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.

AQA Art & Design - 3D Design

This course is two years and consists of two components.

Component 1: Portfolio
What's assessed

A portfolio that in total shows explicit coverage of the four assessment objectives. It must include a sustained project evidencing the journey from initial engagement to the realisation of intentions and a selection of further work undertaken during the student's course of study.

How it's assessed

- 96 marks
- 60% of GCSE grade

Component 2: Externally set assignments
What's assessed

Students respond to their chosen starting point from an externally set assignment paper relating to their subject title, evidencing coverage of all four assessment objectives.

How it's assessed

- Preparatory period followed by 10 hours of supervised time
- 96 marks
- 40% of GCSE grade

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:

- 3D Designer
- Product Designer
- Fashion Designer
- Civil Engineer
- Electrical Engineer
- Mechanical Engineer
- Architect
- Bricklayer
- Plumber
- Plasterer
- Carpenter
- Hotel Manager
- Receptionist
- Housekeeper
- Restaurant Manager
- Chef
- Waiter
- Bar Person
- Food Scientist
- Food Stylist
- Food Technologist
- Dietician
- Nutritionist
- Cruise ship Steward

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 the sources and functions of key nutrients and the science behind gelatinisation. Focusing on planning a healthier main meal dish for a leisure venue and local/seasonal food. Focusing on choice, young people's dietary needs and school food standards.
9	**Architectural Chair** Workshop skills: Modelling techniques and producing a prototype, craft skills, Theory: Exploring and comparing the works of a list of designers/architects, sketching, Material properties, Levers and Linkages Mechanical systems	**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 3D Design						
10	Designer Desk Tidy **Research and Development** 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.	Designer Desk Tidy **Investigation and Development** 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	Designer Desk Tidy **Skills Development** Pupils will continue to develop practical skills 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	Designer Desk Tidy **Personal and Meaningful Response** 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.	Designer Desk Tidy **Mock Exam Preparation** 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	Designer Desk Tidy **Final Outcome Production** 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

	Pupils will also learn how to present their research both digitally and traditionally, showcasing a well-rounded design portfolio that showcases their understanding and creativity.	outcomes. Emphasis will be placed on developing ideas, experimenting with form and function, and refining practical skills through hands-on and digital methods.	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.		to manage time effectively, apply practical skills confidently, and demonstrate their understanding of the design process from research to realisation.	processes should be visible in the final piece.
GCSE Design & Technology						
11	**Personal Short Project** Previous Exam paper: CELEBRATIONS		**Exam Paper Distributed**	**Exam (completed by Easter)**	**Individual Portfolio and specific tasks**	