
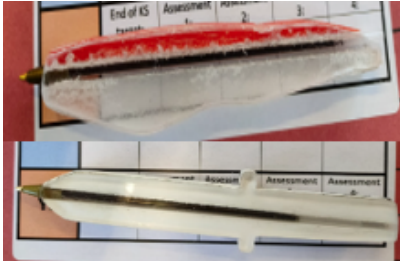


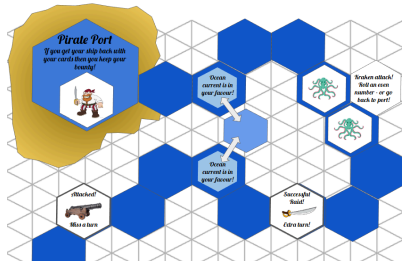





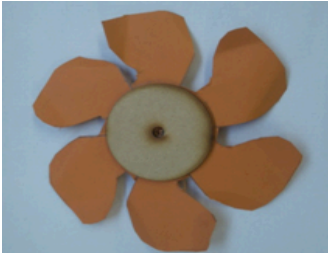



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Rotation 1	Rotation 2	Rotation 3	Rotation 4	Rotation 5
<p>Tangram puzzles How do I design and manufacture from Timber?</p>	<p>Acrylic Pens How do I design and manufacture from Plastics?</p>	<p>Bookmark Buddies How do I design and manufacture from Textiles?</p>	<p>Where food comes from How do I design and make basic food dishes?</p>	<p>Family Board game How do I design and manufacture from Cards and papers?</p>
<p>The project is to design a puzzle based on given restrictions and then to make it with a base to contain it. The project will enable students to experience the basics of marking out and cutting of natural and man made wood utilising jigs and where appropriate laser cutting technology.</p>	<p>This project introduces students to the Engineering area of DT. Students learn about Ergonomics, Polymers, Shaping and Finishing techniques.</p>	<p>This project introduces students to the Textiles area of DT. Students learn about fabric, hand sewing and surface embellishment techniques</p>	<p>This project introduces students to the Food area of DT. Students learn Food providence and cook a range of sweet and savoury dishes.</p>	<p>This focuses on the design of a board game. Students will develop a low environmental impact board game to be sold via mail order.</p>
				
<p>Knowledge</p>	<p>Knowledge</p>	<p>Knowledge</p>	<p>Knowledge</p>	<p>Knowledge</p>
<p>The project is designed to introduce students to wood based materials and basic marking out and cutting techniques.</p> <ul style="list-style-type: none"> Health and safety when working with timber Different timber materials, Hardwoods, softwoods, man made boards Writing a brief and basic specification Scale and proportion Using clamps and jigs Isometric drawing Measuring and marking Woodworking tools and equipment 	<p>The project is designed to introduce students to Polymer based materials and shaping and finishing techniques.</p> <ul style="list-style-type: none"> Health and safety when working with Plastics Students will gain an understanding of Ergonomics and anthropometrics. Students understand the properties of acrylic Students understand the difference between a thermo and thermoset plastic. Understanding use of templates and marking techniques appropriate to the materials 	<p>The project is designed to introduce students to textile materials, joining and finishing techniques</p> <ul style="list-style-type: none"> Health and safety when working with Textiles Cutting and manipulating textile materials How to write a client focused brief and specification How to conduct basic research. Understanding of different fibres, fabrics and their properties Students will learn about Applique and embroidery, how to hand sew & create basic stitches. 	<p>The project is designed to introduce students to creating basic dishes from a range of ingredients and cooking techniques.</p> <ul style="list-style-type: none"> Health and safety when working with food Understand where food comes from. Understand how food is grown, reared and caught. Understand how food is produced Understand and apply basic hygiene and safety in the kitchen Understand and apply basic kitchen skills through practical cooking tasks Planning skills, adaptation of 	<p>The project is designed to introduce students to working with graphic based materials.</p> <ul style="list-style-type: none"> Planning skills, writing briefs and specifications Product analysis skills Creative strategies and how to develop a concept. Working with themes and graphic identities Product analysis skills Understanding of client needs Specific materials and processes: papers and boards Environmental impact

	<ul style="list-style-type: none"> Understanding of files, abrasives and finishing techniques, cross and draw filing Evaluation skills 		<ul style="list-style-type: none"> existing recipes Evaluation skills 	
Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge
<p>During the design process students will write specifications to inform the generation of ideas.</p> <p>Modelling drawn ideas on a larger scale will be used to investigate the chosen design before production can begin. In terms of Knowledge & Understanding students will work through a skills booklet which examines isometric drawing, materials and tools, health and safety. Students will be required to work together and help each other especially during the cutting of the puzzle and the use of a jig.</p> <p>Extensions to this project include making a puzzle using the laser machine, designing and making a package for the puzzle, and using Spaceclaim to create 3D views of their work. Students might also experience CAD through 2D Design and its basic operations to allow them to create a greater range of ideas, orthographic projection and isometric presentations.</p>	<p>Students will design and manufacture a Pen using appropriate hand tools.</p> <p>Students will explore ergonomics and anthropometrics before developing a suitable design for their pen.</p> <p>Students will laminate acrylic sheets together to form a blank, they will then mark out their pen shape from a template.</p> <p>Students will then use a coping saw or hacksaw to shape the material.</p> <p>They will select and use a range of appropriate files to shape the product, cross and draw filing will be used in preparation for a finish to be applied to their final design for the Pen.</p> <p>Wet and dry paper will be used to fully finish the product before evaluation.</p>	<p>Students will design & manufacture a felt bookmark for a client using a variety of sewing & surface embellishment techniques</p> <p>Students will explore different fibres and fabrics practically and gain an understanding of their properties and how they are composed. They will create designs before cutting and marking out their work.</p> <p>The product will be assembled and embellished using a range of hand stitching.</p> <p>Students will evaluate their work and specify adaptations and improvements.</p>	<p>Students plan dishes through examining existing recipes and adapting them for their needs.</p> <p>Ideas and concepts for food preparation are created, annotated and presented. They examine sensory impact and the link between tastes and other senses.</p> <p>They develop cutting and processing skills and appropriate safe knife use. They use heat processes in the preparation of their dishes and learn basic hygiene including safe storage of food.</p> <p>Students evaluate their dishes and are encouraged to get family members to try their food and feed back to them.</p>	<p>Students will develop paper and cardboard manufacturing skills and a basic understanding of packaging.</p> <p>They will develop teamwork skills and work with others in the analysis of existing board games and through testing their own products.</p> <p>They will develop an understanding of environmental impact and why designers and manufacturers need to choose materials carefully and that we have a responsibility to protect the environment.</p> <p>Students will be provided with the opportunity to develop designs around a theme of their own choosing and will develop creative skills.</p> <p>A range of board game elements are developed such as a game board, counters, cards, a box design, rules and dice/spinners.</p>
Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary
Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)
<p>Students complete an A3 assessment sheet. This assesses their ability to write a brief and specification, draw out a range of designs, use a ruler accurately, scale up a design, prototype and test a design, use peer evaluation.</p> <p>Practical work will also be assessed</p>	<p>Student designs are assessed, quality of presentation, use of colour, annotation and identification of ergonomic features are assessed.</p> <p>Practical work will also be assessed</p>	<p>Students design work and the practical outcome will be assessed here.</p>	<p>The key assessed task is based on the cupcake practical. There is an A3 assessment sheet where students plan, adapt, present and evaluate a cooking task.</p> <p>Practical work will also be assessed</p>	<p>The key assessed task for this project is the game product itself. At a minimum it is the game board and counters, extra elements are also taken into account. Consideration for gameplay, presentation, the development of a theme and skills demonstrated are assessed.</p>




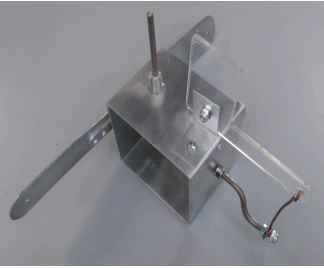



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Rotation 1	Rotation 2	Rotation 3	Rotation 4	Rotation 5
<p>Unit of Work/Big Question</p> <p>In this project you will design and manufacture a storage box. You will be assessed on the accuracy, quality and finish of the final product and your ability to present a high quality design proposal. You will be introduced to a number of manufacturing processes including the table mounted router machine. You will further develop your knowledge and understanding of drawing in 3 dimensions</p> 	<p>Unit of Work/Big Question</p> <p>During this project you will investigate wind turbines through a range of practical activities. The context is set using Practical Action resources and has an environmental brief set around supporting communities. You will design and test prototypes before refining them with CAD and laser cutting them. You will work with structures and learn how to ensure strength using minimal materials.</p> 	<p>Unit of Work/Big Question</p> <p>This project provides an opportunity to design a product with your own theme. You will produce high quality design ideas before making the product using hand skills and using sewing machines. The project builds on textiles skills used in year 7 and develops them further, you will learn textile construction techniques.</p> 	<p>Unit of Work/Big Question</p> <p>In Year 8 you will be learning about healthy eating, you will look at the Eatwell Guide, the government's 8 tips for healthy eating and what food does to the human body. All practical lessons will use recipes based around the Eatwell Guide and show how we can get all 5 sections of the guide into our diet.</p> 	<p>Unit of Work/Big Question</p> <p>The theme of this project is urban renewal. You will work in small teams to design elements and an overall proposal for a social space. One of the key features is to analyse client statements from local people and to respond to their desires and needs. After analysing the area you will discuss and decide on a feature to design and model. Your group will be assessed on a group presentation of the whole area.</p> 
<p>Knowledge</p> <ul style="list-style-type: none"> Developing Isometric drawing Writing a brief and specification Basic orthographic drawing Using a router Marking and cutting skills Finishing skills Use of fixtures and fittings Finishing techniques 2D CAD - using the trace command Introduction to laser cutting 	<p>Knowledge</p> <ul style="list-style-type: none"> Engineering applications in the developing world Knowledge of structures (strut, ties, triangulation) Knowledge of forces (tension, compression shear, torsion) 2D CAD - using the freeform and rotate tool, data input of dimensions Laser cutting and prototyping Testing, evaluation and redevelopment Understanding performance factors (pitch, weight, surface area, stiffness, aerodynamic shape) Teamworking 	<p>Knowledge</p> <ul style="list-style-type: none"> Client profiling Know how to research user requirements & put information collected into use when designing. Decorative techniques - applique, embroidery, thermal transfer print, fabric pens Machine stitching Basic textile construction and how to consider the order of processes How to select and use appropriate equipment Understand the importance of testing their ideas through the use of modelling skills 	<p>Knowledge</p> <ul style="list-style-type: none"> Getting to know The eat well guide Understanding Macronutrients Understanding how foods affect our body Understanding hygiene and safety, how to keep themselves and others safe in a hospitality environment Knife skills and knife safety How to make healthy versions of some of our favourite foods How to adapt existing recipes to make them more appealing to selected clients 	<p>Knowledge</p> <ul style="list-style-type: none"> How to conduct research Understanding client and community needs How to work constructively and collaborate with others Ideation - how to formulate a range of ideas and develop the best ones further How to communicate using 2D and 3D drawing techniques and modelling where appropriate. Communication and presentations skills and how to comment constructively How to Reflect and evaluate the work of themselves and others

		<ul style="list-style-type: none"> ● How to work safely & cooperatively with others 		
Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge
Students develop drawing and communication skills through isometric and orthographic drawing. They practise and develop their marking out skills and understanding of the process. They practise their cutting and abrading skills with saws and powered equipment, they are introduced to the router and develop the ability to cut a basic rebate joint. Students develop their levels of accuracy through marking, cutting and planing/sanding back to a line. They plan and apply a finish improving their ability to abrade and apply wood stains. There are opportunities to develop 2D CAD skills and use the trace tool to develop a profile for laser cutting.	Students will develop an understanding of structures through the construction of mass (keystone bridge) and frame (triangulated tower) structures. They will develop team skills and their ability to work effectively in groups. Students will develop CAD skills and use of data input, rotation and vector edit tools. They will produce prototypes and evaluate them in terms of performance and efficiency, they will learn how to compare key performance factors such as weight, surface area, stiffness and pitch when testing rotors in a wind tunnel.	Students will further develop a wide variety of practical skills, including measuring, pinning, cutting and machine sewing. They will practise and gain experience of a variety of surface decoration/embellishment techniques. Students will develop fabric construction, Hand and machine sewing skills. They will Develop research techniques, planning and analysis.	Students will consider a range of recipes and adapt them to suit themselves or a client of their choice. They will be encouraged to make healthy choices and consider the guidance of the eatwell plate. During practical students will practise a range of processes a range of dishes are planned and prepared including, pizzas, curries, pasta bakes, chilli con carne and stir fry. Including managing and weighing out quantities, cutting by hand, beating, rubbing in, frying, reducing and baking. Students will work together in groups and collaborate in managing the hygiene and cleaning of their areas.	The research phase will develop analysis skills and encourage students to co-operate in teams. They will develop their ability to extract and use information from differing sources such as maps, client interviews and existing solutions. Students will discuss and negotiate their areas of focus with each other before developing ideas and drawing up a proposal. Practical skills are developed as students iterate their concepts through modelling. Once complete, students develop their communication skills by presenting the team's work to the rest of the group.
Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary
Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)
The key assessed task focuses on the design process, the ability to select a client and write a brief, then to write a specification is tested. Students then draw out an orthographic proposal of their design before drawing out their idea isometrically.	The key assessed task requires students to develop, evaluate, test and improve a rotor using a wind tunnel. The Key assessed task tests the students ability to evaluate and improve the performance of the rotor. Annotation using key terms such as weight, pitch, stiffness, surface area, symmetry, balance and accuracy are important.	There are 3 foci of the assessment in this project, the first is on textiles tools and techniques, this is assessed through a written test. The second is on the construction of a client profile. The third area is on designing skills and how well students are able to develop a range of ideas.	The key assessed task is based on the 5 sections of the eat well guide, the importance of a balanced diet, and how macronutrients affect our bodies. They will design and make a healthy pizza which they will be assessed on.	The key assessed task is the drawn proposal of what the students intend to model. Work is assessed on the quality of the drawing and how well it communicates the idea. The physical model and group proposal are also taken into account in the final grade.



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<p>Memphis Clock What is a Design Movement? What is product analysis</p>	<p>Wind Driven Thing What are mechanisms? How do I manufacture using sheet metal?</p>	<p>Textiles Upcycling What is upcycling? What are the impacts of fast fashion?</p>	<p>Culinary Techniques What is it like working in the Hospitality business?</p>	<p>CAD Maze How do I use CAD and laser cutting? What are Thermo and thermoset polymers?</p>
<p>In this project students will analyse a design movement, identify the key features and then design and make a product that reflects it. They will examine different design strategies and produce a range of ideas before planning and making the product.</p> <p>The practical part of this project will develop your ability to work in a range of materials but specifically timber. It will build on Y7 and 8 experience and develop essential skills needed for success at KS4.</p> 	<p>Students will develop their understanding of Engineering and of the breadth of this career area. They will gain understanding of a range of engineering and manufacturing skills and develop the ability to work with aluminium sheets. They will develop an understanding of basic mechanics, mechanisms and systems. There are additional opportunities to develop understanding of 2D CAD and laser cutting.</p> 	<p>This project has a focus on sustainability and upcycling. It provides students with an opportunity to design a product with a theme of their choice. They will produce high quality design ideas before making the product using hand skills and using sewing machines. The project builds on textiles skills and construction techniques used in years 7 & 8 and develops them further.</p> 	<p>In Year 9 students will further develop their culinary skills and techniques. They will have greater opportunity to vary and change the dishes they cook and there will be opportunities for collaboration and teamwork. Work in year 9 involves a greater focus on theory work in order to prepare students for WJEC Hospitality in year 10</p> 	<p>This unit is intended to teach students 2 dimensional computer aided design skills (CAD). They will be taught to use a range of tools, techniques and CAD strategies before working on a maze product challenge that allows them to employ these skills creatively and independently. There is also a focus on polymers, their impact on the environment and thermoforming.</p> 
<p>Knowledge</p>	<p>Knowledge</p>	<p>Knowledge</p>	<p>Knowledge</p>	<p>Knowledge</p>
<ul style="list-style-type: none"> Product Analysis strategies Designing using pre manufactured components Design movements and key aesthetic features Designing strategies Health and safety when working with timber and man made boards Cutting shaping and joining techniques Using clamps and jigs 	<ul style="list-style-type: none"> Engineering sectors and careers in Engineering Degrees of freedom, Forms of motion Mechanisms (cranks and levers) A systems approach to products Reading Engineering drawings Engineering manufacture processes Tools used in sheet metal manufacture Engineering fixings and fittings 	<ul style="list-style-type: none"> Students develop their understanding of sustainability and the impact of fast fashion on our planet. Students develop understanding of commercial brands who focus on the area of upcycling. Understanding of scales of production Students develop their knowledge of textile manufacture Students further develop their 	<ul style="list-style-type: none"> Hospitality sectors, establishments and job roles Students create their own catering business plan Students look at different types of hospitality businesses and the clients they attract Students further develop their understanding of hygiene and safety Students further develop their kitchen skills and use of specialist 	<ul style="list-style-type: none"> How to write more detailed specifications Design drawing skills How to use a range of 2D CAD tools Polymers - Thermo and thermoset Polymer manufacture processes - line bending and vacuum forming Mechanical tolerances - fit and alignment Using the laser cutter

<ul style="list-style-type: none"> • Isometric drawing • Measuring and marking • Woodworking tools and equipment 	<ul style="list-style-type: none"> • Mechanical tolerances • Fault finding skills 	<p>understanding of decorative techniques such as heat transfer, applique, embroidery and machine stitching.</p>	<p>equipment</p> <ul style="list-style-type: none"> • Students build on knowledge gained in year 8 about healthy eating and develop their understanding of special diets 	
Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge
<p>Students will develop product analysis skills and the ability to use strategies that will aid success at GCSE (ACCESSFM). Students will also develop their analysis skills through the examination of a 20th century design movement (Memphis). They will further practise and develop designing strategies and planning skills. During practical they will further develop timber manufacture skills using Hegner and tenon saws, sanding equipment, hand planes and abrasives, the pillar drill and a range of hand tools.</p>	<p>Students will develop metal manufacturing skills and a broad awareness of engineering tools. They will mark out using engineering squares, scribes, centre punches, surface gauges and odd leg callipers. They will cut using hack saws and guillotines. They will shape using files and form using the Gabro sheet metal bender. They will practise tapping and threading and develop skills with using fixings such as pop rivets. Students will develop skills with systems and understand systems diagrams.</p>	<p>Students will further develop a wide variety of practical skills, including measuring, pinning, cutting and machine sewing. They will practise and gain experience of a variety of surface decoration/embellishment techniques including the use of dyes and mordants. Students will develop fabric construction, Hand and machine sewing skills. They will Develop research techniques, planning and analysis.</p>	<p>Students will develop a wide variety of practical skills and they will, where necessary, use specialist equipment. They will practise their presentation skills when plating up their dishes as if they were serving it in their catering establishment. They will develop their design skills when planning different dishes that could be served in their establishment.</p>	<p>Students will develop their specification writing skills and use support strategies that are used at GCSE (ACCESSFM). They develop drawing and planning skills and their spacial skills by drawing out disassembled views of their product. They will practise and develop their 2D CAD skills including vector trace, drawing using straight lines, basic geometry, spline curves, the delete part of line tool and the start/edit tool box. They will develop accuracy and testing skills.</p>
Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary	Tier 3 Subject Vocabulary
Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)
<p>The key assessed task tests students ability to analyse a key component, the clock mechanism. Students need to identify essential requirements and dimensions that need to be taken into account when designing and making their product. Students will also be assessed on their designing and planning ability.</p>	<p>The key assessed task tests students' understanding of lever theory and the 3 classes of lever. There is also a test of their understanding of the many tools and items of equipment used during the project. In addition, students' practical work will form part of the assessment.</p>	<p>The key assessed task focuses on a case study and the company 'Junky Styling'. Students need to respond to a range of questions on recycling, the garments produced by the company, the design process adopted by the company, scales of production and manufacturing techniques. Students will also be assessed on the manufacture of their product.</p>	<p>The key assessed task focuses on the development of a healthy eating menu. Students need to conceptualise a hospitality business and design a custom menu that considers nutrients and their effect on the human body. They will need to cook and evaluate dishes from this menu.</p>	<p>The key assessed task focuses on designing, there are 4 areas. Firstly the writing of a detailed specification. Secondly, drawing out a range of initial concepts. Thirdly students need to draw the 3 parts of the product which will be laminated together. Fourthly they need to evaluate their ideas and justify their final choice.</p>