

Woods III&IV Unit 1- General Shop Safety (2022)

Content Area: **Applied Tech**
Course(s): **WOODS III, WOODS IV**
Time Period: **Marking Period 1**
Length: **1 week (plus a day if needed)**
Status: **Published**

Standards

Applied Technology Standards

9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
9.3.12.AC-CST.8	Demonstrate the construction crafts required for each phase of a construction project.
9.3.12.AC-CST.9	Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.
12.9.3.MN.6	Demonstrate workplace knowledge and skills common to manufacturing.
12.9.3.MN-HSE.1	Demonstrate the safe use of manufacturing equipment.
12.9.3.MN-HSE.2	Develop safety plans for production processes that meet health, safety and environmental standards.
12.9.3.MN-HSE.3	Demonstrate a safety inspection process to assure a healthy and safe manufacturing environment.
12.9.3.MN-MIR.2	Demonstrate the safe use of manufacturing equipment to ensure a safe and healthy environment.
12.9.3.MN-PRO.5	Demonstrate the safe use of manufacturing equipment.
TECH.9.4.2.CI	Creativity and Innovation
TECH.9.4.2.TL	Technology Literacy

Transfer Goals and Career Ready Practices

Transfer Goals

Students will be able to independently use their learning to value the importance of general safety practices in the manufacturing lab so they and their classmates will be safe.

Concepts

Essential Questions

- How should I go about reporting a safety concern?
- What are some general safety rules?
- What can I do to stay safe?
- What is a major contributing factor to injuries and accidents?
- Why is it important to stay safe in the shop?

Understandings

Students have the power to work safely in a shop environment using hand and power tools. Human error is a contributing factor in 90% of all accidents.

Critical Knowledge and Skills

Knowledge

Students will know:

- How to properly work in the shop to reduce the risk of injury, during the course of the year.
- How to determine what is safe behavior and what is not.

Skills

Students will be able to:

- Prevent injuries
- Create a safe work environment.

Assessment and Resources

School Formative Assessment Plan (Other Evidence)

- participation in class
- quizzes

School Summative Assessment Plan

The goal of the students is to take the General Shop Safety Test and pass with a 100%.

If a 100% is not achieved the student will retake the safety test again until 100% is reached.

Primary Resources

General Shop Woodworking text book

Verne C. Fryklund (Author), Arnold J. Le Barge (Author)

Woodworking: Principles and Practice

Roger W. Cliff (Author)

Supplementary Resources

Handouts can be found in Student Apps in the Rumaker folder.

Technology Integration and Differentiated Instruction

Technology Integration

- Google Products
Google Classroom - Used for daily interactions with the students covering a vast majority of different educational resources (Daily Notes, Exit Tickets, Classroom Polls, Quick Checks, Additional Resources/ Support, Homework, etc.)
- **Students will use Google Classroom to take the General Shop Safety Test.**

- GAFE (Google Apps For Education) - Using various programs connected with Google to collaborate within the district, co-teachers, grade level partner teacher, and with students to stay connected with the content that is covered within the topic. Used to collect data in real time see results upon completion of the assignments to allow for 21st century learning.

- One to One Student laptop
- **Students will create a folder on the student apps drive to submit their work.**

Differentiated Instruction

Gifted Students (N.J.A.C.6A:8-3.1)

- Within each lesson, the Gifted Students are to be given the Enrichment Questions.
 - These questions are to extend the knowledge of each portion of the lesson.
- Performance Task
 - Additional practice was provided for students that provided a higher level of thinking for the concepts.

English Language Learners (N.J.A.C.6A:15)

- Within each lesson, the English Language Learners are given three levels of questioning. Each level is

accommodating to the level of learning that the individual student(s) is learning at.

- Beginning
- Intermediate
- Advanced

- All assignments can be created in the student's native language if needed.
- Work with ELL Teacher to allow for all assignments to be completed with extra time.

Risk Students (N.J.A.C.6A:8-4.3c)

- Work with the I & RS Team to reach the needs of students.
- Mentors provided
- Offer additional supports as needed (after school help, parent contacts, frequent checks for understanding, etc.)

Special Education Students (N.J.A.C.6A:8-3.1)

- Frequent checks for understanding
- Preferred seating assignments
- Hard copy of notes
- Extend the time needed to complete assignments/assessments
- Provide a copy of grading rubrics for projects/labs
- Provide a copy of a model representation for projects
- Clarification of directions/instructions
- Use of technology when appropriate
- Repeat/rephrase instructions as needed

Interdisciplinary Connections

MATH – N/a

SCIENCE –N/a

ELA – N/a

SOCIAL STUDIES –N/a

WORLD LANGUAGES –N/a

VISUAL/PERFORMING ARTS –N/a

APPLIED TECHNOLOGY – Students will use their computers to take safety tests, create folders in

student apps drive, gain access to Classroom period of Google Classroom.

BUSINESS EDUCATION – N/a

GLOBAL AWARENESS – Students will understand that all companies domestic and international use Occupational Safety and Health Administration (OSHA’s) safety prevention techniques to prevent injuries.

Learning Plan / Pacing Guide

All week plans are subject to change due to the skill level and work efficiency of the students.

Day 1:

- Introduction to Class
- Student introductions
- About Me

Day 2-3:

- General Safety Presentation
- Class Rules
- Core Safety Ideas
- Check for understanding

Day 4 (5 if needed):

- Wrap up general shop safety
- General Safety TEST
- Creation of student folders in student apps
- Tour of Facilities

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Woods III&IV Unit 2 Hand Tools and Power Tools Safety (2022)

Content Area: **Applied Tech**
Course(s): **WOODS III, WOODS IV**
Time Period: **Marking Period 1**
Length: **1 week**
Status: **Published**

Standards

Applied Technology Standards

9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
9.3.12.AC-CST.8	Demonstrate the construction crafts required for each phase of a construction project.
9.3.12.AC-CST.9	Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.
12.9.3.MN	Manufacturing
12.9.3.MN.3	Comply with federal, state and local regulations to ensure worker safety and health and environmental work practices.
12.9.3.MN-HSE.1	Demonstrate the safe use of manufacturing equipment.
12.9.3.MN-HSE.2	Develop safety plans for production processes that meet health, safety and environmental standards.
12.9.3.MN-HSE.3	Demonstrate a safety inspection process to assure a healthy and safe manufacturing environment.
12.9.3.MN-HSE.6	Conduct job safety and health analysis for manufacturing jobs, equipment and processes.
12.9.3.MN-MIR.2	Demonstrate the safe use of manufacturing equipment to ensure a safe and healthy environment.
12.9.3.MN-MIR.3	Diagnose equipment problems and effectively repair manufacturing equipment.
12.9.3.MN-PRO.2	Manage safe and healthy production working conditions and environmental risks.
12.9.3.MN-PRO.5	Demonstrate the safe use of manufacturing equipment.
12.9.3.MN-QA.5	Perform safety inspections and training to ensure a safe and healthy workplace.
TECH.9.4.12.CI	Creativity and Innovation
TECH.9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
TECH.9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).

Transfer Goals and Career Ready Practices

Transfer Goals

Hand Tools:

- Students will be able to independently use their learning to know the differences in hand tools and small power tools and when to use each one. We will reinforce safety and measuring as they use the tools.

Power Tools

- Students will be able to independently use their learning to understand the importance of safety and proper use of power tools.

Concepts

Essential Questions

- How do we use a square to make a straight line?
- How do we use the band saw safely?
- How do we use the drill press safely?
- How do we use the miter saw safely?
- How do you use the disc sander safely?
- How do you use the drill press safely?
- What application does a grinder serve?
- What application is a lathe used for?
- What does a miter saw do?
- What does the band saw do that other tools cannot do?
- What is the disc sander and what operations is it used for?
- What is the mortise and tenon machine used for?
- What is the oscillating spindle sander used for?
- What operations can be performed on the table saw?
- What purpose does a router serve?
- What side of the sander do we use to keep the work piece tight on the table?
- What tool do we use when we cross cut?
- When should we use a push stick?
- Where should you stand when making a cut on the table saw?

- Why are relief cuts important when cutting narrow curves?
- Why do we use a miter saw for cross cutting instead of using the table saw?
- Why is it important to leave some room next to the pencil line?
- Why is the direction of the grain important?

Understandings

Hand Tools:

- They need to use the right tool for the job because each one has its own purpose. Also, the importance of laying out lines and cutting them correctly.

Power Tools:

- Using power tools makes wood working easier and more accurate but they have the ability to cause severe injuries. They need to be respected and they must be used properly and safely

Critical Knowledge and Skills

Knowledge

Students will know:

Hand Tools:

- How to draw a line using a square
- How to drill holes
- How to square an edge
- How to use a back saw
- How to use the disc sander
- How to work safely
- The importance of sanding to a pencil line
- To cut on the waste side of the line

Power Tools:

- How to make a cross-cut on the miter saw.
- How to make properly shape an edge on the router
- How to use the band saw and the techniques to stay safe including where to stand and using relief cuts
- How to use the disc sander safely.
- How to use the drill press to perform various drilling operations
- How to use the grinder safely

- How to use the lathe sander safely
- How to use the miter saw safely
- How to use the mortise and tenon machine.
- How to use the oscillating spindle sander safely.
- How to use the table saw correctly. A tool that is the center piece of the shop.
- The importance of acting in a safe manner around power tools.
- The importance of acting in a safe manner around power tools
- Where to stand when cutting on the table saw.

Skills

Students will be able to:

Hand Tools:

- Cut a square end on a piece of wood
- Measure a certain amount with a tape measure
- Square an end
- Use the disc sander to square an edge
- Use the drill press to drill holes Work safely with hand tools

Power Tools:

- Cross cut a board on the miter saw
- Cross cut a board on the table saw
- Demonstrate to the instructor that they know how to use the machines correctly during the demo
- Drill several square holes into a piece of stock using the mortise and tenon machine
- Make chisel beads and coves on a cylinder piece of stock on the lathe
- Make relief cuts on the band saw to cut intricate curves.
- Rip a board on the table saw
- Router and edge of a piece of stock
- Sharpen chisels and scrapers using the grinder
- Use the disc sander to sand a flat surface
- Use the drill press to drill holes
- Use the oscillating spindle sander to sand a curved surface
- Use the power tools safely

Assessment and Resources

School Formative Assessment Plan (Other Evidence)

- Checks for understanding
- Student test cuts
- Teacher Demo

School Summative Assessment Plan

The goal of the students is to take the Machine Safety Tests and pass with a 100%.

If a 100% is not achieved the student will retake the safety test again until 100% is reached.

Primary Resources

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Verne C. Fryklund (Author), Arnold J. Le Barge (Author)

Woodworking: Principles and Practice

Roger W. Cliff (Author)

Supplementary Resources

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Technology Integration and Differentiated Instruction

Technology Integration

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- **Students will use Google Classroom to take Machine Shop Safety Test**
- GAFE (Google Apps For Education) - Using various programs connected with Google to collaborate within the district, co-teachers, grade level partner teacher, and with students to stay connected with the content that is covered within the topic. Used to collect data in real time see results upon completion of the assignments to allow for 21st century learning.

- One to One Student laptop

All students within the West Deptford School District are given a computer, allowing for 21st century learning to occur within every lesson/topic.

- Additional Support Videos

Differentiated Instruction

Gifted Students (N.J.A.C.6A:8-3.1)

- Within each lesson, the Gifted Students are to be given the Enrichment Questions.
 - These questions are to extend the knowledge of each portion of the lesson.
- Performance Task
 - Additional practice was provided for students that provided a higher level of thinking for the concepts.

English Language Learners (N.J.A.C.6A:15)

- Within each lesson, the English Language Learners are given three levels of questioning. Each level is accommodating to the level of learning that the individual student(s) is learning at.
 - Beginning
 - Intermediate

Advanced

- All assignments can be created in the student's native language if needed.
- Work with ELL Teacher to allow for all assignments to be completed with extra time.

Risk Students (N.J.A.C.6A:8-4.3c)

- Work with the I & RS Team to reach the needs of students.
- Mentors provided
- Offer additional supports as needed (after school help, parent contacts, frequent checks for understanding, etc.)

Special Education Students (N.J.A.C.6A:8-3.1)

- Frequent checks for understanding
- Preferred seating assignments
- Hard copy of notes
- Extend the time needed to complete assignments/assessments
- Provide a copy of grading rubrics for projects/labs
- Provide a copy of a model representation for projects
- Clarification of directions/instructions
- Use of technology when appropriate
- Repeat/rephrase instructions as needed

Interdisciplinary Connections

MATH – N/a

SCIENCE –N/a

ELA – N/a

SOCIAL STUDIES –N/a

WORLD LANGUAGES –N/a

VISUAL/PERFORMING ARTS –N/a

APPLIED TECHNOLOGY – Students will use their computers to take safety tests

BUSINESS EDUCATION – N/a

GLOBAL AWARENESS – Students will understand that all companies domestic and international use Occupational Safety and Health Administration (OSHA's) safety prevention techniques to prevent injuries.

Learning Plan / Pacing Guide

Week 1:

Hand Tools

- Listen to a presentation on hand tools
- Participate in a demonstration on cutting
- Cut their own piece of wood to the specifications
- Practice with Sander and Drills
- Layout, drill, sand sample block

Power Tools

- Miter Saw Presentation/Demo
- Band Saw/jigsaw Presentation/Demo
- Table Saw Presentation/Demo

Week 2:

Power Tools con't

- Lathe Presentation/Demo
- Router Presentation/Demo
- Grinder Presentation/Demo
- Oscillating spindle sander Presentation/Demo
- Mortise and tenon machine Presentation/Demo
- Disc sander presentation/demo
- Safety Test

Woods III&IV Unit 3 Measurement and Design (2022)

Content Area: **Applied Tech**
Course(s): **WOODS III, WOODS IV**
Time Period: **Marking Period 1**
Length: **~3 weeks**
Status: **Published**

Standards

Applied Technology Standards

9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC-CST.8	Demonstrate the construction crafts required for each phase of a construction project.
9.3.12.AC-DES	Design/Pre-Construction
9.3.12.AC-DES.6	Apply the techniques and skills of modern drafting, design, engineering and construction to projects.
9.3.12.AC-DES.8	Apply standards, applications and restrictions pertaining to the selection and use of construction materials, components and assemblies in the project design.
CS.9-12.8.2.12.ED.1	Use research to design and create a product or system that addresses a problem and make modifications based on input from potential consumers.
CS.9-12.8.2.12.NT.2	Redesign an existing product to improve form or function.
CS.9-12.ED	Engineering Design
MA.9-12.1.2.12prof.Pr5a	Demonstrate progression in artistic, design, technical, and soft skills, as a result of selecting and fulfilling specified roles in the production of a variety of media artworks.
MA.9-12.1.2.12prof.Pr5b	Develop and refine creativity and adaptability, such as design thinking and risk taking, in addressing identified challenges and constraints within and through media arts productions.
MA.9-12.1.2.12prof.Pr5c	Demonstrate adaptation and innovation through the combination of tools, techniques and content to communicate intent in the production of media artworks.
CAEP.9.2.12.C.1	Review career goals and determine steps necessary for attainment.
MANU.9-12.9.4.12.M.(1).7	Design a new product that meets identified customer needs, while also demonstrating the use of strategies and techniques for developing manufacturing production processes.
MANU.9-12.9.4.12.M.(2).3	Recognize problems related to production processes, and design corrections to assure that products meet quality standards.
MANU.9-12.9.4.12.M.(2).9	Design a product that satisfies a customer's desires to demonstrate the relationship between production processes and meeting customer needs.
TECH.9.4.12.CI	Creativity and Innovation
TECH.9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
TECH.9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).
	Engineering design is a complex process in which creativity, content knowledge, research,

and analysis are used to address local and global problems. Decisions on trade-offs involve systematic comparisons of all costs and benefits, and final steps that may involve redesigning for optimization.

Transfer Goals and Career Ready Practices

Transfer Goals

Measurement :

- Students will be able to independently use their learning to effectively read a tape measure and be able to measure different pieces of wood. This is important to be able to read a plan and build a project correctly.
- Students will be able to independently use their learning to effectively fill out a bill of materials to properly determine how much material will be needed to complete their projects.

Design:

- Students will be able to independently use their learning to draw and read plans because this skill is essential to being able to construct projects to specifications. Also, this helps with their visualization skills

Concepts

Essential Questions

- How do we measure length, width, and thickness?
- How do you draw a 3-view drawing?
- How is the Inch divided?
- How to make a materials list from a 3-view drawing?
- What are different types of lines used for?
- What are the different tools used to measure wood?
- What are the different views of a 3-view drawing?
- What is the equation to calculate board feet?
- Why is accurate dimensioning important?
- Why is it important to draw neatly?
- Why is it important to have a bill of materials?

- Why is it important to know how to read a ruler?

Understandings

Measurement :

- Students will understand that measurements are extremely important in woodworking if they are going to complete projects successfully and to specifications.
- Students will understand they a bill of material are extremely important in woodworking if they are going to complete projects successfully and to specifications.

Design:

- Every project needs a plan. This plan has to be well thought out and clear. Being able see the different views of an object with dimensions is critical to constructing a project.

Critical Knowledge and Skills

Knowledge

Students will know...

Measurement:

- How to read a ruler and tape measure and accurately measure and draw lines accurate to 1/16"
- How to complete and read a bill of materials before building a project.
- Know board feet in calculated by $((\text{length} \times \text{width} \times \text{height})/144) \times \text{the number of pieces}$.

Design:

- How to draw 3-view orthographic projections
- How to letter a title block.
- How to use dimensions to make a materials list
- How visualize the surfaces of an object in 2-D
- The different views of a drawing

Skills

Students will be able to...

Measurement:

- Measure a piece of wood and be able to correctly note the length, width, and thickness
- Measure accurately to the nearest 1/16 of an inch
- Fill out bill of materials sheet correctly
- Use the $((L \times W \times H) / 144) \times \text{number of pieces}$ correctly

Design:

- Draw 3-views of objects
- Find different sides and surfaces of a 3-view drawing
- Read a 3-view drawing with dimensions

Assessment and Resources

School Formative Assessment Plan (Other Evidence)

Measurement:

- Accuracy of measurements throughout the year
- Checking for understanding
- Measuring packet
- Bill of materials example

Design:

- Being able to read plans for the rest of the year
- Finding different views
- Formative questions, check for understanding
- Full size drawings
- Listing measurements from a drawing
- Orthographic rough sketches

School Summative Assessment Plan

Measurement:

Students will complete various assignment sheets that involve measuring and proper fraction reductions

Design:

Students will:

- Complete the required assignment sheets
- Recreate several design examples and will be graded on the accuracy of the drawings.
- Develop these skills so you will be able to read a plan and draw new plans if you choose to do so.
- Create a 3-view drawing of a blocks, students will need to show the top, front, and right side view.
- Create several designs of their own artistic liberty to represent the design task given.
- If a student chooses not to work they will receive a 0.

A successful result will be a functional product that adheres to the specifications given by the plan. It will be judged by accuracy, attention to detail, finish, and amount of work put into the project.

ALL grading is individualized to meet the skill level of each student, students will be graded on their own growth in their skills.

Primary Resources

General Shop Woodworking text book

Verne C. Fryklund (Author), Arnold J. Le Barge (Author)

Woodworking: Principles and Practice

Roger W. Cliff (Author)

www.sketchup.com/learn

Supplementary Resources

Getting started with SketchUp Parts 1-4

<https://www.sketchup.com/learn/videos/826>

Technology Integration and Differentiated Instruction

Technology Integration

- Google Products
Google Classroom - Used for daily interactions with the students covering a vast majority of different educational resources (Daily Notes, Exit Tickets, Classroom Polls, Quick Checks, Additional Resources/ Support, Homework, etc.)
- **Students will use Google SketchUp to design their example projects.**
- GAFE (Google Apps For Education) - Using various programs connected with Google to collaborate within the district, co-teachers, grade level partner teacher, and with students to stay connected with the content that is covered within the topic. Used to collect data in real time see results upon completion of the assignments to allow for 21st century learning.
- One to One Student laptop
- **Students will save all of their design work in their students apps folder and in the H drive**

All students within the West Deptford School District are given a computer, allowing for 21st century learning to occur within every lesson/topic.

- **Getting started with SketchUp Parts 1-4**

<https://www.sketchup.com/learn/videos/826>

Differentiated Instruction

Gifted Students (N.J.A.C.6A:8-3.1)

- Within each lesson, the Gifted Students are to be given the Enrichment Questions.
 - These questions are to extend the knowledge of each portion of the lesson.
- Performance Task
 - Additional practice was provided for students that provided a higher level of thinking for the concepts.

English Language Learners (N.J.A.C.6A:15)

- Within each lesson, the English Language Learners are given three levels of questioning. Each level is accommodating to the level of learning that the individual student(s) is learning at.

Beginning

Intermediate

Advanced

All assignments can be created in the student's native language if needed.

Work with ELL Teacher to allow for all assignments to be completed with extra time.

Risk Students (N.J.A.C.6A:8-4.3c)

- Work with the I & RS Team to reach the needs of students.
- Mentors provided
- Offer additional supports as needed (after school help, parent contacts, frequent checks for understanding, etc.)

Special Education Students (N.J.A.C.6A:8-3.1)

- Frequent checks for understanding
- Preferred seating assignments
- Hard copy of notes
- Extend the time needed to complete assignments/assessments
- Provide a copy of grading rubrics for projects/labs
- Provide a copy of a model representation for projects
- Clarification of directions/instructions
- Use of technology when appropriate
- Repeat/rephrase instructions as needed

Interdisciplinary Connections

MATH – Students will use measuring tools to properly measure real life objects and 3-D objects

SCIENCE –N/a

ELA – N/a

SOCIAL STUDIES –N/a

WORLD LANGUAGES –N/a

VISUAL/PERFORMING ARTS –N/a

APPLIED TECHNOLOGY – Students will use their computers to recreate design worksheets on Google SketchUp and will save them in their H drive and Student Apps drive

BUSINESS EDUCATION – Students will use the bill of materials to determine the amount of materials required to complete their projects.

GLOBAL AWARENESS – Students will understand that all companies domestic and international use a design software, such as Google SketchUp, AutoCAD, Solidworks, Rino, etc.

Learning Plan / Pacing Guide

Week 1:

Measurement:

- Measuring demo
- Measuring Worksheets
- Practical Measuring Activity
- Bill of materials assignment sheets

Design:

- Intro to design and material planning

Weeks 2-3:

Design con't

- Intro to 3-view Drawings
- Presentation on Isometric and Orthographic Projections
- Labeling Sides of a 3-view drawing assignment sheets
- Drawing 3-view drawings
- How to draw Orthographic Projections
- Reading a Plan, Materials List Activity

Woods III/IV Unit 4 Personal Project (2022)

Content Area: **Applied Tech**
Course(s): **WOODS III, WOODS IV**
Time Period: **Generic Time Period**
Length: **School Year**
Status: **Published**

Standards

Applied Technology Standards

9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
9.3.12.AC-CST.8	Demonstrate the construction crafts required for each phase of a construction project.
9.3.12.AC-CST.9	Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.
12.9.3.MN.3	Comply with federal, state and local regulations to ensure worker safety and health and environmental work practices.
12.9.3.MN-HSE.1	Demonstrate the safe use of manufacturing equipment.
12.9.3.MN-HSE.2	Develop safety plans for production processes that meet health, safety and environmental standards.
12.9.3.MN-HSE.3	Demonstrate a safety inspection process to assure a healthy and safe manufacturing environment.
12.9.3.MN-LOG.2	Demonstrate proper handling of products and materials in a manufacturing facility.
12.9.3.ST-ET.4	Apply the elements of the design process.
12.9.3.ST-SM.4	Apply critical thinking skills to review information, explain statistical analysis, and to translate, interpret and summarize research and statistical data.
MA.9-12.1.2.12prof.Pr5a	Demonstrate progression in artistic, design, technical, and soft skills, as a result of selecting and fulfilling specified roles in the production of a variety of media artworks.
MA.9-12.1.2.12prof.Pr5b	Develop and refine creativity and adaptability, such as design thinking and risk taking, in addressing identified challenges and constraints within and through media arts productions.
MA.9-12.1.2.12prof.Pr5c	Demonstrate adaptation and innovation through the combination of tools, techniques and content to communicate intent in the production of media artworks.
PFL.9.1.12.B.6	Design and utilize a simulated budget to monitor progress of financial plans.
TECH.9.4.12.CI	Creativity and Innovation
TECH.9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
TECH.9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3).

Transfer Goals and Career Ready Practices

Transfer Goals

Students will be able to independently use their learning to choice of which project they will want to make with in reason*. They will build upon and utilize the skills learned they have gained building the required projects from the previous units.

* = Within reason means, that they student may build any project that they want within or at their ability level, which is determined by the quality of the students previous projects. (Woods 1 Projects)

Concepts

Essential Questions

- How deep is a counterbore hole?
- What is a counterbore hole?
- What is a countersunk hole?
- Why would you rather use the table saw to make a rip cut rather than the bandsaw?
- How do we measure length, width, and thickness?
- How do you prepare a project for finish?
- How does the speaker produce sound?
- What direction do you want the wooden plug to be facing?
- What is a pilot hole?
- What is the equation to calculate board feet?
- Which do we route first end or side grain?
- Why do we glue and nail our projects?
- Why is a dado/rabbit cut better than a regular butt joint?
- Why is accurate dimensioning important?
- Why is it important to draw neatly?
- Why is it important to have a bill of materials?
- Why is it important to have square ends?
- Why is it important to know how to read a ruler?
- Why is it important to sand correctly?

- Why is it important to wipe off excess glue?
- Why the measurements must be precise?

Understandings

Students will understand that . . .

The importance of paying attention to detail and to instructions. They will see that measuring, reading, plans and safety are very important. They will see why it was important to do this when looking at their projects.

Critical Knowledge and Skills

Knowledge

Students will know...

- How to finish a project
- How to measure properly
- How to read project blueprints
- How to use problem solving and critical thinking to help them complete their projects
- The different types of sandpapere
- How to proprly design their projects
- How to sand to a line
- What to use to make cross cuts
- Why we glue and nail
- Why we set nails
- Why we wipe glue off
- Glue boards together to make a bowl
- Use proper cabinet making techniques to create the toilet paper holder
- Proper use of a dado/rabbit cuts.

Skills

Students will be able to...

- Glue and use a nail set
- How to properly measure stock for their projects.
- Sand a project with various grits of sandpaper

- Stain and finish
- Transfer dimensions to a piece
- Use a back saw to make a cross cut
- Use problem solving and critical think to finish their projects
- Use the disc sander
- How to use the drill press
- Cut dado/rabbit joints

Assessment and Resources

School Formative Assessment Plan (Other Evidence)

- Accuracy of cuts
- Proper use of tools
- Exhibiting safety in all aspects
- Gluing up multiple boards
- Guiding students make cuts with the hand tools
- Measuring correctly
- Walking around checking for understanding
- Bill of materials
- Formative questions, check for understanding
- Full size drawings
- Listing measurements from a drawing
- Orthographic rough sketches
- Checking for understanding
- Being able to read plans for the rest of the year
- Accuracy of measurements throughout the year

School Summative Assessment Plan

Project 1:

- Your challenge is to design and build a personal project from your own research and interest.
- You will need to use the skills learned from your past wood shop projects.
- The challenge involves being able to think about how a project will go together without seeing each step layout out before you, as we did with your previous projects.
- You will need to rough cut pieces, cut to final dimensions, assemble, sand, stain, and clear coat by the specified deadline.
- Students are to work individually, but assisting each other to accomplish a finished project is encouraged

- If a student chooses not to work they will receive a 0.

A successful result will be functional products that adhere to the specifications given by the plan. It will be judged by accuracy, attention to detail, finish, and amount of work put into the project.

ALL grading is individualized to meet the skill level of each student, students will be graded on their own growth in their skills.

Primary Resources

General Shop Woodworking text book

Verne C. Fryklund (Author), Arnold J. Le Barge (Author)

Woodworking: Principles and Practice

Roger W. Cliff (Author)

www.sketchup.com/learn

Supplementary Resources

Personal project ideas are located in Student Apps in the Rumaker folder.

Technology Integration and Differentiated Instruction

Technology Integration

- Google Products
Google Classroom - Used for daily interactions with the students covering a vast majority of different educational resources (Daily Notes, Exit Tickets, Classroom Polls, Quick Checks, Additional Resources/ Support, Homework, etc.)
- **Students will use Google SketchUp to design their projects.**
- GAFE (Google Apps For Education) - Using various programs connected with Google to collaborate within the district, co-teachers, grade level partner teacher, and with students to stay connected with

the content that is covered within the topic. Used to collect data in real time see results upon completion of the assignments to allow for 21st century learning.

- One to One Student laptop
- **Students will save all of their design work in their students apps folder and in the H drive**

All students within the West Deptford School District are given a computer, allowing for 21st century learning to occur within every lesson/topic.

Differentiated Instruction

Gifted Students (N.J.A.C.6A:8-3.1)

- Within each lesson, the Gifted Students are to be given the Enrichment Questions.
 - These questions are to extend the knowledge of each portion of the lesson.
- Performance Task
 - Additional practice was provided for students that provided a higher level of thinking for the concepts.

English Language Learners (N.J.A.C.6A:15)

- Within each lesson, the English Language Learners are given three levels of questioning. Each level is accommodating to the level of learning that the individual student(s) is learning at.
 - Beginning
 - Intermediate
 - Advanced
- All assignments can be created in the student's native language if needed.
- Work with ELL Teacher to allow for all assignments to be completed with extra time.

Risk Students (N.J.A.C.6A:8-4.3c)

- Work with the I & RS Team to reach the needs of students.
- Mentors provided
- Offer additional supports as needed (after school help, parent contacts, frequent checks for understanding, etc.)

Special Education Students (N.J.A.C.6A:8-3.1)

- Frequent checks for understanding
- Preferred seating assignments
- Hard copy of notes
- Extend the time needed to complete assignments/assessments
- Provide a copy of grading rubrics for projects/labs
- Provide a copy of a model representation for projects
- Clarification of directions/instructions
- Use of technology when appropriate
- Repeat/rephrase instructions as needed

Interdisciplinary Connections

MATH –

- **Students will use measuring tools to properly measure real life objects and 3-D objects**

SCIENCE –N/a

ELA – N/a

SOCIAL STUDIES –N/a

WORLD LANGUAGES –N/a

VISUAL/PERFORMING ARTS –N/a

APPLIED TECHNOLOGY –

- **Students will use their computers to reverse engineer a design on Google SketchUp and will save them in their H drive and Student Apps drive.**
- **Students will use their computers to watch tutorials to assist them in understanding Google SketchUp and how to properly use the program.**

BUSINESS EDUCATION –

- **Students will use the bill of materials to determine the amount of materials required to complete their projects.**

GLOBAL AWARENESS –

- **Students will understand that all companies domestic and international use a design software, such as Google SketchUp, AutoCAD, Solidworks, Rino, etc.**

- Students will understand that all companies domestic and international use Occupational Safety and Health Administration (OSHA's) safety prevention techniques to prevent injuries.

Learning Plan / Pacing Guide

Work on the personal projects will include:

- Less linear project work, the students are free to work and test their abilities
- Focus for the upcoming weeks is to apply the skills learned in the middle school and use them to build the required projects listed above.
- Also look for teachable moments during the work weeks.

More emphasis will be placed on following as each students skills progress:

- Sanding
- Accurate Measurements
- Precision in assembly
- Gluing and excess glue removal
- Staining
- Clear coating
- Problem solving
- Critical thinking
- Independent thinking
- Project planning

All week plans are subject to change due to the skill level and work efficiency of the students.

Project Progress grade will be entered at the end of each month.

Once the student has completed their personal project they are to repeat process of this unit with another new project.

Phase 1 of each project:

- Design personal project
- Complete Bill of Materials for personal project
- Submit drawings and Bill of Materials for approval

Phase 2 of each project:

Construction of projects

- **Cutting material to size**
- **Sanding material**
- **Assembling of project**
- **Sanding of finished project**
- **Staining**
- **First coat of clear**
- **Sanding of first coat of clear coat**
- **Final Clear coating**
- **Grading**

Woods III/IV Unit 5 Entrepreneurship in Wood Shop (2022)

Content Area: **Applied Tech**
Course(s): **Generic Course, WOODS III, WOODS IV**
Time Period: **Marking Period 3**
Length: **2 week2**
Status: **Published**

Standards

Applied Technology Standards

9.3.12.AC.1	Use vocabulary, symbols and formulas common to architecture and construction.
9.3.12.AC.3	Comply with regulations and applicable codes to establish and manage a legal and safe workplace.
9.3.12.AC-CST.8	Demonstrate the construction crafts required for each phase of a construction project.
9.3.12.AC-CST.9	Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.
12.9.3.ST-ET.1	Use STEM concepts and processes to solve problems involving design and/or production.
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.
MA.9-12.1.2.12prof.Pr5a	Demonstrate progression in artistic, design, technical, and soft skills, as a result of selecting and fulfilling specified roles in the production of a variety of media artworks.
MA.9-12.1.2.12prof.Pr5b	Develop and refine creativity and adaptability, such as design thinking and risk taking, in addressing identified challenges and constraints within and through media arts productions.
MA.9-12.1.2.12prof.Pr5c	Demonstrate adaptation and innovation through the combination of tools, techniques and content to communicate intent in the production of media artworks.
BUS.9-12.9.4.12.D.63	Examine employment opportunities in entrepreneurship as an option for career planning.
PFL.9.1.12.A.6	Summarize the financial risks and benefits of entrepreneurship as a career choice.
PFL.9.1.12.B.6	Design and utilize a simulated budget to monitor progress of financial plans.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
TECH.9.4.12.CI	Creativity and Innovation
TECH.9.4.12.CI.1	Demonstrate the ability to reflect, analyze, and use creative skills and ideas (e.g., 1.1.12prof.CR3a).
TECH.9.4.12.CT.1	Identify problem-solving strategies used in the development of an innovative product or practice (e.g., 1.1.12acc.C1b, 2.2.12.PF.3). Employability skills and career and entrepreneurship opportunities build the capacity for successful careers in a global economy.

Transfer Goals and Career Ready Practices

Transfer Goals

Students will be able to gain an understanding of the world of entrepreneurship, and how they themselves can start their own business with the skills they have obtained over the course of their years in wood shop.

Concepts

Essential Questions

- Besides the internet where else can you sell your homemade goods?
- Do you need to worry about income tax if you are your own boss?
- How do you price your products?
- What is Etsy?
- What is entrepreneurship?
- What major factors must you keep in mind if you decide to start your own business?
- What other websites can you sell homemade good on?
- What skills do you need to be an entrepreneur?
- What types of homemade products sell well on the internet?
- With homemade goods what is more important quality or quantity?

Understandings

Students will understand that . . .

The importance of paying attention to detail and to instructions. They will see that measuring, reading, plans and safety are very important. They will see why it was important to do this when looking at their projects.

Critical Knowledge and Skills

Knowledge

Students will know...

- How to research homemade products that sell on the Internet
- How to decide what products they would like to make and how to make enough efficiently to make money.
- Which websites are the best to sell what product.
- Calculate how much material they would need to do a production run of their product.
- How to package and ship and order.

Skills

Students will be able to...

- Use on-line selling websites
- List their product
- Construct their product
- Ship their product

Assessment and Resources

School Formative Assessment Plan (Other Evidence)

- Exhibiting safety in all aspects
- Gluing up multiple boards
- Walking around checking for understanding
- Bill of materials
- Formative questions, check for understanding
- Full size drawings
- Listing measurements from a drawing
- Orthographic rough sketches
- Checking for understanding
- Being able to read plans for the rest of the year
- Accuracy of measurements throughout the year

School Summative Assessment Plan

Students will listen and participate in the entrepreneurship demo lesson.

A successful result will be the full cooperation of the students to learn the basics of entrepreneurship and on-line sales.

ALL grading is individualized to meet the skill level of each student, students will be graded on their own growth in their skills.

Primary Resources

General Shop Woodworking text book

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Woodworking: Principles and Practice

Roger W. Cliff (Author)

What is Entrepreneurship

<https://www.youtube.com/watch?v=Xcsp0486oIY>

Mad Raven Woodworks

<https://www.youtube.com/user/MadRavenWoodworks/videos>

www.sketchup.com/learn

Supplementary Resources

How To Make String Art

<https://www.youtube.com/watch?v=PYQW43Zqoco>

<https://www.youtube.com/watch?v=exLfN8jtTUE&t=93s>

Technology Integration and Differentiated Instruction

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BUSINESS EDUCATION –

- **Students will use the bill of materials to determine the amount of materials required to complete their projects.**
- **How entrepreneurship can be a successful career if done correctly.**

GLOBAL AWARENESS –

- **Students will understand that all companies domestic and international use a design software, such as Google SketchUp, AutoCAD, Solidworks, Rino, etc.**
- **Students will understand that all companies domestic and international use Occupational Safety and Health Administration (OSHA's) safety prevention techniques to prevent injuries.**
- **How on-line sale are crucial in entrepreneurship.**

Learning Plan / Pacing Guide

Week 1:

- **Students will listen and participate in demo lessons of entrepreneurship**
- **Students will research possible products that they would like to make to sell**
- **Submit products and potential business plan**

