

Design & Technology

Design & Technology (D&T) is an area of study that focuses on planning, designing and creativity. The subject gives all students the opportunity to learn how to make things, repair products and discover solutions to different problems. This subject is one of the most progressive on the national curriculum, mainly due to the developments in technology and the rapidly changing world we live in. Technology is having an impact on the whole planet and we need to prepare our students for the developments they will encounter. Students in Design & Technology develop designing and making skills in addition to learning about electronics, computing, engineering, CAD, CAM, robotics, materials and textiles technology. They also develop business critical skills through problem-solving, innovation and team-work.

Throughout the Key Stage 3 course (Years 7 – 9), we aim to give all students a basic level of knowledge by helping them to be more creative, resilient, work independently, in groups and develop problem solving skills. These skills are transferable to other subjects and are all skills which will assist these children as they progress through the school and onwards.

In both Key Stages 3 and 4, students develop practical skills, creative skills and a knowledge of technology that will help prepare them for other academic subjects and their future. The course helps students to be more considerate of environmental impacts and the technological changes in the world they will encounter. Students are encouraged to work independently, develop problem solving skills and understand the process of design. The Key Stage 4 D&T course helps to develop some of the important skills, techniques and knowledge required for those students who intend to progress onto Key Stage 5. The course also develops the skills to lead into apprenticeships or specific college courses that focus on practical and creative skills.

Throughout Key Stages 3 and 4, we intend to deliver a wide curriculum giving students the chance to explore different areas of Design & Technology. The children develop and practise new skills and we aim to ensure that all students are confident in the following areas

- Help students to develop a variety of creative and practical skills through working with different techniques and materials
- Gain an understanding of designing, making and evaluating with a range of materials
- Develop technical knowledge in mechanical systems and properties of materials.
- Give students the opportunity to learn skills in cookery and be able to cook a range of predominantly savoury dishes.
- Develop an understanding of nutrition and health.
- Learn different techniques and skills in the kitchen.
- Understand about ingredients, their source, seasonality and the characteristics of the ingredients.
- Help to prepare students for an increasingly technical world.
- Gain awareness and understanding of the following factors
 - History of design
 - Social
 - Cultural
 - Environmental
 - Economic
- Further develop creative skills and techniques through, designing, making and evaluating.
- Prepare students to progress into apprenticeships or full-time career in creative and practical industries.
- Prepare students to progress into A Level course in product design.

Teaching Design & Technology is very different to other subjects. It focuses on so many different skills. Those who find creative subjects difficult can still excel in Design & Technology through the construction, engineering, science and mathematical elements of the subject. Those who are creative can work more with designing and

manufacturing. The course develops students to work both with function and form and our aim as a department is to help students to develop skills in both of these areas.

Year 12 Design & Technology – Product Design

Term One

Content of study	Polymers	
What are the aims and objectives of this term?	Exam Theory Students will understand the breakdown of the course between exam theory and NEA. Students will focus on recapping prior knowledge of polymers and learning about how products containing polymers are made in an industrial context. • Course introduction • Polymers – the big picture • Polymer processes • Sources and properties of polymers • Modern polymers • Bio-degradable / soluble polymers • Exam questions relating to polymers	Practical skills and NEA skills Students will understand how to select and use a range of hand tools, machinery and equipment in order to recap on practical skills required for the NEA making section. They will use their updated skills to make a mini project – a vacuum formed car. Students will also have design based lessons on the following topics in order to give them the skills they need for section B and C of the NEA. • How to generate design ideas • Product design presentation skills • Isometric projection • Exploded diagram
What previous knowledge is required?	Prior knowledge of Design & Technology programmes of study at KS3 and KS4. Prior knowledge of using a range of tools and equipment relating to woods, metals, plastics, and fabrics would be useful. If students studied GCSE Design and Technology they will have completed a design and make project for their NEA and this will help them with prior knowledge of how to complete NEA at KS5.	
How will this term's content help with future learning?	Exam Theory Polymers and the evolution of products. Maths based exam questions relating to polymers. Exam based questions relating to the properties of products containing polymers. Designers – James Dyson and Trunki. Laminated products.	NEA Students will have some of the practical skills, and design based skills that they will need in order to achieve higher marks in the NEA.
Resources	www.technologystudent.com https://www.youtube.com/watch?v=INS7TwWmlrg https://www.youtube.com/watch?v=jv9p5LSKCjs http://www.technologystudent.com/desproflash/plasticsrev1.html https://www.youtube.com/watch?v=WHwTHarf8Ck https://www.youtube.com/watch?v=FvzkIpYReD4	https://www.youtube.com/watch?v=L9WBCraUTnc ENGINEERING - DESIGN AND TECHNOLOGY (technologystudent.com) http://www.technologystudent.com/designpro/ortho2.htm http://www.youtube.com/watch?feature=player_detailpage&v=7ZYBWA-ifEs

	https://www.youtube.com/watch?v=0XW_0Ngizog https://www.potatopro.com/news/2011/potatopak-wins-new-zealands-best-packaging-award																																
Links to the national curriculum/specification	Exam Theory Paper 1 What's assessed Technical principles How it's assessed - Written exam: 2 hours and 30 minutes 120 marks 30% of A-level Questions Mixture of short answer and extended response. Paper 2 What's assessed Designing and making principles How it's assessed - Written exam: 1 hour and 30 minutes 80 marks 20% of A-level Questions Mixture of short answer and extended response questions. Section A: - Product Analysis: 30 marks - Up to 6 short answer questions based on visual stimulus of product(s). Section B: - Commercial manufacture: 50 marks - Mixture of short and extended response questions - Materials and their applications - Performance characteristics of materials - Forming, redistribution and addition processes - The use of finishes - Modern industrial and commercial practice - Designing for manufacturing, maintenance, repair and disposal	<table><tr><th></th><th>Section</th><th>Criteria</th><th>Maximum marks</th></tr><tr><td rowspan="2">A01 (30 marks) Identify, investigate & outline design possibilities</td><td>A</td><td>Identifying and investigating design possibilities</td><td>20</td></tr><tr><td>B</td><td>Producing a design brief and specification</td><td>10</td></tr><tr><td rowspan="2">A02 (50 marks) Design & make prototypes that are fit for purpose</td><td>C</td><td>Development of design proposal(s)</td><td>25</td></tr><tr><td>D</td><td>Development of design prototype(s)</td><td>25</td></tr><tr><td>A03 (20 marks) Analyse & evaluate</td><td>E</td><td>Analysing and evaluating</td><td>20</td></tr></table> <table><tr><th>Mark</th><th>Description</th></tr><tr><td>16–20</td><td> - Excellent rationale provided for the context selected, with continuous reference throughout the project to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a comprehensive range of strategies and techniques, including both primary and secondary methods of investigation, practical experimentation and disassembly, to thoroughly explore design opportunities. All sources have been fully referenced. - First concepts are both fully relevant to the context and feasible for further development and are clearly communicated through a fully appropriate variety of methods and techniques. - All investigations relate directly to the design context, issues are identified and fully addressed and the student demonstrates a detailed and perceptive understanding of the information gathered. </td></tr><tr><td>11–15</td><td> - Good rationale provided for the context selected with clear reference to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a broad range of strategies and techniques, which may include primary and secondary methods of investigation and/or practical experimentation to explore design opportunities. Most sources have been fully referenced. - First concepts are mostly relevant to the context and feasible for further development and are communicated through a variety of methods and techniques which are mostly appropriate. - Most investigations relate directly to the design context, issues are identified and addressed and the student demonstrates a good understanding of the information gathered. </td></tr></table> <table><tr><th>Mark Description</th></tr><tr><td>19–25 - The rationale for design decisions is clearly documented and fully justified with constant reference being made to the design brief, specification and investigations throughout the development of their design proposal. - In the development of innovative design proposals the student will demonstrate clear evidence of originality, creativity and a willingness to take design risks. - Excellent use of a variety of modelling techniques to support ongoing development work throughout. This is supported by the use of drawings, sketches, annotations and notes showing clear evidence of design thinking. - Excellent ongoing development of design proposals, achieved through exploration of and experimentation with different materials, techniques and processes leading to an excellent quality design of a prototype for manufacture. - Comprehensive and fully detailed manufacturing specification produced which makes specific reference to relevant quality control checks and allows fully accurate interpretation by a third party. - Project management for manufacturing allows for further development of design proposals in response to ongoing evaluation, testing and full consideration of contingency planning as prototype development takes place. </td></tr><tr><td>19–25 - Excellent justification provided for selection of appropriate materials and components and proposed techniques and processes, demonstrating an excellent understanding of material properties to ensure excellent quality prototype(s) that are fit for purpose. - Significant complexity or challenge is involved throughout the production of prototype(s). The student demonstrates excellent manufacturing skills combined with an excellent understanding of the need for dimensional accuracy and precision. - The student has selected and used appropriate tools, machinery and equipment, including CAM where required, and worked with a high level of skill, precision and accuracy to produce their prototype(s). - Prototype(s) fully address the design brief, satisfying all major points of the specification and take into account all amendments/modifications to their original design proposals as necessary. - Student makes all required modifications to the prototype in a fully considered manner in light of feedback from user trials and third party feedback and as a result of testing and evaluation carried out against earlier iterations of the prototype. - Quality assurance is evident throughout and it is clear where planned quality control checks have been applied throughout the process to ensure consistency and safety. - Clear evidence throughout the manufacturing process that appropriate health and safety processes have been both considered and employed. </td></tr></table> - Design ideas - Development - Making a prototype - Working drawings		Section	Criteria	Maximum marks	A01 (30 marks) Identify, investigate & outline design possibilities	A	Identifying and investigating design possibilities	20	B	Producing a design brief and specification	10	A02 (50 marks) Design & make prototypes that are fit for purpose	C	Development of design proposal(s)	25	D	Development of design prototype(s)	25	A03 (20 marks) Analyse & evaluate	E	Analysing and evaluating	20	Mark	Description	16–20	- Excellent rationale provided for the context selected, with continuous reference throughout the project to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a comprehensive range of strategies and techniques, including both primary and secondary methods of investigation, practical experimentation and disassembly, to thoroughly explore design opportunities. All sources have been fully referenced. - First concepts are both fully relevant to the context and feasible for further development and are clearly communicated through a fully appropriate variety of methods and techniques. - All investigations relate directly to the design context, issues are identified and fully addressed and the student demonstrates a detailed and perceptive understanding of the information gathered.	11–15	- Good rationale provided for the context selected with clear reference to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a broad range of strategies and techniques, which may include primary and secondary methods of investigation and/or practical experimentation to explore design opportunities. Most sources have been fully referenced. - First concepts are mostly relevant to the context and feasible for further development and are communicated through a variety of methods and techniques which are mostly appropriate. - Most investigations relate directly to the design context, issues are identified and addressed and the student demonstrates a good understanding of the information gathered.	Mark Description	19–25 - The rationale for design decisions is clearly documented and fully justified with constant reference being made to the design brief, specification and investigations throughout the development of their design proposal. - In the development of innovative design proposals the student will demonstrate clear evidence of originality, creativity and a willingness to take design risks. - Excellent use of a variety of modelling techniques to support ongoing development work throughout. This is supported by the use of drawings, sketches, annotations and notes showing clear evidence of design thinking. - Excellent ongoing development of design proposals, achieved through exploration of and experimentation with different materials, techniques and processes leading to an excellent quality design of a prototype for manufacture. - Comprehensive and fully detailed manufacturing specification produced which makes specific reference to relevant quality control checks and allows fully accurate interpretation by a third party. - Project management for manufacturing allows for further development of design proposals in response to ongoing evaluation, testing and full consideration of contingency planning as prototype development takes place.	19–25 - Excellent justification provided for selection of appropriate materials and components and proposed techniques and processes, demonstrating an excellent understanding of material properties to ensure excellent quality prototype(s) that are fit for purpose. - Significant complexity or challenge is involved throughout the production of prototype(s). The student demonstrates excellent manufacturing skills combined with an excellent understanding of the need for dimensional accuracy and precision. - The student has selected and used appropriate tools, machinery and equipment, including CAM where required, and worked with a high level of skill, precision and accuracy to produce their prototype(s). - Prototype(s) fully address the design brief, satisfying all major points of the specification and take into account all amendments/modifications to their original design proposals as necessary. - Student makes all required modifications to the prototype in a fully considered manner in light of feedback from user trials and third party feedback and as a result of testing and evaluation carried out against earlier iterations of the prototype. - Quality assurance is evident throughout and it is clear where planned quality control checks have been applied throughout the process to ensure consistency and safety. - Clear evidence throughout the manufacturing process that appropriate health and safety processes have been both considered and employed.
	Section	Criteria	Maximum marks																														
A01 (30 marks) Identify, investigate & outline design possibilities	A	Identifying and investigating design possibilities	20																														
	B	Producing a design brief and specification	10																														
A02 (50 marks) Design & make prototypes that are fit for purpose	C	Development of design proposal(s)	25																														
	D	Development of design prototype(s)	25																														
A03 (20 marks) Analyse & evaluate	E	Analysing and evaluating	20																														
Mark	Description																																
16–20	- Excellent rationale provided for the context selected, with continuous reference throughout the project to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a comprehensive range of strategies and techniques, including both primary and secondary methods of investigation, practical experimentation and disassembly, to thoroughly explore design opportunities. All sources have been fully referenced. - First concepts are both fully relevant to the context and feasible for further development and are clearly communicated through a fully appropriate variety of methods and techniques. - All investigations relate directly to the design context, issues are identified and fully addressed and the student demonstrates a detailed and perceptive understanding of the information gathered.																																
11–15	- Good rationale provided for the context selected with clear reference to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a broad range of strategies and techniques, which may include primary and secondary methods of investigation and/or practical experimentation to explore design opportunities. Most sources have been fully referenced. - First concepts are mostly relevant to the context and feasible for further development and are communicated through a variety of methods and techniques which are mostly appropriate. - Most investigations relate directly to the design context, issues are identified and addressed and the student demonstrates a good understanding of the information gathered.																																
Mark Description																																	
19–25 - The rationale for design decisions is clearly documented and fully justified with constant reference being made to the design brief, specification and investigations throughout the development of their design proposal. - In the development of innovative design proposals the student will demonstrate clear evidence of originality, creativity and a willingness to take design risks. - Excellent use of a variety of modelling techniques to support ongoing development work throughout. This is supported by the use of drawings, sketches, annotations and notes showing clear evidence of design thinking. - Excellent ongoing development of design proposals, achieved through exploration of and experimentation with different materials, techniques and processes leading to an excellent quality design of a prototype for manufacture. - Comprehensive and fully detailed manufacturing specification produced which makes specific reference to relevant quality control checks and allows fully accurate interpretation by a third party. - Project management for manufacturing allows for further development of design proposals in response to ongoing evaluation, testing and full consideration of contingency planning as prototype development takes place.																																	
19–25 - Excellent justification provided for selection of appropriate materials and components and proposed techniques and processes, demonstrating an excellent understanding of material properties to ensure excellent quality prototype(s) that are fit for purpose. - Significant complexity or challenge is involved throughout the production of prototype(s). The student demonstrates excellent manufacturing skills combined with an excellent understanding of the need for dimensional accuracy and precision. - The student has selected and used appropriate tools, machinery and equipment, including CAM where required, and worked with a high level of skill, precision and accuracy to produce their prototype(s). - Prototype(s) fully address the design brief, satisfying all major points of the specification and take into account all amendments/modifications to their original design proposals as necessary. - Student makes all required modifications to the prototype in a fully considered manner in light of feedback from user trials and third party feedback and as a result of testing and evaluation carried out against earlier iterations of the prototype. - Quality assurance is evident throughout and it is clear where planned quality control checks have been applied throughout the process to ensure consistency and safety. - Clear evidence throughout the manufacturing process that appropriate health and safety processes have been both considered and employed.																																	

Assessments	Exam Theory Students are given weekly definitions homework related to Product Design key terms. Students will complete a 1-hour exam on polymers in week 6.	Students are given weekly homework – after practical lessons students had to write up what they had learn. After design/drawing lessons students had to analyse designs, complete technical drawings.
Term Two		
Content of study	NEA	
What are the aims and objectives of this term?	Students will focus on recapping prior knowledge of polymers and learning about how products containing woods, papers and boards and metals are made in an industrial context. • Woods • Laminates and steam bending • Joining woods and KD fittings • Adhesives and finishes • Smart & Modern materials • Papers & boards • Metals	Students will understand how to achieve full marks on the NEA and be able to complete most of NEA section A – Identifying and investigating design possibilities • Context, constraints, user requirements • Photo evidence of the problem • Existing products • Client interview • Relevant research
What previous knowledge is required?	Prior knowledge of Design & Technology programmes of study at KS3 and KS4. Prior knowledge of using a range of tools and equipment relating to woods, metals, plastics, and fabrics would be useful. If students studied GCSE Design and Technology they will have completed a design and make project for their NEA and this will help them with prior knowledge of how to complete NEA at KS5.	
How will this term's content help with future learning?	Exam Theory Woods, metals, papers and boards relating to the evolution of products. Maths based exam questions relating to woods, metals, papers and boards. Exam based questions relating to the properties of different materials.	NEA Students will use their research to design successful ideas, to solve the problem they have set themselves on page 1 of the NEA.
Resources	https://www.technologystudent.com https://www.youtube.com/watch?v=HGLTO5rvRGg https://www.youtube.com/watch?v=r2sowYoYrM http://www.technologystudent.com/equip1/glueplas1.htm http://www.technologystudent.com/equip1/gluewd1.htm	ACCESS FMm - Bing images Students will also have access to exemplar NEA to see how to achieve top marks

	https://www.youtube.com/watch?v=2j4zJWMPgNw https://www.youtube.com/watch?v=WCf00-EdxPU																																	
Links to the national curriculum/specification	Exam Theory Paper 1 What's assessed Technical principles How it's assessed • Written exam: 2 hours and 30 minutes • 120 marks • 30% of A-level Questions Mixture of short answer and extended response. Paper 2 What's assessed Designing and making principles How it's assessed • Written exam: 1 hour and 30 minutes • 80 marks • 20% of A-level Questions Mixture of short answer and extended response questions. Section A: • Product Analysis: 30 marks • Up to 6 short answer questions based on visual stimulus of product(s). Section B: • Commercial manufacture: 50 marks • Mixture of short and extended response questions - Materials and their applications - Performance characteristics of materials - Forming, redistribution and addition processes - The use of finishes - Modern industrial and commercial practice - Designing for manufacturing, maintenance, repair and disposal	<table><tr><th></th><th>Section</th><th>Criteria</th><th>Maximum marks</th></tr><tr><td rowspan="2">AO1 (30 marks)</td><td>A</td><td>Identifying and investigating design possibilities</td><td>20</td></tr><tr><td>B</td><td>Producing a design brief and specification</td><td>10</td></tr><tr><td rowspan="2">AO2 (50 marks)</td><td>C</td><td>Development of design proposal(s)</td><td>25</td></tr><tr><td>D</td><td>Development of design prototype(s)</td><td>25</td></tr><tr><td>AO3 (20 marks)</td><td>E</td><td>Analysing and evaluating</td><td>20</td></tr><tr><td colspan="4">Analyse & evaluate</td></tr></table> <table><tr><th>Mark</th><th>Description</th></tr><tr><td>16–20</td><td> - Excellent rationale provided for the context selected, with continuous reference throughout the project to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a comprehensive range of strategies and techniques, including both primary and secondary methods of investigation, practical experimentation and disassembly, to thoroughly explore design opportunities. All sources have been fully referenced. - First concepts are both fully relevant to the context and feasible for further development and are clearly communicated through a fully appropriate variety of methods and techniques. - All investigations relate directly to the design context, issues are identified and fully addressed and the student demonstrates a detailed and perceptive understanding of the information gathered. </td></tr><tr><td>11–15</td><td> - Good rationale provided for the context selected with clear reference to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a broad range of strategies and techniques, which may include primary and secondary methods of investigation and/or practical experimentation to explore design opportunities. Most sources have been fully referenced. - First concepts are mostly relevant to the context and feasible for further development and are communicated through a variety of methods and techniques which are mostly appropriate. - Most investigations relate directly to the design context, issues are identified and addressed and the student demonstrates a good understanding of the information gathered. </td></tr></table>		Section	Criteria	Maximum marks	AO1 (30 marks)	A	Identifying and investigating design possibilities	20	B	Producing a design brief and specification	10	AO2 (50 marks)	C	Development of design proposal(s)	25	D	Development of design prototype(s)	25	AO3 (20 marks)	E	Analysing and evaluating	20	Analyse & evaluate				Mark	Description	16–20	- Excellent rationale provided for the context selected, with continuous reference throughout the project to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a comprehensive range of strategies and techniques, including both primary and secondary methods of investigation, practical experimentation and disassembly, to thoroughly explore design opportunities. All sources have been fully referenced. - First concepts are both fully relevant to the context and feasible for further development and are clearly communicated through a fully appropriate variety of methods and techniques. - All investigations relate directly to the design context, issues are identified and fully addressed and the student demonstrates a detailed and perceptive understanding of the information gathered.	11–15	- Good rationale provided for the context selected with clear reference to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a broad range of strategies and techniques, which may include primary and secondary methods of investigation and/or practical experimentation to explore design opportunities. Most sources have been fully referenced. - First concepts are mostly relevant to the context and feasible for further development and are communicated through a variety of methods and techniques which are mostly appropriate. - Most investigations relate directly to the design context, issues are identified and addressed and the student demonstrates a good understanding of the information gathered.
	Section	Criteria	Maximum marks																															
AO1 (30 marks)	A	Identifying and investigating design possibilities	20																															
	B	Producing a design brief and specification	10																															
AO2 (50 marks)	C	Development of design proposal(s)	25																															
	D	Development of design prototype(s)	25																															
AO3 (20 marks)	E	Analysing and evaluating	20																															
Analyse & evaluate																																		
Mark	Description																																	
16–20	- Excellent rationale provided for the context selected, with continuous reference throughout the project to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a comprehensive range of strategies and techniques, including both primary and secondary methods of investigation, practical experimentation and disassembly, to thoroughly explore design opportunities. All sources have been fully referenced. - First concepts are both fully relevant to the context and feasible for further development and are clearly communicated through a fully appropriate variety of methods and techniques. - All investigations relate directly to the design context, issues are identified and fully addressed and the student demonstrates a detailed and perceptive understanding of the information gathered.																																	
11–15	- Good rationale provided for the context selected with clear reference to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a broad range of strategies and techniques, which may include primary and secondary methods of investigation and/or practical experimentation to explore design opportunities. Most sources have been fully referenced. - First concepts are mostly relevant to the context and feasible for further development and are communicated through a variety of methods and techniques which are mostly appropriate. - Most investigations relate directly to the design context, issues are identified and addressed and the student demonstrates a good understanding of the information gathered.																																	
Assessments	Exam Theory Students are given weekly definitions homework related to Product Design key terms. Students will complete a 1-hour exam on woods, papers and boards in week 5.	Each of the NEA pages will be assessed using the specification assessment criteria - Context, constraints, user requirements - Photo evidence of the problem - Existing products - Client interview - Relevant research																																
Term Three																																		
Content of study	NEA –																																	
What are the aims and objectives of this term?	Students will focus on prior knowledge and learning about how products containing plastics, papers and boards and metals are made in an industrial context. - Elastomers - CRP / GRP - Metals - Papers and boards	Students will complete NEA section A – Identifying and investigating design possibilities - Relevant research 2 - Practical investigations - Initial concepts																																

	Maths – area, volume, ratios and scale.																																															
What previous knowledge is required?	Prior knowledge of Design & Technology programmes of study at KS3 and KS4. Prior knowledge of using a range of tools and equipment relating to woods, metals, plastics, and fabrics would be useful. If students studied GCSE Design and Technology they will have completed a design and make project for their NEA and this will help them with prior knowledge of how to complete NEA at KS5.																																															
How will this term's content help with future learning?	Exam Theory Exam based questions relating to the properties of different materials. Exam based questions relating to products made from different materials. Exam based maths problems relating to the manufacture of products.	NEA Students will use their research, practical investigation and initial concepts to design and develop successful ideas, to solve the problem they have set themselves on page 1 of the NEA. They will then make their most successful design.																																														
Resources	https://www.technologystudent.com http://www.technologystudent.com/desproflsh/tpe1.html https://www.youtube.com/watch?v=P747jUZNiO https://www.youtube.com/watch?v=LJ46J3NQIVg https://www.youtube.com/watch?v=n2zNRzemBoI https://www.youtube.com/watch?v=a2BWZFyGhb0 https://www.youtube.com/watch?v=ql6YY634MOA https://www.youtube.com/watch?v=zoSGvhV3EmU	ACCESS FMm - Bing images Students will also have access to exemplar NEA to see how to achieve top marks																																														
Links to the national curriculum/specification	Exam Theory <table><tr><td>Paper 1</td></tr><tr><td>What's assessed</td></tr><tr><td>Technical principles</td></tr><tr><td>How it's assessed</td></tr><tr><td> - Written exam: 2 hours and 30 minutes 120 marks 30% of A-level </td></tr><tr><td>Questions</td></tr><tr><td>Mixture of short answer and extended response.</td></tr></table> <table><tr><td>Paper 2</td></tr><tr><td>What's assessed</td></tr><tr><td>Designing and making principles</td></tr><tr><td>How it's assessed</td></tr><tr><td> - Written exam: 1 hour and 30 minutes 80 marks 20% of A-level </td></tr><tr><td>Questions</td></tr><tr><td>Mixture of short answer and extended response questions.</td></tr><tr><td>Section A:</td></tr><tr><td> - Product Analysis: 30 marks - Up to 6 short answer questions based on visual stimulus of product(s). </td></tr><tr><td>Section B:</td></tr><tr><td> - Commercial manufacture: 50 marks - Mixture of short and extended response questions </td></tr></table> - Materials and their applications - Performance characteristics of materials - Forming, redistribution and addition processes	Paper 1	What's assessed	Technical principles	How it's assessed	- Written exam: 2 hours and 30 minutes 120 marks 30% of A-level	Questions	Mixture of short answer and extended response.	Paper 2	What's assessed	Designing and making principles	How it's assessed	- Written exam: 1 hour and 30 minutes 80 marks 20% of A-level	Questions	Mixture of short answer and extended response questions.	Section A:	- Product Analysis: 30 marks - Up to 6 short answer questions based on visual stimulus of product(s).	Section B:	- Commercial manufacture: 50 marks - Mixture of short and extended response questions	<table><tr><th></th><th>Section</th><th>Criteria</th><th>Maximum marks</th></tr><tr><td rowspan="2">A01 (30 marks) Identify, investigate & outline design possibilities</td><td>A</td><td>Identifying and investigating design possibilities</td><td>20</td></tr><tr><td>B</td><td>Producing a design brief and specification</td><td>10</td></tr><tr><td rowspan="2">A02 (50 marks) Design & make prototypes that are fit for purpose</td><td>C</td><td>Development of design proposal(s)</td><td>25</td></tr><tr><td>D</td><td>Development of design prototype(s)</td><td>25</td></tr><tr><td>A03 (20 marks) Analyse & evaluate</td><td>E</td><td>Analysing and evaluating</td><td>20</td></tr></table> <table><tr><th>Mark</th><th>Description</th></tr><tr><td>16–20</td><td> - Excellent rationale provided for the context selected, with continuous reference throughout the project to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a comprehensive range of strategies and techniques, including both primary and secondary methods of investigation, practical experimentation and disassembly, to thoroughly explore design opportunities. All sources have been fully referenced. - First concepts are both fully relevant to the context and feasible for further development and are clearly communicated through a fully appropriate variety of methods and techniques. - All investigations relate directly to the design context, issues are identified and fully addressed and the student demonstrates a detailed and perceptive understanding of the information gathered. </td></tr><tr><td>11–15</td><td> - Good rationale provided for the context selected with clear reference to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a broad range of strategies and techniques, which may include primary and secondary methods of investigation and/or practical experimentation to explore design opportunities. Most sources have been fully referenced. - First concepts are mostly relevant to the context and feasible for further development and are communicated through a variety of methods and techniques which are mostly appropriate. - Most investigations relate directly to the design context, issues are identified and addressed and the student demonstrates a good understanding of the information gathered. </td></tr></table>		Section	Criteria	Maximum marks	A01 (30 marks) Identify, investigate & outline design possibilities	A	Identifying and investigating design possibilities	20	B	Producing a design brief and specification	10	A02 (50 marks) Design & make prototypes that are fit for purpose	C	Development of design proposal(s)	25	D	Development of design prototype(s)	25	A03 (20 marks) Analyse & evaluate	E	Analysing and evaluating	20	Mark	Description	16–20	- Excellent rationale provided for the context selected, with continuous reference throughout the project to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a comprehensive range of strategies and techniques, including both primary and secondary methods of investigation, practical experimentation and disassembly, to thoroughly explore design opportunities. All sources have been fully referenced. - First concepts are both fully relevant to the context and feasible for further development and are clearly communicated through a fully appropriate variety of methods and techniques. - All investigations relate directly to the design context, issues are identified and fully addressed and the student demonstrates a detailed and perceptive understanding of the information gathered.	11–15	- Good rationale provided for the context selected with clear reference to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a broad range of strategies and techniques, which may include primary and secondary methods of investigation and/or practical experimentation to explore design opportunities. Most sources have been fully referenced. - First concepts are mostly relevant to the context and feasible for further development and are communicated through a variety of methods and techniques which are mostly appropriate. - Most investigations relate directly to the design context, issues are identified and addressed and the student demonstrates a good understanding of the information gathered.
Paper 1																																																
What's assessed																																																
Technical principles																																																
How it's assessed																																																
- Written exam: 2 hours and 30 minutes 120 marks 30% of A-level																																																
Questions																																																
Mixture of short answer and extended response.																																																
Paper 2																																																
What's assessed																																																
Designing and making principles																																																
How it's assessed																																																
- Written exam: 1 hour and 30 minutes 80 marks 20% of A-level																																																
Questions																																																
Mixture of short answer and extended response questions.																																																
Section A:																																																
- Product Analysis: 30 marks - Up to 6 short answer questions based on visual stimulus of product(s).																																																
Section B:																																																
- Commercial manufacture: 50 marks - Mixture of short and extended response questions																																																
	Section	Criteria	Maximum marks																																													
A01 (30 marks) Identify, investigate & outline design possibilities	A	Identifying and investigating design possibilities	20																																													
	B	Producing a design brief and specification	10																																													
A02 (50 marks) Design & make prototypes that are fit for purpose	C	Development of design proposal(s)	25																																													
	D	Development of design prototype(s)	25																																													
A03 (20 marks) Analyse & evaluate	E	Analysing and evaluating	20																																													
Mark	Description																																															
16–20	- Excellent rationale provided for the context selected, with continuous reference throughout the project to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a comprehensive range of strategies and techniques, including both primary and secondary methods of investigation, practical experimentation and disassembly, to thoroughly explore design opportunities. All sources have been fully referenced. - First concepts are both fully relevant to the context and feasible for further development and are clearly communicated through a fully appropriate variety of methods and techniques. - All investigations relate directly to the design context, issues are identified and fully addressed and the student demonstrates a detailed and perceptive understanding of the information gathered.																																															
11–15	- Good rationale provided for the context selected with clear reference to the end user and the constraints that need to be considered in formulating a final solution. - Student employs a broad range of strategies and techniques, which may include primary and secondary methods of investigation and/or practical experimentation to explore design opportunities. Most sources have been fully referenced. - First concepts are mostly relevant to the context and feasible for further development and are communicated through a variety of methods and techniques which are mostly appropriate. - Most investigations relate directly to the design context, issues are identified and addressed and the student demonstrates a good understanding of the information gathered.																																															

	- The use of finishes - Modern industrial and commercial practice - Maths skills for written exams	
Assessments	Exam Theory Students are given weekly definitions homework related to Product Design key terms. Students complete research on 3 topics of their choice weekly. Students will complete a 1-hour exam on CRP, electroplating and industrial manufacture in week 4.	Each of the NEA pages will be assessed using the specification assessment criteria - Relevant research 2 - Practical investigations - Initial concepts
Term Four		
Content of study	NEA –	
What are the aims and objectives of this term?	Students will focus on prior knowledge and learning about how products containing plastics, papers and boards and metals are made in an industrial context. - Elastomers - CRP / GRP - Metals - Papers and boards - Maths – area, volume, ratios and scale.	Students will complete NEA section B: Producing a design brief and specification and begin section C: DEVELOPMENT OF DESIGN PROPOSALS - Design brief and specification - Initial ideas - Explore materials - Explore manufacturing techniques
What previous knowledge is required?	Prior knowledge of Design & Technology programmes of study at KS3 and KS4. Prior knowledge of using a range of tools and equipment relating to woods, metals, plastics, and fabrics would be useful. If students studied GCSE Design and Technology they will have completed a design and make project for their NEA and this will help them with prior knowledge of how to complete NEA at KS5.	
How will this term's content help with future learning?	Exam Theory Exam based questions relating to the properties of different materials. Exam based questions relating to products made from different materials. Exam based maths problems relating to the manufacture of products.	NEA Students will use their design ideas to develop into feasible ideas, they will then make their most successful development
Resources	https://www.technologystudent.com http://www.technologystudent.com/desproflsh/tpe1.html https://www.youtube.com/watch?v=P747jUZ_Ni0 https://www.youtube.com/watch?v=LJ46J3NQIVg	Students will have access to exemplar NEA to see how to achieve top marks

	https://www.youtube.com/watch?v=n2zNRzEmBoI https://www.youtube.com/watch?v=a2BWZFyGhb0 https://www.youtube.com/watch?v=ql6YY634MOA https://www.youtube.com/watch?v=zoSGvhV3EmU																													
Links to the national curriculum/specification	Exam Theory Paper 1 What's assessed Technical principles How it's assessed - Written exam: 2 hours and 30 minutes 120 marks 30% of A-level Questions Mixture of short answer and extended response. Paper 2 What's assessed Designing and making principles How it's assessed - Written exam: 1 hour and 30 minutes 80 marks 20% of A-level Questions Mixture of short answer and extended response questions. Section A: - Product Analysis: 30 marks - Up to 6 short answer questions based on visual stimulus of product(s). Section B: - Commercial manufacture: 50 marks - Mixture of short and extended response questions - Materials and their applications - Performance characteristics of materials - Forming, redistribution and addition processes - The use of finishes - Modern industrial and commercial practice - Maths skills for written exams	<table><tr><th></th><th>Section</th><th>Criteria</th><th>Maximum marks</th></tr><tr><td rowspan="2">A01 (30 marks) Identify, investigate & outline design possibilities</td><td>A</td><td>Identifying and investigating design possibilities</td><td>20</td></tr><tr><td>B</td><td>Producing a design brief and specification</td><td>10</td></tr><tr><td rowspan="2">A02 (50 marks) Design & make prototypes that are fit for purpose</td><td>C</td><td>Development of design proposal(s)</td><td>25</td></tr><tr><td>D</td><td>Development of design prototype(s)</td><td>25</td></tr><tr><td>A03 (20 marks) Analyse & evaluate</td><td>E</td><td>Analysing and evaluating</td><td>20</td></tr></table> <table><tr><th>Mark</th><th>Description</th></tr><tr><td>9-10</td><td> - A comprehensive, clearly stated and challenging design brief resulting from a thorough consideration of investigations undertaken, that fully addresses both the context and the needs and wants of the intended user(s). - The student has produced a comprehensive, detailed and well explained design specification which will fully guide the student's design thinking. - A detailed project management approach to prototype development, including time management and determining quantities and costs of materials, has been fully integrated into the specification. </td></tr></table> <table><tr><th>Mark Description</th></tr><tr><td>19-25 - The rationale for design decisions is clearly documented and fully justified with constant reference being made to the design brief, specification and investigations throughout the development of their design proposal. - In the development of innovative design proposals the student will demonstrate clear evidence of originality, creativity and a willingness to take design risks. - Excellent use of a variety of modelling techniques to support ongoing development work throughout. This is supported by the use of drawings, sketches, annotations and notes showing clear evidence of design thinking. - Excellent ongoing development of design proposals, achieved through exploration of and experimentation with different materials, techniques and processes leading to an excellent quality design of a prototype for manufacture. - Comprehensive and fully detailed manufacturing specification produced which makes specific reference to relevant quality control checks and allows fully accurate interpretation by a third party. - Project management for manufacturing allows for further development of design proposals in response to ongoing evaluation, testing and full consideration of contingency planning as prototype development takes place. </td></tr></table>		Section	Criteria	Maximum marks	A01 (30 marks) Identify, investigate & outline design possibilities	A	Identifying and investigating design possibilities	20	B	Producing a design brief and specification	10	A02 (50 marks) Design & make prototypes that are fit for purpose	C	Development of design proposal(s)	25	D	Development of design prototype(s)	25	A03 (20 marks) Analyse & evaluate	E	Analysing and evaluating	20	Mark	Description	9-10	- A comprehensive, clearly stated and challenging design brief resulting from a thorough consideration of investigations undertaken, that fully addresses both the context and the needs and wants of the intended user(s). - The student has produced a comprehensive, detailed and well explained design specification which will fully guide the student's design thinking. - A detailed project management approach to prototype development, including time management and determining quantities and costs of materials, has been fully integrated into the specification.	Mark Description	19-25 - The rationale for design decisions is clearly documented and fully justified with constant reference being made to the design brief, specification and investigations throughout the development of their design proposal. - In the development of innovative design proposals the student will demonstrate clear evidence of originality, creativity and a willingness to take design risks. - Excellent use of a variety of modelling techniques to support ongoing development work throughout. This is supported by the use of drawings, sketches, annotations and notes showing clear evidence of design thinking. - Excellent ongoing development of design proposals, achieved through exploration of and experimentation with different materials, techniques and processes leading to an excellent quality design of a prototype for manufacture. - Comprehensive and fully detailed manufacturing specification produced which makes specific reference to relevant quality control checks and allows fully accurate interpretation by a third party. - Project management for manufacturing allows for further development of design proposals in response to ongoing evaluation, testing and full consideration of contingency planning as prototype development takes place.
	Section	Criteria	Maximum marks																											
A01 (30 marks) Identify, investigate & outline design possibilities	A	Identifying and investigating design possibilities	20																											
	B	Producing a design brief and specification	10																											
A02 (50 marks) Design & make prototypes that are fit for purpose	C	Development of design proposal(s)	25																											
	D	Development of design prototype(s)	25																											
A03 (20 marks) Analyse & evaluate	E	Analysing and evaluating	20																											
Mark	Description																													
9-10	- A comprehensive, clearly stated and challenging design brief resulting from a thorough consideration of investigations undertaken, that fully addresses both the context and the needs and wants of the intended user(s). - The student has produced a comprehensive, detailed and well explained design specification which will fully guide the student's design thinking. - A detailed project management approach to prototype development, including time management and determining quantities and costs of materials, has been fully integrated into the specification.																													
Mark Description																														
19-25 - The rationale for design decisions is clearly documented and fully justified with constant reference being made to the design brief, specification and investigations throughout the development of their design proposal. - In the development of innovative design proposals the student will demonstrate clear evidence of originality, creativity and a willingness to take design risks. - Excellent use of a variety of modelling techniques to support ongoing development work throughout. This is supported by the use of drawings, sketches, annotations and notes showing clear evidence of design thinking. - Excellent ongoing development of design proposals, achieved through exploration of and experimentation with different materials, techniques and processes leading to an excellent quality design of a prototype for manufacture. - Comprehensive and fully detailed manufacturing specification produced which makes specific reference to relevant quality control checks and allows fully accurate interpretation by a third party. - Project management for manufacturing allows for further development of design proposals in response to ongoing evaluation, testing and full consideration of contingency planning as prototype development takes place.																														
Assessments	Exam Theory Students are given weekly definitions homework related to Product Design key terms. Students complete research on 3 topics of their choice weekly. Students will complete a 1-hour exam on CRP, electroplating and industrial manufacture in week 4.	Each of the NEA pages will be assessed using the specification assessment criteria - Development 1 - Development 2 - Development 3 - CAD																												
Term Five																														
Content of study	NEA –																													
What are the aims and	Students will focus on prior knowledge and learning about how products are designed and made in an industrial context.	Students will work on NEA section C – DEVELOPMENT OF DESIGN PROPOSALS																												

objectives of this term?	• Use of computers in design and manufacture • Scales of production • Production planning • Maths – triangles and scale factors	• Development including CAD																																		
What previous knowledge is required?	Prior knowledge of Design & Technology programmes of study at KS3 and KS4. Prior knowledge of using a range of tools and equipment relating to woods, metals, plastics, and fabrics would be useful. If students studied GCSE Design and Technology they will have completed a design and make project for their NEA and this will help them with prior knowledge of how to complete NEA at KS5.																																			
How will this term’s content help with future learning?	Exam Theory Exam based questions relating to the use of computers in design and manufacture; scales of production; production planning and various maths problems involving triangles.	NEA Students will use their design ideas to develop into feasible ideas, they will then make their most successful development.																																		
Resources	https://www.technologystudent.com https://www.youtube.com/watch?v=IAyhCXNMILY http://www.technologystudent.com/pdf14/display5.pdf https://www.youtube.com/watch?v=Vidil2nBCf0 www.thingiverse.com www.renishaw.com www.aqa.org.uk	Students will have access to exemplar NEA to see how to achieve top marks																																		
Links to the national curriculum/specification	Exam Theory <table border="1"><tr><td>Paper 1</td></tr><tr><td>What's assessed Technical principles</td></tr><tr><td>How it's assessed • Written exam: 2 hours and 30 minutes • 120 marks • 30% of A-level </td></tr><tr><td>Questions Mixture of short answer and extended response.</td></tr></table> <table border="1"><tr><td>Paper 2</td></tr><tr><td>What's assessed Designing and making principles</td></tr><tr><td>How it's assessed • Written exam: 1 hour and 30 minutes • 80 marks • 20% of A-level </td></tr><tr><td>Questions Mixture of short answer and extended response questions. Section A: • Product Analysis: 30 marks • Up to 6 short answer questions based on visual stimulus of product(s). Section B: • Commercial manufacture: 50 marks • Mixture of short and extended response questions </td></tr></table> • Modern industrial and scales of practice • Accuracy in design and manufacture. • Digital design & manufacture • The requirements for product design and development • Maths skills for written exams	Paper 1	What's assessed Technical principles	How it's assessed • Written exam: 2 hours and 30 minutes • 120 marks • 30% of A-level	Questions Mixture of short answer and extended response.	Paper 2	What's assessed Designing and making principles	How it's assessed • Written exam: 1 hour and 30 minutes • 80 marks • 20% of A-level	Questions Mixture of short answer and extended response questions. Section A: • Product Analysis: 30 marks • Up to 6 short answer questions based on visual stimulus of product(s). Section B: • Commercial manufacture: 50 marks • Mixture of short and extended response questions	<table border="1"><tr><th></th><th>Section</th><th>Criteria</th><th>Maximum marks</th></tr><tr><td>A01 (30 marks) Identify, investigate & outline design possibilities</td><td>A</td><td>Identifying and investigating design possibilities</td><td>20</td></tr><tr><td></td><td>B</td><td>Producing a design brief and specification</td><td>10</td></tr><tr><td>A02 (50 marks) Design & make prototypes that are fit for purpose</td><td>C</td><td>Development of design proposal(s)</td><td>25</td></tr><tr><td></td><td>D</td><td>Development of design prototype(s)</td><td>25</td></tr><tr><td>A03 (20 marks) Analyse & evaluate</td><td>E</td><td>Analysing and evaluating</td><td>20</td></tr></table> <table border="1"><tr><td>Mark Description</td></tr><tr><td>19–25 • The rationale for design decisions is clearly documented and fully justified with constant reference being made to the design brief, specification and investigations throughout the development of their design proposal. • In the development of innovative design proposals the student will demonstrate clear evidence of originality, creativity and a willingness to take design risks. • Excellent use of a variety of modelling techniques to support ongoing development work throughout. This is supported by the use of drawings, sketches, annotations and notes showing clear evidence of design thinking. • Excellent ongoing development of design proposals, achieved through exploration of and experimentation with different materials, techniques and processes leading to an excellent quality design of a prototype for manufacture. • Comprehensive and fully detailed manufacturing specification produced which makes specific reference to relevant quality control checks and allows fully accurate interpretation by a third party. • Project management for manufacturing allows for further development of design proposals in response to ongoing evaluation, testing and full consideration of contingency planning as prototype development takes place. </td></tr></table>		Section	Criteria	Maximum marks	A01 (30 marks) Identify, investigate & outline design possibilities	A	Identifying and investigating design possibilities	20		B	Producing a design brief and specification	10	A02 (50 marks) Design & make prototypes that are fit for purpose	C	Development of design proposal(s)	25		D	Development of design prototype(s)	25	A03 (20 marks) Analyse & evaluate	E	Analysing and evaluating	20	Mark Description	19–25 • The rationale for design decisions is clearly documented and fully justified with constant reference being made to the design brief, specification and investigations throughout the development of their design proposal. • In the development of innovative design proposals the student will demonstrate clear evidence of originality, creativity and a willingness to take design risks. • Excellent use of a variety of modelling techniques to support ongoing development work throughout. This is supported by the use of drawings, sketches, annotations and notes showing clear evidence of design thinking. • Excellent ongoing development of design proposals, achieved through exploration of and experimentation with different materials, techniques and processes leading to an excellent quality design of a prototype for manufacture. • Comprehensive and fully detailed manufacturing specification produced which makes specific reference to relevant quality control checks and allows fully accurate interpretation by a third party. • Project management for manufacturing allows for further development of design proposals in response to ongoing evaluation, testing and full consideration of contingency planning as prototype development takes place.
Paper 1																																				
What's assessed Technical principles																																				
How it's assessed • Written exam: 2 hours and 30 minutes • 120 marks • 30% of A-level																																				
Questions Mixture of short answer and extended response.																																				
Paper 2																																				
What's assessed Designing and making principles																																				
How it's assessed • Written exam: 1 hour and 30 minutes • 80 marks • 20% of A-level																																				
Questions Mixture of short answer and extended response questions. Section A: • Product Analysis: 30 marks • Up to 6 short answer questions based on visual stimulus of product(s). Section B: • Commercial manufacture: 50 marks • Mixture of short and extended response questions																																				
	Section	Criteria	Maximum marks																																	
A01 (30 marks) Identify, investigate & outline design possibilities	A	Identifying and investigating design possibilities	20																																	
	B	Producing a design brief and specification	10																																	
A02 (50 marks) Design & make prototypes that are fit for purpose	C	Development of design proposal(s)	25																																	
	D	Development of design prototype(s)	25																																	
A03 (20 marks) Analyse & evaluate	E	Analysing and evaluating	20																																	
Mark Description																																				
19–25 • The rationale for design decisions is clearly documented and fully justified with constant reference being made to the design brief, specification and investigations throughout the development of their design proposal. • In the development of innovative design proposals the student will demonstrate clear evidence of originality, creativity and a willingness to take design risks. • Excellent use of a variety of modelling techniques to support ongoing development work throughout. This is supported by the use of drawings, sketches, annotations and notes showing clear evidence of design thinking. • Excellent ongoing development of design proposals, achieved through exploration of and experimentation with different materials, techniques and processes leading to an excellent quality design of a prototype for manufacture. • Comprehensive and fully detailed manufacturing specification produced which makes specific reference to relevant quality control checks and allows fully accurate interpretation by a third party. • Project management for manufacturing allows for further development of design proposals in response to ongoing evaluation, testing and full consideration of contingency planning as prototype development takes place.																																				
Assessments	Exam Theory	Each of the NEA pages will be assessed using the specification assessment criteria																																		

	Students are given weekly definitions homework related to Product Design key terms. Students complete research on 3 topics of their choice weekly. Students will complete a 1-hour exam in week 4.	• Relevant research 2 • Practical investigations • Initial concepts
Term Six		
Content of study	NEA –	
What are the aims and objectives of this term?	Students will focus on prior knowledge and learning about how products are designed and made in an industrial context. • CAD/CAM and virtual modelling • Protecting designs • Open designing • Case studies • Safety in products • Inclusive design • Product development • Maths – trigonometry & Pythagoras	Students will complete NEA section C – DEVELOPMENT OF DESIGN PROPOSALS • Prototype modelling • Working drawing • Materials list • Improvements to NEA • Begin marking out final product
What previous knowledge is required?	Prior knowledge of Design & Technology programmes of study at KS3 and KS4. Prior knowledge of using a range of tools and equipment relating to woods, metals, plastics, and fabrics would be useful. If students studied GCSE Design and Technology they will have completed a design and make project for their NEA and this will help them with prior knowledge of how to complete NEA at KS5.	
How will this term's content help with future learning?	Exam Theory Exam based questions relating to the role of designers; CAD/CAM; virtual modelling, inclusive design; product development and various maths problems involving trigonometry and Pythagoras.	NEA Students will test their prototype to see what modifications are needed before they make their final product.
Resources	https://www.technologystudent.com www.aqa.org.uk https://www.youtube.com/watch?v=AMgeNjXtYx4 https://www.youtube.com/watch?v=mdWvU9RF5ew http://www.technologystudent.com/prddes1/kite1.html	ACCESS FMm - Bing images Students will also have access to exemplar NEA to see how to achieve top marks
Links to the national curriculum/specification	Exam Theory	

	Paper 1 What's assessed Technical principles How it's assessed - Written exam: 2 hours and 30 minutes 120 marks 30% of A-level Questions Mixture of short answer and extended response. Paper 2 What's assessed Designing and making principles How it's assessed - Written exam: 1 hour and 30 minutes 80 marks 20% of A-level Questions Mixture of short answer and extended response questions. Section A: - Product Analysis: 30 marks - Up to 6 short answer questions based on visual stimulus of product(s). Section B: - Commercial manufacture: 50 marks - Mixture of short and extended response questions - Design methods and processes. - Accuracy in design and manufacture. - Digital design & manufacture - The requirements for product design and development. - Protecting designs and intellectual property. - Design communication. - Maths skills for written exams <td><table><tr><th></th><th>Section</th><th>Criteria</th><th>Maximum marks</th></tr><tr><td>A01 (30 marks)</td><td>A</td><td>Identifying and investigating design possibilities</td><td>20</td></tr><tr><td>Identify, investigate & outline design possibilities</td><td>B</td><td>Producing a design brief and specification</td><td>10</td></tr><tr><td>A02 (50 marks)</td><td>C</td><td>Development of design proposal(s)</td><td>25</td></tr><tr><td>Design & make prototypes that are fit for purpose</td><td>D</td><td>Development of design prototype(s)</td><td>25</td></tr><tr><td>A03 (20 marks)</td><td>E</td><td>Analysing and evaluating</td><td>20</td></tr><tr><td>Analyse & evaluate</td><td></td><td></td><td></td></tr></table> Mark Description 19-25 - The rationale for design decisions is clearly documented and fully justified with constant reference being made to the design brief, specification and investigations throughout the development of their design proposal. - In the development of innovative design proposals the student will demonstrate clear evidence of originality, creativity and a willingness to take design risks. - Excellent use of a variety of modelling techniques to support ongoing development work throughout. This is supported by the use of drawings, sketches, annotations and notes showing clear evidence of design thinking. - Excellent ongoing development of design proposals, achieved through exploration of and experimentation with different materials, techniques and processes leading to an excellent quality design of a prototype for manufacture. - Comprehensive and fully detailed manufacturing specification produced which makes specific reference to relevant quality control checks and allows fully accurate interpretation by a third party. - Project management for manufacturing allows for further development of design proposals in response to ongoing evaluation, testing and full consideration of contingency planning as prototype development takes place. </td>	<table><tr><th></th><th>Section</th><th>Criteria</th><th>Maximum marks</th></tr><tr><td>A01 (30 marks)</td><td>A</td><td>Identifying and investigating design possibilities</td><td>20</td></tr><tr><td>Identify, investigate & outline design possibilities</td><td>B</td><td>Producing a design brief and specification</td><td>10</td></tr><tr><td>A02 (50 marks)</td><td>C</td><td>Development of design proposal(s)</td><td>25</td></tr><tr><td>Design & make prototypes that are fit for purpose</td><td>D</td><td>Development of design prototype(s)</td><td>25</td></tr><tr><td>A03 (20 marks)</td><td>E</td><td>Analysing and evaluating</td><td>20</td></tr><tr><td>Analyse & evaluate</td><td></td><td></td><td></td></tr></table> Mark Description 19-25 - The rationale for design decisions is clearly documented and fully justified with constant reference being made to the design brief, specification and investigations throughout the development of their design proposal. - In the development of innovative design proposals the student will demonstrate clear evidence of originality, creativity and a willingness to take design risks. - Excellent use of a variety of modelling techniques to support ongoing development work throughout. This is supported by the use of drawings, sketches, annotations and notes showing clear evidence of design thinking. - Excellent ongoing development of design proposals, achieved through exploration of and experimentation with different materials, techniques and processes leading to an excellent quality design of a prototype for manufacture. - Comprehensive and fully detailed manufacturing specification produced which makes specific reference to relevant quality control checks and allows fully accurate interpretation by a third party. - Project management for manufacturing allows for further development of design proposals in response to ongoing evaluation, testing and full consideration of contingency planning as prototype development takes place.		Section	Criteria	Maximum marks	A01 (30 marks)	A	Identifying and investigating design possibilities	20	Identify, investigate & outline design possibilities	B	Producing a design brief and specification	10	A02 (50 marks)	C	Development of design proposal(s)	25	Design & make prototypes that are fit for purpose	D	Development of design prototype(s)	25	A03 (20 marks)	E	Analysing and evaluating	20	Analyse & evaluate			
	Section	Criteria	Maximum marks																											
A01 (30 marks)	A	Identifying and investigating design possibilities	20																											
Identify, investigate & outline design possibilities	B	Producing a design brief and specification	10																											
A02 (50 marks)	C	Development of design proposal(s)	25																											
Design & make prototypes that are fit for purpose	D	Development of design prototype(s)	25																											
A03 (20 marks)	E	Analysing and evaluating	20																											
Analyse & evaluate																														
Assessments	Exam Theory Students complete research on 3 topics of their choice weekly and an exam style questions to answer. Students will complete a 1-hour exam in week 4.	Each of the NEA pages will be assessed using the specification assessment criteria - Prototype modelling - Working drawing - Improvements to NEA																												