



## Curriculum Map For Design Technology Year 11

YEAR 11	Autumn 1	Autumn 2
<b>Topics</b>	<p><b>AO1 Section A - Identifying and Investigating Design Possibilities</b></p> <p><b>1 - Investigation, Primary &amp; Secondary Data, Ergonomics &amp; Anthropometrics</b></p> <p><b>2 - The Work of Others</b></p> <p><b>3 - Identifying a Client</b></p> <p><b>AO1 Section B - Producing a Design Brief and Specification</b></p> <p><b>AO2 Section C - Designing and Making Prototypes That Are Fit For Purpose; Generating Design Ideas; Drawing Skills and Methods of Communication; 2D and 3D Drawing Techniques</b></p>	<p><b>Energy, Materials Systems &amp; Devices</b></p> <p><b>Continuation of NEA</b></p> <p><b>AO2 Section D - Designing and Making Prototypes That Are Fit For Purpose; Developing Design Ideas; Developing and Evaluating Successful Prototypes</b></p>
<b>Substantive Knowledge – The Knowledge Taught By The Teacher</b>	<ul style="list-style-type: none"> <li>Analysing a given context effectively.</li> <li>Effective use of PowerPoint for presentation purposes.</li> <li>Creation of a themed mood and justification of image selection.</li> <li>Effective product analysis.</li> <li>Use of effective drawing skills to communicate.</li> <li>Put into practice knowledge of materials and processes.</li> <li>Create a range of interesting and imaginative ideas with meaningful annotation which meets the needs of the chosen user.</li> <li>Effective modelling of initial designs.</li> </ul>	<ul style="list-style-type: none"> <li>Theory of energy generation.</li> <li>Ways to store energy.</li> <li>What are modern materials.</li> <li>What are smart materials.</li> <li>Composite materials and technical textiles.</li> <li>Understanding a systems approach to design.</li> <li>Understanding of electronic systems processing.</li> <li>Use of effective drawing skills to communicate.</li> <li>Put into practice knowledge of materials and processes.</li> <li>Create a range of interesting and imaginative ideas with meaningful annotation which meets the needs of the chosen user.</li> <li>Effective modelling of initial designs.</li> </ul>
<b>Disciplinary Knowledge – How The Knowledge Will Be Developed &amp; Applied</b>	<ul style="list-style-type: none"> <li>Analysis of the work of others for external influences and inspiration.</li> <li>Self-reflection and evaluation of research.</li> <li>Self-reflection and evaluation of designs.</li> <li>Responding to client feedback to meet their needs.</li> </ul>	<ul style="list-style-type: none"> <li>Analysis of the work of others for external influences and inspiration.</li> <li>Self-reflection and evaluation of research.</li> <li>Self-reflection and evaluation of designs.</li> <li>Responding to client feedback to meet their needs.</li> </ul>

	<ul style="list-style-type: none"> <li>To understand how the work of key designers still influences our world today.</li> </ul>	<ul style="list-style-type: none"> <li>To understand how the work of key designers still influences our world today.</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>Effective use of PowerPoint for presentation purposes.</li> <li>Focus of literacy skills to explain and justify all research and decisions made.</li> <li>Problem solving.</li> <li>Analysing existing products with the purpose of taking influence.</li> <li>User profiling.</li> <li>To develop individual drawing skills/style.</li> </ul>	<ul style="list-style-type: none"> <li>Effective use of PowerPoint for presentation purposes.</li> <li>Focus of literacy skills to explain and justify all research and decisions made.</li> <li>Problem solving.</li> <li>Analysing existing products with the purpose of taking influence.</li> <li>User profiling.</li> <li>To develop individual drawing skills/style.</li> </ul>
<b>Links To Prior Learning</b>	<ul style="list-style-type: none"> <li>Combining all skills from KS3.</li> <li>Test/re-test and consolidation of all prior Year 10 theory topics.</li> <li>Tessellation.</li> <li>Use of workshop tools and equipment.</li> <li>Modelling quality prototypes reflecting designs.</li> <li>Manufacturing according to individual designs and plans.</li> </ul>	<ul style="list-style-type: none"> <li>Combining all skills from KS3.</li> <li>Test/re-test and consolidation of all prior Year 10 theory topics.</li> <li>Tessellation.</li> <li>Use of workshop tools and equipment.</li> <li>Modelling quality prototypes reflecting designs.</li> <li>Manufacturing according to individual designs and plans.</li> </ul>
<b>Literacy/ Numeracy</b>	<ul style="list-style-type: none"> <li>Literacy: ongoing self-reflection and evaluation, the analysis and comprehension of feedback from others.</li> <li>Numeracy: accuracy of measuring and marking and use of scale and tessellation. Using settings on tools and equipment to work within tolerances.</li> </ul>	<ul style="list-style-type: none"> <li>Literacy: ongoing self-reflection and evaluation, the analysis and comprehension of feedback from others.</li> <li>Numeracy: accuracy of measuring and marking and use of scale and tessellation. Using settings on tools and equipment to work within tolerances.</li> </ul>
<b>Cross Curricular</b>	<ul style="list-style-type: none"> <li>Sustainability of materials and lifecycle assessment.</li> <li>Understanding the sources and origins of timbers and how our choices affect the planet and ecosystems.</li> <li>Sustainability of materials and lifecycle assessment of a broad range of materials such as wood, metal, plastic, textiles and papers/cards and the impact of their continued production and use on the planet.</li> </ul>	<ul style="list-style-type: none"> <li>Sustainability of materials and lifecycle assessment.</li> <li>Understanding the sources and origins of timbers and how our choices affect the planet and ecosystems.</li> <li>Sustainability of materials and lifecycle assessment of a broad range of materials such as wood, metal, plastic, textiles and papers/cards and the impact of their continued production and use on the planet.</li> </ul>
<b>Assessment</b>	<ul style="list-style-type: none"> <li>Continual teacher feedback of practice NEA.</li> </ul>	<ul style="list-style-type: none"> <li>End of Unit Test.</li> <li>Continual teacher feedback of NEA.</li> </ul>

<b>YEAR 11</b>	<b>Spring 1 &amp; 2</b>
<b>Topics</b>	<b>Common Specialist and Technical Principles</b>

	<b>NEA Making</b> <b>A02 Section E - Designing and Making Prototypes That Are Fit For Purpose</b> <b>A03 Section F - Testing, Analysing and Evaluating</b>
<b>Substantive Knowledge – The Knowledge Taught By The Teacher</b>	<ul style="list-style-type: none"> <li>• Understanding forces and stresses.</li> <li>• How to improve functionality.</li> <li>• The importance of ecological and social footprint.</li> <li>• The six Rs - Rethink, Refuse, Reduce, Reuse, Recycle, Repair.</li> <li>• To understand scales of production.</li> <li>• Design development, design development and modelling.</li> <li>• Cad drawing skills and techniques.</li> <li>• Selection of materials and components: function, availability, cost.</li> <li>• Selection &amp; testing of materials and components: tolerances and allowances</li> <li>Manufacturing specification.</li> </ul>
<b>Disciplinary Knowledge – How The Knowledge Will Be Developed &amp; Applied</b>	<ul style="list-style-type: none"> <li>• Specialist tools, equipment, techniques and processes.</li> <li>• Health and Safety.</li> <li>• Surface treatments and finishes.</li> <li>• Making.</li> <li>• Self-reflection and evaluation of research.</li> <li>• Self-reflection and evaluation of designs.</li> <li>• Reaction to client feedback.</li> <li>• Responding to client feedback to meet their needs.</li> <li>• To investigate possible new processes and technologies which may be of importance on.</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Problem solving.</li> <li>• Use of the iterative process to design, test, receive feedback, re-design and re-test.</li> <li>• Persistent referral back to and evaluation against user profiling.</li> <li>• Practical workshop skills.</li> <li>• Practical CAD/CAM skills.</li> <li>• Decision making, which materials and processes best suit the individual project outcome.</li> </ul>
<b>Links To Prior Learning</b>	<ul style="list-style-type: none"> <li>• Combining all skills from KS3.</li> <li>• Test/re-test and consolidation of all prior Years 10 and 11 theory topics.</li> <li>• Practical use of knowledge from Year 10 practice NEA.</li> <li>• Tessellation.</li> <li>• Use of workshop tools and equipment.</li> <li>• Modelling quality prototypes reflecting designs.</li> <li>• Manufacturing according to individual designs and plans.</li> </ul>
<b>Literacy/ Numeracy</b>	<ul style="list-style-type: none"> <li>• Literacy: ongoing self-reflection and evaluation, the analysis and comprehension of feedback from others.</li> <li>• Numeracy: wide range of number, proportion and geometry skills.</li> <li>• Literacy: ongoing self-reflection and evaluation, the analysis and comprehension of feedback from others.</li> <li>• Numeracy: wide range of number, proportion and geometry skills. Using settings on tools and equipment to work within tolerances.</li> </ul>
<b>Cross Curricular</b>	<ul style="list-style-type: none"> <li>• Constant referral to social, moral and cultural issues when designing and manufacturing.</li> <li>• Sustainability of materials and lifecycle assessment.</li> <li>• Understanding the sources and origins of timbers and how our choices affect the planet and ecosystems.</li> </ul>

	<ul style="list-style-type: none"> <li>• Sustainability of materials and lifecycle assessment of a broad range of materials such as wood, metal, plastic, textiles and papers/cards and the impact of their continued production and use on the planet.</li> </ul>
<b>Assessment</b>	<ul style="list-style-type: none"> <li>• End of unit assessment test and ongoing marking against the spec for the NEA.</li> <li>• Theory consolidation, exam practice and practice papers.</li> </ul>

<b>YEAR 11</b>	<b>Summer 1 &amp; 2</b>
	<b>Preparation For GCSE Written Exam Paper</b> <b>NEA Consolidation Time</b>
<b>Substantive Knowledge – The Knowledge Taught By The Teacher</b>	<ul style="list-style-type: none"> <li>• Understanding industry and enterprise - investigation, primary and secondary data, ergonomics and anthropometrics.</li> <li>• The importance of sustainability and the environment.</li> <li>• Appreciating and taking influence from the work of others.</li> <li>• Understanding the significance of people, culture, and society upon design.</li> <li>• Production techniques and systems.</li> <li>• Informing design decisions.</li> <li>• Understanding the sources and origins of timbers, papers and boards, metals and alloys, polymers and textiles.</li> <li>• Familiarisation with measurements and stock forms of the above 6 categories.</li> <li>• Working with timbers effectively.</li> <li>• Understanding commercial manufacturing.</li> <li>• Theory of energy generation.</li> <li>• Ways to store energy.</li> <li>• What are modern materials.</li> <li>• What are smart materials.</li> <li>• Composite materials and technical textiles.</li> <li>• Understanding a systems approach to design.</li> <li>• Understanding of electronic systems processing.</li> <li>• Understanding forces and stresses.</li> <li>• How to improve functionality.</li> <li>• The importance of ecological and social footprint.</li> <li>• The six Rs.</li> <li>• To understand scales of production.</li> </ul>
<b>Disciplinary Knowledge – How The Knowledge Will Be Applied</b>	
<b>Skills</b>	<ul style="list-style-type: none"> <li>• Theory consolidation</li> </ul>
<b>Links To Prior Learning</b>	<ul style="list-style-type: none"> <li>• This term is a revision of all theory covered in Years 10 and 11.</li> </ul>
<b>Literacy/ Numeracy</b>	<ul style="list-style-type: none"> <li>• Exam paper practice</li> <li>• Confirmation of key words, phrases and terminology for the exam papers</li> <li>• Practise of the numerical skills required in the exam</li> </ul>
<b>Cross Curricular</b>	<ul style="list-style-type: none"> <li>• Sustainability of materials and lifecycle assessment.</li> <li>• Understanding the sources &amp; origins of timbers and how our choices affect the planet and ecosystems.</li> <li>• Sustainability of materials and lifecycle assessment of a broad range of materials such as wood, metal, plastic, textiles and papers/cards and the impact of their continued production and use on the planet.</li> </ul>
<b>Assessment</b>	<ul style="list-style-type: none"> <li>• GCSE Theory Paper.</li> </ul>