



# YEAR 10 TERM 1

'An ambitious curriculum that meets the needs of all'

## Medium Term Planning - Topic: Laser cut light



<b>Curriculum Intent</b>	In addition to working further on objectives from Year 9 , pupils will be taught, following National Curriculum guidelines, the following this term:
<b>Skills/Assessment Objective Links</b>	<p>To gain knowledge of design styles and how to apply it to a product</p> <ol style="list-style-type: none"><li>1. Materials and Tools</li><li>2. Design and Planning</li><li>3. Digital Design Preparation</li><li>4. Laser Cutting Techniques and Safety</li><li>5. Laser Cutting Process</li><li>6. Assembly and Finishing.</li><li>7. Evaluation and Reflection</li></ol>
<b>Spiritual, moral, social, and cultural development</b>	<p><b>SMSC:</b> Sustainability linking to materials and reduction in CO2 emissions</p> <p><b>PSHE/British Values:</b> British design styles (Harry Beck). London Underground</p> <p><b>Skills Builder:</b> Linking product with the type of material and the reasons why the material is used.</p>
<b>Numeracy</b>	Converting CM into MM and understanding scale when completing the digital design preparation stage
<b>Literacy</b>	<p><b>Vocabulary Tier 2:</b> material, colour, finish, waste, shape, designer, architecture, model, creativity, innovation</p> <p><b>Vocabulary Tier 3:</b> Arts and Craft Movement, Bauhaus, Art Deco, Post Modern, Art Nouveau, Alessi</p> <p><b>Reading:</b> exam style question</p> <p><b>Writing:</b> use of technical tier 3 vocabulary within an exam question and annotation</p> <p><b>Oracy:</b> when questioned pupils are able to use technical subject specific language</p>
<b>Becoming future ready</b>	<b>Careers/Employability:</b> product designer / modelling skills
<b>Adaptation</b>	Throughout this topic, quality first teaching will provide differentiation:
<b>QFT/SEND Provision</b>	<p><b>By product:</b> Use of examples</p> <p><b>By resource:</b> Use of exemplar materials</p> <p><b>By Intervention:</b> teacher led focused activities</p> <p><b>By Progressive Questioning:</b> exploring pupils' understanding through interactive dialogue.</p> <p><b>By Grouping:</b> according to prior attainment, gender, social preference, preferred learning style.</p> <p><b>By Task:</b> Pupils should be involved in the identification of targets which are meaningful to them and in the selection of an appropriate task from the given range.</p> <p><b>By Offering Optional Activities:</b> In class or as homework, to extend learning.</p> <p>This QFT/SEND provision will be explicit within the lesson-by-lesson schemes of work.</p>
<b>Implementation Curriculum Delivery</b>	<p>Introduction to Tea Light Candle Holders and Laser Cutting</p> <ul style="list-style-type: none"><li>• Discuss the purpose and function of tea light candle holders.</li><li>• Introduce laser cutting as a versatile and precise fabrication technique.</li><li>• Highlight the advantages of using laser cutting for creating intricate designs.</li></ul>
<b>Learning Outcomes (Knowledge)</b>	<p>Materials and Tools</p> <ul style="list-style-type: none"><li>• Identify suitable materials for laser cutting, such as acrylic, plywood, or cardboard.</li><li>• Explain the properties and considerations when selecting materials for laser cutting.</li><li>• Introduce the laser cutting machine and its components, including the laser, software, and safety features.</li></ul> <p>Design and Planning</p> <ul style="list-style-type: none"><li>• Teach basic design principles and demonstrate how to create digital designs.</li><li>• Introduce design software commonly used for laser cutting, such as 2D Design, Inkscape and RD Works</li><li>• Guide students in developing their own tea light candle holder designs, considering aesthetics and functionality.</li></ul> <p>Digital Design Preparation</p> <ul style="list-style-type: none"><li>• Provide instruction on preparing digital files for laser cutting.</li><li>• Teach students how to convert their design into appropriate file formats, such as vector files (e.g., SVG, DXF).</li><li>• Explain the importance of properly setting up the design files, including dimensions, layers, and cut lines.</li></ul> <p>Laser Cutting Techniques and Safety</p> <ul style="list-style-type: none"><li>• Familiarize students with laser cutting machine operation and safety guidelines.</li></ul>

	<ul style="list-style-type: none"> <li>• Demonstrate how to load materials onto the laser cutting bed and set up the machine parameters.</li> <li>• Discuss safety precautions when working with laser cutters, such as proper eye protection and ventilation.</li> </ul> <p>Laser Cutting Process</p> <ul style="list-style-type: none"> <li>• Guide students through the laser cutting process, including file import, material selection, and machine setup.</li> <li>• Demonstrate how to calibrate the laser cutter for optimal cutting and engraving results.</li> <li>• Assist students in running test cuts to ensure proper settings and material compatibility.</li> </ul> <p>Assembly and Finishing</p> <ul style="list-style-type: none"> <li>• Provide guidance on assembling the laser-cut components to create the tea light candle holder.</li> <li>• Demonstrate techniques for joining the pieces together using appropriate adhesives or fasteners.</li> <li>• Discuss optional finishing techniques, such as sanding, polishing, or applying surface treatments to enhance the final product.</li> </ul> <p>Evaluation and Reflection</p> <ul style="list-style-type: none"> <li>• Encourage students to evaluate their finished tea light candle holders based on the original design and laser cutting quality.</li> <li>• Facilitate group discussions or presentations where students can share their work and provide constructive feedback.</li> <li>• Reflect on the learning experience, including challenges faced, new skills acquired, and areas for improvement.</li> </ul>
<b>Current learning to be developed in the future within:</b>	To develop design skills for the NEA
<b>Assessment</b>	Assess design ideas on creativity and innovation
<b>Impact</b>	Pupils to have knowledge of how to apply design styles to a product to add creativity and innovation