

Year 10 Curriculum Overview Plan: OCR Cambridge National Engineering Design

Term 1		Term 2		Term 3	
Half Term	Half Term	Half Term	Half Term	Half Term	Half Term
<p>Key Theme: Introduction to principles of engineering Design</p> <p>Key Concepts, Knowledge & Skills to be Embedded: Engineering Communication; Design, Drawing and Manufacture</p> <p>Links to Prior Learning: Design and Technology DMA</p> <p>Key Assessment Pieces: Engineering Drawing Prototype Manufacture</p> <p>Tier 3 Vocabulary Vault: Orthographic, Dimension, Measurement, Tolerance, Surface Finish, Detail, Accuracy, Precision, Quality Assurance, Quality Control</p> <p>Reading Exposure: Orthographic Projections, Instruction, Risk Assessments</p>		<p>Key Theme: Product Analysis and Research (R106)</p> <p>Key Concepts, Knowledge & Skills to be Embedded: How commercial production methods, quality and legislation impact on the design of products and components Research of existing products Analyse an existing product through disassembly</p> <p>Links to Prior Learning: Design Manufacture</p> <p>Key Assessment Pieces: R106 Controlled Assessment – Product Analysis and Research</p> <p>Tier 3 Vocabulary Vault: commercial production, one-off, batch, mass, automation, manufacturing processes, moulding, pressing, forming, material shaping (e.g. CNC applications, CAM), machining, finishing, assembly, product end of life, recycling, reusing, conformity to legislation,</p>		<p>Key Theme: Developing and presenting engineering designs (R107)</p> <p>Key Concepts, Knowledge & Skills to be Embedded: Generate design proposals using a range of techniques To develop designs using engineering drawing techniques and annotation Use Computer Aided Design (CAD) software and techniques to produce and communicate design proposals</p> <p>Links to Prior Learning: Product Analysis and research, DMA's</p> <p>Key Assessment Pieces: R107 Controlled Assessment – Engineering Design</p> <p>Tier 3 Vocabulary Vault: hand-drawing, ideas, concepts, freehand, sketching, 2D, 3D, rendering, shade, tone, texture, annotation, features, functions, dimensions, materials, construction, manufacture methods, components, 3D</p>	

<p>Strategies to enable new concepts, knowledge & skills to embed in long-term memory:</p> <p>Design and Make Project including drawing and communication design intentions. Working from Engineering/ Manufacturing Drawing. Application and recall of Key Concepts, knowledge and Skills in a practical environment.</p>	<p>quality, safety standards, British Standards (BS), European Conformity (CE), Waste Electrical and Electronic Equipment Directive (WEEE), patents, copyright, primary research, physical analysis, questioning, surveying, secondary research, user needs, durability, sustainability, life cycle, energy use, power sources, disassembly, components, standard, special, assembly methods, mounting, connections, production methods, maintenance considerations.</p> <p>Reading Exposure: Research Sources of Information, Instruction, Risk Assessments.</p> <p>Strategies to enable new concepts, knowledge & skills to embed in long-term memory:</p> <p>Application and recall of Key Concepts, knowledge and Skills in a practical environment. Product Dis-assembly and Research Portfolio</p>	<p>engineering drawings, isometric, oblique, exploded views, assembly drawings, 2D engineering drawings, 3rd angle orthographic, scale, dimensions, materials, parts lists, sectioned, draughting, 3D modelling, rendering, assemblies, animation.</p> <p>Reading Exposure: Project Brief, Technical Documentation and Instruction, Engineering and Manufacturing Drawings</p> <p>Strategies to enable new concepts, knowledge & skills to embed in long-term memory:</p> <p>Application and recall of Key Concepts, knowledge and Skills in a practical environment. Product Design and Communication Portfolio</p>
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