



2022-2023 Technical Skills Assessment Welding

Results by Standard

Legend (%)		
0-50%	51-75%	76-100%

Assessment: Welding	% Correct	% Correct	% Correct
Number tested: 522 <i>*May contain results from Agriculture Welding</i>	20-21*	21-22	22-23
CONTENT STANDARD 1.0: IDENTIFY LAB ORGANIZATION AND SAFETY PROCEDURES	77.71%	78.60%	80.74%
Performance Standard 1.1: Demonstrate general lab safety rules and procedures	78.45%	78.82%	81.16%
1.1.1 Describe general shop safety rules and procedures (i.e., safety test)	94.67%	95.10%	96.07%
1.1.2 Describe OSHA in workplace safety	84.26%	85.10%	88.21%
1.1.3 Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities, i.e., personal protection equipment (PPE)	92.86%	93.67%	94.87%
1.1.4 Operate lab equipment according to safety guidelines	69.73%	67.55%	78.21%
1.1.5 Identify and use proper lifting procedures and proper use of support equipment (i.e., rigging, chains, straps, cables)	88.86%	86.43%	90.85%
1.1.6 Utilize proper ventilation procedures for working within the lab/shop area	89.47%	90.71%	92.14%
1.1.7 Identify marked safety areas	82.08%	80.82%	85.30%
1.1.8 Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment	74.21%	74.08%	76.75%
1.1.9 Identify the location and use of eye wash stations	91.16%	93.88%	91.88%
1.1.10 Identify the location of the posted evacuation routes	78.45%	80.00%	83.25%
1.1.11 Identify and wear appropriate clothing for lab/shop activities	57.87%	60.00%	65.47%
1.1.12 Secure hair and jewelry for lab/shop activities	90.80%	88.16%	91.45%
1.1.13 Demonstrate knowledge of the safety aspects of high voltage circuits	85.59%	87.45%	87.01%
1.1.17 Follow written instructions to complete work assignments	72.88%	73.47%	77.95%
1.1.18 Identify requirements for Hot Work Permits	43.70%	45.51%	43.42%
1.1.19 Identify what constitutes a confined space	58.35%	60.00%	60.34%
Performance Standard 1.2: Identify and utilize proper tools	76.88%	77.24%	79.40%
1.2.1 Identify hand tools and their appropriate usage	93.22%	94.49%	94.70%

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1.2.3 Demonstrate safe handling and use of appropriate tools	60.53%	60.00%	64.10%
Performance Standard 1.3: Identify and utilize power tools and equipment	71.83%	77.55%	78.06%
1.3.1 Identify power tools and equipment, and their appropriate usage	87.41%	93.47%	93.68%
1.3.2 Demonstrate safe handling and use of appropriate power tools and equipment	64.04%	69.59%	70.26%
CONTENT STANDARD 2.0: APPLY FUNDAMENTAL PRINT READING, MEASUREMENT AND LAYOUT/FIT-UP TECHNIQUES	66.02%	65.68%	70.34%
Performance Standard 2.1: Demonstrate print reading and sketching practices	65.56%	65.41%	69.36%
2.1.2 Identify and explain industry standard welding symbols	63.44%	60.00%	65.21%
2.1.7 Fabricate parts from a drawing or sketch	67.68%	70.82%	73.50%
Performance Standard 2.3: Utilize layout principles and practices	66.95%	66.22%	72.31%
2.3.3 Select appropriate materials to complete work assignment	63.92%	64.90%	69.57%
2.3.5 Layout parts using measurement practices	69.98%	67.55%	75.04%
CONTENT STANDARD 3.0: IDENTIFY PROPERTIES OF METALS	64.53%	65.97%	71.50%
Performance Standard 3.1: Identify material properties and science	64.53%	65.97%	71.50%
3.1.1 Identify the difference between ferrous and non-ferrous metals	64.53%	65.97%	71.50%
CONTENT STANDARD 4.0: APPLY SHIELDED METAL ARC WELDING (SMAW) TECHNIQUES	68.52%	68.98%	71.34%
Performance Standard 4.1: Safety procedures	58.60%	59.69%	60.85%
4.1.1 Identify and explain different types of welding current and polarity	58.60%	59.69%	60.85%
Performance Standard 4.2: Produce welds using SMAW on carbon steel	88.38%	87.55%	92.31%
4.2.2 Operate SMAW equipment	88.38%	87.55%	92.31%
CONTENT STANDARD 5.0: APPLY GAS METAL ARC WELDING (GMAW-S, GMAW) TECHNIQUES	61.67%	62.41%	66.69%
Performance Standard 5.1: Utilize safety procedures	65.86%	65.82%	72.82%
5.1.4 Demonstrate safe startup, shutdown, disassembly, and cylinder exchange procedures of GMAW equipment	65.86%	65.82%	72.82%
Performance Standard 5.2: Produce welds using GMAW-S on carbon steel	60.98%	61.84%	65.67%
5.2.1 Set up for GMAW-S operations	55.93%	57.14%	66.50%
5.2.2 Operate GMAW-S equipment	62.63%	63.81%	65.70%
5.2.3 Perform welds in the 1F position	60.77%	62.24%	68.03%
5.2.4 Perform welds in the 2F position	61.38%	66.53%	68.12%
5.2.7 Perform welds in the 1G position	65.38%	63.06%	66.50%
5.2.8 Perform welds in the 2G position	59.20%	56.12%	60.51%
5.2.9 Perform welds in the 3G position	59.81%	60.61%	64.62%

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CONTENT STANDARD 6.0: APPLY FLUX CORED ARC WELDING (FCAW-G) TECHNIQUE	64.25%	67.21%	69.74%
Performance Standard 6.2: Produce welds using FCAW-G on carbon steel	64.25%	67.21%	69.74%
6.2.1 Set up for FCAW-G operations	73.85%	75.92%	78.12%
6.2.2 Operate FCAW-G equipment	34.62%	35.51%	38.97%
6.2.9 Perform welds in the 3G position	84.26%	90.20%	92.14%
CONTENT STANDARD 7.0: APPLY GAS TUNGSTEN ARC WELDING (GTAW) TECHNIQUES	41.65%	42.45%	45.64%
Performance Standard 7.2: Produce welds using GTAW on carbon steel	41.65%	42.45%	45.64%
7.2.2 Operate GTAW equipment	41.65%	42.45%	45.64%
CONTENT STANDARD 8.0: APPLY THERMAL CUTTING PROCESSES	60.80%	61.26%	62.95%
Performance Standard 8.1: Demonstrate oxy-fuel gas cutting (OFC)	66.32%	66.15%	67.98%
8.1.1 Perform safety inspections of OFC equipment and accessories	54.72%	55.71%	57.66%
8.1.3 Demonstrate safe startup, shutdown, disassembly, and cylinder exchange procedures of OFC equipment	68.93%	67.48%	68.89%
8.1.5 Operate OFC equipment	84.75%	83.78%	86.92%
8.1.6 Perform straight, square edge cutting operations in the flat position	56.42%	58.16%	58.29%
Performance Standard 8.2: Demonstrate plasma arc cutting (PAC) on carbon steel and aluminum	35.96%	39.29%	40.34%
8.2.5 Set up for PAC operations	49.64%	59.39%	55.56%
8.2.6 Operate PAC equipment	22.28%	19.18%	25.13%
CONTENT STANDARD 9.0: IDENTIFY WELDING CODES, INSPECTIONS, AND TESTING PRINCIPLES	59.74%	60.58%	63.59%
Performance Standard 9.1: Identify welding codes, qualifications and certifications	58.72%	60.44%	62.93%
9.1.3 Explain the importance of quality workmanship	71.83%	72.11%	76.52%
9.1.5 Perform a visual inspection of fillet welds	45.60%	48.78%	49.34%
Performance Standard 9.2: Demonstrate welding inspection and testing principles	65.86%	61.43%	67.52%
9.2.3 Examine tack, root passes, intermediate layers, and completed welds	65.86%	61.43%	67.52%
CONTENT STANDARD 10.0: APPLY FABRICATION FUNDAMENTALS	64.35%	65.06%	70.66%
Performance Standard 10.1: Utilize base metal preparation fundamentals	68.77%	68.34%	73.21%
10.1.1 Clean base metal for welding or cutting	63.08%	62.86%	69.83%
10.1.2 Identify and explain joint design	87.29%	86.84%	91.20%
10.1.3 Select the proper joint design based on a welding procedure specification (WPS) or instructors direction	36.08%	29.39%	38.29%
10.1.4 Mechanically bevel the edge of a mild steel plate (i.e., hand beveller, grinder)	71.11%	72.65%	75.10%

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Performance Standard 10.2: Demonstrate fabrication techniques	61.40%	62.87%	68.96%
10.2.1 Demonstrate proper setup of fabrication area, equipment, and materials	78.05%	76.53%	81.25%
10.2.2 Construct projects in the proper sequence	67.47%	70.88%	76.01%
10.2.3 Properly layout projects from welding prints	54.48%	55.51%	61.20%
10.2.4 Check work for accuracy	45.60%	48.57%	57.38%