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Department: Design and Technology

**Blended Learning Curriculum Overview 2020-21**

In the event of a local lockdown, students isolating or school closure, please outline your approach to blended learning below. DfE guidance stresses there will be a need for ongoing provision of “remote learning” which “is high quality and aligns as closely as possible with in-school provision.” Within departments, this may mean planning each unit or area of learning with an eye on how it could translate into virtual or remote practice, if necessary. For example, it might mean preparing booklets or text-based resources which could be used by students at home as well as at school. It might even mean having procedures and infrastructure in place for recording lessons, or for allowing simultaneous online access to classroom teaching.

<b><u>Autumn Term</u></b>	<b>Curriculum Time (Periods)</b>	<b>In-School provision (situation dependent)</b>	<b>Live ‘Zoom’ lessons (Tier 3&amp;4) Expectations</b>	<b>Pre-recorded ‘Zoom’ lessons (Tier 2) Expectations</b>	<b>Resources available?</b>	<b>Assessment &amp; Feedback?</b>
Year 7	<b>3 lessons per 2 weeks</b> 10 Week Project Rotation with DT and IT	<b>ARE</b> - As per the curriculum map / AREs / Scheme of work	Resources have been designed to be translated into live lessons.	Resources have been designed to be translated into pre-recorded sessions.	PowerPoint	WWW EBI
Topic/ Unit:	<p><b>Structures Project –</b> Students will study a range of basic structures and develop their knowledge to understand the design constraints placed on structures. Students will then demonstrate their knowledge in the construction of a simple bridges and towers using a given material. Students will also develop their basic graphical skills in both 2D and 3D and hence their design communication abilities.</p> <p><b>Project Aims-</b> The aim of this unit is to develop students’ understanding of designing a structure with a particular</p>		In the event of a closure there will be one live or pre-recorded lesson per week		Technology student.com Film clips YouTube Worksheet	% assessment Photographs of products

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	focus on making the structure strong.					
Year 8	<b>3 lessons per 2 weeks</b> 10 Week Project Rotation with DT and IT	<b>ARE</b> - As per the curriculum map / AREs / Scheme of work	Resources have been designed to be translated into live lessons.  In the event of a closure there will be one live or pre-recorded lesson per week	Resources have been designed to be translated into pre-recorded sessions.	PowerPoint Technology student.com	WWW EBI  % assessment
Topic/ Unit:	<b>Candle Holder Project –</b> Students will have to design a metal candle holder with set limitations, components and understand environmental issues. Students will understand different manufacturing processes to achieve the results. To use graphic techniques, ICT, including CAD to generate, develop, model and communicate design proposals.  <b>Project Aims-</b> The aim of the project is for students to build more confidence work and have a stronger understanding of using tools.				Film clips YouTube  Worksheet	Photographs of products
Year 9 &10	5 lessons per 2 weeks 14 Week Project	<b>ARE</b> As per the curriculum map / AREs / Scheme of work	Resources have been designed to be translated into live lessons.  In the event of a closure there will be	Resources have been designed to be translated into pre-recorded sessions.	PowerPoint	WWW EBI
Topic/ Unit:	<b>Grabber introduction</b> Students will be able to recognize how ergonomics and anthropometrics are related to the human body. Students will be able to				Technology student.com  AQA GCSE 9-1 DT PG Online	% assessment  Photographs of products

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	incorporate the information that they have researched into the grabber project. They will analyse how existing products are designed and made, in order to provide a range of strategies and factual information to use when designing their own grabber.		one live or pre-recorded lesson per week		Film clips YouTube  Worksheet	
Year 9 &10	5 lessons per 2 weeks 14 Week Project	<b>ARE</b> - As per the curriculum map / AREs / Scheme of work	Resources have been designed to be translated into live lessons.  In the event of a closure there will be one live or pre-recorded lesson per week	Resources have been designed to be translated into pre-recorded sessions.	PowerPoint	WWW EBI  % assessment  Photographs of products
Topic/ Unit:	<b>Frame Project</b> - The photo frame project enables students to learn how to design and make a picture frame using CAD and CAM. The skills of using "2D Design" program, changing and manipulating graphics. It is expected that all frames be finished to a high degree of accuracy and appearance. Emphasis is given to typography and design styles.				Technology student.com  AQA GCSE 9-1 DT PG Online  Film clips YouTube  Worksheet	
Year 10	5 lessons per 2 weeks 14 Week Project	<b>ARE</b> - As per the curriculum map / AREs / Scheme of work	Resources have been designed to be translated into live lessons.	Resources have been designed to be translated into pre-recorded sessions.	PowerPoint	WWW EBI  % assessment  Photographs of products
Topic/ Unit:	<b>Phone holder</b> - In this unit, you will explore how to develop your ideas to produce a phone holder.				Technology student.com	

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	Students will consider different manufacturing process such as line bending and laser cutting.		In the event of a closure there will be one live or pre-recorded lesson per week		AQA GCSE 9-1 DT PG Online  Film clips YouTube  Worksheet	
Year 11	35 lessons per 35 weeks	<b>ARE</b> - As per the curriculum map / AREs / Scheme of work	Resources have been designed to be translated into live lessons.  In the event of a closure there will be one live or pre-recorded lesson per week and a support / drop in lesson	Resources have been designed to be translated into pre-recorded sessions.	PowerPoint  Technology student.com  AQA GCSE 9-1 DT PG Online  Film clips YouTube  Worksheet  AQA Past Papers	WWW EBI  % assessment  Photographs of products
Topic/ Unit:	<p><b>Major Project –</b> As a 50% part of the GCSE the major project holds some importance. Students should be aware of the weighting it carries and approach all work accordingly. Students should choose a project of which they are interested and thus motivated to complete. Students should spend 35hours of school time on the project and supplement this with appropriate time working at home. The expected outcomes are a detailed Design Folio and a 3D artefact.</p> <p>Core Technical Principles to be taught each week:</p> <p>New and emerging technologies</p>					

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	<p>Energy generation and storage</p> <ul style="list-style-type: none"><li>• Developments in new materials</li><li>• Systems approach to designing</li><li>• Mechanical devices</li><li>• Materials and their working properties.</li></ul> <p>Specialist technical principles</p> <ul style="list-style-type: none"><li>• selection of materials or components</li><li>• forces and stresses</li><li>• ecological and social footprint</li><li>• sources and origins</li><li>• using and working with materials</li><li>• stock forms, types and sizes</li><li>• scales of production</li><li>• specialist techniques and processes</li><li>• surface treatments and finishes</li></ul> <p>specialist technical principle should be delivered through at least one material</p> <ul style="list-style-type: none"><li>• papers and boards</li><li>• timber based materials</li><li>• metal based materials</li><li>• polymers</li><li>• textile based materials</li></ul>					
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	<ul style="list-style-type: none"> <li>• electronic and mechanical systems</li> </ul> <p>Students should investigate, analyse and evaluate the work of past and present designers and companies.</p> <p>Designers: • Aldo Rossi • Charles Rennie Macintosh • Coco Chanel • Ettore Sottsass • Gerrit Reitveld • Harry Beck • Louis Comfort Tiffany • Marcel Breuer • Norman Foster • Philippe Starck • Raymond Templier • Sir Alec Issigonis • Vivienne Westwood • William Morris.</p> <p>Companies: • Alessi • Apple • Braun • Dyson • Gap • Primark • Under Armour • Zara</p>					
Year 12	38 weeks	ARE - As per the curriculum map / AREs / Scheme of work	Resources have been designed to be translated into live lessons.	Resources have been designed to be translated into pre-recorded sessions.	AQA AS/A level DT Product Design book	WWW EBI
Topic/ Unit:	<p><b>Personal Investigation – Student devised</b> – plan co-created with students with workshops to support development of skills, knowledge and understanding.</p> <p><b>Non-exam assessment</b></p>		<p>In the event of a closure there will be one live or pre-recorded lesson per week and a support / drop in lesson</p>		<p>PowerPoint</p> <p>Technology student.com</p> <p>AQA Past Papers</p>	<p>% assessment</p> <p>Photographs of products</p> <p>Questions and answers</p>

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	<p><b>NEA:</b></p> <ul style="list-style-type: none"><li>• <b>Identifying and investigating design possibilities</b></li><li>• <b>Producing a design brief and specification</b></li><li>• <b>Development of design proposal(s)</b></li><li>• <b>Analysing and evaluating</b></li></ul> <p>Technical principles Elastomers Biodegradable polymers Composites Smart materials Modern materials Forming, redistribution and addition processes</p> <p>Polymer processes</p> <ul style="list-style-type: none"><li>• vacuum forming</li><li>• thermoforming</li><li>• calendaring</li><li>• line bending</li><li>• laminating (layup)</li><li>• injection moulding</li><li>• blow moulding</li><li>• rotational moulding</li><li>• extrusion</li><li>• compression moulding.</li></ul> <p>Metal processes press forming • spinning • cupping • deep drawing • forging •</p>				<p>Film clips YouTube</p> <p>Worksheet</p>	
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	<p>drop forging • bending • rolling • casting: • sand casting • die casting • investment casting • low temperature casting (pewter)</p> <p>Specific processes to include: • milling • turning • flame cutting • plasma cutting • laser cutting • punching/stamping.</p> <p>Wood processes Including: • addition/fabrication processes • traditional wood jointing: • dovetail joint • comb joint • housing joint • half-lap joint • dowel joint • mortise and tenon • component jointing: • knock down (KD) fittings • wood screws • nuts and bolts • coach bolts.</p> <p>Wood finishing applied finished: • polyurethane varnish • acrylic varnish • water based paints • stains • colour wash • wax finishes • danish oil • teak oil</p> <p>The use of adhesives and fixings.</p>					
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	<p>Paper and board finishing</p> <p>Metal finishing</p> <ul style="list-style-type: none"> <li>• cellulose paint • acrylic paint • electro-plating • dip coating • powder coating • galvanising • sealants • preservatives • anodising • plating • coating • cathodic protection</li> </ul> <p>Modern industrial and commercial practice:</p> <ul style="list-style-type: none"> <li>• one-off, bespoke • batch production • mass/line production • unit production systems (UPS) • quick response manufacturing (QRM) • vertical in-house production.</li> </ul> <p>Designing and making principles</p>					
	Curriculum Time (Periods)	In-School provision (situation dependent)	Live 'Zoom' lessons (Tier 3&4) Expectations	Pre-recorded 'Zoom' lessons (Tier 2) Expectations	Resources available?	Assessment & Feedback?
Year 13	36 weeks	<b>ARE</b> - As per the curriculum map / AREs / Scheme of work	Resources have been designed to be translated into live lessons.	Resources have been designed to be translated into pre-recorded sessions.	AQA AS/A level DT Product Design book	WWW EBI
Topic/ Unit:	<b>Non-exam assessment NEA: To be finished by Dec 2021</b>		In the event of a closure there will be		PowerPoint Technology	% assessment Photographs of products

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	<ul style="list-style-type: none"><li>• <b>Identifying and investigating design possibilities</b></li><li>• <b>Producing a design brief and specification</b></li><li>• <b>Development of design proposal(s)</b></li><li>• <b>Analysing and evaluating</b></li></ul> <p>Explain the suitability of the different wasting processes for a range of specific products. Specific processes to include:</p> <ul style="list-style-type: none"><li>• laminating</li><li>• steam bending</li><li>• machine processes:</li><li>• turning between centre</li><li>• use of the chuck and faceplate</li><li>• milling</li><li>• routering to produce slots, holes and profiles.</li></ul> <p>The use of adhesives and fixings:</p> <ul style="list-style-type: none"><li>• PVA • Contact adhesives</li><li>• UV hardening adhesive • Solvent cements such as Tensol or acrylic cement • Epoxy resin</li></ul>		one live or pre-recorded lesson per week and a support / drop in lesson		student.com  AQA Past Papers  Film clips YouTube  Worksheet	Questions and answers
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	<p>paper and board can be finished to enhance their appearance or for improved function:</p> <ul style="list-style-type: none"><li>• laminating • embossing • debossing • varnishing, UV varnishing and spot varnishing • foil blocking.</li></ul> <p>Different types of printing processes and their suitability for specific products and scales of production:</p> <ul style="list-style-type: none"><li>• screen printing</li><li>• flexographic and offset lithographic printing</li><li>• digital printing.</li></ul> <p>Explain specific industrial manufacturing systems</p> <ul style="list-style-type: none"><li>• modular/cell production</li><li>• just in time (JIT)</li><li>• quick response manufacturing (QRM)</li><li>• flexible manufacturing systems.</li></ul>					
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	<p>The advantages and disadvantages of using CAD compared to a manually generated alternative</p> <p>How CAM is used in the manufacture of products. Specific processes to include: • laser cutting • routing • milling • turning • plotter cutting.</p> <ul style="list-style-type: none"><li>•Virtual modelling</li><li>•Rapid prototyping processes</li></ul> <p>Electronic data interchange (EPOS): • the maintenance of stock levels • the capture of customer data, eg contact details.</p> <p>Health and safety</p> <ul style="list-style-type: none"><li>• knowledge of the Health and Safety at Work Act (1974), and how it influences</li></ul>					
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	<p>the safe manufacture of products</p> <ul style="list-style-type: none"><li>• control of Substances Hazardous to Health (COSHH)</li></ul> <p>Customer safety: Consumer Rights Act (2015), Sales of Goods Act (1979)</p> <ul style="list-style-type: none"><li>• the British Standards Institute (BSI), and how specific products might be tested to meet safety standards</li><li>• measures to ensure the safety of toys, eg Lion Mark</li><li>• advice to consumers:</li><li>• manufacturer's instructions</li><li>• safety warnings</li><li>• aftercare advice.</li></ul> <p>Protecting designs and intellectual property:</p> <ul style="list-style-type: none"><li>• copyright and design rights</li><li>• patents</li><li>• registered designs</li><li>• trademarks</li><li>• logos.</li></ul> <p><b>Designing and making principles</b></p>					
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	<p>Design methods and processes: Iterative design process • designing to meet needs, wants or values • investigations to inform the use of primary and secondary data: • market research • interviews • human factors • focus groups • product analysis and evaluation • the use of anthropometric data and percentiles • the use of ergonomic data • the development of a design proposal • the planning and manufacture of a prototype solution • the evaluation of a prototype solution to inform further development.</p> <p>Design theory Design styles and movements: Key design styles and movements and their principles of design, including: • arts and craft movement • Art Deco • Modernism, eg Bauhaus • Post modernism, eg Memphis.</p> <p>Designers and their work</p>					
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	<ul style="list-style-type: none"><li>• Phillipe Starck • James Dyson • Margaret Calvert • Dieter Rams • Charles and Ray Eames • Marianne Brandt</li></ul> <p>Major developments in technology:</p> <ul style="list-style-type: none"><li>• micro electronics • new materials • new methods of manufacture • advancements in CAD/CAM.</li></ul>					
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