DT Unit Overview Year 8

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

Product Design – Unit 1 Pewter Jewellery Project				
What are we learning?	**Our intention - What knowledge, understanding and skills will we gain?**	**Evaluation and assessment methods**	**Implementation**	**What additional resources are available?**
Design Iteration	**Knowledge** – Know how to generate ideas with a range of techniques. Conduct research Glossary will be created to define key words **Understanding** - Analyse research and existing products to inform design choices Review on how to analyse products. **Skills** - Use of design strategies to generate design ideas using multiple methods. Iterative design. Review on design strategies and introduction to new strategies to generate ideas.	Students develop a specification, consider alternative, suitable ideas, and present aesthetic detail fully in their design sketches using a different design strategy. Use iterative designs to change and modify	Creating ideas from year 7. Draws on drawing and sketching skills	Teacher demo. Existing examples of sketches Existing products
Design Development - Modelling and CAD/CAM	**Knowledge** - Modelling methods. Use of ICT. Size and measurements. **Understanding** - Use models. Introduction to CAD and 2D Design. **Skills** - Modelling and developing idea through plasticine and paper modelling. Using dimension tools to create accurate moulds using 2D Design. Review on testing ideas using a new material area.	Accurate model used to generate 2D design representation to cut on laser cutter.	Maths – use of proportion and sizes.	CAD how to guides.

Making - Pewter Casting	**Knowledge** - Metals and their properties. Why pewter is a suitable metal. Casting process. Understand the classification of metals into ferrous, non ferrous and alloys. **Understanding** - Understand the pewter casting process. The properties of metals and the stock forms. **Skills** - Cast own design. Filing and finishing of metals using a range of abrasive papers and polish.	Successful cast on first go. Smooth and shiny finish on piece Completed- formed into jewellery.	Use of tools from year 7 Recall of H&S throughout all projects.	Teacher demo. step by step guide Existing moulds & products
Making - Packaging	**Knowledge** - Identifying what information is included on gift packaged items. **Understanding** - Developing nets and graphics for gift boxes to package pewter. Pros and cons of methods. **Skills** - generate own packaging. Evaluation. Review on packaging and what information should be included.	Correctly constructed net and graphics. Highlighting pewter product. Basic evaluation of products – WWW/EBI	Packaging for pen project year 7. Independent work based on prior learning.	Existing products.

Product Design – Unit 2 Slot Lamp Project (CADCAM)				
What are we learning?	**Our intention - What knowledge, understanding and skills will we gain?**	**Evaluation and assessment methods**	**Implementation**	**What additional resources are available?**
Design Iteration - Strategies for design – Avoiding design fixation.	**Knowledge** – Design strategies, recap learning from year 7. Introduce new skills for design. **Understanding** – Reading and understanding design briefs. Understanding the needs and wants of the client. **Skills -** Design skills, avoiding design fixation.	Varied range of design ideas that meet the needs/wants of the client. Ideas meet the requirements of the design brief.	Design skills introduced in year 7 pen project.	Resource packs, detailed SOL PPT.

Design Development - Modelling and CAD/CAM 2D and 3D CAD.	**Knowledge** - Modelling methods. Use of ICT. Size and measurements. **Understanding** - Use models. Introduction to CAD and 2D Design. **Skills** - Modelling and developing idea through card modelling. Using dimension tools to create accurate moulds using *TechSoft Design*. Review on testing ideas using a new material area. Developing CAD skills using 3D CAD, *SolidWorks*. Assembling parts in *SolidWorks*.	Accurate model used to generate 2D design representation to cut on laser cutter.	Maths – use of proportion and sizes.	CAD how to guides.
Making - CAM	**Knowledge** – CAD to CAM. How products designed on TechSoft Design and SolidWorks are made using Laser cutters/3D printers. **Understanding** – How designs are developed for manufacture. Using the laser cutter in school. **Skills –** Developing a design that slots together. Accurate use of CAD CAM.	A slot together lamp constructed without the need for glue/mechanical fixings.	Builds of CAD use in Yr8 Jewellery project.	Exemplar practical work.
Evaluation – Future improvements.	**Knowledge** – Techniques for evaluation. WWW, EBI, future improvements, feedback from peers.	A detailed evaluation with clear targets for improvement. Detailed design sketches showing/explaining future improvements.	Building on Yr7 and Yr8 evaluations.	Exemplars in SOL PPT.