Alabama CTE

Agricultural Welding I

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
Impact of Metal Fabrication	1	**Recount the history of metal fabrication and its impact on the construction industry.** 1
Tools, Equipment, and Supplies	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** 2
	3	**Differentiate between ferrous and non-ferrous metals used in metal fabrication.** 3
Metal Preparation	4	**Demonstrate techniques of cleaning, stripping, grinding, and buffing metal for fabrication.** 4
Metal Cutting	5	**Prepare an oxyfuel unit for operation.** 5
	a	Explain the meaning of each safety color-code for oxyfuel tanks and hoses. 5.A
	b	Explain the purpose of shaded lenses used in oxyfuel welding and cutting. 5.B
	c	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
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
	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