

Agricultural Welding II

Foundational Standards

- 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.1](#)
- 2 Demonstrate effective workplace and employability skills, including communication, awareness of diversity, positive work ethic, problem-solving, time management, and teamwork. [F.2](#)
- 3 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.3](#)
- 4 Demonstrate digital literacy by using digital and electronic tools appropriately, safely, and ethically. [F.4](#)
- 5 Participate in a Career Technical Student Organization (CTSO) to increase knowledge and skills and to enhance leadership and teamwork. [F.5](#)
- 6 Participate in Supervised Agricultural Experiences and/or work-based, experiential, and service learning. [F.6](#)

Metal Structures

- 1 Interpret welding symbols used on blueprints. [1](#)
- 2 Explain the process of planning and estimating materials needed to complete a metal fabrication project. [2](#)
- 3 Explain the importance of preparing metal for welding. [3](#)

Tools, Supplies, and Equipment

- 4 Demonstrate uses of tools and equipment in MIG, TIG, and FCAW welding. Examples: tools—cold chisel, file, drill, chipping hammer, metal vise grips, grinder, tip cleaner, wire brush, tongs; equipment—welding helmet, fuel valves, MIG welder, FCAW welder, TIG welder [4](#)
- 5 Distinguish among ferrous and non-ferrous metals used in MIG, TIG, and FCAW welding. [5](#)
- 6 Identify the various parts of MIG, TIG, and FCAW welding machines and explain the functions of each part. [6](#)

7 Compare shades of lenses needed in MIG, TIG, and FCAW welding and explain when darker lenses are needed. 7

Weld Applications and Quality

8 Examine MIG, TIG, and FCAW welds for imperfections. 8

- a Determine corrective measures to improve welds. 8.A
 - b Explain weld testing methods. 8.B
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9 Explain how tensile strength, polarity, and rate of travel affect weld quality. 9

10 Demonstrate the use of MIG, TIG, and FCAW welders. 10

- a Identify typical uses of various types of weld joints. Examples: butt, lap, corner, T 10.A
 - b Adjust MIG, TIG, and FCAW machine settings for welding. 10.B
 - c Utilize flat, vertical, horizontal, and overhead welding positions. 10.C
 - d Demonstrate stringer, weave, overlap, and fillet welds used in MIG, TIG, and FCAW welding. 10.D
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Technology Applications

11 Explain the use of technology that enhances metal fabrication and how it improves the quality of the work. Examples: CNC torch, virtual welding 11