

# Product Design

**“Creativity is allowing yourself to make mistakes, Design is knowing which ones to keep” - Scott Adams**

All PD staff will strive to enthuse, facilitate and shape our Byrchall students to be creative problem solvers who are confident, resilient and most importantly passionate about the products they design and make.

Students will learn to solve problems creatively by experiencing a range of specific subject areas to help develop key skills such as:

- Graphic drawing and modelling techniques
- Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM)
- Resistant Materials – Mood light
- Textiles – Weaving and mascot

Homework will be set in the following formats to support independent learning in our subject:

- Keywords followed by a spelling test in lesson.
- Watching a video to learn a specific skill or to support a research activity.
- Reading an article online with regards to product evolution – new materials/processes and products.
- Practising a particular skill such as:
  - Sketching (2D and 3D)
  - Producing a working drawing with measurements
  - Generating design ideas
  - Developing ideas
  - Simple card modelling
  - CAD (Corel Draw/Google sketch up)
- Collecting research information such as:
  - Imagery/inspiration to help with design ideas
  - Customer interviews/feedback to help with evaluation.
  - Visits to shops to look at existing products
  - Product Analysis to see how something works.
  - Exploring a designer
  - Looking at the work of famous designers

## Resistant Materials

Unit	Duration (lessons)	Learning Objectives/Outcomes
Mood light	10	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Be able to mark out your work ready for shaping</li> <li>• Be able to identify hand tools and equipment and explain what they do.</li> <li>• Be able to list different types of timbers, how they are classified and what the main differences are.</li> <li>• Explain the difference between hardwoods and softwoods.</li> <li>• Develop confidence by working independently and demonstrate safe practices when using hand tools and specialist equipment.</li> <li>• Explore how work can be improved by testing and checking</li> <li>• Be able to communicate ideas using 2D sketches and CAD (Computer Aided Design – Corel Draw)</li> <li>• Be able to prepare designs for machining using CAD/ CAM (laser cutter) and explain how this machine works.</li> <li>• Be able to identify standard and electronic components</li> <li>• Be able to explain the differences between permanent and non- permanent joints.</li> <li>• Work accurately and efficiently to produce a high-quality outcome.</li> <li>• Be able to value opinions from others to help improve your final outcomes.</li> <li>• Be able to explain why timber is a renewable source</li> </ul>
Weaving and mascot	10	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Develop an understanding of textile fibres</li> <li>• Be able to explain the differences between synthetic and natural fibres</li> <li>• Be able to explain where natural fibres come from and why they are classed as a renewable source.</li> <li>• Understand how everyday products use textile fibres in their construction.</li> <li>• Develop and understanding of weaving techniques</li> <li>• Be able to explain the differences between warp and weft</li> <li>• Develop skills in using a weaving loom to create their own woven material</li> </ul>

- Design and make your own unique mascot using textile materials.
- Develop research skills to help explore and inspire your design work
- Be able to create a series of design ideas based on themes.
- Develop skills on how to choose the best ideas to make
- Learn how to transfer your design idea on to fabric by making a simple pattern
- Develop skills in marking out, shaping and joining textile materials using hand stitching.
- Develop skills in being able to evaluate your work to help refine and improve

