

**Course Title – Woodworking 2**

**Implement start year – 2015-2016**

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**Unit #2 – Introduction to Laminating and Shaping**

**Transfer Goal –**

Students will be able to independently use their learning to cut irregular shapes and process laminates.

**Stage 1 – Desired Results**

**Established Goals**

**2009 NJCCC Standard(s), Strand(s)/CPI #**  
(<http://www.nj.gov/education/cccs/2009/final.htm>)

**Common Core Curriculum Standards for Math and English**  
(<http://www.corestandards.org/>)

**8.2 Technology Education, Engineering, and Design**

All students will develop an understanding of the nature and impact of technology, engineering, technological design, and the designed world, as they relate to the individual, global society, and the environment.

- A. The Nature of Technology: Technology products and systems impact every aspect of the world in which we live.
- 8.2.12.A.1 Design and create a technology product or system that improves the quality of life and identify trade-offs, risks, and benefits.

**21<sup>st</sup> Century Themes**

( [www.21stcenturyskills.org](http://www.21stcenturyskills.org) )

- Global Awareness
- Financial, Economic, Business and Entrepreneurial Literacy
- Civic Literacy
- Health Literacy
- Environmental Literacy

**21<sup>st</sup> Century Skills**

*Learning and Innovation Skills:*

- Creativity and Innovation
- Critical Thinking and Problem Solving
- Communication and Collaboration

*Information, Media and Technology Skills:*

- Information Literacy
- Media Literacy
- ICT (Information, Communications and Technology) Literacy

B. Design: Critical Thinking, Problem Solving, and Decision making:  
The design process is a systematic approach to solving problems.

- 8.2.12.B.1 Design and create a product that maximizes conservation and sustainability of a scarce resource, using the design process and entrepreneurial skills throughout the design process.
- 8.2.12.B.2 Design and create a prototype for solving a global problem, documenting how the proposed design features affect the feasibility of the prototype through the use of engineering, drawing, and other technical methods of illustration.
- 8.2.12.B.3 Analyze the full costs, benefits, trade-offs, and risks related to the use of technologies in a potential career path.

C. Technological Citizenship, Ethics and Society: Knowledge and understanding of human, cultural, and societal values are fundamental when designing technology systems and products in the global society.

- 8.2.12.C.1 Analyze the ethical impact of a product, system, or environment, worldwide, and report findings in a web-based publication that elicits further comment and analysis.
- 8.2.12.C.2 Evaluate ethical considerations regarding the sustainability of resources that are used for the design, creation, and maintenance of a chosen product.
- 8.2.12.C.3 Evaluate the positive and negative impacts in a design by providing a digital overview of a chosen product and suggest potential modifications to address the negative impacts.

*Life and Career Skills:*

- Flexibility and Adaptability
- Initiative and Self-Direction
- Social and Cross-Cultural Skills
- Productivity and Accountability
- Leadership and Responsibility

D. Research and Information Fluency: Information-literacy skills, research, data analysis, and prediction provide the basis for the effective design of technology systems

- 8.2.12.D.1 Reverse-engineer a product to assist in designing a more eco-friendly version, using an analysis of trends and data about renewable and sustainable materials to guide your work.

E. Communication and Collaboration: Digital tools facilitate local and global communication and collaboration in designing products and systems.

- 8.2.12.E.1 Use the design process to devise a technological product or system that addresses a global issue, and provide documentation through drawings, data, and materials, taking the relevant cultural perspectives into account throughout the design and development process.

F. Resources for a technological world: Technological products and systems are created through the application and appropriate use of technological resources.

- 8.2.12.F.1 Determine and use the appropriate application of resources in the design, development, and creation of a technological product or system.
- 8.2.12.F.2 Explain how material science impacts the quality of products.
- 8.2.12.F.3 Select and utilize resources that have been modified by digital tools (e.g., CNC equipment, CAD software) in the creation of a technological product or system.

G. The Designed World: The designed world is the product of a design process that provides the means to convert resources into

<p>products and systems.</p> <ul style="list-style-type: none"> <li>8.2.12.G.1 Analyze the interactions among various <b>technologies</b> and collaborate to create a product or system demonstrating their interactivity.</li> </ul> <p><u>CCSS.ELA-LITERACY.RST.9-10.3</u> Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.</p> <p><u>CCSS.ELA-LITERACY.WHST.9-10.2.F</u> Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).</p> <p><u>9.1 21st-Century Life &amp; Career Skills</u> All students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.</p> <p>9.1.12.A.1</p> <p>Apply critical thinking and problem-solving strategies during structured learning experiences.</p>	
<p><b><u>Enduring Understandings:</u></b> <i>Students will understand that . . .</i></p> <p><i>EU 1</i></p> <p>Irregular shapes are an integral part of woodworking design.</p> <p><i>EU2</i></p>	<p><b><u>Essential Questions:</u></b></p> <p><i>EU 1</i></p> <ul style="list-style-type: none"> <li>How do irregular shapes affect aesthetic and structural qualities of woodworking?</li> </ul> <p><i>EU2</i></p>

<p>laminates can be used in a variety of different applications in woodworking.</p> <p><i>EU 3</i></p> <p>reading and interpreting plans is an important part of the design process.</p> <p><i>EU 4</i></p> <p>there are a variety of tools and techniques a woodworker can use to create a desired product.</p>	<ul style="list-style-type: none"> <li>• How do laminates affect aesthetic and structural qualities of woodworking?</li> </ul> <p><i>EU 3</i></p> <ul style="list-style-type: none"> <li>• What is the value of being able to interpret plans and procedures?</li> </ul> <p><i>EU 4</i></p> <ul style="list-style-type: none"> <li>• What are the best choices of basic tools, materials and techniques woodworkers use to get a desired result?</li> <li>• How do woodworkers choose tools, techniques, and materials to express their ideas?</li> </ul>
<p><b><u>Knowledge:</u></b> <i>Students will know . . .</i></p> <p><i>EU 1</i></p> <ul style="list-style-type: none"> <li>• geometric shapes.</li> <li>• irregular shapes.</li> <li>• when to use patterns and templates.</li> <li>• the importance of curving your edges.</li> <li>• the difference between carving and shaping.</li> <li>• chiseling.</li> </ul> <p><i>EU2</i></p> <ul style="list-style-type: none"> <li>• the various types of laminates.</li> <li>• the advantages and disadvantages of using laminates.</li> </ul> <p><i>EU 3</i></p> <ul style="list-style-type: none"> <li>• how to read project plans.</li> </ul>	<p><b><u>Skills:</u></b> <i>Students will be able to . . .</i></p> <p><i>EU 1</i></p> <ul style="list-style-type: none"> <li>• lay out geometric shapes for project design.</li> <li>• cut irregular shapes using appropriate tool/machine.</li> <li>• utilize patterns and templates within their projects.</li> <li>• smooth curves and edges using appropriate tool/machine.</li> <li>• carve and shape lumber using appropriate tool/machine.</li> <li>• use chisels to create desired shapes and designs.</li> </ul> <p><i>EU2</i></p> <ul style="list-style-type: none"> <li>• describe the properties of different types of laminates.</li> <li>• choose the proper laminate for the job.</li> </ul> <p><i>EU 3</i></p> <ul style="list-style-type: none"> <li>• interpret a project plan to complete a desired project.</li> </ul>

- bill of materials.
- procedures.
- working drawings.

*EU 4*

- the most effective tool and technique for the desired application.
- hand tools vs. power tools.
- wood joints.

*EU 4*

- select the proper tool for the job.
- choose the proper technique to achieve the desired outcome.
- operate hand tools safely and effectively.
- operate power tools safely and effectively.

**Stage 2 – Assessment Evidence**

**Recommended Performance Tasks:**

**Other Recommended Evidence:** *Tests, Quizzes, Prompts, Self-assessment, Observations, Dialogues, etc.*

- Quizzes on processing irregular shapes and laminates
- Irregular shape practice exercises (ex. Templates, patterns, compound cuts, etc.)
- Laminate practice exercises (ex. Cutting and shaping laminates, applying adhesives, etc.)
- Observation of cutting irregular shapes and processing laminates

- Group discussions on tool selection and usage

### Stage 3 – Learning Plan

**Suggested Learning Activities to Include Differentiated Instruction and Interdisciplinary Connections:** *Each learning activity listed must be accompanied by a learning goal of A= Acquiring basic knowledge and skills, M= Making meaning and/or a T= Transfer.*

- Teacher will model how to cut irregular shapes and process laminates (A)
- Students will practice cutting irregular shapes using various tools/machines (M)
- Students will practice cutting, shaping, and applying laminates (M)
- Students will work in groups to identify the properties of various laminates(M)
- Student journaling (M,T)
- Peer critiques as a form of reflection (T)
- Students design self-evaluation rubrics (T)