

# Year 7 Product Design Overview

## Resistant Materials

Unit	Duration (lessons)	Learning Objectives/Outcomes
Taster  Card phone holder	1	Students will : <ul style="list-style-type: none"> <li>• generate ideas quickly through modelling &amp; explore how sheet material can be joined together using standard components</li> <li>• be able to explain the term material properties with reference to paper, card &amp; corrugated card</li> <li>• appreciate the importance of testing &amp; refining your work</li> </ul>
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"> <li>• be able to identify a variety of plastics and discuss their differing material properties</li> <li>• Learn how to mark out accurately using templates</li> <li>• learn how to shape sheet material and timber by hand using a variety of hand tools &amp; equipment</li> <li>• Understand how acrylic has a plastic memory</li> <li>• Learn how to use basic functions on Corel Draw (CAD) to make simple shapes ready for machining on a laser cutter (CAM)</li> <li>• Be able to explain the advantages &amp; disadvantages of shaping material by hand or by using CAD / CAM</li> <li>• understand the importance of identify risks and using risk assessments to manage safety in the workshop</li> <li>• Be able to select different saws depending on what material they are cutting and explain why teeth size varies</li> <li>• Be able to identify natural &amp; man made timber</li> <li>• Understand that materials come from different sources and be able to explain why some are classed as renewable</li> <li>• Be able to identify basic standard components</li> </ul>
Embedding  Mood light	6	Students will: <ul style="list-style-type: none"> <li>• Be able to communicate their ideas effectively using 2D sketches; simple card modelling and CAD</li> <li>• explore how their ideas can be improved by testing</li> <li>• create simple electronic circuits &amp; be able to identify basic components</li> <li>• be able to solder and join components together</li> </ul>

		<ul style="list-style-type: none"> <li>• learn how to solve technical problems when things go wrong</li> <li>• Develop their confidence by working independently and demonstrate safe practices when using hand tools and specialist equipment</li> <li>• Learn how to pre-empt problems based on previous experiences and knowledge of tools &amp; materials, so similar mistakes are not made</li> <li>• Work accurately &amp; efficiently to produce a high quality outcome</li> </ul>
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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"> <li>• Develop &amp; communicate ideas using annotated sketches</li> <li>• Learn the importance of experimenting, testing and reflecting when creating their ideas</li> <li>• Explore &amp; manipulate various properties of recycled materials</li> <li>• Develop an understanding of sustainable materials</li> <li>• Analyse &amp; evaluate test pieces to improve quality of overall product</li> <li>• Investigate how material properties can be improved by changing their shape</li> <li>• History of how weaving has evolved over time (manufacturing)</li> <li>• Advantage &amp; disadvantages of product evolution.</li> <li>• Construction of a hand loom learning how to mark out accurately</li> <li>• Explore how different materials can improve the overall aesthetics of a product</li> <li>• Appreciate that materials can be made into "sheet" material, which can then be turned into a 3d product or vessel</li> </ul>