

# 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
- 

**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
- 

**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**