

Design & Technology Module: Product / Engineering Design				
Year 7				
	Topic / Theme	Knowledge and Skills	Assessment	Cultural Capital Independent Learning
Autumn – Term One	<p>Project: <i>Novelty Glasses</i></p> <p>This is the first project in the Product / Engineering design module. Students will design & manufacture a pair of novelty glasses from PVC. The theme encourages students to explore the concepts of anthropometrics & ergonomics, and how these areas relate to product design. Students will develop knowledge & understanding of working with plastics, including the development of practical skills. Students will also develop problem solving skills through manufacture. Knowledge of evaluating products will be acquired through the analysis of their own products and the work of others, including a study of past and present designers.</p>	<p>Designing: D1,2,4,5 Students will develop an understanding of user & design needs (Ergonomics & Anthropometrics) & target groups, and learn to use <i>design briefs</i> to generate ideas to meet these needs. Students will develop skills in developing 2D & 3D designs, generated using different approaches, and learn to present solutions using a range of formats, including modelling, CAD and annotated sketches. D1, D2, D5,</p> <p>Making: M1,2 Students will learn to use a range of techniques, processes & equipment to shape & form Plastics, and will receive instruction in the use of hand tools, machinery and equipment. Students will develop problem</p>	<p>F = Foundation C = Core A = Advanced E = Exceptional</p> <p><u>Design Assessment Criteria coverage</u> F Produce designs to solve a need. C Able to identify some design needs and produce designs to solve a need, or design task and think of some improvements. A Able to identify needs, problems and constraints, and produce a range of design solutions. Ideas are presented using 3-D drawing, CAD and some modelling. E Use product analysis and studies of different cultures to develop needs & specifications. Generate designs with consideration of social, moral, environmental or sustainability issues. Use modelling (including CAD) to develop designs into a chosen solution.</p> <p><u>Formative assessment of Designing</u> Glasses Template Glasses Design (2d / 3d)</p>	<p><u>Independent learning</u> Students are expected to create and develop designs (images & practically) independently with varying degrees of innovation and flair. Students will develop problem solving skills through independent learning, especially in a practical context. Research into materials, concepts and the work of past and present designers will develop the students' ability to work independently.</p> <p><u>Cultural Capital</u> Students will gain an awareness of the work of past & present designers and how the designs and work of individuals influence society and ensuring students have an understanding of Britain's</p>

	<p>Topics / Themes addressed <i>Hyperlink to topics</i></p> <p>D1 – Designing: Research & Exploration. D2 – Designing: Identifying & solving design problems: D4 & D5 – Designing: Design approaches & communicating designs.</p> <p>M1 Making: Using Specialist tools, equipment, techniques, processes</p> <p>M2 Making: Selecting and using materials</p> <p>E1 – Evaluate: Analysing the work of past & present professionals. E3 – Evaluate: Testing and Evaluation</p> <p>TK1 / M2: Selecting, understanding and using materials</p>	<p>solving skills through the manufacturing of products. M1</p> <p>E1,3 Evaluate: Students will study the work of past and present professionals and be introduced to new technologies, which will develop knowledge of product design. Students will learn to analyse their own and others’ products with a view to improving performance and understand how designers should consider environmental issues & the impacts and responsibilities of designs on society. E1 – E4</p> <p>TK1 Technical Knowledge: Students will develop knowledge of material properties and sustainability issues in the use of plastics. TK1</p>	<p>Kettle / Toaster Design Mask design</p> <p><u>Making Assessment Criteria coverage</u> F With assistance, carry out some practical work safely, showing some basic skills. C Identify tools and equipment and carry out practical work safely and independently, demonstrating skills in a few processes, including CAM. A Identify main stages and equipment to make products. Make products correctly and accurately with a variety of tools or processes, including CAM. E Produce instructions for making a product which include alternative tools and processes to use and some quality control checks. Assemble and make products with accuracy that offer some challenge, demonstrating good skills in the use of a wide variety of tools or processes, including CAM.</p> <p><u>Formative assessment of Making</u> Main PVC Glasses Plan of making / Diary</p> <p><u>Evaluating Assessment Criteria coverage</u> F Recognise a few ways in which a product could be improved.</p>	<p>contemporary design practice and design heritage, as well as a knowledge of international design practice. We encourage wider reading and the exploration of academic theory of design. Students will gain experience in the use of equipment to enrich their understanding of technology, including the use of laser cutting, 3D printing, CNC use and computer aided design. Extra curricula clubs and access to industrial partners / STEM organisations will provide access to skills development, industrial developments, technological advancements, environmental and economic factors, the role of sustainability and ethics in user-centred design, demographic change and sociocultural influences around the world in order to visualise future possibilities and guide career opportunities.</p>
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Design & Technology Module: Product / Engineering Design				
Year 7				
	Topic / Theme	Knowledge and Skills	Assessment	Cultural Capital Independent Learning
Autumn – Term Two	<p>Project: <i>Stationary Holder</i></p> <p>This is the second project in the Product / Engineering design module.</p> <p>Students will design & manufacture a stationary holder (pencil holder). The project focuses on the development of practical skills and the use of specific machinery and equipment. Students will mark-out a block and then use power equipment to cut and shape a pencil holder block. Students will then design & manufacture an additional feature(s) to be added to the block to focus the product on the intended user.</p>	<p>Designing: D1,2,4,5</p> <p>Students develop an understanding of user needs & assessing research findings to generate ideas in response to a brief. Students will develop skills in presenting and interpreting 2D designs (orthographic) & 3D designs (one point perspective), and learn to generate ideas using a range of formats including CAD. D1, D2, D5</p> <p>Making: M1,2</p> <p>Students develop knowledge and understanding using a range of techniques, processes & equipment. They will learn the importance of ‘marking-out’ material (application of maths), how to shape & form Timbers & Plastics using power equipment. Students will receive basic instruction in the use of pillar drills & sanders and how to work in accordance with health & safety regulations.</p> <p>M1</p>	<p>F = Foundation C = Core A = Advanced E = Exceptional</p> <p><u>Design Assessment Criteria coverage</u></p> <p>F Produce designs to solve a need. C Able to identify some design needs and produce designs to solve a need, or design task and think of some improvements. A Able to identify needs, problems and constraints, and produce a range of design solutions. Ideas are presented using 3-D drawing, CAD and some modelling. E Use product analysis and studies of different cultures to develop needs & specifications. Generate designs with consideration of social, moral, environmental or sustainability issues. Use modelling (including CAD) to develop designs into a chosen solution.</p>	<p><u>Independent learning</u></p> <p>Students are expected to create and develop designs independently with varying degrees of innovation and flair. Students will work independently during manufacturing to develop problem solving skills and confidence by using power machinery and in a general practical context. Research into materials, concepts, and the work of past and present designers, will develop the students’ ability to work independently.</p> <p><u>Cultural Capital</u></p> <p>Students will gain an awareness of the work of past & present designers and how the designs and work of individuals influence society and ensuring students have an understanding of Britain’s</p>

	<p>Topics / Themes addressed <i>Hyperlink to topics</i></p> <p>D1 – Designing: Research & Exploration.</p> <p>D2 – Designing: Identifying & solving design problems:</p> <p>D4 & D5 – Designing: Design approaches & communicating designs.</p> <p>M1 Making: Using Specialist tools, equipment, techniques, processes</p> <p>M2 Making: Selecting and using materials</p> <p>E1 – Evaluate: Analysing the work of past & present professionals.</p> <p>E3 – Evaluate: Testing and Evaluation</p>	<p>E1,3 Evaluate: Students will analyse their own and others’ products with a view to learning how to improve their own products and performance, and how to consider markets for their products E1 – E4</p> <p>TK1 Technical Knowledge: Students will develop knowledge of material properties and sustainability issues related to materials. TK1</p>	<p>Formative assessment of Designing Pencil Holder (2d / 3d)</p> <p>Making Assessment Criteria coverage</p> <p>F With assistance, carry out some practical work safely, showing some basic skills.</p> <p>C Identify tools and equipment and carry out practical work safely and independently, demonstrating skills in a few processes, including CAM.</p> <p>A Identify main stages and equipment to make products. Make products correctly and accurately with a variety of tools or processes, including CAM.</p> <p>E Produce instructions for making a product which include alternative tools and processes to use and some quality control checks. Assemble and make products with accuracy that offer some challenge, demonstrating good skills in the use of a wide variety of tools or processes, including CAM.</p> <p>Formative assessment of Making Pencil Holder block - accuracy & style Pencil Holder - additional feature Plan of making</p>	<p>contemporary design practice and design heritage, as well as a knowledge of international design practice. We encourage wider reading and the exploration of academic theory of design. Students will gain experience in the use of equipment to enrich their understanding of technology, including the use of laser cutting, 3D printing, CNC use and computer aided design. Extra curricula clubs and access to industrial partners / STEM organisations will provide access to skills development, industrial developments, technological advancements, environmental and economic factors, the role of sustainability and ethics in user-centred design, demographic change and sociocultural influences around the world in order to visualise future possibilities and guide career opportunities.</p>
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	<p>TK1 / M2: Selecting, understanding and using materials</p>		<p><u>Evaluating Assessment Criteria coverage</u></p> <p>F Recognise a few ways in which a product could be improved.</p> <p>C Carry out a simple evaluation of a product and suggest improvements.</p> <p>A Produce evaluations to include testing. Comment about how suitable the final product is for the target user.</p> <p>E Produce an evaluation including testing the final product against the specification and explain improvements needed, taking into account the views of the users and other interested groups.</p> <p><u>Formative assessment of Evaluating</u></p> <p>Product analysis: <i>stationary</i></p> <p>Evaluation of pencil holder</p> <p>Capability test / exam</p>	
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