2026 SkillsUSA
Individual Welding Competition
Contest Chair: Zachary May (Textron)

Groups by School and Number of Competitors

AM-Group A
Hutch CC- 1
Hutch CTEA 4
Newton HS 5
Junction City HS 1
Olathe Advance Tech Center 2
Fort Hays Tech NW 2

PM-Group B
Fort Hays Tech North Central 2
WSU tech 2
WSU Tech HS 5
Parsons HS 1
Fort Scott HS 1
Neosho County CC 3

- Competitors will Check-in in the HCTEA T-Building Event Center during your scheduled time (7:30 for the AM group, 11:30 for PM).
- No students or advisors are to enter the Welding Classroom (door 27) or the Welding Shop Competition Area without being escorted by Judge.
- Advisors and Visitors may enter the shop through the west entrance.
- The upstairs area in the welding shop will be off limits to all visitors.
- Lunch for Welding competitors will be provided in the Event Center.
- Registered Advisors should receive a lunch ticket with their name tag.
- Competition rules, guidelines, and tool list are located in the 2026 Technical Standard.
- Tungsten is provided; however, competitors may bring their own pre-sharpened tungsten. No grinding/sharpening will be allowed on-site.
- Welding Equipment: Lincoln 300C
- Competition Processes: SMAW, GMAW, GTAW A/C, and Oxy/Acetylene
- Filler Metal: ER70S-6 .035” (75/25 shielding gas), ER4043 1/8”, ER7018 1/8”

Morning Schedule

7:30- Orientation and Tool Check- AM Group only HCTEA T-Building
8:30- Competition begins
11:00- Competition Ends- clean weld area
11:00- Debrief for AM competitors and advisors only- Welding classroom enter through door "27" on the north side of the building- competition portion of the shop is still off limits.

Afternoon Schedule

11:30- Orientation and Tool Check- PM Group only HCTEA T-Building
12:30- Competition Begins
3:30- Competition Ends- clean weld area
3:30- Debrief for PM competitors and advisors- Welding classroom enter through door "27" on the north side of the building- competition portion of the shop is still off limits.

Project Pick Up

Projects may be picked between 7:30 - 8:30 and again after the award ceremony until 4pm. Any project not picked up or arrangements made will become the property of HCTEA. These projects are reworked and sold to support the HCTEA Welding SkillsUSA Chapter. Please contact Jeremiah Harmon- harmonj@usd308.com for making arrangements outside of the allotted time.

Special Thanks to the Following

HCTEA and USD308: Even Host
Lincoln Electric: Luke Craft- Equipment and consumable
Textron- Material Donations and Judges
Khoch-Glitsch- Judges and Material
Airgas- Industrial Gases, and consumables
Lampton- Judge and consumables
Missouri Welding Institute: Wes Winchell & Josh Sauer- Judges

Feb. 25, 2026 Version 2- Corrected start time for PM group

2024-26 EDITION

SkillsUSA® CHAMPIONSHIPS

WELDING

SkillsUSA Championships Technical Standards

PURPOSE

To evaluate each competitor's preparation for employment and to recognize outstanding students for excellence and professionalism in the field of welding.

First, download and review the General Regulations at updates.skillsusa.org.

ELIGIBILITY

Open to active SkillsUSA members enrolled in programs with welding as an occupational objective. Each state may send one high school and one college/postsecondary entry.

CLOTHING REQUIREMENT

Class I: Competition Specific — Welding | Welding Fabrication

- Official SkillsUSA khaki long-sleeve work shirt (100% cotton as per OSHA regulations)
- Khaki pants (100% cotton as per OSHA regulations)
- Black, brown, or tan work shoes

Note: Safety glasses must have side shields or goggles. (Prescription safety glasses may be used only if they are equipped with side shields. If not, they must be covered with goggles.)

These regulations refer to SkillsUSA Championships Clothing Classifications that are pictured and described at skillsusastore.org. If you have questions about competition uniforms, call the SkillsUSA Store at 888-501-2183.

Note: Competitors must wear their official competition clothing to the competition orientation.

SAFETY INSTRUCTION AND VERIFICATION OF TRAINING

All competitors must submit online a letter from the appropriate school official (i.e., CTE administrator, principal, instructor, etc.) on school letterhead which simply states:

"I certify that [competitor's name] meets the safety training requirements as outlined in the national technical standards for the SkillsUSA Championships Welding competition. Both the instructor(s) and the competitor certify that [competitor's name] has received instruction and has satisfactorily passed examination on the safe use of equipment that may be used in the competition. We understand that competitors will be removed from competition if proper training has not been provided, and/or they are using the equipment in an unsafe manner. Signed, [school official]."

Both the instructor and the competitor certify by agreeing to enter this competition that SkillsUSA Inc., the national technical committee and national judges are released from all responsibilities relating to personal injury resulting from their use. Competitors will be removed from competition if proper training is not provided and/or the equipment is used unsafely.

See "Online Submission Requirements" below for guidelines.

EQUIPMENT AND MATERIALS

1. Supplied by the technical committee:
   a. All necessary welding equipment, filler metals, and base materials
   b. All instructions, Welding Procedure Specifications (WPS), and prints
2. Supplied by the competitor:
   a. Hearing and/or ear protection
   b. Welding gloves — full length (gauntlet) for SMAW, GMAW and FCAW
   c. Welding gloves — appropriate for GTAW
   d. Welding cap/beanie
   e. Welding helmet with appropriate filter plate/lens and protective cover lens for tacking and welding; auto darkening filter plate/lens permissible. Spare filter plate and cover lens.
   f. Cutting goggles — with shade 5 lens/cover lens for OFC/PAC; helmet with shade 5 capability permissible; face shield headgear with shade 5 permissible. Spare filter and cover lens.
   g. Pocket calculator
   h. Pocket flashlight
   i. Fillet weld gauge — standard set
   j. Lead pencil and/or ballpoint pen
   k. Soapstone with or without holder or silver streak pencil, sharpie marker, paint marker
   l. Scribe without magnet
   m. Compass
   n. Protractor

o. **Either:** Combination square set **or** speed square
p. 10-foot (3.1 meters) minimum steel tape measure
q. 16-ounce (.45 kilogram) ball peen hammer (Not a claw hammer)
r. Center punch
s. Cold chisel
t. **Either:** 11R **or** 10-inch (254 millimeters) vise grips
u. **Either:** 6-inch (152 millimeters) side cutting pliers **or** diagonal cutting pliers
v. 6-inch (152 millimeters) needle nose pliers – welpers permissible
w. Chipping hammer
x. Carbon steel wire brush
y. Stainless steel wire brush
z. Friction lighter (striker) and tip cleaner
aa. All competitors must create and submit online a one-page single sided resume. See "Online Submission Requirements" below for guidelines.
bb. All competitors must submit a letter online verifying completion of the required safety training. See "Online Submission Requirements" below for guidelines.

Note: Only items listed above may be used during the competition. Using any tools or boxes other than the items listed above will result in a significate points deduction. Tools should be transported in either a toolbox that does not exceed 9" tall by 14" wide by 22" length (measured on the outside) or an open 5-gallon bucket. Tool bags that meet the same size restriction and that do not have any interior and/or exterior pockets are allowed.

***Note*:** All national competitors must also check for competition-specific updates and/or competitor preparation instructions on the SkillsUSA website at updates.skillsusa.org.

PROHIBITED DEVICES

Cellphones, electronic watches and/or other electronic devices not approved by a competition's national technical committee are ***NOT*** allowed in the competition area. Please follow the guidelines in each technical standard for approved exceptions. Technical committee members may also approve exceptions onsite during the SkillsUSA Championships if deemed appropriate.

Penalties for Prohibited Devices

If a competitor's electronic device makes noise or if the competitor is seen using it at any time during the competition, an official report will be documented for review by the Director of the SkillsUSA Championships. If confirmed that the competitor used the device in a manner which compromised the integrity of the competition, the competitor's scores may be removed.

ONLINE SUBMISSION REQUIREMENTS

All SkillsUSA national competitors must submit their one-page single sided resume online. The deadline and link for online submissions will be published on updates.skillsusa.org.
Failure to submit any of the required online submission document(s) listed below by the established deadline will result in a 10-point penalty for each missing document.

1. One-page single sided resume
2. Safety verification letter

Your submissions must be saved as individual PDF file types using the file name format of "Your Last Name_Your First Name_DocumentType." For example, "Amanda Smith" would save the individual PDF submissions files as:

- Smith_Amanda_Resume
- Smith_Amanda_Safety

SCOPE OF THE COMPETITION

The scope of the competition is defined by industry standards as identified by the American Welding Society, ITW Hobart Brothers Co., The Lincoln Electric Co., Miller Electric Co. Inc. All drawings, welding symbols, and welding terms conform to the latest edition of the American Welding Society (AWS) standards.

KNOWLEDGE PERFORMANCE

The competition will include a test assessing knowledge of welding and associated topics including, but not limited to, safety, math for welders, and print reading. Competitors are also required to take the SkillsUSA Professional Development Test.

SKILL PERFORMANCE

The skill performance assessment may include steel project(s), aluminum project(s), stainless steel project(s) in various positions using a variety of filler metals. Competitors will be involved in a series of stations testing various aspects of welding.

COMPETITION GUIDELINES

1. Competitors must correctly use the welding equipment during the competition. The competition chair and/or any technical committee member may stop a competitor at any section of the competition if they deem a competitor's manner to be hazardous to either themselves or others. Such a stoppage shall be documented as a warning. If the competitor is warned a second time, he or she may be disqualified for that section of the competition.
2. As soon as the competitors enter the competition area no communication shall occur between the competitors or between the competitors and anyone else, except as directed by the competition chair, technical committee members, or judges. Any such communication may result in the competitor being disqualified from that section of the competition. If any taped lines on the floor within the competition area are present, all competitors shall stay within the taped lines. Failure to stay within the taped lines, except for being escorted to the restroom, will result in penalties as follows: First violation = verbal warning and points deduction of the nearest segment of the competition. Second violation = disqualification of the nearest segment of the competition as a competition participant.
3. Time limits will be established during the competition orientation.

4. Evaluation of the completed project will be judged visually. Nondestructive and/or destructive tests may be used to complete the project evaluation.
5. Welding and cutting instructions will be provided to the competitors and specified on the Welding Procedure Specifications (WPS) and prints provided in the welding booths and near cutting stations.
6. Welding equipment used in the competition may be obtained from a variety of manufacturers and may include transformers, rectifiers, and/or inverters.
7. Filler metals will be detailed on the Welding Procedure Specification (WPS) and/or the prints.
8. Welds will be evaluated visually using a scoring system as established by the SkillsUSA technical committee. Nondestructive and/or destructive tests may be used to complete the project evaluation.
9. Final judging of the welded projects will be evaluated according to the difficulty of the assigned task and by using the following visual inspection criteria: dimensional accuracy, including distortion; conformity to drawing requirements, including determination of whether all welds have been completed and whether the finished welds conform to the required size and contour; and visual examination of the welds for cracks, undercut, overlap, crater fill, spatter, arc strikes, porosity, convexity, and reinforcement.
10. Print assembly tolerance will be +/- $\frac{1}{16}$" unless otherwise noted.
11. If no print assembly dimensions are given to orient any project part, the part is to be approximately located based on the print's isometric view.

STANDARDS AND COMPETENCIES

W 1.0 — Identify safety standards and demonstrate safety and health practices of welders in accordance with ANSI Z49.1.

1.1. Demonstrate proper use of equipment used for protection of personnel.
1.2. Demonstrate proper use and inspection of equipment used for ventilation.
1.3. Demonstrate Hot Work operation.
1.4. Demonstrate working in confined spaces properly.
1.5. Understand precautionary labeling.

W 2.0 — Demonstrate an understanding of practical measurement.

2.1. Identify basic metal-working tools used in measuring.
2.2. Use visual measuring tools to accuracy of $\frac{1}{32}$".
2.3. Use layout and marking tools as required.

W 3.0 — Read and interpret prints.

3.1. Apply information found in the information block of the drawing.
3.2. Identify the basic views used on prints including assembly, detail and fit-up drawings.
3.3. Identify common types of lines, abbreviations and symbols in accordance with national drawing standards (ANSI).

3.4. Identify basic welding symbols and components of a symbol (such as arrow, reference line, tail, size, length and location) in accordance with the current national welding symbol standard AWS A 2.4, current edition.

W 4.0 — Produce welds using a Shielded Metal Arc Welding (SMAW) process to AWS QC10 standards.

4.1. Demonstrate safety procedures for SMAW.
4.2. Demonstrate ability to correctly set up SMAW power sources, related welding equipment and do basic process and equipment troubleshooting for welding of carbon steel and/or stainless steel.
4.3. Select the correct type of electrode based on carbon steel and/or stainless steel plate (¼" to ½" thickness).
4.4. Prepare carbon steel and/or stainless steel for welding.

W 5.0 — Produce welds using a Gas Metal Arc Welding (GMAW) process to AWS QC10 standards.

5.1. Demonstrate correct safety procedures for GMAW.
5.2. Demonstrate ability to correctly set up GMAW power sources, related welding equipment and do basic process and equipment troubleshooting.
5.3. Identify short circuiting, globular, spray and pulsed transfer welding of carbon steel, stainless steel and/or aluminum.
5.4. Select the correct type of filler metal, type of shielding gas, amperage and voltage based on carbon steel, stainless steel and/or aluminum sheet and/or plate (1⁄16" to 3⁄8" thickness).
5.5. Prepare carbon steel, stainless steel and/or aluminum for welding.

W 6.0 — Produce welds using a Fluxed Cored Arc Welding (FCAW) process to AWS QC10 standards.

6.1. Demonstrate correct safety procedures for FCAW.
6.2. Demonstrate ability to correctly set up FCAW power sources, related welding equipment and do basic process and equipment troubleshooting.
6.3. Select the correct type of filler metal, type of shielding gas, amperage and voltage based upon carbon steel and/or stainless steel sheet and/or plate (¼" to ⅜" thickness).
6.4. Prepare stainless steel and/or carbon steel for welding.

W 7.0 — Produce welds using a Gas Tungsten Arc Welding (GTAW) process to AWS QC10 standards.

7.1. Demonstrate safety procedures for GTAW.
7.2. Demonstrate ability to correctly set up GTAW power sources, related welding equipment and do basic process and equipment troubleshooting for regular and pulsed welding of aluminum, stainless steel and/or carbon steel.
7.3. Select the correct type of tungsten and filler metal based on aluminum, stainless steel or carbon steel sheet and/or plate (1⁄16" to 1⁄4" thickness).
7.4. Prepare aluminum, stainless steel and/or carbon steel for welding.

W 8.0 — Produce cut materials using an Oxygen Fuel Cutting (OFC) process to AWS QC10 standards.

8.1. Demonstrate safety procedures for OFC.
8.2. Demonstrate ability to correctly set up the OFC equipment for cutting and do basic process troubleshooting.

W 9.0 — Produce cut materials using a Plasma Arc Cutting (PAC) process to AWS QC10 standards.

9.1. Demonstrate safety procedures for PAC.
9.2. Demonstrate ability to correctly set up the PAC power sources, related cutting equipment and do basic process and equipment troubleshooting.
9.3. Set up and shut down equipment for cutting carbon steel, stainless steel and/or aluminum.

W 10.0 — Demonstrate knowledge of visual inspection.

10.1. Examine and measure undercut.
10.2. Examine and measure porosity.
10.3. Measure fillet size.
10.4. Examine and measure weld reinforcement.
10.5. Determine acceptability of welded samples in accordance with provided acceptance criteria.

W 11.0 — Demonstrate knowledge of welding positions and terminology.

11.1. Start, stop and restart stringer beads in the flat, horizontal, vertical up and down, and overhead positions.
11.2. Weld a pad with a multiple pass weld in the flat, horizontal, vertical up and down, and overhead positions.
11.3. Weld a lap joint with a single pass, fillet weld in flat, horizontal, vertical up and down, and overhead positions.
11.4. Weld a lap joint with a multiple pass, fillet weld in the flat, horizontal, vertical up and down, and overhead positions.
11.5. Weld a T-joint with a single pass, fillet weld in the flat, horizontal, vertical up and down, and overhead positions.
11.6. Weld a T-joint with a multiple pass, fillet weld in the flat, horizontal, vertical up and down, and overhead positions.
11.7. Weld a butt joint with a single pass square groove weld in the flat, horizontal, vertical up and down, and overhead positions.
11.8. Weld a butt joint with a partial joint penetration, single pass, double V-groove weld in the flat, horizontal, vertical up and down, and overhead positions.
11.9. Weld a butt joint with a multiple pass V-groove weld in the flat, horizontal, vertical up and down, and overhead positions.
11.10. Weld a butt joint with complete joint penetration, multiple pass, double groove weld in the flat, horizontal, vertical up and down, and overhead positions.
11.11. Weld a 2" to 8" diameter, schedules 40 to 80 pipe, single/multiple pass V-groove weld in the 2G, 5G and 6G positions.
11.12. Lay out, weld, cut and prepare coupons for evaluation.

W 12.0 — SkillsUSA Framework

The SkillsUSA Framework is used to pinpoint the Essential Elements found in Personal Skills, Workplace Skills, and Technical Skills Grounded in Academics. Students will be expected to display or explain how they used some of these Essential Elements. For more, visit: www.skillsusa.org/who-we-are/skillsusa-framework/.

COMMITTEE IDENTIFIED ACADEMIC SKILLS

The technical committee has identified that the following academic skills are embedded in this competition.

Math Skills

- Use fractions to solve practical problems.
- Convert fractions to decimals and vice versa.
- Measure angles.
- Construct three-dimensional models.

Science Skills

- Describe and recognize solids, liquids and gases.
- Use knowledge of principles of electricity and magnetism.

Language Arts Skills

- Provide information for oral presentations.

CONNECTIONS TO NATIONAL STANDARDS

State-level academic curriculum specialists identified the following connections to national academic standards.

Math Standards

- Geometry
- Measurement
- Problem solving
- Communication
- Connections
- Representation

Source: *NCTM Principles and Standards for School Mathematics. For more information, visit: www.nctm.org.*

Science Standards

- Understands the structure and properties of matter.
- Understands the sources and properties of energy.
- Understands forces and motion.
- Understands the nature of scientific inquiry.

Language Arts Standards

- Students apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics).

Source: *IRA/NCTE Standards for the English Language Arts. To view the standards, visit: www.ncte.org/standards.*