GCSE Product Design Curriculum Unit Overview Year 11

Intent:

Intent of D&T is to be a thriving, inspirational and practical subject which produces students who explore their creativity, embrace challenge and achieve their best whilst considering the needs, wants and values of others and the wider world. Students acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. They learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world.

- Develop their creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.
- Critique, evaluate and test their ideas and products and the work of others.
- Provide suitable problems or themes to work from.
- Develop understanding and skills how sources, experiments and investigations can be used to inform ideas.
- Develop skills to use specialist materials, tools, techniques and machinery safely.
- Develop understanding of the importance of selecting sources, methods and techniques suitable to intentions.
- Develop their skills and understanding of technological developments such as CAD and CAM.
- Build an understanding how the subject plays a vital part of STEM by developing skills to think ad intervene creatively to improve quality of life.

Implementation:

Students from all year groups are given the opportunity to extend their current D&T experience by exploring and experimenting with a wider range of techniques and equipment in a safe and relaxing environment. Attendance to extra curriculum club has increased steadily in numbers, especially attendance by the younger students in the school.

Work produced during these lunchtime clubs are often used and displayed within the school to celebrate success and inspire others.

Impact:

Students in Y10 and 11 follow the AQA GCSE Design and Technology course. The exam boards 3 assessment objectives (Identify, investigate & outline design possibilities; Design & make prototypes that are fit for purpose; Analyse & evaluate) and taxonomy for assessment are used to assess students and measure progress.

From Y7 students Schemes of works are planned to develop students' knowledge and skills by having appropriate coverage of content for the year group which are structured and sequenced to build the knowledge of topics and skills in layers.

By the time students reach Y10 they will have experienced a broad enough D&T curriculum to work with some confidence and independence. Students will have evaluated their progress and knowledge, they will be able to select their favourite methods, materials and approaches.

We encourage all students in KS4 to consider DT/Engineering futures. We offer specific careers information through displays and discussion. SOL have been developed in GCSE DT and Construction that focus on post 16 options.

Students in KS4 are actively encouraged to consider further study at BSF – A level DT -Product Design. At KS5 students deepen their knowledge gained at KS4 and have the opportunity to become creative, independent learners. KS5 classes are a visible asset to the department. They are our key role models for younger years. Many past students have successfully completed the A level course and progressed to STEM careers or higher education

GCSE Product Design - Year 11 Autumn 1 – Learners continue the 35-page NEA or Coursework Folder which is 50% of their GCSE				
Specification Content	**What knowledge, understanding and skills will we gain?**	**Evaluation and assessment methods**	**Implementation**	**What additional resources are available?**
NEA (coursework 50% of GCSE) Section C: Generating design ideas Section D: Developing design ideas	Knowledge: Learners start revisiting the material already covered in Y10 within the context of NEA. Understanding: Leaners are proficient in the different creative design strategies they can draw upon to communicate their design ideas Skills: Develop sketching, annotating, rendering skills. Are proficient in the iterative design process.	• Successfully submit section A,B and C to deadlines (from last term) • Learners show a clearly progressive folio where one decision leads onto another. • continuously analyse and evaluate their work • Learners are showing highly creative and even innovative approaches and solutions to their design problems.	Revisit Section A - Identifying & investigating design possibilities Revisit Section B - Producing a design brief & specification Note: Having completed two mini folios (Memphis bottle opener and Art Deco clock) learners can reference this prior learning during their actual NEA under the exam rules	NEA tracker with spaced deadlines for submission of each section. Use of TEAMs for file management and versioning control. Step by step checklists provided so students cannot miss off work. Dedicated support PPTs available on TEAMS to support each section. Exemplar NEAs
Theory work (in preparation for exam (50% of GCSE) Any relevant theory relevant to NEA context Mock Exam	Knowledge: Sketching techniques, modelling, CAD drawings, exploded diagrams, Isometric drawings. Understanding: Answering exactly what the exam questions ask of the. Use NEA to inform their understanding of the theory. Skills: Develop exam skills. Exam timekeeping. Hit high value questions.	• Good quality communication of designs • Modifications and alterations to the learners' design journey is informed by theory	Revisit Design strategies in previous mini NEAs as this will inform their current NEA	DT Seneca resource AQA Text/Exercise Book Past paper exam question database. Homework pack provided with self-assessed qqquestions ab

GCSE Product Design - Year 11 Autumn 2 – Learners continue the 35 page NEA or Coursework Folder which is 50% of their GCSE				
Specification Content	**What knowledge, understanding and skills will we gain?**	**Evaluation and assessment methods**	**Implementation**	**What additional resources are available?**
NEA (coursework 50% of GCSE) Section E: Realising design ideas (Or making their product prototypes)	Knowledge: Using appropriate materials, ordering material to correct stock sizes, using appropriate workshop equipment. Understanding: Can calculate costs of quantities from material orders. How many components can be made from a certain quantity of material? Skills: Using production aids effectively (Jigs and templates etc) to assist gaining consistent quality.	• Successfully submit section C & D to deadline • work with a range of appropriate materials/components • using specialist tools and equipment (CAD/CAM) • continuously analyse and evaluate their work • making prototype(s) through a variety of techniques, equipment, and skills • Learners communicate the above clearly through their digital folios. • Successfully submit section E to deadline	Reference to mini NEAs in Y10.	Use of TEAMs for file management and versioning control. Step by step checklists provided. Dedicated support PPTs available on TEAMS to support each section. Links to Maths Exemplar NEAs
Theory work (in preparation for exam (50% of GCSE) Any relevant theory for NEA context but mainly looking at how a products can be manufactured commercially beyond a workshop environment	Knowledge: What production techniques would be used in industry? How could production be scaled-up? W Understanding: Use NEA to inform their understanding of the theory and suggest manufacturing approaches for roll-out of product in NEA. Skills: Develop exam skills. Exam timekeeping. Answering extended questions to mark weighting.	• Can answer extended essay style questions on materials, production techniques and specialist principles with Point-Evidence-Example approach. • Learners use the NEA as the examples in answers	Reference to NEA learning Reference to past Mini NEA practical work.	DT Seneca resource AQA Text/Exercise Book Past paper exam question database