

# KS3 Design and Technology

## Curriculum Intent 2021-2022

### Core intent of the subject at key stage 3

Our KS3 curriculum at Brine Leas in Design and Technology delivers learning that gives young people a varied breadth and depth of subject knowledge, core skills and a strong technical understanding which aids their personal development and provides every child with the opportunity to achieve whilst gaining life-long learning experiences. Students will acquire knowledge that gives them a strong understanding of the world around them and our heritage as a design and manufacturing nation. Students will not only obtain knowledge, but also develop understanding whilst practicing home skills that make them able to contribute and add value to our community at a local, national and global level. The Design and Technology curriculum at Brine Leas is a stimulating, rigorous and practical subject encompassing the specialist areas of Art and Design, Design & Technology, Engineering, Graphics, Food, Photography and Textiles. As well as having the opportunity to use the workshops at lunch times, there are a wide range of extra-curricular activities such as Chop and Bop, Blacksmith club, Master Chef, Crochet club that students can become involved in. Extra-curricular opportunities are available to the students that also involve wider community involvement such as preparing the Food for the school careers convention day, involvement in the Nantwich Food show, trips to Museum of Science and Industry in Manchester, the Design IT competition and guest speakers from the Engineering sector and University tutors in Textiles and Electrical Engineering. Our curriculum strives to inspire, motivate and present a range of opportunities for students to develop their creative, practical and technical skills. Students design and make prototypes and products that solve real life problems within a variety of contexts, considering both their own and others' needs, wants and values.

Everything around us has been designed, the clothes we wear, the technology we use, the buildings around us, the food we eat, the media we view. Design and Technology at Brine Leas allows students to be inspired to learn and do more. It gives them opportunities that are both challenging and aid personal development for lifelong learning. Design and Technology is a way of doing things logically, it is a way of thinking creatively and applying what students learn for their future pathways to their careers and professions. We encourage students to take risks in their design approaches and aim to develop resourceful, innovative and enterprising young learners who can go on to be the next generation of creative thinkers, designers and practitioners. D&T allows curiosity, inspiration, imagination and motivation, leading to further study and careers in a range of sectors and is a rigorous, challenging subject that builds a bridge between the academic learning and application.

In Design and Technology our aim is for all students to embrace and enjoy the subject matter across all disciplines in KS3. As students build and develop their skills, knowledge and understanding, this ultimately supports them in their future preparation choices in regards to Year 9 options. The subject specialisms provides students with a possible pathway in achieving outstanding results in their chosen specialism at KS4 and KS5.

At KS4 students are given the opportunity to focus on their chosen specialism and opt for the course that best suits their own career aspirations or interests. We will continue to offer both GCSE and Vocational courses which are designed to fit the needs of a wide range of learners.

Students will develop skills, knowledge and understanding across the specialist areas and draw on cross-curricular links with other subjects such as Mathematics, Science, ICT and Art to further enhance their studies. Through the evaluation of products, their own work and the work of prominent practitioners within the chosen specialism, they will develop a critical understanding of the impact of Design and Technology on society and the wider world.

James Dyson- "it is the only opportunity for students to apply what they have learnt in maths and physics"

### Assessment

Students are given a wide range of opportunities to apply their knowledge, understanding and design skills in a wide range of materials. Solving problems around them in an imaginative and creative way using a series design briefs. In Year 7 and 8 tasks are themed to provide students with the opportunity to see how skill sets are transferred across different disciplines. Feedback is provided on a regular basis. An assessment period will take place every 6-8 weeks of each module to test the knowledge gained. In Year 9, each subject specialism area will have a set of practical and theory outcomes to assess knowledge, the design process and manufacturing skills. Please see website for the full assessment record for this subject.

### Homework

Homework set when required

Homework online tasks are set as block which embed and develop key skills which have been delivered.

### Clubs and/or intervention

A wide variety of clubs and support are available for students of all abilities.

### Parental/Carer support

Review children's learning through the assessment wraps and practical outcomes going home at the end of each module in Yr7 and 8 and end of year in Yr9.

### Helpful sources of information

BBC bite size, Technology student.com. DT shared area for exemplar past projects and support material

### Organisation

In Year 7 and Year 8, students undertake two modules in Design and Technology, a module in Textiles and Food with graphics playing an overarching subject area. These modules will be rotated half-way through the year.

The structure in Yr7 and 8 will allow students to experience the diversity of each specialism and prepare them for further study in Yr9. In Year 9, students opt to study a block of design and technology subjects. This allows students to study subjects at a greater depth before making their option choices for key stage 4.

At KS4, students will be given the opportunity to focus on their chosen specialism and opt for the course that best suits their own career aspirations or interests. We will continue to offer both GCSE and Vocational courses which are designed to fit the needs of a wide range of learners.

Students will develop skills, knowledge and understanding across the specialist areas and draw on cross-curricular links with other subjects such as mathematics, science, ICT and art to further enhance their studies. Through the evaluation of products, their own work and the work

of prominent practitioners within the chosen specialism, they will develop a critical understanding of the impact of Design and Technology on society and the wider world.

Class	Option bands Yr9	Subjects
Y / Z	Band 1	Textiles, Graphics, D&T, Food
Y / Z	Band 2	Graphics, D&T, Engineering, Food
Y / Z	Band 3	Textiles, Graphics, Engineering, Food
Y / Z	Band 4	Textiles, D&T, Engineering, Food

Term	Knowledge	Assessment	Connections to learning	Connections to future pathways
<b>Light Project - Designing using CAD &amp; CAM</b>				
Students will be introduced to design and manufacturing using CAD/CAM in the manufacture of light (illuminated screen) through a series of practical activities. Students will be introduced to software and equipment and safe working practice in using this exciting technology				
	<ul style="list-style-type: none"> <li>➤ Traditional drawing techniques (hand drawing)</li> <li>➤ Computer Aided Design is used as a creative tool that uses</li> <li>➤ 2D Design software for digital representation of design and development of ideas.</li> <li>➤ Advantages and disadvantages of CAD.</li> <li>➤ Computer Aided Manufacture has replaced the labour of people.</li> <li>➤ Quality control by humans is needed to achieve an accurate outcome.</li> <li>➤ The importance of CAD/CAM in industry.</li> </ul>	<p>Application of knowledge:</p> <ul style="list-style-type: none"> <li>➤ Designs should show a clear development from Initial ideas to final Product.</li> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ PP students will receive materials and additional support where necessary</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<ul style="list-style-type: none"> <li>➤ Future learning in Y7 is linked through design development and an ability to improve their manufacturing process.</li> <li>➤ Students will also gain an understanding of how to work safely in a workshop.</li> <li>➤ Development in accuracy in drawing in millimetres, measurements and geometric shapes.</li> </ul> <p>Further learning in</p> <ul style="list-style-type: none"> <li>• Graphics</li> <li>• GCSE Engineering</li> <li>• GCSE Design &amp; Technology</li> <li>• Engineering Tech Award</li> </ul>	<p>Further pathways</p> <p>GCSE Design &amp; Technology, GCSE Engineering, and Level 2 Tech Award in Engineering.</p> <p>Pathway to KS5 courses in Product Design, Graphics, Textiles, Photography and Engineering</p> <p>Careers in the creative industry in particular Graphic Design, illustration, IT, Advertising, Architecture and CAD industry.</p> <p>Careers in the creative industry in particular Graphic Design, Advertising &amp; Architecture and CAD based design such as Gaming Graphics.</p>
<b>Light Project; Base &amp; Electronics – D&amp;T Materials</b>				
Understand basic tools and machinery, how to use them correctly and safely				
Pupils manufacture and assemble a shaped based to hold the screen from the CAD/CAM task which has a small design element but are assessed on their accuracy and health and safety skills in the workshop.				
Pupils will also be introduced to the basic differences between woods, hard, soft and man-made.				
	<ul style="list-style-type: none"> <li>➤ Health and safety of tools and machines.</li> <li>➤ Measuring and precision are important when constructing products.</li> <li>➤ Hand tools, including tenon saw, ruler, tri-square, bench-hook, ball pen hammer.</li> <li>➤ Vacuum former.</li> <li>➤ MDF and pine are versatile materials that can be used to construct products.</li> <li>➤ Features of a good design, including layout and shape.</li> <li>➤ Health and Safety using Electronic Circuits.</li> <li>➤ Basic electronics theory and manufacture</li> </ul>	<p>Final piece is assessed against the assessment criteria.</p> <p>Health and safety- how well the pupil has worked with the tools and machinery</p> <p>Accuracy- how well the pupil has used the tools to create an accurate piece</p> <p>Layout – how the pupil has presented their work using their new skills</p> <ul style="list-style-type: none"> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> </ul>	<ul style="list-style-type: none"> <li>➤ Basic tools and equipment</li> <li>➤ Health and safety</li> <li>➤ Mass production using vacuum forming</li> <li>➤ Introduction to basic materials- hard, soft and man-made woods.</li> <li>➤ Further learning in GCSE Engineering GCSE Design &amp; Technology Engineering Tech Award</li> </ul>	<p>Careers in the creative industry in particular Graphic Design, Advertising &amp; Architecture and CAD based design such as Gaming Graphics.</p> <p>Future Learning</p> <p>This project is an educational pathway to KS4 &amp; 5, Graphics and Product Design</p> <p>DT at university and A level</p> <p>Careers in the manufacturing industry</p> <p>Mass production</p> <p>Skills with machinery</p>

		➤ NC statements will be used to monitor student progress throughout KS3		
<b>Textiles Lettering Design Frame</b>				
Students will design and make a textile piece/pieces based on the theme of typography. They will develop their ability to sketch a working plan and understand how to select fabrics, techniques and components that are fit for purpose. They will make their item using a range of surface decoration / embellishment techniques including the use of sewing machines and other appropriate and suitable techniques and equipment.				
<ul style="list-style-type: none"> <li>➤ Basic sewing techniques, including hand stitching (tack stitching and back stitch)</li> <li>➤ Use of components inc beads and sequins.</li> <li>➤ Hand embroidery stitches.</li> <li>➤ Machine sewing accurately</li> <li>➤ Layout and design,</li> <li>➤ Using colour.</li> <li>➤ Use of zentangle</li> <li>➤ Types of fabrics, satin, polycotton and felt.</li> <li>➤ Properties of fabrics, their selection and use.</li> <li>➤ Decorative surface techniques including paint</li> <li>➤ Use of simple Applique.</li> <li>➤ Uses of Textiles and fabrics in daily life</li> <li>➤ Properties of fabrics.</li> <li>➤ Basic understanding of trends and fashion.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Final product and design work are assessed against the assessment criteria. Working towards GCSE 1-9.</li> <li>➤ PP students are given support and materials are provided.</li> <li>➤ Layout of the final product and design.</li> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<ul style="list-style-type: none"> <li>➤ Students in Y7 are able to build on design development and an ability to improve their manufacturing process.</li> <li>➤ Students will also gain an understanding of how to work safely in a textile environment.</li> <li>➤ Development in accuracy in drawing, measuring and planning.</li> </ul>	<p>Careers in the textile and fashion industry. Marketing, buying, retail, advertising &amp; interior design/architecture. This project is an educational pathway to KS4 &amp; 5, Textiles and Fashion</p>	
<b>Metal Letter Project</b>				
Student's first experience of working with metal and the final outcome will be that of a letter/letters formed of metal. The main focus is working safely and gaining a good hands on experience in the following processes: Cutting, filing, drilling, brazing, bending and plastic finishing. All pupils follow the same processes with a limited amount of design, enabling the safe management of larger classes. The design element of this project is limited to applying design styles to 2D 1:1 scale drawings of the letter shapes to be formed, including some layout and shading techniques.				
<ul style="list-style-type: none"> <li>➤ Safe working practices for bench processes.</li> <li>➤ Hand tools, including hacksaw, files, ruler, scribe, engineer square.</li> <li>➤ Manufacturing processes, including cutting</li> <li>➤ filing, and bending</li> <li>➤ Health and safety techniques for machine drilling</li> <li>➤ Health and safety techniques of and processes for joining products, including brazing hearth.</li> <li>➤ Process for applying a surface finish, including plastic coating.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Application of knowledge: Students work safely using basic engineering hand tools and processes.</li> <li>➤ Quality of the practical work including the finish completeness and complexity.</li> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<ul style="list-style-type: none"> <li>➤ The skills and knowledge obtained from this project should be applicable to any future materials-based D&amp;T course, in particular Engineering. Opportunities exist for links to business, studies, science and environmental impact studies.</li> <li>➤ GCSE Engineering</li> <li>➤ GCSE Design &amp; Technology</li> <li>➤ Engineering Tech Award</li> </ul>	<ul style="list-style-type: none"> <li>➤ This brief introduction to working with metal should inspire any pupils with inkling towards engineering in KS4, 5 and beyond.</li> <li>➤ Careers in the Engineering sectors industry in particular Aeronautical Engineering Car Design Aerospace Automotive</li> </ul>	
<b>Introduction to Food &amp; Nutrition</b>				
Students will be introduced to the theme of 'Healthy Eating' and will be taught about Nutrition, health, safety and hygiene through a number of practical activities. They will also be introduced to equipment and safe working practice in the kitchen. Students will demonstrate their knowledge and understanding by producing a variety of dishes whilst working in a kitchen environment.				
<ul style="list-style-type: none"> <li>➤ Knowledge and understanding of ingredients and their functions.</li> <li>➤ Principles of food hygiene and safety</li> <li>➤ Components of a balanced diet, including healthy eating – Eat well guide</li> <li>➤ Understanding that a balanced diet includes all food groups</li> <li>➤ Food preparation and cooking techniques including use of the grill,</li> </ul>	<ul style="list-style-type: none"> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> </ul>	<ul style="list-style-type: none"> <li>➤ Year 7 Food will set students up to develop their practical skills in the rest of KS3 and then onto KS4 and KS5.</li> <li>➤ Cross curricular links: <ul style="list-style-type: none"> <li>➤ Maths –weighing out, timings, costings</li> <li>➤ Literacy – Following recipes and key words</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Students can opt to take GCSE Food, Preparation and Nutrition at GCSE or Level 2 Hospitality and Catering at key stage 4, they then have the opportunity to take Level 3 Food Science. Their career pathways involve chef, food</li> </ul>	

<ul style="list-style-type: none"> <li>hob and oven and knife holding – bridge and claw holding methods</li> <li>➤ Safe working practices in the kitchen, including washing up correctly, hazard avoidance, hygiene, cross contamination to prevent food poisoning.</li> <li>➤ Understanding and the application of measurements including Milliliters and grams are standard measurements for ingredients</li> <li>➤ A basic dough (bread and pastry)</li> <li>➤ Functions of ingredients</li> <li>➤ Vitamins and minerals (Micro and macro nutrients)</li> <li>➤ Understanding the skills required to make a range of high quality dishes for a range of people.</li> </ul>	<ul style="list-style-type: none"> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<ul style="list-style-type: none"> <li>➤ PSHE, PE and Science – Nutrition and Healthy Eating</li> <li>➤ Geography and MFL – International and multi-cultural foods, food miles, French cookery terminology (Al dente)</li> <li>➤ Literacy – subject specific terminology, sensory descriptors.</li> <li>➤ History – origins of food</li> <li>➤ Art &amp; Design – presentation, design development of dish ideas.</li> </ul>	<p>technologist, nutritionist, dietician and working in hospitality.</p>
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## Year 8 Overview

Term	Knowledge	Assessment	Connections to learning	Connections to future pathways
<b>Designing a product based on the Design movements of Bauhaus or Memphis</b>				
<p>Design a Gadget tidy based on the design movements of Bauhaus or Memphis. Design ideas must be drawn to scale and students must make a model/template to get the correct size/form/shape. Skilfully and accurately, manufacture the product that has a variety finishing skills applied to it. Students will further develop their skills and knowledge in the use of practical skills and CAD/CAM processes gained in Y7. They will be taught a range of techniques involving different tools, equipment and machinery to produce a high-quality gadget tidy. Students will develop skills and knowledge through: designing, manufacturing techniques, timber-based materials, drawing and presentation skills, use of CAD/CAM.</p>				
<ul style="list-style-type: none"> <li>➤ 2D and 3D drawing</li> <li>➤ The shading processes using rendering and fine line.</li> <li>➤ Properties of MDF</li> <li>➤ Health and safety of tools and machines</li> <li>➤ Processes of cutting, shaping, wasting and finishing MDF</li> <li>➤ Measuring and precision are important when constructing products.</li> <li>➤ Use of joining techniques, screws, dowel joints, lap joints, cross halving joints</li> <li>➤ Hand tools, including tenon saw, coping saw, ruler, tri-square, bench-hook</li> <li>➤ Surface finish techniques including file, sander, glass paper, paint, stain/ink and vinyl.</li> <li>➤ Importance of prototyping</li> <li>➤ Importance of evaluation to refine designs</li> </ul>	<ul style="list-style-type: none"> <li>➤ High quality presentation of ideas. Accurately produce a model/template</li> <li>➤ Safely and skilfully, manufacture a product using the correct tools, machines and materials.</li> <li>➤ Produce an evaluation that includes self and peer assessment.</li> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<ul style="list-style-type: none"> <li>➤ Using knowledge and understanding, prior practical skills from year 7 D&amp;T projects: Use Research, Designing (presentation skills) Making and Evaluating to develop a product.</li> <li>➤ Cross Links: Art Science Maths</li> </ul>	<ul style="list-style-type: none"> <li>➤ This leads to year 9 projects -Passive Speaker. The design movement concepts have a varied range of elements to help students at KS4 in GCSE D&amp;T, Engineering and Textiles. In addition, at KS5 in A Level Product Design.</li> <li>➤ Further pathways</li> <li>➤ GCSE Design &amp; Technology, GCSE</li> <li>➤ Engineering, and Level 2 Tech Award in Engineering.</li> <li>➤ Pathway to KS5 courses in Product Design, Graphics, Textiles, Photography and Engineering</li> <li>➤ Careers in the creative industry in particular Graphic Design, illustration, IT, Advertising, Architecture and CAD industry.</li> </ul>	
<b>Design and Manufacture a Pewter Pendant</b>				
<p>The focus on this project is understanding how different processes are used to safely shape and finish metals by achieving an outcome of a pewter cast item.</p>				
<ul style="list-style-type: none"> <li>➤ Communication of engineering drawings</li> <li>➤ Marking techniques including, rule, scribe and centre punch.</li> <li>➤ Health and safety of hand and pillar drill</li> <li>➤ Manufacture of a mould to cast the object. Using a range of materials</li> <li>➤ Understanding of release angles and undercuts in making a mould</li> <li>➤ Safely casting small pewter objects.</li> <li>➤ Process in soft soldering using solder and mini blow torch</li> <li>➤ Finishing methods</li> </ul>	<ul style="list-style-type: none"> <li>➤ Accuracy of the features of the finished product.</li> <li>➤ Quality of the finish and lack of imperfections. Pewter being a soft metal easily deforms and tells the tale of miss-use of tools and equipment.</li> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> </ul>	<ul style="list-style-type: none"> <li>➤ The skills and knowledge obtained from this project should be applicable to any future based D&amp;T course, in particular Engineering. Opportunities exist for links to business, studies, science, environmental impact studies and music.</li> </ul>	<ul style="list-style-type: none"> <li>➤ This brief introduction to accuracy working with metal should inspire any pupils with an inkling towards engineering, to want to know more about the subject and its wide range of careers.</li> <li>➤ Further pathways</li> <li>➤ GCSE Design &amp; Technology, GCSE</li> </ul>	

<ul style="list-style-type: none"> <li>➤ Importance of product testing</li> </ul>	<ul style="list-style-type: none"> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>		<ul style="list-style-type: none"> <li>➤ Engineering, and Level 2 Tech Award in Engineering.</li> <li>➤ Pathway to KS5 courses in Product Design, Graphics, Textiles, Photography and Engineering</li> <li>➤ Careers in the creative industry in particular Graphic Design, illustration, IT, Advertising, Architecture and CAD industry.</li> </ul>
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**CAD/CAM task to work alongside the designing of gadget based on Bauhaus or Memphis**

<ul style="list-style-type: none"> <li>➤ Traditional 2D and 3D drawing techniques (hand drawing)</li> <li>➤ Computer Aided Design is used as a creative tool that uses</li> <li>➤ 2D Design software for digital representation of design and development of ideas.</li> <li>➤ Adding and editing dimensions.</li> <li>➤ Quality control and quality assurance of designs</li> <li>➤ Prototype and modelling design</li> <li>➤ Advantages and disadvantages of CAD.</li> <li>➤ The importance of CAD/CAM in industry</li> </ul>	<ul style="list-style-type: none"> <li>➤ Researching existing products</li> <li>➤ Modelling ideas to show development and progress</li> <li>➤ showing skill and complexity</li> <li>➤ Links to GCSE with iterative design- modelling and remodelling projects to improve them.</li> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<ul style="list-style-type: none"> <li>➤ Prior learning in the year 7 CAD module.</li> <li>➤ Measuring on CAD in MM- maths</li> <li>➤ Developing sizes- maths</li> <li>➤ Paper sizes- maths and graphics</li> <li>➤ Pupils learn a range of new 2D design skills, this is linked to almost all DT options at GCSE and a level.</li> </ul>	<p>Can opt GCSE D&amp; T, GCSE Engineering, and Level 2 Tech Award in Engineering. pathway to KS4 &amp; 5 courses</p> <p>Careers in the creative industry in particular Graphic Design, illustration, IT, Advertising, Architecture and CAD industry</p> <p>Further learning in GCSE Engineering GCSE Design &amp; Technology Engineering Tech Award</p> <p>Careers Development in the manufacturing industry in particular Engineering, Electronics, electronic engineering &amp; Product Design</p> <p>Future Learning This project is an educational pathway to KS4 &amp; 5, Engineering and Electronics. KS4 Creative iMedia &amp; KS5 Graphic Communications</p>
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**Pewter Packaging Project - GRAPHICS designing a 3D product using influence of art and design movements. The Art movement must link to their Pewter casting project.**

Students will design packaging for their pewter casting project. Students will understand how to design and manufacture a product that is fit for purpose. They will develop their ability to sketch a working plan and understand how to select colours, graphics and timesteps that will promote their pewter product. They will design and manufacture their packaging using suitable equipment.

<ul style="list-style-type: none"> <li>➤ 2D and 3D drawing</li> <li>➤ The shading processes using rendering and fine line.</li> <li>➤ Understanding nets and folding/tab indicators</li> <li>➤ Hand tools, including craft knives, safety rulers and scoring tools</li> <li>➤ Visualisation skill, using markers and key colours</li> <li>➤ Importance of prototyping</li> <li>➤ Importance of evaluation to refine designs</li> </ul>	<ul style="list-style-type: none"> <li>➤ High quality presentation of ideas. Accurately produce a model/template</li> <li>➤ Safely and skilfully, manufacture a package using the correct tools, machines and materials.</li> <li>➤ Product should be manufactured with none or few errors.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Prior learning in the year 7 CAD module.</li> <li>➤ Measuring on CAD in MM- maths</li> <li>➤ Developing sizes- maths</li> <li>➤ Paper sizes- maths and graphics</li> <li>➤ Pupils learn a range of new 2D design skills, this is linked to almost all DT</li> </ul>	<p>Further pathways GCSE Design &amp; Technology, GCSE Engineering, and Level 2 Tech Award in Engineering. Pathway to KS5 courses in Product Design, Graphics, Textiles, Photography and Engineering</p>
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	<ul style="list-style-type: none"> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	options at GCSE and a level.	<p>Careers in the creative industry in particular Graphic Design, illustration, IT, Advertising, Architecture and CAD industry.</p> <p>Careers in the creative industry in particular Graphic Design, Advertising &amp; Architecture and CAD based design such as Gaming Graphics.</p> <p>Future Learning This project is an educational pathway to KS4 Creative iMedia and Design Technology Materials &amp; 5, Graphics and Product Design.</p>
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<p><b>Food - Developing practical skills</b></p> <p>Students will continue to developing and build upon practical skills learnt in year 7 (going off a once per fortnightly lesson) – Students will be introduced to the theme of 'Food Choice'. Students will continue to demonstrate their knowledge and understanding by producing a variety of dishes building upon their Y7 skills whilst working in a kitchen environment.</p>
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<ul style="list-style-type: none"> <li>➤ Knowledge and understanding of ingredients and their functions – Food science.</li> <li>➤ Principles of food hygiene and safety – critical control points / measures</li> <li>➤ Food choice / factors that influence food choice (religion, seasonal, diet)</li> <li>➤ Understanding that a balanced diet includes all food groups (role of macro and micro nutrients in the body)</li> <li>➤ Food preparation and cooking techniques including use of the grill, hob and oven and knife holding – bridge and claw holding methods</li> <li>➤ Safe working practices in the kitchen, including washing up correctly, hazard avoidance, hygiene, cross contamination to prevent food poisoning.</li> <li>➤ Understanding and the application of measurements including Milliliters and grams are standard measurements for ingredients, cooking timings</li> <li>➤ A basic dough (bread and pastry) – raising agents</li> <li>➤ Functions of ingredients</li> <li>➤ Understanding the skills required to make a range of high quality dishes for a range of people.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<ul style="list-style-type: none"> <li>➤ Cross curricular links: <ul style="list-style-type: none"> <li>➤ Maths –weighing out, timings, costings</li> <li>➤ Literacy – Following recipes and key words</li> <li>➤ PSHE, PE and Science – Nutrition and Healthy Eating</li> <li>➤ Geography and MFL – International and multi-cultural foods, food miles, French cookery terminology (Al dente)</li> <li>➤ Literacy – subject specific terminology, sensory descriptors.</li> <li>➤ History – origins of food</li> <li>➤ Art &amp; Design – presentation, design development of dish ideas.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Practical skills learnt in year 8 reinforce learning for progression into year 9 to support with option choices for progression ready for key stage 4 (GCSE) and key stage 5 A level.</li> <li>➤ Students can opt to take GCSE Food preparation and nutrition or Level 2 food at key stage 4, they then have the opportunity to take food at key stage 5 A Level.</li> <li>➤ Career pathways involve: chef, nutritionist, dietician, food technologist, food designer, working in hospitality, etc...</li> </ul>
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<p><b>Design Movement - Designing a 3D Textiles Art Piece influenced by design movement and images.</b></p> <p>Students will understand how to design and manufacture a product that is fit for purpose. They will develop their ability to sketch a working plan and understand how to select materials and components that are fit for purpose. They will manufacture their product using the sewing machines and suitable equipment.</p>
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<ul style="list-style-type: none"> <li>➤ Branding of a product</li> <li>➤ Designing a product using Art movements as inspiration.</li> <li>➤ Traditional drawing techniques (hand drawing)</li> <li>➤ Basic sewing techniques, including hand stitching (tack stitching and back stitch)</li> <li>➤ Machine sewing</li> <li>➤ Types of stich</li> <li>➤ Straight and zig zag.</li> <li>➤ Layout and design</li> <li>➤ Types of fabrics</li> <li>➤ Properties of fabrics, their selection and use.</li> <li>➤ Health and safety of: <ul style="list-style-type: none"> <li>➤ Irons, scissors, heat press and the sewing machine.</li> </ul> </li> <li>➤ Cut a pattern template accurately.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Final product and design work are assessed against the assessment criteria. Working towards GCSE 1-9.</li> <li>➤ Design work and initial sketches.</li> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental</li> </ul>	<p>Modelling and demonstrating techniques to students explains the process of construction. Introducing Applique through fabric and using paper templates that are pre-cut support all students.</p> <p>Teaching and modelling is used to continually check over work. Include others in the checking of work. Explaining and referencing the use of units in industry with relevant examples. For example, lay planning and laser cut fabrics when</p>	<ul style="list-style-type: none"> <li>➤ Careers in the textile and fashion industry. Industrial links include fashion and interior design and branding.</li> <li>➤ Marketing, buying, retail, advertising &amp; interior design/architecture.</li> <li>➤ This project is an educational pathway to KS4 &amp; 5, Textiles and Fashion</li> </ul>
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	<ul style="list-style-type: none"> <li>➤ Joining techniques</li> <li>➤ Fastenings and components.</li> </ul>	<p>subject specific assessment sheet</p> <ul style="list-style-type: none"> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<p>demonstrating cutting fabrics.</p> <p>Regular demonstrations and explanations of how the sewing machine works. Use student work to show correct and work with errors.</p>	
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## Year 9 Overview

Term	Knowledge	Assessment	Connections to learning	Connections to future pathways
<b>Graphics - Magazine Project</b>				
Understand how to design a front cover for a Magazine of a popular theme. Students will need to understand basic photography skills to produce their own photographic cover and then develop skills in Photoshop to produce a magazine cover.				
	<ul style="list-style-type: none"> <li>➤ Communication</li> <li>➤ Traditional drawing techniques (hand drawing)</li> <li>➤ Layout designs</li> <li>➤ Computer Aided Design is used as a creative tool that uses Photoshop/Illustrator software for digital representation of design and development of ideas. Colour balance, clipping masks, blending layers, typography. Branding- redesign of masthead.</li> <li>➤ Digital photography</li> <li>➤ Composition rules, rule of thirds, balance, framing, leading line, symmetry and depth of field.</li> </ul>	<p>Application of knowledge: Produce relevant research to support designing. Designs of Brand and cover layouts should be finished to a good quality.</p> <ul style="list-style-type: none"> <li>➤ For manufacturing, technical skills should be evident.</li> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<p>Future learning in Y9 is linked through design development and an ability to improve their creative and digital designing skills. This links to KS4 subjects; Graphics, Product Design, Textiles and KS5 subjects, Photography, Graphics, Product Design&amp; Textiles</p>	<p>Careers in the creative industry in particular Graphic Design, Advertising, Architecture, Photography, Fashion, Game Design/graphics, Product Design, Interior designer, 3d Designer, Web Designer.</p> <p>Future Learning The project is an educational pathway to KS4 KS4 Creative iMedia and Design Technology Materials &amp; 5, Graphics and Product Design.</p>
<b>Fashion Project</b>				
Students will complete a GCSE style project and sketch book portfolio. Students will investigate fashion through the ages and consider clothing and iconic garments and how they influence the modern world and current fashion trends. Students will learn how to develop independent research, investigation and analysing skills-based project. They will understand the historical movements behind fashion and understand key iconic pieces through the ages. Branding behind fashion style and investigate the difference between fashion and function.				
	<ul style="list-style-type: none"> <li>➤ History of iconic fashion products and development.</li> <li>➤ Branding of a product</li> <li>➤ Traditional drawing techniques (hand drawing)</li> <li>➤ Basic sewing techniques, including hand stitching (tack stitching and back stitch)</li> <li>➤ Machine sewing</li> <li>➤ Types of stitch</li> <li>➤ Satin machine stitch, hand embroidery techniques. Free machine embroidery.</li> <li>➤ Layout and design</li> <li>➤ Types of fabrics</li> <li>➤ Properties of fabrics, their selection and use.</li> <li>➤ Health and safety of:</li> <li>➤ Irons, scissors, the sewing machines and the heat press.</li> <li>➤ Cut a pattern template accurately.</li> <li>➤ Joining techniques using</li> </ul>	<p>Assessment criteria through the historical and contextual history of fashion through the ages and the design work produced.</p> <p>Assessment criteria is in line with GCSE Art and Design-Textiles criteria.</p> <ul style="list-style-type: none"> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<p>Future learning in Y9 through to 10 is linked through design development and an ability to improve their manufacturing process.</p> <ul style="list-style-type: none"> <li>➤ Students will also gain an understanding of how to work safely in a textile environment and how to make independent choices and decisions.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Students are producing a mini GCSE style portfolio. This is also in-line with A level and GCSE assessment.</li> <li>➤ Pathways could include after key stage 5, fashion degree courses and fashion marketing, branding.</li> </ul>

**To creatively design and make a bespoke product for a specific use and target market**

Designing a passive speaker for use with a mobile device to help amplify the volume.

<ul style="list-style-type: none"> <li>➤ How sound travels.</li> <li>➤ Practical tests</li> <li>➤ 2D and 3D drawing</li> <li>➤ The shading processes using rendering and fine line add texture and surface finish to drawings</li> <li>➤ 3D Computer Aided Design is used as a creative tool</li> <li>➤ Google sketch up is an example of 3D CAD that is used to make scratch products.</li> <li>➤ Google sketch up can be used to add perspective, proportion scales, colour to 3D CAD models.</li> <li>➤ Properties of MDF</li> <li>➤ Health and safety of tools and machines</li> <li>➤ Processes of cutting, shaping, wasting and finishing MDF</li> <li>➤ Measuring and precision are important when constructing products.</li> <li>➤ Hand tools, including tenon saw, coping saw, ruler, tri-square, bench-hook</li> <li>➤ Surface finish techniques including file, sander, glass paper, paint, stain/ink and vinyl.</li> <li>➤ Importance of prototyping</li> <li>➤ Importance of evaluation to refine designs</li> </ul>	<ul style="list-style-type: none"> <li>➤ Application of knowledge, understanding and skills - Students will be assessed on the major outcome of the product they manufacture; with H&amp;S and quality control included, the supporting folder that shows Research, Designing and creativity, CAD and modelling. Developing their ideas and the use of accurate and practical maths.</li> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<ul style="list-style-type: none"> <li>➤ Building of previous learning in Y7/8 students will have the opportunity to improve their creative designing skills and practical abilities.</li> <li>➤ The way they travel through the iterative design process allows the student to see that there is not a right or wrong way to get to a final outcome.</li> <li>➤ But by applying and utilising their prior learning and further enhancing their knowledge and understanding they can produce better quality work</li> <li>➤ Cross links: Maths Art Science</li> </ul>	<ul style="list-style-type: none"> <li>➤ Pathways to KS4 and KS5. The key concept of D&amp;T: Brief, Research, Design, Develop, Make and Evaluate are transferable to all areas of D&amp;T however, this project leads mostly into GCSE D&amp;T and A Level Product Design</li> </ul>
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**Creatively design and manufacture a bespoke candle holder.**

Design a ferrous candle holder using iterative principles to start the design process. Use the iterative process to create a specification which then encourages research of candles which in turn forces further iterative design. This aids the manufacture of the design and justification of assembly by students selecting materials from common stock, use of PPE, safe working practices, appropriate tools and machines to manufacture the product.

<ul style="list-style-type: none"> <li>➤ Communication</li> <li>➤ Traditional drawing techniques (hand drawing)</li> <li>➤ Marking techniques including surface plate, surface gauge, rule, scribe and centre punch.</li> <li>➤ Health and safety of safely</li> <li>➤ Drilling machine.</li> <li>➤ Forge</li> <li>➤ Spot welding</li> <li>➤ Hacksaw</li> <li>➤ Tinsnips</li> <li>➤ Filing</li> <li>➤ Bending</li> <li>➤ Shaping</li> <li>➤ Fabrication techniques</li> <li>➤ Process of brazing using gas torch</li> <li>➤ Forge work</li> <li>➤ MIG welding</li> <li>➤ Product assembly</li> <li>➤ Importance 'dry' assembly</li> <li>➤ Application of fabrication technique</li> <li>➤ Process for applying a surface finish, including powder coating</li> <li>➤ Spraying</li> </ul>	<ul style="list-style-type: none"> <li>➤ Application of knowledge, understanding and skills - Students will be assessed on the major outcome manufacture</li> <li>➤ The consistent use of H&amp;S, quality control, planning and surface finish to manufacture the product.</li> <li>➤ Use of peer feedback and evaluation to show positive and negative features and improvements</li> <li>➤ Product should be manufactured with none or few errors.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<ul style="list-style-type: none"> <li>➤ Building of previous learning in Y7/8 students will have the opportunity to hone and improve their creative designing skills and practical abilities.</li> <li>➤ The use of iterative design allows the student to create design ideas quickly providing a vehicle for development and creativity to work side by side leading to a final design solution.</li> <li>➤ This learning can further enhance their knowledge, understanding and application of design skills.</li> <li>➤ Cross links: Application of Mathematic and scientific principles Art-Development of visual and aesthetic awareness.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Pathways to KS4 and KS5. The key concept of D&amp;T: Brief, Research, Design, Develop, Make and Evaluate are transferable to all areas of D&amp;T however, this project leads GCSE Engineering, Tech Award Engineering GCSE DT, A Level Product Design and BTEC level 3 Engineering</li> </ul>
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**Food Developing practical skills**

Developing and embedding upon both knowledge and practical skills learnt in year 7 and year 8 (going off a once per fortnightly lesson). Year 9 will introduce and prepare students to some of the aspects that they will encounter if opting for a GCSE food course, including GCSE Food, preparation and Nutrition or Level 2 Hospitality and Catering. Students will be introduced to the theme of 'Food Choice'. Students will continue to develop and embed their knowledge and understanding by producing a variety of dishes building upon their Y7 & Y8 skills whilst working in a practical kitchen environment.



<ul style="list-style-type: none"> <li>➤ Knowledge and understanding of ingredients and their functions – Being able to identify and select the right ingredients for a recipe.</li> <li>➤ Principles of food hygiene and safety – critical control points / measures</li> <li>➤ Quality assurance in a practical environment</li> <li>➤ Understanding and implementing planning and scientific investigations</li> <li>➤ Nutritional properties of food</li> <li>➤ Diet related recipe planning</li> <li>➤ Cooking methods</li> <li>➤ Functions of ingredients – selecting ingredients for a purpose</li> <li>➤ Understanding the skills required to make a range of high quality dishes for a range of people.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<ul style="list-style-type: none"> <li>➤ Practical skills embedded in year 9 reinforce GCSE and Level 2 Food options. If students do not wish to opt at key stage 4, skills learnt will assist with future life.</li> <li>➤ Cross curricular links: <ul style="list-style-type: none"> <li>➤ Maths –weighing out, timings, costings</li> <li>➤ Literacy – Following recipes and key words</li> <li>➤ PSHE, PE and Science – Nutrition and Healthy Eating</li> <li>➤ Geography and MFL – International and multi-cultural foods, food miles, French cookery terminology (Al dente)</li> <li>➤ Literacy – subject specific terminology, sensory descriptors.</li> <li>➤ History – origins of food</li> <li>➤ Art &amp; Design – presentation, design development of dish ideas.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Students can opt to take GCSE or Level 2 food at key stage 4, they then have the opportunity to take food at key stage 5 at BL6/other colleges.</li> <li>➤ Their career pathways involve chef, nutritionist, working in hospitality.</li> </ul>
<p><b>Textiles – Beneath the sea project</b> during this module, students will be given an insight and understanding of GCSE Art textiles. Students will be working to a set brief which will allow for the opportunity to learn and explore various creative techniques, whilst working with a range of materials to produce outcomes of both observational drawings and decorative samples in response to a starting point brief. Students will continue to build on existing knowledge in developing required research skills which will allow for the students to make connections between the work of artists and their own interpretations. Students will work through their project completing mini investigative art based tasks. This project will provide key skills that will be used in KS4 in both GCSE Textiles and GCSE Art &amp; Design.</p>			
<ul style="list-style-type: none"> <li>➤ Understand how to respond to a creative brief.</li> <li>➤ Explore creative ways in which observational drawings can be communicated in an interesting way</li> <li>➤ Exploring and interpretation of the work of existing artists to inspire their own outcome.</li> <li>➤ Exploring various ways in which materials can be manipulated to create an alternative outcome.</li> <li>➤ Continued development on basic sewing techniques, including hand and machine stitching obtained in Y7 and Y8.</li> <li>➤ Exploring different techniques of decorative surface pattern application using both print and free machine sewing</li> <li>➤ Development and planning of potential design ideas suitable to the project brief</li> <li>➤ Exploring how fabrics can be manipulated to change their visual and surface appearance.</li> <li>➤ Use and combine a variety of different media techniques to create bespoke surface pattern design outcome.</li> <li>➤ Health and safety of: Irons, scissors, sewing machines and the heat press.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Assessment criteria through the student's personal response to the project brief through the outcome of practical samples, research and supportive observational studies produced.</li> <li>➤ Students will receive verbal feedback throughout the module.</li> <li>➤ All students will complete four assessment pieces throughout the project that will be recorded on the KS3 departmental subject specific assessment sheet</li> <li>➤ NC statements will be used to monitor student progress throughout KS3</li> </ul>	<ul style="list-style-type: none"> <li>➤ Future learning in Y9 through to 10 is linked through design development and an ability to improve their manufacturing process.</li> <li>➤ Students will also gain an understanding of how to work safely in an art/textile environment and how to make independent creative choices and decisions in order to demonstrate/showcase their own level of independent creativity whilst using a variety of materials and surface pattern techniques.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Students are producing a mini GCSE style portfolio. This is also in-line with A level and GCSE assessment.</li> <li>➤ Pathways could include after key stage 5, fashion degree courses and fashion marketing, branding. Surface pattern design, creative textiles and Art based qualifications.</li> </ul>