



DESIGN TECHNOLOGY

Why is the study of Design and 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 students 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.

The subject at Outwood Academy Ripon is split up into the following categories:

- **Electronic products:** Use electronic materials to build interesting devices.
- **Food technology:** Design recipes and create food products while learning about nutrition.
- **Graphics:** Learn how to use 2D and 3D modelling programs and technical drawing to plan and design products. Work with paper and board to make interesting outcomes.
- **Resistant materials technology:** Work with materials like metals, plastic, wood, and use them to make interesting products.
- **Textiles technology (within Art & Design):** Learn about different fabrics, how they are made, and ways you can use them to create products.

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

Design and Technology applies knowledge, skills and understanding from within the subject itself, and also a wide range of other sources such as science and mathematics. Design and Technology will teach you to:

- Develop resilience by not being afraid of challenge 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 /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 effectively.
- Identify links between different materials and contextual references.
- Test, evaluate and refine ideas and products against a specification, taking into account the views of 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 e.g. selecting and preparing ingredients: using utensils and equipment, applying heat in different ways: 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 Design and 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 material's physical properties.
- How to use and adjust equipment and machinery dependent on task.
- Use learning from science and mathematics to help design and manufacture components and products.
- To consider the influence of a range of lifestyle factors and consumer choices when designing and analysing products.
- To know and understand additional factors to consider such as ergonomics, anthropometrics or dietary needs.
- To use a variety of approaches, for example biomimicry and user-centred design to generate creative ideas and avoid stereotypical responses.
- To evaluate their work against an increasing range of designers, engineers, chefs, technologists and manufacturers and be able to relate their product to their own designing and making.
- To evaluate products through disassembly to determine how they are constructed and function and consider the life cycle analysis.
- 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.
- A repertoire of predominantly savoury dishes in line with the principles of the eatwell guide.
- To feed oneself taking into account personal preference, socio-economic aspects, nutritional and health needs.
- 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 consider the function, nutrient profile and sensory attributes of ingredients.
- To study a range of food commodities e.g cereals, fruits, vegetables, meat, fish, eggs, fats/oils, milk dairy food products.
- To develop a range of preparation, cooking and presentation skills.
- To plan menus for a range of individual and nutritional needs.
- To prepare and cook safely preventing food poisoning.
- To explore the effect of advertising, marketing and packaging on food choice.

How does your study of Design 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 transferrable. 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 and hone designs and encourages healthy eating etc. 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 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 in 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 Technology?

Throughout the 5 years in Design Technology students are assessed using the following assessment objectives which ensure that they can cumulatively build their subject understanding in preparation for future GCSE and A Level study. There are 6 assessment points each year that we term Praising Stars©. In the lower years before certificated study we assess how students are performing against age related expectation and as students' progress on to Level 1 and 2 courses such as GCSE and BTEC we assess how their current stage of study reflects how they are on track to reach their end of KS4 targets which are formulated on aspirational expectation from their KS2 starting points. For both lower and upper years we make an informed prediction from our holistic assessments based on our subject mapping of expectation across the Design Technology curriculum.

Assessment Objectives Design and Technology

	Component 1	Component 2	Component 3
KS4- BTEC Engineering	<p>Exploring Engineering Sectors and Design Applications (Internally assessed)</p> <p>Learners will explore the links between the various engineering sectors and the role of design in the production of engineered products.</p> <p>Learners will examine organisations, functions and job roles, developing their understanding of how these contribute to career progression in engineering.</p> <p>A.2P1 Describe engineering sectors and an engineered product they produce</p> <p>A.2P2 Describe different sized engineering organisations and typical job roles.</p> <p>A.2M1 Explain how engineers from different sectors generate an engineered product, with reference to</p>	<p>Investigating an Engineering Project (Internally assessed)</p> <p>Learners will investigate the selection of materials, proprietary components, making processes and disassembly of a given engineered product. They will plan, reproduce, inspect and test a single component.</p> <p>B.2D2 Justify the development of an improved final solution and evaluate use of the design process, with reference to the engineering brief and peer review.</p> <p>A.2P2 Describe engineering processes used to make given engineered products.</p> <p>A.2M1 Explain why engineering materials and proprietary components are used in given engineered products.</p> <p>A.2M2 Explain why engineering processes are used to make given engineered products.</p>	<p>Responding to an Engineering Brief (Externally assessed in February and May of Year 10)</p> <p>Learners will investigate and create solutions to problems in response to given engineering briefs.</p> <p>Understand how to respond to an engineering brief</p> <p>Select skills and techniques in response to an engineering brief</p> <p>Apply skills and techniques in response to an engineering brief</p> <p>Evaluate and review the outcomes of the application of skills and techniques in response to an engineering brief</p>

	<p>sizes of organisations and the job roles involved.</p> <p>A.2D1 Evaluate how engineers from different sectors cooperate to generate an engineered product, with reference to sizes of organisations and the job roles involved.</p> <p>B.2P3 Produce design proposals, compare in relation to the engineering brief and use CAD to produce a final solution.</p> <p>B.2P4 Describe successful features of the design process, with reference to the engineering brief and some reference to peer review.</p> <p>B.2D2 Justify the development of an improved final solution and evaluate use of the design process, with reference to the engineering brief and peer review.</p>	<p>A.2D1 Evaluate engineering materials, proprietary components and processes used when making given engineered products.</p> <p>B.2P3 Systematically disassemble an engineered product, describe the main components and produce a product design specification.</p> <p>B.2M3 Systematically disassemble an engineered product, describe the purpose of each of its main components and produce a detailed and realistic product design specification.</p> <p>B.2D2 Systematically disassemble an engineered product, describe how each of its main components links together and justify a detailed product design specification.</p> <p>C.2P4 Create a plan to produce an engineered component in a suitable sequence that covers processes, equipment and materials.</p> <p>C.2P5 Produce an engineered component using a range of processes and inspect against given quality standards.</p> <p>C.2M4 Create a detailed plan to produce an engineered component in the correct sequence that covers the correct processes, equipment, materials and inspection techniques.</p>	
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	Design	Make	Evaluate	Technical Knowledge
	<p>Use research and begin to exploration, such as the study of different cultures, to identify and begin understand user needs.</p> <p>To identify and solve issues within a design development task.</p> <p>Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of uses.</p>	<p>Select from a wider, more complex range of materials and components, taking into account their properties.</p> <p>Make simple use of planning tools for instance Gantt charts, communicate their plans clearly so that others can implement them.</p> <p>Use a broad range of material joining techniques including stitching, mechanical fastenings, heat processes and adhesives.</p> <p>Make independent choices when selecting and using CAD/CAM to</p>	<p>Select appropriate methods to evaluate their products in use and modify them to improve performance.</p> <p>Produce shorts reports making suggestions for improvements.</p> <p>Evaluate products that they are less familiar with using themselves.</p>	<p>How to apply computing and use electronics to embed intelligence in products that responds to inputs.</p> <p>How to control outputs such as actuators and motors.</p> <p>How to use software and hardware to to develop programmes and transfer these programmable components for example, microcontrollers.</p>

	<p>Use a variety of influences, to generate creative ideas and avoid stereotypical responses.</p> <p>Use 2D and 3D to model and develop their ideas.</p> <p>Use CAD software to validate their designs in advance of manufacture.</p> <p>Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools.</p> <p>Consider additional factors such as ergonomics and anthropometrics.</p>	<p>manufacture products/components and apply surface finishing techniques to increase the standard of quality.</p> <p>Follow procedures for safety and understand the process of risk assessments.</p> <p>Make independent choices when selecting and using a broad range of manufacturing techniques including hand craft skills and machinery to manufacture products precisely.</p> <p>Apply a range of finishing techniques to a broad range of materials.</p>	<p>Evaluate products considering life cycle analysis.</p> <p>Evaluate how products can be developed considering the concept of cradle to grave.</p> <p>Test, evaluate and refine their ideas and products against the specification taking into account the views of intended users and other interested groups.</p> <p>Evaluate new and emerging technologies.</p> <p>Evaluate an increasing range of designers, engineers, technologists and manufacturers and be able to relate their products to their own designing and making.</p>	<p>How to make use of microcontrollers in products they design and manufacture themselves.</p> <p>How to make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines.</p> <p>Use learning from science and maths to help design and make products that work.</p> <p>Understand the properties of materials, including smart materials, and how they can be used to advantage.</p>
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	<p>Use research, such as the study of different cultures, to identify user needs.</p> <p>Be able to outline a simple specification to inform design ideas and guide their thinking.</p> <p>Use 2D packages to model their ideas.</p> <p>Produce models of their ideas using CAM to test ideas.</p> <p>Be able to independently generate creative ideas inform by stimulus using annotations to explain key features relating to brief/specification.</p> <p>Consider additional factors such as ergonomics and anthropometrics.</p>	<p>Produce ordered sequences and schedules for manufacturing products they design detailing resources required.</p> <p>Make use of specialist equipment to mark out materials.</p> <p>Use a broad range of material joining techniques including stitching, mechanical fastenings, heat processes and adhesives.</p> <p>Select and use CAD/CAM to manufacture products/components and apply surface finishing techniques to increase the standard of quality.</p> <p>Investigate and develop skills in modifying the appearance of materials including textiles and other manufactured materials.</p> <p>Follow procedures for safety and understand the process of risk assessments.</p>	<p>Evaluate their products against their original specification and identify ways to improve them.</p> <p>Actively involve others in the testing of their products.</p> <p>Evaluate products through disassembly to determine how they are constructed and function.</p> <p>Evaluate the positive and negative impact that products can have in the wider world.</p> <p>Test, evaluate and refine their ideas and products against the specification taking into account the views of intended users and other interested groups.</p>	<p>How to classify materials by structure e.g hard woods, soft wood, ferrous and non-ferrous, thermoplastics and thermosetting plastics.</p> <p>Consider the physical properties of materials. e.g brittleness malleability.</p> <p>How to use simple electronic circuits incorporating inputs and outputs.</p> <p>Consider textile fibre sources eg.natural and synthetic.</p> <p>How materials can be cast in moulds.</p> <p>Make use of sensors to detect heat, light etc such as thermistors and light dependent resistors.</p>
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Assessment Objectives Cooking and Nutrition

<p>KS4 – WJEC Hospitality and Catering</p> <p>Unit 1</p> <p>The hospitality and catering industry</p>	<p>LO1 Understand the environment in which hospitality and catering providers operate</p>	<p>LO2 Understand how hospitality and catering provision operates</p>	<p>LO3 Understand how hospitality and catering provision meets health and safety requirements</p>	<p>LO4 Know how food can cause ill health</p>	<p>LO5 Be able to propose a hospitality and catering provision to meet specific requirements</p>
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	<p>AC1.1 describe the structure of the hospitality and catering industry</p> <p>AC1.2 analyse job requirements within the hospitality and catering industry</p> <p>AC1.3 describe working conditions of different job roles across the hospitality and catering industry</p> <p>AC1.4 explain factors affecting the success of hospitality and catering providers</p>	<p>AC2.1 describe the operation of the kitchen</p> <p>AC2.2 describe the operation of front of house</p> <p>AC2.3 explain how hospitality and catering provision meet customer requirements</p>	<p>AC3.1 describe personal safety responsibilities in the workplace</p> <p>AC3.2 identify risks to personal safety in hospitality and catering</p> <p>AC3.3 recommend personal safety control measures for hospitality and catering provision</p>	<p>AC4.1 describe food related causes of ill health</p> <p>AC4.2 describe the role and responsibilities of the Environmental Health Officer (EHO)</p> <p>AC4.3 describe food safety legislation</p> <p>AC4.4 describe common types of food poisoning</p> <p>AC4.5 describe the symptoms of food induced ill health</p>	<p>AC5.1 review options for hospitality and catering provision</p> <p>AC5.2 recommend options for hospitality provision</p>
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<p>Unit 2 Hospitality and catering in action</p>	<p>LO1 understand the importance of nutrition when planning menus.</p>	<p>LO2 understand menu planning</p>	<p>LO3 be able to cook dishes</p>		
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	<p>AC1.1 describe functions of nutrients in the human body</p> <p>AC1.2 compare nutritional needs of specific groups</p> <p>AC1.3 explain characteristics of unsatisfactory nutritional intake</p> <p>AC1.4 explain how cooking methods impact on nutritional value</p>	<p>AC2.1 explain factors to consider when proposing dishes for menus</p> <p>AC2.2 explain how dishes on a menu address environmental issues</p> <p>AC2.3 explain how menu dishes meet customer needs</p> <p>AC2.4 plan production of dishes for a menu</p>	<p>AC3.1 use techniques in preparation of commodities</p> <p>AC3.2 assure quality of commodities to be used in food preparation</p> <p>AC3.3 use techniques in cooking of commodities</p> <p>AC3.4 complete dishes using presentation techniques</p> <p>AC3.5 use food safety practices</p>		
KS3 Programmes of Study for	AO1: Understand health and safety relating to food and cookery	AO2: Understand and apply the principles of	AO3: Understand the source, seasonality and characteristics of a	AO4: Understand factors relating to food choice (so that they are able to feed themselves	AO5: Develop practical cooking skills (so that they become competent in a range of cooking techniques

<p>cooking and nutrition</p> <p>Key messages, advice and explanatory notes (1-8) for schools</p>	<p>(Explanatory note 2)</p>	<p>nutrition and health</p> <p>(Explanatory notes 1 &4)</p>	<p>broad range of ingredients</p> <p>(Explanatory notes 5,7&8)</p>	<p>and others a healthy and varied diet).</p> <p>(Explanatory note 3 &6)</p>	<p>and able to cook a repertoire of predominantly savoury dishes)</p> <p>(Explanatory note 2)</p>
	<p>Know and understand how to identify risks (food poisoning, cross contamination) and minimise hazards in the cooking environment.</p> <p>Know and understand the difference between use by and best before dates)</p> <p>Know and understand the principles of safe storage, cooking and reheating foods.</p>	<p>Know and understand how nutritional requirements differ for specific groups of people (Life stages, allergies and intolerances)</p> <p>To understand how nutritional information and allergy advice on food packaging can be used to help make healthy choices (traffic lights).</p>	<p>Know and understand how ingredients have different effects in a recipe and be able to describe the sensory, nutritional and physical functions of ingredients in recipes.</p>	<p>Know and understand the range of cultural and ethical factors that determine food choices:</p> <p>Religion</p> <p>Vegetarian/vegan</p> <p>Fair trade</p> <p>Animal welfare</p> <p>Advertising/marketing.</p>	<p>Learners will make dishes of increasing complexity that further develop their food preparation and cooking skills and use a range of commodities.</p> <ul style="list-style-type: none"> -Making/shaping doughs -Sauce making - Blending - Frying -Whisking -Seasoning -Test for readiness

	<p>Know and understand safe and hygienic working practices and the practical steps they can take to remain safe and hygienic.</p> <p>Know and understand safe preparation, usage, cleaning and storage of utensils and equipment</p>	<p>Know and understand what is meant by a balanced diet using the current UK dietary recommendations (Eatwell guide and 8 Tips)</p> <p>Know the sources and understand the functions of the nutrients that make up a balanced diet</p> <p>Know and understand the importance of exercise and energy balance in maintaining a healthy weight.</p>	<p>know and understand the main food groups and examples of foods for each group (cereals, fruit, vegetables, meat, fish, eggs, fats/oils, milk/dairy food products)</p> <p>Know and understand that foods come from a range of sources (caught, reared, grown).</p> <p>Know and understand that raw ingredients are processed to create food products (primary, secondary processing)</p>	<p>Know and understand the range of social and environmental factors that determine food choices:</p> <p>Personal/family preference</p> <p>Availability (seasonal/locality)</p> <p>Food miles</p> <p>Organics</p> <p>Food waste</p> <p>Packaging and recycling</p>	<p>Learners will be able to demonstrate a range of basic food preparation and cooking skills using a variety of food commodities</p> <ul style="list-style-type: none"> -Weighing/measuring -Knife skills (bridge/ claw) -Peeling - Segmenting -Boiling/ simmering -Rubbing in -Creaming/ all-in-one - Melting - Folding - Baking
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How can Design Technology support your future?

Of course, we offer **GCSE Level courses**, and we encourage students continued 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 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
- Civil engineer
- Quantity Surveyor
- Graphic Designer
- Fashion Designer
- Branding designer
- Software Engineer
- Catering
- Nutritionist
- Food technologist
- Manufacturing Engineer / manager
- Architect
- Construction
- Aerospace engineer

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

DESIGN TECHNOLOGY CURRICULUM PROGRESSION OVERVIEW OUTWOOD ACADEMY RIPON

Please note there are separate overviews for courses studied at Level 2

	YEAR 7	YEAR 8	YEAR 9
	<p>Year 7 D&T</p> <p>Students will have 1 hours of D&T a week which will be split over the different elements of D&T to ensure a broad curriculum is achieved where the key focus is learning about core materials. Students operate on a carousel system throughout the academic year.</p>	<p>Year 8 D&T</p> <p>Students will have two hours of D&T a week which will be split over the different elements of D&T to ensure a broad curriculum is achieved where the key focus is developing design skills / strategies whilst building on their technical knowledge. In 2020/21 the 2 hours will be split into specialist teaching areas with 1 hour being in food and nutrition and the second hour within design and technology</p>	<p>Year 9 D&T</p>
<p>Autumn Term 1</p> <p>Autumn Term 2</p> <p>Spring Term 1 & 2</p>	<p>Food and nutrition</p> <p><i>In year 7 students will develop a basic understanding of nutrition and culinary skills, building on existing knowledge obtained from key stage 2 Design and Technology. Split into topics including food safety, culinary skills, heat transfer, commodities, food science and food choice.</i></p> <p>The aim of this project is to give Year 7 students the opportunity to learn where food comes from, how to cook a range of dishes safely and hygienically and to apply their knowledge of healthy eating. Knowledge and skills include use of basic equipment and tools, basic practical skills such as weighing, chopping, heat transfer</p>	<p>The science of food</p> <p><i>In year 8 students will develop confidence in cooking a range of dishes and make informed decisions about food choice. Reflecting and building on existing knowledge through exploration of the topics Nutrition, Food poisoning, food choice and culinary skills embedded in the projects below.</i></p> <p>This project allows students to explore how food works to distinguish a whole process of how food is produced, the science that occurs and whether the food is good for you.</p> <p>This aim of this project is to look at food hygiene, roles within the kitchen and how ingredients react with each other to</p>	<p>DT - Storage Unit</p> <p>This project explores the design process through development of a storage unit based on 20th century design movements. Students explore technical drawing alongside cad/cam work</p> <p>DT - Contemporary Chair</p> <p>Exploring biomicry and how this can help develop design ideas. Students explore the impact of nature on design to create designs for contemporary chaits using technical drawing, cad /cad and modelling techniques</p> <p>Food-This year is a preparatory year developing making and presentational skills that demonstrate an understanding of the hospitality industry. Students will explore a range of chef</p>

	<p>explored using a gas and electric oven / hob, portion control, origin and simple functions of ingredients, healthy eating and The Eatwell Guide, food choice. Students will also consider environmental factors and look at food miles and sources of food. Alongside exploring dietary</p> <p>Take it away</p> <p>This project is based around our local food businesses in ripon and the surrounding areas, with a focus on the importance of design and branding. Students are asked to look at a relevant restaurant and consider how they can design packaging and marketing materials for a new takeaway service. Each student will look at branding, marketing and different communication techniques such as orthographic drawing, isometric, one and two point perspective. Once students have completed the design they will create prototype packaging alongside other relevant marketing materials</p> <p>This project aims to give students an understanding of the basic core materials of paper, card and board. Students will understand how they are made, the origins of the raw material, their characteristics and</p>	<p>create food products. Students will conduct experiments for example making butter in a jar, spherification to produce honey caviar and also look at bacteria and food poisoning alongside the risks associated with how we use and store food. Students will also learn about allergies and intolerances, how food supports a healthy body and the nutritional value of food groups, with a main focus on macro and micronutrients. Whilst exploring food labeling and how to calculate the nutritional breakdown of food.</p> <p>Students will develop their core knowledge within food and nutrition , whilst also understanding the importance of hygiene, teamwork and roles within a kitchen.</p> <p>Around the home</p> <p>Students are given the challenge of designing and manufacturing products to make life easier around the home. They will need to consider ergonomics and anthropometrics within their designs alongside using their knowledge of the properties of different materials</p>	<p>challenges that ask them to design menus and consider plate presentation to cook and present restaurant quality food. Students will expand on their understanding of seasonality and nutrition when creating their dishes. They will look at successful chefs and the style of dishes they create fusing nutrition and creativity together.</p>
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	<p>how to use them effectively throughout the project. They will also develop their skills in typography and technical drawing.</p>	<p>This project builds on the core materials learnt about in Year 7 but teachers' students how to work with the materials in more depth..</p> <p>Students will learn how to use a variety of different materials and understand the different techniques and manufacturing processes that apply to the specific materials.</p>	
<p>Summer Term 1</p> <p>Summer Term 2</p>	<p>Engineering time</p> <p>Students are tasked with designing and making a clock based around the de stijl art and design movement</p> <p>The iterative design process will be key in this project and students will write up their findings along the way and using their core materials knowledge on timbers and plastics, they will come up with a final solution. Students will briefly cover isometric drawings and corporate ID / colour theory, but the aim will be on the functioning of the prototype.</p> <p>The emphasis on this project will be the design process and the use of cad /cam in industry, exploring qa/qc and also manufacturing methods. Students will consider the aesthetics of design alongside the functionality of the product.</p>	<p>An emphasis on quality of design will be important in this project. Students will be given time to take inspiration from contemporary design to create a unique design of their own. Students will be taught communication techniques such as thick and thin lines, rendering, tonal blending, highlight, lowlight, text</p> <p>Global Cuisine</p> <p>This project takes students around the world looking at food from different cultures. Exploring the different practices, attitudes, and beliefs as well as the networks and institutions surrounding the production, distribution, and consumption of food.</p> <p>Students build on the basic food skills learnt in Year 7 but challenges students to produce more complex and rounded meals suitable for feeding a family. This project aims to expand the range of foods that students know how to cook by providing balanced and nutritional meals for the</p>	<p>DT - Micro House</p> <p>Exploring the housing crisis then using problem solving skills and design knowledge to develop ideas. Students explore a range of technical drawing techniques used within architecture using both hand drawn and cad/cam</p>

		<p>students to make, with an introduction to enhancing flavour through combining ingredients, seasonings and spices.</p> <p>The complexity of techniques used becomes more challenging with students being asked to prepare a range of pastries, prepare sauces from scratch, use professional chopping methods, through paired tasks to prepare a range of multi element dishes using a range of cooking methods and asking for critical evaluation of their finished product.</p> <p>By the end of the project, students will have a better understanding of where their ingredients come from, the function of different nutrients and the limitations that different faiths, religions, beliefs have on a dish.</p> <p>Illumination:</p> <p>This project is a technology driven design brief and an introduction into electronics and systems. Students are tasked with designing and manufacturing a light based around LED technology.</p> <p>By the end of the project students will know what a closed loop and open loop system is, what a I,O and P is, they will understand finite and non-finite energy sources, how power stations work and the origins of this power. Students will understand basic components and</p>
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the functions of these and the basics of soldering to create their own circuit.

The design element of this project is with the graphic / pattern they chose to laser cut onto the cast acrylic. Students will focus on using three techniques for designing (Bio mimicry, design movements and inspirational design) to help them design their graphic. Students will be taught how to use cordless drills, different fixing (permanent and none permanent) techniques such as adhesives and screws. Recap of knowledge of timbers and polymers will be used with the introduction of new equipment such as files, scroll saws and oscillating sanders.

