

<b>Year: 8</b> <b>Subject:</b> <b>Resistant materials</b>	<b>Curriculum Intent:</b> Students will build upon the skills and activities that they learned in year 7 and be introduced to new skills in terms of electronics and sequencing where a range of activities come together to form a finished product. This will be achieved through a project format which in this instance is the creation of an up lighter. Throughout this unit of work, students will develop their practical skills through both theoretical and physical tasks and be introduced to the technical language and vocabulary related to this topic. Students will explain and discuss their understanding of what they have read, observed, and practiced justifying the methods and techniques used. This will be evidenced through practical tasks and evaluation of some of the activities.		
<b>Resistant materials rotation - Up Lighter Project</b>			
<b>Topic Titles (in order of delivery)</b>	1. Woodwork 2. CAD 3. Electronics		
<b>Key knowledge / Retrieval topics</b>	Woodwork <ul style="list-style-type: none"> <li>• Health &amp; Safety</li> <li>• Tools &amp; Equipment</li> <li>• Materials</li> <li>• Rebate Joint</li> <li>• Machine Safety</li> <li>• Adhesives</li> <li>• Finishes</li> </ul>	CAD/CAM <ul style="list-style-type: none"> <li>• Theory of CAD</li> <li>• Learning to use 2D Design V2 software</li> <li>• How to use the internet to search for images</li> <li>• Changing Bitmap images into vector images</li> <li>• CAD relation to CAM and the use of the laser cutter</li> </ul>	Electronics <ul style="list-style-type: none"> <li>• Health &amp; Safety</li> <li>• Tools &amp; Equipment Components</li> <li>• Theory <ul style="list-style-type: none"> <li>- Electric/electronics</li> <li>- Circuits (series/parallel)</li> <li>- Purpose of components</li> <li>- Resistance</li> <li>- Analysing/Testing circuits</li> </ul> </li> <li>• Soldering</li> </ul>
<b>Key knowledge / Retrieval topics</b>	Health and safety Correct usage of tools/equipment	Understanding material properties Accuracy/quality control	
<b>Understanding Sequence of delivery</b>	To enable students to conduct their practical activities safely, a knowledge of health and safety specific to the space they will be working in is imperative. Following this, a knowledge of materials and their properties to understand why they are working with the chosen materials to support their decision making and understand how they are appropriate for the specific product. With this knowledge and experience they should be able to design a range of suitable designs based on analysis of products and knowledge of materials and processes. These areas of knowledge should then support students moving forward to learning how to use appropriate tools and equipment safely and with the appropriate materials. Students then broaden their work to beyond their practical task to focus on product packaging, POS design and selling their work to their chosen target market in line with the design brief. The final stage of the process is to evaluate their process and outcome to suggest how they might make improvements going forward and reflect upon their learning – Discuss how these steps fall into place with an NEA for GCSE.		
<b>Vocabulary</b>	Rebate/lap joint CAD/CAM	Solder Acrylic	

	Components Input/Output LEDS Circuit PCB Resistor Resistance Ohm	Pine Softwood/Hardwood Annotation Product Analysis ACCESSFM Target Market Analyse and evaluate
--	---	--

<b>Assessment</b>		<b>Knowledge and understanding</b>	<b>Design solutions and food choice</b>	<b>Plan and prepare</b>	<b>Practical skills</b>	<b>Analyse and evaluate</b>
	<b>4</b>	Demonstrate some accurate knowledge and understanding of principles and processes/ properties.	Use some technical language and methods of communication to develop design some solutions in familiar and unfamiliar contexts.	Use some mathematical skill and scientific knowledge to select a range of appropriate equipment and materials.	Safely apply some competent technical skills, processes and techniques in the production of products/ prototypes/ dishes.	Analyse and evaluate design solutions and outcomes to draw some plausible conclusions using appropriate technical language/ terms.
	<b>3</b>	Demonstrate relevant knowledge and understanding of principles and processes/ properties.	Produce straightforward solutions that meet the requirements of the problem in familiar and unfamiliar contexts.	Use simple scientific knowledge and mathematical skills to prepare products and select some appropriate materials and equipment.	Safely apply a range of skills, processes and techniques in the production of familiar products/ prototypes/ dishes.	Make straightforward comments about their work and the work of others using some appropriate language and some technical terms.
	<b>2</b>	Demonstrate some relevant knowledge and understanding of principles and processes properties.	Produce basic solutions that meet some requirements of the problem in a familiar context using appropriate means to explain their ideas.	Use some simple scientific knowledge to plan and prepare a simple product including the use of basic mathematical skills.	Safely apply limited skills, processes and techniques in the production of familiar products/ prototypes/ dishes.	Make straightforward and obvious comments about their work and the work of others using everyday language and some technical terms.
	<b>1</b>	Demonstrate limited knowledge and understanding of principles and processes/ properties.	Product limited solutions that meet some requirements of the problem in a familiar context using limited means to explain their ideas.	Use limited scientific knowledge to follow a plan effectively and use basic mathematical skill.	With support, safely apply limited skills, processes and techniques in the production of familiar	Limited and straightforward comments about their work and the work of others.

					product/ prototypes/ dishes.		
--	--	--	--	--	---------------------------------	--	--