EMPLOYABILITY PROFILE

Welding

Industry Based Skill Standards

Proficiency Definitions

NA = Not Applicable **1 = Developing** **2 = Basic** **3 = Proficient** **4 = Mastery**

	9th	10th	11th	12th
History of Welding				
Recognizes some of the significant developments in the history of welding.				
Personal and Professional Goal Setting and Success				
Defines principles that contribute to personal and professional success. Demonstrates different types of skills needed for a successful welder				
Effective Communication in welding				
Displays written and verbal communication effectively. Interprets instruction or directions for a specific welding job before, during, and/or after welding				
Shop / Jobsite Safety				
Understands machinery and tool hazards present in a welding shop/jobsite and the safety features that can be used in an emergency				
Tools and Equipment				
Demonstrates proper use of machinery, power tools, and hand tools after thorough training. Follows all maintenance recommendations and inspects the equipment before each use				
Welding and Cutting				
Identifies recent developments in welding and cutting processes. Uses various processes currently used in industry. Utilize and differentiate between Plasma arc cutting and Oxy-fuel cutting				
The Physics of Welding				
Understands and can differentiate the 3 properties of metal - Physical, Chemical, and Mechanical				
Math for Welding				
Describes and utilizes applications for math in welding and in personal life. Can add, subtract, multiply, and divide whole numbers, fractions, and decimals. Able to convert between fractions and decimals				
Math Applications for Welders				
Measure using both U.S. customary (standard) system and the S.I. metric system. Convert lengths from standard units to metric units and from Metric units to Standard units. Calculate the perimeter, area, and volume of common shapes. Convert welding values from and to standard and metric units				

	9th	10th	11th	12th
Weld Joints and Positions				
Identifies the five basic weld joints and the types of welds that can be made on each joint. Describe a stringer bead and a weave bead. List the four welding positions and state the conditions in the four welding				
Welding Symbols				
Identifies the basic types of welds indicated on the ANSI / AWS welding symbol. Locate information on the weld symbol to determine the size of the root opening, the groove angle, and the desired size, contour, and finish of the weld				
Shielded Metal Arc Welding (S				
Identify the equipment and accessories used in SMAW. List components of an arc welding outfit and welding station. Explain the assembly of a welding machine, leads, and electrode holder. Set the proper amperage and polarity on a welding machine				
Gas Metal Arc Welding (GMAW) & Flux-cored Arc Welding (FCAW)				
Identify the equipment and accessories used in GMAW and FCAW. List components of a GMAW and FCAW welding outfit and welding station. Explain the assembly of a welding machine, leads, and electrode holder.				
Gas Tungsten Arc Welding (GT				
Identify the equipment and accessories used in GTAW. List components of a GTAW welding outfit and welding station. Explain the assembly of a welding machine, leads, and electrode holder. Set the proper amperage and polarity on a welding machine				
Oxyfuel Welding and Cutting				
Identify and describe the parts of an Oxyfuel gas cutting/welding outfit. List and perform safety precautions when using oxyfuel systems. Handles and cares for oxygen and gas cylinders properly and safely				
Inspecting and Testing Welds				
Differentiate between a welding flaw and welding defect. List most common types of nondestructive and destructive testing done on welds. Perform several basic types of tests on welds to evaluate weld quality				
Welder Certification				
Describe the use of codes and specifications to provide needed information on a required weld. List the steps that must be followed to conform to most codes. Understands the different types of welder certifications and how to obtain them				