Technology Curriculum Plan

Intent: In DT, we aim to provide an opportunity to develop practical and theoretical problem-solving skills, also drawing upon knowledge and understanding of other subjects such as; Science, Art, Maths, IT, Geography and Business Studies.
DT should allow students to explore both the natural and ever-changing manmade world, taking inspiration from the world around them, producing creative solutions to problems which they may encounter.
DT can serve as a foundation to careers in; design, engineering, manufacturing or other related fields.
All of which is delivered through the following key principles; Investigation, Designing, Manufacturing / practical skills, Evaluation skills, Technical Knowledge, Team work

Year	What will students learn?	Rationale	How will students be assessed?	What links are made to the real world, careers and to developing, Investigate, Design, Make and Evaluation skills.
7	An introduction to Design Technology at secondary school. Students will complete 12-13 weeks in each of the following areas; 1. Food and Nutrition • Croque Monsieur • Flapjack • Pasta Salad • Bread dough • Pizza • Carrot Cakes • Fruit Salad • Anzac Biscuits N.B - Vegetarian/ Vegan/ Halal/ Allergy and intolerance alternatives for each dish. 2. Textiles – Tie Dye Pencil Case • Application of surface finishes to textiles • Finishing of textiles • Knowledge of fabrics and their origins • Design skills • Ironing skills • Identification of fabrics • Inserting standardized components, such as zips 3. Resistant Materials – Timber model boat • Workshop health and safety • Drawing skills (Working drawings) • Measuring, marking out, cutting, and shaping timbers • Workshop machine skills • Timbers and polymers theory • Timber finishes • Joining methods of timbers • Joining methods of polymers	In Year 7 we work on rotation system covering multiple material areas. 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. Through a variety of creative and practical activities students will begin to explore the skills which are needed to allow them to; Investigate, Design, Make and Evaluate. These skills will include Health and Safety, completing secondary research, the writing of a specification, design skills, the use of specialist tools, techniques, processes, equipment and machinery precisely, along with the ability to critically evaluate their work, identifying areas of improvement. Students will also begin to explore the principles of nutrition and health.	Students will complete a multiple-choice knowledge test in week 10 of their rotation along with their practical work and work completed in their workbook being assessed. Focus on the development of practical, designing, specification writing and evaluation skills through teacher questioning and feedback.	Y7 is an important year in Design Technology, where we build important understanding of application of key skills and foster a love of the different strands of Technology. Specific skills include; • Primary and secondary research skills • Specification writing • Design and drawing skills • 2D CAD/CAM • Systems programming • Preparation of materials such as measuring, weighing marking out, cutting and shaping of materials • Workshop/kitchen machine and hand manufacturing skills • Finishing of materials • Joining methods of materials • Quality assurance testing N.B Health and Safety / Food Hygiene is encompassed in everything which we do. Explicit links are made to the real-world practice / careers in the following areas; • CNC manufacture • Food and catering at home and in industry • Programming and robotics • Clothing manufacture • Apprenticeships and product design Links to real work application of skills which can be used at home and in everyday life are also made, i.e. cooking to feed yourself and the family, problem solving, maintenance and repair work.

8	An introduction to Design Technology at secondary school. Students will complete 12-13 weeks in each of the following areas; 1. Food and Nutrition • Parmier Potatoes • Tomato and basil Spaghetti • Chicken Fajita • Stir Fry Chicken and Noodles • Egg Fried Rice • Sweet Potato Chilly • Macaroni Cheese • Burgers and Coleslaw • Swiss Roll N.B - Vegetarian/ Vegan/ Halal/ Allergy and intolerance alternatives for each dish. 2. CAD/CAM – Responding to a contextual challenge. • Use of specialist measuring tools • Drawing skills • Modelling techniques (Card and Clay) • Design development (Iterative design process) • 3d CAD design • Use of 3D printers • Plastic finishing techniques 3. Resistant Materials – Influential designers inspired clock. • Exploration of the work of influential designers. • Drawing skills • Measuring, marking out, cutting, shaping and forming of metal. • Workshop machine skills • Metal finishes • Joining methods of metals • CAD/CAM	In Year 8 we continue to work on rotation system covering multiple material areas. 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; Investigate, Design, Make and Evaluate. These skills will include revisiting Health and Safety, completing primary research, 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. Students will continue to develop their understanding of the principles of nutrition and health. 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.	Students will complete a multiple-choice knowledge test in week 10 of their rotation along with their practical work and work completed in their workbook being assessed. Focus on the development of practical, designing, specification writing and evaluation skills through teacher questioning and feedback.	Disciplinary knowledge in Y8 builds on the skills outlined above, these skills are transferred to different material areas, e.g. in Y7 Resistant Materials we focus on Metals, in Y8 we focus on Timbers. Additional areas of focus are; • 3D CAD/CAM • Modelling skills using a range of materials N.B Health and Safety / Food Hygiene is encompassed in everything which we do. Explicit links to real-world practice / careers are reiterated in Y8 along with further links to; • 3D design and manufacture, in multiple areas including medical and product development. Links to real work application of skills which can be used at home and in everyday life are also made, i.e. cooking to feed yourself and the family, problem solving, maintenance and repair work.
9	Long thin Option 1. Core knowledge content 1.1-1.17 2. Practical skills in multiple material areas. • Timbers and metals (Stool project) • Polymers, Metals and New and Emerging Technologies (3D printed and then cast, keyring or pendant) • Textiles (cushion cover incorporating CNC	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. In Year 9 we focus on studying the core knowledge content which covers 17 topics, including working in the following	Core knowledge is assessed using SENECA online testing and previous exam paper questions at the completion of each unit.	Disciplinary knowledge in Y9 further builds on the skills developed in Year 7 & 8, these skills are transferred to further different material areas based on the GCSE specification. Additional Skills such as;

	embroidery or sublimation) • Polymers and New and Emerging Technologies (2D laser cut phone holder)			

			material areas; Timbers and Manufactured Boards, Papers and Boards, Metals, Polymers and New and Emerging Technologies. 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. Completing the Core knowledge will allow the students to then move onto the and Material Specific knowledge in Year 10.		When completing practical work, the work will be graded using the GCSE NEA framework.		• Primary and secondary research gathering and analysis • Product analysis • Specification writing • Product Evaluation Explicit links at GCSE are made to the careers which can lead on from the GCSE subject, some of these links are to further education including university course, along with links to apprenticeships in construction, engineering, design and manufacturing. Links to real work application of skills which can be used at home and in everyday life are also made, i.e. cooking to feed yourself and the family, problem solving, maintenance and repair work.
10	**Long thin option** 1. Core knowledge content 1.1-1.17 2. Specialist material knowledge 3. Practical skills • Cardboard modelling • Timbers (Wooden box, focusing on wood joints) 4. Mock NEA 5. Real NEA	**Mid-Size option** 1. Core knowledge content 1.1-1.17 • Timbers and metals (Stool project) • Polymers, Metals and New and Emerging Technologies (3D printed and then cast, keyring or pendant) • Papers and boards (Cardboard modelling) 2. Mock NEA 3. Real NEA	**Long thin option** In Year 10 students will complete the learning of the core knowledge topics and then 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. 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. 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,	**Mid-size option** The theory section of the course is split into 2 sections, Core knowledge and Material Specific knowledge. 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. 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.	**Long thin** Core and specific material knowledge is assessed using SENECA online testing and previous exam paper questions at the completion of each unit. When completing practical work, the work will be graded using the GCSE NEA framework.	**Mid-Size** Core and specific material knowledge is assessed using SENECA online testing and previous exam paper questions at the completion of each unit. When completing practical work, the work will be graded using the GCSE NEA framework.	Disciplinary knowledge in Y10 midsize further builds on the skills developed in Year 7 & 8, these skills are transferred to further different material areas based on the GCSE specification. Additional Skills such as; • Primary and secondary research gathering and analysis • Specification writing In addition, students in both Long Thin and Mid-Size develop skills in; • Structuring longer written answer questions in preparation for their external exam. • Product Evaluation • Word processing / Power point presentation • Graph and chart formation on Excel Explicit links at GCSE are made to the careers which can lead on from the GCSE subject, some of these links are to further education including college and university courses, along with links to apprenticeships in construction, engineering, design and manufacturing. Links to real work application of skills which can be used at home and in everyday life are also made, i.e. cooking to feed yourself and the family, problem solving, maintenance and repair work.

			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. The formal NEA consists of 6 challenges which are released by the exam board on 1st June each year. Once the challenges are released the students start to complete their NEA which will run through into February of Year 11. Students will sit a mock exam in the summer term which will help to assess there learning so far, as well as giving them the experience of what the formal exam format will be like.	Once the core knowledge is completed 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. 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. 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. The formal NEA consists of 6 challenges which are released by the exam board on 1st 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. Students will sit a mock exam in the summer term which will help to assess their learning so far, as well as giving them the experience of what the formal exam format will be like.	The mock NEA will be graded using the NEA framework and full feedback will be given to students. Students will sit a mock exam in the summer term which will be a past paper, and marked using the exam board mark scheme.	The mock NEA will be graded using the NEA framework and full feedback will be given to students. Students will sit a mock exam in the summer term which will be a past paper, and marked using the exam board mark scheme.	
11	**Long thin option**	**Mid-Size option**	**Long thin option**	**Mid-Size option**	**Long thin**	**Mid-Size**	In Year 11 all prior skills and knowledge is revisited and built upon in class and during the completion of

	1. Completion of the real NEA by February half term. 2. Revisit of the core and specialist material area knowledge in preparation for the external examination.	1. Completion of the real NEA by February half term. 2. Completion of any core knowledge material not covered in the first year., 3. Revisit of the core and specialist material area knowledge in preparation for the external examination.	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. Throughout the year the students will complete mock examinations, the most notable being before the Christmas break and when we return from the February half term. 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. After the completion of the NEA the students spend their remaining lessons revisiting prior learning and preparing them for their external examination.	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. Throughout the year the students will complete mock examinations, the most notable being before the Christmas break and when we return from the February half term. 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. 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 learning, preparing them for their external examination.	The final NEA will be marked and a selection, chosen by the exam board will sent to the exam board for moderation. Mock exams will be marked using the mark scheme provided by the exam board for the appropriate paper. Revisited knowledge will be assessed through end of unit testing and further practice exam questions.	The final NEA will be marked and a selection, chosen by the exam board will sent to the exam board for moderation. Mock exams will be marked using the mark scheme provided by the exam board for the appropriate paper. Revisited knowledge will be assessed through end of unit testing and further practice exam questions.	their NEA, and to ensure that students are fully prepared for their external exam. Explicit links at GCSE are made to the careers which can lead on from the GCSE subject, some of these links are to further education including college and university courses, along with links to apprenticeships in construction, engineering, design and manufacturing.
12	1. Study of applied Mathematics 2. Knowledge components; • Topic 1: Materials • Topic 2: Performance characteristics of materials • Topic 3: Processes and techniques • Topic 4: Digital technologies		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. In Year 12 the students will spend the single lesson covering the core content, including applied Mathematics. In the		Knowledge will be assessed through end of unit testing and practice exam questions. Practical work is assessed using the NEA framework.		In Year 12 all prior skills and knowledge are revisited and built upon in class and during the completion of their NEA, and to ensure that students are fully prepared for their external exam.

	• Topic 5: Factors influencing the development of products • Topic 6: Effects of technological developments • Topic 7: Potential hazards and risk assessment 3. Completion of a Mock NEA 4. Start of the real NEA in May/June	external exam 10-15% of the exam can be based on applied Mathematics. Throughout the year the students will study 7 of the 12 core 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. 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. 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.	The mock NEA will be graded using the NEA framework and full feedback will be given to students. Mock exams will be marked using the mark scheme provided by the exam board for the appropriate paper.	The following skills in particular are revisited to ensure students are able to access all areas of their work; • Primary and secondary research gathering and analysis • Specification writing • Design and drawing skills • 2D and 3D CAD/CAM • Preparation of materials such as measuring, marking out, cutting and shaping of materials • Workshop machine and hand manufacturing skills • Finishing of materials • Joining methods of materials • Quality assurance testing • Structuring longer written answer questions in preparation for their external exam. • Product Evaluation • Word processing / Power point presentation • Graph and chart formation on Excel . Explicit links at A-Level are made to the careers which can lead on from the subject, some of these links are to further education including university courses, along with links to apprenticeships in construction, engineering, design and manufacturing.
13	1. Completion of the real NEA 2. Knowledge components; • Topic 8: Features of manufacturing industries • Topic 9: Designing for maintenance and the cleaner environment • Topic 10: Current legislation • Topic 11: Information handling, Modelling and forward planning • Topic 12: Further processes and techniques. 3. Preparation for the external examination	In Year 13 we continue to work on the NEA, will be completed by February half term. In that time the students will design, make and evaluate their final product. 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. 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.	The final NEA will be marked and sent to the exam board for moderation. Mock exams will be marked using the mark scheme provided by the exam board for the appropriate paper. Revisited knowledge will be assessed through end of unit testing and further practice exam questions.	As our Y12 and 13 class run together, the same process applies as indicated in the Y12 section.