

Advanced Welding Curriculum Design

Power Standard

Students will be able to:

1. Utilize hand tools in their proper application in a safe manner.
2. Set up and troubleshoot welding parameters.
3. Complete welds in the major processes: SMAW, GMAW, GTAW.
4. Operate efficiently in a full functioning manufacturing environment

Power Benchmark

1. Demonstrate basic preventative maintenance.
2. Demonstrate the proper set-up and procedures for GMAW welding in three different positions.
3. Demonstrate proficiency to AWS D1.1 standards a guided bend test using the GMAW process.
4. Demonstrates appropriate measuring techniques.
5. Demonstrates appropriate ox-ace equipment usage and welding techniques.
6. Demonstrates appropriate plasma cutting equipment usage and cutting techniques.
7. Demonstrates emergency and safety rules.
8. Demonstrate proficiency to AWS D1.1 standards a guided bend test using the SMAW process.
9. Apply welding symbols to simple blueprints of basic weld joints.
10. Demonstrate the ability to design, draft, and fabricate using weld symbols, the GMAW process, and the plasmacam system in a final project.

Advanced Welding Curriculum Design

Students will be able to:

1. Utilize hand tools in their proper application in a safe manner.
 - Demonstrate basic preventative maintenance. (1)
2. Set up and troubleshoot welding parameters.
 - Demonstrate the proper set-up and procedures for GMAW welding in three different positions. (2)
 - Demonstrate proficiency to AWS D1.1 standards a guided bend test using the SMAW process. (8)
3. Complete welds in the major processes: SMAW, GMAW, GTAW.
 - Demonstrate proficiency to AWS D1.1 standards a guided bend test using the GMAW process. (3)
 - Demonstrates appropriate ox-ace equipment usage and welding techniques. (5)
 - Demonstrates appropriate plasma cutting equipment usage and cutting techniques. (6)
4. Operate efficiently in a full functioning manufacturing environment.
 - Demonstrate the ability to design, draft, and fabricate using weld symbols, the GMAW process, and the plasmacam system in a final project. (10)
 - Demonstrates appropriate measuring techniques. (4)
 - Demonstrates emergency and safety rules. (7)
 - Apply welding symbols to simple blueprints of basic weld joints. (9)

Advanced Welding Curriculum Design

Stage 1 – Desired Results:

Power Standard 1: Utilize hand tools in their proper application in a safe manner.

Power Benchmark/Competency #1:
Demonstrate basic preventative maintenance.

Estimated Timeline: 18 weeks.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global	Personal Responsibility
X		X		X
Math	Science	Language Arts	Social Studies	Fine/Visual Arts

Understandings (Standards & Benchmarks):

Students will understand that...

- Industrial atmospheres operate on a team basis and each individual must do their part to keep the shop operating effectively.
- General shop maintenance leads to a well rounded shop employee and may be considered a good addition to a resume.

Essential Questions:

- Why is general shop maintenance important?
- How does general shop maintenance increase productivity?

Students will know...

- How to change a handheld grinding wheel.
- How to replace a spool of wire on GMAW machine.
- How to change out a gas cylinder on a GMAW machine.

Students will be able to (i.e. do)...

- Demonstrate the ability to recognize and complete general shop.

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)

- Change out grinding wheels.
- Change out a gas cylinder.

Key Criteria: (Rubric)

- Pass or fail based on proper maintenance procedures.

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Stage 3 – Learning Plan:

Demonstrate basic preventative maintenance

Power Benchmark/Competency: # 1

Learning Activities:	Resources:
Change out grinding wheels.	
Change out a gas cylinder.	

Stage 3
Work in Progress

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Stage 1 – Desired Results:

<p>Power Standard 2: Set up and troubleshoot welding parameters.</p> <p>Power Benchmark/Competency #2: Demonstrate the ability to design, draft, and fabricate using weld symbols, the GMAW process, and the plasmacam system in a final project.</p> <p>Estimated Timeline:</p>	<p>Place ‘X’ in square if goal addresses Essential/Content Standard(s).</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr style="background-color: #ffffcc;"> <th style="padding: 2px;">Career</th> <th style="padding: 2px;">Technology</th> <th style="padding: 2px;">Critical Thinking</th> <th style="padding: 2px;">Global</th> <th style="padding: 2px;">Personal Responsibility</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr style="background-color: #ffffcc;"> <td style="padding: 2px;">Math</td> <td style="padding: 2px;">Science</td> <td style="padding: 2px;">Language Arts</td> <td style="padding: 2px;">Social Studies</td> <td style="padding: 2px;">Fine/Visual Arts</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </tbody> </table>	Career	Technology	Critical Thinking	Global	Personal Responsibility	X		X		X	Math	Science	Language Arts	Social Studies	Fine/Visual Arts					
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<p>Understandings (Standards & Benchmarks): <i>Students will understand that...</i></p> <ul style="list-style-type: none"> ➤ Welding entails a variety of different skills which all combine to form a finished product. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> ➤ How do I build a project from start to finish and incorporate all aspects of industry? 																				
<p>Students will know...</p> <ul style="list-style-type: none"> ➤ How to combine skills to plan the fabrication of a final project. ➤ How to work efficiently to complete a final project. 	<p>Students will be able to (i.e. do)...</p> <ul style="list-style-type: none"> ➤ Demonstrate the ability to complete a final project utilizing the competencies taught in the course. 																				

Stage 2 – Assessment Evidence

<p>Performance Tasks: (i.e. Assessment used to determine proficiency on competency)</p> <ul style="list-style-type: none"> ➤ Blueprint the final project. ➤ Complete a cost analysis of the final project. ➤ Fabricate the final project. 	<p>Key Criteria: (Rubric)</p> <ul style="list-style-type: none"> ➤ Scoring based on proper techniques and completion of the final project.
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Advanced Welding Curriculum Design

Stage 3 – Learning Plan:

Demonstrate the ability to design, draft, and fabricate using weld symbols, the GMAW process, and the plasmacam system in a final project.

Power Benchmark/Competency: #2

Learning Activities:	Resources:
Semester culmination of activities combined to complete a final project.	

Advanced Welding Curriculum Design

Stage 1 – Desired Results:

Power Standard 3: Complete welds in the major processes: SMAW, GMAW, GTAW.

Power Benchmark/Competency #3:

Demonstrate the proper set-up and procedures for GMAW welding in three different positions.

Estimated Timeline: 9 weeks.

Place 'X' in square if goal addresses Essential/Content Standard(s).

Career	Technology	Critical Thinking	Global	Personal Responsibility
X		X		X
Math	Science	Language Arts	Social Studies	Fine/Visual Arts

Understandings (Standards & Benchmarks):

Students will understand that...

- GMAW is the most widely used form of arc welding found in industry today.
- The skills attained in GMAW training will provide them the basics to pursuing a career as a welder.

Essential Questions:

- What is the difference between SMAW and GMAW welding.
- What are the five essentials of GMAW welding.

Students will know...

- How to operate a GMAW welding power supply.
- How to point out weld defects found in GMAW welds.
- How to modify machine settings to create the desired weld characteristics.
- How to properly wire a GMAW welding power supply.

Students will be able to (i.e. do)...

- Demonstrate the ability to complete quality GMAW welds in three different positions and evaluate the welds for quality.

Stage 2 – Assessment Evidence

Performance Tasks: (i.e. Assessment used to determine proficiency on competency)

- Series of welds completed which utilize the GMAW process.

Key Criteria: (Rubric)

- Scores based on a 10 point scale with acceptance only allowed on welds scored 7 and above.

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Stage 3 – Learning Plan:

Demonstrate the proper set-up and procedures for GMAW welding in three different positions.

Power Benchmark/Competency: #3

Learning Activities:	Resources:
Daily welding activities. All welds to be completed utilizing GMAW process	

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Stage 1 – Desired Results:

<p>Power Standard 4: Operate efficiently in a full functioning manufacturing environment.</p> <p>Power Benchmark/Competency #4 Demonstrate proficiency to AWS D1.1 standards a guided bend test using the GMAW process.</p> <p>Estimated Timeline: 2 weeks</p>	<p>Place ‘X’ in square if goal addresses Essential/Content Standard(s).</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr style="background-color: #ffffcc;"> <th style="padding: 2px;">Career</th> <th style="padding: 2px;">Technology</th> <th style="padding: 2px;">Critical Thinking</th> <th style="padding: 2px;">Global</th> <th style="padding: 2px;">Personal Responsibility</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr style="background-color: #ffffcc;"> <th style="padding: 2px;">Math</th> <th style="padding: 2px;">Science</th> <th style="padding: 2px;">Language Arts</th> <th style="padding: 2px;">Social Studies</th> <th style="padding: 2px;">Fine/Visual Arts</th> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </tbody> </table>	Career	Technology	Critical Thinking	Global	Personal Responsibility	X		X		X	Math	Science	Language Arts	Social Studies	Fine/Visual Arts					
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<p>Understandings (Standards & Benchmarks): <i>Students will understand that...</i></p> <ul style="list-style-type: none"> ➤ Career welders weld to a code and are required to be certified prior to being allowed to weld on the job. ➤ The skills attained in GMAW training will provide them the basics to completing the guided bend test. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> ➤ Why is it important to successfully complete the guided bend test? ➤ What is the logic behind the guided bend test. ➤ How will completing the guided bend test benefit me in the future? 																				
<p>Students will know...</p> <ul style="list-style-type: none"> ➤ How to weld to a standard. ➤ The importance of job certifications in relation to welder liability. 	<p>Students will be able to (i.e. do)</p> <ul style="list-style-type: none"> ➤ Demonstrate the ability to complete the guided bend test in the flat position and analyze the completed weld for adherence to the AWS D1.1 code. 																				
<h3 style="margin: 0;">Stage 2 – Assessment Evidence</h3>																					
<p>Performance Tasks: (i.e. Assessment used to determine proficiency on competency)</p> <ul style="list-style-type: none"> ➤ Follow a blueprint and code to complete the AWS D1.1 guided bend test. 	<p>Key Criteria: (Rubric)</p> <ul style="list-style-type: none"> ➤ Pass or fail based on guided bend test scoring criteria. 																				

Advanced Welding Curriculum Design

Stage 3 – Learning Plan:

Demonstrate proficiency to AWS D1.1 standards a guided bend test using the GMAW process.

Power Benchmark/Competency: # 4

Learning Activities:	Resources:
➤ Daily welding activities. All welds to be completed utilizing GMAW process.	

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Stage 1 – Desired Results:

<p>Power Standard 3: Complete welds in the major processes: SMAW, GMAW, GTAW.</p> <p>Power Benchmark/Competency #5: Demonstrates appropriate measuring techniques.</p> <p>Estimated Timeline: 1 week</p>	<p>Place 'X' in square if goal addresses Essential/Content Standard(s).</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #ffff00;"> <th style="padding: 2px;">Career</th> <th style="padding: 2px;">Technology</th> <th style="padding: 2px;">Critical Thinking</th> <th style="padding: 2px;">Global</th> <th style="padding: 2px;">Personal Responsibility</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr style="background-color: #ffff00;"> <th style="padding: 2px;">Math</th> <th style="padding: 2px;">Science</th> <th style="padding: 2px;">Language Arts</th> <th style="padding: 2px;">Social Studies</th> <th style="padding: 2px;">Fine/Visual Arts</th> </tr> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </tbody> </table>	Career	Technology	Critical Thinking	Global	Personal Responsibility	X				X	Math	Science	Language Arts	Social Studies	Fine/Visual Arts	X				
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<p>Understandings (Standards & Benchmarks): <i>Students will understand that...</i></p> <ul style="list-style-type: none"> ➤ Measurement is an essential part of project completion and mandatory in the industrial world. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> ➤ Why is proper measurement such an essential part of the day to day activities of the working industrial world. 																				
<p>Students will know...</p> <ul style="list-style-type: none"> ➤ The correct techniques to measure using a tape measure and ruler. 	<p>Students will be able to (i.e. do)...</p> <ul style="list-style-type: none"> ➤ Demonstrate through the use of daily activities the ability to measure correctly. 																				

Stage 2 – Assessment Evidence

<p>Performance Tasks: (i.e. Assessment used to determine proficiency on competency)</p> <ul style="list-style-type: none"> ➤ Measurement exam completed prior to beginning shop activities. 	<p>Key Criteria: (Rubric)</p> <ul style="list-style-type: none"> ➤ Complete with 100% accuracy an accepted measurement exam.
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Advanced Welding Curriculum Design

Stage 3 – Learning Plan:

Demonstrates appropriate measuring techniques.

Power Benchmark/Competency: #5

Learning Activities:	Resources:
Measurement exercises utilizing rulers and tape measures.	
Accountability for proper measurement in daily activities.	

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Stage 1 – Desired Results:

<p>Power Standard 3: Complete welds in the major processes: SMAW, GMAW, GTAW.</p> <p>Power Benchmark/Competency #6: Demonstrates appropriate ox-ace equipment usage and welding techniques.</p> <p>Estimated Timeline: 9 weeks.</p>	<p>Place ‘X’ in square if goal addresses Essential/Content Standard(s).</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #ffffcc;"> <th style="padding: 2px;">Career</th> <th style="padding: 2px;">Technology</th> <th style="padding: 2px;">Critical Thinking</th> <th style="padding: 2px;">Global</th> <th style="padding: 2px;">Personal Responsibility</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr style="background-color: #ffffcc;"> <th style="padding: 2px;">Math</th> <th style="padding: 2px;">Science</th> <th style="padding: 2px;">Language Arts</th> <th style="padding: 2px;">Social Studies</th> <th style="padding: 2px;">Fine/Visual Arts</th> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </tbody> </table>	Career	Technology	Critical Thinking	Global	Personal Responsibility	X				X	Math	Science	Language Arts	Social Studies	Fine/Visual Arts					
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<p>Understandings (Standards & Benchmarks): <i>Students will understand that...</i></p> <ul style="list-style-type: none"> ➤ Gas welding is vital concept in weld training and important to the initial welding learning process. ➤ The understanding of gas welding leads to increased success in the process of GTAW welding taught in future courses. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> ➤ What is the relevance of gas welding today? ➤ When will gas welding be a skill I will need to learn? 																				
<p>Students will know...</p> <ul style="list-style-type: none"> ➤ The correct techniques to set-up and utilize ox-ace welding equipment. ➤ The appropriate circumstances in which ox-ace welding is necessitated. 	<p>Students will be able to (i.e. do)...</p> <ul style="list-style-type: none"> ➤ Demonstrate through the use of daily activities the ability to weld utilizing the gas process. 																				

Stage 2 – Assessment Evidence

<p>Performance Tasks: (i.e. Assessment used to determine proficiency on competency)</p> <ul style="list-style-type: none"> ➤ Series of welds completed to display proficiency. 	<p>Key Criteria: (Rubric)</p> <ul style="list-style-type: none"> ➤ Scores based on a 10 point scale with acceptance only allowed on welds scored 7 and above.
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Stage 3 – Learning Plan:

Demonstrates appropriate ox-ace equipment usage and welding techniques.

Power Benchmark/Competency: #6

Learning Activities:	Resources:
Daily welds.	
Ox-ace safety and set-up exam.	

Advanced Welding Curriculum Design

Stage 1 – Desired Results:

<p>Power Standard 4: Operate efficiently in a full functioning manufacturing environment.</p> <p>Power Benchmark/Competency #7: Demonstrates appropriate plasma cutting equipment usage and cutting techniques.</p> <p>Estimated Timeline: 2 weeks</p>	<p>Place 'X' in square if goal addresses Essential/Content Standard(s).</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr style="background-color: #ffffcc;"> <th style="padding: 2px;">Career</th> <th style="padding: 2px;">Technology</th> <th style="padding: 2px;">Critical Thinking</th> <th style="padding: 2px;">Global</th> <th style="padding: 2px;">Personal Responsibility</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr style="background-color: #ffffcc;"> <th style="padding: 2px;">Math</th> <th style="padding: 2px;">Science</th> <th style="padding: 2px;">Language Arts</th> <th style="padding: 2px;">Social Studies</th> <th style="padding: 2px;">Fine/Visual Arts</th> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </tbody> </table>	Career	Technology	Critical Thinking	Global	Personal Responsibility	X		X		X	Math	Science	Language Arts	Social Studies	Fine/Visual Arts					
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<p>Understandings (Standards & Benchmarks): <i>Students will understand that...</i></p> <ul style="list-style-type: none"> ➤ Plasma cutting is vital concept in weld training and important to the advanced cutting learning process. ➤ The understanding of plasma cutting leads to increased awareness of the processes currently used to increase production in industry. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> ➤ What is the relevance of plasma cutting in today's industrial arena. ➤ When will plasma cutting skills be essential? ➤ How is plasma cutting becoming an automated system. 																				
<p>Students will know...</p> <ul style="list-style-type: none"> ➤ The correct techniques to set-up and utilize plasma cutting equipment. ➤ The theory behind the plasma cutting process. 	<p>Students will be able to (i.e. do)...</p> <ul style="list-style-type: none"> ➤ Demonstrate through the use of daily activities the ability to cut utilizing the plasma process. ➤ Design and draft into a computer aided plasma cutting system a project to be cut using an automated system. 																				
<h3 style="margin: 0;">Stage 2 – Assessment Evidence</h3>																					
<p>Performance Tasks: (i.e. Assessment used to determine proficiency on competency)</p> <ul style="list-style-type: none"> ➤ Series of cuts completed both manually and automatically to display proficiency in different forms of plasma cutting processes. 	<p>Key Criteria: (Rubric)</p> <ul style="list-style-type: none"> ➤ Scores based on a 10 point scale with acceptance only allowed on welds scored 7 and above. 																				

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Stage 3 – Learning Plan:

Demonstrates appropriate plasma cutting equipment usage and cutting techniques.

Power Benchmark/Competency: #7

Learning Activities:	Resources:
Inclusion of the plasma cutting process on daily welds	
Plasma cutting safety and set-up exam.	

Advanced Welding Curriculum Design

Stage 1 – Desired Results:

<p>Power Standard 2: Set up and troubleshoot welding parameters.</p> <p>Power Benchmark/Competency #8: Demonstrates emergency and safety rules.</p> <p>Estimated Timeline:</p>	<p>Place ‘X’ in square if goal addresses Essential/Content Standard(s).</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr style="background-color: #ffffcc;"> <th style="padding: 5px;">Career</th> <th style="padding: 5px;">Technology</th> <th style="padding: 5px;">Critical Thinking</th> <th style="padding: 5px;">Global</th> <th style="padding: 5px;">Personal Responsibility</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">X</td> <td style="padding: 5px;"></td> <td style="padding: 5px;">X</td> <td style="padding: 5px;"></td> <td style="padding: 5px;">X</td> </tr> <tr style="background-color: #ffffcc;"> <th style="padding: 5px;">Math</th> <th style="padding: 5px;">Science</th> <th style="padding: 5px;">Language Arts</th> <th style="padding: 5px;">Social Studies</th> <th style="padding: 5px;">Fine/Visual Arts</th> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> </tbody> </table>	Career	Technology	Critical Thinking	Global	Personal Responsibility	X		X		X	Math	Science	Language Arts	Social Studies	Fine/Visual Arts					
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<p>Understandings (Standards & Benchmarks): <i>Students will understand that...</i></p> <ul style="list-style-type: none"> ➤ Safety is a life skill important in all aspects of the working world. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> ➤ What are the realistic consequences for unsafe behaviors in an industrial setting. 																				
<p>Students will know...</p> <ul style="list-style-type: none"> ➤ The expected behaviors associated with an industrial setting. 	<p>Students will be able to (i.e. do)...</p> <ul style="list-style-type: none"> ➤ Demonstrate through classroom activities the proper safety attitudes. 																				

Stage 2 – Assessment Evidence

<p>Performance Tasks: (i.e. Assessment used to determine proficiency on competency)</p> <ul style="list-style-type: none"> ➤ Safety exam to be completed prior to industrial shop work. 	<p>Key Criteria: (Rubric)</p> <ul style="list-style-type: none"> ➤ Complete with 100% accuracy an accepted safety exam. ➤ Analyze safety incidents to determine causation.
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Stage 3 – Learning Plan:
Demonstrates emergency and safety rules.
Power Benchmark/Competency: #8

Learning Activities:	Resources:
Safety lecture complete with equipment demonstrations and safety concerns.	

Advanced Welding Curriculum Design

Stage 1 – Desired Results:

<p>Power Standard 4: Operate efficiently in a full functioning manufacturing environment</p> <p>Power Benchmark/Competency #9: Demonstrate proficiency to AWS D1.1 standards a guided bend test using the SMAW process.</p> <p>Estimated Timeline: 2 weeks</p>	<p>Place ‘X’ in square if goal addresses Essential/Content Standard(s).</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr style="background-color: #ffffcc;"> <th style="padding: 2px;">Career</th> <th style="padding: 2px;">Technology</th> <th style="padding: 2px;">Critical Thinking</th> <th style="padding: 2px;">Global</th> <th style="padding: 2px;">Personal Responsibility</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr style="background-color: #ffffcc;"> <th style="padding: 2px;">Math</th> <th style="padding: 2px;">Science</th> <th style="padding: 2px;">Language Arts</th> <th style="padding: 2px;">Social Studies</th> <th style="padding: 2px;">Fine/Visual Arts</th> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </tbody> </table>	Career	Technology	Critical Thinking	Global	Personal Responsibility	X		X		X	Math	Science	Language Arts	Social Studies	Fine/Visual Arts					
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<p>Understandings (Standards & Benchmarks): <i>Students will understand that...</i></p> <ul style="list-style-type: none"> ➤ Career welders weld to a code and are required to be certified prior to being allowed to weld on the job. ➤ The skills attained in SMAW training will provide them the basics to completing the guided bend test. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> ➤ Why is it important to successfully complete the guided bend test? ➤ What is the logic behind the guided bend test. ➤ How will completing the guided bend test benefit me in the future? 																				
<p>Students will know...</p> <ul style="list-style-type: none"> ➤ How to weld to a standard. ➤ The importance of job certifications in relation to welder liability. 	<p>Students will be able to (i.e. do)...</p> <ul style="list-style-type: none"> ➤ Demonstrate the ability to complete the guided bend test in the horizontal position and analyze the completed weld for adherence to the AWS D1.1 code. 																				

Stage 2 – Assessment Evidence

<p>Performance Tasks: (i.e. Assessment used to determine proficiency on competency)</p> <ul style="list-style-type: none"> ➤ Follow a blueprint and code to complete the AWS D1.1 guided bend test. 	<p>Key Criteria: (Rubric)</p> <ul style="list-style-type: none"> ➤ Pass or fail based on guided bend test scoring criteria.
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Advanced Welding Curriculum Design

Stage 3 – Learning Plan:

Demonstrate proficiency to AWS D1.1 standards a guided bend test using the SMAW process.

Power Benchmark/Competency: #9

Learning Activities:	Resources:
➤ Daily welding activities. All welds to be completed utilizing SMAW process.	

Advanced Welding Curriculum Design

Stage 1 – Desired Results:

<p>Power Standard 4: Operate efficiently in a full functioning manufacturing environment</p> <p>Power Benchmark/Competency #10: Apply welding symbols to simple blueprints of basic weld joints.</p> <p>Estimated Timeline: 9 weeks</p>	<p>Place 'X' in square if goal addresses Essential/Content Standard(s).</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #ffffcc;"> <th style="padding: 2px;">Career</th> <th style="padding: 2px;">Technology</th> <th style="padding: 2px;">Critical Thinking</th> <th style="padding: 2px;">Global</th> <th style="padding: 2px;">Personal Responsibility</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> <td style="padding: 2px;"></td> <td style="padding: 2px;">X</td> </tr> <tr style="background-color: #ffffcc;"> <td style="padding: 2px;">Math</td> <td style="padding: 2px;">Science</td> <td style="padding: 2px;">Language Arts</td> <td style="padding: 2px;">Social Studies</td> <td style="padding: 2px;">Fine/Visual Arts</td> </tr> <tr> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> </tbody> </table>	Career	Technology	Critical Thinking	Global	Personal Responsibility	X		X		X	Math	Science	Language Arts	Social Studies	Fine/Visual Arts					
Career	Technology	Critical Thinking	Global	Personal Responsibility																	
X		X		X																	
Math	Science	Language Arts	Social Studies	Fine/Visual Arts																	
<p>Understandings (Standards & Benchmarks): <i>Students will understand that...</i></p> <ul style="list-style-type: none"> ➤ Welding symbols are an essential form of communication between weld engineers and fabricators. ➤ Welding symbols are basically a foreign language used to express welding terminology. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> ➤ What is a welding symbol? ➤ When are welding symbols applied to a blueprint? 																				
<p>Students will know...</p> <ul style="list-style-type: none"> ➤ How to apply welding symbols to a blueprint. ➤ How to read welding symbols from a blueprint. 	<p>Students will be able to (i.e. do)...</p> <ul style="list-style-type: none"> ➤ Design a simple blueprint complete with weld symbols and fabricate the project to the specifications provided by the blueprint. 																				

Stage 2 – Assessment Evidence

<p>Performance Tasks: (i.e. Assessment used to determine proficiency on competency)</p> <ul style="list-style-type: none"> ➤ Design a simple blueprint complete with weld symbols. ➤ Weld symbol worksheet exercises. 	<p>Key Criteria: (Rubric)</p> <ul style="list-style-type: none"> ➤ Completion to 100% accuracy a simple weld symbol exam.
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Advanced Welding Curriculum Design

Stage 3 – Learning Plan:

Apply welding symbols to simple blueprints of basic weld joints.

Power Benchmark/Competency: # 10

Learning Activities:	Resources:
➤ Blueprint reading lecture.	
➤ Blueprint characteristics.	