

**SUBJECT & QUALIFICATION: KS3 Design and Technology****Why is the study of Design and Technology important?**

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, computing and art. Pupils learn how to become resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

What skills will the study of Design and Technology teach you?

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- to critique, evaluate and test their ideas and products and the work of others
- to understand and apply the principles of nutrition and learn how to cook.

What will you know and understand from your study of KS3 Design and Technology?

Through a variety of creative and practical activities, pupils will be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. Students will have 3 rotations a year studying food technology, resistant materials and graphics.

In Resistant Materials and Graphics Students will know and understand :

Design

- 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 design for a range of customers

Make

- How to use simple electronic circuits incorporating inputs and outputs.
- How to manufacture products with reference to their material's physical properties.
- How to use and adjust equipment and machinery depending on the task.
- How to use a range of tools safely and independently.
- How to use graphic design software

Evaluate

- The quality of their products.
- The quality of their skills when using a range of mechanical and hand tools.



OPEN ELEMENT SUBJECT OVERVIEW

Technical Knowledge

- understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
- understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]

In Food Technology students will know and understand :

- How to competently use a range of cooking techniques for example, selecting and preparing ingredients; using utensils and electrical equipment.
- the principles of nutrition.
- Will produce a range of predominantly savoury dishes in line with the principles of the eatwell guide.
- Healthy and varied diets as depicted in the eat-well plate and 8 tips for healthy eating.
- To explore the origin and product of food products and ingredients.
- To consider how seasons may affect the food available.
- To study a range of food commodities including meat, fish dairy and eggs.
- To develop a range of preparation, cooking and presentation skills.
- Food hygiene and safety.
- To explore the effect of advertising, marketing and packaging on food choice.

How does your study of Design and TEchnology support your study in other subjects?

Design Technology develops a number of skills that will support students' study of other subjects, as so many of the skills they will acquire in Design Technology are transferable. Design Technology disciplines will develop their focus, resilience, self-expression, teamwork, mathematical skills and problem solving and communication skills, which will help students in **all** of their other subjects. It will give students an opportunity for creative expression and practical thinking and encourage them to think about how to improve designs and encourage healthy eating. Some students may take this even further and discover a subject that provides them with a life-long hobby or career that enhances their life for years to come. All students will gain an understanding of healthy diets etc. The ability to think creatively and problem solve are crucial in Engineering, Mathematics and Science. It will foster an interest and skill in cooking and may lead to study of subjects such as catering etc.

How can you deepen your understanding of Design and Technology?

To enhance students' work in lessons, there will be times when we explore the professional workplace and wider design practices and materials. This will deepen their understanding of professional work and introduce them to new techniques and ideas. Students will also have the opportunity to deepen their understanding of Design Technology disciplines through extracurricular opportunities, where they can continue to develop their creative ideas, or work on specific design projects. During enrichment clubs, students will have the opportunity to meet enthusiasts from other year groups, where they can share ideas, critique each other's work and continue to develop their technique.

There may also be an opportunity to participate in trips to local restaurants and have visiting speakers from a range of industries relating to technology, as well as exhibiting their own work within the Academy. Occasionally, there will be opportunities to enter national or Trust competitions to gain additional audiences and recognition for their work such as the Rotary club tournament.



How are you assessed in Design and Technology

Food Technology : Make and Theory (written)

Resistant Materials : Design and Make

Graphics : Design and Make

Study of Level ½ Vocational Award in Hospitality and Catering can lead to a wide range of careers:

Of course, we offer **GCSE Level courses**, and we encourage students to continue study in this fantastic subject. Yet we know that choice and personal interest are important aspects of worthy study. Whether students have continued their study of a discipline of Design Technology into GCSE or A level or not they will have gained access to this wide enriching subject and its study of the various disciplines will have taught them to think differently and deeply.

Design courses are offered at most prestigious universities and there are many technical and vocational qualifications that can be studied in engineering, product design, graphics, electronics, catering, nutrition etc. as well as routes into apprenticeships etc. The very fact that students have been able to study creative thinking, problem solving, planning and design principles will help their future application be they for colleges, universities, apprenticeships or employment.

Careers linked to Design Technology:

- Product Designer
- Quantity Surveyor
- Fashion Designer
- Software Engineer
- Nutritionist
- Carpenter
- Construction
- Civil engineer
- Graphic Designer
- Branding designer
- Catering
- Food technologist
- Architect
- Aerospace engineer

The list is endless as study of Design Technology opens up a world of opportunities.



OPEN ELEMENT SUBJECT OVERVIEW

	Food	Resistant Materials	Graphics
Year 7 (12 week rotation)	<p>Theory Oven Safety Hygiene and Safety Equipment Eatwell Guide Food Poisoning</p> <p>Practical Choco Coco Truffles Fruit buns Danish sausage rolls Fruit crumble Flapjack Pizza whirls)</p>	<p>Mirror Health and Safety Measuring and marking out woods Dowel joints. Templates Woodworking tools and equipment Drilling Sawing Filing Sanding Finishing techniques Wood theory (Hardwoods, softwoods, manufactured timbers) Conversion of timbers FSC.</p>	<p>Chocolate Bar Setting up photoshop Understanding layers Typography Layer style and effects Layering Adjustments Vacuum forming Legal requirements on packaging Sensory analysis Evaluation</p>
Year 8 (12 week rotation)	<p>Theory Food poisoning bacteria Food storage, Cooking and reheating food, 8 Tip Allergies and Intolerances Packaging, Function of Ingredients, Religious Beliefs, Vegetarianism Fair Trade, Animal Welfare Advertising and Marketing</p> <p>Practical Pear tray bake Dutch apple cake Tandoori Wrap Savoury scones Raspberry buns Macaroni Cheese Garlic Bread Spaghetti Bolognese Millies Cookies, Pasta</p>	<p>Balancing Toy Health and Safety. Moodboards. Specification. Initial ideas. Orthographic drawing. Metals theory. Measuring and marking out woods, metals and plastics. Dowel joints. Templates. Line bending. Riveting. Using wet and dry/sandpaper/abrasive papers. Buffing metals and plastics. Plastics theory. CAD/CAM.</p>	<p>Memphis Light Geometry Photoshop - adjustments Kaleidoscope Stroke Ghosting Tech soft 2D design - CAD/CAM Basic electronic components Soldering</p>



OPEN ELEMENT SUBJECT OVERVIEW

<p>Year 9 (12 week Rotation)</p>	<p>Theory HACCP The Industry Accommodation Job Roles Food Services Technology Equipment Dress Code</p> <p>Practical Burger in a Bun Cheesy Garlic Whirls Pizza Apple Galettes Chicken Curry Pineapple upside down cake</p>	<p>Bottle Opener Health and Safety Ergonomics Specification (ACCESS FM) Mood boards Product analysis Initial, developing and final idea Modelling Manufacturing Countersinking Finishes Evaluation</p> <p>Clock - CAD/CAD - 2d design Moodboard Anthropometrics Ergonomics Specification Initial, developing and final ideas 2d design Laser Cutter Clock Mechanism 3D design google sketchup</p>	<p>Architecture Photography Photoshop - Photography - photos Adjustments Stroke Kaleidoscope Ghosting Joiner Gridding Shapes Sectioning</p> <p>Logo Design - Illustrator Typography Layering 3D Slicing Illustrations Pen Tool/Curvature Pen Tool</p>
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Students will study 3 subjects a year with approximately 12 weeks per rotation. In years 7 and 9 students will have 1 hour a week and in year 8 students will have 2 hours a week.

