



FIREFIGHTING



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 firefighting.

ELIGIBILITY

Open to active SkillsUSA members enrolled in career and technical education programs, work-based learning, or community training programs with firefighting and/or public safety/protective services as an occupational objective.

CLOTHING REQUIREMENTS

Class D: Competition Specific — Blue Attire

- Official SkillsUSA light blue work shirt
- Navy pants
Note: Must be work style pants (e.g. Dickie's) or BDU/tactical style (e.g., 5.11). Accompanied by black belt.
- Black, brown, or tan work safety shoes
Note: Protective toe cap is not required. Shoes must be professional/police or tactical style boots. No tennis/running style shoes.

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

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

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

Competition day: Competitors must bring a complete set of firefighter personal protective equipment (aka “turnout gear”) as listed below. As competitors will be donning and doffing turnout gear several times, they may wear:

1. Official SkillsUSA Class D (outlined above)
OR
2. Sweat/workout pants made of industry appropriate materials, close-toed and close-heeled shoes, and plain T-shirt.

Clothing needs to be professional. Any identification of department, school, city, or state must be covered and should be avoided if possible.

EQUIPMENT AND MATERIALS

1. Provided by the technical committee:
 - a. All necessary materials for the competition not specified elsewhere.
2. Supplied by the competitor:
 - a. Complete set of firefighter’s personal protective equipment, including:
 - 1). Structure rated helmet with chin strap.
 - 2). Eye protection appropriate for fire industry (face shield or other industry standard eye cover)
 - 3). Bunker coat, pants with liners, and suspenders (if applicable to gear’s design).
 - 4). Standard fire boots (with steel toe/shank/shin guard)
 - 5). Firefighter protective hood
 - 6). Structure rated fire gloves
 - 7). SCBA face piece

Note: Any identification of department, school, city, or state must be covered and should be avoided if possible.
 - b. Pen and No. 2 pencil
 - c. All competitors must create a one-page resume. See “Resume Requirement” below for guidelines.

RESUME REQUIREMENT

Competitors must create a one-page resume to submit online. SkillsUSA South Carolina competitors should submit their resume by the deadline published on the competition updates page of our website. Failure to submit a resume will result in a 10-point penalty.

Your resume must be saved as a PDF file type using file name format of “Last Name_First Name.” For example, “Amanda Smith” would save her resume as Smith_Amanda. If you need assistance with saving your file as a PDF, visit the Adobe website for more information.

Note: Check the Competition Guidelines and/or the updates page on the state website.

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.

SCOPE OF THE COMPETITION

The competition is defined by industry standards as identified by the SkillsUSA technical committee.

The following is a list of materials used in the formation of the competition.

- IFSTA Manual Essentials of Firefighting, seventh edition
- NFPA 1001 Standard for Fire Fighter Professional Qualifications

KNOWLEDGE PERFORMANCE

The competition will include an exam assessing general knowledge of firefighting. Refer to Appendix A for a study guide. Competitors are also required to take the SkillsUSA Professional Development Test.

SKILL PERFORMANCE

The competition will include activities that simulate training and events encountered by firefighting professionals.

The Skills Performance is broken down into four stations.

1. **Station One: Job Interview** — Competitors will complete a standard job interview for hire as an entry-level firefighter.
2. **Station Two: Ropes** — The candidate will wear full PPE minus SCBA and will use structural firefighting gloves while completing this skills test.
 - a. Half Hitch: Tie around the bar
 - b. Clove Hitch — Closed: Tie around the bar
 - c. Clove Hitch — Open: Tie the knot in hand and slip it over an object
 - d. Bowline: Tie the knot in hand and slip it over an object
 - e. Figure-Eight (aka Flemish) knot: Tie in hand

- f. Figure–Eight on a Bight: Tie the knot in hand and slip it over an object
 - g. Figure–Eight Bend (aka Flemish Bend): Connect two ropes of different colors
 - h. Sheet Bend using two different sized ropes: Connect two ropes of different colors and difference sizes
 - i. Girth Hitch used for Hose Straps: Tie around the bar
3. **Station 3: Outside Circuit*** — competitors may not run at any time, one foot must always be on the ground when moving. Sections should be 50’ apart.
- a. Don full turnout gear — time starts on “go” from the judge.
 - 1). Boots, Pants, and suspenders (if applicable to gear’s design).
 - 2). Jacket
 - 3). Hood
 - 4). Facemask
 - 5). Helmet
 - 6). Structural firefighting gloves
 - 7). SCBA
 - 8). Air — time stopped at this point for inspection.

Once completed, competitors will doff SCBA gear for the rest of the circuit. They will don a 30-pound weighted vest before starting the next phase. *Note:* This could be completed as a separate section.

- b. Hose — time starts on “go” from the judge.
 - 1). Connect hoses and nozzle as directed
 - 2). Charge
 - 3). Nozzle pattern:
 - a) Angle 90/full fog
 - b) Angle 45/narrow fog/power cone
 - c) Angle 0/straight stream
 - 4). Hose Target - competitor will strike two objects demonstrating hose and nozzle control (e.g., striking hanging tennis balls on string)
- c. Fire Service Straight Ladder Raise (size may vary due to restrictions of competition site, ladder used will ideally be 16’ but will not exceed 20’)
(See Appendix B for times and scores.)
 - 1). This skills test will demonstrate how quickly the candidate can correctly move into place and safely raise a fire service ladder. After raising the ladder correctly, the candidate will safely lower the ladder from the building.
 - 2). At the beginning of the test, the ladder will be on the ground, parallel to the building that is to be laddered, approximately 15’ from the building as if it had just been removed from the fire apparatus and placed on the ground.
 - 3). The candidate will raise the ladder safely. The competitor will check the climbing angle. The candidate will return the ladder safely to its original position on the ground.
 - 4). Time ends when the ladder is returned safely to where they began.

4. **Station 4: Indoor Circuit*** — Competitors may not run at any time. They will don full PPE, eye protection and structural firefighting gloves as well as a 30-pound weighted vest prior to starting the indoor circuit. SCBA is NOT donned for the indoor circuit. Each “stage” is approximately 50’ apart. The time for this stage is independent of the time from the Outdoor Circuit. (See Appendix B for times and scores.)

Note: Judges should provide a circuit orientation, and competitors should be in full gear, 30-pound pack, minus SCBA prior to the start of the timer. The competitors should not stop once time has started. Start timer at Stage 1 when the judge says “go.”

- a. Stage 1- CPR: 2 minutes of American Heart Association one-person Basic Life Saver.
- b. Stage 2-Sledgehammer/Maul: Using a sledgehammer/maul the competitor must move a medium sized tire/object a set distance by swinging between their legs.
- c. Stage 3- Search: competitor will cross the 50’ area between Stage 2 and Stage 4 where the competitor will crawl over and under props and other obstacles. A 10 second penalty will be added to the competitor's completion time for improperly moving through the obstacle course.
- d. Stage 4-Knots & Hoist: two knots will be chosen from Station 2: Ropes listed above and a common tool will be present that must be prepared for lifting and tagging. Two ropes will be available, one for lifting and one for a tagline. One rope can be used, but it must have a tagline. A 15 second penalty will be assessed for each knot or hitch that is incorrect, if the tool is inverted, or if a tagline is not provided due to incorrect knot placement.
- e. Stage 5-Rescue: mannequin drag 160+ pounds for a total of 50’. The mannequin can be a hose dummy, Rescue Randy, or similar device. The circuit will be reset before each competitor’s timer starts at Stage 1 so that there is consistent placement of the dummy at an established starting line, as well as a clear finish line to cross before moving on.
- f. Stage 6-Coupling: the competitor must connect a series of male/female, female/male, double male, and double female couplings of differing sizes to connect two hoses on a table with or without hoses. Hoses will be dry.
- g. Time stops when the competitor finishes their last coupling and claps their hands.

*Circuits: there is a -10-point penalty for each time that a competitor runs. One foot must always be on the ground when moving.

COMPETITION GUIDELINES

1. Each competitor must work independently without assistance from instructors, other competitors, and/or observers. Contact with competitors must be coordinated through designated event staff only. Any violation of this may result in the disqualification of the competitor.
2. Cell phones, iPads/tablets, smart watches, wearable technology, and/or any other electronic communication device are prohibited in the competition area. See “Prohibited Devices” section above for more details.
3. Only competitors, judges and event staff are allowed in the competition area at any time. Observation is limited to the area designated by the judges or event staff. Outdoor

competition area may only be accessed by judges, competitors, and event staff. Any violation of this may result in the disqualification of the competitor.

4. Contact with the judges in any way, at any time without the expressed permission of the competition coordinator is prohibited.

STANDARDS AND COMPETENCIES

The standards and competencies for this competition come from NFPA 1001 Standard for Fire Fighter Professional Qualifications specifically for Fire Fighter I. These standards are copyrighted and cannot be posted. To download these, sign up for a free account at NFPA <https://www.nfpa.org>.

FF 1.0 — 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. Please reference the graphic, as you may be scored on specific elements applied to your project. For more, visit: www.skillsusa.org/who-we-are/skillsusa-framework/.



APPENDIX A

Fire Knowledge exam review from IFSTA Essentials of Firefighting, 7th ed.

- overall mission of the fire service
- type of fire departmental organizational structure
- division of labor necessary in the fire service
- types of specialized fire company
- example of situational awareness
- types of communications center equipment
- channel would be assigned for fireground operations only
- Type of construction
- construction classification
- type roof is often found on buildings
- portion of the roof is called
- roof-mounted equipment
- type of windows
- rolling steel shutters
- substance changes it undergoes a
- products of combustion
- chemical asphyxiant
- hypoxia
- convection
- sawdust

- surface-to-mass ratio
- fires develop through four stages
- fire triangle come
- combustion
- flashover
- ventilation-limited compartment fire
- fuel-limited
- PPE can provide
- eye protection
- SCBA facepiece
- PPE designed for structural fire fighting
- use of fire fighting helmets
- protective coat parts
- fire fighting boots must be
- safety consideration related to PPE
- routine inspections of PPE
- type of cleaning PPE
- fire classification
- extinguishing agents
- type of extinguishers
- utility rope can be used
- synthetic fiber rope
- inspecting kernmantle rope
- lumps in the sheath
- clean synthetic fiber ropes
- section of an extension ladder
- placing an extension ladder
- marking or label does NFPA 1931 require to be on all ladders
- ladders should be service tested
- the halyard should be
- removing a ladder that is mounted on the side of an apparatus
- ladder commands
- deploying a roof ladder
- unconscious victim down a ladder
- factors affects the decision of where to force entry
- forcible entry task
- pick-head ax use
- forcible entry in an area with limited space
- rescue tools
- door frames
- using power saws for forcible entry

- wooden tool handles should be inspected
- locking device that is often found in hotel rooms
- sliding doors opening
- tool was developed to force entry on locks with protective collars or cone-shaped
- breaking windows during forcible entry
- shards
- air management
- closing rooms or close areas
- bypass valve on a cylinder, sharing air, and breathing directly from the cylinder
- IDLH environment, you must
- fire encountered in a room during search and rescue operations
- ventilation used
- overhaul
- loss control
- fresh air from ventilation is introduced into a room
- ventilation during overhaul
- wind speeds and firefighters working safely
- ventilation tool use
- types of ventilation
- types of hose
- types of lugs
- prevent mildew
- hose roll
- booster hose
- dry-barrel hydrant
- hydrant wrench
- portable water tank
- charged hose lines
- hose fitting
- apply water to the hot gas layer in a compartment
- controls doors and windows during fire attack
- attack team
- low neutral plane and turbulent smoke
- type of fire attack
- stop the flow of water from an activated sprinkler
- LPG fire
- passenger vehicle fire
- overhaul operations
- wear SCBA when necessary
- rolled salvage covers
- chutes

- inspection of salvage covers
- heat affect masonry
- type of building material is used to protect other materials because its moisture content
- considering the potential that a building will collapse
- building's contents affect fire growth and structural collapse
- collapse zone clearance

APPENDIX B

Timed Stations: The points earned for a timed station will be added to each competitor's overall score in both Station 3 and Station 4. Judges will need to document the total time to complete Station 3 separate from total time to complete Station 4.

3:00 – 3:15	100 points
3:15 – 3:30	95 points
3:30 – 3:45	90 points
3:45 – 4:00	85 points
4:00 – 4:15	80 points
4:15 – 4:30	75 points
4:30 – 4:45	70 points
4:45 – 5:00	65 points
5:00 – 5:15	60 points
5:15 – 5:30	55 points
5:30 – 5:45	50 points
5:45 – 6:00	45 points
6:00 – 6:15	40 points
6:15 – 6:30	35 points
6:30 – 6:45	30 points
6:45 – 7:00	25 points
7:00 – 7:15	20 points
7:30 – 7:45	15 points
8:00 – 8:15	10 points
8:15 – 8:30	5 points
Over 8:30	0 points

APPENDIX C

Sample Scorecard

Standard Evaluated	Possible Points
Written Knowledge Test	150
Professional Development Test	25
Interview	100
Ropes	125
Outside - PPE	200
Outside - Time Score	100
Indoor - Stages	200
Indoor - Time Score	100
Total Possible Points	1,000

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
- Use proportions and ratios to solve practical problems
- Measure angles
- Find surface area and perimeter of two-dimensional objects

Science Skills

- Plan and conduct a scientific investigation
- Describe basic needs of organisms
- Describe and identify physical changes to matter
- Use knowledge of heat, light and sound energy
- Use knowledge of temperature scales, heat and heat transfer
- Use knowledge of simple machines, compound machines, powered vehicles, rockets and restraining devices

Language Arts Skills

- Provide information in conversations and in group discussions
- Demonstrate use of such verbal communication skills as word choice, pitch, feeling, tone and voice
- Demonstrate use of such nonverbal communication skills as eye contact, posture and gestures using interviewing techniques to gain information

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 forces and motion
- Understands the nature of scientific inquiry

Source: McREL compendium of national science standards. To view and search the compendium, visit: www2.mcrel.org/compendium/.

Language Arts Standards

- Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- Students use spoken, written and visual language to accomplish their own purposes. (e.g., for learning, enjoyment, persuasion and the exchange of information.)

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