

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	Simple storage (timber)	Chocolate bar	Simple storage (timber)
2	Storage products (Acrylic)	Simple storage (timber)	Chocolate bar
3	Food	Storage products (Acrylic)	Simple storage (timber)
4	3D vessel – weaving & Pencil Case	Food	Storage products (Acrylic)
5	Chocolate bar	3D vessel – weaving & Pencil Case	Food

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
Chocolate Bar	9	<p>Students will :</p> <ul style="list-style-type: none">• Analyse existing chocolate bar and explain why they have been designed in that size & shape• Consider how maths and ergonomics has been used to create the product (volume, size of hand & mouth, individual pieces)• Consider how the branding has been designed & use of colour, to target a particular audience• Generate ideas based on a chosen target market and specification using pre-selected imagery• Develop CAD skills to make a quick cardboard prototype and outer packaging• Be able to explain what makes an effective mould• Appreciate how testing is an important part of developing a product• Test, refine & improve mould design• Explain why MDF is a suitable material for making a mould• Be able to explain how to use a vacuum former accurately & safely• Be able to identify simple packaging symbols & incorporate in to choc bar outer design• Be able to explain the term casting

Simple Storage (Timber)	9	<p>Students will :</p> <ul style="list-style-type: none"> • Understand how wood (natural & handmade boards) are classified and where they come • Know the meaning of renewable sources • Explain why timber & materials in general need to be finished for aesthetics & durability • Through research identify what products could be stored • Identify key measurements & human factors which need to be considered • Develop 3D sketching & presentation skills • Use CAD to model ideas including google sketch up • Develop confidence in the use of hand skills & specialist equipment • Be able to work safely, accurately & independently • Be able to assemble & decorate outcomes to a high standard
Acrylic Phone holder & storage solution (nets)	9	<p>Students will :</p> <ul style="list-style-type: none"> • Understand how plastics (thermoplastics & thermos setting) are classified and where they come • Learn how plastics can be shaped using heat and formers • Demonstrate how to set up & use the line bender & hot press safely • Develop idea for a simple phone holder quickly using card • Test making phone holder by hand using a strip of acrylic. Remember to use what has been covered in Y7 • Identify issues with making products by hand in terms of accuracy & quality • Improve card model & finalise sizes • Learn how to use CAD more accurately by using guidelines and measurements from "tested" card model • Learn how to make a bending jig in order to manufacture a product more accurately <p>Using skills, K & U learnt on this module so far</p> <p>Using nature as your inspiration, design & develop a quality jewellery / storage stand from sheet material</p>

Textiles

Unit	Duration (lessons)	Learning Objectives/Outcomes
Sustainable material & pencil case (Textiles)	9	<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