

Year 11- NEA (Non-Examination Assessment) - Design and Technology: Textiles

| Rationale and Context of Unit: | Core curriculum content: | Tier 2 & Tier 3 vocabulary explicitly taught: |
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| <p>The purpose of the NEA is to undertake a design, make and evaluate project which will test students' skills in designing and making a prototype. It requires students to work across different parts of the qualification and to show their accumulated knowledge and understanding. The assessment enables students to show their ability to combine their skills, knowledge and understanding with breadth and depth of the subject.</p> <p>Students will be encouraged to use creativity and imagination when applying an iterative design process to develop and modify designs, and to design and make a prototype that addresses the needs of the end user.</p> | <p>Students will undertake a single project as part of their non-examination assessment which is worth 50% of their final GCSE (component 1). The contexts change each year and will be released on the 1st of June by the exam board, Edexcel. Students are required to respond to and analyse a given contextual challenge from a range of three. Having selected a contextual challenge to work with, students should develop a range of potential ideas and then realise one through practical making activities. Students will create a design portfolio and a final prototype which they will work on from the 1st of June until the following March.</p> <p>Alongside their NEA, students will have theory lessons to prepare them for their final exam (Component 2) which is at the end of Year 11. After the deadline for the NEA students will recap on the theory covered in KS3 and KS4.</p> <p>The NEA main focus is:</p> <ol style="list-style-type: none"> 1. Investigate (16 marks) <ul style="list-style-type: none"> - Investigate of needs and research | <ul style="list-style-type: none"> • Product Analysis • Client • Design Brief • Product Specification • Prototype • Development • LCA – Life Cycle Assessment • Quality Assurance • Quality Control • Performance • Function • Form • Design Strategies • Iterative Design • Jigs • Patterns • Modelling • Components • Techniques • Annotated • Properties • CAD – Computer-Aided Design |

| | <ul style="list-style-type: none"> - Product Specification 2. Design (42 marks) <ul style="list-style-type: none"> - Design Ideas - Review of initial ideas - Development of design ideas into a chosen design - Communication of design ideas - Review of chosen design 3. Make (36 marks) <ul style="list-style-type: none"> - Manufacture - Quality and accuracy 4. Evaluate (6 marks) <ul style="list-style-type: none"> - Testing and evaluating <p>Student's portfolio will consist of approximately 20 A3 pages and most of the NEA work will be completed in the classroom. The prototype must be completed in school.</p> | <ul style="list-style-type: none"> • CAM – Computer-Aided Manufacture • Sustainability • Manufacture • Evaluation <p>Examination command words:</p> <ul style="list-style-type: none"> • Calculate • Describe • Discuss • Evaluate • Explain • Give/State/Name • Identify |
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| Challenge and Support: | World wide learning/ links to 21 st century: | Cultural capital/ Industry/ Enrichment: |
| <p>Examples of NEA are provided. Keywords clearly visible in classroom. Students can use writing frames used in KS3 and Year 10. For example, ACCESS FM and product specification.</p> <p>Technician support available in some lessons to support students and the help with the equipment.</p> <p>Students are stretched and challenged with their design ideas and practical pieces. Students will be encouraged to</p> | <ul style="list-style-type: none"> • The NEA allows students to research into real world problems, with associated needs, wants and values of the end user. • The course allows a wide range of skills to prepare students for the 'real world'. These include: <ul style="list-style-type: none"> • Cognitive skills | <ul style="list-style-type: none"> • Students learn to be imaginative and creative, can problem solve, learn to take risks and becoming resourceful. • Students consider the costs, commercial viability, and marketing of their products. • Students can demonstrate safe working practices. |

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| <p>think and express for themselves in original ways, generate and develop ideas, define problems, push the boundaries for textiles techniques to exploit the potential of their individual prototype. Contextual challenges are open for interpretation and learners should work on the challenge selected to identify a design problem/situation, rather than directly identifying a product.</p> <p>Scholarly directed reading – Research tasks allow students to be directed to websites and textbooks. Opportunities for students to read allow in class and provide oral feedback and contribute to class discussions.</p> <p>Exam theory – challenging exam questions. Mark schemes provided.</p> <p>Lunchtime sessions and afterschool sessions provided to offer extra support.</p> | <ul style="list-style-type: none"> ● Problem solving – expert thinking, metacognition, creativity ● Critical thinking ● ICT literacy ● Oracy skills ● Relationship-building skills. ● Collaborative problem solving ● Adaptability ● Self-management and self-development. | <ul style="list-style-type: none"> ● Students work independently on their own research. This will include primary research and students are encouraged to attend events associated with their chosen design problem. |
| <p>Historical, Social, Moral, Spiritual, Cultural context:</p> | <p>Cross curricular links/ literacy/numeracy:</p> | <p>Common misconceptions:</p> |
| <ul style="list-style-type: none"> ● The study of design and technology seeks to prepare students to participate confidently and successfully in an increasingly technological world. It helps students to be aware of, and learn from, wider influences on design and technology, including historical, social/cultural, environmental, and economic factors. ● The following are topics from the specification which are covered in Year 10 and Year 11. <p>1.1 The impact of new and emerging technologies</p> | <ul style="list-style-type: none"> ● Mathematical skills - <ol style="list-style-type: none"> 1. Arithmetic and numerical computation 2. Handling data 3. Graphs 4. Geometry and trigonometry <p>Mathematical skills represent 15% of the overall exam paper.</p> <ul style="list-style-type: none"> ● Scientific knowledge – | <ul style="list-style-type: none"> ● The final prototype can be made from a range of materials and does not have to be textiles. Other materials available are metal, polymers, timbers, paper, and boards. ● Design fixation – some students are fixed on their design idea but need to consider their design brief and client/user. Some students wish to design for themselves rather than the given design contexts. |

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| <p>1.2 How the critical evaluation of new and emerging technologies informs design decisions: considering contemporary and potential future scenarios from different perspectives, such as ethics and the environment.</p> <p>1.3 How energy is generated and stored in order to choose and use appropriate sources to make products and power systems.</p> <p>1.14 Investigate environmental, social and economic challenges when identifying opportunities and constraints that influence the processes of designing and making.</p> <p>6.2 The sources, origins, physical and working properties of natural, synthetic, woven and non-woven, knitted, blended and mixed-fibre textiles and their social and ecological footprint.</p> <p>6.3 The way in which the selection of natural, synthetic, blended and mixed-fibre textiles is influenced by.</p> | <ol style="list-style-type: none"> 1. Use scientific vocabulary, terminology, and definitions 2. Life cycle assessment and recycling 3. Using materials <ul style="list-style-type: none"> • Business <ol style="list-style-type: none"> 1.2.2e – Communication 1.17.1 – Develop and use a range of communication techniques and media to present the design ideas 2.3.2 – Environmental factors 3.2.7 – Social footprint 3.2.8 – Ecological footprint 3.3.5 – Social factors 3.3.6 – Cultural and ethical factors • Art and Design <ol style="list-style-type: none"> 1.15.1 – Analysing a product 1.15.1 – Strategies, techniques and approaches employed when investigating and analysing the work of others 1.17.1 – Develop and use a range of communication techniques and media to present the design ideas 1.17.2 – Record and justify design ideas clearly and effectively using written techniques 2.2 – Review of Initial Ideas 2.3 – Development of design ideas into a chosen design 2.5 – Review of chosen design 4.1 – Testing and evaluation • Geography <ol style="list-style-type: none"> 1.2.2e – Communication 1.17.1 – Develop and use a range of communication techniques and media to present the design ideas 4.1 – Testing and evaluation 2.3.2 – Environmental factors 3.2.7 – Social footprint 3.2.8 – Ecological footprint 3.3.5 – Social factors 3.3.6 – Cultural and ethical factors • Computer Science <ol style="list-style-type: none"> 1.6.1 – Sensors 1.6.2 – Control devices and components 1.6.3 – Outputs 1.15.1 – Strategies, techniques and | <ul style="list-style-type: none"> • Feedback constraints and limitation on writing frames. Unfortunately, teachers are unable to give direct feedback. Some students struggle to work independently on their project and request direction which cannot be given. |
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approaches employed when investigating and analysing the work of others 2.3.2 – Environmental factors 3.2.7 – Social footprint 3.2.8 – Ecological footprint 3.3.5 – Social factors 3.3.6 – Cultural and ethical factors

Assessment timeline:

Assessment Objectives

| Students must: | | % in GCSE |
|----------------|--|------------|
| AO1 | Identify, investigate and outline design possibilities to address needs and wants | 10 |
| AO2 | Design and make prototypes that are fit for purpose | 30 |
| AO3 | Analyse and evaluate: <ul style="list-style-type: none"> design decisions and outcomes, including for prototypes made by themselves and others wider issues in design and technology | 20 |
| AO4 | Demonstrate and apply knowledge and understanding of: <ul style="list-style-type: none"> technical principles designing and making principles | 40 |
| Total | | 100 |

NEA portfolio will be internally assessed and externally moderated.

Component 1 – Exam 50%

Component 2 – NEA 50%

Breakdown of Assessment Objectives

| Component | Assessment Objectives | | | | Total % for all Assessment Objectives |
|-----------------------|-----------------------|-----------|-----------|-----------|---------------------------------------|
| | AO1 % | AO2 % | AO3 % | AO4 % | |
| Component 1 | 0 | 0 | 10 | 40 | 50 |
| Component 2 | 10 | 30 | 10 | 0 | 50 |
| Total for GCSE | 10 | 30 | 20 | 40 | 100 |

Home learning

Homework set every fortnight which links back to either their NEA or exam theory.

Homework includes:

- GCSE Pod
- Seneca

- Primary research
- Design Ideas
- Client research/feedback

Feedback

- Feedback constraints mean that a teacher cannot give direct feedback throughout the NEA, although generic feedback can be given.
- Throughout the year, students are free to revise and redraft their NEA before submitting the final piece for assessment in March.
- Once work has been submitted for marking it may not be given back to students.
- NEA Assessment - Teachers are unable to give detailed feedback to individual students about how to improve work to meet the assessment criteria. The guidance provided before final submission should enable students only to take the initiative in making amendments, rather than detailing what amendments should be made. This means that teachers must not provide templates and model answers for the work of specific students. Teachers are unable to mark work provisionally and share that mark so that students may then improve it. Teachers are unable to give guidance on how to make improvements to the portfolio in order to meet the assessment criteria so that students are no longer engaged in independent learning.

Length of unit (duration indicated in lessons)

| <u>June</u> | <u>July</u> | <u>September</u> | <u>October</u> | <u>November</u> | <u>December</u> | <u>January</u> | <u>February</u> | <u>March</u> | <u>April</u> | <u>May</u> | <u>June</u> |
|-----------------------|-------------|------------------|------------------|-----------------|-----------------|----------------|-----------------|--------------------|-----------------------|------------|-------------|
| 1. <u>Investigate</u> | | | 2. <u>Design</u> | | | 3. <u>Make</u> | | 4. <u>Evaluate</u> | 5. <u>Exam Theory</u> | | |

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| <ul style="list-style-type: none"> • Investigation of needs and research • Design Brief • Product Specification | <ul style="list-style-type: none"> • Initial Design Ideas • Review of design ideas • Development of design ideas • Review of chosen design | <ul style="list-style-type: none"> • Manufacture of prototype • Manufacturing log • Quality and accuracy • Materials/Techniques/Equipment | <ul style="list-style-type: none"> • Testing • Life-Cycle Assessment • Client Feedback • Evaluation | <ul style="list-style-type: none"> • Recap exam specification |

