

GCSE Design Technology - Year 10 Curriculum Overview

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6	
	Chair Design	Environmental, Social and Economic Challenge	Storage Box	Stock forms, types and sizes	Mini Project (Mechanisms)	NEA Coursework	Careers
Year 10	<p>Students will investigate, analyse and evaluate the work of past and present designers and companies to inform their own designs the first project will link to Memphis Design.</p> <p>Students will write specifications for product using ACCESSFM.</p> <p>Communicate Design Ideas for product using freehand sketching, and isometric.</p> <p>Annotate drawings that explain detailed development or the conceptual stages of designing, and include ergonomic and anthropometric data for designs.</p> <p>Students will select and use specialist tools and equipment, including hand tools, file, coping saw,</p>	<p>Students will research the environment, social and economic challenges that influence design and making., looking at present examples from design and manufacturing companies. This will include how manufacturers when designing and making should consider the following issues :</p> <ul style="list-style-type: none"> • deforestation. • possible increase in carbon dioxide levels leading to potential global warming. • the need for fair trade. <p>Scales of Production - Students will research a variety of products and how they are produced in different volumes.</p> <p>The reasons why different manufacturing methods are used for different production volumes:</p> <ul style="list-style-type: none"> • prototype. 	<p>Students will investigate, analyse and evaluate the work of others. In this project students will choose their own design movement to inspire their own designs from the design timeline. Write specifications for product using ACCESSFM.</p> <p>Communicate Design Ideas for product using freehand sketching, and 2 point perspective.</p> <p>Annotate drawings that explain detailed development or the conceptual stages of designing.</p> <p>Students will select and use specialist tools and equipment, including hand tools, file, coping saw, tenon saw, machinery belt sander, jigsaw, to create a variety of corner joints.</p>	<p>Analyse Final Product - Students will have analysed and annotated their work throughout all stages at the end of the project students will analyse their final product against the design brief and specifications. Their final prototype will be tested and include market testing and a detailed analysis of the prototypes.</p> <p>Sources and origins - With reference to 2 materials students will be able to identify the primary sources of materials and the main processes involved in converting into workable forms including:</p> <ul style="list-style-type: none"> • Paper and board (how cellulose fibres are derived from wood and grasses and converted into paper). • Timber based materials 	<p>Project Mecahnisms - Create mechanisms in groups to understand the action of forces and how levers and gears transmit and transform the effects of forces.</p> <p>Arithmetic and numerical computation e.g. use ratios.</p> <p>Use angular measures in degrees, visualise and represent 2D and 3D objects including 2D diagrams of mechanisms/mechanical movement.</p> <p>Knowledge of the function of mechanical devices to produce different sorts of movement, changing the magnitude and direction of forces.</p> <p>Levers:</p> <ul style="list-style-type: none"> • first order. • second order. • third order. 	<p>June 1st Release of NEA task.</p> <p>Analyse Situation Statements in groups through mind mapping.</p> <p>Identify design possibilities, and investigate client needs by completing a client interview.</p> <p>Research factors including economic and social challenges.</p> <p>Students will also use the work of others (past and/or present) to help them form ideas by creating a mood board.</p> <p>Students will complete a range of primary research disassembly of a product if possible, location visit measuring area for product. Secondary Research including product analysis using</p>	<p>Term 1 In Term 1, students will develop a greater understanding of the role of a Graphic Designer.</p> <p>Students will learn how a graphic designer is a professional within the graphic design and graphic arts industry who assembles together images, typography, or motion graphics to create a piece of design.</p> <p>Term 2 In Term 2, students will develop a greater understanding of the role of a Seamstress.</p> <p>Students will learn that a seamstress is a person, who makes a career out of sewing, mending, and designing garments</p> <p>Term 3 In Term 3, students will develop a greater</p>

	<p>tenon saw, machinery, belt sander, jigsaw, In this project students will understand the importance of planning the cutting and shaping of material to minimise waste e.g. nesting of shapes and parts to be cut from material stock forms. This practical aspect will be linked to exam questions, which will be the Very Important Points in this project.</p>	<ul style="list-style-type: none"> • batch. • mass. <p>continuous.</p> <p>When manufacturing these products this will link to Quality Control and Assurance.</p> <p>Quality control - The application and use of quality control to include:</p> <ul style="list-style-type: none"> • measurable and quantitative systems used during manufacture. • papers and boards (registration marks). • timber based materials (dimensional accuracy). 	<p>Students will develop their skills using 2d Design CAD and CAM to create a surface design in the style of their chosen design movement.</p> <p>Students will understand how to use the tools safely to protect themselves and others from harm.</p>	<p>(seasoning, conversion and creation of manufactured timbers).</p> <ul style="list-style-type: none"> • Metal based. <p>Students will then research the stock forms, types and sizes each material is available in.</p>	<p>Linkages:</p> <ul style="list-style-type: none"> • bell cranks • push/pull. <p>Rotary systems:</p> <ul style="list-style-type: none"> • CAMs and followers. • simple gear trains. • pulleys and belts. 	<p>websites such as B and Q. John Lewis furnishings stores.</p> <p>Students will be encouraged to continue with independent research throughout the summer term.</p>	<p>understanding of the role of a Anthropometric Analyst.</p> <p>Students will learn how an analyst will measure the human body to aid design and manufacture.</p>
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GCSE Design Technology - Year 11 Curriculum Overview

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6	
	NEA Coursework	NEA Coursework	NEA Coursework	NEA Coursework	Exam Revision	Exam Revision	Careers
Year 11	<p>Section B</p> <p>Based on conclusions from their investigations students will outline design possibilities by producing a design brief and design specification using ACCESSFM, this technique has been developed for writing specifications throughout key stage 3.</p> <p>Section C</p> <p>Generating design ideas (20 marks) - Students will explore a range of possible ideas linking to the contextual challenge selected.</p> <p>These design ideas should demonstrate flair and originality and students will be encouraged to take risks with their designs. Students may wish to use a variety of techniques to communicate this will</p>	<p>Section D</p> <p>Develop Design Ideas - Students will develop and refine design ideas. This will include, 2D/3D drawing including CAD, models, prototypes using card.</p> <p>Students will also select suitable materials and components communicating their decisions throughout the development process.</p> <p>Students are encouraged to reflect on their developed ideas by looking at their requirements; including how their designs meet the design specification. Students will need constant feedback from their client when evaluating their designs.</p> <p>Create a manufacturing specification providing information on a range of appropriate methods, such as measured drawings, control programs, circuit diagrams, patterns, cutting or parts lists</p>	<p>Section E</p> <p>Students will work with a range of appropriate materials/components to produce prototypes that are accurate. This will include types of wood, plastics, metal and possibly electronics.</p> <p>Students will involve using specialist tools and equipment, which may include hand tools, machines or CAM/CNC.</p> <p>Students will construct prototypes using a range of techniques, which may involve shaping, fabrication, construction and assembly. The prototypes will have a suitable finish with functional and aesthetic qualities, where appropriate. Throughout the making stages students can show how they develop ideas with photographic evidence of the making stages which they will annotate.</p>	<p>Completion of NEA Task this term.</p> <p>Making of Product complete.</p> <p>Section F</p> <p>Analysing and evaluating - Students will have analysed and annotated their work throughout all stages at the end of the project students will analyse their final product against the design brief and specifications. Their final prototype will be tested and include market testing and a detailed analysis of the prototype(s).</p> <p>Revision for exam</p> <p>How the following techniques are used and applied:</p> <ul style="list-style-type: none"> • market research, interviews and human factors including ergonomics. • the use of anthropometric 	<p>Exam Revision</p> <p>Scales of Production.</p> <p>Students will research a variety of products and how they are produced in different volumes.</p> <p>The reasons why different manufacturing methods are used for different production volumes:</p> <ul style="list-style-type: none"> • prototype. • batch. • mass. • continuous. <p>When manufacturing these products this will link to Quality Control and Assurance.</p> <p>Quality control - The application and use of quality control to include measurable and quantitative systems used during manufacture:</p> <ul style="list-style-type: none"> • Papers and boards 	<p>Exam Revision</p> <p>Revision in the form of written and communication with reference to Ecological issues in the design and manufacture of products using PEEL techniques to construct written answers.</p> <p>Complete past papers. Students will complete analysis of their exam papers to identify areas of focus.</p>	<p>Term 1</p> <p>In term 1, students will research a career within their chosen Design Technology sector, which will support their NEA Coursework.</p> <p>Term 2</p> <p>In term 2, students will research a career within their chosen Design Technology sector, which will support their NEA Coursework.</p> <p>Term 3</p> <p>In term 3, students will research a career within their chosen Design Technology sector, which will support their external exam.</p>

	<p>include drawing techniques used throughout the course including isometric, 2 point perspective and CAD drawing including Google Sketchup and 2d design to show a range of designs. Annotate all design ideas with reference to materials and processes used for manufacture.</p>	<p>and explain the properties of the materials they are using.</p>		<p>data and percentiles.</p> <p>Complete exam questions linked to ergonomics and anthropometric data.</p>	<p>(registration marks).</p> <ul style="list-style-type: none"> • Timber based materials (dimensional accuracy). 		
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