Unit 6: Design Loop MODERN WOODWORKING

Content Area: **Technology**
Course(s):
Time Period: **Full Year**
Length: **1.5 weeks on going**
Status: **Published**

General Overview, Course Description or Course Philosophy

This full-year course builds off of the knowledge gained in Introduction to Modern Woodworking. Students will continue their study of 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

The design loop gives structure to creatively solve problems.

CONTENT AREA STANDARDS

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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)

LA.W.9-10.2	Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
LA.W.9-10.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
LA.W.9-10.6	Use technology, including the Internet, to produce, share, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
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

Declarative Knowledge

Students will understand that:

- It is necessary to utilize all steps of the design loop when designing a solution to a problem.
- There are negative consequences to ignoring specific steps of the design loop.
- The design loop is not linear.

Procedural Knowledge

Students will be able to:

- Apply practices and procedures required to maintain jobsite safety.
- Use vocabulary, symbols and formulas common to architecture and construction.

- Read, interpret and use technical drawings, documents and specifications to plan a project.
- Apply the elements of the design process.
- Utilize critical thinking to make sense of problems and persevere in solving them
- Select the best solution when designing a prototype/problem solving.
- Test and evaluate designs/prototypes.
- Apply the knowledge learned in STEM to solve problems

EVIDENCE OF LEARNING

· Student is able to identify which machines to use to produce a part

Student is able to correctly layout the procedure to develop a prototype or piece

Students are able to build a project from a set of plans without further instructions.

Formative Assessments

Design Loop Quiz, Hands-on project observation, Class discussion.

Summative Assessments

Student made projects.

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.