

## GCSE Design & Technology Year 10

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	<b>Slot Product</b> Developing a slotted product through an iterative approach Development of CAD/CAM skills	<b>Into the Woods</b> Investigation into timber based materials through practical application.	<b>Plastics, Metals Textiles, Smart Materials &amp; Biomimicry</b> Mini projects that explore exam content and continue to develop design skills	<b>Energy, 6rs, Product Analysis</b> Mini projects that explore moral, social and economic aspects of designing	<b>Sustainable Building</b> Prototype development of a sustainable structure utilising new and emerging technologies	<b>NEA (Non-Exam Assessment)</b> Start of project worth 50% of GCSE grade.
Assessment	Assessment of iterative approach to designing End of project summative assessment	Assessment of practical skills and technical knowledge	Assessment of worksheet tasks	Assessment of worksheet tasks	Assessment of creative use of exam content knowledge in a design context	Self-assessment of NEA against the AQA specification criteria

Building on Prior Learning	Students will use the skills and knowledge developed in Years 8 and 9 as a foundation for a confident and informed approach to design and making activities.
Links with other subjects	This subject links with Art (sketching and creative skills), Business (income, economy, industry) Science (biomimicry, investigations, properties of materials, energy, forces and electronics – remember technology is the appliance of science!), English (annotation, evaluation, instructional and descriptive language, literacy links, extended writing), Geography (designing solutions to global issues such as climate change, ethical sourcing of materials, energy production), History (industrial revolution, inventions that changed the world), ICT (word processing, research, graphs, data processing, programming and CAD/CAM – computer aided design and computer aided manufacture), Maths (weights and measures, quantities, costings, graphs, analysis of data, geometry)
Extracurricular opportunities	On Wednesday Evenings students can continue to develop their class projects at our KS4 D&T Club. . On Friday students can spend time in the department making products for the Duke of Edinburgh Award skills component. Appropriate school trips to design and manufacturing companies will be offered. Arkwright Scholarship: DSHS have had 6 Arkwright Scholars over the past 5 years. Prospective Year 10 candidates meet every fortnight to create an engineering or design project and prepare for the Arkwright aptitude test.
A successful learner in this subject will demonstrate	GCSE Design and Technology will students will show that they can participate confidently and successfully in an increasingly technological world. Students will show awareness and learn from wider influences on Design and Technology including historical, social, cultural, environmental and economic factors. Successful students will work creatively when designing and making and apply technical and practical expertise.
Impact on personal development	Design and Technology opens up a wide range of opportunities to explore a range of issues from the world around us. Students are encouraged to work together to complete their projects and to share resources. Designing for others also develops empathy and they are encouraged to be mindful of the products they create and the impact they have on society from a moral and ethical perspective. Sustainable production and environmentally conscious design are at the heart of the subject.

Ways to support student learning in this subject



- Discuss the many careers that use the skills developed in D&T.
- Trips to interactive museums (e.g THINK Tank, National Transport Museum in Gaydon, V&A, Ironbridge, Science Museum, Design Museum, RAF Cosford) can inspire the budding designers, inventors and engineers of tomorrow.
- Students are encouraged to keep sketch books, take photographs and collect examples of innovative and creative designs.
- There are many free software programs that students can download or access online to develop their CAD/CAM skills. These include Sketchup, Autodesk Fusion 360, Autodesk Inventor and Blender. Many students have designed products at home and then had them manufactured on the school's 3D Printer.
- Look out for any design and creative competitions on TV, radio, or in the newspaper – these can be a fantastic way to get excited about designing and creating! Several DSHS students have found success in competitions, winning prizes and enhancing career prospects.
- Programs like 'How It's Made?' and 'The Gadget Show' introduce students to a range of innovative products and improve their understanding of how our world is made.
- Students are encouraged to read books, magazines (Wired) and articles about design and innovative products on-line (Dezeen, Design Boom, Interesting Engineering)
- When completing homework tasks 'go the extra mile' and thoroughly research the topic areas, practice making models in 3D from resources found at home including card and Lego.
- Students are encouraged to enjoy and have fun in Design and Technology
- Students should be encouraged to make mistakes and learn from them.