

YEAR 12	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Content</p> <p><i><u>Knowledge Prior / recall/ taught</u></i></p>	<p>DESIGN & MAKE SKILLS: Knowledge of different Drawing Skills: Orthographic, Obliques, Perspective, Axonometric, Isometric, Nets/Developments, Translation between them.</p> <p>THEORY: Performance characteristics of woods, metals, polymers, smart and modern materials, papers, boards, textiles and composites in order to discriminate between materials and select appropriately</p>	<p>DESIGN & MAKE SKILLS: Passive Amplifiers, researching, specifications, creativity, Sketching, rendering, Google Sketch up Bauhaus, Arts & Craft, Streamlining, Art Deco, Art Nouveau, Modernism, PostModernism, Memphis</p> <p>THEORY: Knowledge and understanding of working properties, characteristics, applications, advantages and disadvantages of the following types of materials Wood Metal Polymers Composites Papers and board Textiles Smart and modern materials</p>	<p>DESIGN & MAKE SKILLS: How to manufacture a complex architectural model using different technology, materials and components</p> <p>THEORY: Processes, applications, characteristics, advantages and disadvantages of the following... a) heat treatments b) alloying c) printing d) casting e) machining f) moulding g) lamination h) marking out techniques Uses, characteristics, advantages and disadvantages of... a) adhesives b) mechanical c) heat d) jointing</p>	<p>DESIGN & MAKE SKILLS: Introduction to Coursework Identifying needs and problems that can be solved through design. Investigating design problems in depth Understanding a design problem and identifying relevant information.</p> <p>THEORY Application, advantages and disadvantages of the following finishing techniques and methods of preservation a) finishes b) paper and board finishing processes</p> <p>Set up, safe and accurate operation, advantages and disadvantages of the following digital technologies: a) computer-aided design b) computer-aided manufacture (CAM)</p>	<p>DESIGN & MAKE SKILLS: Understanding a design problem and identifying relevant information. Conducting a survey, Researching and Specification writing.</p> <p>THEORY Factors influencing the development of products ... User centred Design Ergonomics and anthropometrics</p> <p>Review of Designers and design movements from Autumn Term 2</p>	<p>DESIGN & MAKE SKILLS: Designing creative ideas to meet a specification and a clients or target market's needs.</p> <p>THEORY Effects of technological developments ... a) mass production b) high-technology production c) the global marketplace</p>
<p>Skills</p> <p>Recall of knowledge and skills will be interleaved throughout the SOW</p>	<p>Drawing Skills: Sketching and rendering Working Drawings, Orthographic, Obliques, Perspective, Axonometric, Isometric, Nets/Developments, Translation between them.</p>	<p>Orthographic, Obliques, Perspective, Axonometric, Isometric, Nets/Developments, Translation between them. Sketching and rendering Working Drawings</p>	<p>Skills using 2D Design, Laser Cutter, Vacuum Former, Bandsaw, scroll saw, sanders, power and hand tools, Making formers and using Flexply, HIPS, MDF, Plywood, Acrylic</p>	<p>Skills identifying how problems can be solved through design. Analysis, Evaluation and Researching</p>	<p>Identifying relevant research, researching, writing an effective survey.</p>	<p>Sketching, Perspective Drawing. Using research to inform designing. Evaluating designs against specification criteria and clients or target market's views.</p>
<p>Key Questions</p>	<p>Can I translate information from one drawing</p>	<p>Can I design considering a specification?</p>	<p>Can I use machinery safely and accurately?</p>	<p>Can I identify what I need to find out to begin</p>	<p>Can I identify relevant research required to start</p>	<p>Can I create imaginative ideas that are</p>

	technique to another?			designing a product?	designing a product?	relevant to my client, and meet a design brief and specification?
Assessment	Past paper focusing on drawing questions. Half Termly Unit Test	Coursework assessment grids for Unit 4 Designing to a specification for a client, Unit 5 Development of Ideas & Unit 8 Communication Half Termly Unit Test	Coursework assessment grids for Unit 9 Tools & Equipment, Unit 10 Quality & Accuracy. Half Termly Unit Test	Coursework assessment grids for Unit 1 Identification of a Design Possibility and Unit 2 Identification of Needs and Research. Half Termly Unit Test	Coursework assessment grids for Unit 2 Identification of Needs and Research and Unit 3 Specification Half Termly Unit Test	Coursework assessment grids for Unit 4 Initial Ideas & Unit and Unit 8 Communication Half Termly Unit Test
Literacy/numeracy/SMART/Character	Development of a technical vocabulary, Designing to meet end users needs. Responsible design, Sustainable Design. Calculating dimensions and creating scale drawings.	Development of a technical vocabulary, Designing to meet end users needs. Responsible design, Sustainable Design. Calculating dimensions and creating scale CAD models.	Development of a technical vocabulary, Designing to meet end users needs. Responsible design, Sustainable Design. Calculating dimensions, measuring and marking.	Development of a technical vocabulary, Designing to meet end users needs. Responsible design,	Development of a technical vocabulary, Designing to meet end users needs. Responsible design,	Development of a technical vocabulary, Designing to meet end users needs. Responsible design. Calculating dimensions and creating scale drawings.
Enrichment opportunities and futures		Analysis of existing designers and architects work. Researching existing designers and architects.	Analysis of existing model makers' work. Researching existing model makers' work.			Young Designers Exhibition trip
Year 13	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Content <u>Knowledge Prior / recall/ taught</u>	DESIGN & MAKE SKILLS: Developing initial creative ideas to meet a specification and a clients or target market's needs. THEORY Features of manufacturing industries ... a) one-off production b) batch production c) high-volume production a) quality control b) quality assurance c) Total Quality Management (TQM)	DESIGN & MAKE SKILLS: Evaluating creative ideas to meet a specification and a clients or target market's needs. How to identify key strengths in initial designs to take forward to further develop. THEORY Production systems... a) production scheduling and logistics b) robotics c) materials handling systems d) flexible manufacturing systems (FMS), e) lean manufacturing f) standardised	DESIGN & MAKE SKILLS: Developing detailed Ideas to meet a specification and a clients or target market's needs Developing an idea to a manufacturing specification. THEORY Characteristics, application, advantages and disadvantages of 'cleaner' design and technology a) material selection b) manufacture c) distribution d) use e) repair and maintenance f) end of life	DESIGN & MAKE SKILLS: How to manufacture your final product using the tools, equipment, materials and components available in school. THEORY Information handling, modelling and forward planning... a) Marketing b) innovation management c) feasibility studies Modelling... a) budgets b) planning for production c) selection of	DESIGN & MAKE SKILLS: How to manufacture your final product using the tools, equipment, materials and components available in school. How to test and evaluate a completed product objectively THEORY: a) user-centred design b) circular economy c) systems thinking project management strategies: a) critical path analysis	

		part g) quick response manufacturing (QRM) h) product data management (PDM), enterprise resource planning (ERP) systems i) concurrent manufacturing.	Current legislation a) Consumer Rights Act (2015) b) Sale of Goods Act (1979). c) Health and Safety at Work etc Act (1974) c) Control of Substances Hazardous to Health (COSHH) regulations	appropriate tools, machines and manufacturing processes. intellectual property rights: a) patents b) copyrights c) design rights d) trademarks.	b) scrum c) Six Sigma Revision and practice exam questions.	
Skills Recall of knowledge and skills will be interleaved throughout the SOW	Sketching, Perspective Drawing. Using research to inform designing. Evaluating designs against specification criteria and clients or target market's views.	Sketching, Perspective Drawing. Using research to inform designing. Evaluating designs against specification criteria and clients or target market's views.	Sketching, Perspective Drawing. Using research to inform designing. Evaluating designs against specification criteria and clients or target market's views.	Manufacturing your final product using Saws, Sander, Routers, Hand & Power Tools, laser Cutters, 3D Printers, Vinyl Cutters, Casting	Manufacturing your final product using Saws, Sander, Routers, Hand & Power Tools, laser Cutters, 3D Printers, Vinyl Cutters, Casting Evaluating and analyzing a completed product.	
Key Question	Can I create imaginative ideas that are relevant to my client, and meet a design brief and specification?	Can I modify my design idea so it meets all of the clients or target markets needs and work out how it will be made?	Can I work out how to make a high quality product using tools, equipment and materials available in the school?	Can I use machinery safely and accurately?	Can I use machinery safely and accurately? Can I objectively and comprehensively evaluate and analyse my final product?	
Assessment	Coursework assessment grids for Unit 4 Initial Ideas & Unit and Unit 8 Communication Half Termly Unit	Coursework assessment grids for Unit 5 Developed ideas Half Termly Unit	Coursework assessment grids for Unit 5 Developed ideas and Unit 6 Final Design Solution Half Termly Unit	Coursework assessment grids for Unit 9 Tools & Equipment, Unit 10 Quality & Accuracy. Half Termly Unit Test	Coursework assessment grids for Unit 9 Tools & Equipment, Unit 10 Quality & Accuracy. Unit 11 Testing & Evaluating Half Termly Unit Test	
Literacy/numeracy/SMSC/Character	Development of a technical vocabulary, Designing to meet end users needs. Responsible designing. Calculating dimensions and creating scale drawings.	Development of a technical vocabulary, Designing to meet end users needs. Responsible designing. Calculating dimensions and creating scale drawings.	Development of a technical vocabulary, Designing to meet end users needs. Responsible designing. Calculating dimensions and creating scale drawings. Calculating quantities.	Development of a technical vocabulary, Designing to meet end users needs. Responsible designing, Sustainable Design. Calculating dimensions, measuring and marking.	Development of a technical vocabulary, Designing to meet end users needs. Responsible designing, Sustainable Design. Calculating dimensions, measuring and marking.	
Enrichment opportunities and futures	Development of knowledge of 3D designing software such as Sketchup, Fusion 360 or Tinkercad. Aim to watch every episode of	Port-Folio reviews and interview guidance and support. Look at university courses to analyse content	Looking at careers - Careers - Engineer, Product or Industrial Designer, Interior Designer, Retail Designer, Exhibition Designer, Film Set	Complete some MOOCs around the topic of sustainability		

	<p>'how it works' to deepen understanding of industrial processes</p> <p>Visit design museum collecting images to help design folder</p> <p>Catch up sessions available each week in consultation with staff</p> <p>Relevant future careers</p>		<p>Designer, Automobile Designers, Theatre Set Designer, Manufacturer, Machine Operator, Architect, Exhibition Designer, Toy Designers, Game Designer, Furniture Designer, Electrical Engineer, Carpenter, Plumber, Electrician,</p>			
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