

Scheme of Learning:

Topic Sequence: Year 9 DT/FOOD/COMPUTING Rotation

1	2	3
Timber/Polymers/Standard Components Clock Box	Food Technology	Computing

Topic Overview:

This project builds upon the skills and knowledge from the Year 7 and 8 Design & Technology curriculum. It allows students the chance to revisit working with timber and polymers, developing an understanding of more advanced construction methods, adhesives and finishing methods. Students are also introduced to the concept of standard components and will gain a deeper knowledge of material stock forms, and categories of timber based materials.

This is students' first introduction to working with flexibly and acrylic. Students will learn how lamination allows them to form timber based materials into curved surfaces. Students will develop a deeper understanding of finishing processes applied to acrylic, which translates across a range of material categories and finishes applied to timber based materials.

The themes running through the project are accuracy and quality. Students will also need to take ownership of managing the time and resources in the classroom, working across multiple stages of manufacture, switching between them with fluency.

Lesson Sequence:

The lessons have been sequenced to build upon students knowledge of timber and polymer based materials, from previous projects in Key Stage 3. This project will introduce more formal timber construction methods – focussing upon cutting and fitting wood joints, working with precision. This requires students to use a range of wood working tools, building their skill ready for GCSE study.

Students will then learn how to manufacture curved parts using formers and lamination. This introduces flexibly and the use of formers – which are a common manufacturing aid. Students will learn how to cut and finish acrylic parts by hand, in contrast to using CAD and CAM, building upon prior learning.

In this project, the students will be more responsible for directing their own practical activities, lesson to lesson, rather than follow one prescribed route, they will be shown a range of manufacturing processes, then take ownership for completing individual aspects over a series of lessons. Students will learn about the broad range of finishes that can be applied to timber based materials, to preserve and protect the material from damage and marks. They will gain an understanding of the functional and aesthetic properties of each and their correct application.

Students will learn about the timber life cycle, making reference to it being a sustainable resource. This will lead onto learning about stock forms, to further develop their knowledge of this important material category.

The concept of “scales of production” will be covered during this project. Students will gain an understanding of the differences between bespoke/batch and mass production. This will be explicitly linked to the practical activities and standard components used in this project. Quality control and assurance will feature in this stage of the project, to allow students to reflect upon the quality of the individual parts of their project, with time to improve and refine them prior to final assembly.

Students will learn about “standard components”, including those used in the project and more broad subject knowledge. Students will develop an understanding of how mechanical fittings are used routinely in products manufactured at all scales of production, for efficiency.

Students will complete their manufacturing, with an opportunity to “finish” any timber parts.

Sequence of Lessons:

1	Wood joint and basic timber processing
2	Flexibly handling and use of formers/laminating
3	Wood joint fitting and adhesives
4	Man made boards knowledge and processing (CNC)
5	Marking out acrylic and polymers knowledge recap – categories and sustainability
6	Cutting and finishing acrylic
7	Finishing flexibly and knowledge of timber based material finishes
8	Stock forms timber and the timber life cycle
9	Scale of production (one off/bespoke, batch, mas, continuous)
10	Quality Control and Quality Assurance
11	Knowledge Assessment Lesson
12	Acrylic joining and adhesives in depth
13	Standard components and final finishing

Topic Resources:

Knowledge Map:	Clock Box	Prescribed Sources:	None
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Assessment:

Knowledge:	Microsoft Forms Assessment
Application of Knowledge:	Production of a highly accurate, quality clock box

Supportive Reading:

Technology Student	technologystudent.com
Focus Education - Timber based materials	Via the Design & Technology Curriculum Zone on the school website.
Focus Education - Focus on wood joints	Via the Design & Technology Curriculum Zone on the school website.
Focus Education - Surface treatments and finishes	Via the Design & Technology Curriculum Zone on the school website.