

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 & make.

Grouping /Rotation	Autumn	Spring	Summer
1	Acrylic Key ring & Mood light	Sustainable material & Pencil Case	Food
2	Food	Acrylic Key ring & Mood light	Sustainable material & Pencil Case
3	Sustainable material & Pencil Case	Food	Acrylic Key ring & Mood light

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 just as:

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

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

Resistant Materials

Unit	Duration (lessons)	Learning Objectives/Outcomes
Taster Card phone holder	1	Students will : <ul style="list-style-type: none"> • generate ideas quickly through modelling & explore how sheet material can be joined together using standard components • be able to explain the term material properties with reference to paper, card & corrugated card • appreciate the importance of testing & refining your work
Development Key-ring made from Acrylic Key-ring made from recycled plastics Pine letter MDF key ring	4	Students will: <ul style="list-style-type: none"> • be able to identify a variety of plastics and discuss their differing material properties • Learn how to mark out accurately using templates • learn how to shape sheet material and timber by hand using a variety of hand tools & equipment • Understand how acrylic has a plastic memory • Learn how to use basic functions on Corel Draw (CAD) to make simple shapes ready for machining on a laser cutter (CAM) • Be able to explain the advantages & disadvantages of shaping material by hand or by using CAD / CAM • understand the importance of identify risks and using risk assessments to manage safety in the workshop • Be able to select different saws depending on what material they are cutting and explain why teeth size varies • Be able to identify natural & man made timber • Understand that materials come from different sources and be able to explain why some are classed as renewable • Be able to identify basic standard components

Embedding Mood light	6	Students will: <ul style="list-style-type: none">• Be able to communicate their ideas effectively using 2D sketches; simple card modelling and CAD• explore how their ideas can be improved by testing• create simple electronic circuits & be able to identify basic components• be able to solder and join components together• learn how to solve technical problems when things go wrong• Develop their confidence by working independently and demonstrate safe practices when using hand tools and specialist equipment• Learn how to pre-empt problems based on previous experiences and knowledge of tools & materials, so similar mistakes are not made• Work accurately & efficiently to produce a high quality outcome
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Textiles

Unit	Duration (lessons)	Learning Objectives/Outcomes
Sustainable material & pencil case	10	<p>Students will:</p> <ul style="list-style-type: none">• Develop & communicate ideas using annotated sketches• Learn the importance of experimenting, testing and reflecting when creating their ideas• Explore & manipulate various properties of recycled materials• Develop an understanding of sustainable materials• Analyse & evaluate test pieces to improve quality of overall product• Investigate how material properties can be improved by changing their shape• History of how weaving has evolved over time (manufacturing)• Advantage & disadvantages of product evolution.• Construction of a hand loom learning how to mark out accurately• Explore how different materials can improve the overall aesthetics of a product• Appreciate that materials can be made into “sheet” material, which can then be turned into a 3d product or vessel