




Subject Curriculum Overview for Academic Year 2022/2023

Subject: 3D Design (OCR GCSE)		Subject Leader: Mrs Fox	Year Group: 9	AUTUMN TERM
Topic	Key Learning Points	Key Vocabulary	Assessments	
<p>Half term 1</p> <p>Traditional wood work</p> <p>Small Storage Box –</p> <p>Design and manufacture a small storage box for a client of their choosing.</p> 	<p>OUTCOME; STUDENTS WILL DESMONSTRATE THEIR KS3 PRACTICAL SKILLS BY RECALLING JOINERY TECHNIQUES, ADHESIVES AND FINISHES, BY DESIGNING AND MANUFACTURING THEIR OWN UNIQUE SMALL STORAGE BOX.</p> <p>Students will give an in-depth analysis of the design brief & designing/manufacturing for chosen client’s needs.</p> <p>Students will demonstrate how to research existing solutions and annotate using higher level subject specific vocabulary and their design awareness.</p> <p>Students will demonstrate an understanding of materials and their properties and choose materials appropriately using this information.</p> <p>Students will recall and demonstrate workshop health and safety rules during the manufacturing stages of the small storage box.</p> <p>Students will demonstrate correct use of hand tools and machinery – cutting all component parts accurately.</p> <p>Students will show attention to detail with joinery – ensuring joints are correctly cut & sanded prior to assembly for a quality outcome.</p> <p>Know how to test and evaluate their work using ACCESSFM specification targets for self-reflection and product evaluation.</p>	<p>Joinery; finger, dowel, rebate, butt, dovetail, box, mortis & tenon, biscuit.</p> <p>Tri-square, hard wood, soft wood, man-made board, grain, abrasive, counter-sink, chisel, aesthetic, abrasion, hinge, panel pin, pin hammer, tension, belt sander, palm sander</p>	<p>Teacher assessed practical looking at practical manufacturing skills and quality of product outcome.</p> <p>‘Forms’ Summative assessment at end of half term to assess understanding of key learning points.</p>	
<p>Half term 2</p> <p>Product design and electronics:</p> <p>Moodlamp Project –</p> <p>Design and manufacture the housing for an LED and LDR moodlight circuit board kit, and solder the electronic components for a working product.</p>	<p>OUTCOME; STUDENTS WILL KNOW HOW TO DESIGN AND MANUFACTURE THEIR OWN UNIQUE PRODUCTS USING CAD/CAM AND TRADITIONAL PRACTICAL SKILLS TO A BASIC LEVEL.</p> <p>Further analysis of brief – detailed analysis of brief, identifying client requirements more independently & suggesting outcomes.</p> <p>ACCESSFM specification targets – more detailed specification produced with clear target market consideration.</p> <p>Research existing solutions – research & annotate a variety of existing solutions demonstrating design awareness and identifies areas for development.</p> <p>Innovative design – Creates a combination of innovative hand drawn initial design ideas and CAD visuals to present work in a creative and graphically accurate style.</p> <p>Development – Gathers target market feedback and develops / improves / amends design ideas accordingly.</p> <ul style="list-style-type: none"> ○ <i>Electronics</i> <p>Understand function of all moodlamp electronic components – uses, standard symbols etc.</p> <p>Mastery repetition of soldering – paired practice work on project board & surplus components</p>	<p>Electronics, solder, soldering iron, flux, circuit, dry joint, component, resistor, transistor, capacitor, jumper wire, input, output, side cutters, strippers, finger joint, coping saw, tenon saw, scroll saw, strain relief, light emitting diode (LED), light dependant resistor (LDR), CAD, heat bender, acrylic, reflective, engrave, client, target market.</p>	<p>Formative assessment throughout the design and manufacture, feeding back on key learning points.</p> <p>‘Forms’ Summative assessment at end of half term to assess understanding of key learning points.</p>	

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	<p>Soldering of moodlamps – continued paired work to assemble moodlamp kits. Class to work together, assisting each other, & pairs responsible for quality control of speakers.</p> <ul style="list-style-type: none"> ○ <i>CADCAM and assembly</i> <p>CAD - Revisit key measuring tools using 2D Design. Prepare a 3D isometric visual of final design. Create all CAD moodlamp sections with box joinery technique used appropriate for chosen material.</p> <p>Production plan – mastery consolidation; independent decision making on most appropriate assembly and finishing of moodlamp detailed in a stage by stage production plan.</p> <p>Assemble CAM sections in order with clear access to the circuit board using production plan guidance.</p> <p>Evaluation skills – using original ACCESSFM specification targets for self reflection and product evaluation, target market feedback, the importance of resilience.</p>		
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<p>Topic</p>	<p>Key Learning Points</p>	<p>Key Vocabulary</p>	<p>Assessments</p>

Subject Curriculum Overview for Academic Year 2022/2023

<p>Half term 1 Completion of Moodlamp Project – above.</p> <p>Half term 2 Graphics design and manufacture: Point of Sale Unit and Corporate Identity - Design and make a flat-pack point of sale unit complete with graphic branding for a chocolate bar.</p> 	<p style="text-align: center;">OUTCOME; STUDENTS WILL KNOW HOW TO DRAW THEIR OWN UNIQUE DESIGNS ONTO 2D DESIGN AND USE THIS TO MANUFACTURE.</p> <p>Introduction to point of sale units and promotional purpose. Introduction to analysis of brief & designing/manufacturing for a client’s needs and wider target market. Research existing chocolate promotional solutions, how point of sale units are used (position marketing) and annotate using key subject specific language. ACCESSFM specification target setting for clear project direction. Analysis of foamboard, its reinforced properties and CAM laser cutter settings. Analysis of card nets and understanding of assembly using a slot method. Isometric perspective drawing skills and developing innovative design ideas. Mastery repetition of accurate measuring & drawing out skills using CAD 2D Design. Mastery repetition of CAM laser cutter quality control. Health & Safety – using craft knives, cutting mats, metal rulers, hot glue and spray adhesive. Attention to detail with component assembly – using CAD/CAM as a basis for accuracy but practising individual crafting skills are essential for quality product outcome. Evaluation skills – using original ACCESSFM specification targets for self reflection and product evaluation, customer/client feedback, the importance of resilience.</p>	<p>Graphics, vector, bitmap, client, functionality, stability, branding, slogan, point of sale, colour swatch, exploration, score, backing, durable, continuity, target market, promotion, flat pack, 3D forms, layers, innovative, bespoke, limited edition, palette, transparency, inspiration, theme, wrap, bleed, support, inserts, tabs, limited edition, isometric, oblique, perspective.</p>	<p>Formative starter tasks recalling CAD software knowledge and understanding.</p> <p>‘Forms’ Summative assessment at end of half term to assess understanding of key learning points.</p>
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Subject Curriculum Overview for Academic Year 2022/2023

Subject: 3D Design (OCR GCSE)		Subject Leader: Mrs Fox	Year Group: 9	SUMMER TERM
Topic	Key Learning Points		Key Vocabulary	Assessments
Half term 1 Completion of Point of Sale Unit and Corporate Identity – above.	<hr style="border-top: 1px dashed #000;"/> OUTCOME; STUDENTS TO CREATE A PERSONAL PORTFOLIO OF THE YEARS MANUFACTURING OUTCOMES. Students demonstrate their mastery graphic skills by designing a personal logo to promote their work within the showcase. Students demonstrate an enthusiasm and motivation for their products by modifying previous manufactures to a higher quality finish.		Portfolio, signature, response, showcase, promote, modify, quality, outcome, visual, representation.	Peer visual assessment and target setting. Teacher formative assessment and feedback throughout the modifying process. End of year summative assessment via 'Forms' to demonstrate the full years topic understanding.
Half term 2 Preparation for the DT and Arts summer showcase.				
How parents can support learning in the subject this academic year				
Encourage and help students with homework tasks, checking on epraise for tasks set and logging onto 'remote access' to go through class computer work. Encourage practical skill based activities at home including cooking and enabling students to use tools/power tools whilst supervised. Recommend watching documentaries together that follow the process of design and manufacture or cooking programmes to engage, motivate and excite within these specialisms.				
Recommended Reading				
https://www.technologystudent.com/ https://designmuseum.org/ SketchUp for Dummies – Bill Fane IRONCAD Assembly Drawings – Sachidanand Jha Universal Principles of Design - William Lidwell, Kristina Holden, Jill Butler				
Points to note				
The Year 9, 3D Design GCSE transitional year, is focussed on embedding key practical skills in several design specialisms; graphics, traditional woodwork, product design, and electronics. As students move into their GCSE course (Years 10 and 11) their secure knowledge and understanding of these specialisms is recalled and focussed on at a higher level. Year 9 is therefore a key stage of learning for students to be prepared and fully able for the GCSE design and manufacturing journey.				