Year 10 & 11 DT Resistant Materials overview

1: Slider Box x5 lessons/cycle until November

2: Tiny Spaces x5 lessons/cycle until April

Throughout: Core knowledge x 1-2 lessons per cycle

Embedded skills: practical, drawing, CAD, problem solving

* NEA – From June until Feb – 50% of grade.
* Core knowledge & exam practice throughout – Exam at end 50% of grade.

Project 1; Slider Box - Why do we study Resistant Materials?

By studying Design and Technology we allow opportunities to develop skills and knowledge across a wide range of disciplines using creative, practical and computer aided tools. Technology is all around us and is driven by market pull, social factors and clients' needs, which are reflected in the reactive design and manufacture of prototypes and end products. Students must understand the properties of materials across the breadth of subject areas to problem solve and make informed decisions that influence design performance, practicality, aesthetics, suitability and cost. Students will learn to communicate ideas through hand sketching in 2D and 3D, using CAD to develop designs and CAM outputs within their workshop manufactured prototypes.

The slider box project develops pupils' practical skills using new machinery and tools to create more complex construction techniques. Pupils will develop their CAD skills creating the Slider Box with a bespoke laser cut and etched lid. The technical drawings will be used to support the practical tasks and pupils will be expected to begin resolving practical queries independently, proving them with the resilience and knowledge for future bespoke projects.

Practical sawing, sanding, drilling and assembly with the Balance Lamp and Passive Amp

Developing their initial CAD skills making counters, silhouettes and passive amps.

Developing 2D and 3D drawing skills from basic freehand crating

CAD: technical, visual and CAM outputs

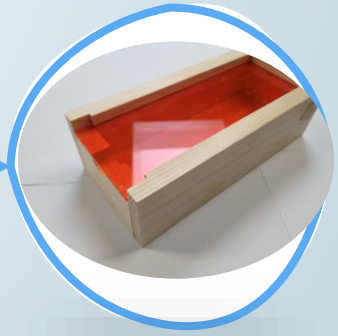
Diary of Making

Polymer forming techniques

Hand sketching skills

CAD: part drawing, assembly.

Manufacture of the slider box (using the CAD drawings & CAM laser cut output)



Core technical, material and exam knowledge to support learning

Project 2;Tiny Spaces - Why do we study Resistant Materials?

By studying Design and Technology we allow opportunities to develop skills and knowledge across a wide range of disciplines using creative, practical and computer aided tools. Technology is all around us and is driven by market pull, social factors and clients' needs, which are reflected in the reactive design and manufacture of prototypes and end products. Students must understand the properties of materials across the breadth of subject areas to problem solve and make informed decisions that influence design performance, practicality, aesthetics, suitability and cost. Students will learn to communicate ideas through hand sketching in 2D and 3D, using CAD to develop designs and CAM outputs within their workshop manufactured prototypes.

The Tiny Spaces project used the pupils strong practical and construction knowledge to develop creative, realistic ideas to design a client's space within a scaled down shipping container. The project intertwines research, investigation activities and client feedback into a series of design creations using various techniques. Pupils will be expected to continue their initial year 9 modelling skills to explore and present their ideas to their client, with ongoing modifications, depending on the feedback. Pupils will finish by creating a scaled version of the Tiny Space design using any tools, equipment and materials available in the workshop.

Practical's skills across timbers, manufactured boards, polymers, metals and electronics from year 10 & 9.

Developing their modelling from FloGlow silhouettes and passive amps.

Developing 2D and 3D drawing skills from basic freehand crating

Research & investigation: target market, client

Initial ideas; concepts, work of others

Developing ideas; testing, prototypes, anthropometrics

Manufacturing scale designs

Research & investigation: context analysis

Brief & specification

Paper & card modelling prototypes

CAD Technical drawing for manufacture

Evaluation & client feedback

Core technical, material and exam knowledge to support learning