

KPBSD Middle School and High School Welding I, II, III, & IV Curriculum – 2017

Industry Standards					
ESTABLISHED GOALS/STANDARDS	Transfer Goals				
<p style="text-align: center;">Welding I</p> <ol style="list-style-type: none"> 1. Referencing SkillsUSA Welding Standards 2. AWS 1.21 3. AWS-AD 1.5.34 4. AWS-AD1.6.4 5. AWS-EX 1.1.7D 6. AWS-AD 1.8A 7. AWS-AD 1.10.1D <p style="text-align: center;">Welding II, III, & IV</p> <ol style="list-style-type: none"> 1. AWS-EX 1.2.1 2. AWS-AD 1.5.3E 3. AWS 1.3.2 4. AWS 1.3.4 5. AWS-EX 1.5.1C 6. AWS-AD 1.12.2J 	<p>Students will be able to independently use their learning to...</p> <p>Welding I, II, III, & IV</p> <ul style="list-style-type: none"> • Safely demonstrate basic welding techniques and practices for various welding procedures. • Be able to employ safe practices and procedures in a work environment. <p>Welding II, III, & IV</p> <ul style="list-style-type: none"> • Demonstrate safe shop practices for self and others. • Identify and properly use welding tools and equipment for each welding process. • Demonstrate Gas Metal Arc Welding (GMAW), Shielded Metal Arc Welding (SMAW), and other welding techniques. • Develop Gas Tungsten Arc Welding procedures (GTAW). • Demonstrate project fabrication or repair utilizing the various welding techniques and layout procedures. • Identify and apply special advanced welding processes (plasma cutting and pipe welding). • Explore and identify various welding careers. 				
Meaning					
<p>ALASKA STANDARDS ALIGNMENT: Welding</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #e0e0e0;"> <th style="width: 50%; text-align: center; padding: 5px;">ENDURING UNDERSTANDINGS</th> <th style="width: 50%; text-align: center; padding: 5px;">ESSENTIAL QUESTIONS</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top; padding: 5px;"> <p>Students will understand...</p> <p>Welding I, II, III, & IV</p> <ul style="list-style-type: none"> • Following all shop safety procedures is critical to meeting industry expectations. • Learning and abiding by proper welding procedures is critical to maintaining safety and productivity in the shop. <p>Welding II, III, & IV</p> <ul style="list-style-type: none"> • Welding machine set-up is dictated by the desired outcome/weld job. </td> <td style="vertical-align: top; padding: 5px;"> <p>Students will keep considering...</p> <p>Welding I, II, III, & IV</p> <ul style="list-style-type: none"> • What are the industry standards for shop safety? • What characteristics make a weld acceptable according to industry standards? </td> </tr> </tbody> </table>	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	<p>Students will understand...</p> <p>Welding I, II, III, & IV</p> <ul style="list-style-type: none"> • Following all shop safety procedures is critical to meeting industry expectations. • Learning and abiding by proper welding procedures is critical to maintaining safety and productivity in the shop. <p>Welding II, III, & IV</p> <ul style="list-style-type: none"> • Welding machine set-up is dictated by the desired outcome/weld job. 	<p>Students will keep considering...</p> <p>Welding I, II, III, & IV</p> <ul style="list-style-type: none"> • What are the industry standards for shop safety? • What characteristics make a weld acceptable according to industry standards?
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Acquisition					
<p>Students will know...</p> <p>Welding I, II, III, & IV</p>	<p>Students will be skilled at...</p> <p>Welding I, II, III, & IV</p>				

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	<ul style="list-style-type: none"> • Safe shop procedures in various welding techniques. • Terminology related to basic welding equipment/tools. <p>Welding II, III, & IV</p> <ul style="list-style-type: none"> • All students will have limited exposure to additional welding processes. • Proper machine set up appropriate to specific processes. • How to read and create welding symbols. • Steps and procedures for fabricating projects. 	<ul style="list-style-type: none"> • Demonstrating safe shop procedures in various welding techniques. • Performing welds that are compliant with AWS standards. • Safely cutting and preparing metal. • Welding out of position. • Safely and appropriately operating power tools. • Basic fabrication, layout, and construction of projects.
Evidence		
Evaluative Criteria	Assessment Evidence	
SkillsUSA Standards	Demonstrate proficiency to progress through required check off list and safety tests.	
Safety Assessment	<p>Completion of a variety of welding projects and performance tasks:</p> <ul style="list-style-type: none"> • Welding components in flat, vertical, or overhead positions. • Igniting torches or start power supplies and strike arcs by touching electrodes to metals being welded, completing electrical circuits. • Clamp, hold, tack-weld, heat-bend, grind, or bolt component parts to obtain required configurations and positions for welding. • Operating manual or semi-automatic welding equipment to fuse metal segments, using processes such as gas tungsten arc, gas metal arc, flux-cored arc, plasma arc, and shielded metal arc • Examining work pieces for defects and measure work pieces with straight edges or templates to ensure conformance with specifications. • Recognizing, setting up, and operating hand and power tools common to the welding trade, such as shielded metal arc and gas metal arc welding equipment. • Laying out, positioning, aligning, and securing parts and assemblies prior to assembly, using straightedges, combination squares, calipers, and rulers. 	