students also document manufacturing processes through photographic evidence and written records, ensuring that their portfolio clearly demonstrates the practical skills used throughout the project. As products move towards completion, students focus on assembly, testing, refining and finishing techniques to improve functionality, aesthetics and overall quality. Attention is given to the suitability of materials, construction methods and the effectiveness of the final solution in meeting client needs and specification requirements. By the end of the term, students should have completed the manufacture of their prototype and the majority of Section E of the NEA portfolio, producing a functional,

		high-quality outcome ready for final testing, evaluation and review during Spring Term 2.
Spring 1 Assessment:	**Assessment Focus:** • Timber properties and uses • Hardwoods and softwoods • Manufactured boards • Sustainability and responsible material sourcing • CAD modelling and assembly concepts • Material selection and justification Section A: Knowledge Retrieval (20 marks) Section B: Material Selection (15 marks) Section C: Design and Manufacture Application (15 marks)	
Spring 2	During Spring Term 2, students continue their study of materials, manufacturing and engineering by applying their knowledge of polymers in a practical design-and-make project before moving on to the study of modern materials, smart technologies and mechanical systems. The term combines theoretical understanding with practical application, enabling learners to see how materials and mechanisms are used to solve real-world design problems. Students begin by completing the chocolate mould project, refining CAD models, preparing files for additive manufacture and using 3D printing technology to produce mould patterns. Learners then use	**Spring Term 2 – NEA: Analysing, Evaluating and Refining Outcomes** During Spring Term 2, students complete the final stages of the AQA GCSE Design and Technology NEA by testing, analysing and evaluating their manufactured prototype. Learners reflect upon the entire design process, considering how successfully their final outcome addresses the original design problem, satisfies the needs and wants of the client and meets the requirements of the design

	vacuum forming techniques to manufacture chocolate moulds before producing and evaluating finished chocolate products. This sequence provides students with practical experience of modern manufacturing technologies and reinforces their understanding of thermoplastics, thermosetting plastics and commercial manufacturing processes. Following a formal assessment of polymer knowledge, students are introduced to modern materials and smart materials. Learners investigate developments such as graphene, nanomaterials, metal foams, shape memory alloys, thermochromic pigments and photochromic pigments, exploring how advances in material science have expanded the possibilities available to designers and engineers. Students evaluate the advantages and limitations of these materials and analyse their applications in contemporary products. The term then focuses on composite materials and technical textiles, allowing students to examine how materials can be engineered to achieve enhanced performance characteristics. Learners explore materials such as carbon fibre, Kevlar and glass reinforced plastic, considering how their properties make them suitable for demanding applications within industries including transport, sport and aerospace. Students conclude the term by studying mechanical devices, developing an understanding of how mechanisms are used to transmit and transform motion and force. Learners investigate levers, linkages, gears, gear trains, cams and followers, developing the knowledge required to analyse and design mechanical systems. The term finishes with a study of scales of production and a	specification. Students carry out a range of testing activities to assess the performance, functionality, durability, usability and overall effectiveness of their product. Learners gather client and user feedback through interviews, observations and evaluations, using this information to judge the success of the final outcome. Particular emphasis is placed on producing evidence-based evaluations rather than personal opinions. Throughout the term, students compare their final prototype against their design brief and specification, identifying strengths, weaknesses and areas for improvement. Learners evaluate the decisions made throughout the project, including material selection, manufacturing processes, design developments and modifications made during production. They are encouraged to demonstrate how testing and feedback have influenced their conclusions and recommendations. Students also complete any remaining portfolio work, ensuring that evidence of analysis, evaluation and iterative improvement is clearly communicated. Learners present justified suggestions for future development and consider how the product could be improved if additional time, resources or technologies were available. By the end of the term, students should have completed Sections E and F of the NEA portfolio and submitted a fully

	comprehensive retrieval lesson that revisits key knowledge from the materials and mechanisms units. Throughout Spring Term 2, students deepen their understanding of material selection, manufacturing processes, product performance and engineering principles. The combination of practical manufacturing activities and theoretical study helps prepare learners for the more independent design and manufacturing work that follows later in the year.	documented design-and-make project that demonstrates investigation, creativity, development, practical manufacturing skills and critical evaluation in line with the requirements of the AQA GCSE Design and Technology specification.
Spring 1 Assessment:	Spring Term 1 Assessment: Materials and Manufacturing **Timing:** Lesson 38 (Wednesday 27 January 2027) **Duration:** 45–60 minutes **Assessment Focus:** • Timber properties and uses • Hardwoods and softwoods • Manufactured boards • Sustainability and responsible material sourcing • CAD modelling and assembly concepts • Material selection and justification	
Summer 1	During Summer Term 1, students undertake a structured mini Non-Exam Assessment (NEA) style project focused on the design and manufacture of a low-power LED lighting product. This project provides learners with an opportunity to apply the knowledge, skills and design processes developed throughout the year in a realistic	

	design context. The term begins with an investigation into low-power LED lighting, where students explore the design context, analyse existing products and consider the needs and wants of potential users. Learners carry out research activities including client profiling, user interviews and product analysis using the ACCESS FM framework. Through these investigations, students develop a clearer understanding of user-centred design and how research informs successful product development. Using the evidence gathered during the investigation stage, students produce a design brief and detailed specification that establish clear requirements for their product. Learners then generate a range of initial design ideas, applying graphical communication techniques such as sketching, rendering and annotation to communicate their concepts effectively. Students evaluate their ideas against the specification and seek client feedback before refining and developing their most successful solutions. As the project progresses, students create a final design proposal and use CAD software to produce digital models of their chosen designs. Learners explore the relationship between digital modelling and manufacture, considering assembly methods, material requirements and the integration of LED components. Prototype development allows students to test and evaluate their ideas before manufacture begins, reinforcing the iterative nature of the design process. During the second half of the term, students manufacture their low-	

	power LED lighting product using appropriate materials, tools and processes. Learners apply safe working practices while developing practical skills in marking out, cutting, shaping, assembly, refining and finishing. Throughout manufacture, students carry out quality control checks, test their products and make improvements where necessary to ensure the final outcome meets the requirements of the design specification. By the end of Summer Term 1, students have experienced the complete design process from investigation through to manufacture and evaluation. The project prepares learners for the demands of the GCSE NEA by developing independence, creativity, problem-solving skills and a deeper understanding of how designers use iterative processes to create successful products.	
Summer 1 Assessment:	Summer Term 1 Assessment: Low-Power LED Lighting Design Project **Timing:** Lessons 60–74 (April–May 2027) **Duration:** 15 lessons **Assessment Focus:** • Investigation and research • Existing product analysis • Client profiling and user interviews • Design brief and specification writing • Design communication • CAD modelling • Prototype development	

	• Product manufacture • Testing and evaluation	
Summer 2	During Summer Term 2, students are introduced to the AQA Non-Exam Assessment (NEA) and begin the investigation phase of their GCSE coursework. The term focuses on developing the research, analytical and problem-identification skills required to successfully complete a substantial design project in Year 11. Students learn that successful design begins with understanding users and identifying genuine problems rather than immediately creating solutions. Learners begin by exploring the contextual challenges set by the exam board and investigating the opportunities for design that exist within each context. Through mind mapping, context analysis and structured research activities, students develop an understanding of how design problems emerge from real-world situations, users and needs. They learn to distinguish between a design problem and a design solution, recognising the importance of evidence-based decision making. As the term progresses, students select and define a specific design problem for further investigation. They gather primary and secondary research to support their decisions, collecting evidence through observations, interviews, questionnaires and product research. Students analyse the needs of potential users and identify suitable clients whose experiences and feedback can inform future design decisions. A significant focus is placed on existing product research and the	

	investigation of the work of other designers and companies. Using analytical frameworks such as ACCESS FM, students evaluate how existing products solve similar problems, identifying strengths, weaknesses and opportunities for innovation. Learners develop their ability to draw conclusions from research and use these findings to inform future design thinking. Students also investigate the wider social, economic and environmental factors linked to their chosen design problem. They consider issues such as sustainability, accessibility, cost, manufacturing implications and the impact products can have on users and society. This encourages a broader understanding of responsible design and helps students appreciate the complex factors that influence professional design practice. The term concludes with students reviewing and refining their investigation work, ensuring that they have gathered sufficient evidence and developed a thorough understanding of their chosen problem and user needs. By the end of Summer Term 2, students will have completed a strong foundation for their NEA, entering Year 11 with a clearly defined design problem, detailed research and a well-developed understanding of the context that will support the next stages of the design process.	
Summer 2 Assessment:	N/A - NEA	
What will a student	By the end of Year 10, students will have developed a secure	

know by the end of each year? Why?	understanding of the core principles of GCSE Design and Technology and will be able to apply this knowledge through investigation, designing, modelling and manufacture. Students will understand how products are designed to meet the needs and wants of users and how social, cultural, environmental and economic factors influence design decisions. They will have explored new and emerging technologies, including automation, robotics, CAD/CAM, sustainability, planned obsolescence and modern manufacturing systems. Students will be able to analyse and evaluate existing products using recognised design frameworks and understand how designers learn from the work of others to inform their own ideas. They will have developed a range of graphical communication skills including sketching, rendering, isometric drawing, orthographic projection, perspective drawing and computer-aided design. They will have gained practical experience using modern manufacturing technologies such as CNC machining, 3D printing and vacuum forming, whilst developing an understanding of how digital technologies are used throughout contemporary product development and manufacture. Students will understand the properties, characteristics and applications of a wide range of materials including timber, metals, polymers, modern materials, smart materials, composite materials and technical textiles. They will be able to explain why materials are selected for specific purposes and justify their choices based on function, sustainability, durability and performance.	

	Through practical projects, students will have developed confidence in workshop practice and manufacturing processes. They will understand the importance of accuracy, quality control, health and safety, and the iterative nature of designing and making. Students will also understand key mechanical devices including levers, linkages, gears, gear trains, cams and followers, and how mechanisms are used to transmit and transform motion and force within products. By completing a mini NEA-style project, students will understand the complete design process, including investigation, research, client analysis, specification writing, idea generation, development, modelling, manufacture, testing and evaluation. They will appreciate the importance of designing for a specific user and using evidence to inform decisions. Finally, students will have begun the investigation phase of their GCSE NEA, developing the research and analytical skills needed to identify design opportunities, investigate user needs and establish a strong foundation for their coursework in Year 11. **Why?** The Year 10 curriculum is designed to build the knowledge, skills and confidence required for success in GCSE Design and Technology. Through a carefully sequenced programme of theory, practical manufacture, design communication and project-based learning, students develop both subject knowledge and practical competence. By the end of the year, they are equipped to begin their GCSE NEA with confidence and have established a strong foundation for the	

	demands of the written examination and coursework in Year 11.	
Extra-Curricular Opportunities		