WOODWORKING PRINCIPLES
Grade(s) 10-12

Unit # 1
Safety and Procedural Skills

Essential Question
How do workplace safety practices impact individuals and the broader industry?

Unit Summary
Students will explore the importance of safety in industrial settings, including accident prevention, OSHA regulations, and emergency response protocols. They will learn and practice proper safety procedures to create a secure working environment.

Guiding Questions
Content

- What is basic personal protective equipment (PPE)?
- What are safety practices specific to each tool or machine?

Process

- How do you properly inspect and use PPE?
- What are the steps to safely lift and transport heavy materials?
- How do safety procedures differ between various tools and equipment?

Reflective

- Why do workplace safety practices matter in an industrialized society?
- What consequences can result from neglecting safety protocols?
- How can safety training benefit career growth in skilled trades?

Priority Standards

- 1.1 - Demonstrate an understanding of industry standards for personal safety including the safe use of tools, equipment, and hazardous materials.

Supporting Standards

- 1.1 - Act as a responsible and contributing citizen and employee.
- 1.3 - Attend to personal health and financial well-being.
- 1.5 - Consider the environmental, social, and economic impact of decisions.
- 1.9 - Model integrity, ethical leadership and effective management.
- 2.1 - Use vocabulary, symbols, and formulas commonly used in design and construction.
- 2.3 - Comply with regulations and applicable codes to establish and manage a legal and safe workplace / jobsite.

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Unit # 2
Planning and Designing Skills

Essential Question
How do planning and design contribute to successful woodworking projects?

Unit Summary
Students will explore the importance of planning, measurement, and design in woodworking. They will learn how to interpret and create project blueprints and apply mathematical skills for accurate project execution.

Guiding Questions
Content

- What are the essential elements of a woodworking plan?
- How does measurement accuracy impact project outcomes?
- What factors should be considered when selecting materials for a project?

Process

- How do you develop a plan of procedure for a project?
- What are effective techniques for transferring measurements and markings?
- How do you adjust project plans based on available resources and constraints?

Reflective

- What challenges did you face when planning a project, and how did you overcome them?
- How do design modifications impact the final product?
- How does planning affect the efficiency of the construction process?

Priority Standards

- 1.1 - Identify common woodworking tools and proper use of them.
- 1.2 - Apply math skills to control distance, spacing &/or angle measurements and placements for constructing a project.
- 1.3 - Understand how to interpret, develop, and follow a plan of procedure.
- 2.1 - Utilize portable power tools to construct a project
- 2.2 - Utilize machines to construct a project.
- 2.3 - Perform the steps to interpret, transfer and layout lines &/or markings to be used for constructing a project.
- 2.4 - Construct a project and use proper design and construction methods.
- 2.5 - Select and perform “best-method” for joining and assembling project parts.
- 2.6 - Apply a quality finish on a project utilizing appropriate materials & equipment.

Supporting Standards

- 1.1 - Act as a responsible and contributing citizen and employee.
- 1.2 - Apply appropriate academic and technical skills.
- 1.3 - Attend to personal health and financial well-being.
- 1.6 - Demonstrate creativity and innovation.
- 1.8 - Utilize critical thinking to make sense of problems and persevere in solving them.
- 1.9 - Model integrity, ethical leadership and effective management.
- 1.11 - Use technology to enhance productivity.
- 2.1 - Use vocabulary, symbols, and formulas commonly used in design and construction.
- 2.2 - Use architecture and construction skills to create and manage a project.
- 2.3 - Comply with regulations and applicable codes to establish and manage a legal and safe workplace / jobsite.
- 2.5 - Understand the roles and responsibilities among trades and professions, including labor / management relationships.
- 2.6 - Read, interpret, and use technical drawings, documents, and specifications to plan a project.

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Unit # 3
Construction of Complex Projects

Essential Question
How do woodworking techniques and processes influence the quality of construction?

Unit Summary
Students will use portable power tools and machines to construct a project while applying design principles and joining methods. They will also practice proper assembly and finishing techniques.

Guiding Questions
Content

- What are the key differences between hand tools, portable power tools, and machines?
- How do different joinery techniques affect the durability of a project?
- What steps are involved in constructing a project from start to finish?

Process

- How do you safely and effectively operate woodworking machines?
- What methods can be used to ensure precise cuts and assembly?
- How do you troubleshoot common construction issues?

Reflective

- What skills have you improved upon during the construction process?
- How do different materials impact the outcome of a project?
- How did your project turn out compared to your initial design?

Priority Standards

- 1.1 - Identify common woodworking tools and proper use of them.
- 1.2 - Apply math skills to control distance, spacing &/or angle measurements and placements for constructing a project.
- 1.3 - Understand how to interpret, develop, and follow a plan of procedure.
- 2.1 - Utilize portable power tools to construct a project
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- 2.3 - Perform the steps to interpret, transfer and layout lines &/or markings to be used for constructing a project.
- 2.4 - Construct a project and use proper design and construction methods.
- 2.5 - Select and perform “best-method” for joining and assembling project parts.
- 2.6 - Apply a quality finish on a project utilizing appropriate materials & equipment.

Supporting Standards

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- 1.2 - Apply appropriate academic and technical skills.
- 1.3 - Attend to personal health and financial well-being.
- 1.5 - Consider the environmental, social, and economic impact of decisions.
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- 2.1 - Use vocabulary, symbols, and formulas commonly used in design and construction.
- 2.2 - Use architecture and construction skills to create and manage a project.
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- 2.5 - Understand the roles and responsibilities among trades and professions, including labor/management relationships.
- 2.6 - Read, interpret, and use technical drawings, documents, and specifications to plan a project.

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Unit # 4
Construction of an Advanced Project

Essential Question
How can advanced woodworking skills be applied to create a functional and aesthetic project?

Unit Summary
This unit builds on previous skills by challenging students to construct an advanced project that requires precision, creativity, and attention to detail.

Guiding Questions
Content
- What are advanced joinery and assembly techniques?
- How do wood properties influence the construction process?
- What factors determine the best finishing techniques for a project?

Process
- How do you sequence steps in constructing an advanced project?
- What techniques improve efficiency and accuracy in advanced woodworking?
- How do you apply quality control measures throughout construction?

Reflective
- What were the biggest challenges in constructing an advanced project?
- How did your skills improve from your previous projects?
- What lessons from this project will you apply to future woodworking endeavors?

Priority Standards

- 1.1 - Identify common woodworking tools and proper use of them.
- 1.2 - Apply math skills to control distance, spacing &/or angle measurements and placements for constructing a project.
- 1.3 - Understand how to interpret, develop, and follow a plan of procedure.
- 2.1 - Utilize portable power tools to construct a project
- 2.2 - Utilize machines to construct a project.
- 2.3 - Perform the steps to interpret, transfer and layout lines &/or markings to be used for constructing a project. Click or tap here to enter text.
- 2.4 - Construct a project and use proper design and construction methods.
- 2.5 - Select and perform “best-method” for joining and assembling project parts.
- 2.6 - Apply a quality finish on a project utilizing appropriate materials & equipment.

Supporting Standards

- 1.1 - Act as a responsible and contributing citizen and employee.
- 1.2 - Apply appropriate academic and technical skills.
- 1.3 - Attend to personal health and financial well-being.
- 1.5 - Consider the environmental, social, and economic impact of decisions.
- 1.6 - Demonstrate creativity and innovation.
- 1.8 - Utilize critical thinking to make sense of problems and persevere in solving them.
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- 2.1 - Use vocabulary, symbols, and formulas commonly used in design and construction.
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- 2.5 - Understand the roles and responsibilities among trades and professions, including labor / management relationships.
- 2.6 - Read, interpret, and use technical drawings, documents, and specifications to plan a project.

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Unit # 5
Career and Employability Skills

Essential Question
How can woodworking and skill trades translate into career opportunities and professional success?

Unit Summary
This unit will explore career pathways in woodworking, furniture making, and construction. Students will learn about employability skills, workplace expectations, and opportunities for further education and training.

Guiding Questions
Content

- What career opportunities exist in woodworking and related fields?
- What skills are employers looking for in the woodworking industry?
- What are the key components of a strong resume and portfolio?

Process

- How do you prepare for a woodworking job interview?
- What strategies can be used to network with industry professionals?
- How do you showcase your woodworking skills in a professional setting?

Reflective

- What woodworking skills do you feel most confident in applying to a job setting?
- How can you continue developing your skills after completing this course?
- How has this course influenced your career interests?

Priority Standards - Taken from Introduction to Skilled Trades

- 4.1 - Communicate effectively in on-the-job situations using verbal and written skills in various delivery modes (face-to-face, virtual, etc.)
- 4.2 - Demonstrate knowledge and use of computer systems and word processing software in effective communication.
- 4.3 - Create and utilize employment documents including a resume and portfolio.
- 4.4 - Demonstrate job seeking and interview skills.
- 4.5 - Demonstrate the ability to achieve common goals through teamwork.

Supporting Standards

- 1.1 - Act as a responsible and contributing citizen and employee.
- 1.2 - Apply appropriate academic and technical skills.
- 1.3 - Attend to personal health and financial well-being.
- 1.9 - Model integrity, ethical leadership and effective management.
- 1.10 - Plan education and career path aligned to personal goals.
- 2.4 - Understand the nature and scope of the Architecture & Construction Career Cluster and the role of architecture and construction play in society and the economy.
- 2.7 - Evaluate a wide range of career pathway opportunities for success in architecture and construction careers.