

What are the aims and intentions of this curriculum?

To develop more independent responses to briefs. To further knowledge of materials and processes within the DT workshops. To continue to practise individual skills; sketching, researching, analysis, practical and evaluation. To further student understanding of working with polymers, metals and timbers. To prepare students with the materials and processes knowledge in addition to the wider implications of design in preparation for the exam unit.

Term	Topics	Knowledge covered	Skills developed	Assessment
Autumn 1	Clock project Practice NEA style project	Primary research - standard components. Secondary research - existing products. Material analysis - timber & polymers. Sketching freehand & isometric. Developing designs using CAD - Solidworks.	Analysis of existing products. Measuring and sourcing standard components. Evaluating material properties. Using Solidworks to create 3D visuals - accurate renders. Designing to scale.	NEA style documentation of project marked against NEA criteria - Research and design sections.
Autumn 2	Clock Project Continued Practice NEA style project	Exploded drawings and technical drawings to plan for manufacture. CAD CAM (Solidworks, 2D Design, Laser Cutter) Temporary and permanent joining methods for timber and polymers. Surface treatments and finishing methods for timber and polymers.	Creating exploded isometric drawings using Solidworks. Creating 3rd angle orthographic drawings. Planning manufacture. Safe practise using pillar drill, jigsaw, sanding machines, traditional making, CAD - 2D Design, programming the laser cutter. Modifying, evaluating own products. Independent reflection.	NEA style documentation of project marked against NEA criteria - development, manufacture, evaluation sections. Written exam paper on material properties, all materials core technical principles. Processes, CAD & CAM, analysis and maths application.
Spring 1	Mechanical devices Forces and stresses Energy generation and storage Developments in new materials	Using jigs to create mechanisms. Investigating existing mechanisms to solve problems. Investigating forces and structures - egg drop/bridges testing forces. Investigating modern & smart materials, composites and technical textiles.	Analysis and evaluation of existing products - using subject specific terminology to assess products. Practical testing of material properties, testing structures against forces. Problem solving and modification of designs/models. Structuring 8+ mark questions for exam prep.	Exam style questions including longer answers (8+ mark questions)
Spring 2	Ecological & Social footprint Sustainability, environment and ecological effect of designs	Understanding the responsibility of the designer and manufacturer. Redesigning 'bad' products. Using cradle to cradle approach to improve products.	Practise exam style questions. Structuring 8+ mark questions. Analysis of products using material properties knowledge. Written tasks.	Exam style questions including longer answers (8+ mark questions)
Summer 1	Ergonomics & Anthropometrics Designers & design movements	Applying ergonomics and anthropometrics to evaluate existing designs and own designs. Designing inclusively. Modelling using foam, MDF and polymorph. Using anthropometric data to create ergonomic products. Using the work of others to inspire own designs.		Exam style questions including longer answers (8+ mark questions)
	NEA	NEA topics released - exploration of tasks.	Analysis of existing products. Disassembly of existing	NEA marked in line with AQA