

05: Exploration of Tools, Materials, and Processes in Modern Woodworking

Content Area: **Technology**
Course(s):
Time Period: **Full Year**
Length: **5 weeks on going**
Status: **Published**

General Overview, Course Description or Course Philosophy

This full year course offers an introductory view on the tools, materials, and processes of modern woodworking. Students will familiarize themselves with common terminology and practices to complete avocational woodworking projects. This hands-on course calls for the production of several 'everyday functional' woodworking projects. The projects are chosen so that students can increase their knowledge and experience with regard to machine use and woodworking technique. The course goal is to allow students to produce pieces from plans on their own without instructor provided step by step instructions.

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Students will gain an understanding of a variety of woodworking tools, machines, and processes along with correct setup and operating procedures.

Students will gain knowledge of different wood species and characteristics.

Essential Questions:

- Why is it important for students to operate machines safely?
- Why is it important for students to understand the correct use of various machines?
- Why is it important for students to choose appropriate machines for processes?
- How does the correct selection of machines aid in producing high quality work?

- How does the characteristic of the material being work effect its implementation with the design?

Enduring Understandings:

Students will understand the importance of...

- Proper machine operation
- Safe machine operation

- Selecting the appropriate machine for the task
- Appropriate lab conduct

CONTENT AREA STANDARDS

| | |
|-----------------|---|
| 9.3.12.AC.1 | Use vocabulary, symbols and formulas common to architecture and construction. |
| 9.3.12.AC.6 | Read, interpret and use technical drawings, documents and specifications to plan a project. |
| 9.3.12.AC-CST.5 | Apply practices and procedures required to maintain jobsite safety. |
| 12.9.3.ST.6 | Demonstrate technical skills needed in a chosen STEM field. |
| 12.9.3.MN-HSE.1 | Demonstrate the safe use of manufacturing equipment. |
| 12.9.3.ST-ET.1 | Use STEM concepts and processes to solve problems involving design and/or production. |
| 12.9.3.ST-ET.2 | Display and communicate STEM information. |
| 12.9.3.ST-ET.3 | Apply processes and concepts for the use of technological tools in STEM. |
| 12.9.3.ST-ET.4 | Apply the elements of the design process. |
| 12.9.3.ST-ET.5 | Apply the knowledge learned in STEM to solve problems. |

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

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|----------------|--|
| LA.RL.9-10.2 | Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details and provide an objective summary of the text. |
| LA.RL.9-10.4 | Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone). |
| LA.RL.9-10.6 | Analyze a particular point of view or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature. |
| LA.RST.11-12.3 | Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. |
| LA.RST.11-12.4 | Determine the meaning of symbols, key terms, and other domain-specific words and |

phrases as they are used in a specific scientific or technical context relevant to grades 11-12 texts and topics.

LA.WHST.11-12.2

Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

LA.WHST.11-12.4

Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

STUDENT LEARNING TARGETS

To demystify the imperial measurement

Declarative Knowledge

Students will understand that:

- safe set-up and operation of machines.
- understand that how the final product goes together is vital to success.
- similar products/outcomes can be produced in a variety of ways.

Procedural Knowledge

Students will be able to:

- Apply practices and procedures required to maintain jobsite safety.
- Identify and operate machines
- Read, interpret and use technical drawings, documents and specifications to plan a project
- list the identification and characteristic properties of different materials (wood).

EVIDENCE OF LEARNING

Observation, discussion, and hands on interaction

- Measure within 1/16" with a graduated rule
- Application of measurement to machine setup

- Projects reflect accurate measurement

Formative Assessments

machine and project worksheets.

correct machine setup

Summative Assessments

dimensionally accurate student made projects

correct student assessment and evaluation of projects.

proper glue ups and applied finishes.

RESOURCES (Instructional, Supplemental, Intervention Materials)

Teacher notes and quizzes available through Google Classroom/Drive.

Material processing project rubric.

INTERDISCIPLINARY CONNECTIONS

Educational Technology: Use of Google resources

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

See link to Accommodations & Modifications document in course folder.

