Unit 3: Layout, Design and Planning

Content Area: **Applied Technology**
Course(s):
Time Period: **Marking Period 1**
Length: **2 Weeks**
Status: **Published**

Learning Plan

Preview the essential questions and connect to learning throughout the unit.

Introduce new vocabulary.

Present lesson on developing plans.

Have students read and discuss relevant selections in the woodworking textbook.

Students will work in groups to discuss why plans were so important during the industrial revolution. Have groups present the findings to the class.

Have students create a full size pattern from a ¼ scale drawing.

Have students create a bill of materials and a plan of procedure for a project.

Distribute various size boards and have students measure them with a tape measure to the nearest 1/16th of an inch.

Have students record the measurements and determine the board feet of each piece.

Present lesson on layout and using layout tools

Have students read and discuss relevant material in woodworking textbook

Demonstrate the correct procedure for squaring a board using a framing square.

Demonstrate laying out parts on a board emphasizing grain direction, multiple cut parts and same size parts.

Divide students into groups, distribute sample project parts and have each group layout the parts. Have the students explain to the class why they chose that specific layout. Compare the decisions of all groups.

Allow students to work independently to layout their parts on the stock.

Writing prompts as homework.

Have students self – evaluate their finished work using rubric

Brief Summary of Unit

Students will learn about the importance of well-drawn plans and the need for accurate measurement. They will learn to read a plan and understand the various symbols and lines used. They will learn how to create a bill of materials, estimate board feet, make accurate measurements, draw up a plan, adapt existing designs to fit their specific needs and transfer the information to a piece of wood. They will understand that without proper planning the inventions we live with daily would not exist. They will learn how to

draw clear accurate lines to serve as guides for cutting and shaping operations. They will learn that how parts are placed on the material often dictates how it can be cut out. They will understand the importance of giving a little extra thought to the layout process to prevent problems. Students will learn that a neat, well-thought-out, and orderly layout will help to conserve valuable materials, benefit the environment, reduce costs and time, and result in a quality end product.

Revised July 2023

Essential Questions/Enduring Understandings

Essential Questions

What is a working drawing and how is it utilized?

What constitutes a plan?

Enduring Understandings

Symbols used in working drawings are standardized in order to improve understanding and communication.

accuracy is essential when developing a working drawing.

the layout process is an important step in the planning portion of the project proper layout will save time, money, and materials.

Objectives

Students will know:

key terms and vocabulary.

no amount of skill replaces a well-executed plan.

all modern marvels began with a plan.

getting the maximum yield out of a piece of lumber is an economical and ecologically sound practice.

wood is affected by atmospheric moisture

Students will be skilled at:

developing a plan and a working drawing.

constructing a template.

taking measurements with common measuring tools.

using layout tools to transfer the plans to the wood.

properly using a framing square to square up a board.

laying out project parts to produce the greatest yield from the material.

Assessment

Formative Assessment

Participation in class discussions

Do Now Questions

Exit Tickets

Practice framing square to square up board

Layout Plans and Plan Transfer to Wood

Creating full-size drawings from scaled drawings

Summative Assessment

Quiz

Test

Layout Plan and Plan Transfer to Wood Practicum

Final drawing from 1/4 scaled drawing

Benchmark Assessment

Mid Term Exam

Final Exam

Alternative Assessment

Presentation on creating a layout

Materials

Woodworking Textbook

Measurement Tools

Wood

Internet

Standards

9.4.12.CI	Creativity and Innovation
9.4.12.CT	Critical Thinking and Problem-solving
LA.RST.11-12.2	Determine the central ideas, themes, or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
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.RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
LA.RI.11-12.5	Analyze and evaluate the effectiveness of the structure an author uses in his or her exposition or argument, including whether the structure makes points clear, convincing, and engaging.
LA.RST.11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.
ED	Engineering Design
8.2.12.ED.2	Create scaled engineering drawings for a new product or system and make modification to increase optimization based on feedback.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.

Suggested Strategies for Modification

https://docs.google.com/spreadsheets/d/1gk0WLBehVNuQkRKLMYATvY5Zk0vpdBKbdrcODZS_YFw/edit?usp=sharing