



INTERACTIVE APPLICATION AND VIDEO GAME DEVELOPMENT

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 interactive application and video game creation.

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

ELIGIBILITY (TEAM OF TWO)

Open to a team of two (2) active SkillsUSA members from the same local chapter (school) enrolled in programs with creating interactive applications and/or video game design and development as occupational objectives. Each state may send one high school and one college/postsecondary entry. A full team must be registered. See General Regulations for more information about substitution and penalty rules.

Assistants: Up to four additional students from the same school may assist the team and must be properly credited. Assistants are not competitors and therefore are not eligible to receive medals.

CLOTHING REQUIREMENTS

Class E: Competition Specific — Business Casual

- Official SkillsUSA white polo shirt
- Black dress slacks or black dress skirt (knee-length minimum)
- Black closed-toe dress shoes

Note: Wearing socks or hose is not required. If worn, socks must be black dress socks and hose must be either black or skin-tone and seamless/nonpattern.

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.

EQUIPMENT AND MATERIALS

1. Supplied by the technical committee:
 - a. Space for team prototypes.
 - 1). Each team will be allotted at least one six-foot (6') or one half of an eight-foot (8') conference table, based on availability, and two chairs.
 - b. Access to power
 - c. Pencils
2. Supplied by competitors:
 - a. 6' multiple-outlet power strip
 - b. A prototype of an interactive application or video game
 - c. A signed affidavit on school's letterhead
 - d. A display backboard, artwork, and/or collateral marketing the prototype
 - e. USB flash drive with following assets
 - 1). A design documentation saved as a single PDF file
 - 2). Two (2) videos, introduction and trailer
 - 3). Proof of license, if applicable
 - f. All competitors must create and submit online a one-page single sided resume. See "Online Submission Requirements" below for guidelines. Competitors must also bring a hard copy of their resume to the competition orientation.

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

Note: The design document and digital videos should be tested in advance on WIN and MAC computers to ensure they are viewable on readers/players included with those operating systems.

Note: Content may be submitted to other competitions or events. SkillsUSA's photography and sound release will apply to the use of imagery and content from submissions for marketing and nonprofit outreach.

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 document(s) listed below by the established deadline will result in a 10-point penalty.

1. One-page single sided resume

Your submission must be saved as PDF file type using the file name format of “Your Last Name_Your First Name_Resume.” For example, “Amanda Smith” would save the individual PDF submissions file as:

- Smith_Amanda_Resume

SCOPE OF THE COMPETITION

The competition evaluates a team’s technical knowledge and production skills, including critical thinking, creative problem solving, teamwork, interpersonal and visual communication, artistic design, and technical programming.

KNOWLEDGE PERFORMANCE

The competition will include a test assessing the team’s knowledge of the industry, including its jargon, technologies and professional methods. Competitors must also take the SkillsUSA Professional Development Test.

SKILL PERFORMANCE

Teams must produce an original prototype of an interactive application or video game and related deliverables.

COMPETITION GUIDELINES

1. Important requirements/restrictions
 - a. Internet access is prohibited during the competition.
 - b. State and school identifiers must not appear on competition submissions except for the hard-copy affidavit and resumes.
 - c. Game engines are allowed (i.e., Unity, Unreal, RPG Maker, GameMaker, etc.)
 - 1). If a purchased asset is used, then the team is responsible for documenting/crediting the source. There is no benefit to using a purchased asset, teams only earn points for their original work under scoring criteria for technical skills/code developed.
 - d. The selection of 2D, 3D, or VR software is part of team strategy as each requires an increasing level of technical skill.
 - 1). Only the team’s original work can earn points under scoring criteria for technical skills/code development. A team should select a software that showcases their creative ability in each of the elements of conceptualization, design, artwork,

content creation, gameplay, or effective simulation, programming effectiveness, user-interface design, implementation, functionality and performance on the target platform.

- e. Teams should also be prepared to show proof of licensing for all software used.
 - f. All copyright laws must be followed in the creation of the prototype.
 - g. Copyright-free or licensed music or sound effects are allowed, if properly credited.
 - 1). Must bring proof of license for each song or sound effect used, if applicable.
2. Competition orientation:
- a. Teams must submit the following items at orientation:
 - 1). The affidavit and a resume for each team member.
 - a.) Resumes should include the skills gained from the experience developing the competition submission, the time that was invested, and the professional and academic relevance to the competitor's career ambitions.
 - 2). The team's design documentation.
 - a.) Ready for submission on a USB flash drive
 - 3). Two (2) digital videos,
 - a.) Pre-tested and ready for submission on a USB flash drive.
 - 4). A penalty of ten percent (10%) will be deducted for late submissions against all applicable judging criteria.
 - 5). Note: Submissions will not be accepted after competition setup time ends.
 - b. Teams will be assigned appointment times for the interview. Appointments may be randomly pre-assigned by the technical committee or drawn during the competition orientation.
 - 1). The competition timeframe will depend on the total number of teams in the competition, not to exceed two (2) eight-hour days.
 - 2). Outside the team's interview time, a competitor from the team must be on hand to demonstrate the prototype for the public.
3. Prototype Setup Time
- a. The setup, configuration, and teardown of all competitor-provided equipment will be the team's responsibility.
 - b. Teams must assemble their display and test their prototype.
4. Deliverables
- Note:** Where applicable file naming format includes a reference to "XXXX". Teams will replace characters XXXX with their assigned competitor number.
- a. Affidavit: A letter signed by all team members, countersigned by their school's administrator and SkillsUSA advisor or instructor.
 - 1). Printed on school's letterhead, 8.5" by 11" paper.
 - 2). Include a statement that the submission is the team members' original work created during the current school year preceding the National Leadership and Skills Conference.
 - 3). Credit for any students assisting with the project should be listed along with details of the work they performed, if applicable.

- b. Display: A backboard, artwork, and/or collateral to enhance the display, presentation, and marketing of the prototype.
 - c. Design documentation: saved on USB flash drive
 - 1). Saved as a single PDF file:
 - a.) File name: **DD – Team XXXX**
 - b.) Formatted as 8.5” by 11” page
 - c.) Portrait orientation
 - d.) 12-point font
- Design document required content, section names, and order are:
- 2). **Overview** – A one (1) page type-written description of the game or interactive application, including the title, a summary, description of the target audience, main selling points, any competitive or inspirational game titles, estimated total playtime, and measured performance metrics.
 - 3). **SWOT** – A one (1) page analysis table listing the primary Strengths, Weaknesses, Opportunities and Threats.
 - 4). **Concept Artwork** – Copy of the complete concept artwork and/or the storyboard used to develop the prototype.
 - a.) This section may be a maximum of four to six (4-6) pages. Artwork can be shrunk to fit on pages, if necessary.
 - 5). **Code Examples** – Provide examples of the highest quality and complexity of programming developed for the prototype.
 - a.) This section may be a maximum of two to four (2-4) pages.
 - b.) If a computer language was used, code must be single spaced in 12 pt. font.
 - c.) If visual programming was used, submit screen captures of visual programming diagrams.
 - d. Prototype: An interactive application or video game, including all source files and any necessary software and hardware needed to demonstrate it.
 - 1). The interactive application or video game must have at least one (1) level and ten (10) minutes of interactive content.
 - 2). Maturity [ESBR rating](#) must be either Everyone, Everyone 10+, or Teen.
 - 3). It must be created during the school year immediately preceding the competition.
 - 4). If different from the target playback platform, teams should also bring a computer capable of reading and displaying their prototype from their source files (backup only)
 - e. Two (2) videos: saved on USB flash drive
 - 1). Introduction – The first digital video must be three to four (3-4) minutes long.
 - a.) File name: **Intro Video - Team XXXX**
 - b.) Competitors will introduce, by name only, themselves and any students from their program who assisted detailing each person’s role in the development process. Do not mention the name of your school or state.
 - c.) One team member, acting as spokesperson, will provide a quick overview of the game or interactive application, including its title, genre, target audience,

- how many levels, total approximate playtime developed, performance metrics, and any notable user interfaces (opening, closing screen, cut scenes, etc.).
- 2). Trailer – The second digital video must be thirty (30) seconds to one (1) minute long.
 - a.) File name: **Trailer Video - Team XXXX**
 - b.) Pitching the game or interactive application, demonstrating and describing what is best about it, including gameplay, mechanics, significant objects or characters, levels, artwork, backgrounds, sound, with a focus on why the audience would want to play the game or app. Think of this as an advertisement designed to drive player acquisition.
 5. Technical committee specifications
 - a. The technical committee reserves the right to photograph and videotape competition-related activities.
 - b. The technical committee will be responsible for developing the evaluation tools to objectively measure the team's performance. Criteria may be based on the demonstration of competency in the elements of conceptualization, design, artwork, content creation, gameplay, or effective simulation, programming effectiveness, user-interface design, implementation, functionality, and performance on the target platform.
 6. Competitor attendance is required for industry seminars.

STANDARDS AND COMPETENCIES

IAGD 1.0 — Solve a problem or create a conceptual design in a visual format

- 1.1. Conceptualization, visual communications for artists and storyboarding techniques.
 - 1.1.1. Solve problems and/or develop stories creatively.
 - 1.1.2. Define how a problem will be solved or how a story will be told.
 - 1.1.3. Describe the concept visually with enough depth to communicate the final output substantially and accurately for team members and interested third parties.

IAGD 2.0 — Create and manipulate 2D, 3D, and audio computer-generated objects (assets)

- 2.1. Create assets using various technologies.
 - 2.1.1. Create and modify 2D artwork, including textures, sprites, and backgrounds.
 - 2.1.2. Create and modify 3D geometry to produce characters, objects, and environmental elements (models) that possess shape and texture.
 - 2.1.3. Create and modify audio elements.
 - 2.1.4. Optimize all assets for use in real-time, interactive environments.
 - 2.1.5. Use programming to apply physics and other properties to assets for creating complex behaviors and relationships.

IAGD 3.0 — Develop, optimize and deploy complex interactive multimedia applications

- 3.1. Position assets, lights, and cameras and organize environments into scenes/levels, and output as a functional, interactive multimedia application or video game.

- 3.2. Apply logical properties to lights, cameras, and other assets so they appear and behave properly.
- 3.3. Add sounds, particles and/or visual effects to enhance the quality of the user experience.
- 3.4. Create a functional user interface.
- 3.5. Test, optimize and deploy as an application or video game.

IAGD 4.0 — Demonstrate the ability to work in a team environment

- 4.1. Cooperate with others to achieve the solution to a problem or bring a project from concept through development.
- 4.2. Demonstrate consensus building.
- 4.3. Apply written and visual communication skills to convey ideas between team members and interested third parties.
- 4.4. Divide tasks, set goals, and meet deadlines to complete complex projects with multiple contributors.

IAGD 5.0 — Demonstrate proficiency in technical, small-group communications

- 5.1. Show the judges that your submission evokes the intended response from the audience by using technical presentation skills and other communication techniques.
 - 5.1.1. Demonstrate in a manner appropriate to the audience.
 - 5.1.2. Capture and retain the audience's attention and interest.
 - 5.1.3. Elicit intended aesthetic responses to visual, auditory and kinesthetic stimuli.
 - 5.1.4. Achieve learning, familiarization, persuasion, or other intended objectives.

IAGD 6.0 — Project a professional self-image through attire and grooming.

- 6.1. Demonstrate a professional appearance in dress, good grooming, and personal presentation.
- 6.2. Display clothing that meets national standards requirement for competition.
- 6.3. Demonstrate good grooming in personal hygiene.
- 6.4. Wear clothing that fits well.
- 6.5. Present a wrinkle-free appearance.

IAGD 7.0 — 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 education committee has identified that the following academic skills are addressed in this competition.

Math Skills

- Use fractions to solve practical problems.
- Use proportions and ratios to solve practical problems.
- Solve practical problems involving percentages.

- Solve single variable algebraic expressions.
- Measure angles.
- Apply transformations (rotate or turn, reflect or flip, translate or slide, or dilate or scale) to geometric figures.
- Construct 3D models.
- Solve problems involving symmetry and transformation.

Science Skills

- Use knowledge of physical properties (shape, density, solubility, odor, melting point, boiling point and color).
- Use knowledge of nature and technological applications of light.
- Use knowledge of speed velocity and acceleration.

Language Arts Skills

- Provide information in conversations and in group discussions.
- Provide information for oral presentations.
- Demonstrate use of such verbal communication skills as word choice, pitch, feeling, tone and voice.
- Demonstrate comprehension of a variety of informational texts.
- Organize and synthesize information for use in written and oral presentations.
- Demonstrate knowledge of appropriate reference materials.
- Demonstrate narrative writing.

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

- Understand forces and motion.
- Understand the nature of scientific inquiry.

Language Arts Standards

- Adjust use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.

- Use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.
- Participate as knowledgeable, reflective, creative, and critical members of a variety of communities.
- Use spoken, written and visual language to accomplish their own purposes (e.g., 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.