

Architectural Systems Unit 1- General Shop Safety (2022)

Content Area: **Applied Tech**
Course(s): **WOOD I**
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

Architectural Systems Unit 2 Hand Tools and Power Tools Safety (2022)

Content Area: **Applied Tech**
Course(s): **Generic Course, WOOD I**
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.

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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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

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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

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Architectural Systems Unit 3 Measurement and Design (2022)

Content Area: **Applied Tech**
Course(s): **Architectural Systems**
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
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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

Architectural Systems Unit 4 FloorPlanner.com Design Projects (2022)

Content Area: **Applied Tech**
Course(s): **Architectural Systems**
Time Period: **Marking Period 2**
Length: **~10 weeks**
Status: **Published**

Standards

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.AR-VIS.2	Analyze how the application of visual arts elements and principles of design communicate and express ideas.
WRK.9.2.12.CAP.2	Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.
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).
TECH.9.4.12.TL	Technology Literacy

Transfer Goals

Students will be able to independently and if needed assistance from fellow students will use their learning to draw several design projects on Floorplanner.com. the students will design the projects listed below. The students will build upon skills they have learned from the basic skills taught at the middle school.

- **Shed project**
- **Ranch house**
- **Woodshop**
- **High School addition**
- **Dream house**

Standards

Concepts

Essential Questions

- How do we measure length, width, and thickness?
- How do you prepare a project for finish?
- How does the speaker produce sound?
- What is the equation to calculate board feet?
- Why do we glue and nail our projects?
- 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 measure properly

- How to read project blueprints
- How to use problem solving and critical thinking to help them complete their projects
- How to properly design their projects

Skills

Students will be able to...

- How to properly measure stock for their projects.
- Use problem solving and critical think to finish their projects
- How to use the computer to deisgn their projects

Assessment and Resources

School Formative Assessment Plan (Other Evidence)

- Proper use of tools
- Exhibiting safety in all aspects
- Measuring correctly
- Walking around checking for understanding
- 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 a 10'x10' shed that has been presented.
- You will need to use the skills learned from the demonstrations and apply them to the shed design.
- The challenge involves being able to think about how a project will go together without seeing each step layout out before you

- You will need to design the shed with as much accuracy as possible
- 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.**

Project 2:

- Your challenge is to design a ranch style house that has been presented.
- You will need to use the skills learned from the demonstrations and apply them to the ranch style house design.
- The challenge involves being able to think about how a project will go together without seeing each step layout out before you
- You will need to design the ranch style house with as much accuracy as possible
- 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.**

Project 3:

- Your challenge is to design the woodshop that has been presented.
- You will need to use the skills learned from the demonstrations and apply them to the woodshop design.
- The challenge involves being able to think about how a project will go together without seeing each step layout out before you
- You will need to design the woodshop with as much accuracy as possible
- 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.**

Project 4:

- Your challenge is to design the high school addition that has been presented.
- You will need to use the skills learned from the demonstrations and apply them to the high school addition design.
- The challenge involves being able to think about how a project will go together without seeing each step layout out before you
- You will need to design the high school addition with as much accuracy as possible
- 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.**

Project 5:

- Your challenge is to design the dream house that has been presented.
- You will need to use the skills learned from the demonstrations and apply them to the dream house design.
- The challenge involves being able to think about how a project will go together without seeing each step layout out before you
- You will need to design the dream house with as much accuracy as possible

- 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.**

Project 6:

- Your challenge is to design the mini wall that has been presented.
- You will need to use the skills learned from the demonstrations and apply them to the mini wall design.
- The challenge involves being able to think about how a project will go together without seeing each step layout out before you
- You will need to design the mini wall with as much accuracy as possible
- 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.**

Project 7:

- Your challenge is to design you favorite school appropriate store/business.
- You will need to use the skills learned from the demonstrations and apply them to the store/business design.
- The challenge involves being able to think about how a project will go together without seeing each step layout out before you
- You will need to design the store/business with as much accuracy as possible
- 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 for each student.

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

SketchUp Woodworking Tutorial for Beginners - Part 1

<https://www.youtube.com/watch?v=u80grW1zjOw>

SketchUp Woodworking Tutorial for Beginners Part 2 - Copies, Organization, and Curves

https://www.youtube.com/watch?v=xJdpbmUnw_Y

Creating and Organizing a Bookcase Model in SketchUp - Tutorials for Woodworkers

<https://www.youtube.com/watch?v=9-yv70ssrLM>

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.

- **SketchUp Woodworking Tutorial for Beginners - Part 1**

<https://www.youtube.com/watch?v=u80grW1zjOw>

SketchUp Woodworking Tutorial for Beginners Part 2 - Copies, Organization, and Curves

https://www.youtube.com/watch?v=xJdpbmUnw_Y

Creating and Organizing a Bookcase Model in SketchUp - Tutorials for Woodworkers

<https://www.youtube.com/watch?v=9-yv70ssrLM>

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

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

Shed project ~1 week

Ranch house ~1.5 weeks

Woodshop ~ 2-3 weeks

High School addition ~ 3-4 weeks

Dream house ~ 2-3 weeks

Mini Wall ~ 2 weeks

Small Store ~ 2-3 weeks

Architectural Systems Unit 5 Plumbing and Electricity (2022)

Content Area: **Applied Tech**
Course(s): **Generic Course, Architectural Systems**
Time Period: **Generic Time Period**
Length: **~1 weeks**
Status: **Published**

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.
9.3.12.AR-VIS.2	Analyze how the application of visual arts elements and principles of design communicate and express ideas.
12.9.3.MN.1	Evaluate the nature and scope of the Manufacturing Career Cluster and the role of manufacturing in society and in the economy.
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-LOG.2	Demonstrate proper handling of products and materials in a manufacturing facility.
12.9.3.MN-MIR.1	Demonstrate maintenance skills and proficient operation of equipment to maximize manufacturing performance.
12.9.3.MN-MIR.2	Demonstrate the safe use of manufacturing equipment to ensure a safe and healthy environment.
12.9.3.MN-PPD.1	Produce quality products that meet manufacturing standards and exceed customer satisfaction.
12.9.3.MN-PPD.2	Research, design and implement alternative manufacturing processes to manage production of new and/or improved products.
12.9.3.MN-PPD.5	Develop procedures to create products that meet customer needs.
WRK.9.2.12.CAP.2	Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.
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.CI.3	Investigate new challenges and opportunities for personal growth, advancement, and transition (e.g., 2.1.12.PGD.1).

Transfer Goals and Career Ready Practices

Transfer Goals

Plumbing:

Students will be able to independently use their learning to understand the basic techniques of copper and PVC plumbing so they will be able to properly join pipes correctly in their homes.

Electricity:

Students will be able to independently use their learning to understand the basics electrical components of a house, and how they are and intertwined system.

Concepts

Essential Questions

- How can you set the miter saw to make numerous accurate cuts?
- How do we measure length, width, and thickness?
- How do we use the miter saw safely?
- How do you attach electrical boxes to the frames?
- How do you cut 2x4's accurately and precisely?
- How do you prepare a project for finish?
- What are the different systems in the home?
- What are the different ways to fasten wood together?
- What can you do to maintain your plumbing system?
- What causes pipes to leak?
- What is the difference between new work and old work boxes?
- What is the standard stud spacing?
- What kind of damage can a leaky pipe do?
- What should you do if a pipe begins to leak in your home?
- What the ground does in a circuit?
- Why a GFCI is important in the kitchen and bathroom?
- Why are proper plumbing techniques important when joining pipes?
- Why do we glue and nail our projects?
- Why do we pre-drill before we screw the studs together?

- 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 have the correct measurement?
- Why is it important to know how to read a ruler?
- Why is it important to sand correctly?
- Why is it important to use the right type of pipe in different situations?
- Why is plumbing important in your home?
- Why the measurements must be precise?

Understandings

Students will understand that . . .

Plumbing:

- Plumbing is an extremely important system in your home that needs regular maintenance.
- Knowing what to do when there is a leak in your home is essential to protecting the structure from costly damage.
- Proper plumbing techniques are critical for a joint that will not leak and stand the test of time.
- Different kinds of pipes will be used in different situations.
- Preparing pipes for joining

Electricity:

- Electricity is essential in today's home but it must be treated with respect and needs to be worked on correctly.
- Different wires do different things in the electrical system.
- Looking at resources on house wiring is the first step to solving problems

Critical Knowledge and Skills

Knowledge

Plumbing:

- Flux
- Glue
- How to clean the pipe and fitting and prepare it for joining.
- How to join PVC pipes
- How to join copper pipes

- How to prepare your home for an extended trip away
- How to turn the water off in the house
- PVC cutter
- Primer
- Solder
- The basics of the plumbing system.
- The different kinds of tools used by plumbers
- Torch
- When to use different types of pipes and the advantages and disadvantages of each one

Electricity:

- How to follow a wiring diagram.
- How to look in a book to research different wiring scenarios.
- How to strip wire.
- How to wire switches, outlets, and lights
- How to work safely with electricity.
- The basics of the transportation of electricity.
- The importance of correctly wiring in the home
- The problems that are caused by faulty wiring.
- The tools to use to work with electricity.
- What each wire does in a circuit.
- What the ground does in a circuit.
- Why a GFCI is important in the kitchen and bathroom.

Skills

Plumbing:

- Clean copper pipes and solder them together so they have a joint that does not leak
- Find the main water shut off in the home and be able to turn it off when they are leaving the home for an extended period of time or when there is a problem in the home.
- Identify the different types of tools associated with plumbing
- Layout PVC pipe and join them together using primer and glue
- List the different systems in the home
- Use the different types of tools correctly and in the right situations

Electricity:

- Explain how electric is made and how it is transported
- Explain the difference in wire gauges and colors
- Install a GFCI
- Look at a wiring diagram and use that to wire their circuits.

- See a scenario and wire up a solution to the problem.
- Strip wire correctly and to the proper lengths
- Test a circuit without getting electrocuted
- Troubleshoot wiring problems
- Wire an outlet, switch, and light
- Work with electricity safely

Assessment and Resources

School Formative Assessment Plan (Other Evidence)

Plumbing:

- Correct use of tools
- Cutting sample pieces of pipe
- Display frame
- Following safety practices
- Layout of display
- Participation with partner
- Plumbing worksheet

Electricity:

- Can they trace the path of electricity
- Does a circuit work
- Exhibiting safety in all aspects of general shop and electricity safety
- Measuring correctly
- Proper wire stripping
- Tightening the right way on the screws
- Walking around checking for understanding

School Summative Assessment Plan

Plumbing:

Students and their partners are assuming the role of a homeowner whose challenge is to add some copper and PVC pipes to their home.

- Students will need to be able to cut pipe to the right dimensions and join them together properly without any leaks.
- After, the students are done they will need to test their joints to check for leaks.
- Students performance will be assessed by how neat the joints are and whether you have any leaks or not.

A successful result is to have a display that does not leak and follows building codes.

Electricity:

Students are to take the role of a homeowner that needs to run new circuits in their home. Each one is a different scenario that needs to be set up in a different way.

- Students will be supplied with the tools and basic wiring safety and information. Students will need to use the wiring diagrams provided to them to wire up the different situations just as a novice homeowner would have to.
- After, the students are done they will need to test circuit. **(NOTE DO NOT TEST WITHOUT INSTRUCTOR PRESENT!!!)**
- Students performance will be assessed by how neat the connections are and whether it works or not.

A successful performance will include a circuit that not only works, but has the right amount of wire stripped, all screws properly tightened, wire caps secure, and wires pushed into the boxes.

Primary Resources

Home Improvement 1-2-3: Expert Advice from The Home Depot

The Home Depot (Author)

Supplementary Resources

How to Solder Copper Pipe

<https://www.youtube.com/watch?v=JyVbjDsr4>

How To Install a Toilet

<https://www.youtube.com/watch?v=fa5gkKCH0ug>

How to use PVC Primer and Cement to join PVC Pipe

<https://www.youtube.com/watch?v=XIHFdxSXR2s>

How to install electric outlets

<https://www.youtube.com/watch?v=QUpfRHSyDT0>

How To Install a GFCI Receptacle

<https://www.youtube.com/watch?v=4NCwZIQ-S9o>

How To Wire A Single Pole Light Switch

<https://www.youtube.com/watch?v=PXRqaDX7A3A>

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.
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 - Additional practice was provided for students that provided a higher level of thinking for the concepts.

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- 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.

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- Mentors provided
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- 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 given on weeks 3,6

Week 1:

- **Plumbing demo and videos**

- **Student plumbing activities**
- **Cutting copper pipe**
- **Perp soldering pipe**
- **Soldering copper pipe**
- **Testing copper pipe**

Week 2:

- **Electricity demo and videos**
- **Student electricity activities**
- **Cutting wire**
- **Stripping wire**
- **Connecting wire**
- **Testing wire connections**

Architectural Systems Unit 6 (If Needed/If time allows) Drywall and Flooring (2022)

Content Area: **Applied Tech**
Course(s): **Generic Course, Architectural Systems**
Time Period: **Generic Time Period**
Length: **~1 weeks**
Status: **Published**

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.
12.9.3.MN.1	Evaluate the nature and scope of the Manufacturing Career Cluster and the role of manufacturing in society and in the economy.
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-LOG.2	Demonstrate proper handling of products and materials in a manufacturing facility.
12.9.3.MN-MIR.1	Demonstrate maintenance skills and proficient operation of equipment to maximize manufacturing performance.
12.9.3.MN-MIR.2	Demonstrate the safe use of manufacturing equipment to ensure a safe and healthy environment.
12.9.3.MN-PPD.1	Produce quality products that meet manufacturing standards and exceed customer satisfaction.
12.9.3.MN-PPD.2	Research, design and implement alternative manufacturing processes to manage production of new and/or improved products.
12.9.3.MN-PPD.5	Develop procedures to create products that meet customer needs.
WRK.9.2.12.CAP.2	Develop college and career readiness skills by participating in opportunities such as structured learning experiences, apprenticeships, and dual enrollment programs.
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

Drywall:

Students will be able to independently use their learning to understand the basic techniques of hanging drywall and how to prep it correctly in their homes.

Flooring:

Students will be able to independently use their learning to understand the basics laying hardwood flooring in a house.

Concepts

Essential Questions

- How do we measure length, width, and thickness?
- How should you prepare a sub floor for a flooring material?
- What are the different kinds of flooring materials?
- What are the different materials used for walling?
- What can you do to maintain your drywall?
- What kind of damage can an improperly installed section of drywall cause?
- What should you do if section of drywall is damaged?
- Why are proper drywall techniques for installation?
- Why is accurate dimensioning important?
- Why is drywall the most commonly used material in walling?
- 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 use the right thickness of drywall in different situations?
- Why is it important to use the right type of material?
- Why is it important to wipe off excess glue?
- Why the measurements must be precise?

Understandings

Students will understand that . . .

Drywall:

- Drywall is the most commonly used walling material in construction and home remodeling.
- Knowing how to replace a damaged section of drywall is easier and more cost effective than hiring a basic contractor.
- Proper installation of drywall is crucial to ensure the longevity of the wall.
- Different kinds of wall materials that can be encountered when repairing holes.
- Preparing drywall for spackle, and proper sanding of drywall.
- Preparing wall for painting.

Flooring:

- Siding and roofing are an extremely important system in your home that needs regular inspection.
- Proper roofing and siding installation techniques are critical for the longevity of a house.
- Different kinds of floors will be used in different sections of a house.
- Preparing exterior walls for siding
- Preparing sub floors for the flooring material
- Preparing plan wood roofs for roofing materials

Critical Knowledge and Skills

Knowledge

Students will know to do the following...

Drywall:

- Block sander
- Chalk Line
- Dremel Drill
- Drywall grater
- Drywall screws

- Framing square
- Gluing
- How to cut drywall
- How to join two pieces of drywall
- How to prepare drywall and spackle for painting
- How to tape and spackle drywall
- How to use all tools listed above
- Spackle Knife
- Taping
- The basics installation of drywall.
- The different kinds of tools used to cut, fit, secure, and finish drywall
- Utility knife

Flooring:

- Hammering
- Leveling
- Squaring
- The basics of flooring.
- The different kinds of tools used for flooring

Skills

Students will be able to...

Drywall:

- Cut drywall
- Cut holes in drywall
- Identify the different types of tools associated with drywall
- Install drywall using proper tools and techniques
- Join two or more sections of drywall
- Prepare drywall and spackle for painting
- Sand drywall and spackle
- Tape and spackle two or more sections of drywall
- Use the different types of tools correctly and in the right situations

Flooring:

- Install different kinds of flooring
- List the different tools used for installing flooring
- Use the different types of tools correctly and in the right situations

Assessment and Resources

School Formative Assessment Plan (Other Evidence)

Drywall:

- Correct use of tools
- Cutting sample pieces of drywall
- Display model frame
- Following safety practices
- Layout of display
- Participation with partner

Flooring:

- Correct use of tools
- Following safety practices
- Installation of flooring
- Participation with partner

School Summative Assessment Plan

Drywall:

Students and their partner are assuming the role of a homeowner whose challenge is to install and repair damaged sections of drywall in the home

- Students will need to be able to cut drywall to the right dimensions. They must also properly install the drywall to their model frames. The team must also join two or more sections of drywall together properly.
- After, student are done they will need to have their work inspected by the teacher.

The student's goal is to install drywall to their model frames, and cut out the proper holes for their plumbing and electrical boxes.

Students performance will be assessed by how neat drywall is installed and by how neat the joints are finished

Flooring:

Students and their partner are assuming the role of a homeowner whose challenge is to install the following their homes:

- Flooring

Students will need to be able to install the list above to the right dimensions and sizes.

After students are done they will need to have their work inspected by the instructor.

The student's goal is to properly install the list above.

- Students performance will be assessed by how neat the installation of the list above to the model home.

A successful result is to have a display that of properly installed siding, roofing, and flooring that meets current building codes.

Primary Resources

Home Improvement 1-2-3: Expert Advice from The Home Depot

The Home Depot (Author)

Supplementary Resources

How To Install & Finish Drywall

<https://www.youtube.com/watch?v=MB1YVOCOyeU>

How to Install Laminate Flooring

<https://www.youtube.com/watch?v=O14eITOf-EM>

How to Install a Tile Floor

<https://www.youtube.com/watch?v=k374K2AJ57g>

Technology Integration and Differentiated Instruction

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- **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 given on weeks 3,6

Week 1:

- Drywall demo and videos
- Student drywall activities
- Cutting drywall
- Perp drywall
- Hanging drywall
- Taping drywall
- Sanding drywall
- Painting drywall

Week 2:

- **Flooring demo and videos**
- **Student flooring activities**
- **Cutting flooring**
- **Installing flooring**
- **Finishing flooring**
- **Trim**