



Year 8 Product Design – Souvenir Lamp

Learning about this topic is important because:

- *This project aims to introduce Year 8 students to the fascinating world of systems and control within the realm of Design and Technology. Throughout this endeavour, students will be tasked with creating a functional desktop LED light, meticulously designed to complement an acrylic panel they've engraved by hand and with the assistance of mechanical engraving tools. The result will not only serve as an educational achievement but also as a product ready for potential retail sale.*
- *This project will enhance your comprehension of electronics, building upon the knowledge you've gained in your physics lessons.*
- *This project, designed for Key Stage 3, will assist in cultivating your product development abilities for clients while simultaneously enhancing your primary and secondary research skills.*

This builds on: *(Primary school experience of D&T varies greatly)*

- *Research skills.*
- *Creative design and problem-solving skills.*
- *Basic electronics understanding building upon the topic of power and electricity.*

This leads to:

- *Basic CAD/CAM and polymer forming skills.*

We will learn:

- *How to design and make to satisfy a contextual challenge*
- *the sources of polymers.*
- *To describe the materials used to manufacture.*
- *To describe thermosetting polymers and their applications.*
- *To explain the advantages of CAD.*
- *To produce a simple 2D CAD drawing.*

We will develop/practise skills including:

- *How to use a soldering iron safely to connect LED lights to a power supply.*
- *Develop workshop skills.*
- *Use hand and mechanical tools to produce a working desktop light*
- *Design skills*
- *Thinking skills*
- *Creative problem solving skills*

Some of the vocabulary that we will use includes:

- *Solder, soldering iron, flux, copper, tinning, Light-emitting diode*
- *Softwood, plywood, counter sink, screw, file, adhesive and acrylic*
- *Primary and Secondary research*
- *Engraving, hand-operated and mechanical*
- *Iterative Design*
- *Samples/prototyping*
- *ACCESS FM, product analysis*
- *CAD/CAM*
- *Laser Cutting, laser engraving.*

You could learn more about this topic by:

<https://www.instructables.com/How-to-solder/>
<https://www.youtube.com/watch?v=a9VxTE3-bbA>
https://en.wikipedia.org/wiki/Laser_engraving
<https://www.youtube.com/watch?v=ww8VfIDSKqE>
<https://www.youtube.com/watch?v=YAji65KyH9bg>

Your teacher will assess your knowledge & understanding throughout the topic by looking at your work, questioning, discussion and giving you feedback in lots of diverse ways. The key pieces of work in this topic are:

- **Practical Outcome:** *Students will centre their attention on achieving the ultimate practical outcome, emphasising their proficiency in working with wood-based materials, soldering electronic components, and their competence in choosing and skilfully employing hand engraving tools to etch a suitable design onto an acrylic sheet.*
- **End of Unit Assessment Test:** *Students will be tasked with completing a comprehensive 30-question multiple-choice test.*