

GCSE Design Technology: Product Design

Subject Leader: Mr J Fulson

Email: jfulson@taptonschool.co.uk

Curriculum Intent: To demonstrate their knowledge, understanding and skills through interrelated iterative processes that 'explore' needs, 'create' solutions and 'evaluate' how well the needs have been met.

Core Knowledge

Y10 Topics:

- Types of Timber and Their Properties
- Preparation and Processing of Timber
- Timber Joining Techniques
- Manufacturing Methods and Workshop Techniques
- Finishing and Surface Treatments
- Design and make a Stool on CAD and in the workshop
- Start their NEA in June

Procedural Knowledge

Students will:

- Students will understand the differences between hardwoods, softwoods, and manufactured boards, learning how their structure, origin, and physical properties influence their selection for specific products and applications.
- Students will learn how timber is processed from tree to usable material, including seasoning, conversion methods (such as plain and quarter sawing), and the environmental impact of forestry and deforestation.
- Students will explore traditional and modern joining methods, including butt joints, dovetail, halving joints, dowels, screws, nails, adhesives, and mechanical fixings, understanding their applications and relative strengths.
- Students will develop practical skills in cutting, shaping, drilling, sanding, and assembling timber using hand tools, power tools, and machinery such as the band facer, scroll saw, and pillar drill, with an emphasis on accuracy, efficiency, and safety.
- Students will investigate a range of finishing techniques including sanding, staining, painting, waxing, oiling, and varnishing, understanding how these treatments improve the durability, appearance, and function of timber products.
- Students will develop the core theoretical knowledge required for the exam through a combination of structured lectures and computer-based learning. This approach allows them to engage with key concepts such as materials, manufacturing processes, sustainability, and design theory in a focused and interactive way.

Y11 Topics

- Students will continue to develop their Non-Examined Assessment (NEA) by refining their design work, developing prototypes, and responding to feedback. They will focus on exam technique and structured revision to prepare effectively for their final written examination.

Progress their NEA by developing design ideas, improving prototypes, and meeting key assessment criteria.
Refine and annotate design work in response to feedback and user testing.
Practise exam-style questions to build confidence and familiarity with the assessment format.
Use revision strategies and targeted resources to consolidate core knowledge in preparation for the final exam.

Homework:

Weekly quizzes on core content.

Later on, NEA work each week.

Revision.

Seneca.

Assessment:

Verbal and informal formative feedback.

Weekly quizzes on core content.

Summative levels for each project.

Assessed and graded exams at assessment weeks.

Assessed past paper questions.

Links to Personal Development:

KS5 Sixth Form A Levels in Product Design or Design Engineering.

Level 3 apprenticeships.

How is my knowledge developed further at Key Stage Five?

The skills learnt at GCSE enable students to enter the A Level course with the necessary skills to complete coursework and respond to design briefs.