

Agricultural Welding I

Foundational Standards	<ol style="list-style-type: none">1 Incorporate safety procedures in handling, operating, and maintaining tools and machinery; handling materials; utilizing personal protective equipment; maintaining a safe work area; and handling hazardous materials and forces. F.12 Demonstrate effective workplace and employability skills, including communication, awareness of diversity, positive work ethic, problem-solving, time management, and teamwork. F.23 Explore the range of careers available in the field and investigate their educational requirements and demonstrate job-seeking skills including resume-writing and interviewing. F.34 Demonstrate digital literacy by using digital and electronic tools appropriately, safely, and ethically. F.45 Participate in a Career Technical Student Organization (CTSO) to increase knowledge and skills and to enhance leadership and teamwork. F.56 Participate in Supervised Agricultural Experiences and/or work-based, experiential, and service learning. F.6
Impact of Metal Fabrication	<ol style="list-style-type: none">1 Recount the history of metal fabrication and its impact on the construction industry. 1
Tools, Equipment, and Supplies	<ol style="list-style-type: none">2 Explain the proper use of metal fabrication tools and equipment. Examples: tools – cold chisel, file, drill, chipping hammer, grinder, tip cleaner, wire brush, tongs; equipment – welder, welding helmet, fuel valves, oxyfuel torches 23 Differentiate between ferrous and non-ferrous metals used in metal fabrication. 3
Metal Preparation	<ol style="list-style-type: none">4 Demonstrate techniques of cleaning, stripping, grinding, and buffing metal for fabrication. 4
Metal Cutting	<ol style="list-style-type: none">5 Prepare an oxyfuel unit for operation. 5<ol style="list-style-type: none">a Explain the meaning of each safety color-code for oxyfuel tanks and hoses. 5.Ab Explain the purpose of shaded lenses used in oxyfuel welding and cutting. 5.Bc Check for cracks and leaks in oxyfuel hoses and regulators. 5.C

6 Perform safe welding and cutting operations with an oxy-acetylene torch. 6

7 Demonstrate procedures for using plasma arc cutting equipment. 7

- a Describe the plasma arc cutting process. 7.A
 - b Identify components of plasma arc cutting equipment. 7.B
 - c Cut metal with a plasma arc cutter. 7.C
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Weld Quality

8 Analyze weld imperfections to determine corrective measures. 8

9 Compare destructive and nondestructive weld-testing methods. 9

**Shielded Metal Arc
Welding (SMAW)**

10 Explain the Shielded Metal Arc Welding (SMAW) process. 10

- a Compare various types of welding electrodes used in Shielded Metal Arc Welding (SMAW). Examples: E6010, E6013, E7018 10.A
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11 Demonstrate procedures for adjusting and operating the Shielded Metal Arc Welding (SMAW) machine. 11

- a Identify types of welds. Examples: stringer, overlap, fillet 11.A
- b Identify various types of weld joints. Examples: butt, lap, corner, T 11.B
- c Contrast methods of striking an arc. Examples: scratching, tapping, weaving 11.C
- d Demonstrate proper techniques for flat, vertical, horizontal, and overhead welding. 11.D