

# Product Design

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

All Product Design 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 & make.

Autumn	Spring	Summer
Pizza Cutter	USB Lamp	USB Lamp – Commence NEA Controlled assessment - research

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

Keywords followed by a spelling & meaning test in lessons.

Watching a video to learn a specific skill or to support a research activity.

Practising a particular skill just as:

- Sketching (2D & 3D)
- Producing a working drawing with measurements
- Generating design ideas
- Developing ideas
- Idea modelling
- CAD (Corel Draw/Google sketch up)

Collecting research information

- Measurements to ensure a product in ergonomic
- Imagery/inspiration
- Customer interviews/feedback
- Visits to shops to look at existing products
- Product Analysis
- Exploring a design movement
- Looking at the work of famous designers
- Finding out about careers related to Product Design
- Investigating possible pathways with local colleges & universities
- Finding out local industries & jobs including apprenticeships

Improving theory knowledge & understanding at GCSE.

- Practising exam questions
- Completing interactive quizzes online (Seneca Learning / BBC Bitesize)
- Watching GCSE PODS on key topics.
- Reading Blue Revision Book

Unit	Duration (lessons)	Learning Objectives/Outcomes
Pizza Cutter	13	<ul style="list-style-type: none"> <li>• Be able to explain how designers use primary &amp; secondary data to help understand the needs of your user,</li> <li>• Be able to use ergonomics &amp; anthropometric data when designing your prototype</li> <li>• Be able to create your own design specifications based on your on-going research</li> <li>• Understand what a design strategy is, including iterative design and how to use them to produce creative ideas</li> <li>• Develop your 3D sketching skills to communicate ideas such as isometric &amp; perspective techniques.</li> <li>• Use annotation to show design thinking</li> <li>• Develop 2D &amp; 3D CAD skills to model &amp; improve ideas</li> <li>• Be able to develop &amp; refine ideas using a variety of modelling techniques.</li> <li>• Be able to produce orthographic drawings to aid manufacture</li> <li>• Be able to produce a detailed manufacturing specification which would allow a third party to make your prototype.</li> <li>• Explore how a variety of materials can be transformed from their original standard form into complex shapes.</li> <li>• Select appropriate materials for final idea based on their material properties.</li> <li>• Understand how metal bar can be shaped and drilled.</li> <li>• Understand how &amp; why surface finishes are applied to different materials.</li> <li>• Test ideas to demonstrate that they are viable and will work well.</li> <li>• Be able to apply your maths knowledge to solve technical problems</li> <li>• Understand how to produce a detailed evaluation of your work in preparation for your NEA</li> <li>• Be able to explain how products are made in industry. Explore the benefits of using commercial processes whilst manufacturing compared to making things by hand</li> </ul>

<p>USB Lamp</p>	<p>11</p>	<ul style="list-style-type: none"> <li>• Be able to analyse the design context and identify possible design opportunities.</li> <li>• Use a variety of primary &amp; secondary research to help draw accurate conclusions about how they would like their design ideas to develop</li> <li>• Investigate the work of famous designers to help inspire your own ideas.</li> <li>• Be able to create your own design briefs &amp; design specifications based on your on-going research</li> <li>• Be able to produce creative ideas using a design strategy</li> <li>• Be able to develop design ideas using your specification</li> <li>• Be able to model your ideas to ensure they are fit for purpose</li> <li>• Be able to produce a detailed manufacturing specification which would allow a third party to manufacture your prototype.</li> <li>• Be able to produce final outcomes accurately using tolerances, manufacturing jigs &amp; quality control.</li> <li>• Gain technical knowledge in how products are produced in different volumes &amp; be able to explain the advantages &amp; disadvantages of the different scales of production available. Understand the functions of mechanical &amp; electronic devices and how they are used in everyday products. Understand the differences between physical &amp; working properties of a variety of resistant materials.</li> <li>• Recap on metals &amp; alloys and polymers. Understand how these materials are extracted, processed and made into a variety of standard forms. Be able to explain the environmental impact that using these materials have on our planet and what designers can do to limit the damage.</li> </ul>
<p>USB lamp and final evaluation.</p> <p>Commence Non exam assessment (NEA) – Identify &amp; investigate design</p>	<p>13</p>	<ul style="list-style-type: none"> <li>• Use a range of specialist techniques &amp; appropriate materials to produce prototypes that are accurate &amp; within close tolerances</li> <li>• Explore different finishing techniques to improve aesthetics &amp; durability of prototype.</li> <li>• Test final product, evaluate and make suggestions on how it could be improved.</li> </ul> <p><b>Research section for NEA ( Coursework) A01 A</b></p> <ul style="list-style-type: none"> <li>• Introduce NEA from AQA exam board 2022 – understand how to meet all assessment objective requirements</li> <li>• Research design brief and select a variety of sources to help research the task.</li> <li>• Analyse existing products to gain knowledge on how other</li> </ul>

possibilities		<p>designers have solved the problem.</p> <ul style="list-style-type: none"><li>• Start to collect relevant primary &amp; secondary research to identify possible design opportunities including interviewing your client</li><li>• Analyse findings and produce design criteria suitable for their chosen client</li></ul>
---------------	--	---

