

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 and 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 and meaning test in lessons.
- Watching a video to learn a specific skill or to support a research activity.

Practising a particular skill such as:

- Sketching (2D and 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 and universities
- Finding out local industries & jobs including apprenticeships

Improving theory knowledge and 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 and kitchen spatula	14	<ul style="list-style-type: none"> • Develop skills and techniques when modelling ideas using corrugated cardboard and foam • Be able to explain the importance of product analysis and looking at the work of others when designing a new prototype • Understand how human factors and researching the needs of a client can lead to better ergonomic designs • Be able to create your own design specifications based on your on-going research • Understand what a design strategy is, including iterative design and how to use them to produce creative ideas • Develop your 3D sketching skills to help communicate ideas using isometric and one point perspective techniques. • Understand how annotation shows better design thinking • Be able to develop and refine ideas • Be able to discuss material properties of paper and boards including how they are made and the different types available • Understand how and why surface finishes are applied to different materials. • Test ideas to demonstrate that they are viable and will work well. • Be able to give examples of different production aids and the advantages of using them • Understand how to produce a detailed evaluation of your work in preparation for your NEA • Be able to apply your maths knowledge to solve technical problems • Be able to explain how timber can be laminated to increase its strength and change its shape, thus improving its functionality.

<p>Slot together toy (CAD/CAM) and storage project</p>	<p>12</p>	<ul style="list-style-type: none"> • Understand how flat material can be slotted together to make a 3D shape • Be able to collect your own research to help inspire your designs including product analysis and mood boards • Be able to produce clear, creative and annotated design ideas • Understand the importance of tolerances and quality control when making your prototypes. • Investigate famous designers and learn how you can use this knowledge to help create your own ideas • Understand how commercial processes differ to the ways we make things in school. Be able to explain how wood can be turned and what a cnc router is used for. • Be able to explain what stock sizes wood is available in and how knock down fittings can be used to join wood together • Be able to explain the advantages and disadvantages of using flat pack furniture • Develop skills in using google sketch up (3D CAD) to help model your ideas <p>Storage project (Mini NEA)</p> <ul style="list-style-type: none"> • Be able to explore a design context • Be able to produce a client profile, generate your own questions and interview your client • Be able to create your own design briefs & design specifications based on your on-going research • Be able to produce creative ideas using a variety of design strategies which you have already learnt • Be able to develop design ideas using your specification • Be able to explain how smart and modern materials differ to traditional materials such as wood and give examples of how they are used in products • Recap on textiles and polymers. Be able to give examples of different types of textiles and polymers including what they are used for and why. • Be able to explain what a composite material is and give examples.
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Storage project, manufacture, testing and final evaluation.	13	<p>Storage project (Mini NEA)</p> <ul style="list-style-type: none"> • Be able to model your ideas to ensure they are fit for purpose by comparing your work with your design specification • Be able to produce a detailed manufacturing specification which would allow a third party to manufacture your prototype. • Use a range of specialist techniques & appropriate materials to produce prototypes that are accurate & within close tolerances • Be able to test your final prototype and produce a detailed evaluation comparing your work against your design specification and suggesting improvements • Understand how metals can be classified as non ferrous or ferrous and be able to give examples. • Be able to explain what material properties metals and alloys have • Recap on how wood is processed, including seasoning and made into a variety of standard forms. Be able to explain the environmental impact that using wood has on our planet and what designers can do to limit the damage. • Be able to explain what the terms deforestation, sustainability, carbon footprint, technology push and pull and product lifecycle mean and give examples
Commence Non exam assessment (NEA) – Identify and investigate design possibilities		<p>Research section for NEA (Coursework) A01 A</p> <ul style="list-style-type: none"> • Introduce NEA from AQA exam board 2023 – understand how to meet all assessment objective requirements • Research design brief and select a variety of sources to help research the task. • Analyse existing products to gain knowledge on how other designers have solved the problem. • Start to collect relevant primary & secondary research to identify possible design opportunities including interviewing your client • Analyse findings and produce design criteria suitable for their chosen client • Start to write your design specification

