



DESIGN TECHNOLOGY

Why is the study of Design and Technology important?

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

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

- **Electronic products:** Use electronic components to build a mood light.
- **Food:** Adapt recipes to meet the needs of a range of people and create food products whilst learning about nutrition.
- **Graphics:** Learn how to use 2D and 3D modelling programs to plan, design and make products.
- **Product Design:** Work with materials like metals, plastic, wood, and use them to make interesting products.
- **Textiles technology:** Learn about different fabrics, textile techniques and processes in order to make innovative 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 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 /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 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.
- How to use and adjust equipment and machinery depending on the 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 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 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 eg. 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 to prevent food poisoning.

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

Design Technology develops a number of skills that will support your study of other subjects, as so many of the skills you will acquire in Design Technology are transferable. Design Technology disciplines will develop your focus, resilience, self-expression, teamwork, mathematical skills and problem solving and communication skills, which will help you in **all** of your other subjects. It will give you an opportunity for creative expression and practical thinking and encourage you to think about how to improve and hone designs and encourage 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 your work in lessons, there will be times when we explore the professional workplace and wider design practices and materials. This will deepen your understanding of professional work and introduce you to new techniques and ideas.

You will also have the opportunity to deepen your understanding of Design Technology disciplines through extracurricular opportunities, where you can continue to develop your creative ideas, or work on specific design projects. During enrichment clubs, you will have the opportunity to meet design and technology enthusiasts from other year groups, during the sessions you will have access to the latest technologies, 3D printers, laser cutters, sublimation printers etc to ensure your work is accurate and to also further develop your design and practical skills.

There may also be an opportunity to participate in trips to London, universities such as the Northern School of Art to complete workshops, The Hepworth Gallery to complete primary research, as well as exhibiting your own work within the Academy. Occasionally, there will be opportunities to enter national competitions to gain additional audiences and recognition for your work such as Rotary Tournament Challenge and Wakefield College's Cross Schools Cookery Competition.

How are you assessed in Design Technology?

Throughout the 7 years in Design Technology you are assessed using the following assessment objectives which ensure that you can cumulatively build your 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

	Design	Make	Evaluate	Technical Knowledge
Y10/11	Understand that all design and technological practice takes place within contexts which inform outcomes	Develop and apply in-depth knowledge by selecting and working with appropriate	Test, evaluate and refine their ideas and products against the specification taking	Understand the impact of new and emerging technologies on industry, enterprise, sustainability, people, culture,

	<p>Investigate and analyse the work of past and present professionals and companies in the area of design and technology in order to help inform their own ideas</p> <p>Use different design strategies, such as collaboration, user-centred design and systems thinking, to generate initial ideas and avoid design fixation.</p> <p>Design and develop at least one prototype that responds to needs and/or wants and is fit for purpose, demonstrating functionality, aesthetics, marketability and consideration of innovation</p> <p>Consider additional factors such as ergonomics and anthropometrics.</p>	<p>materials and components in order to produce a prototype</p> <p>Apply in depth knowledge using appropriate and accurate marking out methods including: measuring and use of reference points, lines and surfaces; use templates, jigs and/or patterns; work within tolerances; understand efficient cutting and how to minimise waste.</p> <p>Follow procedures for safety and write risk assessments.</p> <p>Use specialist techniques and processes to shape, fabricate, construct and assemble a high quality prototype, including techniques such as wastage, addition, deforming and reforming, as appropriate to the materials and/or components being used</p> <p>Use appropriate surface treatments and finishes for functional and aesthetic purposes</p>	<p>into account the views of intended users and other interested groups.</p> <p>Critically evaluate new and emerging technologies to inform design decisions; considering contemporary and potential future scenarios from different perspectives, such as ethics and the environment.</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>society and the environment, production techniques and systems.</p> <p>Know how energy is generated and stored in order to choose and use appropriate sources to make products and to power systems.</p> <p>Understand developments in modern and smart materials, composite materials and technical textiles.</p> <p>Understand how electronic systems provide functionality to products and processes, including sensors and control devices to respond to a variety of inputs, and devices to produce a range of outputs</p> <p>Understand how the use of programmable components are used to embed functionality into products in order to enhance and customise their operation</p> <p>Understand the functions of mechanical devices, to produce different sorts of movement, changing the magnitude and direction of forces:</p> <p>Know how to make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines.</p>
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				Use learning from science and maths to help design and make products that work.
Year 10/11	<p>Work confidently within a range of relevant domestic, local and industrial contexts, such as the home, health, leisure, culture, engineering, manufacture etc.</p> <p>Consider the influence of a range of lifestyle and consumer choices when designing products.</p> <p>Take creative risks when making design decisions.</p> <p>Analyse where human values may conflict and compromise has to be achieved.</p> <p>Decide which design criteria clash and determine which should take priority.</p> <p>Consider additional factors such as ergonomics and anthropometrics.</p>	<p>Produce costings spreadsheets for products they design and make.</p> <p>Match and select suitable materials and their fitness for purpose.</p> <p>Adapt their method of manufacture to changing circumstances.</p> <p>Recognise when it is necessary to develop a new skill or technique.</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 the concept of circular economy approaches in relation to product development and consumption.</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 construct and use simple and compound gear trains to drive mechanical systems from a high revving motor.</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>

<p>Y9</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>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>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 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>Select appropriate methods to evaluate their products in use and modify them to improve performance.</p> <p>Produce short reports making suggestions for improvements.</p> <p>Evaluate products that they are less familiar with using themselves.</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>How to apply computing and use electronics to embed intelligence in products that respond to inputs.</p> <p>How to control outputs such as actuators and motors.</p> <p>How to use software and hardware to develop programmes and transfer these programmable components for example, microcontrollers.</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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		Apply a range of finishing techniques to a broad range of materials.		
Y8	<p>Consider additional factors such as ergonomics and anthropometrics.</p> <p>Develop and communicate design ideas using annotated sketches, detailed plans,</p> <p>Use research and begin to explore, such as the study of different cultures, to identify and begin to understand user needs.</p>	<p>Follow procedures for safety and understand the process of risk assessments.</p> <p>Apply a range of finishing techniques to a broad range of materials.</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>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>Use learning from science and maths to help design and make products that work.</p> <p>How to make adjustments to the settings of equipment and machinery such as sewing machines and drilling machines.</p> <p>Understand the properties of materials, including smart materials, and how they can be used to advantage.</p>
Y7	<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>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>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>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>Be able to independently generate creative ideas informed by stimulus using annotations to explain key features relating to brief/specification.</p> <p>Consider additional factors such as ergonomics and anthropometrics.</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>Select and use 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 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>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>Consider textile fibre sources eg.natural and synthetic.</p> <p>Make use of sensors to detect heat, light etc such as thermistors and light dependent resistors.</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>KS3 Programmes of Study for cooking and nutrition</p> <p>Key messages, advice and explanatory notes (1-8) for schools</p>	<p>AO1: Understand health and safety relating to food and cookery</p> <p>(Explanatory note 2)</p>	<p>AO2: Understand and apply the principles of nutrition and health</p> <p>(Explanatory notes 1 &4)</p>	<p>AO3: Understand the source, seasonality and characteristics of a broad range of ingredients</p> <p>(Explanatory notes 5,7&8)</p>	<p>AO4: Understand factors relating to food choice (so that they are able to feed themselves and others a healthy and varied diet).</p> <p>(Explanatory note 3 &6)</p>	<p>AO5: Develop practical cooking skills (so that they become competent in a range of cooking techniques and able to cook a repertoire of predominantly savoury dishes)</p> <p>(Explanatory note 2)</p>
<p>Year 11</p>	<p>Be able to explain food safety legislation and the role of the Environmental Health Officer.</p> <p>Know and understand the HACCP system and the purpose for food businesses.</p>	<p>Be able to analyse and evaluate diets and make recommendations for improving nutritional profile.</p> <p>Be able to calculate energy and nutritional content of recipes</p> <p>Be able to explain health risks of an unbalanced diet and give sound nutritional advice on how to improve it</p>	<p>Know and understand how cooking methods affect the nutritional content of dishes</p> <p>Know and understand why and how food is cooked and the chemical and physical changes that occur.</p>	<p>Know and understand how medical conditions determine food choices:</p> <p>Cardiovascular, obesity, bone health, dental health, type 2 diabetes, iron deficiency anaemia bowel disorders, allergies and intolerances.</p>	<p>Learners are able to organise their time, dovetailing planning to produce more than one complex dish in the time available.</p> <p>They are able to use equipment, including electrical equipment, with confidence.</p> <p>They are able to use presentation and food styling techniques independently.</p> <p>Be able to accurately portion foods.</p>
<p>Year 10</p>	<p>Know and understand the factors that affect bacterial growth and their control (including temperatures)</p> <p>Know and understand the main causes of food contamination and the steps that need to be</p>	<p>Know and understand how to amend and develop a recipe to suit nutritional needs of individuals.</p>	<p>Know and understand how processing affects the physical, sensory and nutritional properties of foods.</p>	<p>Know and understand how economic factors determine food choices and nutritional health:</p> <p>High and low budgets</p> <p>effects of food poverty</p>	<p>Learners continue to develop their food preparation and cooking skills making complex dishes that meet the needs of users</p> <p>They are able to follow recipes independently.</p>

	taken to prevent food poisoning.			Know how to make informed choices about food from packaging and labelling.	They are developing presentation and styling techniques.
Year 9	Know how to handle high risk foods	Know and understand the causes and effects of an unbalanced diet	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.	Know and understand the range of cultural and ethical factors that determine food choices: Fair trade Animal welfare Advertising/marketing.	Learners will make dishes of increasing complexity that further develop their food preparation and cooking skills and use a range of commodities. - Frying - Sauce making - Melting - Seasoning - Test for readiness - Segmenting
Year 8	Know and understand how to identify risks (food poisoning, cross contamination) and minimise hazards in the cooking environment. Know and understand the difference between use by and best before dates) Know and understand the principles of safe storage, cooking and reheating foods.	Know and understand how nutritional requirements differ for specific groups of people (Life stages, allergies and intolerances) To understand how nutritional information and allergy advice on food packaging can be used to help make healthy choices (traffic lights).	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.	Know and understand the range of cultural and ethical factors that determine food choices: Religion Vegetarian/vegan	Learners will make dishes of increasing complexity that further develop their food preparation and cooking skills and use a range of commodities. - Making/shaping doughs - Blending - Whisking

					<ul style="list-style-type: none"> - Boiling/simmering - Rubbing in
Year 7	<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 - Creaming/all-in-one - Kneading/Folding - Baking

How can Design Technology support your future?

Of course, we offer the study of GCSE and A Level and we encourage your continued study in this fantastic subject. Yet we know that choice and personal interest are important aspects of worthy study. Whether you have continued your study of a discipline of Design Technology into GCSE or A level or not you will have gained access to this wide enriching subject and its study of the various disciplines will have taught you 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 you have been able to study creative thinking, problem solving, planning and design principles will help your 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 YEAR 7 - 9 OUTWOOD GRANGE ACADEMY

THERE ARE SEPARATE OVERVIEWS THAT HAVE ALREADY BEEN PRODUCED FOR THE QUALIFICATIONS OFFERED AT BTEC AND GCSE IN THE OPEN ELEMENT. THESE WILL BE SEPARATELY LISTED ON OUR WEBSITE.

	YEAR 7	YEAR 8
	<p>Year 7 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 learning about core materials. Students will have 1 hr per week of Product Design completing three projects. They will have 1 hr of food or textiles, which will swap at February half term so all students cover the D&T Curriculum.</p>	<p>Year 8 D&T</p> <p>Students will have 1 hour 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 and manufacturing skills whilst building on their technical knowledge. Students operate on a rotation throughout the academic year.</p>

<p>Autumn Term 1</p>	<p>Product Design - CAD project - Zip Its Students will learn about plastic and the impact on the environment. We will introduce them to adobe illustrator software exploring the basic tools such as pen tool, fill colour, strike tool, type tool, shape tool completing a range of tutorials.</p> <p>Textiles Skills - Identifying hazards and control measures for a textiles classroom. Learn how to use a range of textile equipment safely (fabric shears, needle and pins) Students will be taught to use the Sewing machine safely in order to work with it confidently. Threading it up, changing settings. Students will be taught how to insert a zip in preparation for the Humbug Project.</p> <p>Food - How to be safe and hygienic whilst cooking Students will learn about the principles of food safety including pathogenic bacteria and cross contamination Students will be taught how to use a range of equipment safely and accurately and explore the key principles of a healthy balanced diet. Students will develop their repertoire of cooking skills creating a variety of products such as flapjack, and pizza.</p> <p>Product Design - CAD project - Zip it's - Create a pac man using the tools learnt in previous weeks. Create a design on adobe illustrator, develop the design, and prepare for the laser cutter. Manufacture the zipit on the laser cutter.</p>	<p>Rotation 1 - Textiles (14 weeks) (Cushion cover inspired by the Artist Beatriz Milhazes to be sold at the gift shop in The Hepworth) Key concepts covered;</p> <ul style="list-style-type: none"> • Researching the Artist Beatriz Milhazes • Know how to use CAD packages to create patterns • The Tie-Dye process and the impact of dye on the environment. • Manufacture of a cushion cover • Designing patterns inspired by the artist • Printing techniques - transfer printing using crayon and heat • Further develop machining skills
<p>Autumn Term 2</p>	<p>Textiles (Humbug Project) - Students will analyse existing products by completing a product analysis. They understand the importance of customer profiling in order to meet the needs of the end user. Learn to write a specification for the product and design suitable products to match the specification. Students will continue to develop their practical skills learning a range of hand embroidery stitches, technique applique, and a life skills attaching a button. They will then apply these to their final product.</p> <p>Food - During this half term students will learn how to adapt a recipe to make it more nutritious. Learn about the nutritional needs of different age groups and develop more advanced techniques in cookery</p> <p>In the spring term student's move to a different material focus in Product Design learning about types of woods, and their properties. The project is to design and manufacture a</p>	<p>Rotation 2 - Product Design (14 weeks) - Trebuchet -</p> <p>Key concepts covered;</p>

<p>Spring Term 1</p>	<p>Pencil Holder. The pencil holder will be inspired by TADO, a Sheffield based design company. Students will develop their rendering skills applying colour to a range of designs. In Textiles students will focus on their manufacture of the humbug using equipment independently and safely, following control measures and learning about quality control checks in order to produce a high quality product. They will then understand the importance of evaluating their end product. Food - Use a range of equipment safely and independently (recall from Unit 1) Adapt recipes to suit different needs (recall from Unit 2) Learn how to present dishes to a high standard. Evaluation of cooking skills/sensory characteristics Be confident in more advanced techniques in cooking. Develop practical skills exploring cooking methods making Fruit Crumble, Ragu and Apple Cake.</p>	<ul style="list-style-type: none"> ● How to create and develop design ideas inspired by culture ● Motion and forces, ● Measuring and the need for accuracy (tolerances discussed) ● Safe use of a range of hand tools. ● Safe use of a range of machinery. ● Using jigs to ensure accuracy to manufacture the trebuchet. ● Metal work.
<p>Spring Term 2</p>	<p>Product Design - Pencil Holder Students will learn to develop their ideas, annotate the designs and know why this is important in the design industry. Using tenon saws, pillar drill, sanding discs students will manufacture the pencil holder. Students will be taught about the importance of following the health and safety measures in place in the classroom to ensure themselves and others are kept safe.</p> <p>New groups in Food and Textiles. Textiles Skills - Identifying hazards and control measures for a textiles classroom. Learn how to use a range of textile equipment safely (fabric shears, needle and pins) Students will be taught to use the Sewing machine safely in order to work with it confidently. Threading it up, changing settings. Students will be taught how to insert a zip in preparation for the Humbug Project.</p> <p>Food - How to be safe and hygienic whilst cooking Students will learn about the principles of food safety including pathogenic bacteria and cross contamination</p>	<p>Year 8 Food (8weeks) Designing a menu for The Hepworth Gallery Cafe</p> <ul style="list-style-type: none"> ● Recap of Health and Safety and how to prevent food poisoning from year 7 ● Recap a healthy balanced diet, incorporating all the food groups into a dish. ● Adapting recipes for specific diets/needs appropriate for the cafe e.g. food allergies & intolerances, vegetarianism ● Develop practical skills using the oven, hob and key equipment making sweet and savoury dishes such as muffins, pasta bake, carrot cake and pasties ● Evaluate dishes

<p>Summer Term 1</p>	<p>Students will be taught how to use a range of equipment safely and accurately and explore the key principles of a healthy balanced diet. Students will develop their repertoire of cooking skills creating products for a children party such as flapjack, and pizza.</p> <p>Product Design - mood light project Students will learn about fossil fuels and their impact on the environment and ways in which energy is stored. They will be taught how to Interpret a design brief and produce a specification.</p> <p>Recognising basic electrical components and having some understanding of their functions. Textiles (Humbug Project) - Students will analyse existing products by completing a product analysis.They understand the importance of customer profiling in order to meet the needs of the end user. Learn to write a specification for the product and design suitable products to match the specification. Students will continue to develop their practical skills learning a range of hand embroidery stitches, technique applique, and a life skill attaching a button.They will then apply these to their final product.</p> <p>Food - During this half term students will learn how to adapt a recipe to make it more nutritious. Learn about the nutritional needs of different age groups and develop more advanced techniques in cookery</p> <p>Product Design - Mood Lights During the final half term of Y7 students will focus on the manufacture of the moodlight. By the end they will know how; To solder safely and accurately. To use hand tools safely. To finish materials like softwood and acrylic to a high standard. To join materials with both adhesives and screws</p>	<p>Y8 Graphics (4 weeks) (promotional materials)</p> <ul style="list-style-type: none"> ● Getting to grips with adobe illustrator ● The do's and don'ts of advertising ● Typography - looking at letting styles ● Careers in DT
<p>Summer Term 2</p>	<p>In Textiles students will focus on the manufacture of the humbug using equipment independently and safely, following control measures and learning about quality control checks in order to produce a high quality product.They will then understand the importance of evaluating their end product. Food - Use a range of equipment safely and independently (recall from Unit 1) Adapt recipes to suit different needs (recall from Unit 2)</p>	

	Learn how to present dishes to a high standard. Evaluation of cooking skills/sensory characteristics Be confident in more advanced techniques in cooking. Develop practical skills exploring cooking methods making Fruit Crumble, Ragu and Apple Cake.	
	Year 9 Creative Option - Textiles Students have had the opportunity to opt to study further a creative subject. This will be 1 hour per week. Students will produce a portfolio of skills, final outcomes and gain perspective on the textiles industry.	Year 9 Creative option - Food Students will cook a variety of sweet and savoury dishes to develop their confidence in the kitchen. They will also build on their knowledge of Health, Safety and Hygiene and healthy balanced diets. Students will learn more about the origin of the ingredients they are using and how to rectify mistakes when they are cooking.
Autumn Term	Knowledge, skills and practical outcomes students will cover: <ul style="list-style-type: none"> • How to produce a mood board and colour palette in response to a brief. • A broad sense of observational drawing and presentation skills. • Synthetic and natural dyeing processes and the impact this has on the environment. • Hand sewing skills. • Machine sewing skills and links to industry. • Textile samples using techniques inspired by themes and artists. • Students produce a portfolio demonstrating the skills they have covered during the term. 	Key concepts covered: <ul style="list-style-type: none"> • classroom health, safety and hygiene • how to avoid cross contamination and food poisoning • how to adapt meals to fit with healthy balanced diets • practical skills such as knife skills, working with high risk foods and making sauces
Spring Term	Knowledge, skills and practical outcomes students will cover: <ul style="list-style-type: none"> • Students build on their skills learnt in Term 1 in response to a theme, creating individual responses. • How to produce design ideas in response to a brief. • How to develop design ideas into a final outcome. • Students produce an interior product as a final outcome based on their portfolio of skills produced so far. 	Key concepts covered: <ul style="list-style-type: none"> • functions of ingredients in recipes • where ingredients come from, including seasonality • refining practical skills and making basic adaptations to recipes for a specific purpose
Summer Term	Knowledge, skills and practical outcomes students will cover: <ul style="list-style-type: none"> • Students respond to a fashion brief set and create individual responses. • Fashion trends and fashion forecasting. • Observational drawings produced in response to primary and secondary research. • Textile samples produced showcasing hand and machine skills. • Fashion design ideas, developed into final designs. • Technical manufacturing skills. 	Key concepts covered: <ul style="list-style-type: none"> • designing menus to meet a brief • creating plans to execute their own recipes • developing more complex practical skills such as making pastry

	<ul style="list-style-type: none"> Produce a fashion product which showcases the skills and knowledge learnt over the year. 	
	<p>Year 9 Creative Option - Product Design/Graphics Throughout the year students will be taught key concepts from both Product Design and Graphics. The rotation will take place in February Half term. Throughout the year they will continue to develop their design, manufacture, evaluation skills along with technical knowledge.</p>	
Autumn Term	<p>In the graphics project students will focus on designing and creating a spaceship, inspired by the game No Man's Sky.</p> <ul style="list-style-type: none"> Drawing techniques including isometric, orthographic. Drawing and designing a spaceship. Learning 2D Design software - creating nets/boxes for their spacecraft Learning Sketchup - creating 3d spaceships 	
Spring Term	<ul style="list-style-type: none"> Learning how to 3d print their spaceship designs. Learn how to Laser Cutting boxes for their mini spaceship designs Learning Adobe illustrator in order to produce graphics for the box of their spaceships <p>In Product Design the students will undertake a series of focused practical tasks designed to give them valuable experience of working with woods, metals & plastics. They will cover-</p> <ul style="list-style-type: none"> Rendering Techniques Acrylic Keyring project- Chemical welding, sawing, filing and polishing Spanner project- Produce a replica of a multi tool spanner that could replace the existing one using mild steel. Understanding drawings and tolerances. 	
Summer Term	<ul style="list-style-type: none"> Perspective drawing. Wood joints-half lap- Use of joiner tools such as marking gauges, tenon saws etc. Pine wood joint made into a mobile phone holder 	