



DESIGN TECHNOLOGY

Technology - Design Technology & Food Technology

Why is the study of Technology important?

Design and Technology is a practical and valuable subject. It enables students to actively contribute to the creativity, culture, wealth and well-being of themselves, their community and their nation. It teaches how to take risks and so become more resourceful, innovative, enterprising and capable. Students develop a critical understanding of the impact of design and technology on daily life and the wider world. Additionally, it provides excellent opportunities for students to develop and apply value judgements of an aesthetic, economic, moral, social, and technical nature both in their own designing and when evaluating the work of others.

What skills will the study of Technology teach you?

Design and Technology use knowledge, skills and understanding from within the subject itself and also a wide range of other sources, especially but not exclusively science and mathematics. Design and Technology will teach you to:

- Develop resilience by not being afraid of challenges when solving problems, but to break them down and keep trying.
- Be creative in developing solutions to real world problems.
- Use modelling and annotated sketches to develop and communicate ideas.
- How to act responsibly within a practical environment thinking of the safety of yourself and others..
- Identify how to competently use a range of practical techniques across a range of disciplines.
- Apply and use CAD/CAM equipment to design and manufacture a range of products and components considering scale of production and precision.
- Work independently and part of a team to solve complex problems.
- Construct reasoned arguments to ethical, social and moral problems that have arisen due to technology and communicate these in an effective way.
- Identify links between different materials and contextual references.
- Test, evaluate and refine their ideas and products against a specification, taking into account the views of the intended users and other interested groups.
- Understand and apply the principles of nutrition and health.
- Cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet.

- Become competent in a range of cooking techniques (for example, selecting and preparing ingredients: using utensils and electrical equipment, applying heat in different ways: using awareness of taste, texture and smell to decide how to season dishes and combine ingredients, adapting and using their recipes).
- Understand the source, seasonality and characteristics of a broad range of ingredients.

What will you know and understand from your study of Technology?

- How to classify materials including smart materials and discuss their physical properties.
- How to use simple electronic circuits incorporating inputs and outputs.
- How to manufacture products with reference to their materials' physical properties.
- Students will learn to use and adjust equipment and machinery depending on the task.
- How to use learning from science and mathematics to help you design and manufacture components and products.
- To consider the influence of a range of lifestyle factors and consumer choices when designing and analysing products.
- The additional factors to consider such as ergonomics, anthropometrics or dietary needs.
- How to use a variety of approaches, for example biomimicry and user-centred design to generate creative ideas and avoid stereotypical responses.
- How to evaluate your work against an increasing range of designers, engineers, chefs, technologists and manufacturers and be able to relate their product to your own designing and making.
- To evaluate products through disassembly to determine how they are constructed, how they function and to consider the life cycle analysis.
- How to competently use a range of cooking techniques for example, selecting and preparing ingredients; using utensils and electrical equipment.
- The principles of nutrition and health including energy, nutrients, water, fibre, diet and health and nutritional needs throughout life and the risks of an unbalanced diet.
- To feed yourself taking into account personal preference, socio-economic aspects, nutritional and health needs.
- The healthy and varied diets as depicted in the eatwell plate and 8 tips for healthy eating.
- The origin and product of food products and ingredients.
- How seasons may affect the food available.
- The function, nutrient profile and sensory attributes of ingredients.
- A range of preparation, cooking and presentation skills.
- How to plan menus for a range of individual and nutritional needs.
- How to prepare and cook safely to prevent food poisoning.
- The effect of advertising, marketing and packaging on food choice.

How does your study of Technology support you in other subjects?

As so many of the skills you will acquire in Design Technology are transferable. Your studies in Design Technology develops several skills that will support your study of other subjects. Helping to develop your focus, resilience, time management, problem solving and communication skills which are integral to all other subjects. For example, the ability to think creatively and problem solve are crucial in Engineering, Mathematics and Science. Design Technology gives you an opportunity for creative expression, which can lead to improved well-being, and support your study experience throughout school. Some students may take this even further and discover a subject that provides them with valuable life skills, or a career that enhances their life for years to come.

How can you deepen your understanding of Technology?

Design and Technology is in everything you do, the products you use and the services you make use of every day. You don't 'do' Design and Technology you 'live it', it's part of your life. There are a number of ways that you can deepen your interest in Design and Technology:

- Volunteer for Design and Technology enrichment clubs. This is a great way of gaining more experience and having fun at the same time. This might be producing products in the workshops using a variety of materials.
- Visit some quality museums and learn how technology and design have changed over the years. It's far easier to go forward when you have learnt about why things have changed.
- Go out of your way to experience good design, go and visit a building because of its layout, form or function. Go and sit in a friend or family's car to experience how different designers interpret what good design should look like.
- Get creative at home, whether that's Lego, modelling out of card, experimenting with free CAD software or practising drawing techniques. Don't wait for someone to teach you those skills, go and learn them yourself and impress those around you.
- Be nosey! Listen to people, watch documentaries, and ask questions about how and why products are made. Without the knowledge then ideas are just a picture on a page.

How are you assessed in Technology?

There are 6 assessment points each year that we term Praising Stars©. We assess how students at their current stage of study are on track to reach their end of stage targets which are formulated on aspirational expectation from their KS2 starting points. We make an informed prediction from our holistic assessments based on our subject mapping of expectation across the Design and Technology curriculum.

Assessment for the AQA Three-Dimensional Design course falls under the **Art and Design** specification. Because of this, you are not assessed via a traditional written exam paper. Instead, your grade is based entirely on your practical design journey, technical execution, and sketchbooks.

The assessment structure is split into two components, both of which are evaluated against the same four core criteria.

Your final grade is calculated using a **60/40 split** between your coursework portfolio and your practical exam.

Component 1: The Coursework Portfolio (60% of overall grade)

- **What it is:** A collection of work built during class and homework time.
- **GCSE:** This includes at least one "sustained project" (a complete project from initial brief to finished product) plus a selection of shorter skills-building tasks.
- **Total Marks:** 96 marks.

Component 2: The Externally Set Assignment (40% of overall grade)

- **The Preparatory Period:** In January, AQA releases an exam paper with several creative prompts (e.g., *Structures*, *Interiors*, or *Biomimicry*). You pick one prompt and spend roughly 10–12 weeks independently researching, sketching, and testing materials.
- **The Supervised Exam:** You take all your prep work into the school workshop to build your final 3D product completely unaided.
 - **GCSE level:** 10 hours (usually split over 2–3 days).
- **Total Marks:** 96 marks

How can Technology support your future?

Through the creative and practical elements of the subject, Design & Technology supports your future not just academically but through the development of key life skills that will support you into adulthood. You will have established the knowledge, skills and confidence to safely prepare and cook a delicious, nutritious meal and the ability to use basic tools for future DIY projects or repairs. Design & Technology encourages you to think creatively and to consider the world around you and will help you to develop skills in observation, communication, time management, teamwork and problem-solving which will support you in any future career. You may choose to extend your study of Design & Technology through our KS4 Vocational courses; Engineering or Hospitality & Catering. These primarily practical based curriculums are designed to support your learning through doing. These qualifications can open doors to numerous Post 16 courses, apprenticeships and employment in the Design Technology, Engineering, Construction, Hospitality & Catering industries.

Study of Design & Technology can lead to a wide range of careers:

1. Product & Industrial Design

This is the most direct route. If you are constantly looking at everyday objects and thinking, *"I could make this look cooler and function better,"* this is your zone.

- **Product Designer:** Designing everything from smartphones and medical devices to sustainable packaging.
- **Automotive Designer:** Shaping the look, aerodynamics, and interior ergonomics of future vehicles.
- **Furniture/Lighting Designer:** Crafting bespoke or mass-produced items for homes and commercial spaces.

2. Architecture & The Built Environment

D&T heavily develops your spatial awareness, scale-modeling skills, and material knowledge, which are vital for designing physical spaces.

- **Architect / Architectural Technologist:** Designing buildings that are visually stunning, safe, and sustainable.
- **Interior Designer / Spatial Designer:** Planning the layout, lighting, and material finishes of indoor environments.
- **Landscape Architect:** Designing public parks, urban green spaces, and outdoor environments.

3. Engineering & Manufacturing

If you lean into the technical, structural, and mechanical side of D&T, you can transition smoothly into the fast-moving world of engineering.

- **Mechanical / Aerospace Engineer:** Designing complex machinery, robotics, or aircraft components.
- **Civil / Structural Engineer:** Ensuring massive infrastructure projects like bridges and skyscrapers can withstand the elements.
- **CAD/CAM Technician:** Specialising in Computer-Aided Design and manufacturing processes like 3D printing and CNC machining.

4. Digital & Creative Industries

The digital world needs people who understand how humans interact with physical and virtual interfaces.

- **UX/UI Designer (User Experience/User Interface):** Designing how websites, apps, and digital tech feel and function for the user.
- **Set / Prop Designer:** Creating the physical worlds, stages, and props for film, television, and theatre.
- **Sustainable Design Consultant:** Advising companies on how to reduce their carbon footprint by using eco-friendly materials and circular manufacturing methods.

Curriculum Progression Pathway

	Design Technology	Design Technology	Food Technology
7	Mobile Phone Holder Workshop skills: Health & Safety, Marking Out Measuring Sawing Filing Shaping Working with machinery: Sanding Drilling CAD/CAM- 2D Design, Laser Cutter Theory: Responding to a Design Brief Developing Product Specifications Investigating Biomimicry Understanding the effects of design achievements. Respect and tolerance in design Creating design ideas	Keyholder Workshop skills: Health & Safety, Marking Out Measuring Sawing, Shaping Working with machinery: Drilling, Sanding using a jig. Use of adhesives. CAD/CAM 2D Design, Laser cutter / vinyl cutter Generating design ideas Theory: Responding to a Design Brief Investigating the work of the Memphis movement in particular Ettore Sottsass, Material properties, types of wood and origin, Evaluating.	Personal Hygiene and Safety An introduction to the food room, health and safety and hygienic rules; Food Safety and the 4C's in Food Prep; The importance of The Eatwell guide and food commodities; The importance of accurate weighing and measuring and selecting the correct equipment Focusing on the Dairy and alternatives food group from The Eatwell Guide; Focusing on the starchy carbohydrates group from The Eatwell Guide.

8	Ball-Bearing Maze Game Box Workshop skills: Marking Out, Measuring, Sawing Filing Joining materials Finishing Working with machinery: Sanding Drilling CAD/CAM – 2D Design – Laser Cutter Theory: Responding to a Design Brief Developing product Specifications, Investigating Art Deco, Material areas, Material Properties Creating design ideas	Bright Ideas! Practical Skills: CAD/CAM using 2D design and laser cutter. Knock Down Fittings. Electronics - soldering PCBs Theory: Responding to a Design Brief, Product analysis, Exploring the artist Keith Haring Responding to a Design Brief, producing a moodboard, Creating design ideas, Evaluating	Principles of Nutrition and Health Re-introduction to the food room, health and safety and hygiene rules; Focusing on the Eatwell Guide, key nutrients and hydration. Focusing on energy, sources in the diet, changes through life and energy balance. Special diets and dietary needs; Sensory testing of food; Focusing on planning a healthier main meal dish for a leisure venue and local/seasonal food. Focusing on choice, young people's dietary needs.
9		Storage Box Practical Skills: Health and Safety. Using a jig, working with manufactured boards, acrylic and rod. Using the laser cutter CAM to layer materials. Bonding different materials. Theory: Responding to a Design Brief Investigating the styles: Art Deco and Art Nouveau. Solving a problem relevant to a client. Developing ideas and using CAD to produce a multi layer product with aesthetic appeal.	Practical: Prepare and cook dishes, taste food and perform investigations hygienically and safely; prepare, cook and serve an increasingly complex range of dishes with precision; demonstrate their understanding of food provenance, production and processing; apply their healthy eating and nutrition knowledge; demonstrate and apply their awareness of consumer preferences and the reasons for choices made; apply their knowledge of food science in a practical and meaningful way.

Key Stage 4: Design & Technology

	Term 1:1	Term 1:2	Term 2:1	Term 2:2	Term 3:1	Term 3:2
GCSE AQA 3D Design						
10	Designer Desk Tidy Research and Development	Designer Desk Tidy Investigation and Development	Designer Desk Tidy Skills Development Pupils will continue to develop practical skills	Designer Desk Tidy Personal and Meaningful Response	Designer Desk Tidy Mock Exam Preparation	Designer Desk Tidy Final Outcome Production

	This term, pupils will be introduced to their year project. They will research and explore a range of traditional and modern design movements and influential designers. This will include studying the bold patterns and colours of the Bauhaus movement, the traditional and elegant style of Charles Rennie Mackintosh, and the futuristic architecture of Zaha Hadid. Pupils will also learn how to present their research both digitally and traditionally, showcasing a well-rounded design portfolio that showcases their	This term, students will further explore and deepen their understanding of key designers and design movements. Building on prior research, pupils may choose to focus on one designer or movement that particularly inspires them. They will investigate a range of 3D design techniques, materials, and processes, using their chosen influence to inspire original outcomes. Emphasis will be placed on developing ideas, experimenting with form and function, and refining practical skills through hands-on and digital methods.	in a range of 3D design and manufacturing processes. This includes working with CAD (Computer-Aided Design) and CAM (Computer-Aided Manufacturing) technologies, as well as hands-on techniques such as vacuum forming, bag pressing, and moulding materials including wood, plastics, and metals. They will also explore traditional woodworking techniques, gaining confidence in using tools and materials safely and effectively. These skills will support their ability to design and create functional and visually engaging 3D outcomes.	Students will focus on developing and presenting a personal and meaningful response to their chosen theme. They will be encouraged to realise their creative intentions through practical outcomes that reflect thoughtful development and experimentation.	This term, students will begin preparing for their Year 10 mock 5-hour exam, designed to give them valuable insight into the structure and expectations of a real GCSE practical exam. They will use this time to develop and refine a final piece plan, ensuring they are fully prepared to complete a sustained and meaningful outcome under timed conditions. This process will support their ability to manage time effectively, apply practical skills confidently, and demonstrate their understanding of the design process from research to realisation.	Pupils will manufacture their final product, demonstrating technical skill and creative intention. Their final outcomes should clearly reflect the journey of their project, showing strong connections to their initial research, design development, and personal inspiration. Evidence of thoughtful design decisions and meaningful development processes should be visible in the final piece.
--	--	---	--	--	--	--

	understanding and creativity.				
GCSE AQA 3D Design					
11	1. Autumn Term (September – December): Finalising the Portfolio (Component 1) The first term is focused entirely on completing Component 1, the Coursework Portfolio, which accounts for 60% of the final GCSE grade. ● Sustained Project Completion: Students finish the major project they started in Year 10. This could be in an area like architectural design, product design, ceramics, sculpture, jewelry, or theatre set design. ● Material Testing and Prototyping: Students spend significant time in the workshop experimenting with medium-specific techniques (e.g., wood jointing, vacuum forming plastics, casting resin, or wheel-throwing clay). ● Sketchbook Annotation: A key activity is writing detailed reflections. Students	2. Spring Term (January – Easter): The Exam Preparatory Period (Component 2) On January 2nd, AQA releases the Component 2 Externally Set Assignment, which makes up the remaining 40% of the grade. ● Selecting a Starting Point: The exam paper provides a choice of several creative prompts (such as "<i>Flora and Fauna</i>", "<i>Structures</i>", or "<i>Rough and Smooth</i>"). Students select one brief to respond to. ● Independent Research: For roughly 10 to 12 weeks, students build a brand-new project from scratch. They research relevant artists or architects, take primary source photographs, and generate initial concept sketches. ● Creating Maquettes: Before handling expensive final materials, students build quick, small-scale mockups (maquettes)	3. Summer Term (April – May): The 10-Hour Practical Exam The culmination of the course is a multi-day practical exam rather than a written paper. ● The 10-Hour Supervised Window: Spread across 2 or 3 days, students spend 10 hours in the art studio or workshop constructing their final 3D product or model completely unaided. ● Strict Parameters: No internet access is allowed during these hours (except for pre-approved offline CAD modeling tools), and students cannot alter their preparatory work once the supervised time begins. ● Exhibition and Moderation: After the exam, all work from both components is displayed. Internal teachers mark the folders, and an external AQA moderator		

	must annotate <i>why</i> they chose certain paths, how they overcame technical failures, and how real-world designers influenced their choices.	using cardboard, wire, or blue foam to test scale, stability, and form.	visits the school to check the final grading standard.
--	---	---	--