

Scheme of Learning: Year 10 Design & Technology

Topic Sequence: Year 10 Design & Technology

1	2	3	4	5
Polymers and electronics - Alessi inspired key fob light	Paper based materials – phone stand	Group Design & Make – Solar powered mechanical toy	Smart and Modern Materials	Mini NEA Project – Moisture Sensor

Topic Overview:

This project offers students an opportunity to work with a group of materials not used during Key Stage 3. The versatility of paper based materials is explored, and building students' confidence to create 3D forms using these materials underpins all future projects. This is especially important when students will need to build mock ups.

Through the duration of the project, there are opportunities to explore the most common materials in this category, their properties and applications. Understanding how this category of materials must be protected/finished allows students to make links between other material categories, reinforcing this knowledge. Students develop their knowledge of a further design strategy and focus upon the construction of high quality models.

Throughout the Year 10 project-based curriculum, students develop their understanding of the design process, to support them in developing the independence required for the "non exam assessment" (NEA), completed in Year 11.

Lesson Sequence:

The sequence of lessons for this project, is driven by the "design process" involved in the design and manufacture of products. Broadly, this can be described using the stages below – those in bold are covered through this topic/project. The stages for most design and manufacture projects would follow a similar chronology. For consistency throughout our Key Stage 4 curriculum, this is based upon the assessment objectives (NEA).

Exploring paper based materials, finishing and suitable methods to construct and join, develops the breadth of knowledge students require. Providing an opportunity to practice using sheet materials to create 3D forms is essential to support students' success in future projects, this is an aspect of design development that ensures students are able to fully develop their design proposals. Students develop their skills in design sketching, including annotation to explain and explore.

Students produce a functional mock up for this project, which provides the opportunity to authentically evaluate their successes and areas for further development. This is a skill required throughout the design process, and needs to be practised.

Identifying opportunities
 Relevant research
 User wants/needs and analysis
 Considered range of design problems
Design brief
 Design specification
Use of design strategies and iterative design
 Social Moral Economic Factors
Testing to develop designs
Fully developed design proposal

Communication techniques
 Planning for manufacture
Worked with materials and components
Produce a high quality prototype
Understanding of materials
Using tools/techniques/processes/equipment
 Evaluation and testing of ideas
Evaluation and testing of prototype
 Further development

Topic Resources:

Knowledge Map:	Y10 Autumn Term	Prescribed Sources:	SENECA Learning
-----------------------	-----------------	----------------------------	-----------------

Assessment:

Knowledge:	Autumn Term Forms Based Assessment
Application of Knowledge:	Key Skills Assessment (Application of Design Strategies, Construction Methods, Final Outcome)

Supportive Reading:

Technology Student	technologystudent.com
Focus Education	Via the Design & Technology Curriculum Zone on the school website.

Sequence of Lessons:

1	Project Brief Launch
2	Paper and Boards Material Knowledge
3	Existing Project Analysis
4	Paper Finishing Techniques
5	Design Strategies: Morphological Analysis
6	Concept Sketches
7	Prototype Mock Up - Practical
8	Prototype Mock Up - Complete
9	User trials and final development