



## Design Technology Curriculum Plan

**Intent:** We aim to provide an opportunity to develop practical and theoretical problem-solving skills which can be applied to all aspects of their lives. It should allow students to explore both the natural and ever-changing manmade world, taking inspiration from the world around them and producing creative solutions to problems which they may encounter.

| Year | What will students learn?   | Rationale   | How will students be assessed?   |
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| 7    | <p>An introduction to Design Technology at secondary school.</p> <p>Students will complete 7-8 weeks in each of the following areas;</p> <ol style="list-style-type: none"> <li>1. Food and Nutrition <ul style="list-style-type: none"> <li>● Croque Monsieur</li> <li>● Flapjack</li> <li>● Grain Salad</li> <li>● Bread dough</li> <li>● Pizza</li> <li>● Carrot Cakes</li> <li>● Muffins</li> </ul> </li> <li>2. Electronics – Electronic Night light <ul style="list-style-type: none"> <li>● Exploration of the work of influential designers</li> <li>● Design skills</li> <li>● CAD/CAM</li> <li>● Circuit board production</li> <li>● Systems programming</li> </ul> </li> </ol> | <p>In Year 7 we work on rotation system covering multiple material areas.</p> <p>As this is the first time that the students will have experienced a workshop environment we are keen to ensure that their experiences are as safe and fun as possible.</p> <p>Through a variety of creative and practical activities students will begin to explore the skills which are needed to allow them to; Design, Make and Evaluate.</p> <p>These skills will include Health and Safety, the writing of a specification, design skills, the use of specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided design/manufacture and the ability to critically evaluate their work, identifying areas of improvement.</p> <p>Students will also begin to explore the principles of nutrition and health.</p> | <p>Key knowledge tests at the end of each unit of rotation.</p> <p>Focus on the development of practical, designing, specification writing and evaluation skills through teacher questioning and feedback.</p> |

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|   | <p>3. Textiles – Tie Dye Tote Bag</p> <ul style="list-style-type: none"> <li>• Using a sewing machine correctly</li> <li>• Application of surface finishes to textiles</li> <li>• Finishing of textiles</li> <li>• Knowledge of fabrics and their origins</li> <li>• Design skills</li> <li>• Ironing skills</li> </ul> <p>4. Resistant Materials – Influential designers inspired clock.</p> <ul style="list-style-type: none"> <li>• Exploration of the work of influential designers.</li> <li>• Drawing skills</li> <li>• Measuring, marking out, cutting, shaping and forming of metal.</li> <li>• Workshop machine skills</li> <li>• Metal finishes</li> <li>• Joining methods of metals</li> <li>• Marking out, cutting, shaping and finishing of timber</li> </ul> | <p>N.B for the remaining time the students will also complete a 7-8 week rotation in Drama</p>   |  |
| 8 | <p>An introduction to Design Technology at secondary school.<br/>Students will complete 7-8 weeks in each of the following areas;</p> <p>1. Food and Nutrition</p> <ul style="list-style-type: none"> <li>• Fishcakes</li> <li>• Cheese and onion triangles</li> <li>• Chicken fajitas</li> <li>• Vegetable curry and Nan bread</li> <li>• Sweet and sour chicken</li> <li>• Lasagna</li> <li>• Swiss roll</li> <li>• Finish fruit plait</li> </ul> <p>2. Electronics – Electronic Frisbee</p>   | <p>In Year 8 we continue to work on rotation system covering multiple material areas.</p> <p>Through a variety of creative and practical activities students will build and develop upon the skills which they learnt in Year 7, allowing them to securely; Design, Make and Evaluate.</p> <p>These skills will include revisiting Health and Safety, the writing of a specification, design skills, the use of specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided design and the ability to critically evaluate their work, identifying areas of improvement.</p> | <p>Key knowledge tests at the end of each unit of rotation.</p> <p>Focus on the development of practical, designing, specification writing and evaluation skills through teacher questioning and feedback.</p> |

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|   | <ul style="list-style-type: none"> <li>• Circuit board production</li> <li>• Plastics theory</li> <li>• Forming, cutting and finishing of plastics</li> <li>• Systems programming</li> </ul> <p>3. Textiles – Patchwork Pencil Case</p> <ul style="list-style-type: none"> <li>• Marking out and cutting fabrics</li> <li>• Creating traditional and non-traditional patchwork</li> <li>• Using a sewing machine</li> <li>• Identification of fabrics</li> <li>• Ironing skills</li> <li>• Inserting standardized components, such as zips</li> </ul> <p>4. Resistant Materials – Wooden Autometer toy</p> <ul style="list-style-type: none"> <li>• Measuring, marking out, cutting, and finishing of timbers</li> <li>• Joining methods of timbers.</li> <li>• Mechanisms (Cams and followers)</li> <li>• Drawing skills</li> </ul> | <p>Students will continue to develop their understanding of the principles of nutrition and health.</p> <p>In addition to further developing these skills, the students will start to explore some content from the GCSE course, allowing them to smoothly transition, should they choose to study Product Design or Healthy Food and Nutrition at GCSE.</p> <p>N.B for the remaining time the students will also complete a 7-8 week rotation in PSHE.</p>   |   |
| 9 | <p>Long thin Option</p> <ol style="list-style-type: none"> <li>1. Core knowledge content 1.1-1.17</li> <li>2. Practical skills in multiple material areas.</li> </ol>  | <p>In Year 9 the students will start their GCSE in Product design. The theory section of the course is split into 2 sections, Core knowledge and Material Specific knowledge.</p> <p>In Year 9 we focus on studying the core knowledge content which covers 17 topics, including working in the following material areas; Systems, Timbers and Manufactured Boards, Papers and Boards, Metals, Polymers and Textiles.</p> <p>Whilst studying these material areas the students will complete a practical project, which will help to reinforce their learning, along with allowing them to further develop their practical skills, in hope that they will eventually master them.</p> | <p>At the end of studying each knowledge area the students will complete a test.</p> <p>When completing practical work, the work will be graded using the GCSE NEA framework.</p> |

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|    |   |  | Completing the Core knowledge will allow the students to then move onto the and Material Specific knowledge in Year 10.   |   |   |  |
| 10 | <p><b>Long thin option</b></p> <ol style="list-style-type: none"> <li>1. Specialist material knowledge</li> <li>2. Mock NEA</li> <li>3. Real NEA</li> </ol> | <p><b>Mid-Size option</b></p> <ol style="list-style-type: none"> <li>1. Core knowledge content 1.1-1.17</li> <li>2. Mock NEA</li> <li>3. Real NEA</li> </ol> | <p><b>Long thin option</b></p> <p>In Year 10 we focus on the Material Specific knowledge. Depending on which material area the students in the class wish to sit their exam in will determine which material we focus on.</p> <p>The study of the specific material area may also help influence the student's decision of which material to work in when completing their NEA.</p> <p>The students will complete a Mock NEA (Non-Examined Assessment). This will allow them the chance to develop an understanding of what is required of them to complete the NEA, preparing them for their formal NEA which will be started in June of Y10. It will also allow a chance to further develop and start to master their practical skills.</p> | <p><b>Mid-size option</b></p> <p>The theory section of the course is split into 2 sections, Core knowledge and Material Specific knowledge.</p> <p>In the first year of the mid-size GCSE the students focus on studying the core knowledge content which covers 17 topics, including working in the following material areas; Systems, Timbers and Manufactured Boards, Papers and Boards, Metals, Polymers and Textiles.</p> <p>Whilst studying these material areas the students will complete a practical project, which will help to reinforce their learning, along with allowing them to further develop their practical skills, in hope that they will eventually master them.</p> <p>Once the core knowledge is completed we focus on the Material Specific knowledge. Depending on which material</p> | <p><b>Long thin</b></p> <p>At the end of studying each knowledge area the students will complete a test.</p> <p>When completing practical work, the work will be graded using the GCSE NEA framework.</p> <p>The mock NEA will be graded using the NEA framework and full feedback will be given to students.</p> | <p><b>Mid-Size</b></p> <p>At the end of studying each knowledge area the students will complete a test.</p> <p>When completing practical work, the work will be graded using the GCSE NEA framework.</p> <p>The mock NEA will be graded using the NEA framework and full feedback will be given to students.</p> |

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|    |                  |                 | <p>The formal NEA consists of 6 challenges which are released by the exam board on 1<sup>st</sup> June each year. Once the challenges are released the students start to complete their NEA which will run through into Year 11.</p> | <p>area the students in the class wish to sit their exam in will determine which material we focus on.</p> <p>The study of the specific material area may also help influence the student's decision of which material to work in when completing their NEA.</p> <p>The students will complete a Mock NEA (Non-Examined Assessment). This will allow them the chance to develop an understanding of what is required of them to complete the NEA, preparing them for their formal NEA which will be started in June. It will also allow a chance to further develop and start to master their practical skills.</p> <p>The formal NEA consists of 6 challenges which are released by the exam board on 1<sup>st</sup> June each year. Once the challenges are released the students start to complete their NEA which will run through into the second year of their GCSE.</p> |           |          |
| 11 | Long thin option | Mid-Size option | Long thin option   | Mid-Size option  | Long thin | Mid-Size |

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|  | <ol style="list-style-type: none"> <li>1. Completion of the real NEA</li> <li>2. Revisit of the core and specialist material area knowledge in preparation for the external examination.</li> </ol> | <ol style="list-style-type: none"> <li>1. Completion of the real NEA</li> <li>2. Completion of any core knowledge material not covered in the first year.,</li> <li>3. Revisit of the core and specialist material area knowledge in preparation for the external examination.</li> </ol> | <p>In year 11 the students continue to work on their NEA which is worth 50% of their overall grade, the remaining 50% is gained through the external exam which is sat during the summer examination period.</p> <p>Throughout the year the students will complete mock examinations, the most notable being before the Christmas break. In lessons there will be time given over to revisiting prior learning and ensuring that the students are equipped with the knowledge and understanding needed to complete their mock exam. This allows staff to monitor the progress of each student, ensuring that they are achieving their full potential.</p> <p>After the completion of the NEA the students spend their remaining lessons revisiting prior learning and preparing them for their external examination.</p> | <p>In the second year of the mid-size GCSE the students continue to work on their NEA which is worth 50% of their overall grade, the remaining 50% is gained through the external exam which is sat during the summer examination period.</p> <p>Throughout the year the students will complete mock examinations, the most notable being before the Christmas break. In lessons there will be time given over to revisiting prior learning and ensuring any remaining areas of the core content are taught. This will ensure that all students are equipped with the knowledge and understanding needed to complete their mock exam. This allows staff to monitor the progress of each student, ensuring that they are achieving their full potential.</p> <p>After the completion of the NEA the students spend their remaining lessons ensuring that all of the specialist material knowledge has been covered and revisiting prior</p> | <p>The final NEA will be marked and a selection, chosen by the exam board will sent to the exam board for moderation.</p> <p>Mock exams will be marked using the mark scheme provided by the exam board for the appropriate paper.</p> <p>Revisited knowledge will be assessed through end of unit testing and further practice</p> | <p>The final NEA will be marked and a selection, chosen by the exam board will sent to the exam board for moderation.</p> <p>Mock exams will be marked using the mark scheme provided by the exam board for the appropriate paper.</p> <p>Revisited knowledge will be assessed through end of unit testing and further practice</p> |
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|    |   |   |  | learning, preparing them for their external examination. | exam questions.   | exam questions. |
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| 12 | <ol style="list-style-type: none"> <li>1. Study of applied Mathematics</li> <li>2. Knowledge components; <ul style="list-style-type: none"> <li>• Topic 1: Materials</li> <li>• Topic 2: Performance characteristics of materials</li> <li>• Topic 3: Processes and techniques</li> <li>• Topic 4: Digital technologies</li> <li>• Topic 5: Factors influencing the development of products</li> <li>• Topic 6: Effects of technological developments</li> <li>• Topic 7: Potential hazards and risk assessment</li> </ul> </li> <li>3. Completion of a Mock NEA</li> <li>4. Start of the real NEA</li> </ol> | <p>At A-Level the students will study Product design for 5 hours a week. This is blocked as 1 single lesson and 2 double lessons.</p> <p>In Year 12 the students will spend the single lesson from September until the Christmas break learning the content for the applied Mathematics. In the external exam 10-15% of the exam can be based on applied Mathematics.</p> <p>Throughout the year the students will study 7 of the 12 knowledge components, this will be completed as a combination of Theory and Practical based skills. This will allow the class teacher to also assess the student's ability levels in each material area, allowing us as a department to provide additional support where needed.</p> <p>The students will complete a Mock NEA (Non-Examined Assessment). This will allow them the chance to develop an understanding of what is required of them to complete the NEA at A-level standard, preparing them for their formal NEA which will be started in the summer term. It will also allow a chance to further develop and start to master their practical skills.</p> <p>In the summer term the students will start their real NEA, which will run through into Year 13. We aim to complete the initial research and writing of a specification before the summer break which allows students the opportunity to think of creative solutions to the problem which they are trying to solve.</p> |  |  | <p>Knowledge will be assessed through end of unit testing and practice exam questions.</p> <p>The mock NEA will be graded using the NEA framework and full feedback will be given to students.</p> <p>Mock exams will be marked using the mark scheme provided by the exam board for the appropriate paper.</p> |                 |

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| 13 | <ol style="list-style-type: none"> <li>1. Completion of the real NEA</li> <li>2. Knowledge components; <ul style="list-style-type: none"> <li>• Topic 8: Features of manufacturing industries</li> <li>• Topic 9: Designing for maintenance and the cleaner environment</li> <li>• Topic 10: Current legislation</li> <li>• Topic 11: Information handling, Modelling and forward planning</li> <li>• Topic 12: Further processes and techniques.</li> </ul> </li> <li>3. Preparation for the external examination</li> </ol> | <p>In Year 13 we continue to work on the NEA, this often runs until February/March time. In that time the students will design, make and evaluate their final product.</p> <p>Whilst the students complete their NEA they will periodically revisit the theory elements of the course, this will help them to retain and refresh their prior learning, along with covering topics 8-12 in order to prepare them for their mock examination, followed by their final external examination, later in the year.</p> <p>Once the NEA is completed the students will continue to prepare for their external examination. This will include revisiting all prior learning, along with covering any remaining topics which the students have not as yet covered.</p> | <p>The final NEA will be marked and sent to the exam board for moderation.</p> <p>Mock exams will be marked using the mark scheme provided by the exam board for the appropriate paper.</p> <p>Revisited knowledge will be assessed through end of unit testing and further practice exam questions.</p> |
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