Advanced Cabinetry
2019-2020
By: Brian Jorgensen

Unit: *Shop and Tool Safety Review*	**Time:** *January*

Standards Taught

AC 1.1 Apply hand/power/industrial tool and lab safety practices.
AC 1.2 Determine and wear appropriate personal protective equipment (PPE)
AC 1.3 Comply with government regulations regarding health and safety in the shop.

Differentiation/Assessment:	**Classroom Management and Environment:**	**What will the students be doing?**
Students who needed the extra help received guided notes, extra individual practice, and shortened tests.	*The classroom is set up in a "regular class room" like setting. The desks are in rows with space between students so concentration can be maintained. Overall the environment is structured and has rules and procedures in place. The shop is set up similar to a small welding shop with tools and equipment similar to what they will use when employed in the industry. The environment and presentation of the class is designed to mimic the work environment of industry related businesses.*	• Each student will find and research an accident that has occurred in a school shop in the last 10 years and report to the class what happened, how it happened, • Take a safety pretest to identify any lack of understanding of shop safety practices. • Review Chapters 3- 8 in the text book Modern Woodworking for safety remediation purposes.

		• Take a safety posttest. • Each student will conduct demonstrations for three power tools chosen for them by the instructor. Demonstrations should illustrate safety, proper use and maintenance, and caution against the most common misuse of these tools. • Students will participate in a demonstration of first aid for cuts, burns and chemical exposer. • Students will start a daily journal that will record jobs performed, time spent, and tools used while in the shop.
Prior Knowledge Needed	**Vocabulary**	**Assessments**
There are no prerequisites for students to participate in this class, second semester freshman shop class is recommended so that they will have been exposed to general shop safety practices and rules.	• OSHA • Toxic Fumes • Ventilation • Burn Degrees • Fire extinguisher types • Explosive hazards • PPE • Acetylene • Argon • Pressure Regulator • Flashback • Explosive Combustion	• Pretest • Posttest • Class participation • Tool demonstrations • Review questions for safety remediation.

Relevance: Workplace safety should not only be the workers concern it should also be a primary concern of the employer. Missed days due to illness and injury really limits productivity and affects the bottom line.	***Examples:*** • Johnny Cashes Brother • Relatives	**Materials Needed:** • OSHA Website • Internet • Miscellaneous office and classroom supplies. • Text book Essentials of Welding • Accident reporting forms
Reflection: The students usually complain that they have already done this stuff as we are going through this lesson. It is important however to reinforce this learning so that it becomes second nature	**Essential Questions:** • Can I identify the inherent safety concerns that come with the job? • What makes up my personal protective equipment (PPE)? • Am I aware of what is going on around me? • Whose job is it to keep me safe and whole?	

Unit: *Career Exploration*	**Time:** *January*

Standards Taught

AC 2.1 Acquire career information and demonstrate knowledge of the career-planning process.
AC 2.2 Identify individual career goals in the cabinetry industry.
AC 2.3 Enhance the development of employment readiness skills.

Differentiation/Assessment:	**Classroom Management and Environment:**	**What will the students be doing?**
Students who needed the extra help received guided notes, extra individual practice, and shortened tests.	*The classroom is set up in a "regular class room" like setting. The desks are in rows with space between students so concentration can be maintained. Overall the environment is structured and has rules and procedures in place. The shop is set up similar to a small welding shop with tools and equipment similar to what they will use when employed in the industry. The environment and presentation of the class is designed to mimic the work environment of industry related businesses.*	• Research "Soft Skills" and how they are important in finding and securing a job. • Examine yourself and identify your soft skills strengths and weaknesses. Then set some goals that will help you to improve upon the areas that you have identified as weak areas. • Examine the South Dakota Department of Labor job listing website positions that fit the description of cabinetry close to this location and research the company or individual making the listing.

		• Logon to the website https://www.careerexplorer.com and take the career assessment quiz that they offer. • Research, apply and interview for a job for either an actual position or in a staged setting set up in the school shop. • Identify work skills that you possess that make you more employable than the other people in your class • Write a cover letter for a job opening. • Read Chapter 36 in Modern Woodworking and answer the review questions at the end of the Chapter.
Prior Knowledge Needed	**Vocabulary**	**Assessments**
There are no prerequisites for students to participate in this class, second semester freshman shop class is recommended so that they will have been exposed to general shop safety practices and rules.	• Soft Skills • Interview skills	• Review questions • Comprehensive written assignments. • My employee paper • Cover letter
Relevance: Deciding what career to enter into is a decision that will affect you for over the next 40 to 50 years and it should not be taken lightly.	***Examples:*** • Job Listings	**Materials Needed:** • Computer • Internet • Miscellaneous office and classroom supplies. • Text book Modern Woodworking

		• Job application
Reflection: Students get a little tired of looking at careers and thend to not spend a lot of time looking into them. One of the most important job that a CTE teacher has is to provide the career guidance that they may not know at this time that they need.	**Essential Questions:** • What does a person do in the cabinetry industry? • Am I suited for this type of career? • What skills do I need to work on to land and keep a job? • If not a career is this something I am interested in doing as a hobby? • Am I ready to sell someone as to why they should hire me?	

Unit: *Math skills update.*	**Time:** *January*

Standards Taught

AC 3.1 Apply geometric formulas to determine areas of various structures.
AC 3.2 Apply appropriate formulas to determine percentages/decimals.
AC 3.3 Apply appropriate formulas to determine ratios, fractions and proportion measures.
AC 3.4 Apply appropriate formulas to determine measurement of dimensions, space, and structures.

Differentiation/Assessment:	**Classroom Management and Environment:**	**What will the students be doing?**
Students who needed the extra help received guided notes, extra individual practice, and shortened tests.	*The classroom is set up in a "regular class room" like setting. The desks are in rows with space between students so concentration can be maintained. Overall the environment is structured and has rules and procedures in place. The shop is set up similar to a small welding shop with tools and equipment similar to what they will use when employed in the industry. The environment and presentation of the class is designed to mimic the work environment of industry related businesses.*	• Read chapters 1, 2, and 4 in the Modern Woodworking Textbook and answer the review questions at the end of the end of each chapter, complete the workbook questions for each chapter. • Take the Carpentry apprenticeship math pretest. • Correct test and complete 10 similar problems for each wrong answer and retake test, repeat as necessary.

		• Review applied math for the woodworking industry and retake test to measure for increased understanding of using math in woodworking. • Calculate the board feet required to build a project and compare that to the linear feet of product for the same project. • Students will start a daily journal that will record jobs performed, time spent, and tools used while in the shop.
Prior Knowledge Needed	**Vocabulary**	**Assessments**
There are no prerequisites for students to participate in this class, second semester freshman shop class is recommended so that they will have been exposed to general shop safety practices and rules.	• Board feet • Linier feet • Nominator • Denominator • Simplified fraction • Mathematical formula • Applied mathematics	• Pretest • Post test • Class participation • Tool demonstrations • Workbook questions • Review questions • Quiz
Relevance: Approximately 35% of the students graduating from high school have trouble reading a tape measure. More of them have a problem with everyday applied math such as adding and subtracting fractions or making change.	***Examples:*** • Math Textbook	**Materials Needed:** • Internet • Miscellaneous office and classroom supplies. • Modern Woodworking textbook • Modern Woodworking workbook.

Reflection: For the students that have a problem with the math involved this unit can be torturous. I have found out it works best if some of this remediation can be done by using their peers. It also helps to have a student who has a sudden AH HA moment to relate to the others what happened so that this suddenly made sense.	**Essential Questions:** • How do I learn math? • Do I know how to do the math or do I rely on my calculator? • What do I have to brush up on? Pre Apprenticeship math test Site: https://www.nic.bc.ca/pdf/math-review-for-carpenters.pdf	

Unit: *Project preparation*	**Time:** *January - February*

Standards Taught

AC 4.1 Differentiate various cabinetry materials and their appropriate applications.
AC 4.2 Identify the common grades of lumber and sheet goods.
AC 4.3 Describe and identify natural defects in wood.
AC 4.4 Utilize proper storage and handling techniques.

Differentiation/Assessment:	**Classroom Management and Environment:**	**What will the students be doing?**
Students who needed the extra help received guided notes, extra individual practice, and shortened tests.	*The classroom is set up in a "regular class room" like setting. The desks are in rows with space between students so concentration can be maintained. Overall the environment is structured and has rules and procedures in place. The shop is set up similar to a small welding shop with tools and equipment similar to what they will use when employed in the industry. The environment and presentation of the class is designed to mimic the work environment of industry related businesses.*	• Read chapter 2 in the text Modern Woodworking and complete the review questions at the end of the chapter as well as the questions in the workbook. • Demonstrate how to stack and store lumber to prevent warpage and other damage. • Decide on an heirloom project that will be completed this semester. • Find 8 examples of different wood species of wood in the shop or

		at the local lumber yard. Then identify the woodworking characteristics of these wood types, and how this species is most commonly used by the woodworking industry. • Create a shop drawing of a project that is to be completed this semester. This drawing should include the following: - Multiple views - Measurements - Layout plan - Bill of materials - Project budget - Construction plan • Read Chapters 9 and 10 in the Modern Woodworking textbook and answer both questions at the end of the chapter and those located in the workbook. • Evaluate manufactured materials to determine: - Suitability for the project - Cost comparison between manufactured and non-manufactured building products. - Price and time differentials

		• Order and pay for the materials needed for the project. • Start a daily journal that will record skills performed and tools used, time spent, and lessons learned on a daily basis.
Prior Knowledge Needed	**Vocabulary**	**Assessments**
There are no prerequisites for students to participate in this class, second semester freshman shop class is recommended so that they will have been exposed to general shop safety practices and rules.	• Heirloom project • Manufactured building product. • • Flashback • Explosive Combustion	• Drawings • Review and workbook questions • Class demonstration • Class participation • Bill of materials • Project budget • Daily journal • Class participation • Species identification and use paper
Relevance: Planning and profitability go hand in hand in the highly competitive business of finish carpentry and cabinetry.	***Examples:*** • Red Oak • Ash • Cedar • Pine • Spruce • Maple • Mahogany • White oak • Burr oak	**Materials Needed:** • Computer • Internet • Miscellaneous office and classroom supplies. • Modern Woodworking textbook and workbook • Journal

Reflection:	**Essential Questions:**
It is important to know the history of the stuff that they have done in previous shop classes to match their projects to their individual skill levels.	• Do I know what this stuff is supposed to be used for? • How do I come up with the most economical way to produce a quality product? • Will I be able to complete this project in the time that I am allowed? • What do I need to know to complete this project and where can I go to learn it?

Unit: *Quality control and joinery*	**Time:** *March – May*

Standards Taught

AC 5.1 Determine plumb, level and square.
AC 5.2 Demonstrate proper techniques used in various sawing, shaping, carving, molding, and routing applications.
AC 5.3 Apply fabricating techniques of various cabinet parts.
AC 5.4 Differentiate between different styles in cabinets, doors, and drawers.
AC 5.5 Identify and create the basic wood and mechanical joints used in cabinetry.

Differentiation/Assessment:	**Classroom Management and Environment:**	**What will the students be doing?**
Students who needed the extra help received guided notes, extra individual practice, and shortened tests.	*The classroom is set up in a "regular class room" like setting. The desks are in rows with space between students so concentration can be maintained. Overall the environment is structured and has rules and procedures in place. The shop is set up similar to a small welding shop with tools and equipment similar to what they will use when employed in the industry. The environment and presentation of the class is designed to mimic the work environment of industry related businesses.*	• Students will prepare demonstrations for the class to show different methods of squaring up work, making sure a projects is, and stays level, and how to keep a project plumb. Depending on class size this may be done with partners. • Demonstrate the safe and proper use of the material shaping tools located in the school shop. • Utilize the scientific method to analyze and overcome problems

		during project construction. • Each student will create five different types of wood joints using the following examples as a guide: - Butt - Miter - Rabbet - Dado - Spline - Mortise and tenon - Dovetail - Groove - Lap - Pocket - Blind dado • Follow all shop and OSHA safety quid lines while assembling your project. • Keep the shop and your work area clean and well organized.
Prior Knowledge Needed	**Vocabulary**	**Assessments**
There are no prerequisites for students to participate in this class, second semester freshman shop class is recommended so that they will have been exposed to general shop safety practices and rules.	All vocabulary words for the subject matter in this class should be in a glossary at the back of each student's journal.	• Class demonstrations • 5 manufactured joints • Workbook questions • Weekly journal review • Shop organization and clean up • Adherence to safety rules • Daily work .

Relevance:	***Examples:***	**Materials Needed:**
Hands on experience and project based learning is the most effective learning environment to master the skills needed for cabinet making.	Several different project ideas can be obtained by searching for woodworking projects, cabinetry projects, wood working storage solutions, High School wood shop ideas or some other combination on your internet search engine and viewing the results.	• Computer • Internet • Miscellaneous office and classroom supplies. • Modern Woodworking textbook • Modern Woodworking workbook • Journal • Lumber • Shop tools • Fasteners and adhesive • Sandpaper • Stain and finishes • Fasteners • Adhesives
Reflection:	**Essential Questions:**	
Students tend to take a lot of pride in these heirloom projects especially if they have something that at home that their parents or grandparents made by hand. It is not hard for them to envision their offspring having the same pride in them as they have for the work that their relatives did.	• Can I identify the inherent safety concerns that come with the job? • What can I make that will last for generations? • Can I use the skills that I am learning here to make a living? • Are these skills making me more employable?	

Unit: *Project time*	**Time:** *March – May*

Standards Taught

AC 4.1 Differentiate various cabinetry materials and their appropriate applications.
AC 4.2 Identify the common grades of lumber and sheet goods.
AC 4.3 Describe and identify natural defects in wood.
AC 4.4 Utilize proper storage and handling techniques.
AC 5.1 Determine plumb, level and square.
AC 5.2 Demonstrate proper techniques used in various sawing, shaping, carving, molding, and routing applications.
AC 5.3 Apply fabricating techniques of various cabinet parts.
AC 5.4 Differentiate between different styles in cabinets, doors, and drawers.
AC 5.5 Identify and create the basic wood and mechanical joints used in cabinetry.
AC 6.1 Determine proper application of mechanical fasteners and adhesives.
AC 6.2 Analyze different hinge systems and their applications.
AC 6.3 Analyze various drawer glides and their appropriate applications.
AC 7.1 Develop logical assembly process procedure.
AC 7.2 Demonstrate various ways to remove excess adhesive.
AC 7.3 Apply surface preparation skills before finishing.
AC 8.1 Explain the purpose and applications of various types of finishes and finishing processes.
AC 8.2 Develop and follow a finishing schedule
AC 8.3 Utilize safe and approved methods for cleanup and disposal.

Differentiation/Assessment:	**Classroom Management and Environment:**	**What will the students be doing?**
Students who needed the extra help received guided notes, extra individual practice, and shortened tests.	*The classroom is set up in a "regular class room" like setting. The desks are in rows with space between students so concentration can be maintained. Overall the environment is structured and has rules and procedures in place. The shop is set up similar to a small welding shop with tools and equipment similar to what they will use when employed in the industry. The environment and presentation of the class is designed to mimic the work environment of industry related businesses.*	• Students will prepare project plans, bill of materials, budget, layout plan, job list, and finishing schedules for a cabinetry project of their own. Since this is a senior class and the students enrolled in it have some experience they are encouraged to take on a more challenging project than the underclasspersons would be. They are encouraged to use these projects for their senior experience projects if they so choose. • Students will complete a detailed journal

		during the construction process that will record all of the following: - Work done - Time spent - Missed days or late starts with reasons for them. - Tools used - Processes - Record of decision making process - Mistakes made and corrective action taken - Help received and by whom - Reflection • Keep the shop and your work area clean and well organized. • Students will find a similar project that is for sale somewhere on the internet and record the price of it. They will subtract the materials cost from that price to determine what they received for their labor on an hourly basis by doing this project. • Follow all OSHA and School shop safety guidelines.

Prior Knowledge Needed	Vocabulary	Assessments
There are no prerequisites for students to participate in this class, second semester freshman shop class is recommended so that they will have been exposed to general shop safety practices and rules.	All vocabulary words for the subject matter in this class should be in a glossary at the back of each student's journal.	• Class demonstrations • Class participation • Demonstrated safety practices • Weekly journal review • Shop organization and clean up • Daily work • Adherence to quality standards.
Relevance: Hands on experience and project based learning is the most effective learning environment to master the skills needed for cabinet making.	***Examples:*** Several different project ideas can be obtained by searching for woodworking projects, cabinetry projects, wood working storage solutions, High School wood shop ideas or some other combination on your internet search engine and viewing the results.	**Materials Needed:** • Computer • Internet • Miscellaneous office and classroom supplies. • Modern Woodworking textbook • Modern Woodworking workbook • Journal • Lumber • Shop tools • Fasteners and adhesive • Sandpaper • Stain and finishes • Fasteners • Adhesives

Reflection:	**Essential Questions:**
Students tend to take a lot of pride in these heirloom projects especially if they have something that at home that their parents or grandparents made by hand. It is not hard for them to envision their offspring having the same pride in them as they have for the work that their relatives did.	• Can I identify the inherent safety concerns that come with the job? • What can I make that will last for generations? • Can I use the skills that I am learning here to make a living? • Are these skills making me more employable?

Unit: *Reaction Paper*	**Time:** *Final Test*

Standards Taught

AC 1.1 Apply hand/power/industrial tool and lab safety practices.
AC 1.2 Determine and wear appropriate personal protective equipment (PPE)
AC 1.3 Comply with government regulations regarding health and safety in the shop.
AC 2.1 Acquire career information and demonstrate knowledge of the career-planning process.
AC 2.2 Identify individual career goals in the cabinetry industry.
AC 2.3 Enhance the development of employment readiness skills.
AC 3.1 Apply geometric formulas to determine areas of various structures.
AC 3.2 Apply appropriate formulas to determine percentages/decimals.
AC 3.3 Apply appropriate formulas to determine ratios, fractions and proportion measures.
AC 3.4 Apply appropriate formulas to determine measurement of dimensions, space, and structures.
AC 4.1 Differentiate various cabinetry materials and their appropriate applications.
AC 4.2 Identify the common grades of lumber and sheet goods.
AC 4.3 Describe and identify natural defects in wood.
AC 4.4 Utilize proper storage and handling techniques.
AC 5.1 Determine plumb, level and square.
AC 5.2 Demonstrate proper techniques used in various sawing, shaping, carving, molding, and routing applications.
AC 5.3 Apply fabricating techniques of various cabinet parts.
AC 5.4 Differentiate between different styles in cabinets, doors, and drawers.
AC 5.5 Identify and create the basic wood and mechanical joints used in cabinetry.
AC 6.1 Determine proper application of mechanical fasteners and adhesives.
AC 6.2 Analyze different hinge systems and their applications.
AC 6.3 Analyze various drawer glides and their appropriate applications.
AC 7.1 Develop logical assembly process procedure.
AC 7.2 Demonstrate various ways to remove excess adhesive.
AC 7.3 Apply surface preparation skills before finishing.
AC 8.1 Explain the purpose and applications of various types of finishes and finishing processes.
AC 8.2 Develop and follow a finishing schedule
AC 8.3 Utilize safe and approved methods for cleanup and disposal.

Differentiation/Assessment:	**Classroom Management and Environment:**	**What will the students be doing?**
Students who needed the extra help received guided notes, extra individual practice, and shortened tests.	*The classroom is set up in a "regular class room" like setting. The desks are in rows with space between students so concentration can be maintained. Overall the environment is structured and has rules and procedures in place. The shop is set up similar to a small welding shop with tools and equipment similar to what they will use when employed in the industry. The environment and presentation of the class is designed to mimic the work environment of industry related businesses.*	• Using their journals students will write a 3 to 4-page paper titled "The Building of My Heirloom Shop Project". This paper will include all of the following elements. - Why did I choose the project that did? - What was the design style that I built it in and why did I choose that style? - How much time did I spend working on this project? - Where will I display this project? - If I had to do it all over again would I build the same thing or something else? - What have I learned doing this project that I did not know before? - Did I encounter anything in the construction of this project that required me to use a problem solving technique? If so walk us though the process you used.

Prior Knowledge Needed	Vocabulary	Assessments
There are no prerequisites for students to participate in this class, second semester freshman shop class is recommended so that they will have been exposed to general shop safety practices and rules.	The student should use industry standard vocabulary when completing this paper.	• Writing assignment
Relevance: Reflection is a key part of learning and retaining knowledge. This assignment requires them to spend that reflection time.	***Examples:***	**Materials Needed:** Any and all materials used in this class up to this point.
Reflection: This is one of my favorite classes to teach. Helping them to create their projects allows me to get to know them very well.	**Essential Questions:** • Just what have I really learned and accomplished in this class?	