

Introduction to Construction

2019-2020

By: Brian Jorgensen

Unit: <i>Career Exploration in the building and construction industry.</i>		Time: <i>January</i>
Standards Taught		
IAC 1.1 Compare career possibilities in the drafting industry. IAC 1.2 Investigate and examine career opportunities in the cabinetry industry. IAC 1.3 Research career opportunities in the architecture and construction fields.		
Differentiation/Assessment:	Classroom Management and Environment:	What will the students be doing?
<i>Students who needed the extra help received guided notes, extra individual practice, and shortened tests.</i>	<i>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.</i>	<ul style="list-style-type: none">• <i>Reading chapter 36 in Modern Woodworking then answering review questions.</i>• <i>Fill out a job application, then interview for a job.</i>• <i>Create 3 recruitment pamphlet for 3 different career opportunities in the construction industry. Pamphlets should include salary range, starting salary, educational requirements, working conditions, hours,</i>

		<p><i>advancement opportunities and any other pertinent information.</i></p> <ul style="list-style-type: none"> • <i>Compile a list of construction, and manufacturing related businesses in the Corsica Stickney area that includes their specialty, who is in charge and their contact information.</i> • Interview a local employer to determine what they think I should be learning in High School.
Prior Knowledge Needed	Vocabulary	Assessments
<p><i>Other than the ability to read and write there is no prior knowledge needed for this unit of instruction.</i></p>	<p>Students should have a basic understanding of building and construction vocabulary at this time. In addition to this they should be able to define:</p> <ul style="list-style-type: none"> • Mean • Median • Entry level skills • Continuing education 	<ul style="list-style-type: none"> • Review questions • Quiz • Pamphlets • Created directory of area building, construction, and manufacturing related businesses. • Job application and interview.
<p><u>Relevance:</u></p> <p>The focus of good CTE education is career preparedness. Having students research career opportunities and prepare for the hiring process gives them an advantage over students not involved in CTE education.</p>	<p><u>Examples:</u></p> <ul style="list-style-type: none"> • Residential Construction • Electrician • Concrete Workers • Welders • Equipment Manufactures • Plumbers • Dirt moving and grading contractors 	<p><u>Materials Needed:</u></p> <ul style="list-style-type: none"> • Text book • Computer. • Area directory • Corsica Stickney home pages • Internet • Miscellaneous office supplies.

Reflection:

We will need to devote more time to this exercise in the 2020-2021 school year. There was a lot of good information that was presented by the students. They commented that they had not considered entering these career fields before but they may be interested in pursuing them now. I thought about reducing the number of pamphlets that were required because of time limitations, but I will not do so because of the value that the students identified they received from this assignment.

Essential Questions:

- What do I have to know to be successful in this career?
- What are soft skills and how do they affect my job performance?
- How do I prepare for a job interview?
- Where can I go to get a job and still live close to home?
- Exactly what do employers in do here and what skills do they want their workers to have?

Unit: <i>Safety and whose responsibility is it?</i>		Time: <i>January - February</i>
Standards Taught		
<p>IAC 2.1 Apply general shop safety principles.</p> <p>IAC 2.2 Identify job site and career safety concepts.</p> <p>IAC 2.3 Define OSHA (Occupational Safety Health Administration) and its role in the construction industry.</p>		
Differentiation/Assessment:	Classroom Management and Environment:	What will the students be doing?
<i>Students who needed the extra help received guided notes, extra individual practice, and shortened tests.</i>	<i>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.</i>	<ul style="list-style-type: none"> • <i>Read Chapters 3 – 8 in Modern Woodworking and answer study questions at the end of the chapter and in the workbook. (Pages 45-122)</i> • <i>Studying and demonstrating how to use, and maintain the hand tools, and all of the power tools that are located in the school shop or any tool that may be brought into the shop.</i> • <i>Research the history of OSHA and how it effects employers, and workers in the construction industry.</i>

		<ul style="list-style-type: none"> • <i>List OSHA rules and regulations that affect the workers in the three career opportunities that they created the pamphlets for in the previous unit.</i> • <i>Research a school shop accident that has happened recently in the United States and complete the following:</i> <ul style="list-style-type: none"> - What happened? - Who got hurt? - What went wrong? - Who was responsible? - Were there any OSHA violations involved? - What medical attention was required? - Was there any legal action taken? - How could of this accident been prevented? • Fill out an accident report • Demonstrate an awareness of first aid practices that every worker should know in given career fields.
Prior Knowledge Needed	Vocabulary	Assessments
<i>Other than the ability to read and write there is no prior knowledge needed for this unit of instruction.</i>	<ul style="list-style-type: none"> • Liability • OSHA • Accident Prevention • Personal Responsibility • Hazard assessment • Hearing protectors • Personal protective equipment (PPE) 	<ul style="list-style-type: none"> • Review questions • Quiz's • History of OSHA paper • Accident report • Tool safety demonstrations

	<ul style="list-style-type: none"> • Hand tool names and parts • Power tool names and parts 	<ul style="list-style-type: none"> • Completed accident report for an example presented by teacher. • Given a scenario demonstrate the first aid steps that should be taken in that situation.
<p><u>Relevance:</u></p> <p>There are a lot of opportunities to get sick or injured on the job. The purpose of this unit is to demonstrate that personal safety is ultimately the responsibility of the individual on the job. If a person gets hurt on the job they should also know how to navigate the rules and regulations that come into effect at that point.</p>	<p><u>Examples:</u></p> <ul style="list-style-type: none"> • OSHA website • Accident reporting form • Individual tool operating manuals 	<p><u>Materials Needed:</u></p> <ul style="list-style-type: none"> • Text book • Tool operating manuals • Accident reporting form • Computer. • Area directory • Corsica Stickney home pages • Internet • Miscellaneous office supplies.
<p><u>Reflection:</u></p> <p>This is the most important lesson that I teach. The actions that the individual takes prior, during and after an accident are often lifesaving. Each student should be thinking about how they would react in an emergency situation so that if the need arises they have had some experience.</p>	<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What are the ways that this tool can hurt me? • Do I know how to use this tool properly? • Am I aware of what is going on around me? • Are the people that I am working next to doing something that could injure me? • Am I doing something that could injure people that are working next to me? • What do I have to do to prevent being held liable for an accident? 	

Unit: <i>The shop sketch</i>		Time: <i>February - March</i>
Standards Taught		
<p>IAC 3.1 Demonstrate proper use of appropriate math skills.</p> <p>IAC 3.2 Demonstrate proper measuring and layout skills.</p> <p>IAC 4.2 Demonstrate proper application of fasteners, adhesives, and hardware.</p> <p>IAC 5.1 Recognize basic drafting terms and abbreviations.</p> <p>IAC 5.2 Differentiate between different drafting styles.</p> <p>IAC 5.3 Identify different aspects of blueprints/project plans to show a working knowledge of specifications.</p>		
Differentiation/Assessment:	Classroom Management and Environment:	What will the students be doing?
<i>Students who needed the extra help received guided notes, extra individual practice, and shortened tests.</i>	<i>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.</i>	<ul style="list-style-type: none"> • Reading and completing discussion questions for chapters 1,2 and 4 of the <u>Modern Woodworking</u> Text Book. • Identify a product that to be constructed by the student. • Complete a series of sketches that will be required in the construction of their project including the following; <ul style="list-style-type: none"> - Bill of materials - Parts list - Layout plan - Project budget - Accusation list - Shop sketches - Special instructions

		<ul style="list-style-type: none"> - Photos of what they want their project to look like - All applicable measurements - Any special instructions or supportive information needed. - Parental/guardian permission to start project.
Prior Knowledge Needed	Vocabulary	Assessments
<p><i>Students working on this unit should have taken, passed, and completed the class in Introduction to Drafting that is offered at the Corsica Stickney High School, or had a similar class in another location, or comparative live experiences.</i></p>	<ul style="list-style-type: none"> • Shop Sketch • Blue Print • Layout Plan • Drafting Terminology • Working drawing • Names of individual parts and tools that will be used in the construction/manufacturing processes. • Layout • Bill of materials • Project budget • Supporting information 	<ul style="list-style-type: none"> • Completed <ul style="list-style-type: none"> - Shop drawings - Budget - Layout plan - Bill of material - Special instructions - Permission signatures • Discussion questions • Quiz's • Itemized planned construction instructions.
<p><u>Relevance:</u></p> <p>Planning is paramount to the building and construction industry. It is involved in every step of the process. Giving students the opportunity to learn and demonstrate these skills will benefit them greatly throughout their lives.</p>	<p><u>Examples:</u></p> <ul style="list-style-type: none"> • Photos of projects that previous students have completed • You Tube Videos • Pinterest photos 	<p><u>Materials Needed:</u></p> <ul style="list-style-type: none"> • Text book • Drafting text • Computer. • Drafting equipment and tools. • Internet • Miscellaneous office supplies. • Access to YouTube and Pinterest

Reflection:

The students will try to rush through this lesson because they are in a hurry to get into the shop. Even though it is hard to do some errors of omission should be allowed in the students' work in this lesson so that it can be revisited and reinforced latter on in the semester as a cautionary tool. Remember some of your greatest lessons are those that you have learned from your mistakes!

Essential Questions:

- Have I thought of everything that I need to know to construct this project?
- Am I prepared to stop what I am doing, and go back to reevaluate what I have done so far?
- What do I need to know and what do I now know, and where do I get my answers?
- Exactly what will this cost?
- What will it cost if I make a mistake?
- Am I doing this for fun or profit?

Unit: <i>Constructing a project</i>		Time: <i>March - May</i>
Standards Taught		
<p>IAC 2.1 Apply general shop safety principles.</p> <p>IAC 2.4 Apply general hand and power tool safety procedures.</p> <p>IAC 3.1 Demonstrate proper use of appropriate math skills.</p> <p>IAC 3.2 Demonstrate proper measuring and layout skills.</p> <p>IAC 4.1 Identify wood species and engineered building materials.</p> <p>IAC 4.2 Recognize proper application of fasteners, adhesives, and hardware.</p> <p>IAC 4.3 Explore new upcoming materials used in the building industry.</p> <p>IAC 5.1 Recognize basic drafting terms and abbreviations.</p> <p>IAC 6.1 Apply proper measuring and cutting techniques to perform job related tasks.</p> <p>IAC 6.2 Display a working knowledge of tools and equipment used in the industry.</p> <p>IAC 6.3 Construct a project using the assigned design process.</p> <p>IAC 6.4 Demonstrate necessary job skills needed in architectural and construction industries.</p>		
Differentiation/Assessment:	Classroom Management and Environment:	What will the students be doing?
<i>Students who needed the extra help received guided notes, extra individual practice, and shortened tests.</i>	<i>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 will also be used in this unit of instruction it is set up to resemble one used by industry.</i>	<ul style="list-style-type: none"> • <i>Every Monday will be designated as a Classroom Monday during this day students will spend most of the day in the classroom learning the concepts of building, manufacturing and construction.</i> • <i>Students will read and complete discussion questions contained in Chapters 5-12 in the text <u>Modern Woodworking</u>.</i> • <i>Plan layout and build a project approved by the student, their parents and the teacher.</i> • <i>Keep a daily journal of work completed each</i>

		<p>day. Journals will include:</p> <ul style="list-style-type: none"> - Tools used - Time on task - Relationship to concepts learned on Classroom Mondays. - Problems encountered and how they were overcome. - The answer to the question; What lesson did I learn or reinforce today? • Students will be required to demonstrate safe tool usage, adherence to OSHA regulations and clean up during every class period.
Prior Knowledge Needed	Vocabulary	Assessments
<p><i>Students working on this unit should have taken, passed, and completed the class in Introduction to Drafting that is offered at the Corsica Stickney High School, or had a similar class in another location, or comparative live experiences.</i></p>	<ul style="list-style-type: none"> • Tool Names • Tool Parts • OSHA warnings 	<ul style="list-style-type: none"> • Review questions • Quiz's • Daily Journal's • Projects • Cleanup • Safety practices
<p><u>Relevance:</u> Project based learning has long been a mainstay of CTE education. It is encouraged that each student will create an Heirloom project during this lesson.</p>	<p><u>Examples:</u></p> <ul style="list-style-type: none"> • Pinterest photos • Project plans from periodicals and websites • Prior projects 	<p><u>Materials Needed:</u></p> <ul style="list-style-type: none"> • Text book • Computer. • Access to local suppliers and retailers • Internet • Building materials • Miscellaneous office supplies.

Reflection:

The students have the ability to create some amazing projects in this class. It is important for the teacher to refrain from doing it for them however. It is necessary to let the student make some mistakes as long as they are not too costly or hazardous to their health and welfare. It is also necessary at times to go back and revisit the previous lesson at times to revise the planning process.

Essential Questions:

- Is what I accomplished today really good or is it what I consider “good enough”?
- How accurately did I foresee construction processes and problems?
- What do I know how to do today that I did not know how to do yesterday?
- Am I challenging myself?

Unit: <i>Building Styles</i>		Time: <i>May</i>
Standards Taught		
IAC 5.4 Classify the different styles of residential architectural structures.		
Differentiation/Assessment:	Classroom Management and Environment:	What will the students be doing?
<i>Students who needed the extra help received guided notes, extra individual practice, and shortened tests.</i>	<i>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.</i>	<ul style="list-style-type: none"> • Research 5 of the following styles of residential construction. <ul style="list-style-type: none"> - Ranch - Craftsman - Modern - Victorian - Tudor - Georgian - Gothic - Dutch Colonial - Art Deco - Greek Revival - Contemporary - Neoclassicism - Mediterranean Revival - Italianate - Shingle Style - Colonial - Prairie School - Second Empire - Mid Century Modern

		<ul style="list-style-type: none"> - Federal - Pueblo Revival - Spanish Colonial - American Colonial <ul style="list-style-type: none"> • Complete a report on those five styles chosen that identifies the time that they were most popular, major design characteristics, and where this design is most prevalent and a photo of a structure built in this style.
Prior Knowledge Needed	Vocabulary	Assessments
<i>Students working on this unit should have taken, passed, and completed the class in Introduction to Drafting that is offered at the Corsica Stickney High School, or had a similar class in another location, or comparative live experiences.</i>	Residential Architectural Styles	Completed reports
<u>Relevance:</u> Architectural design is a personal, as well as, an era, and locational decision.	<u>Examples:</u> <ul style="list-style-type: none"> • Pinterest photos • Project plans from periodicals and websites • Prior projects 	<u>Materials Needed:</u> <ul style="list-style-type: none"> • Computer. • Internet • Miscellaneous office supplies.

Reflection:

Most people aren't failure with more than two or three styles of residential construction. As they become more acquainted with them they tend to broaden their horizons.

Essential Questions:

- What is the style of my home?
- What is the style of most of the homes in my area?
- What are my favorite styles of homes?