



**STATE**  
**SKILL**  
**PERFORMANCE**  
**PROJECT**



## Disclaimer

To ensure the availability of the materials used in this competition project, the State Competition Technical Committee should study this project plan in advance and make modifications to the materials and/or dimensions as necessary. In order to account for these necessary changes in the competition's contents and scope, the instructions to competitors may also need to be modified.

The SkillsUSA State Skill Performance Project is intended to supplement the guidance of the SkillsUSA Championships Technical Standards. The Technical Standards are the official competition guide for the SkillsUSA Championships and contain rules for all national events.

While most state competitive events are modeled after the national Technical Standards, rules for state events may vary from the national guidelines. It is crucial that all student competitors understand the difference between the State Championships State Skill Performance Project, which is used to prepare for state-level competitions, and the SkillsUSA Championships Technical Standards, which is used to prepare for national-level competitions.

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## Introduction

Thank you for your dedication to ensuring student growth and achievement through the management of this SkillsUSA state competition event. The SkillsUSA state director and the national SkillsUSA organization appreciate your commitment to preparing America's future workforce. The purpose of this document is to equip you with the necessary competition specifications that will allow you to host a successful state competition. As you begin to review the State Skill Performance Project, it is beneficial to consider the following:

1. Start by having the competition technical committee review this document carefully and make note of any questions.
2. This competition packet does not have to be used exactly as presented. This document is meant to be used as a guide to set up your own unique state competition. It also describes the competition goal and will guide students in your state to success. While you may follow this packet exactly, you can also use this information as a starting point for planning your state competition. You should work with the state director to ensure you are meeting the needs of your SkillsUSA state association and career and technical schools.
3. Reviewing the suggested scorecard is an important step in the competition preparation process. It is suggested that you look over each item in the scorecard, make any necessary edits and submit to the SkillsUSA state director once it is finalized.
4. Important note: *This information is confidential to the technical committee and the state director. To ensure fairness and integrity in all competitive events, please do not share this packet with teachers or students.*

Thank you for your dedication and SkillsUSA is honored to partner with you in the mission of creating skilled leaders.

## SkillsUSA Framework

The connection between the SkillsUSA Framework and SkillsUSA State Championships is imperative. 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 information, please visit [www.skillsusa.org/about/skillsusa-framework/](http://www.skillsusa.org/about/skillsusa-framework/).



## Competition Overview

**Competition Name:**

Heavy Equipment Operation

**Competition Description:**

Heavy Equipment Operators are needed on construction sites all over the country now more than ever. Students should have knowledge of equipment operation, day to day maintenance and activities (such as surveying and blueprint reading) on various machines in different applications. The competition will evaluate each competitor's preparation for employment and recognize outstanding students for excellence and professionalism in the field of Heavy Equipment Operation.

**Number of Competitors (team or individual):**

Individual

**Competition Level:**

State Championship

**Competition Length:**

4-6 Hours

### **Competition Technical Standards:**

The state director will provide the state technical committee with a copy of the current [SkillsUSA Championships Technical Standards](#). The Technical Standards are the official competition guide/rules for the SkillsUSA Championships and are revised annually. The Technical Standards are embedded with important academic standards as well as SkillsUSA Framework standards. The SkillsUSA Framework actualizes what opportunities need to be created for students to enact the SkillsUSA mission. These Framework skills define the mission and enable the organization to develop competitions, programming and assessments that build skills in students that prepare them for life.

The scope for state competitions is determined by the technical standards and due to limitations may not encompass all of the competencies (e.g. length of time available for conducting the skill performance).

### **Competition Clothing:**

SkillsUSA Championships clothing requirements included in the technical standards have been established for the National Leadership and Skills Conference. The clothing classifications can be reviewed at <https://skillsusa.egnyte.com/dl/zqBfetodFz>.

These regulations refer to clothing items that are pictured and described at [www.skillsusastore.org](http://www.skillsusastore.org). If you have questions about clothing or other logo items, call 1-888-501-2183.

In lieu of the national competition clothing requirements, each state may specify a state trade clothing regulation. Ensure that your state competition clothing modifications meet OSHA standards for safety which can include things like appropriate PPE (toe guard) and 100% cotton clothing in welding.

## Competition Material List

### Materials (and quantity):

written tests, worksheets, water, snacks, print items for the judges including clipboards, pens/pencils, score sheets.

### Tools (and quantity):

boards/planks, traffic cones, marking paint, buckets, pallets, stone or soil piles, grade stakes, calculators, and personal protective equipment (PPE) for competitors (hard hats, reflective vests, etc.)

### Equipment (and quantity):

The competition should include a variety of different pieces of equipment, including at least five different types of the following machines: and support pieces (such as dump trucks)

- Tractor Loader Backhoes
- Skid-Steer Loaders with bucket and forks
- Compact Track Loaders with bucket
- Wheel Loader / Crawler Loader
- Mini/Compact Excavators
- Articulated Dump Trucks
- Hydraulic Excavators
- Bulldozers
- Single Drum Vibratory Soil Compactors

### Electrical needs (voltage & amperage):

It is possible to conduct the competition without utilities, just think about what contingencies might be needed (portable restrooms, portable power). Please adjust the power requirements based on the specific equipment and facility utilities/rules.

### Competition utility requirements (water, plumbing, etc.):



It's always beneficial to have access to water at the competition site as it may be needed for some of the events, or to clean the equipment prior to returning it.

**Estimated overall cost per competitor:**

\$0

**Additional:**

Required documents: proof of training (safety), liability release.

New Demonstration Technical Standards are published online at: [Competition Updates](#)

## Items Brought by Competitors

### (per the Technical Standards)

Please review the SkillsUSA Championships Technical Standards to review the list of items required for your competitor to bring to competition and adjust this list as necessary for your state competition project plan.

The technical standard document for this new demonstration is available here: [Heavy Equipment Operator \(DEMO\), 2022-23](#)

## Competition Update

### Definition:

A competition update is anything that is not listed in the SkillsUSA Championships Technical Standards and that a competitor and/or advisor needs to be aware of and bring for the competition.

*Dear State Tech Chair- If your competition needs a competition update, please work directly with your State Director to submit the competition update for approval. It is critical that this information is shared with your State Director first so they can communicate this information to all competitors.*

*Please check the “Items Brought by Competitors, per the State Skill Performance Project” list against the “Items Brought by Competitors in the SkillsUSA Championships Technical Standards” list. Competitors are expected to bring the items listed in the Technical Standards but will also need to bring the items listed below to successfully complete the state-level competition.*

## Competition Schedule

Written knowledge testing is a core component of the SkillsUSA Championships. These tests are designed to assess the knowledge that a student has around their career competition area. SkillsUSA State Directors may provide access to written knowledge assessments prior to the SLSC competition. As you develop your overall competition schedule, contact your SkillsUSA state director for more information about how the written knowledge test will be offered in your state.

Time	Item	Item Description
8:00 a.m.	Welcome/Orientation	Welcome competitors to the competition and go through a brief review of the competition.
8:30 a.m. - 12:00 p.m.	Skill Performance Begins	Competitors rotate through stations, (time limit will be determined by competition coordinator, ensure equal amount of time per competitor per station)
12:00 p.m.	Lunch	
1:00 p.m. - 3:00 p.m.	Skill Performance continues	Competitors rotate through stations until each has completed all available stations

## Competition Layout Details

The competition can be held at a variety of locations such as equipment dealerships, Career & Technical schools or just about anywhere there's enough room to allow for the operation of the equipment. It's preferable to hold the competition at a location where digging below grade can take place to allow the events to better replicate "real world" scenarios such as digging trenches, although it's not required to conduct a competition. Ideally, this location will be close to the SkillsUSA state competition so it can take place in conjunction with the other competitions.

Note, if the competition will involve digging below grade on an area that isn't an established excavation site, One Call (811) should be contacted to verify there are no utilities in the area.

## Competition Project

Below are examples of some of the tasks competitors would be scored on during a heavy equipment operation competition:

- Heavy equipment written test (50 questions)
- Backhoe operation (trenching)
- Compact Excavator operation (crossing obstacles)
- Wheel Loader operation (truck loading)
- Skid-Steer Loader operation (changing attachments, maneuvering – driving course)
- Compact Track Loader operation (backfilling and grading)
- Articulated Dump Truck operation (maneuvering – driving course, backing)
- Surveying and grades (set-up instrument, determine elevations, calculate cuts and fills)
- Component and control identification (Hydraulic Excavator)
- Pre-operational inspection (Bulldozer)
- Vibratory soil compactor operation (compacting trenches)

Additionally, the competition should require the competitors to perform surveying. The following items should be available for that event:

- Pad laser and tripods (1 each)
- Story poles, laser receivers and calculators (2 each)

Develop a competition rotation and corresponding map of stations:

1. Machine operating stations (minimum of four i.e. trenching, loading, grading, compacting, navigating obstacles)
2. Additional occupational skills station (i.e. surveying, hand signals, identifying aggregates)
3. Written component (i.e. test, resume)
4. Oral component (i.e. interview, customer consult)

Sample Station Print Scorecards: [Heavy Equipment Operation Combined FINAL](#)

## Competition Scorecard

**State Directors, please update your state scorecard protocol below.**

Written knowledge testing is a core component of the SkillsUSA Championships. These tests assess a competitor's knowledge of their career competition area. As you build/edit your competition scorecard, please take the following into account:

- A) SkillsUSA State Directors may provide access to written knowledge assessments prior to the SLSC competition. Please contact your SkillsUSA state director to confirm that your state is participating in a written knowledge test.
  
- B) The written assessment cannot exceed more than 15% of your total score on your scorecard.

**Detailed Scorecards:** [Heavy Equipment Operation Start Up Kit](#)



Scan or click on the link list here to access the most updated materials that you can download. (This link contains edit friendly source documents that are also included in the Heavy Equipment Operation\_Combined\_FINAL resource.)



## Competition Modification Suggestion

### Modification #1:

Additional stations that score competitors on widely taught skills can also be added.

### Modification #2:

The included scorecards can be repurposed for your event but may need to be updated based on the national technical standards.

### Modification #3:

The included scorecards offer multiple station options for running the competition. You will need to adjust the scorecard skill descriptions to match the equipment/stations you select. The scorecard is a combination of eight stations (100 points each), written test (125 pts), professional development test (25 pts), and an oral assessment (50 pts).