



Product Design

Year 7/8 - Half Term 1/4 Introduction to Product Design

Prior Learning	KS2 review. Basic designing, making skills. Problem solving skills and co operative learning. Using basic maths skills and scientific principles to solve problems
What will I learn?	<p>Why do we design? Why do we re design products which already work. Study a range of products including 3D printing, renewable energy and electric cars. Study a range of designers. (these will vary as the technological world is fast moving)</p> <p>Materials for design; pupils will learn about wood and its uses and properties including its use as a sustainable product.</p> <p>Workshop safety and working together in the workshop. It is important that pupils learn to be independent learners and problem solvers.</p> <p>Pupils will start individual practical projects including a mechanical automata and an electronic door hanger.</p>
Next Steps	This work forms the foundation for understanding the role of product design in the world and develops basic workshop practise. The next steps are that learners will become more confident, competent and independent when in the workshop, a new skill / process - leading to new knowledge and the production of quality products. The introduction to new technologies and designers will lead to enquiring minds and independent engagement.
Personal Development	This unit develops individual problem solving and risk taking while designing. It develops independence and co operative learning and teaches pupils that different opinions are essential to good design. Pupils learn about sustainability and the role designers have in finding sustainable solutions.
Key vocabulary	Dimension, file, minimise, solution. Design, product design, safety, resilience, problem solving, independent.
How and when will I be assessed?	Assessment will be constant verbal feedback during the making of products with feedback being used by pupils to improve products. Quick start and end of lesson verbal tests.
Resources to use	All practical resources will be supplies by school. Further information on materials can be found at https://www.bbc.co.uk/bitesize/clips/z869wmn
Enrichment opportunities	More information about Automata can be found at. https://www.mechanical-toys.com/Automata%20mainpage.html . Information on modern designs can be found at. http://www.tuvie.com/ BBC Bitesize: https://www.bbc.co.uk/bitesize/subjects/zfr9wmn

Year 7/8 - Half Term 2/5 – Practical work

Prior Learning	<p>KS2 review. Basic designing, making skills. Problem solving skills and co operative learning. Using basic maths skills and scientific principles to solve problems. Pupils have now worked for half a term and have developed basic problem solving skills. From half term one pupils have learnt how to work safely and efficiently in the workshop. They will use foundation workshop skills learnt to build on during this terms practical tasks.</p>
What will I learn?	<p>During this half term pupils will start to learn the basic practical skills needed to make products. Most of the lessons will be in the workshop. Workshop safety and working together in the workshop. It is important that pupils learn to be independent learners and problem solvers. Pupils will start individual practical projects including a mechanical automata and an electronic door hanger. Pupils making the mechanical toy (automata) will learn about wood and how to use it to make a product. You will also learn how to cut accurately, glue and nail. Pupils will learn about finishing and how to sand materials smooth. Pupils will learn to use a range of hand tools and machinery.</p> <p>Pupils making the door hanger will learn about basic electronic components and will practise soldering.</p>
Next Steps	<p>The next steps are that learners will become more confident, competent and independent when in the workshop, a new skill / process - leading to new knowledge and the production of quality products. The introduction to new technologies and designers will lead to enquiring minds and independent engagement.</p> <p>All practical work builds skills and techniques for future work.</p>
Personal Development	<p>This unit develops individual problem solving and risk taking while designing. It develops independence and co operative learning and teaches pupils that different opinions are essential to good design.</p>
Key vocabulary	<p>Dimension, file, minimise, solution. Design, product design, safety, resilience, problem solving, independent.</p>
How and when will I be assessed?	<p>Assessment will be constant verbal feedback during the making of products with feedback being used by pupils to improve products. Quick start and end of lesson verbal tests.</p>
Resources to use	<p>All practical resources will be supplies by school. Further information on materials can be found at https://www.bbc.co.uk/bitesize/clips/zwpd7ty</p>
Enrichment opportunities	<p>More information about Automata can be found at. https://www.mechanical-toys.com/Automata%20mainpage.html . Information on modern designs can be found at. http://www.tuvie.com/ BBC Bitesize: https://www.bbc.co.uk/bitesize/subjects/zfr9wmn</p>

Year 7/8 - Half Term 3/6 – Practical work & Technological Developments

Prior Learning	Basic designing, making skills. Problem solving skills and co operative learning. Using basic maths skills and scientific principles to solve problems. Pupils have now worked for a term and have developed basic problem solving skills. Prior learning from half term 1 and 2 will be built upon to further develop problem solving skills. Basic machine skills will be developed to become more confident makers.
What will I learn?	<p>During this half term pupils will start to finish their practical projects and begin to learn more about the wider world of technology and the effect it has on our lives. Pupils will learn about the Circular Economy, which looks at how we can make products which protect our environment. Pupils will also look at products of the future and what our world may look like in 20 years time.</p> <p>Pupils will carry out a series of problem solving tasks including making small robots. They will learn about 3D design and 3D printing and learn to use a variety of 3D design programs.</p>
Next Steps	All of this work has developed a wider understanding of the world of design. Pupils now have a wide range of transferable skills which can be used in a wide variety of subjects. When pupils who have studied Product design in year 7 they will return in year 9 and will need to use all the skills learnt in year 7.
Personal Development	This unit develops a wider understanding of how technology affects others and how making and using products impacts onto the lives of others. This unit develops an awareness of the duty of care each individual has to our planet and the people on it. It develops informed world citizens who always take others and the environment into consideration before they act.
Key vocabulary	Dimension, file, minimise, solution. Design, product design, safety, resilience, problem solving, independent.
How and when will I be assessed?	Assessment will be constant verbal feedback during the making of products with feedback being used by pupils to improve products. Quick start and end of lesson verbal tests. End of unit test will take place based on all the work completed during this course.
Resources to use	All practical resources will be supplies by school. Further information on materials can be found at http://www.technologystudent.com/despro_flsh/mats_basiceq1.html
Enrichment opportunities	<p>More information about Circular economy can be found at https://www.ellenmacarthurfoundation.org/circular-economy/concept</p> <p>More information about 3D printing can be found at https://www.createeducation.com/</p> <p>Learn more about Greta Thunberg join here twitter. Join World wide fund for Nature WWF Log onto Tuvie.com for new design ideas.</p>

Year 9 – Module A - Smart materials 3 D design

<p>Prior Learning</p>	<p>Pupils have completed the product design course in yr 7 and 8. During this course pupils will need to use their prior learning in this subject. This course will build on all the tool skills the use of machinery and all the health and safety learnt. Pupils will need to incorporate all, their problem solving skills and resilience when things fail. Pupils prior knowledge of 3D design will be essential for this course.</p>
<p>What will I learn?</p>	<p>This is a really exciting part of the course. Pupils will learn about two main areas of product design.</p> <p>Smart Materials ; during this course Pupils will learn about all the amazing new materials that are being invented such as self healing plastics, photochromic materials and water repellent materials. Pupils will make a torch project which uses a range of modern and smart materials including quantum tunnelling composite.</p> <p>3D design: This section of the course builds on the yr 7 and 8 course. You will use 3D designing to produce the designs for your next project. Pupils will learn how to use the 3D printer and the lazer cutter.</p>
<p>Next Steps</p>	<p>This work continues to form the foundation for understanding the role of product design in the world and further develops workshop practise. The next steps are that learners will become more confident, competent and independent when in the workshop leading to the production of quality products. This course is designed to follow the format of GCSE course and encourage pupils to opt for the subject.</p>
<p>Personal Development</p>	<p>This unit continues to develop problem solving skills and independent thinking. It is essential that pupils learn to co operate and share good practice with each other. The Smart material section allows pupil to understand the importance of imagination and risk taking when designing for the future.</p>
<p>Key vocabulary</p>	<p>Smart material, thermochromic, photochromic, quantum tunnelling composite, repellent, modern, design, independent.</p> <p>area, create, achieve, text, comment, ensure, dimension, project, challenge, generate, symbol, edit, file, topic, clarify, minimise, accommodate, ethic, assemble, persist.</p>
<p>How and when will I be assessed?</p>	<p>Assessment will be constant verbal feedback during the making of products with feedback being used by pupils to improve products. Quick start and end of lesson verbal tests. Final test at the end of the project.</p>
<p>Resources to use</p>	<p>All practical resources will be supplies by school. Further information on materials can be found at https://www.bbc.co.uk/bitesize/subjects/zfr9wmn</p>
<p>Enrichment opportunities</p>	<p>More information about smart materials can be found.</p> <p>https://education.theiet.org/secondary/teaching-resources/smart-materials-2/</p> <p>https://education.theiet.org/secondary/teaching-resources/smart-materials-2/</p> <p>U tube has lots of clips so please search this amazing topic.</p>

Year 9 – Module B - Mood light Project 2D CAD

Prior Learning	Pupils have completed the product design course in yr 7 and 8. During this course serves as an introduction to 2D CAD/CAM. This course will also build on all the tool skills the use of machinery and all the health and safety learnt. Pupils will need to incorporate all, their problem solving skills and resilience when things fail.
What will I learn?	<p>This is a really exciting part of the course. Pupils will learn about two main areas of product design.</p> <p>2D CAD; during this course, Pupils will learn the necessary 2D CAD skills using 2D Design software to allow them to create vector designs for their project. The skills will be further developed to produce accurate CAD drawing skills such as used in architecture and engineering professions.</p> <p>2D CAM: Integral to this course, pupils will take their vector designs for manufacture using the laser cutter.</p> <p>In the workshop, using a range of materials, construct the mood light base safely, incorporate a simple LED light and finish it to a very high standard.</p>
Next Steps	This work continues to form the foundation for understanding the role of CAD/CAM in product design and manufacturing. The next steps are that learners will become more confident, competent and independent when using CAD/CAM in the workshop, a new skill / process - leading to new knowledge and the production of quality products.
Personal Development	This unit continues to develop problem solving skills and independent thinking. It is essential that pupils learn to co operate and share good practice with each other. The intent of this course will allows pupils to understand the importance of CAD/CAM and scales of production for manufacture.
Key vocabulary	Manufacturing, material, modification, modify, CAD, CAM, orthographic, process, product, production.
How and when will I be assessed?	Assessment will be constant verbal feedback during the making of products with feedback being used by pupils to improve products. Quick start and end of lesson verbal tests. On-going personal and peer reviews.
Resources to use	All practical resources will be supplies by school. Further information on materials can be found at https://www.youtube.com/watch?v=H1SAdChm1kk
Enrichment opportunities	<p>More information about the future of CAD/CAM can be found in TED talk: https://www.youtube.com/watch?v=i0uyi1MWY5Y</p> <p>Opportunity to download free version of software to practice on at home.</p>

Year 10 - Half Term 1 – Sketching & Design Communication

Prior Learning	<p>During KS2, you will have gained wide knowledge and practical skills relating to design, how design and technology impacts lives and our world, material properties and ways to safely manufacture products. You will have developed their confidence using workshop tools and machinery as well as utilising CAD / CAM techniques.</p> <p>As future product designers, this course will develop further knowledge and practical skills in preparation for your GCSE coursework in Year 11.</p>
What will I learn?	<p>In the first half term you will learn more advanced ways of sketching and communicating a range of ideas using both 2D and 3D sketching techniques.</p> <p>The intention is for you to be able to quickly put down a number initial sketches and develop them into effectively communicate all aspects of your design to others.</p>
Next Steps	<p>Ultimately, this all links to the completion of GCSE A02 / assessment criteria, a new skill / process - leading to new knowledge and the production of quality products.</p> <p>There will be lots of opportunities to further practice and develop these skills in future projects. <u>High GCSE marks are available for design work to pupils that can demonstrate creative design ideas and using a range of exceptional communication skills.</u></p>
Personal Development	<p>The course will help you to develop a range of transferable skills and attributes such as; Working through a problem and solving it through good design. It will help you to communicate ideas - Explain and present ideas clearly and effectively and use appropriate verbal, written and graphical methods of communication.</p>
Key vocabulary	<p>Orthographic, perspective, isometric, initial ideas, working drawing, vanishing point, illustrate, communicate, draft, enhance.</p>
How and when will I be assessed?	<p>On-going classwork assessment with live lesson feedback as well as constant peer assessment.</p>
Resources to use	<p>All resources are supplied by the school. It is expected that you will provide all necessary basic sketching equipment including a glue stick.</p> <p>http://www.technologystudent.com/despro_flash/basic_dev1.html</p> <p>https://www.youtube.com/channel/UCBtSgEZk914z5InEs_U2J3w?sub_confirmation=1</p>
Enrichment opportunities	<p>You will be expected to practice these skills at home to develop your techniques further. YouTube does have lots of sketching resources to help and inspire you. The above web links are excellent.</p> <p>If you have an iPad, there are lots of sketching apps such as 'Pro Create' which offer lots of further sketching possibilities.</p>

Year 10 - Half Term 2 – Sketching / Design Communication & Materials Project

Prior Learning	<p>During this term, you will continue to develop your sketching and communication skills that you have previously learnt.</p> <p>This term you will develop more advanced 3D sketching and presentation techniques that will culminate in an assessed design task.</p>
What will I learn?	<p>How to use 3D perspective drawings when sketching various products.</p> <p>We will look at ways to communicate ideas effectively including page layouts, annotations and more graphical ways to iterate ideas.</p> <p>We move onto a practical course that explores the manufacture and use of materials to produce a high quality product. This focuses on hardwoods, veneers and laminates research.</p>
Next Steps	<p>Ultimately, this all links to the completion of GCSE A02 / assessment criteria and will help you to produce stunning coursework sketchbooks and will lead you to produce creative ideas – ideal to take with you at interviews either for further education or apprenticeships.</p>
Personal Development	<p>This project will develop resilience when learning new tasks as they present challenges and do require repetitive practice to hone your skills. This task will also study Health and safety and you will understand that your behaviour can have serious impacts on others.</p>
Key vocabulary	<p>Layout, veneer, laminate, render, specification, theory, feature, outcome, modify, preliminary.</p>
How and when will I be assessed?	<p>On-going classwork assessment with live lesson feedback as well as constant peer assessment.</p>
Resources to use	<p>All resources are supplied by the school.</p> <p>http://www.technologystudent.com/designpro/drawtec1.htm</p>
Enrichment opportunities	<p>You will be expected to practice these skills at home to develop your techniques further.</p> <p>YouTube does have lots of resources regarding the manufacture of veneers and laminates. For lots of information about timber use the Timber Research and Development Association (TRADA) - https://www.trada.co.uk</p>

Year 10 - Half Term 3 – Materials Project

Prior Learning	Last term, you will have started your research into manufactured timber materials, in relation to veneers and laminates.
What will I learn?	Using your developed sketching and communication skills, you will come up with a range of design ideas to meet a specification using wood veneers. Ideas will then be tested and improved in the workshop to produce a high quality laminated key ring. You will use appropriate workshop tools and machinery in the manufacture of a prototype for testing and evaluation of your best idea. You will also understand the importance of receiving feedback from others to evaluate and improve your product.
Next Steps	This project builds the skills needed for Yr11 coursework, a new skill / process - leading to new knowledge and the production of quality products. This will lead you to consider using these techniques for your GCSE project to gain higher grades. These skills are also an essential life skill but also form the basis for any pupil wanting an apprenticeship or career in design, engineering or construction.
Personal Development	This project will develop resilience when solving design challenges. It also develops problem solving techniques and using logical thinking to solve a problem. It will develop confidence in tackling complex tasks. It is important to learn the importance of testing and evaluating design prototypes and the value of the iterative process of product improvement.
Key vocabulary	Prototype, testing, iterative, improvement, feedback, end user, evaluate, analyse, adapt, modify.
How and when will I be assessed?	On-going classwork assessment with live lesson feedback as well as constant peer assessment.
Resources to use	All resources are supplied by the school. http://www.technologystudent.com/designpro/drawtec1.htm http://www.technologystudent.com/designpro/ideas1.htm
Enrichment opportunities	YouTube does have lots of resources regarding the manufacture of veneers and laminates. Ikea, Warrington to look at design, manufacture and the use of materials in relation to furniture and accessories. Visit the Design Museum, London.

Year 10 - Half Term 4 – Keyring Project & Passive Acoustic Speaker Project

Prior Learning	In previous terms you will have begun to explore the properties and manufacture of various materials. You will have also designed and made a prototype and evaluated it with the intention of improving the product that will appeal to potential users.
What will I learn?	<p>We move onto a practical course that explores the manufacture and use of materials to produce a high quality product. This focuses on hardwoods, veneers and laminates. You will use workshop tools and machinery and learn how to use a chisel safely. You will also learn about the cutting, shaping, smoothing and finishing and evaluation processes.</p> <p>We move onto the 'Passive Acoustic Speaker' project and undertake initial research to investigate design possibilities, carry out existing product analysis before designing a suitable prototype. You will also have opportunities to explore sustainable aspects of design.</p>
Next Steps	This project builds the skills needed for Yr11 coursework, a new skill / process - leading to new knowledge and the production of quality products. The use of veneer work is a skilled process and, if utilised, will attract higher GCSE grades. It will also make you familiar to the approach needed for your GCSE coursework sketchbooks. It will also highlight the fact of documenting all aspects of your project in a detailed, creative and appealing way.
Personal Development	This project will develop resilience when learning new tasks as they present challenges and do require repetitive practice to hone your skills. This task will also study Health and safety and you will understand that your behaviour can have serious impacts on others.
Key vocabulary	Passive, prototype, sustainability, finishes, evaluate, environment, design, construct, impact, scenario.
How and when will I be assessed?	On-going classwork assessment with live lesson feedback as well as constant peer assessment.
Resources to use	All resources are supplied by the school. http://www.technologystudent.com/designpro/matintro1.htm
Enrichment opportunities	<p>In terms of design / engineering inspiration visit: https://www.jamesdysonfoundation.co.uk</p> <p>For sustainability impacts, solutions, technology, futures etc.. visit the Centre for Alternative Technology, Wales.</p>

Year 10 - Half Term 5 – Key Practical Skills

Prior Learning	In previous terms you will have begun to explore the properties and manufacture of various materials. You will have also designed and made a prototype and evaluated it with the intention of suggesting further improvements that will make future iterations more appealing to users.
What will I learn?	<p>In this part of the course, we move onto a practical section that looks at further developing your practical skills and introducing you to some new processes and equipment such as:</p> <ul style="list-style-type: none"> Accurate marking out of materials. Cutting and drilling to create openings in materials. How to apply a range of finishes to materials. Vacuum Forming process and working with plastics. 3D Modeling and printing. Electronic Components and Circuits - Programmable components and how such components are integrated into everyday products. <p>You will gain a solid foundation in workshop safety and working procedures when carrying out these processes.</p>
Next Steps	<p>These skills will give you confidence when using tools and machinery in the workshop, a new skill / process - leading to new knowledge and the production of quality products. Being able to accurately carry out these processes, will bring wider manufacturing choices for your GCSE coursework. In addition, it will give a wider range of manufacturing possibilities for coursework products in Year 11.</p>
Personal Development	<p>You will develop problem-solving skills, which will give you the confidence to tackle problems with an open mind and be thoughtful and resilient when an idea fails. This task will also study Health and safety and you will understand that your behaviour can have serious impacts on others.</p>
Key vocabulary	Vacuum forming, accurate, manufacture, components, appeal, finishes, structure, construct, exceed, foundation.
How and when will I be assessed?	On-going classwork assessment with live lesson feedback as well as constant peer assessment.
Resources to use	<p>All resources are supplied by the school.</p> <p>http://www.technologystudent.com/despro_flsh/mats_basiceq1.html http://www.technologystudent.com/despro_flsh/mats_woods1.html http://www.technologystudent.com/despro_flsh/mats_metals1.html http://www.technologystudent.com/despro_flsh/mats_plastic1.html</p>
Enrichment opportunities	<p>In terms of design / engineering inspiration visit: https://www.jamesdysonfoundation.co.uk Visit: Fleet Air Arm Museum, Yeovilton, Somerset National Railway Museum, York https://www.bbc.co.uk/bitesize/topics/zhst47h</p>

Year 10 - Half Term 6 – Key Practical Skills & Introduction to the GCSE NEA Task

Prior Learning	In previous terms you will have learnt key practical skills and processes with an emphasis on developing your accuracy and skill in the workshop. You will also have a further developed understanding of the workshops H&S procedures.
What will I learn?	In this part of the course, we continue developing your practical skills before introducing you to your GCSE non-examined assessment (NEA) Coursework and undertaking the initial context / research elements of the GCSE work.
Next Steps	These skills will give you confidence when using tools and machinery in the workshop, a new skill / process - leading to new knowledge and the production of quality products. In addition, it will give a wider range of manufacturing possibilities for your Yr11 GCSE coursework products. The GCSE coursework will form 50% of your actual GCSE grade.
Personal Development	You will develop problem-solving skills, which will give you the confidence to tackle problems with an open mind and be thoughtful and resilient when an idea fails. This task will also study Health and safety and you will understand that your behaviour can have serious impacts on others.
Key vocabulary	Processes, accuracy, skill, context, research, brief, function, specific, primary, resource.
How and when will I be assessed?	On-going classwork / NEA coursework assessment with live lesson feedback as well as constant peer assessment.
Resources to use	All resources are supplied by the school. https://www.bbc.co.uk/bitesize/guides/z74bcj6/revision/1 http://www.technologystudent.com/pdf14/display5.pdf
Enrichment opportunities	In terms of design / engineering inspiration visit: https://www.jamesdysonfoundation.co.uk Visit: Energy production: EDF visitors centre, Heysham Engineering solutions: Falkirk Wheel, Falkirk, Scotland. Design & Art: Tate Modern, Liverpool. Architecture: Royal Institute of British Architects (NW region), Liverpool http://www.technologystudent.com/prddes1/thonet3.html

Year 11 - Half Term 1 – Non-Examined Assessment (NEA)

Prior Learning	In previous years, you will have gained a wide range of knowledge, skills and problem solving attitudes. You will have commenced part of your initial research for the GCSE A01 coursework task.
What will I learn?	You will continue working on the context research aspects and understand that all design and technological activity takes place within contexts that are influenced by existing products, user needs and wants, technology and materials.
Next Steps	This all links to the completion of the GCSE A01 part of your coursework. The coursework of which, will ultimately be 50% of your GCSE grade. You will research and record information in an informal sketchbook, both in lessons and at home. The research element of this terms course will shares similarities with pupils wanting to study Product Design at A-Level or similar BTEC Engineering options.
Personal Development	You will develop a range of transferable skills and attributes such; Using initiative - adapt to changing circumstances. Self-motivation towards completing a task. Identifying when independent research is required. Working through a problem and solving it. Organisational - Managing own time in order to plan work schedule and to meet critical deadlines.
Key vocabulary	Context, function, strategy, alternative, component, justify, sustainability, specification, design brief, research.
How and when will I be assessed?	On-going coursework assessment (this constitutes 50% of the GCSE) with live lesson feedback and constant peer assessment.
Resources to use	All resources are supplied by the school. Design & Research: http://www.technologystudent.com/designpro/despro1.htm
Enrichment opportunities	Further reading opportunities: WJEC Eduqas GCSE (9-1) Design and Technology - Ian Fawcett, Jacqui Howells, Dan Hughes, Andy Knight, Chris Walker, Jennifer Tilley. ISBN: 9781510451346. BBC Bitesize: https://www.bbc.co.uk/bitesize/guides/z6hxx39/revision/1 Visit: Design Museum, London. EDF visitor centre – Cumbria, Centre for Alternative Technology – Wales, Science Museum – Manchester, Online 3D modelling tutorials for FormZ. Technology Student website.

Year 11 - Half Term 2 – Non-Examined Assessment (NEA)

Prior Learning	In previous term you will have commenced your initial research for the GCSE A01 coursework task. This term, you will continue with this research to complete the A01 section.
What will I learn?	You will begin to discover that during your research, you will begin to identify a design 'problem' that you wish to solve and you will understand the importance of and formulate a design brief, which sets the focus of your research, design and manufacture of your chosen product. In addition to this, you will set the constraints for your project in a product specification.
Next Steps	This all links to the completion of the GCSE A01 part of your coursework. The coursework of which, will ultimately be 50% of your GCSE grade. You will research and record information in an informal sketchbook, both in lessons and at home. The design processes of this terms course will shares similarities with pupils wanting to study Product Design at A-Level or similar BTEC Engineering options.
Personal Development	Value the opinions of others. Value different opinions and diversity of cultures. Being analytical - Embrace new knowledge. Process information. Make informed decisions based on knowledge acquired.
Key vocabulary	Option, amend, energy, style, accurate, brief, biodegradable, recyclable, aesthetic, Life cycle.
How and when will I be assessed?	On-going coursework assessment (this constitutes 50% of the GCSE) with live lesson feedback and constant peer assessment.
Resources to use	All resources are supplied by the school. Design & Research: http://www.technologystudent.com/designpro/despro1.htm
Enrichment opportunities	Further reading opportunities: WJEC Eduqas GCSE (9-1) Design and Technology - Ian Fawcett, Jacqui Howells, Dan Hughes, Andy Knight, Chris Walker, Jennifer Tilley. ISBN: 9781510451346. BBC Bitesize: https://www.bbc.co.uk/bitesize/guides/z6hxx39/revision/1 Visit: Design Museum, London. EDF visitor centre – Cumbria, Centre for Alternative Technology – Wales, Science Museum – Manchester, Magna Centre, Rotherham. Online 3D modelling tutorials for FormZ.

Year 11 - Half Term 3 – Non-Examined Assessment (NEA)

Prior Learning	In previous term you will have commenced your initial research for the GCSE A01 coursework tasks.
What will I learn?	This term, you will move on to complete the A02 section which involves generating lots of initial ideas before moving onto exploring and developing them further. You will learn to use a range of ways to resolve problems and difficulties with your ideas to develop a successful and fully considered prototype. Your approach to this can involve sketches, 3D modelling as well as physical models. An iterative approach to developing your ideas will be explored, where ideas are tested / reviewed against your brief, specification and user's requirements.
Next Steps	This all links to the completion of the GCSE A02 part of your coursework. The coursework of which, will ultimately be 50% of your GCSE grade. You will research and record information in an informal sketchbook, both in lessons and at home. The design processes and testing of ideas of this terms course shares similarities with pupils wanting to study Product Design at A-Level or similar BTEC Engineering options.
Personal Development	Working through numerous problems and solving them. It will develop good communication - Explain and present ideas clearly and effectively. Use as appropriate verbal, written and graphical methods of communication. Listening and responding to others' views. Being innovative - Challenge existing ideas. Generate new ones. Question existing thinking. Solve problems to make people's lives better. Being analytical - Embrace new knowledge. Process information. Apply experiences from other subject areas. Make informed decisions based on knowledge acquired.
Key vocabulary	Innovate, unique, contemporary, schedule, coherent, temporary, ongoing, production, solution, ethics.
How and when will I be assessed?	On-going coursework assessment (this constitutes 50% of the GCSE). Interim mock exam. Final GCSE formal exam (constitutes the remaining 50% of the GCSE).
Resources to use	All resources are supplied by the school. Ideas: http://www.technologystudent.com/designpro/ideas1.htm
Enrichment opportunities	You will be able to take materials home to develop your prototypes. Further reading opportunities: WJEC Eduqas GCSE (9-1) Design and Technology - Ian Fawcett, Jacqui Howells, Dan Hughes, Andy Knight, Chris Walker, Jennifer Tilley. ISBN: 9781510451346. BBC Bitesize: https://www.bbc.co.uk/bitesize/guides/zvgvgdm/revision/1 The following movies specifically relate to design and prototype development: https://www.youtube.com/watch?v=f1dFyj1QzG0&t=4s https://www.youtube.com/watch?v=idpedDg_2ts https://www.youtube.com/watch?v=XBZk3G0c1kU