Woodworking Unit 1

Content Area: **CTE**
Course(s):
Time Period: **September**
Length: **1 Marking Period**
Status: **Published**

Course Goals

- Develop a strong foundation in woodworking safety practices
- Master the use of hand and power tools
- Understand wood properties and selection
- Apply design principles to create functional and aesthetically pleasing projects
- Develop problem-solving and critical thinking skills
- Foster creativity and innovation

Unit Overview:

Unit 1: Introduction to Woodworking

- Safety procedures and equipment
- Basic hand tools (saws, hammers, chisels, planes)
- Wood identification and properties
- Measurement and layout techniques
- Project: Simple woodworking project (cutting board, tool box)

Essential Questions:

Safety and Tool Usage

- What are the three most important safety rules in the woodworking shop?
- Describe the proper way to use a chisel.
- What is the purpose of a push stick, and when should it be used?
- Explain the difference between a rip cut and a crosscut.
- How do you prevent kickback on a table saw?

Wood Properties and Selection

- What is the difference between hardwood and softwood?
- How does grain direction affect the strength of wood?
- Name three types of wood commonly used in woodworking and their characteristics.
- What is the purpose of wood drying?
- How does humidity affect wood?

Design and Planning

- What are the basic principles of design?
- Explain the importance of creating a detailed woodworking plan.
- How do you calculate the cost of a woodworking project?
- What is the difference between a sketch and a drawing?
- How can you incorporate sustainability into your woodworking projects?

Woodworking Techniques

- Describe the steps involved in creating a dovetail joint.
- What is the purpose of sanding?
- Explain the difference between staining and painting.
- How do you apply a wood finish?
- What is the purpose of a router?

Problem Solving and Critical Thinking

- How would you fix a chip-out on a workpiece?
- What would you do if a piece of wood is warped?
- How can you correct a measurement error in a woodworking project?
- What are some alternative materials that can be used in woodworking?
- How can you adapt a woodworking design to meet specific needs or constraints?

Career and Industry

- What are some potential career paths in the woodworking industry?
- How has technology impacted the woodworking industry?
- What are the challenges and opportunities in the woodworking industry?
- What are some examples of sustainable practices in the woodworking industry?
- How can woodworking skills be applied to other fields?

Standards/Indicators/Student Learning Objectives (SLOs):

TECH.9-12.TEP-1	Systems Thinking
TECH.9-12.TEP-2	Creativity

TECH.9-12.TEP-3	Making and Doing
TECH.9-12.TEP-4	Critical Thinking
TECH.9-12.TEP-5	Optimism
TECH.9-12.TEP-6	Collaboration
TECH.9-12.TEP-7	Communication
TECH.9-12.TEP-8	Attention to Ethics

Lesson Titles:

- Safety procedures and equipment
- Basic hand tools (saws, hammers, chisels, planes)
- Wood identification and properties
- Measurement and layout techniques
- Project: Simple woodworking project (cutting board, tool box)

Career Readiness, Life Literacies, & Key Skills:

Osha 10 Certification

9.3.12.AC	Architecture & Construction
9.3.12.AC-CST	Construction
9.3.12.AC-DES	Design/Pre-Construction
9.3.12.AC-MO	Maintenance/Operations

Inter-Disciplinary Connections:

Equity Considerations

Amistad Mandate

Topic:

Materials Used:

Addresses the Following Component of the Mandate:

- African Slave Trade
- Amistad
- Contributions of African Americans to our Society
- Slavery in America
- Vestiges of Slavery in this Country

Holocaust Mandate

Topic:

Materials Used:

Addresses the Following Component of the Mandate:

- Bias
- Bigotry
- Bullying
- Holocaust Studies
- Prejudice

LGBTQ and Disabilities Mandate

Topic LGBTQ Representation in woodworking

Materials Used:https://www.usatoday.com/story/news/nation/2022/06/27/lgbtq-women-woodworkers/9906253002/

Addresses the Following Component of the Mandate:

- Economic
- Political

- Social

Climate Change

Asian American Pacific Islander Mandate

Topic (Person and Contribution Addresses): asian pacific islander design

Materials Used:https://www.architecturaldigest.com/story/asian-american-and-pacific-islander-design-creatives-roundtable

Addresses the Following Component of the Mandate:

- Economic
- Political
- Social

Summative Assessment:

Summative assessments evaluate a student's overall learning and achievement at the end of a course or program. Here are some effective summative assessments for a woodworking curriculum:

High-stakes Assessments:

- Comprehensive Exams: Final exams covering a broad range of course material can assess students' overall understanding of key concepts and principles.
- Capstone Project Presentations: Formal presentations allow students to showcase their project management skills, decision-making, and communication abilities.

Performance-based Assessments:

- Project Portfolio Reviews: A portfolio compiled throughout the program can demonstrate a student's growth, technical skills, and problem-solving abilities in various areas of woodworking
- Simulated Project Management Tasks: Students could be presented with a realistic construction scenario where they have to apply their knowledge and skills to develop solutions or make critical decisions.

Industry-standard Certifications:

- Encouraging students to pursue industry certifications relevant woodworking can demonstrate their commitment to the field and mastery of specific skills.

Considerations for Choosing Summative Assessments:

- Alignment with Learning Outcomes: Ensure the chosen assessments directly measure the program's overall learning objectives and desired competencies.

- Depth vs. Breadth: Balance the need to assess a broad range of knowledge with in-depth exploration of critical skills.
- Authenticity: Choose assessments that reflect real-world scenarios and tasks woodworking encounter.
- Multiple Measures: Utilize a combination of assessments to provide a holistic picture of student learning.
- Faculty Collaboration: Ensure consistency and fairness in assessments across different courses within the program.

Additional Tips:

- Develop clear rubrics outlining specific criteria for evaluating performance on each summative assessment.
- Provide students with ample opportunities to practice and refine their skills before summative assessments.
- Offer feedback on summative assessments to help students identify areas for improvement and guide their future learning.

- Alternate Assessment
- Benchmark Visual tool and material inspection
- Marking Period Assessment

Resources & Materials:

Smartboard

Google Classroom

CNC Tech

Instructional Strategies, Learning Activities, and Levels of Blooms/DOK:

Group students based on topic knowledge

Create pods with student captains

Create tiered lessons

Create handouts for common questions

Include hands-on activities and projects

Provide study guides, worksheets, and notes

Flip your classroom

Use the Think-Pair-Share method

Formative Assessment:

Formative assessments are ongoing evaluations designed to identify student understanding and adjust teaching methods to optimize learning throughout the curriculum. Here are some effective strategies to integrate formative assessments in your woodworking program:

In-Class Activities:

- Quick Quizzes: Short, unannounced quizzes at the beginning or end of class can assess comprehension of key concepts from previous lessons or gauge readiness for new material..
- Think-Pair-Share: Encourage individual reflection followed by partnered discussions and sharing key takeaways with the class. This promotes active learning and identifies common misconceptions.
- Minute Papers: Have students write a one-minute summary of the main points learned or lingering questions they have. This helps identify areas needing clarification.

Classroom Discussions & Activities:

- Open-ended Questions: Encourage students to think critically and elaborate on their understanding by posing open-ended questions throughout lessons.
- Case Studies & Problem-solving: Present real-world construction scenarios or problems for students to analyze and propose solutions. This assesses critical thinking and application of knowledge.
- Role-playing Activities: Simulate real-world situations like project meetings or client interactions to practice communication, negotiation, and problem-solving skills.

Peer-based Assessment:

- Peer Reviews: Students can review each other's work, providing constructive feedback on project plans, presentations, or technical drawings. This fosters collaboration and self-assessment skills.
- Group Work & Discussions: Collaborative activities encourage students to explain concepts to one another, solidifying their understanding and identifying areas where they can learn from peers.

Technology-assisted Assessments:

- Online Quizzes & Polls: Utilize online platforms for short quizzes, polls, or concept checks to gauge student understanding in real-time and adjust instruction accordingly.
- Self-assessment Tools: Provide online quizzes or exercises where students can assess their own understanding of key concepts and identify areas for self-directed learning.

Benefits of Formative Assessment:

- Improved Student Learning: Provide ongoing feedback that helps students identify strengths, weaknesses, and adjust their learning strategies.
- Informed Instruction: Instructors gain valuable insights into student understanding, allowing them to adapt teaching methods and address misconceptions promptly.
- Increased Student Engagement: Active participation in formative assessments keeps students engaged and invested in the learning process.
- Promotes Self-reflection: Encourage students to reflect on their learning journey, identify areas for

improvement, and take ownership of their learning.

Modifications

ELL Modifications:

- Choice of test format (multiple-choice, essay, true-false)
- Continue practicing vocabulary
- Provide study guides prior to tests
- Read directions to the student
- Read test passages aloud (for comprehension assessment)
- Vary test formats

G&T Modifications:

- Alternate assignments/enrichment assignments
- Enrichment projects
- Extension activities
- Higher-level cooperative learning activities
- Pairing direct instruction with coaching to promote self-directed learning
- Provide higher-order questioning and discussion opportunities
- Provide texts at a higher reading level
- Tiered assignments
- Tiered centers

At Risk Modifications

The possible list of modifications/accommodations identified for Special Education students can be utilized for At-Risk students. Teachers should utilize ongoing methods to provide instruction, assess student needs, and utilize modifications specific to the needs of individual students. In addition, the following may be considered:

- Additional time for assignments
- Adjusted assignment timelines
- Agenda book and checklists
- Answers to be dictated

- Assistance in maintaining uncluttered space
- Books on tape
- Concrete examples
- Extra visual and verbal cues and prompts
- Follow a routine/schedule
- Graphic organizers
- Have students restate information
- No penalty for spelling errors or sloppy handwriting
- Peer or scribe note-taking
- Personalized examples
- Preferential seating
- Provision of notes or outlines
- Reduction of distractions
- Review of directions
- Review sessions
- Space for movement or breaks
- Support auditory presentations with visuals
- Teach time management skills
- Use of a study carrel
- Use of mnemonics
- Varied reinforcement procedures
- Work in progress check

IEP & 504 Modifications:

*All teachers of students with special needs must review each student's IEP. Teachers must then select the appropriate modifications and/or accommodations necessary to enable the student to appropriately progress in the general curriculum.

Possible Modifications/Accommodations: (See listed items below):

- Allow for redos/retakes
- Assign fewer problems at one time (e.g., assign only odds or evens)
- Differentiated center-based small group instruction
- Extra time on assessments
- Highlight key directions
- If a manipulative is used during instruction, allow its use on a test
- Opportunities for cooperative partner work
- Provide reteach pages if necessary
- Provide several ways to solve a problem if possible
- Provide visual aids and anchor charts

- Test in alternative site
- Tiered lessons and assignments
- Use of a graphic organizer
- Use of concrete materials and objects (manipulatives)
- Use of word processor