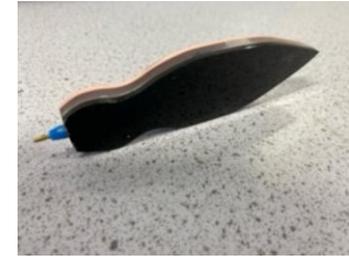


St Benedict's Catholic High School: Design Technology & Engineering

Topic Area: **Product Design**

Activity: **Acrylic Pen**

Time Allocation: **8 hours (inc. hours for manufacture)**



The main aims of the unit

The main aim of this unit is for students to develop understanding of working to a specific set of design restrictions and their ability to produce an accurate high quality finished product. Students are also reminded about the properties and characteristics of plastics and introduced to the concept of user centre design.

In this unit, students tackle a make assignment on the theme of an acrylic pen. They use three layers of acrylic to produce their product and are reintroduced to tools and equipment during the manufacture that have been previously used in previous projects. The unit is very much a practical based task.

Values of the unit

Pupils gain the knowledge, skills and understanding they need to carry out the project successfully through focused practical tasks. They will:

- Learn about health and safety symbols used in industry.
- Learn about working drawings and how to produce and use them.
- Learn how to accurately mark out material using a template
- Learn how to use a jig and the value of such device.
- Learn how to evaluate work at all stages of a project to ensure a successful finished outcome.
- Develop practical skills such as marking out, drilling, sawing, finishing.
- Learn how to use a wide range of tools and equipment safely and successfully.
- Learn how to plan time effectively.

The nature of the project

All of the students will:

- Make an acrylic pen from three layers of acrylic.
- Learn about material properties.
- Produce a working drawing.
- Become familiar with a variety of production methods.

Cross-curricular links

- Maths – Accurate measuring, using millimetres instead of centimetres.

| Activities | Outcomes |
|--|---|
| <p>Set the pupils a task in which they:</p> <p>Use a range of manufacturing techniques such as measuring, marking out, hand-tools to cut materials safely and test for accuracy at key stages of production.</p> <p>Setting the scene – <i>Acrylic Pen</i></p> <p><i>Stationery is a crucial part of the school day – none more so than a pen. Every student is expected to have one so why not make your own.</i></p> | <p>Identify key health and safety information that is seen in industry.</p> <p>Use a range of restrictions to produce a final product.</p> <p>Produce a working finished prototype.</p> <p>Test, modify and make adjustments to improve performance throughout the manufacturing.</p> |

Health and Safety

Health and safety - during the making process, pupils should learn to recognise hazards, assess risks and take steps to control the risks to themselves and others. Pupils will also learn department rules for health and safety including wearing aprons for practical working and removing blazers and ties, wearing goggles when operating machinery etc.