

# Subject Long Term Plan Year 10 Design Technology 2021-22

## Temperance Term

W/C	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	HALF TERM
Topic	Transition Project – Jewellery Box Design Like...key 16 designers					Drawing Techniques Exam Techniques		
Core	<b>Introduction to the workshop and team building with a focus on Wood</b> <ul style="list-style-type: none"> <li>Explain and apply the Health and Safety at Work Act to a school workshop: Read the act, complete risk assessments throughout the topic</li> <li>Investigate how to make a dowel joint; two methods.</li> <li>Learn how to record this investigation into the sketchbook for: future reference; to identify how to improve precision</li> <li>Make a simple pine box, using a standard design, with precision</li> <li>Record stages of production and learn how to use QA and QC throughout; self (QA) and peer (QC) assessment</li> <li>Explore finishing processes for wood: rough and fine sanding; oiling; varnishing; painting (primer and gloss); wax</li> <li>Explore the development of a lid and the interior of the box: hinges, lift odd, pivot, felt lining...</li> <li>Technical language recorded and tested through homework</li> </ul> <b>Research and learn to design like 10 of the Essential 16 Designers</b> <ul style="list-style-type: none"> <li>Learn how to use the sketchbook: presenting work from KS3 and the <i>Summer Task</i></li> <li>Each week focus on two new designers from the AQA spec; history, products and designing in the style of them for new products</li> <li>Experience Exam style questions about the designers</li> <li>Support lesson work with homework</li> </ul>					Developing strong visual communication techniques <ul style="list-style-type: none"> <li>Orthographic projection</li> <li>Techsoft 2d Design (2d CAD)</li> <li>Design Spark Mechanical (3d CAD)</li> <li>Toning, texturing and Line Type Techniques</li> <li>1 point and 2-point perspective</li> </ul> <b>Learning how to analyse and answer exam questions</b> <ul style="list-style-type: none"> <li>Introduction and exploration of the 7-step exam approach</li> <li>Short exam questions focussing on wood</li> <li>Mid exam questions involving drawing</li> <li>Long answer evaluation questions focusing on application of wood/H&amp;S</li> </ul>		
Challenge	Style of lid and fitting out the interior of the jewellery box Homework: 1. Combining the styles of 2 designers and developing own unique style 2. Investigation and quiz on wood working keywords					Complexity of the drawing and colour produced Homework: 1. Independent drawing worksheets 2. Two mid length written exam questions		
Assessment	TVF, SA, online quizzes TA and online quizzes					SA and TVF		

W/C	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	CHRISTMAS
Topic	Investigating Wood Joints Introduction to the 400 DT Keywords		Picture Frame Project Woodworking DT Keywords completed				
Core	Learn how to gather research for completing a practical activity <ul style="list-style-type: none"> <li>Make 3 wood joints (corner halving, cross halving and corner dovetail)</li> <li>Learn how to assess accuracy and methods for improving this</li> <li>Experience remaking the wood joints to demonstrate mastery</li> <li>Continue to develop the use of the sketchbook for recording the investigation with the addition applying the wood joints to different situations e.g. a picture frame</li> </ul> <b>How to research and record the definitions of the 400 Keywords</b> <ul style="list-style-type: none"> <li>Use of an Excel spreadsheet</li> <li>How to research keywords: definitions, website references and video links</li> <li>Revision techniques to learn definitions: keyword book; flash cards; writing exam questions</li> <li>Routine of learning information</li> </ul>		Introduction to the traditional, linear, GCSE Design Process to apply woodworking knowledge and to design for a real client <ul style="list-style-type: none"> <li>Create a full design folder to meet the requirements of the GCSE NEA 23 Assessment Criteria; combine ACs where possible: use templates to introduce and encourage personalisation of the work to develop own style; refer to past GCSE folders</li> <li>Designing for a client: interview, analysis of requests and creating a specification which meets their brief</li> <li>Introduction to orthographic projection: standard items drawn on paper; using Techsoft 2d Design; orthographic of the final picture frame (include balloon referencing and parts lists)</li> <li>Apply the knowledge recorded from the 16 Essential Designer investigation to create a retro picture frame</li> <li>Applying the woodworking knowledge from the wood joint investigations to design a well made and original picture frame: encourage development of wood joints through own investigations, for example, a stylised dovetail joint</li> <li>Introduction to prototyping of ideas: sketching ideas, modelling ideas and using resistant materials to make a final prototype</li> <li>Introduction to woodworking machinery: hand sander (palm and belt), router, bag press etc</li> <li>Testing, reviewing and improving a prototype with a client</li> </ul> <b>Completing Wood Keywords</b> <ul style="list-style-type: none"> <li>Research the remaining keywords associated with wood; refer to the 400 list</li> <li>Video and practical starters to cover wood processes: making MDF and plywood; laminating and bag press; and so forth</li> </ul>				
Challenge	Dovetail joint Homework: Gather video clips and websites for the wood working keywords		Own wood joint design, frame which can both be wall mounted and free standing, <i>finish</i> applied to the wood Homework: Exam questions, short/mid/long, associated with wood. Use hand written and online examples to test this				
Assessment	SA Online quizzes		SA Online quizzes and walking-talking exams				

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## Justice Term

W/C	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	HALF TERM
Topic	<b>Picture Frame Project</b> <b>400 DT Keywords</b>						
Core	<p style="text-align: center;"><b>Creating a full design folder in the style of a GCSE NEA and to develop a product, picture frame, of GCSE standard</b></p> <ul style="list-style-type: none"> <li>Record the design process, in the sketchbook, using example folders and design criteria as guidance</li> <li>Interpreting a <i>Design Challenge</i>, in the style of GCSE, and writing a design brief for a picture frame</li> <li>Identifying a client and interviewing them</li> <li>Applying the knowledge about the styles of the essential 16 designers to create frame designs</li> <li>Characteristics of different woods: natural, hardwood, softwood, environmental impact, modern woods and smart woods, source to stock form</li> <li>Designing for a client: sketching, prototyping, meeting a specification</li> <li>Applying wood knowledge, learned in term 1, and developing wood joints for relevant parts of the frame</li> <li>Independently producing a picture frame</li> <li>Use of woodworking machine tools: drills, routers, palm and belt sanders</li> <li>Application of relevant wood finishes</li> <li>Applying and using Techsoft 2d Design and the laser cutter: making the acrylic window, engraving (wood or polymer)</li> <li>Testing and evaluating a product with a client</li> </ul>						
Challenge	Own wood joint design, frame which can both be wall mounted and free standing, <i>finish</i> applied to the wood <b>Homework: Researching the definitions of the 400 Keywords and gather video clips and websites</b>						
Assessment	<b>SA and Teacher Summative Assessment of the project against NEA criteria</b> <b>Online quizzes and walking-talking exams</b>						

W/C	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	EASTER
Topic	<b>Industrial Manufacturing Techniques</b>					<b>Long Mark Exam Questions</b>	
Core	<p style="text-align: center;"><b>Exploring Scales of Production and other industrial techniques to manufacture items in quantity and consistency</b></p> <ul style="list-style-type: none"> <li>Production Lines: making and using jigs and patterns</li> <li>Quality Assurance and Control: making batches of items which meet factory quality and consistency</li> <li>Forming woods: bag press</li> <li>Composite materials (GRP and CFRP): layup method</li> <li>Characteristics of different polymers: natural, synthetic, environmental impact, modern polymers and smart polymers, source to stock form</li> </ul>					<b>Exam technique for long mark answers</b> <b>Practicing long mark answers focussing on Industrial manufacture processes</b>	
Challenge	<b>Managing the production line, applying the knowledge to make formed wood furniture concepts</b> <b>Homework: Researching the definitions of the 400 Keywords and gather video clips and websites</b>					<b>Achieving target grade</b>	
Assessment	<b>Self-assessment using the Header Sheet ACs</b> <b>Teacher assessment using the Header Sheet ACs</b> <b>Online quizzes and walking-talking exams</b>					<b>Self-assessment using the exam mark scheme</b> <b>Teacher assessment using the exam mark scheme</b>	

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## Courage Term

W/C	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	HALF TERM
Topic	<b>Sundial Project</b> 400 DT Keywords			<b>Toolbelt Project</b> 400 DT Keywords			
Core	<p><b>Focused Practical Task (FPT) to make a sundial using ferrous and non-ferrous metals</b></p> <ul style="list-style-type: none"> <li>Metalwork fabrication techniques: marking with accuracy, drilling, cutting, finishing and forming</li> <li>Characteristics of different metals: ferrous and non-ferrous, alloy, modern metals and smart metals, source to stock form</li> <li>Fixtures, permanent and non-permanent: rivets, machine screws, cutting threads</li> <li>Metalworking hand tools: marking tools, hand cutting and forming, finishing tools</li> <li>Metalworking machine tools: notcher, pop-riveting, drill</li> </ul> <p><b>Running alongside the sundial: Mini project: Metal clay and Jewellery which runs alongside and with the support of Lead Technician</b></p> <ul style="list-style-type: none"> <li>Sculpting with semi-precious clays</li> <li>Working with silver: forming a ring</li> </ul> <p>Researching the definitions of the 400 Keywords</p>			<p><b>Focused Practical Task (FPT) to make a toolbelt predominantly using fabrics</b></p> <ul style="list-style-type: none"> <li>Textile fabrication techniques: marking with accuracy, cutting, sewing (machine and hand), finishing</li> <li>Investigation into different fabrics: natural vs synthetic, modern textiles, smart textiles, source to stock form, fire retardant</li> <li>Standard textile components: buttons, zips, rivets and buckles</li> <li>Textile hand tools: marking tools, hand cutting, sewing different stitches, finishing methods</li> <li>Textile machine tools: sewing machine, over locker, button and zip tools, leather punches, riveting tool</li> </ul> <p>Researching the definitions of the 400 Keywords</p>			
Challenge	<p><b>Build a pedestal for the sundial through applying prior woodwork knowledge</b></p> <p>Homework: Researching the definitions of the 400 Keywords and gather video clips and websites</p>			<p><b>Combining belt with metals, bespoke toolbelt design for a specific trade</b></p> <p>Gather video clips and websites</p>			
Assessment	<p><b>Self-assessment using the Header Sheet ACs</b></p> <p><b>Teacher assessment using the Header Sheet ACs</b></p> <p><b>Online quizzes and walking-talking exams</b></p>			<p><b>Self-assessment using the Header Sheet ACs</b></p> <p><b>Teacher assessment using the Header Sheet ACs</b></p> <p><b>Online quizzes and walking-talking exams</b></p>			

W/C	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	SUMMER
Topic	<b>Rapid Prototyping</b> Mock exam preparation			Practical Exam	End of year exam	Y11 NEA preparation	
Core	<p><b>FPT - Introduction to the lasercutter</b></p> <p><b>FPT - Introduction to 3d printing</b></p> <p><b>FPT - Introduction to Card press</b></p> <ul style="list-style-type: none"> <li>Using Techsoft 2d Design with accuracy: creating either a centre-gauge and callipers</li> <li>How to use the LaserCutter: set up, upload, safety, cutting out the centre-gauge and callipers</li> <li>Using DesignSpark Mechanical: creating components for the centre-gauge and calliper</li> <li>How to use the 3d Printer: set up, upload, printing and safety, creating components for the centre-gauge and calliper</li> <li>Investigation into the card press machine: standard press cutters and safety</li> <li>Investigation of paper/card printing processes and product manufacture: Offset Lithography, inkjet printing, embossing, scoring, perforating</li> <li>Using the press and developing a net to hold small products</li> </ul> <p>Collating revision material for the Y10 mock</p>			Manufacturing a multi material product	Testing on all material groups	Analyse the AQA Design Challenge contexts Choose a context Create page 1 of the Y11 NEA design folder	
Challenge	<p><b>Master the 3d printer to create working artefacts of own design</b></p> <p>Hit your target grade in the Y10 mock</p>			Teacher assessment using the exam mark scheme	Teacher assessment using the exam mark scheme	Achieve target grade	
Assessment	<p><b>Self-assessment using the Header Sheet ACs</b></p> <p><b>Teacher assessment using the Header Sheet ACs</b></p> <p><b>Online quizzes and walking-talking exams</b></p>			TA	TA	SA	