Technology Student Association (TSA)

MIDDLE SCHOOL COMPETITIVE EVENTS GUIDE

for the 2024 and 2025 National TSA Conferences

with correlations to
Science, Technology, Engineering, and
Mathematics (STEM) Standards

ACKNOWLEDGMENTS

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TSA, THE ORGANIZATION

TSA MISSION

The Technology Student Association (TSA) enhances personal development, leadership, 21st century skills, and career opportunities in STEM, whereby members apply and integrate these concepts through intra-curricular activities, competitions, and related programs.

WHO ARE TSA MEMBERS?

TSA is devoted exclusively to the needs of students engaged in science, technology, engineering, and mathematics (STEM). Open to those who are enrolled in or who have completed technology and engineering courses, TSA has 300,000 middle and high school student members across the country. TSA is supported by educators, parents, and business leaders who believe in the need for a technologically literate society. TSA members learn through exciting competitive events, leadership opportunities, and membership activities. It is the intent of TSA to involve as many TSA members as possible in competitive events and provide recognition in a setting of fair play practices using TSA event guidelines.

Explore what TSA has to offer by using this guide and by visiting TSAweb.org for information. With competitive events that range from video game design to structural engineering and much more, there is something to capture the imagination of—and bring out the best in—all students. We hope that with teacher guidance, students will enjoy the challenge of TSA's competitive events at local, state, regional, and national TSA conferences.

The competitions in this guide support a broad spectrum of goals related to STEM curriculum, emphasizing and promoting the development of leadership and 21st century skills, and increasing exposure to future career choices.

THE ROLE OF COMPETITIVE EVENTS

To follow its mission, TSA offers stimulating competitive events. TSA believes that by participating in thoughtfully designed competitions, students learn 21st century skills such as collaboration, perseverance, critical thinking, and problem solving, thereby becoming "winners" irrespective of placement in a competition. Many teachers find that TSA's competitive events provide an excellent motivational tool in the academic environment.

Every two years, TSA's competitive events are reviewed and revised by the Subject Matter Experts (SMEs) of the Competition Regulations Committee (CRC), a standing group of technology and engineering educators with hands-on classroom experience. The *Technology Student Association (TSA) Middle School Competitive Events Guide for the 2024 & 2025 National TSA Conferences* is the result of the collaboration of the CRC SME managers, competitive event coordinators, teachers, proposals of numerous TSA state and chapter advisors, and students who make TSA competitive events current and dynamic. The guide presents rules and regulations for all National TSA Conference competitive events; a view of each event's connection to STEM standards; and suggested careers. Relevant for all levels of competition (state delegations may choose to adopt the national guidelines for state-level competitions), the guide provides an excellent motivational tool for curricular study and activities in the classroom.

ABOUT THIS GUIDE

With the publication of the *2024 & 2025 TSA Middle School Competitive Events Guide*, please note the following:

1. The format of this guide has been streamlined to help familiarize competitors and advisors with the TSA Conference General Rules and Regulations, and the procedures, regulations, and assessment for each event.
2. General rules that apply to all participants across every competitive event are no longer identified in each competition's regulations. Therefore it is critical, and a personal responsibility of each competitive event participant and advisor, to read and fully adhere to the TSA General Rules and Regulations.
3. Every event's guidelines have been revised in some form, whether in content or in format.

COMPETITIVE EVENTS PROGRAM

LEVELS OF COMPETITION

A. The breakdown of grades noted below is used to designate levels for competition entries. Each level has its own unique competitive events guide.

- Middle School/Junior High School level—Grades 5, 6, 7, 8, 9
- High School level—Grades 9, 10, 11, 12
- Ninth graders must compete at the level in which the chapter affiliates.
  - If the configuration of the school includes grades 9-12, ninth grade students must compete in high school events.
  - If the configuration of the school includes grades 6-9 or 7-9, ninth grade students must compete in middle school events.

B. If the school has a K-12 configuration, or a configuration other than the examples above, national TSA should be contacted for clarification and approval regarding the appropriate school level designation.

GENERAL RULES AND REGULATIONS

NOTE: General rules and regulations apply to *all* competitive events and are *in addition* to each event's specific guidelines.

A. Affiliation and Membership

1. TSA members, advisors, and chapters must be currently affiliated with TSA to enter any competitive event.
2. TSA membership rights extend through the year of graduation.
3. Students who graduate midyear may compete at the national conference that immediately follows their end-of-year graduation.

B. Conference Registration, Attendance, and Participation in Events

1. Individuals who wish to attend the conference must complete conference registration.
2. Students must be registered and be in attendance with an adult chaperone at the National TSA Conference in order to enter and become a semifinalist or finalist in any event.
3. All adult advisors, chaperones, and student participants must be in attendance for the entire conference.
4. National TSA Conference registrants must wear conference identification badges at all times.
5. The TSA competitive event limit is six (6) events per conference participant, individual and team events combined.
6. Team events:
   a. All team members must be affiliated with the same chapter.
   b. Registration for any team competitive event requires the identification of all team members. A (one) team captain must be designated by the chapter advisor for any of the events with online submission requirements. The captain is responsible for uploading the competition entry/documentation on behalf of the entire team. Team captain responsibility does not apply for team events that involve a preliminary exam; all team members must take an exam to determine an average team score.
   c. Unless otherwise designated in a competition's eligibility guideline, the minimum size of a team is two (2) members and the maximum size of a team is six (6) members.

C. Student Responsibilities for Competitions

1. It is the individual responsibility of each participant to obtain all rules and guidelines for competitive events.
2. Lack of knowledge or understanding about a particular event is neither reason nor excuse for an individual to request an accommodating adjustment or change.
3. Students and advisors must routinely check the TSA website, TSAweb.org, for updated information about TSA general rules and competitive event guidelines. One month prior to the conference, no additional updates will be posted to this page.
4. Students who participate in any TSA competitive event are responsible for knowing all updates, changes, and clarifications related to that event.

5. Student competitors are responsible for ensuring that all competition-related websites and internet-based content are accessible from their device (personal or school-issued). TSA assumes no responsibility for a student competitor's inability to access national TSA conference competition platforms and/or web-based content.

D. Competition Entries

1. Entries must be started and completed during the current school year.
2. Entries may be submitted for one (1) year, and one (1) competition only. An infraction of this rule results in disqualification.
3. Each participant/team shall submit only one (1) entry per event.
4. All entries that require a documentation portfolio must be secured in a clear front report cover unless otherwise indicated in an event's regulations. Click here for a sample report cover.
5. All entries must be in English.
6. Participants must check in and pick up their event entries at the times and places stated in the conference program, or as announced during the National TSA Conference.
7. If a competition includes a test onsite at the national conference, the test will be administered online only (Wi-Fi service will be provided at no cost only for competitions). Paper tests will not be available unless deemed necessary. Individual participants, or each team member, must bring to the testing site:
    a. One (1) laptop or tablet (personal or school-issued) capable of networking via Wi-Fi and able to run solely on battery power for up to two (2) consecutive hours. Chrome is the preferred browser.
    b. Optional: One (1) mouse
8. For any competition that involves the use of a pencil (e.g., for taking a test if necessary, for producing required sketches), participants must provide—and bring to the test site two (2) pencils, either:
    - sharpened standard #2/HB grade with an eraser, or
    - #2 mechanical with an eraser.
9. Entry content:
    a. National TSA provides guidelines for individual and team entry content but does not bear responsibility for content choices made by participants.
    b. Entries are evaluated on the basis of an event's official rating form.
10. Projects and/or products:
    a. Unless otherwise specified, no identifying information—other than a student or team ID#—is to be included on an entry.
    b. Exceptions to this rule are:
        i. Middle school competitive events:
            1. Career Prep
            2. Children's Stories
            3. Community Service Video
            4. Construction Challenge
            5. Structural Engineering
        ii. High school competitive events:
            1. Children's Stories
            2. Digital Video Production
            3. Structural Design and Engineering
        iii. Events that require submission of a Work Log shall include indication of student initials only.
    c. Unless otherwise noted, for all events that require a display, the size of the display may not exceed 15" deep x 3' wide x 4' high.
11. TSA may choose to keep National TSA Conference student entries.
    a. Such entries may be used by national TSA for promotional purposes. Should that occur, credit for any such entry would be noted by TSA.
    b. If applicable, the USB flash drive entries become property of TSA and will not be returned.

E. Citations, References, and Copyrighted Material

1. For all applicable competitive events, citations/references must follow a professional citation style of the competitors choosing unless the competitive event specifies a specific formatting style. Failure to use a professional citation style will result in a rules violation of 20% (twenty percent). Some examples of professional citation styles include MLA, APA, Chicago, and IEEE.
2. All entries must be the original work of the student participant or student team.
3. All ideas, text, images (including those labeled "for reuse"), and sound from other sources must be cited.
4. If copyrighted material is used, written permission must be included.
    a. An Internet search about copyrighted material and copyright fair use is recommended if ideas, text, images, or sound from other sources is incorporated into an event entry.
    b. Use of the TSA logo is permitted as long as it adheres to the current TSA Branding Guide.
5. Failure to follow any of the above procedures results in a 20% rules violation.
6. Plagiarized content in any event will result in automatic disqualification.

F. Prohibited Materials, References, and Images

1. Hazardous materials, chemicals, lighted or open flames, combustibles, wet cell batteries, and other similar substances are not allowed at the National TSA Conference.
2. No viruses, live plants, or animals may be used as a part of the display.
3. Competition entries or presentations by participants must not include racial or ethnic slurs/symbols, reference to gang affiliation, or vulgar, violent, subversive, or sexually suggestive language or images.
4. Entries or presentations may not promote products that students may not legally buy, such as tobacco, alcohol, or illegal drugs.
5. Images of guns, knives, or other weapons, or items that can be interpreted as weapons, are prohibited.
6. The Entertainment Software Rating Board (ESRB) provides industry guidance on the content of video games and/or applications. Please refer to the ESRB overview for the categories, descriptions and elements of video content that may be included in competition entries. Interpretation of the content of competition entries is at the discretion of the judges.

G. TSA Liability

1. TSA is not responsible or liable for any personal property, equipment, competition content, or materials brought to the National TSA Conference for use by a participant or attendee.

H. Event Scheduling Conflicts

1. When an event scheduling conflict could prevent an individual from participating in an event, the individual has the right to not compete in an event.

I. Emergencies

1. Team member substitution may be allowed should a documented emergency arise in team events that involve written and semifinalist segments. All substitutions must be approved by the event manager and coordinator.

J. Event Judging

1. All events are judged in accordance with the stated event criteria as noted in this competitive events guide.
2. Tier scoring has been implemented in the preliminary round of some events and is intended to streamline the evaluation process used to determine semifinalists.
3. The decisions of judges related to competitive events are final.

K. Procedure for filing a grievance with the Rules Interpretation Panel

The Rules Interpretation Panel (RIP), a group made up of at least three (3) CRC members, monitors and oversees the competitive events during the National TSA Conference. The panel provides a means by which state advisors may express grievances and concerns about conference situations that pertain to events, and it ensures continuity from year to year for competitive event rules and regulations.

1. All concerns must be in writing using the correct form in the guide. The Rules Interpretation Panel Grievance form (see Forms Appendix) must be completed in its entirety.
2. Only state advisors may submit a request to the Rules Interpretation Panel (RIP) at the national conference. Should an individual/team/chapter advisor have a concern about an event, the state advisor shall be the point of contact. National TSA will not accept forms from anyone other than the state advisor.
3. During the conference, the RIP panel will meet to discuss and analyze the advisor's concern.
4. It is the intent of the panel to resolve any grievances at the conference with a written response to the state advisor.
5. Only the state advisor may pick up the written response from the RIP panel.
6. All decisions made by the panel are final.

L. Rules Violations and Disqualifications

1. Refer to page 46 for information on the TSA Competitve Event Rating Form/Rubric and Go/No Go Specifications.
2. A rules violation that gives a contestant an unfair advantage will result in a twenty percent (20%) deduction of the total possible points in either a preliminary or semifinal round as applicable.
3. The coordinator or manager of an event has the right to disqualify a contestant when this type of incident occurs.
4. The event coordinator and manager must sign off on both a twenty percent (20%) deduction and a disqualification.

M. Semifinalists

1. Should the competition have a semifinal round, the event will have a minimum of twelve (12) semifinalists.
2. Semifinalists (individuals or teams, as applicable) will compete against one another to determine the top ten (10) finalists in an event.
3. All members of a semifinalist team must participate in the semifinalist portion of an event, unless otherwise noted in the event's regulations

N. Electronic Devices

1. Recording devices are not allowed in certain competitive events.
2. CRC manager and event coordinator approval is required before any event may be recorded.
3. All electronic devices, including but not limited to cell phones, iPads/tablets, electronic readers, smart watches, etc., *must* be turned off unless otherwise noted in specific event regulations.
4. No electronic communication devices of any kind are permitted during competition.

COMPETITION REGULATIONS COMMITTEE

The Competition Regulations Committee (CRC) is composed of dedicated STEM teachers and education professionals from across the country who have made major commitments to create and maintain the high quality of national TSA's competitive events. Some CRC members are charged with reviewing TSA's competitive events, updating them as necessary, and presiding over the competitive events at the annual National TSA Conference.

Ideas and feedback regarding events are always welcome. Guidelines and forms can be found in the Forms Appendix of this guide for proposing a new event and for suggesting revisions to existing event.

EVENT COORDINATOR REMINDERS

TSA appreciates the support of its event coordinators, many of whom are teachers attending the conference with students from their chapters. The busy schedules of these individuals prompt the reminders that follow.

A. Competitive event coordinators must be present for a mandatory event coordinator's meeting on the first day of the conference.

B. Competitive event coordinators must be present for conference event check-in and check-out if they are coordinating an event in which these activities take place.

   1. Generally speaking, "check-in" is on the evening of registration day, and "check-out" is held on the day before the awards ceremony.

2. Tentative schedule information will be available before the conference on the TSA website.

C. The Competition Regulations Committee, which consists of all the event managers, is available throughout the conference to support coordinators as they supervise competitive events.

AWARDS

At the conference awards ceremony, ten (10) finalists in each event are identified in random order and called to the stage for recognition.

EVENT PROPOSAL INFORMATION

As technology evolves and technology education attempts to keep pace and reflect these changes, new TSA events are added, some are revised, and others are dropped. TSA chapter advisors, state advisors, and others are encouraged to submit proposals for new events.

The following topics reflect potential direction for development:

- 21st century technology
- 3D printing
- Adaptive/Assistive Technology
- Cloud computing
- CoDrone
- Cyber Robotics Coding
- Data management
- Economic development
- Electronic publishing
- Engineering
- Environmental technology
- Fluid power technology
- Future technologies
- Green technology
- Innovative power sources
- Lasers/satellites/radar
- Manufacturing technology
- Social media marketing
- Transportation technology

When submitting a proposal for consideration, include these elements:

- Overview (description of the event and participant expectations)
- Eligibility for entry
- Limitations (such as time or entry submission requirements)
- Resource considerations (i.e. are the resources a limiting factor, or are they affordable/readily available to all populations? Can this be executed at the national level?)
- Specific regulations
- Required personnel
- Alignment with STEM standards

Formative ideas are welcome, but the more complete the proposal the less likely it will be misinterpreted. The Competition Regulations Committee (CRC) acknowledges all submissions, and each is given consideration for possible inclusion in a competitive events guide. Once submitted, ideas and events become the property of national TSA. Proposals must be submitted by September 1 of the prior conference year in order to be considered for the next guide.

Find the form in the Forms Appendix of this guide. Proposals must include the submitter's name and complete contact information. Proposals may be mailed to CRC, c/o National TSA, 1904 Association Drive, Reston, VA 20191-1540, or emailed in a Word file attachment to general@tsaweb.org.

NATIONAL TSA CONFERENCE DRESS CODE AND OFFICIAL CONFERENCE ATTIRE GUIDELINES

A. Chapter and state advisors, parents, and chaperones are responsible for seeing that all TSA student members wear TSA competition, general session, or casual attire as occasions may require.

B. Everyone who is registered for the conference, including parents, guests, and children, must comply with the TSA dress code policy.

C. TSA attire may be purchased online via the SHOP tab on the TSA website.

D. Because adults (advisors, parents, and guests) serve as role models at TSA conferences and activities, they are expected to dress appropriately for all TSA occasions they attend.

E. Students must adhere to the TSA dress code requirements as listed in this section and on the TSA website.

F. When students compete in any competitive event they must wear competition attire.

G. Students not in appropriate competition attire when they compete may be allowed to participate in an event, but they will lose twenty percent (20%) of the total possible points per round.

COMPETITION ATTIRE

1. **Shirt:** official royal blue TSA shirt
2. **Pants, or knee-length Skirt:** gray
   - *Unacceptable:* jeans; jeggings; leggings; baggy pants; exterior pocket pants; shorts
3. **Shoes:** black dress shoes worn with black or dark blue socks, hosiery (optional):
   - open-toed shoes or sandals are acceptable
   - *Unacceptable:* athletic shoes; flip-flops; military boots; or work boots

REQUIRED ADDITIONAL ATTIRE FOR MIDDLE AND HIGH SCHOOL CHAPTER TEAM EVENT

1. **Blazer:** navy blue with official TSA patch
2. **Tie:** official TSA tie (males)
   - Females are not penalized for wearing the official TSA tie to Chapter Team or any other competitive event

Above attire may be worn for other competitions if preferred by event participants.

GENERAL SESSION ATTIRE

1. **Shirt:** the official TSA shirt (royal blue) is preferred; button-down shirt or a polo/golf shirt
   - *Unacceptable:* t-shirts; halter tops; tank tops
2. **Pants, or knee-length Dress or Skirt**
   - *Unacceptable:* jeans; jeggings; leggings; baggy pants; exterior pocket pants; shorts
3. **Optional Blazer:** navy blue with official TSA patch
4. **Optional Tie:** official TSA tie
5. **Shoes:** dress shoes worn with dark socks, hosiery (optional):
   - open-toed shoes or sandals are acceptable
   - *Unacceptable:* athletic shoes; flip-flops; military boots; or work boots

CASUAL ATTIRE

1. Appropriate t-shirts, shorts, or jeans.
2. Casual attire may **not** be worn at competitions or general sessions.

*Registered parents, guests, and children who are not compliant with General Session Attire and who wish to attend the Awards Ceremony, may be asked to sit in a designated section, if permitted entry.

Approved by the TSA, Inc. Board of Directors.
The above supersedes any other dress code prior to September 24, 2022.

TSA'S LEADERSHIP PROGRAM

PARTNERSHIP FOR 21ST CENTURY SKILLS (P21)

In 2002, the Partnership for 21st Century Skills (now the Partnership for 21st Century Learning, or P21) was founded as a non-profit organization by a coalition that included members of the national business community, education leaders, and policymakers.

21st century skills comprise skills, abilities, and learning dispositions that have been identified as being required for success in 21st century society and workplaces by educators, business leaders, academics, and governmental agencies. This is part of a growing international movement focusing on the skills required for students to master in preparation for success in a rapidly changing, digital society. Many of these skills are also associated with deeper learning, which is based on mastering skills such as analytic reasoning, complex problem solving, and teamwork. TSA's competitive events provide a natural platform to highlight the leadership and 21st century capabilities of students.

TSA's leadership program engages participants to be the best member they can be, as they seek knowledge about themselves, the organization, and their community, while developing and demonstrating leadership and 21st century skills. Leadership and 21st century skills components are all specifically tailored for each individual competitive event, and are evaluated based on the official rules and rubrics.

- For example, in one competitive event team members might note the communication, collaboration, and teamwork skills they used to finalize their idea/design in their Work Log. While in another event, a brief discussion of leadership skills and/or 21st century skills that they developed or demonstrated while working on a project might be highlighted as part of an existing presentation/interview. Criteria will be included in the rubric to evaluate the leadership and 21st century skills documented or demonstrated within these components.

TSA's leadership program has recently been revised to incorporate the 21st century skills.

TSA will provide related resources to affiliated chapters through the updated TSA member database. Participation in the TSA competitive events develops leadership and 21st century skills in student members, skills essential for success in the job market.

- There will be other competitive events in which a student/team may naturally demonstrate leadership skills as part of the event. In these events, criteria will be included in the rubric to evaluate the overall leadership and 21st century skills demonstrated.

During the course of preparing for, and participating in a TSA competitive event, participants will study leadership and 21st century skills, and put them into practice. Participants will use the widely accepted leadership and 21st century skills resources, in addition to other resources provided on the TSA website, as they complete the competitive event leadership requirements for all TSA competitions.

TSA believes that acquiring leadership and 21st century skills is critical to the success of young people. The resources found on the TSA website provide TSA advisors with a source for teaching, and students with an opportunity to practice these crucial skills.

TSA's leadership program focuses on the below definitions of leadership and 21st century skills as developed through participation in middle and high school competitions:

Communication: a process by which information is exchanged between individuals through a common system of symbols, signs, or behavior

Collaboration/Social Skills: to work jointly with others, especially in an intellectual endeavor

Initiative: energy or aptitude displayed in initiation of action

Problem Solving/Risk Taking: the process or act of finding a solution to a problem/the act or fact of doing something that involves danger or risk in order to achieve a goal

Critical Thinking (lateral thinking): a method for solving problems by making unusual or unexpected connections between ideas

Perseverance/Grit: continued effort to do or achieve something despite difficulties, failure, or opposition/ firmness of mind or spirit--unyielding courage in the face of hardship or danger

Creativity: the quality of being creative

Relationship Building/Teamwork: work done by several associates with each doing a part but all subordinating personal prominence to the efficiency of the whole

Dependability/Integrity: capable of being trusted or depended on/firm adherence to a code of especially moral or artistic values

Flexibility/Adaptability: characterized by a ready capability to adapt to new, different, or changing requirements

SOURCES

en.wikipedia.org/wiki/21st_century_skills

www.merriam-webster.com/dictionary/dictionary

www.edglossary.org/21st-century-skills

www.nea.org/home/34888.htm

www.lead4change.org/wp-content/uploads/2019/09/L4C_21stCenturySkillsAlignment_12-Track_2020.pdf

SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM) INTEGRATION

In recent years, not only educators, but also political, civic, and industry leaders have pushed for a greater emphasis on STEM education in schools. It is globally recognized that in order for any nation to be competitive, our future generations must develop competency in the 21st century skills afforded through STEM fields. TSA promotes a vision of students literate in these fields and believes competitions within this guide help make that vision a reality.

STEM education is not just an isolated and discreet acquisition of STEM knowledge and skills. Rather, STEM education demands the interdisciplinary application of these academic fields to improve outcomes in comprehension, communication, and problem solving. It is commonly accepted that the correlation between these STEM disciplines is interdependent. In order to develop a deep comprehension of one STEM area, one must simultaneously have an encompassing knowledge of another. For example, to design and engineer with any degree of complexity, one also must be familiar with technology, mathematics, and science. To practice science, one must have a firm knowledge of mathematics and technology.

Beyond necessity, there is another reason for STEM education in our schools and why the TSA program of activities inherently aligns with STEM goals. This reason revolves around teaching, learning, and what motivates our 21st century learners.

When students participate in TSA competitions, they find they must not only embrace the value of design when they compete, but they also must conceptualize, assess, and materialize that vision. Students may choose to work collaboratively, depending upon the requirements of an event, or they may choose to work independently.

Irrespective of this choice, students develop the essential leadership and critical thinking skills to execute their strategy and align their intention with the STEM objectives set forth in this guide. STEM education is intrinsically exciting, rewarding, and meaningful for instructors and students alike. Through TSA competitive events, instructors challenge students to solve real-world problems through project-based learning and reflective experiences. This rigorous process supplements and complements classroom objectives by asking students to critically evaluate all aspects of their thought processes—from design, to communication, to execution.

Deserving of mention are three other essential areas embedded in most of TSA's competitive events—creativity, innovation, and ethics. Teaching students to think outside the box while considering the ethical consequences provides a global perspective essential to the success of our society. Through TSA competitions, students are asked to design creatively, while assessing the effects and impacts of what they develop.

The competitions found in this guide provide a hands-on venue for learning about STEM. By participating in TSA's competitive events, students gain a broader understanding of these content areas as they experience the satisfaction that comes from applying them to real life, problem-solving situations.

This section of the guide includes commonly accepted national standards for the areas of science, technology, and mathematics, as well as the Accreditation Board for Engineering and Technology (ABET, Inc.) criteria for accrediting higher education engineering programs.

NEXT GENERATION SCIENCE STANDARDS* (GRADES 5-8)

A. Structure and Properties of Matter

1. **PS1-1:** Develop models to describe the atomic composition of simple molecules and extended structures.
2. **PS1-3:** Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
3. **PS1-4:** Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.

B. Chemical Reactions

1. **PS1-2:** Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.
2. **PS1-5:** Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.
3. **PS1-6:** Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.*

C. Forces and Interactions

1. **PS2-1:** Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.*
2. **PS2-2:** Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.
3. **PS2-3:** Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.
4. **PS2-4:** Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.
5. **PS2-5:** Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.

D. Energy

1. **PS3-1:** Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
2. **PS3-2:** Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system
3. **PS3-3:** Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.*
4. **PS3-4:** Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.
5. **PS3-5:** Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

E. Waves and Electromagnetic Radiation

1. **PS4-1:** Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.
2. **PS4-2:** Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.
3. **PS4-3:** Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.

F. Structure, Function, and Information Processing

1. **LS1-1**: Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.
2. **LS1-2:** Develop and use a model to describe the function of a cell as a whole and ways the parts of cells contribute to the function.

3. **LS1-3:** Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
4. **LS1-8:** Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

G. Matter and Energy in Organisms and Ecosystems

1. **LS1-6:** Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.
2. **LS1-7:** Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.
3. **LS2-1:** Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
4. **LS2-3:** Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
5. **LS2-4:** Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

H. Interdependent Relationships in Ecosystems

1. **LS2-2:** Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems
2. **LS2-5:** Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

I. Growth, Development, and Reproduction of Organisms

1. **LS1-4:** Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.
2. **LS1-5:** Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
3. **LS3-1:** Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.
4. **LS3-2:** Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.
5. **LS4-5:** Gather and synthesize information about technologies that have changed the way humans influence the inheritance of desired traits in organisms.

J. Natural Selection and Adaptations

1. **LS4-1:** Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.
2. **LS4-2:** Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.
3. **LS4-3:** Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.
4. **LS4-4:** Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment
5. **LS4-6:** Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.

K. Space Systems

1. **ESS1-1:** Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons
2. **ESS1-2:** Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system
3. **ESS1-3:** Analyze and interpret data to determine scale properties of objects in the solar system

L. History of Earth

1. **ESS1-4:** Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.
2. **ESS2-2:** Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales
3. **ESS2-3**: Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions

M. Earth's Systems

1. **ESS2-1:** Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
2. **ESS2-4:** Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
3. **ESS3-1:** Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.

N. Weather and Climate

1. **ESS2-5:** Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.
2. **ESS2-6: D**evelop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates
3. **ESS3-5:** Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

O. Human Impacts

1. **ESS3-2:** Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
2. **ESS3-3:** Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
3. **ESS3-4:** Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

P. Engineering Design

1. **ETS1-1:** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
2. **ETS1-2:** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
3. **ETS1-3:** Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
4. **ETS1-4:** Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Although not formally aligned, this standards alignment of TSA competitve events has been developed in accordance with the Next Generation Science Standards (NGSS) model.

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NEXT GENERATION SCIENCE STANDARDS																																							
Event	Standard Number	A-PS1-1	A-PS1-3	A-PS1-4	B-PS1-2	B-PS1-5	B-PS1-6	C-PS2-1	C-PS2-2	C-PS2-3	C-PS2-4	C-PS2-5	D-PS3-1	D-PS3-2	D-PS3-3	D-PS3-4	D-PS3-5	E-PS4-1	E-PS4-2	E-PS4-3	F-LS1-1	F-LS1-2	F-LS1-3	F-LS1-8	G-LS1-6	G-LS1-7	G-LS2-1	G-LS2-3	G-LS2-4	H-LS2-2	H-LS2-5
Biotechnology		X																			X																		
Career Prep																																							
Challenging Technology Issues																																							
Chapter Team																																							
Children's Stories																																							
Coding																																							
Community Service Video																																							
Computer-Aided Design (CAD) Foundations																																							
Construction Challenge																																							
Cybersecurity																																							
Data Science and Analytics																																							X
Digital Photography																																							
Dragster									X							X																							
Electrical Applications																																							
Essays on Technology																																							
Flight									X				X																										
Forensic Technology																																							
Inventions and Innovations																																							
Junior Solar Sprint									X					X	X																								
Leadership Strategies														X																									
Mass Production																																							
Mechanical Engineering																																							
Medical Technology		X																				X	X																
Microcontroller Design																																							
Off the Grid																																							
Prepared Speech																																							
Problem Solving																																							
Promotional Marketing																																							
STEM Animation																																							
Structural Engineering																																							
System Control Technology																																							
Tech Bowl																																							
Technical Design																																							
Video Game Design																																							
Vlogging																																							
Website Design																																							

NEXT GENERATION SCIENCE STANDARDS – continued

Event	Standard Number	I-LS1-4	I-LS1-5	I-LS3-1	I-LS3-2	I-LS4-5	J-LS4-1	J-LS4-2	J-LS4-3	J-LS4-4	J-LS4-6	K-ESS1-1	K-ESS1-2	K-ESS1-3	L-ESS2-2	L-ESS2-3	L-ESS2-4	M-ESS2-1	M-ESS2-4	M-ESS3-1	N-ESS2-5	N-ESS2-6	N-ESS3-5	O-ESS3-2	O-ESS3-3	O-ESS3-4	P-ETS1-1	P-ETS1-2	P-ETS1-3	P-ETS1-4
Biotechnology																														
Career Prep																														
Challenging Technology Issues																														
Chapter Team																														
Children's Stories																														
Coding																														
Community Service Video																														
Computer-Aided Design (CAD) Foundations																														
Construction Challenge																														
Cybersecurity																														X
Data Science and Analytics																									X					
Digital Photography																														
Dragster																										X				X
Electrical Applications																														
Essays on Technology																							X							
Flight																											X			
Forensic Technology																														
Inventions and Innovations																														
Junior Solar Sprint																												X		
Leadership Strategies																														
Mass Production																														X
Mechanical Engineering																											X			
Medical Technology																														
Microcontroller Design																														
Off the Grid																										X				
Prepared Speech																														
Problem Solving																											X			
Promotional Marketing																														
STEM Animation																														
Structural Engineering																										X		X		X
System Control Technology																														
Tech Bowl																														
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Video Game Design																														
Vlogging																														
Website Design																														

STANDARDS FOR TECHNOLOGICAL AND ENGINEERING LITERACY (STEL)

STEL 1. Nature and Characteristics of Technology and Engineering

1J. Develop innovative products and systems that solve problems and extend capabilities based on individual or collective needs and wants.

1K. Compare and contrast the contributions of science, engineering, mathematics, and technology in the development of technological systems.

1L. Explain how technology and engineering are closely linked to creativity, which can result in both intended and unintended innovations.

1M. Apply creative problem-solving strategies to the improvement of existing devices or processes or the development of new approaches.

STEL 2. Core Concepts of Technology and Engineering

2M. Differentiate between inputs, processes, outputs, and feedback in technological systems.

2N. Illustrate how systems thinking involves considering relationships between every part, as well as how the system interacts with the environment in which it is used.

2O. Create an open-loop system that has no feedback path and requires human intervention.

2P. Create a closed-loop system that has a feedback path and requires no human intervention.

2Q. Predict outcomes of a future product or system at the beginning of the design process.

2R. Compare how different technologies involve different sets of processes.

2S. Defend decisions related to a design problem.

STEL 3. Integration of Knowledge, Technologies, and Practices

3E. Analyze how different technological systems often interact with economic, environmental, and social systems.

3F. Apply a product, system or process developed for one setting to another setting.

3G. Explain how knowledge gained from other content areas affects the development of technological products and systems.

STEL 4. Impacts of Technology

4K. Examine the ways that technology can have both positive and negative effects at the same time.

4L. Analyze how the creation and use of technologies consumes renewable and non-renewable resources and creates waste.

4M. Devise strategies for reducing, reusing, and recycling waste caused from the creation and use of technology.

4N. Analyze examples of technologies that have changed the way people think, interact, and communicate.

4O. Hypothesize what alternative outcomes (individual, cultural, and/or environmental) might have resulted had a different technological solution been selected.

STEL 5. Influence of Society on Technological Development

5F. Analyze how an invention or innovation was influenced by its historical context.

5G. Evaluate trade-offs based on various perspectives as part of a decision process that recognizes the need for careful compromises among competing factors.

STEL 6. History of Technology

6C. Compare various technologies and how they have contributed to human progress.

6D. Engage in a research and development process to simulate how inventions and innovations have evolved through systematic tests and refinements.

6E. Verify how specialization of function has been at the heart of many technological improvements.

STEL 7. Design in Technology and Engineering Education

7P. Illustrate the benefits and opportunities associated with different approaches to design.

7Q. Apply the technology and engineering design process.

7R. Refine design solutions to address criteria and constraints.

7S. Create solutions to problems by identifying and applying human factors in design.

7T. Assess design quality based upon established principles and elements of design.

7U. Evaluate the strengths and weaknesses of different design solutions.

7V. Improve essential skills necessary to successfully design.

STEL 8. Applying, Maintaining, and Assessing Technological Products and Systems

8H. Research information from various sources to use and maintain technological products or systems.

8I. Use tools, materials, and machines to safely diagnose, adjust, and repair systems.

8J. Use devices to control technological systems.

8K. Design methods to gather data about technological systems.

8L. Interpret the accuracy of information collected.

8M. Use instruments to gather data on the performance of everyday products.

STANDARDS FOR TECHNOLOGICAL AND ENGINEERING LITERACY (STEL)

Event	STEL Benchmark	1J	1K	1L	1M	2M	2N	2O	2P	2Q	2R	2S	3E	3F	3G	4K	4L	4M	4N	4O
Biotechnology			X		X		X				X		X		X	X	X	X	X	X
Career Prep			X	X	X								X		X	X			X	
Challenging Technology Issues			X	X	X						X		X		X	X			X	X
Chapter Team																				
Children's Stories												X								
Coding		X			X			X	X	X		X								
Community Service Video																				
Computer-Aided Design (CAD) Foundations																				
Construction Challenge					X		X			X		X	X	X	X	X			X	
Cybersecurity		X	X	X	X		X				X	X	X	X	X	X			X	X
Data Science and Analytics					X		X						X		X				X	
Digital Photography																				
Dragster		X			X		X					X								
Electrical Applications		X			X	X	X			X		X								
Essays on Technology			X	X									X		X	X			X	X
Flight		X			X		X			X										
Forensic Technology			X													X				X
Inventions and Innovations		X	X	X	X	X	X	X	X	X	X	X	X	X	X					
Junior Solar Sprint		X			X							X								
Leadership Strategies																				
Mass Production		X			X						X	X			X					
Mechanical Engineering		X		X	X	X	X	X	X	X	X	X			X					X
Medical Technology		X	X	X	X		X					X	X		X				X	X
Microcontroller Design		X			X	X	X	X	X	X		X								
Off the Grid		X	X	X	X		X			X		X	X		X	X	X	X		X
Prepared Speech																				
Problem Solving		X			X		X													
Promotional Marketing					X							X								
STEM Animation					X							X			X	X			X	
Structural Engineering		X			X		X													
System Control Technology		X			X	X		X	X		X	X			X	X				
Tech Bowl																				
Technical Design					X					X	X	X	X	X						
Video Game Design		X			X			X	X			X								
Vlogging			X		X	X	X				X	X	X							
Website Design		X			X			X	X				X							

STANDARDS FOR TECHNOLOGICAL AND ENGINEERING LITERACY (STEL)

Event / STEL Benchmark	5F	5G	6C	6D	6E	7P	7Q	7R	7S	7T	7U	7V	8H	8I	8J	8K	8L	8M
Biotechnology			X	X	X								X			X	X	
Career Prep	X		X										X				X	
Challenging Technology Issues			X	X	X								X				X	
Chapter Team																		
Children's Stories							X	X	X	X	X	X						
Coding							X	X	X	X	X	X						
Community Service Video																		
Computer-Aided Design (CAD) Foundations							X	X		X	X	X			X			
Construction Challenge		X		X			X	X	X	X	X	X	X					
Cybersecurity		X		X		X	X	X	X	X	X	X	X		X	X	X	X
Data Science and Analytics													X				X	X
Digital Photography						X	X	X	X	X	X	X						
Dragster							X	X	X	X	X	X	X					
Electrical Applications							X	X	X	X	X	X	X			X		X
Essays on Technology			X	X	X								X				X	
Flight				X		X	X	X	X	X	X	X	X	X	X	X	X	X
Forensic Technology			X										X			X		
Inventions and Innovations	X	X		X	X	X	X	X	X	X	X	X			X	X	X	X
Junior Solar Sprint						X	X	X	X	X	X	X	X	X	X			
Leadership Strategies																		
Mass Production						X	X	X	X	X	X	X		X		X	X	X
Mechanical Engineering						X	X	X	X	X	X	X	X	X	X		X	
Medical Technology				X		X	X	X	X	X	X	X	X		X		X	X
Microcontroller Design		X				X	X	X	X	X	X	X	X		X		X	X
Off the Grid	X	X		X	X	X	X	X	X	X	X	X	X		X	X	X	X
Prepared Speech																		
Problem Solving							X	X	X	X	X	X		X				
Promotional Marketing						X	X	X	X	X	X	X						
STEM Animation						X	X	X	X	X	X	X						
Structural Engineering							X	X	X	X	X	X		X	X			
System Control Technology							X	X	X	X	X	X		X	X			
Tech Bowl													X					
Technical Design						X	X	X	X	X	X	X	X				X	
Video Game Design							X	X	X	X	X	X			X			
Vlogging						X	X	X		X	X	X	X	X	X			
Website Design							X	X	X	X	X	X						

AP COMPUTER SCIENCE STANDARDS

A. Creative Development (CRD)

1. **CRD-1:** Incorporating multiple perspectives through collaboration improves computing innovations as they are developed.
    a. **CRD-1.A:** Explain how computing innovations are improved through collaboration.
    b. **CRD-1.B:** Explain how computing innovations are developed by groups of people.
    c. **CRD-1.C:** Demonstrate effective interpersonal skills during collaboration.
2. **CRD-2:** Developers create and innovate using an iterative design process that is user-focused, that incorporates implementation/feedback cycles, and that leaves ample room for experimentation and risk-taking.
    a. **CRD-2.A:** Describe the purpose of a computing innovation.
    b. **CRD-2.B:** Explain how a program or code segment functions.
    c. **CRD-2.C:** Identify input(s) to a program.
    d. **CRD-2.D:** Identify output(s) produced by a program.
    e. **CRD-2.E:** Develop a program using a development process.
    f. **CRD-2.F:** Design a program and its user interface.
    g. **CRD-2.G:** Describe the purpose of a code segment or program by writing documentation.
    h. **CRD-2.H:** Acknowledge code segments used from other sources.
    i. **CRD-2.I:** For errors in an algorithm or program:
        i. Identify the error.
        ii. Correct the error.
    j. **CRD-2.J:** Identify inputs and corresponding expected outputs or behaviors that can be used to check the correctness of an algorithm or program.

B. Data (DAT)

1. **DAT-1:** The way a computer represents data internally is different from the way the data are interpreted and displayed for the user. Programs are used to translate data into a representation more easily understood by people.
    a. **DAT-1.A:** Explain how data can be represented using bits.
    b. **DAT-1.B:** Explain the consequences of using bits to represent data.
    c. **DAT-1.C:** For binary numbers:
        i. Calculate the binary (base 2) equivalent of a positive integer (base 10) and vice versa.
        ii. Compare and order binary numbers.
    d. **DAT-1.D:** Compare data compression algorithms to determine which is best in a particular context.
2. **DAT-2:** Programs can be used to process data, which allows users to discover information and create new knowledge.
    a. **DAT-2.A:** Describe what information can be extracted from data.
    b. **DAT-2.B:** Describe what information can be extracted from metadata.
    c. **DAT-2.C:** Identify the challenges associated with processing data.
    d. **DAT-2.D:** Extract information from data using a program.
    e. **DAT-2.E:** Explain how programs can be used to gain insight and knowledge from data.

C. Algorithms and Programming (AAP)

1. **AAP-1:** To find specific solutions to generalizable problems, programmers represent and organize data in multiple ways.
    a. **AAP-1.A:** Represent a value with a variable.
    b. **AAP-1.B:** Determine the value of a variable as a result of an assignment.
    c. **AAP-1.C:** Represent a list or string using a variable.

d. **AAP-1.D:** For data abstraction:
    i. Develop data abstraction using lists to store multiple elements.
    ii. Explain how the use of data abstraction manages complexity in program code.

2. **AAP-2:** The way statements are sequenced and combined in a program determines the computed result. Programs incorporate iteration and selection constructs to represent repetition and make descisions to handle varied input values.
    a. **AAP-2.A:** Express an algorithm that uses sequencing without using a programming language.
    b. **AAP-2.B:** Represent a step-by-step algorithmic process using sequential code statements.
    c. **AAP-2.C:** Evaluate expressions that use arithmetic operators.
    d. **AAP-2.D:** Evaluate expressions that manipulate strings.
    e. **AAP-2.E:** For relationships between two variables, expressions, or values:
        i. Write expressions using relational operators.
        ii. Evaluate expressions that use relational operators.
    f. **AAP-2.F:** For relationships between Boolean values:
        i. Write expressions using logical operators.
        ii. Evaluate expressions that use logic operators.
    g. **AAP-2.G:** Express an algorithm that uses selection without using a programming language.
    h. **AAP-2.H:** For selection:
        i. Write conditional statements.
        ii. Determine the result of conditional statements.
    i. **AAP-2.I:** For nested selection:
        i. Write nested conditional statements.
        ii. Determine the result of nested conditional statements.
    j. **AAP-2.J: E**xpress an algorithm that uses iteration without using a programming language.
    k. **AAP-2.K:** For iteration:
        i. Write iteration statements.
        ii. Determine the result or side effect of iteration statements.
    l. **AAP-2.L:** Compare multiple algorithms to determine if they yield the same side effect or result.
    m. **AAP-2.M:** For algorithms:
        i. Create algorithms.
        ii. Combine and modify existing algorithms.
    n. **AAP-2.N:** For list operations:
        i. Write expressions that use list indexing and list procedures.
        ii. Evaluate expressions that use list indexing and list procedures.
    o. **AAP-2.O:** For algorithms involving elements of a list:
        i. Write iteration statements to traverse a list.
        ii. Determine the result of an algorithm that includes list traversals.
    p. **AAP-2.P:** For binary search algorithms:
        i. Determine the number of iterations required to find a value in a data set.
        ii. Explain the requirements necessary to complete a binary search.

3. **AAP-3:** Programmers break down problems into smaller and more manageable pieces. By creating procedures and leveraging parameters, programmers generalize processes that can be reused. Procedures allow programmers to draw upon existing code that has already been tested, allowing them to write programs more quickly and with more confidence.
    a. **AAP-3.A:** For procedure calls:
        i. Write statements to call procedures.
        ii. Determine the result or effect of a procedure call.

b. **AAP-3.B:** Explain how the use of procedural abstraction manages complexity in a program.
c. **AAP-3.C:** Develop procedural abstractions to manage complexity in a program by writing procedures.
d. **AAP-3.D:** Select appropriate libraries or existing code segments to use in creating new programs.
e. **AAP-3.E:** For generating random values:
    i. Write expressions to generate possible values.
    ii. Evaluate expressions to determine the possible results.
f. **AAP-3.F:** For simulations:
    i. Explain how computers can be used to represent real-world phenomena or outcomes.
    ii. Compare simulations with real-world contexts.

4. **AAP-4:** There exist problems that computers cannot solve, and even when a computer can solve a problem, it may not be able to do so in a reasonable amount of time.
    a. **AAP-4.A:** For determining the efficiency of an algorithm:
        i. Explain the difference between algorithms that run in reasonable time and those that do not.
        ii. Identify situations where a heuristic solution may be more appropriate.
    b. **AAP-4.B:** Explain the existence of undecidable problems in computer science.

D. Computer Systems and Networks (CSN)

1. **CSN-1:** Computer systems and networks facilitate the transfer of data.
    a. **CSN-1.A:** Explain how computing devices work together in a network.
    b. **CSN-1.B:** Explain how the Internet works.
    c. **CSN-1.C**: Explain how data are sent through the Internet via packets.
    d. **CSN-1.D:** Describe the differences between the Internet and the World Wide Web.
    e. **CSN-1.E:** For fault-tolerant systems, like the Internet:
        i. Describe the benefits of fault tolerance.
        ii. Explain how a given system is fault-tolerant.
        iii. Identify vulnerabilities to failure in a system.
2. **CSN-2:** Parallel and distribted computing leverage multiple computers to more quickly solve complex problems or process large data sets.
    a. **CSN-2.A:** For sequential, parallel, and distributed computing:
        i. a. Compare problem solutions.
        ii. b. Determine the efficiency of solutions.
    b. **CSN-2.B:** Describe benefits and challenges of parallel and distributed computing.

E. Impact of Computing (IOC)

1. **IOC-1:** While computing innovaions are typically designed to achieve a specific purpose, they may have unintended consequences.
    a. **IOC-1.A:** Explain how an effect of a computing innovation can be both beneficial and harmful.
    b. **IOC-1.B:** Explain how a computing innovation can have an impact beyond its intended purpose.
    c. **IOC-1.C:** Describe issues that contribute to the digital divide.
    d. **IOC-1.D:** Explain how bias exists in computing innovations.
    e. **IOC-1.E:** Explain how people participate in problem solving processes at scale.
    f. **IOC-1.F:** Explain how the use of computing can raise legal and ethical concerns.
2. **IOC-2:** The use of computing innovations may involve risks to personal safety and identity.
    a. **IOC-2.A:** Describe the risks to privacy from collecting and storing personal data on a computer system.

AP COMPUTER SCIENCE STANDARDS

Event	Standard Number	CRD-1.A	CRD-1.B	CRD-1.C	CRD-2.A	CRD-2.B	CRD-2.C	CRD-2.D	CRD-2.E	CRD-2.G	CRD-2.H	CRD-2.I	CRD-2.J	DAT-1.A	DAT-1.B	DAT-1.C	DAT-1.D	DAT-2.A	DAT-2.B	DAT-2.C	DAT-2.D	DAT-2.E
Biotechnology																						
Career Prep																						
Challenging Technology Issues																						
Chapter Team																						
Children's Stories																						
Coding					X	X	X		X		X	X	X									
Community Service Video																						
Computer-Aided Design (CAD) Foundations																						
Construction Challenge																						
Cybersecurity	X	X	X								X											
Data Science and Analytics	X	X	X													X	X	X	X	X	X	
Digital Photography																						
Dragster																						
Electrical Applications																						
Essays on Technology																						
Flight																						
Forensic Technology																						
Inventions and Innovations																						
Junior Solar Sprint																						
Leadership Strategies																						
Mass Production																						
Mechanical Engineering																						
Medical Technology																						
Microcontroller Design			X	X		X	X		X	X	X	X										
Off the Grid																						
Prepared Speech																						
Problem Solving																						
Promotional Marketing																						
STEM Animation	X		X	X		X	X	X		X	X	X										
Structural Engineering																						
System Control Technology	X	X	X	X		X	X		X	X	X	X										
Tech Bowl																						
Technical Design																						
Video Game Design	X		X			X	X	X	X	X	X	X										
Vlogging	X		X																			
Website Design	X		X			X	X	X	X	X	X	X										

AP COMPUTER SCIENCE STANDARDS – continued

Event	Standard Number	AAP-1.A	AAP-1.B	AAP-1.C	AAP-1.D	AAP-2.A	AAP-2.B	AAP-2.C	AAP-2.D	AAP-2.E	AAP-2.F	AAP-2.G	AAP-2.H	AAP-2.I	AAP-2.J	AAP-2.K	AAP-2.L	AAP-2.M	AAP-2.N	AAP-2.O	AAP-2.P	AAP-3.A
Biotechnology																						
Career Prep																						
Challenging Technology Issues																						
Chapter Team																						
Children's Stories																						
Coding		X	X	X			X	X	X	X	X		X	X	X	X	X					
Community Service Video																						
Computer-Aided Design (CAD) Foundations																						
Construction Challenge																						
Cybersecurity									X							X	X					
Data Science and Analytics																						
Digital Photography																						
Dragster																						
Electrical Applications																						
Essays on Technology																						
Flight																						
Forensic Technology																						
Inventions and Innovations																						
Junior Solar Sprint																						
Leadership Strategies																						
Mass Production																						
Mechanical Engineering																						
Medical Technology																						
Microcontroller Design		X	X	X			X	X	X	X	X		X	X	X	X	X	X	X			X
Off the Grid																						
Prepared Speech																						
Problem Solving																						
Promotional Marketing																						
STEM Animation		X	X	X			X		X	X	X		X	X	X	X	X		X			X
Structural Engineering																						
System Control Technology		X	X	X			X	X	X	X	X		X	X	X	X	X	X	X			X
Tech Bowl																						
Technical Design																						
Video Game Design		X	X	X			X	X	X	X	X		X	X	X	X	X	X	X			X
Vlogging																						
Website Design		X	X	X			X		X				X	X					X			

AP COMPUTER SCIENCE STANDARDS – continued

Event	Standard Number	AAP-3.B	AAP-3.C	AAP-3.D	AAP-3.E	AAP-3.F	AAP-4.A	AAP-4.B	CSN-1.A	CSN-1.B	CSN-1.C	CSN-1.D	CSN-1.E	CSN-2.A	CSN-2.B	IOC-1.A	IOC-1.B	IOC-1.C	IOC-1.D	IOC-1.E	IOC-1.F	IOC-2.A
Biotechnology																						
Career Prep																						
Challenging Technology Issues																						
Chapter Team																						
Children's Stories																						
Coding								X														
Community Service Video																						
Computer-Aided Design (CAD) Foundations																						
Construction Challenge																						
Cybersecurity								X	X				X			X	X			X	X	X
Data Science and Analytics																X	X			X	X	
Digital Photography																						
Dragster																						
Electrical Applications																						
Essays on Technology																						
Flight																						
Forensic Technology																						
Inventions and Innovations																						
Junior Solar Sprint																						
Leadership Strategies																						
Mass Production																						
Mechanical Engineering																						
Medical Technology																						
Microcontroller Design		X	X	X			X						X			X	X				X	
Off the Grid																						
Prepared Speech																						
Problem Solving																						
Promotional Marketing																						
STEM Animation						X																
Structural Engineering																						
System Control Technology		X	X	X			X						X			X	X				X	
Tech Bowl																						
Technical Design																						
Video Game Design		X	X	X	X		X															
Vlogging																						
Website Design																						

AP COMPUTER SCIENCE: COMPUTATIONAL THINKING PRACTICES

Practice 1: Computational Solution Design

Design and evaluate computational solutions for a purpose.

A. Investigate the situation, context, or task.
B. Determine and design an appropriate method or approach to achieve the purpose.
C. Explain how collaboration affects the development of a solution.
D. Evaluate solution options.

Practice 2: Algorithms and Program Development

Develop and implement algorithms.

A. Represent algorithmic processes without using a programming language.
B. Implement and apply an algorithm.

Practice 3: Abstraction in Program Development

Develop programs that incorporate abstractions.

A. Generalize data sources through variables.
B. Use abstraction to manage complexity in a program.
C. Explain how abstraction manages complexity.

Practice 4: Code Analysis

Evaluate and test algorithms and programs.

A. Explain how a code segment or program functions.
B. Determine the result of code segments.
C. Identify and correct errors in algorithms and programs, including error discovery through testing.

Practice 5: Computing Innovations

Investigate computing innovations.

A. Explain how computing systems work.
B. Explain how knowledge can be generated from data.
C. Describe the impact of a computing innovation.
D. Describe the impact of gathering data.
E. Evaluate the use of computing based on legal and ethical factors.

Practice 6: Responsible Computing

Contribute to an inclusive, safe, collaborative, and ethical computing culture.

A. Collaborate in the development of solutions.
B. Use safe and secure methods when using computing devices.
C. Acknowledge the intellectual property of others.

AP COMPUTER SCIENCE: COMPUTATIONAL THINKING PRACTICES

Event	Standard Number	1A	1B	1C	1D	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	5C	5D	5E	6A	6B	6C
Biotechnology		X	X	X	X														X		X
Career Prep																					
Challenging Technology Issues																					
Chapter Team																					
Children's Stories																					
Coding				X	X		X				X	X	X						X		X
Community Service Video		X	X	X	X																
Computer-Aided Design (CAD) Foundations		X	X		X																
Construction Challenge																					
Cybersecurity		X	X	X	X								X					X	X	X	X
Data Science and Analytics		X	X	X	X	X	X	X	X	X					X	X	X	X	X		
Digital Photography																					
Dragster																					
Electrical Applications																					
Essays on Technology																					
Flight																					
Forensic Technology																					
Inventions and Innovations																					
Junior Solar Sprint																					
Leadership Strategies																					
Mass Production																					
Mechanical Engineering																					
Medical Technology		X	X	X	X														X		X
Microcontroller Design		X	X	X	X						X	X	X						X		
Off the Grid																					
Prepared Speech																					
Problem Solving																					
Promotional Marketing																					
STEM Animation				X							X	X	X						X		X
Structural Engineering																					
System Control Technology		X	X	X	X						X	X	X						X		
Tech Bowl																					
Technical Design		X	X	X	X														X		
Video Game Design				X			X				X	X	X						X		X
Vlogging																			X	X	X
Website Design				X							X	X	X						X		X

ISTE STANDARDS FOR STUDENTS – 2016 INTERNATIONAL SOCIETY FOR TECHNOLOGY IN EDUCATION

1. Empowered Learner
   Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
   a. articulate and set personal learning goals, develop strategies leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes
   b. build networks and customize their learning environments in ways that support the learning process
   c. use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways
   d. understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies
2. Digital Citizen
   Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical.
   a. cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world
   b. engage in positive, safe, legal and ethical behavior when using technology, including social interactions online or when using networked devices
   c. demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property
   d. manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online
3. Knowledge Constructor
   Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
   a. plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits
   b. evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources
   c. curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions
   d. build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions
4. Innovative Designer
   Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
   a. know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems
   b. select and use digital tools to plan and manage a design process that considers design constraints and calculated risks
   c. develop, test and refine prototypes as part of a cyclical design process
   d. exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems

5. **Computational Thinker**
   Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
   a. formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions
   b. collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making
   c. break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving
   d. understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.
6. **Creative Communicator**
   Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
   a. choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication
   b. create original works or responsibly repurpose or remix digital resources into new creations
   c. communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations
   d. publish or present content that customizes the message and medium for their intended audiences
7. **Global Collaborator**
   Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.
   a. use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning
   b. use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints
   c. contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal
   d. explore local and global issues and use collaborative technologies to work with others to investigate solutions

Although not formally aligned, this standards alignment of TSA competitive events has been developed in accordance with the ISTE Standards for Students framework. The ISTE Standards for Students are a framework for teaching and learning in the digital age and are adopted by schools, districts, states locally, nationally and internationally. The ISTE Standards for Students are a registered trademark of International Society for Technology in Education (ISTE). ISTE was not involved in the production of this product and does not endorse, support, or sponsor it.

ISTE STANDARDS FOR STUDENTS

Event	Standard Number	1a	1b	1c	1d	2a	2b	2c	2d	3a	3b	3c	3d	4a	4b	4c	4d	5a	5b	5c	5d	6a	6b	6c	6d	7a	7b	7c	7d
Biotechnology		X								X	X	X	X	X	X		X	X	X								X	X
Career Prep																													
Challenging Technology Issues																													
Chapter Team																													
Children's Stories																													
Coding				X																							X	
Community Service Video				X						X		X	X				X					X	X	X	X			X	X
Computer-Aided Design (CAD) Foundations				X										X	X							X	X	X	X				
Construction Challenge																													
Cybersecurity		X			X	X		X					X				X					X					X	X	X
Data Science and Analytics	X						X		X	X	X	X					X	X	X	X				X	X			X	X
Digital Photography				X					X																				
Dragster																													
Electrical Applications																													
Essays on Technology																													
Flight																													
Forensic Technology																													
Inventions and Innovations																													
Junior Solar Sprint																													
Leadership Strategies																													
Mass Production																													
Mechanical Engineering																													
Medical Technology	X			X						X	X	X	X	X	X	X	X	X	X					X	X			X	X
Microcontroller Design	X			X						X		X	X	X	X	X	X	X	X	X	X	X		X				X	X
Off the Grid																													
Prepared Speech																													
Problem Solving																													
Promotional Marketing							X															X	X	X					
STEM Animation	X			X			X							X								X	X	X	X			X	X
Structural Engineering																													
System Control Technology	X			X						X		X	X	X	X	X	X	X	X	X	X	X		X					X
Tech Bowl																													
Technical Design														X			X			X									
Video Game Design	X			X			X																				X	
Vlogging	X			X	X	X	X	X	X	X	X	X	X	X	X						X	X	X	X	X	X	X	X	
Website Design	X			X	X		X															X	X	X	X	X		X	X

CRITERIA FOR ACCREDITING ENGINEERING PROGRAMS (Accreditation Board for Engineering and Technology [ABET, Inc.])

Engineering programs must demonstrate that their students attain the following outcomes:

A. An ability to apply knowledge of mathematics, science, and engineering
B. An ability to design and conduct experiments, as well as to interpret data
C. An ability to design a system, component, or process to meet desired needs
D. An ability to function on multi-disciplinary teams
E. An ability to identify, formulate, and solve engineering problems
F. An understanding of professional and ethical responsibility
G. An ability to communicate effectively
H. The broad education necessary to understand the impact of engineering in global and social contexts
I. A recognition of the need for and an ability to engage in life-long learning
J. A knowledge of contemporary issues
K. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

The outcomes listed are found in *2008-2009 Criteria for Accrediting Engineering Programs* and used with permission from the Engineering Accreditation Commission of ABET, Inc. The outcomes were designed for higher education engineering programs but are relevant for both middle school and high school level engineering-related courses.

CRITERIA FOR ACCREDITING ENGINEERING PROGRAMS (ABET, INC.)

Standard

A. An ability to apply knowledge of mathematics, science, and engineering
B. An ability to design and conduct experiments, as well as to interpret data
C. An ability to design a system, component, or process to meet desired needs
D. An ability to function on multi-disciplinary teams
E. An ability to identify, formulate, and solve engineering problems
F. An understanding of professional and ethical responsibility
G. An ability to communicate effectively
H. The broad education necessary to understand the impact of engineering in global and social contexts
I. A recognition of the need for and an ability to engage in life-long learning
J. A knowledge of contemporary issues
K. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.tools necessary for engineering practice.

Event	Standard Letter	A	B	C	D	E	F	G	H	I	J	K
Biotechnology		X	X	X	X	X	X	X	X		X	
Career Prep		X					X	X	X			
Challenging Technology Issues								X	X	X	X	
Chapter Team									X	X		
Children's Stories				X	X		X	X		X		
Coding				X								
Community Service Video					X			X		X		
Computer-Aided Design (CAD) Foundations		X		X		X		X	X	X	X	X
Construction Challenge		X			X		X	X				
Cybersecurity			X	X	X	X	X	X	X	X	X	
Data Science and Analytics		X	X				X	X			X	
Digital Photography							X	X	X		X	X
Dragster		X	X	X		X	X	X				X
Electrical Applications		X	X	X		X			X		X	X
Essays on Technology		X	X	X	X	X	X	X	X	X		
Flight		X	X	X		X	X	X		X	X	X
Forensic Technology		X	X					X			X	
Inventions and Innovations		X		X	X	X		X		X		
Junior Solar Sprint		X	X	X		X		X				X
Leadership Strategies							X	X		X		
Mass Production		X	X	X	X	X	X	X	X			
Mechanical Engineering		X	X	X	X	X	X	X	X	X	X	X
Medical Technology		X	X	X	X	X	X	X	X	X	X	X
Microcontroller Design		X		X				X				X
Off the Grid				X	X	X	X	X	X		X	X
Prepared Speech								X	X	X	X	
Problem Solving		X	X	X		X		X				
Promotional Marketing		X					X	X				
STEM Animation				X	X	X		X			X	X
Structural Engineering		X	X	X	X	X		X				X
System Control Technology		X	X	X	X	X	X	X				X
Tech Bowl		X	X	X		X			X		X	X
Technical Design				X		X	X	X				
Video Game Design				X	X			X		X		
Vlogging												
Website Design				X	X					X		

NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS (NCTM) PRINCIPLES AND STANDARDS FOR SCHOOL MATHEMATICS

A. **Numbers and operations**
   1. Understand numbers, ways of representing numbers, relationships among numbers, and number systems
   2. Understand meanings of operations and how they relate to one another
   3. Compute fluently and make reasonable estimates

B. **Algebra**
   1. Understand patterns, relations, and functions
   2. Represent and analyze mathematical situations and structures using algebraic symbols
   3. Use mathematical models to represent and understand quantitative relationships
   4. Analyze change in various contexts

C. **Geometry**
   1. Analyze characteristics and properties of two- and three-dimensional geometric shapes, and develop mathematical arguments about geometric relationships
   2. Specify locations and describe spatial relationships using coordinate geometry and other representational systems
   3. Apply transformations and use symmetry to analyze mathematical situations
   4. Use visualization, spatial reasoning, and geometric modeling to solve problems

D. **Measurement**
   1. Understand measurable attributes of objects and the units, systems, and processes of measurement
   2. Apply appropriate techniques, tools, and formulas to determine measurements

E. **Data analysis and probability**
   1. Formulate questions that can be addressed with data, and collect, organize, and display relevant data to answer them
   2. Select and use appropriate statistical methods to analyze data
   3. Develop and evaluate inferences and predictions that are based on data
   4. Understand and apply basic concepts of probability

F. **Problem solving**
   1. Build new mathematical knowledge through problem solving
   2. Solve problems that arise in mathematics and in other contexts
   3. Apply and adapt a variety of appropriate strategies to solve problems
   4. Monitor and reflect on the process of mathematical problem solving

G. **Reasoning and proof**
   1. Recognize reasoning and proof as fundamental aspects of mathematics
   2. Make and investigate mathematical conjectures
   3. Develop and evaluate mathematical arguments and proofs
   4. Select and use various types of reasoning and methods of proof

H. **Communication**
   1. Organize and consolidate mathematical thinking through communication
   2. Communicate mathematical thinking coherently and clearly to peers, teachers, and others
   3. Analyze and evaluate the mathematical thinking and strategies of others
   4. Use the language of mathematics to express mathematical ideas precisely

I. **Connections**
   1. Recognize and use connections among mathematical ideas
   2. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole
   3. Recognize and apply mathematics in contexts outside of mathematics

J. **Representation**
   1. Create and use representations to organize, record, and communicate mathematical ideas
   2. Select, apply, and translate among mathematical representations to solve problems
   3. Use representations to model and interpret physical, social, and mathematical phenomena

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NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS (NCTM) PRINCIPLES AND STANDARDS FOR SCHOOL MATHEMATICS

Event / Standard Number	A1	A2	A3	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	E1	E2	E3	E4	F1	F2	F3	F4	G1	G2	G3	G4	H1	H2	H3	H4	I1	I2	I3	J1	J2	J3
Biotechnology												X	X													X		X		X		X	X		X
Career Prep																																			
Challenging Technology Issues																										X	X	X	X		X	X			
Chapter Team																																			
Children's Stories																																			
Coding																																			
Community Service Video			X																												X			
Computer-Aided Design (CAD) Foundations								X	X		X	X	X																			X		
Construction Challenge												X	X							X														
Cybersecurity														X	X	X	X			X														
Data Science and Analytics	X		X	X		X	X							X	X		X						X	X		X	X				X	X	X	X	X
Digital Photography																				X						X		X						
Dragster							X	X	X		X	X	X						X	X														
Electrical Applications												X	X	X	X			X	X													X			
Essays on Technology			X	X						X	X	X	X		X				X															
Flight		X	X	X				X			X	X	X			X	X	X	X	X	X		X		X	X	X					X			
Forensic Technology														X		X				X															
Inventions and Innovations																																			
Junior Solar Sprint	X	X	X					X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X					X	X	X			
Leadership Strategies																				X												X			
Mass Production												X	X						X	X															
Mechanical Engineering						X	X	X			X	X							X	X															
Medical Technology	X	X	X	X	X	X	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Microcontroller Design																																			
Off the Grid												X	X						X	X															
Prepared Speech																																			
Problem Solving												X	X					X	X	X															
Promotional Marketing												X	X																						
STEM Animation	X		X		X														X	X					X			X			X			X
Structural Engineering		X	X				X	X		X	X	X	X			X		X		X	X					X	X	X	X		X		X	X	
System Control Technology	X	X	X	X	X	X		X	X	X	X	X	X			X	X	X	X	X	X		X	X	X	X	X			X	X	X			
Tech Bowl								X	X		X	X	X						X	X									X		X	X			
Technical Design								X	X	X	X	X	X						X								X		X		X	X		X	
Video Game Design												X							X	X						X	X								
Vlogging																																			
Website Design																			X	X									X	X					

TSA AND CAREERS

Choosing a career is one of the more important decisions made in life. This section of the guide may help students focus on career areas that appeal to them in the world of work, as well as show them how their involvement in TSA's program of activities has the ability to guide them toward those areas.

Career Clusters® are categories of similar occupations and industries. The Career Clusters® chart was developed by the U.S. Department of Education to organize career planning and help schools better prepare learners for their futures. The Career Clusters® chart offers general information about career categories and work opportunities prominent in those areas. The *TSA Competitions and the Career Clusters®* grid illustrates the interconnectedness between individual TSA competitions and the 16 Career Clusters®. Use these together as a starting point to help your students become informed about careers and develop a plan to reach their life goals.

PATHWAYS TO COLLEGE & CAREER READINESS
CareerClusters®

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16 CAREER CLUSTERS®

A. AGRICULTURE, FOOD & NATURAL RESOURCES

- Agribusiness Systems
- Animal Systems
- Environmental Service Systems
- Food Products & Processing Systems
- Natural Resources Systems
- Plant Systems
- Power, Structural & Technical Systems Architecture & Construction

B. ARCHITECTURE & CONSTRUCTION

- Construction
- Design/Pre-Construction
- Maintenance/Operations

C. ARTS, A/V TECHNOLOGY & COMMUNICATIONS

- A/V Technology & Film
- Journalism & Broadcasting
- Performing Arts
- Printing Technology
- Telecommunications
- Visual Arts

D. BUSINESS MANAGEMENT & ADMINISTRATION

- Administrative Support
- Business Information Management
- General Management
- Human Resources Management
- Operations Management

E. EDUCATION & TRAINING

- Administration & Administrative Support
- Professional Support Services
- Teaching/Training

F. FINANCE

- Accounting
- Banking Services
- Business Finance
- Insurance
- Securities & Investments

G. GOVERNMENT & PUBLIC ADMINISTRATION
- Foreign Service
- Governance
- National Security
- Planning
- Public Management & Administration
- Regulation
- Revenue & Taxation

H. HEALTH SCIENCES
- Biotechnology Research & Development
- Diagnostic Services
- Health Informatics
- Support Services
- Therapeutic Services

I. HOSPITALITY & TOURISM
- Lodging
- Recreation, Amusements & Attractions
- Restaurants & Food/Beverage Services
- Travel & Tourism

J. HUMAN SERVICES
- Consumer Services
- Counseling & Mental Health Services
- Early Childhood Development & Services
- Family & Community Services
- Personal Care Services

K. INFORMATION TECHNOLOGY
- Information Support & Services
- Network Systems
- Programming & Software Development
- Web & Digital Communications

L. LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY
- Correction Services
- Emergency & Fire Management Services
- Law Enforcement Services
- Legal Services
- Security & Protective Services

M. MANUFACTURING
- Health, Safety & Environmental Assurance
- Logistics & Inventory Control
- Maintenance, Installation & Repair
- Manufacturing Production Process Dev.
- Production
- Quality Assurance

N. MARKETING
- Marketing Communications
- Marketing Management
- Marketing Research
- Merchandising
- Professional Sales

O. SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS
- Engineering & Technology
- Science & Mathematics

P. TRANSPORTATION, DISTRIBUTION & LOGISTICS
- Facility & Mobile Equipment Maintenance
- Health, Safety & Environmental Management
- Logistics Planning & Management Services
- Sales & Service
- Transportation Operations
- Transportation Systems/Infrastructure
- Planning, Management & Regulation
- Warehousing & Distribution Center Operations

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PATHWAYS TO COLLEGE & CAREER READINESS
CareerClusters®

TSA COMPETITIONS AND THE 16 CAREER CLUSTERS®

Event / Cluster letter	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Biotechnology								X							X	
Career Prep	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Challenging Technology Issues	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Chapter Team			X			X					X					X
Children's Stories		X		X					X					X		
Coding											X		X		X	
Community Service Video		X						X		X				X		
Computer-Aided Design (CAD) Foundations	X	X								X	X					
Construction Challenge	X											X				
Cybersecurity				X							X	X			X	
Data Science and Analytics	X				X	X	X			X	X	X	X	X	X	X
Digital Photography		X												X		
Dragster												X		X	X	X
Electrical Applications		X										X				
Essays on Technology		X	X			X					X		X			
Flight												X		X	X	
Forensic Technology											X	X		X		X
Inventions and Innovations		X	X							X	X	X	X	X	X	
Junior Solar Sprint												X		X	X	
Leadership Strategies	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Mass Production	X	X		X	X				X				X		X	
Mechanical Engineering	X							X			X	X			X	
Medical Technology							X		X		X			X		
Microcontroller Design											X				X	
Off the Grid	X	X														
Prepared Speech		X	X	X		X		X			X		X			
Problem Solving	X									X		X		X		
Promotional Marketing		X								X			X			
STEM Animation		X								X	X			X		
Structural Engineering	X										X			X	X	X
System Control Technology	X										X	X		X	X	X
Tech Bowl				X						X				X		
Technical Design	X	X								X	X			X		X
Video Game Design		X								X	X			X		X
Vlogging			X											X		
Website Design		X								X	X			X		

MIDDLE SCHOOL COMPETITIVE EVENTS

REVISIONS

- Every event's guidelines have been revised in some form, whether in content or in format.
- In addition to specific event guidelines, advisors and participants must read the General Rules and Regulations in this guide.
- Every two years the specifics of many events are changed, keeping the competitions dynamic.

Biotechnology
Career Prep
Challenging Technology Issues
Chapter Team
Children's Stories
Coding
Community Service Video
Computer-Aided Design (CAD) Foundations
Construction Challenge
Cybersecurity
Data Science and Analytics
Digital Photography
Dragster
Electrical Applications
Essays on Technology
Flight
Forensic Technology
Inventions and Innovations
Junior Solar Sprint
Leadership Strategies
Mass Production
Mechanical Engineering
Medical Technology
Microcontroller Design
Off the Grid
Prepared Speech
Problem Solving
Promotional Marketing
STEM Animation
Structural Engineering
System Control Technology
Tech Bowl
Technical Design
Video Game Design
Vlogging
Website Design

COMPETITIVE EVENTS ELIGIBILITY

2024 & 2025 MIDDLE SCHOOL COMPETITIONS	ELIGIBILITY
Each participant/team shall submit only one [1] entry for the following competitive events.	
Biotechnology	five (5) teams per state, consisting of at least three (3) individuals
Career Prep	one (1) individual per chapter
Challenging Technology Issues	three (3) teams of two (2) individuals per state
Chapter Team	one (1) team of six (6) individuals per chapter
Children's Stories	three (3) teams per state; individual entries are permitted
Coding	one (1) team of two (2) individuals per chapter
Community Service Video	one (1) team per chapter; individual entries are permitted
Computer-Aided Design (CAD) Foundations	two (2) individuals per state
Construction Challenge	one (1) team of at least two (2) individuals per chapter
Cybersecurity	three (3) individuals per chapter
Data Science and Analytics	three (3) teams of two to three (2-3) individuals per state
Digital Photography	three (3) individuals per state
Dragster	two (2) individuals per chapter
Electrical Applications	one (1) team of two (2) individuals per chapter
Essays on Technology	three (3) individuals per state
Flight	two (2) individuals per chapter
Forensic Technology	one (1) team of two (2) individuals per chapter
Inventions and Innovations	one (1) team of three (3) to six (6) individuals per chapter
Junior Solar Sprint	one (1) team of two to four (2-4) individuals per chapter
Leadership Strategies	three (3) teams of three (3) individuals per state
Mass Production	one (1) team of at least three (3) individuals per chapter
Mechanical Engineering	one (1) team of two to three (2-3) individuals per chapter
Medical Technology	three (3) teams per state
Microcontroller Design	one (1) team per chapter; individual entries are permitted
Off the Grid	three (3) teams per state; individual entries are permitted
Prepared Speech	three (3) individuals per state
Problem Solving	one (1) team of two (2) individuals per chapter
Promotional Marketing	one (1) individual per chapter
STEM Animation	three (3) teams per state
Structural Engineering	one (1) team of two (2) individuals per chapter
System Control Technology	one (1) team of three (3) individuals per state
Tech Bowl	one (1) team of three (3) individuals per chapter
Technical Design	one (1) team of two (2) individuals per chapter
Video Game Design	One (1) team of two (2) to six (6) individuals per chapter
Vlogging	two (2) teams of two (2) to six (6) members per chapter
Website Design	one (1) team of at least three (3) and a maximum of six (6) individuals per chapter

TSA COMPETITIVE EVENTS RATING FORM/RUBRIC

The Technology Student Association (TSA) Middle School Competitive Events Guide for the 2024 & 2025 National TSA Conferences contains a rating form (rubric) for each competition. Rubrics are embraced by STEM educators because they provide a way to evaluate performance. The use of descriptors for each criterion being measured in a rubric increases consistency and a greater understanding of the evaluation process. The TSA rating form/rubric provides a way for TSA members to better prepare for competitions, for advisors to carefully assist them in the process, and for judges to effectively evaluate participants and their entries.

GO/NO GO SPECIFICATIONS

- Each competitive event has a Go/No Go Specifications checklist placed at the beginning of the official event rating form/rubric.
- Specifications in the checklist are required and must be met, or the individual or team will not be allowed to compete in the event.
- Refer to each competitive event's official rating form/rubric for details.

BIOTECHNOLOGY

OVERVIEW

Applying leadership and 21st century skills, participants conduct research on a contemporary biotechnology issue as it relates to a chosen theme on the TSA website under *Themes & Problems*. Participants will document their research and make a display. The information gathered may be student performed and researched, or a re-creation or simulation of research performed by the scientific community. If appropriate, a model or prototype depicting some aspect of the issue may be included. Semifinalist teams present and are interviewed about their topic.

ELIGIBILITY

Five (5) teams per state, consisting of at least three (3) individuals, may participate.

TIME LIMITS

Ten (10) minutes are allowed for the semifinal presentation and interview broken down as follows:

A. One (1) minute for set-up

B. Seven (7) minutes for the presentation

C. Two (2) minutes to respond to questions from judges

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the annual theme on the TSA website under *Themes & Problems*.

B. Participants research the issue using credible sources.

C. Participants prepare their display and documentation portfolio according to the regulations and requirements.

PRELIMINARY ROUND

A. No more than two (2) team representatives report at the time and place stated in the conference program to set up the display.

B. Entries are independently reviewed by judges, with neither students nor advisors present.

   1. Judges score the display criteria to determine the top twenty-four (24) preliminary teams, which will not be posted.

   2. Judges score the documentation criteria of those top twenty-four (24) teams to determine the top twelve (12) semifinalist teams.

C. A list of twelve (12) semifinalist teams (in random order) is posted.

SEMIFINAL ROUND

A. One (1) team representative reports at the time and place stated in the conference program to sign-up for a presentation time.

B. Three (3) team representatives report at least ten (10) minutes prior to their assigned time to the designated place for their presentation.

C. Semifinalist team representatives participate in the on-site presentation and interview.

D. Team representatives pick-up their entry from the display area at the time and place stated in the conference program.

E. The top ten (10) finalists are announced at the awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Students must understand the fundamental concepts and principles of the contemporary biotechnology issue they research. Research about the issue should focus on significant impacts (opportunities and risks) on the environment, economy, and society, as well as any important ethical considerations.

B. Display guidelines:

1. The size of the display may not exceed 15" deep x 3' wide x 4' high.
2. Models or prototypes (optional) must fit within the allotted space.
3. A/C electricity may not be used.
4. If the display and/or model/prototype requires power, they must be powered by dry-cell batteries or photo-voltaic cells.
    a. The power supply must physically fit within the display dimensions.
    b. All power must be switched off once the team has completed set-up.
    c. If teams want judges to activate any electronic device in their display/model/prototype, complete instructions must be provided to judges on how to power up the model/display.
5. If operating instructions are necessary, they must be clearly displayed and should include information about turning on devices, logging in, etc.

C. Documentation Portfolio:

1. Documentation portfolio is required and must be secured in a clear front report cover with the following single-sided, 8½" x 11" pages, in this order:
    a. Title page with the event title, the conference city and state, the year, and the team/chapter ID number; one (1) page
    b. Table of contents; pages as needed
    c. Definition and explanation of the issue as it relates to the theme; one (1) page
    d. Research base: an explanation of the importance of the issue in contemporary biotechnology today, including possible solutions; maximum three (3) pages
    e. Support materials such as logs, graphs, sketches, drawings, illustrations, photos, etc.; maximum four (4) pages
    f. Work Log (see Forms Appendix); pages as needed
    g. A list of references and credible sources; a minimum of three (3) different types of references must be used; pages as needed
    h. Work must be original or cited, using a professional citation style of the competitors choosing. Failure to use a professional citation style will result in a rules violation of 20% (twenty percent). Some examples of professional citation styles include MLA, APA, Chicago, and IEEE; pages as needed
    i. Photo/Film/Video Consent and Release Forms. If the entry contains images of people (minors require parental consent), proof of consent must be included for each person (see Forms Appendix); pages as needed

D. Once the display set-up time frame has closed, participants may not re-enter the event area.

E. Violation of the following will result in disqualification:

1. No viruses, live plants, or animals may be used as a part of the display.
2. No harmful or illegal substances may be displayed.

SEMIFINAL ROUND

A. The presentation is limited to three (3) team representatives. Each member should be an active participant in the presentation.
B. Representatives should reference their display and documentation during the presentation and interview.
C. Teams may bring and use audio/visual materials or a laptop for their presentation. Projectors and screens are not permitted. Access to power will not be provided.
D. Time limits:
    1. One (1) minute for set-up
    2. Seven (7) minutes for presentation
    3. Two (2) minutes to respond to questions from judges.
    4. A five-(5) point deduction will be incurred for any time infraction.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

EVALUATION

PRELIMINARY ROUND

A. The display
B. The documentation portfolio

SEMIFINAL ROUND

A. The presentation
B. The interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Botanist
- Chemical engineer
- Food scientist
- Molecular biologist
- Plant geneticist

Participant/Team ID# _____

BIOTECHNOLOGY

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ TIER 1 – Display is present
☐ TIER 2 – Documentation portfolio is present
☐ ENTRY NOT EVALUATED

TIER 1 – DISPLAY (90 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Definition and Explanation of the Issue and Solution (X1)	Unclear definition and explanation of the issue is evident; it is difficult to understand the solution being communicated; an illogical explanation is presented.	Issue is defined and explained adequately; the solution is acceptable.	There is evidence of a clear and concise definition and explanation of the issue; explanation is presented and communicated in an organized and concise manner.	
Explanation of Impacts (X2)	Explanation is missing a discussion of the issue's relevance to environmental, economic, social, and/or ethical considerations.	Explanation addresses some of the issue's relevance to environmental, economic, social, and/or ethical considerations.	Explanation includes a full discussion of the issue's relevance to environmental, economic, social, and/or ethical considerations.	
Supporting Information (X1)	Supporting information does not help to clarify documentation and/or it is of little significance to the issue.	Supporting information is appropriate and helps supplement the documentation by providing clarity to the issue.	Supporting information is highly effective and of excellent quality.	
Research, References, and Resources (X1)	Documentation lacks adequate research base, and/or very few credible sources are referenced.	Research is generally appropriate, with adequate credible sources.	A comprehensive research base that includes credible sources is evident.	
Communication of Issue (X1)	It is difficult to understand the issue being communicated; an illogical explanation is presented.	The issue is communicated and thoughts are somewhat organized.	The issue is communicated in an organized, clear, and concise manner.	
Communication of Solution (X1)	It is difficult to understand the solution being communicated; an illogical explanation is presented.	The solution is communicated and thoughts are somewhat organized.	The solution is communicated in an organized, clear, and concise manner.	
Creativity (X1)	The display lacks creativity; no, or very few, design principles are integrated in the display.	Some elements of creativity exist in the display, and essential design principles are generally evident.	The display exudes creativity; essential design principles and elements are well integrated.	
Aesthetics and Artisanship (X1)	Display is unorganized and sloppy; display seems to be an afterthought or thrown together.	Display is somewhat organized and aesthetically pleasing.	Display is logical, organized, cohesive, and aesthetically pleasing.	
			TIER 1 – DISPLAY SUBTOTAL (90 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	

TIER 1 – SUBTOTAL (90 points)	

TIER 2 – DOCUMENTATION PORTFOLIO (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	Portfolio is unorganized and/ or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
Definition and Explanation of Issue (X1)	Definition and explanation of the issue is unclear.	Issue is generally defined and explained, but some points could use additional clarification.	Clear and concise definition and explanation of the issue is evident.	
Research Base (X1)	Research is inadequate, and/or very few credible sources are referenced.	Research has been conducted appropriately, with some credible sources included.	Research indicates evidence of a comprehensive assortment of materials that are credible sources.	
Support Materials (X1)	Support materials do not help clarify the documentation and/or are of very little significance to the issue.	Support materials are somewhat appropriate and lend some clarity to the issue.	Support materials are of excellent quality; if not original, they are cited; support materials clarify the issue.	
Quality and Effectiveness (X1)	Portfolio appears to have been thrown together; distracting errors in punctuation, grammar, and spelling are evident in the documentation.	Portfolio is generally organized; punctuation, grammar, and spelling are correct for the most part, with few errors.	Work is of exceptional quality and well organized; punctuation, grammar, and spelling are correct, with no errors.	
TIER 2 – DOCUMENTATION PORTFOLIO SUBTOTAL (50 points)				

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	

PRELIMINARY SUBTOTAL (140 points)	

SEMIFINAL PRESENTATION/INTERVIEW (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the presentation, with an illogical explanation of the problem and solution.	Participants are generally prepared the for the presentation; explanation of the problem and solution are somewhat communicated and organized.	The presentation is logical, well-organized, and easy to follow; the problem and solution are communicated in an organized and concise manner.	

SEMIFINAL PRESENTATION/INTERVIEW (60 points) – continued				
Articulation (X1)	Communication of the solution is unclear, unorganized, and/or illogical; leadership and/or 21st century skills are not evident	Communication of the solution is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the solution is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
Delivery (X1)	The team is verbose and/or uncertain in its presentation/ interview; participants' posture, gestures, and lack of eye contact diminish the delivery; little to no references are made to the display and/or documentation portfolio.	The team is generally well-spoken and clear in its presentation/ interview; participants' posture, gestures, and eye contact are acceptable in the delivery; some references are made to the display and/or documentation portfolio.	The team is well-spoken and distinct in its presentation/interview; participants' posture, gestures, and eye contact result in a polished, natural, and effective delivery, multiple appropriate and effective references are made to the display and/or documentation portfolio to enhance the delivery.	
Knowledge (X2)	Participants seem to have little understanding of the concepts in their project; answers to questions may be vague.	Participants exhibit an understanding of the concepts in their project.	Participants show clear evidence of a thorough understanding of the project	
Team Participation (X1)	Majority of the presentation/ interview is made by one member of the team; the partners may be disengaged.	Team members generally are engaged in the process, though one member may take on more responsibility than the other(s).	All team members are actively involved in the presentation/ interview.	
			SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

TIME DEDUCTIONS
A five-(5) point deduction will be incurred for any time infraction.

SEMIFINAL SUBTOTAL (60 points)

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (200 points)

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

BIOTECHNOLOGY
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

   1. Preliminary round, two (2) or more
   2. Semifinalist round, two (2) or more (preferably the same judges from the preliminary round)

C. Assistant, one (1)

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Stick-on labels for identifying entries
   5. Results envelope with coordinator forms

B. Display tables for entries

C. Table and chairs for team presentations, as needed

D. Stopwatch

E. Measuring tape

F. Display tables for entries

G. Table and chairs for event coordinator and judges

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

EVENT CHECK-IN

A. Check in the entries at the time stated in the conference program.

B. No more than two (2) team representatives may check in:

   1. The display
   2. The documentation portfolio

C. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

D. In order to compete, participants must be on the entry list or must have approval of the CRC.

E. Requirements for attire do NOT apply during check-in, only on the first full day of the conference.

F. Each entry must include the team's identification number in the upper right-hand corner of the display and somewhere visible on the documentation portfolio

PRELIMINARY ROUND

A. Judges independently score the display criteria which will determine the top twenty-four (24) teams, which will not be posted.

B. Judges score the documentation criteria of those top twenty-four (24) teams to determine the top twelve (12) semifinalists.

C. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must all initial either of the violations on the rating form.

D. Judges determine the twelve (12) semifinalists and discuss and break any ties.
E. Submit semifinalist results to the CRC room.
F. Create a sign-up sheet for semifinalist presentations/ interviews and communicate any instructions to the semifinalist participants.
G. Manage the pick-up of non-semifinalist entries.

SEMIFINAL ROUND

A. Prepare a list of five to ten (5-10) standard interview questions to be asked of all participants.
B. Semifinalists report to sign-up for the presentation at the time and place stated in the conference program.
C. Check in semifinalists and confirm with the teams their order of presentation and the procedure. Team representatives should report at least ten (10) minutes prior to their assigned time to the designated place for their presentation.
D. Manage the presentations and interviews.
E. If judges ask questions, they should be the same questions for each team for the purpose of comparing one team to another.
F. Discuss rule violations and have all relevant parties initial the rating form.
G. Judges independently assess the semifinal presentation and interview.
H. Judges determine the top ten (10) finalists and discuss and break any ties.
I. Submit the finalist results and all related forms in the results envelope to the CRC room.
J. If necessary, manage security and the removal of materials from the event area.

CAREER PREP

OVERVIEW

Applying leadership and 21st century skills, participants conduct research on a technology-related career according to a theme posted on the TSA website under *Themes & Problems* and prepare a cover letter and a job-specific resume. Semifinalists participate in a mock interview.

ELIGIBILITY

One (1) individual per chapter may participate.

TIME LIMITS

PRELIMINARY ROUND

A. All components of the chapter's entry (PDF) must be finished, submitted, and accessible via the Internet by 11:59 p.m. ET on a designated date in mid-May.

B. Entries received, or changes made to submitted entries after this deadline will not be judged.

SEMIFINAL ROUND

A. Ten (10) minutes is allowed for the mock interview.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the annual theme posted on the TSA website under *Themes & Problems*.

B. Participants concentrate their efforts conducting research on the selected technology-related career.

C. Participants prepare a cover letter and a job-specific resume.

D. Participants submit the PDF by 11:59 p.m. ET on a designated date in mid-May.

E. Submission information will be provided on the TSA website under *Competition Updates*.

PRELIMINARY ROUND

A. A list of twelve (12) semifinalists (in random order) is posted on the first full day of conference.

SEMIFINAL ROUND

A. Semifinalists report at the time and place stated in the conference program to sign up for a mock interview time.

B. Semifinalists report at the assigned time and place to participate in the mock interview.

C. Simulating a real interview, semifinalists bring with them an additional printed copy of their job-specific resume to the judges at the time of the interview.

D. The printed copy of the job-specific resume provided to the judges during the interview will not be returned.

E. Judges evaluate the interviews.

F. Ten (10) finalists are announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Participants enter this event with the following scenario in mind:

1. You have graduated from high school and have the appropriate level of education and training (i.e., college degree, technical school, certification and training, etc.) for an entry-level position that is required for successful employment in your selected career.
2. Your training, education, and other qualifications for the entry-level position are realistic for successful employment in your chosen career and are reflected in your resume and cover letter.

B. Participants should use fictitious home address and telephone number information when completing the documents, however, correct participant names must be used.
C. Each participant submits a PDF of (no cover page, table of contents, or release forms):
    1. Cover letter:
        a. Must be typed
        b. Is limited to one (1) single-sided, 8½" x 11" page
        c. Must include an opening, body, and conclusion
    2. The job-specific resume:
        a. Must be typed
        b. Is limited to two (2) single-sided, 8½" x 11" pages

EVALUATION

PRELIMINARY ROUND

A. The cover letter and job-specific resume

SEMIFINAL ROUND

A. The mock interview

Refer to the official rating form for more information

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the career areas featured in the TSA AND CAREERS section of this guide.

Participant/Team ID# _____

CAREER PREP

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Cover letter and job-specific resume submitted
☐ ENTRY NOT EVALUATED

COVER LETTER (40 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Introduction (X1)	Introduction fails to describe the participant, and/or does not clearly identify the position or reason for contact, and/or does not indicate how the position was discovered, and/or does not indicate interest, and/or does not grab the employer's attention.	Introduction describes many of the elements (e.g., participant description, how the position was identified, reason for applying, etc.) and briefly addresses others (e.g., how the position was discovered, interest level, etc.), resulting in an adequate introduction.	Introduction incorporates all elements—the participant, the position or reason for contact, how the position was discovered, and genuine interest in the position—and ultimately grabs the employer's attention.	
Body (identification of skills) (X1)	Participant fails to identify any skills or qualifications, does not explain interest, and does not indicate how his/her skills would provide benefit to the company.	Participant indicates his/her skills, with a general explanation of how the skills relate to the position at hand; participant conveys interest, and briefly connects the skills to benefits for the company.	Participant provides one or two strong qualifications and clearly relates these skills to the job at hand; participant clearly explains how his/her interest and skills can benefit the company.	
Conclusion (X1)	The conclusion does not include a thank-you to the employer and/or, does not note contact information, is not assertive, and/or lacks mention of follow-up after a given period of time.	The conclusion may or may not include a thank-you and follow-up to the employer with contact information; overall, it is adequate.	The conclusion includes a thank-you to the employer for his/her time and the applicant's contact information; it is assertive and mentions a method of follow-up within a given period of time.	
Overall Writing Quality and Grammar (X1)	Writing does not make sense; participant has written too much or too little; there are multiple spelling and grammatical errors.	Writing is average and includes relevant information and content; it is somewhat convincing to an employer; there are minor spelling or grammatical errors.	Writing flows well, is clear, concise, and gets right to the point; it is convincing and contains no spelling or grammatical errors.	
			COVER LETTER SUBTOTAL (40 points)	

JOB-SPECIFIC RESUME (40 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Audience and Purpose (X1)	Resume does not address a particular audience; the purpose is not clearly stated; revision is needed.	Audience and purpose are generally implied; the resume is somewhat tailored to the employer.	Audience is clearly addressed and the resume is tailored to the employer; the purpose is clearly stated.	
Presentation and Format (X1)	Resume does not have a clear design format; headers are not used or are used incorrectly or inappropriately; resume does not use reverse chronological format.	Resume attempts (and partially succeeds) to use a reverse chronological format; headers are used for a somewhat professional and concise presentation.	Resume follows a reverse chronological format; it uses clear and appropriate headers to organize information; it has a professional appearance.	
Language and Style (X1)	Participant fails to use action words; phrasing is wordy and lacks focus.	Participant uses some action words and some concise and clear words in most of the resume.	Participant consistently uses strong, clear, and concise words throughout the resume.	
Overall Writing Quality and Grammar (X1)	Writing does not make sense; participant has written too much or too little; there are multiple spelling and grammatical errors.	Writing is average and includes relevant information and content; it is somewhat convincing to an employer; there are minor spelling or grammatical errors.	Writing flows well, is clear, concise, and gets right to the point; it is convincing and contains no spelling or grammatical errors.	
			JOB-SPECIFIC RESUME SUBTOTAL (40 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (80 points)

SEMIFINAL MOCK INTERVIEW (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	Participant is unorganized and unprepared for the interview; an illogical explanation of the career choice is presented.	Participant is generally prepared for the interview; an explanation of the career choice is somewhat communicated and organized.	Interview responses are clear, well organized, and easy to follow; the responses reflect knowledge of the career choice and are communicated in a concise manner.	
Knowledge (X2)	Participant seems to have little understanding of the concepts in the career choice; answers to questions may be vague.	Participant exhibits a general understanding of the career choice.	Participant shows clear evidence of a thorough understanding of the career choice.	
Delivery (X1)	Participant is verbose and/or uncertain in the interview; participant's posture, gestures, and lack of eye contact diminish the interview.	Participant is somewhat well-spoken and clear in the interview; participant's posture, gestures, and eye contact are acceptable in the interview.	Participant is well-spoken and clear in the interview; participant's posture, gestures, and eye contact result in a polished, natural, and effective interview.	

SEMIFINAL MOCK INTERVIEW (50 points) – continued				
Articulation (X1)	Communication is full of illogical thoughts that lack clarity, and/or there is insufficient information provided about the career choice; leadership and/or 21st century skills are not evident.	Communication is somewhat logical, easy-to-follow, and/or there is sufficient information provided describing the career choice; leadership and/or 21st century skills are somewhat evident.	Communication is clear and concise, and there is ample information provided about the career choice; leadership and/or 21st century skills are clearly evident.	
			SEMIFINAL MOCK INTERVIEW SUBTOTAL (50 points)	

Rules violations (a deduction of 20% of the total possible points in the semifinalist sections above) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
SEMIFINAL SUBTOTAL (50 points)	
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (130 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

CAREER PREP
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

1. Preliminary round, two (2) or more
2. Semifinal round, two (2) or more (preferably the same judges who reviewed the written entries)

C. Assistants, two (2)

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge
2. TSA Event Coordinator Report
3. List of judges/assistants
4. Results envelope with coordinator forms

B. Interview questions appropriate to the annual selection of technology-related careers

C. Stapler and staples

D. Tables and chairs for event coordinator, judges, and participants

RESPONSIBILITIES

PRE-CONFERENCE

A. National TSA will collect entries until 11:59 p.m. ET on a designated date in mid-May. The results are shared with the CRC manager, event coordinator, and assigned judges.

B. Review entries as they are submitted to the designated online storage utility.

C. Manage communication and pre-conference evaluation (at least two [2] or more judges should be recruited earlier in the year). Coordinate with the Judge Manager.

D. Judges determine the twelve (12) semifinalists and discuss and break any ties.

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, tables, chairs, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. On the first full day of the conference, post a list of the twelve (12) semifinalists in random order.

B. Create a sign-up sheet for semifinal mock interviews.

SEMIFINAL ROUND

A. Semifinalists report at the time and place stated in the conference program to sign-up for the mock interview.

B. Semifinalists report at the assigned time and place for the mock interview.

C. Manage the interviews.

D. Judges use the same official rating form for both the preliminary and semifinal round of judging.

E. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

1. To deduct twenty percent (20%) of the total possible points in this round
2. To disqualify the entry

The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

F. Judges determine the ten (10) finalists and discuss and break any ties.

G. Submit the finalist results and all related forms in the results envelope to the CRC room.

H. If necessary, manage security and the removal of materials from the event area.

CHALLENGING TECHNOLOGY ISSUES

OVERVIEW

Applying leadership and 21st century skills, participants collaborate to prepare and deliver a debate-style presentation with participants explaining opposing views of a current technology issue. The annual topics will be posted on the TSA website under *Themes & Problems*.

ELIGIBILITY

Three (3) teams of two (2) individuals per state may participate.

TIME LIMITS

A. Fifteen (15) minutes is allowed to prepare.

B. A minimum of two (2) minutes and a maximum of four (4) minutes is allowed to present.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRELIMINARY ROUND

A. Both members of the team must report at the time and place stated in the conference program to receive an assigned presentation time.

B. Both members must report with their materials to the preparation room at the assigned time.

C. Topic selection for each round::

1. The coordinator randomly draws one (1) topic from those posted on the TSA website under *Themes & Problems*
2. The topic is written on index cards and given to each team in the preparation room.
3. All teams in the round will be provided the same topic.

D. At the end of the fifteen (15)-minute preparation time, each team is escorted to the presentation room where the team presents opposing views of the selected issue.

E. A list of twelve (12) semifinalist teams (in random order) is posted.

SEMIFINAL ROUND

A. A representative from each semifinalist team reports at the time and place stated in the conference program to sign up for a presentation time.

B. Semifinalist teams report to the preparation room at their assigned time for the same procedure used in the preliminary round.

C. Ten (10) finalists are announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Participants report to the preparation room at the assigned presentation time.

B. Materials:

1. Team members may bring non-electronic reference materials for use while in the preparation room.
2. No other form of assistance is allowed.
3. Participants must provide their own pencils or pens for this event.
4. Participants may provide note cards, if desired.

C. Note cards:

1. Note cards may be used during the presentation.
2. The use of note cards may result in score deductions if they detract from the effectiveness of the presentation.

D. Event debate:

1. Using leadership and/or 21st century skills, the team presents on one (1) topic from the topics posted on the TSA website under *Themes & Problems*
2. Team may use first names ONLY and no other identifying information during their presentation.
3. One team member states the topic prior to the first speaker speaking in the presentation.
4. After stating the selected topic, the presentation time begins once a team member begins to speak.
5. Teams present opposing views of the selected issue in debate style.
6. Teams may use the following suggested format to present opposing views:
   - Introduction (pro) Introduction (con)
   - Position (pro) Position (con)
   - Conclusion (pro) Conclusion (con)
7. A timekeeper notifies a presenting team thirty (30) seconds before the end of the four (4)-minute time limit by holding up a "30-seconds remaining" card.
8. Time is called at four (4) minutes, at which time the presentation must stop. No overtime speaking is allowed.

SEMIFINAL ROUND

A. Participants report to the event area at the time and place stated in the conference program to receive an assigned debate time.

B. Participants report to the preparation room at the assigned time.

C. Preliminary round procedures are used for the semifinal round.

EVALUATION

A. The debate

Note: Scores are reset for the semifinal round and are not added to the preliminary scores.

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Lobbyist
- Management executive
- Motivational speaker
- Politician
- Public policy specialist

Participant/Team ID# _____

CHALLENGING TECHNOLOGY ISSUES

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ A team of two (2) individuals is present
☐ ENTRY NOT EVALUATED

PRO SIDE (70 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Introduction (X1)	Introduction does not show an attempt to get the attention of the audience, and/or it does not outline points clearly and distinctly.	Introduction shows an effort to grab the attention of the audience; previewing points are somewhat organized in a logical manner.	Introduction employs an attention-getter, clearly states the thesis, and previews main points of the issue.	
Organization (X1)	Ideas may not be focused or developed; the main purpose is not clear; there are no transitions.	The main idea is evident, and the organizational structure is generally strong; ideas are relevant and flow smoothly.	Ideas are clearly organized, developed, and supported, with smooth transitions.	
Topic Knowledge (X1)	Team does not have a grasp of the topic; inaccurate, generalized, or inappropriate support material is used; over dependence on notes is evident.	Team demonstrates a simple grasp of the topic; support material is stated; the team is at ease when it elaborates on the topic.	Team exhibits full knowledge and a clear grasp of the topic; support material is introduced and referenced accurately.	
Conclusion (X1)	Conclusion ends abruptly (no logical and/or organized conclusion is presented); it does not restate main points of the position.	Conclusion is somewhat engaging; it restates main points and wraps up the position on the topic.	Conclusion is engaging and restates main points of the topic in a comprehensive, competent, and articulate way, reinforcing the team's understanding of the subject; the position is well stated and closes with a connection to the introduction.	
Voice and Language (X1)	Vocabulary choice may be limited; speech is peppered with slang or jargon; voice is dull; language is questionable or inappropriate for the setting.	Presentation is respectful; language is appropriate for the setting and word choices are generally precise; voice is appropriate.	Language is appropriate for the setting and voice tone and pitch energize the presentation; vocabulary choices are vivid and precise.	
Delivery (X2)	Delivery detracts from the message; eye contact may be limited; presenters may tend to look at the floor, mumble, speak inaudibly, fidget, or read from cards; gestures and movements may be excessive.	Delivery is appealing, though some hesitancy may be observed; posture, eye contact, gestures, facial expressions, volume, pace, etc., do not detract from the message.	Delivery is natural, confident, and enhances the message; posture, eye contact, gestures, facial expressions, volume, pace, etc., indicate confidence.	
			PRO SIDE SUBTOTAL (70 points)	

CON SIDE (70 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Introduction (X1)	Introduction does not show an attempt to get the attention of the audience and/or does not outline points clearly and distinctly.	Introduction shows the effort to grab the attention of the audience; previewing points are somewhat organized in a logical manner.	Introduction employs an attention-getter, clearly states the thesis, and previews main points of the issue.	
Organization (X1)	Ideas may not be focused or developed; the main purpose is not clear; main points are difficult to identify; there are no transitions.	The main idea is evident, and the organizational structure is generally strong; ideas are relevant and flow smoothly.	Ideas are clearly organized, developed, and supported, with smooth transitions.	
Topic Knowledge (X1)	Team does not have a grasp of the topic; inaccurate, generalized, or inappropriate support material is used; over dependence on notes is evident.	Team has a simple grasp of the topic; support material is stated; the team is at ease when it elaborates on the topic.	Team exhibits full knowledge and a clear grasp of the topic; support material is introduced and referenced accurately.	
Conclusion (X1)	Conclusion ends abruptly (no logical and/or organized conclusion is presented); it does not restate main points of the position.	Conclusion is somewhat engaging; it restates main points and wraps up the position on the topic.	Conclusion is engaging and restates main points of the topic in a comprehensive, competent, and articulate way, reinforcing the team's understanding of the subject; the position is well stated and closes with a connection to the introduction.	
Voice and Language (X1)	Vocabulary choice may be limited; speech is peppered with slang or jargon; voice is dull; language is questionable or inappropriate for the setting.	Presentation is respectful; language is appropriate for the setting and word choices are generally precise; voice is appropriate.	Language is appropriate for the setting and voice tone and pitch energize the presentation; vocabulary choices are vivid and precise.	
Delivery (X2)	Delivery detracts from the message; eye contact may be limited; presenters may tend to look at the floor, mumble, speak inaudibly, fidget, or read from note cards; gestures and movements may be excessive.	Delivery is appealing, though some hesitancy may be observed; posture, eye contact, gestures, facial expressions, volume, pace, etc. do not detract from the message.	Delivery is natural, confident, and enhances the message; posture, eye contact, gestures, facial expressions, volume, pace, etc. indicate confidence.	
			CON SIDE SUBTOTAL (70 points)	

PARTICIPATION (10 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Team Member Participation (X1)	One team member does the majority of the speaking and/or debating on the topic; the other member seems disengaged from the presentation; leadership and/or 21st century skills are not evident.	Both team members are engaged in the debate, but one clearly takes the lead; the other member only replies to or refutes statements; leadership and/or 21st century skills are somewhat evident.	Both team members are actively involved in the presentation, debate, and rebuttals of the topic; shared responsibility is evident throughout; leadership and/or 21st century skills are clearly evident.	
			PARTICIPATION SUBTOTAL (10 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.	**TOTAL** (150 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

CHALLENGING TECHNOLOGY ISSUES EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

   1. Preliminary round, two (2) or more per heat
   2. Semifinal round, two (2) or more per heat

C. Assistants, two (2) per preparation room

D. Timekeeper, one (1) per presentation room

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Results envelope with coordinator forms
   5. List of participating teams
   6. A time sign-up sheet

B. Lined paper and 3" x 5" note cards

C. Stopwatch, one (1) per preparation room and one (1) for the presentation room per heat; one (1) set for the semifinal round

D. Written topic selections

E. A card with "30 seconds remaining" printed clearly, one (1) per presentation room

F. Tables and chairs for event coordinator, judges, and participants

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, etc. Notify the event manager of any potential problems.

E. One (1) hour before the event is scheduled to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRESENTATION TIME SIGN-UP

A. Check in the teams at the time stated in the conference program.

B. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

C. In order to compete, participants must be on the entry list or must have approval of the CRC.

D. Requirements for attire do NOT apply during check-in, only on the first day of the conference.

E. When the teams report to the event area:

   1. Assign times for their presentations. Times should be scheduled at ten (10)-minute intervals.
   2. Depending upon the number of entries, heats may be necessary to determine semifinalists.

PRELIMINARY ROUND

A. Preparation:

   1. After each team reports to the preparation room at the assigned time and participants have been seated, review the time limits and distribute paper and note cards.
   2. Present the team with the topic selected.
   3. Start the time and inform participants of the end of the preparation time.
   4. Seven (7) minutes after the first team enters the preparation room, the second team enters the preparation room, goes to a different section of the room, and begins its presentation preparation, again with fifteen (15) minutes allowed for preparation; and so on for all the teams.

5. Each team in turn is allowed to enter the presentation room at six (6)-minute intervals, thus enabling a constant flow of participants to speak before the evaluators in a timely fashion. (This allows for one [1] minute to enter the presentation room and announce the entry number, up to five [4] minutes for the presentation, and one [1] minute to exit the room.)
6. Monitor students during the preparation time and supply extra paper if needed.
7. At the end of the fifteen (15)-minute preparation time, collect the topic and escort the team to the presentation room.

B. Presentation:
   1. After the team is in position, introduce the team by entry number only. Please note that team members may use first names only and no other identifying information during their presentation.
   2. Judges tell the team to start, and timing the event begins.
   3. The timekeeper notifies the team thirty (30) seconds before the end of the four (4)-minute time limit by holding up a "30 seconds remaining" card.
   4. Time is called at four (4) minutes, at which point the speakers must stop.

C. Judges independently assess the entries.

D. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:
   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

E. Judges determine the twelve (12) semifinalists.

F. Submit the semifinalist results to the CRC room for posting.

G. Create a semifinalist sign-up sheet for final presentations.

SEMIFINAL ROUND

A. At least one (1) hour before the event begins, meet with judges/assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

B. Semifinalist teams report at the time and place stated in the conference program to sign up for a presentation time.

C. Oversee semifinalist presentations, following the same procedure used in the preliminary round.

D. Use the same official rating form for both the preliminary and semifinal rounds of evaluation.

E. Semifinalist scores are used independently and are not aggregated with the preliminary scores

F. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

G. Judges determine the ten (10) finalist teams and discuss and break any ties.

H. Submit the finalist results and all related forms in the results envelope to the CRC room.

I. If necessary, manage security and the removal of materials from the area.

CHAPTER TEAM

OVERVIEW

Participants take a written parliamentary procedures test in order to qualify for the semifinals. Applying leadership and 21st century skills, semifinalist teams are challenged to complete an opening ceremony, items of business, parliamentary actions, and a closing ceremony within a specified time period.

ELIGIBILITY

A. Participants are limited to one (1) team of six (6) individuals per chapter.

B. Team members do not have to be elected officers of the local chapter.

C. Teams that take the written test and advance to the semifinalist portion of the event must be comprised of the same six (6) members.

TIME LIMITS

PRELIMINARY ROUND

A. All teams are allowed one (1) hour to complete a written parliamentary procedures test.

SEMIFINAL ROUND

A. Teams have fifteen (15) minutes with no penalty, and up to seventeen (17) minutes with penalty (see Time over chart) to complete a presentation that incorporates the set-up time, items of business, and required parliamentary actions.

B. The time begins when the team is handed the event materials; the time ends when the gavel is rapped to close the meeting, or at seventeen (17) minutes (at that point all team members other than the secretary must leave the room). The secretary may then be taken to another room to complete the minutes.

C. The secretary has five (5) additional minutes to complete the minutes of the meeting.

D. Teams are penalized five (5) points per thirty (30) seconds for going over the allotted time, based on the following scale:

Time over fifteen (15) minutes	Penalty
15:01 to 15:30	five (5) points per evaluator
15:31 to 16:00	ten (10) points per evaluator
16:01 to 16:30	fifteen (15) points per evaluator
16:31 to 17:00	twenty (20) points per evaluator

ATTIRE

TSA competition attire is required. Note additional specific attire requirements for Chapter Team found in the General Rules and Regulations and on the TSA website.

PROCEDURE

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Participants report for the test at the time and place stated in the conference program.

B. A parliamentary procedures test is administered at the same time to all team members.

C. Twelve (12) teams with the highest averaged scores are selected as semifinalists for the oral presentation. A semifinalist list in random order is posted.

SEMIFINAL ROUND

A. A semifinalist team representative reports at the time and place stated in the conference program to sign up for an oral presentation time.

B. Semifinalist teams report at the assigned time and place for the oral presentation.

C. Each team follows the procedure for opening and closing a local chapter meeting:

1. A list of three (3) parliamentary actions are provided by the event coordinator and given to each team for the oral demonstration.

2. Each team then closes the meeting according to the prescribed procedure.
3. Concerning the reading of the TSA Creed by the secretary during the closing ceremony, a chapter has the option to recite the creed using one (1) or more of its team's members.
4. The secretary has five (5) additional minutes to complete the minutes of the meeting.
5. Ten (10) finalists are announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Participants are responsible for bringing two (2) sharpened No.2 pencils to the test site.
B. The test may be administered online or via a scan-type answer sheet.
C. Team members take the test individually.
    1. These same six (6) team members compete in the semifinal round of the event, should the team qualify.
    2. Teams consist of a president, vice president, secretary, treasurer, reporter, and sergeant-at-arms.
    3. Written materials, other than those provided by National TSA, may not be taken in the event room.

SEMIFINAL ROUND

A. Any team that fails to appear at the designated time is placed at the end of the list and allowed to participate at the discretion of the evaluators and event coordinator if time permits.
B. Materials provided to teams:
    1. A set consisting of secretary's minutes, copy of Chapter Team Official Minutes form for secretary's minutes, a treasurer's report, a copy of the TSA creed, and a list of parliamentary actions.
    2. Paper, six (6) pens, a calculator, and six (6) 3" x 5" note cards.
C. Optional materials: A timepiece and/or a non-programmable calculator may be used by a team.
D. Room setup:
    1. Officer symbols and gavel (only) are placed on a long table with the United States flag positioned to the right of the president's rostrum (if available) and the host state flag to the left.
    2. The president's rostrum (if available) should be centered between the two (2) flags.
    3. The symbols of the officers should be placed in front of the respective officers.
    4. The host state banners are optional and do not add to or subtract from a team's score.
E. The semifinal portion of the event includes:
    1. The call to order
    2. The pledge to the flag
    3. Roll call
    4. Order of business
    5. Closing ceremony
F. Semifinal time limits and rules:
    1. Teams have a time limit of fifteen (15) minutes to complete a presentation that incorporates the set-up time, items of business, and required parliamentary actions.
    2. Official timing will begin when the materials are given to the president and will stop at the team's final gavel to end the meeting.
    3. Five (5) points will be deducted for every thirty (30)-second interval over the allotted time (see TIME LIMITS).
    4. Bonus points will be awarded for additional motions and parliamentary actions by the officers, other than the president.
    5. At the conclusion of the oral presentation, each team secretary has five (5) minutes to write a copy of chapter minutes that will be submitted to an evaluator. The coordinator will begin timing the five (5) minutes when the secretary is seated at the area designated for writing of the minutes.

6. All materials given to team members, and the chapter minutes recorded during the presentation, must be handed to the evaluators before the team leaves the room.
7. No reference should be made to a team's school, chapter name, city, or state. Exception: The state name on a TSA patch is acceptable.

EVALUATION

PRELIMINARY ROUND

A. The team's average test score.

SEMIFINAL ROUND

A. The demonstration of a chapter business meeting

Refer to the official rating form for more information.

NOTES

There are a number of ways to learn about parliamentary procedure. The standard reference is *Robert's Rules of Order, Newly Revised*. Information about the latest edition of parliamentary procedure may be found online at robertsrules.com. Additional information may be found online at www.parliamentarians.org.

For writing proper minutes, also refer to *Robert's Rules of Order, Newly Revised*.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Parliamentarian
- Recording Clerk
- Government
- Lawyer
- Legal Aide

CHAPTER OPENING AND CLOSING CEREMONIES

OPENING CEREMONY

A. At the prescribed time for meetings, the president assumes his/her position behind the rostrum in the front center of the room.

B. Other officers are seated to the left and right of the president. They are seated in this order from stage left to right: vice president, treasurer, secretary, president, reporter, and sergeant-at-arms.

HOST STATE BANNER (OPTIONAL)

U.S. FLAG SGT.-AT-ARMS REPORTER PRESIDENT SECRETARY TREASURER VICE PRES. STATE FLAG

(OFFICERS FACING AUDIENCE)

AUDIENCE

President:	(raps gavel twice) The meeting will please come to order. Mr./Ms. Sergeant-at-Arms, are all the officers in their places?
Sergeant-at-Arms:	They are, Mr./Ms. President.
President:	(raps three [3] times for assembly to rise) Mr./Ms. Sergeant-at-Arms, please lead the assembly in the Pledge to the Flag of the United States of America.
Sergeant-at-Arms:	(leads Pledge to the Flag)
President:	(raps once and assembly is seated) Mr./Ms. Secretary, will you please call the roll.
Secretary:	Mr./Ms. Sergeant-at-Arms.
Sergeant-at-Arms	Present. The symbol of my office is the "hearty handshake" (officer points to symbol), and it is my responsibility to see that the assembly is comfortable and properly welcomed. It is also my duty to serve as doorkeeper for this organization.
Secretary:	Mr./Ms. Reporter.
Reporter:	Present. The symbol of my office is the beacon tower (officer points to symbol), and it is my duty to see that our school, community, and national association have a complete report of our organization's activities.
Secretary:	Mr./Ms. President.
President:	Present. The symbol of my office is the gavel (officer points to symbol). The duties vested in me by my office are to preside at all regular and special meetings of this organization and to promote cooperation in carrying out the activities and work of our organization. Mr./Ms. Secretary.
Secretary:	Present. The symbol of my office is the pen (officer points to symbol), and it is my responsibility to see that accurate and proper records are kept of all business and correspondence of this association. Mr./Ms. Treasurer.

Treasurer:	Present. The symbol of my office is a balanced budget (officer points to symbol), and it is the duty of my office to keep accurate records of all funds and see that our financial obligations are met promptly.
Secretary:	Mr./Ms. Vice-President.
Vice President:	Present. The symbol of my office is a star (officer points to symbol), and it is the duty of my office to see that we always have a strong membership, a good work program, and are alert to the welfare of our chapter.
Secretary:	Mr./Ms. President, all officers are present and in their place.
President:	Mr./Ms. Sergeant-at-Arms, do we have guests present?
Sergeant-at-Arms:	If so, introduce guest(s); if not, state the following: No, Mr./Ms. President.
President:	Mr./Ms. Secretary, we are ready to transact our business.

Teams dispose of the assigned business following the suggested order of business.

CLOSING CEREMONY

President:	(raps three [3] times; assembly rises) Mr./Ms. Secretary, will you please (read) or (lead us in) the TSA Creed.
Secretary:	(recites the TSA Creed; when presented at state and national competitions, the creed may be presented in some more original method.)
President:	Will the assembly repeat the TSA Motto after me. (Motto is spoken.) Does anyone know of any reason why this assembly should not adjourn? If not, I will entertain a motion to adjourn. (following motion to adjourn, a second, and a vote) I now declare this meeting adjourned until a special meeting is called or until our next regular meeting (raps once with gavel).

SUGGESTED ORDER OF BUSINESS FOR CHAPTER MEETINGS

1. The president calls the meeting to order with opening ceremonies.
2. Roll call is taken and a quorum is established.
3. The secretary reads the minutes of the preceding meeting. Any necessary corrections and/or additions are made and the minutes are approved as read or corrected.
4. The treasurer's report is received as read and placed on file, subject to audit.
5. The chairperson calls for committee and officer reports as necessary. If a committee has no report, let the committee so state.
6. Unfinished business is addressed.
7. New business is addressed.
8. The program, if any, is held. The chairperson presides with the assistance of the program chairperson or the committee chairperson.
9. Make announcements.
10. Adjournment with closing ceremonies.

CHAPTER TEAM OFFICIAL MINUTES

Team ID number_____

Date _____

Location of conference_____

Participants may use the back of this page, if necessary.

Secretary's signature _____ **Date** _____

Participant/Team ID# _____

CHAPTER TEAM

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Team is present for demonstration
☐ ENTRY NOT EVALUATED

TEAM TEST (10 points)						Record scores in the column spaces below.
Record the scores of the six (6) team members in the boxes below. Calculate the average of their scores. Divide the average by five (5) for the score that the team will receive out of ten (10) points. Record the score in the column space to the right.						
#1	#2	#3	#4	#5	#6	
				TEAM TEST SUBTOTAL (10 points)		
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____						
				PRELIMINARY SUBTOTAL (10 points)		

BUSINESS MEETING DEMONSTRATION (190 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
PREPARATION FOR MEETING (30 points)				
Official Attire/Poise (X2)	Appearance is untidy; grooming is lacking; clothing is not consistent in coloration and visual appearance; shoes are the wrong color; poise and confidence are missing.	Overall appearance is neat and consistent; grooming is good, and professional appearance is adequate.	Overall appearance is cohesive, polished, and business professional.	
Placement of Flags and Officer Symbols; Officer Seating (X1)	Flags are not placed in the correct order; and/or officer symbols are not in the correct order; and/or are not aligned properly on the table; and/or not all officers are seated in the proper arrangement, resulting in a sloppy and haphazard appearance.	Placements and seating are generally businesslike and professional, with some inconsistencies (e.g., flags are in the correct order but are not aligned with other aspects of the officer gear; and/or several of the symbols are in proper order but are some are misaligned; and/or officers are seated in the proper arrangement, but some chairs are misaligned, etc.).	Flags are completely aligned and in proper order and placement; officer gear is placed in the correct order and in proper alignment on the table; the seating arrangement is precise, businesslike, and professional.	

BUSINESS MEETING DEMONSTRATION (190 points) – continued				
KNOWLEDGE OF TSA (20 points)				
Opening Ceremony (X1)	Many items of sequence and order are incorrect; officers make several mistakes.	Officers make few, if any, sequence and order mistakes, resulting in a fairly smooth opening ceremony.	The opening is smooth and efficient.	
Closing Ceremony (X1)	Officers make several mistakes; the creed recitation is sloppy and the overall effort is unpolished.	Appropriate procedures are followed, with some mistakes made (e.g., creed recitation).	The closing is outstanding, with no mistakes; the presentation is highly polished.	
KNOWLEDGE OF PARLIAMENTARY PROCEDURE (140 points)				
Voting Procedures (X1)	Several significant mistakes are made in voting procedures.	Only a few mistakes are made in voting procedures.	All voting procedures are correct, smooth, and efficient.	
Debate (exclude president) (X3)	Only a few officers participate effectively in the debate, which is loosely presented.	Most officers participate in the debate process and are somewhat convincing.	All officers participate in and present a highly cohesive debate.	
Parliamentary Actions (X5)	Only one (1) of the required actions is completed correctly.	At least two (2) of the actions are completed correctly, with adequate effort.	All three (3) actions are completed correctly, with notable and inspiring effort.	
Communication (X2)	Communication is unclear; some mumbling occurs and/or voices are too loud or too soft; and/or problems occur with verbal expression (e.g., grammar, sentence structure).	Communication is generally clear, with appropriate volume of voices and only minor problems with articulation or verbal expression.	Communication is clear, concise, and easy to understand; voices are well modulated and speakers are articulate.	
Treasurer's Report (X1)	The report is incorrect or not complete; math and spelling errors are evident.	The report generally is correct and complete, with only one (1) or two (2) math or spelling errors.	The report is correct and complete, with no math or spelling errors.	
Chapter Minutes (X2)	The format of the minutes is incorrect or not complete; poor grammar and spelling errors are evident.	The format of the minutes is generally correct and complete, with few grammar and/or spelling errors.	The minutes are formatted correctly, are complete, and have no grammar or spelling errors.	
			BUSINESS MEETING DEMONSTRATION SUBTOTAL (190 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

SEMIFINAL SUBTOTAL (200 points)

TIME DEDUCTIONS (NO TEAM MAY GO BEYOND 17 MINUTES)

A five-(5) point deduction will be incurred for every thirty (30)-second interval over the allotted time. Multiply the number of intervals by five (5) and record the total deduction in the column to the right.

# of intervals X 5 = _____ (total deduction)

BONUS (20 points)				
For Additional Motions and Parliamentary Actions (by officers other than the president) (X2)	Only one (1) or two (2) of the additional actions is/are completed correctly; the effort is uninspiring.	Three (3) or four (4) of the actions are completed correctly.	All five (5) of the supplementary actions are completed correctly in an efficient and effective manner.	
			BONUS SUBTOTAL (20 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.	**TOTAL** (200 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

CHAPTER TEAM
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator
B. Judges, two (2) or more
C. Assistants, two (2) or more for the written test and two (2) or more for the oral presentations
D. Timekeeper

MATERIALS

A. Coordinator's packet, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Copies of parliamentary procedures test
   5. Opening and closing ceremonies script
   6. List of parliamentary actions; one (1) copy for each semifinalist team and copies for the judges.
   7. Copies of secretary's minutes
   8. Copies of treasurer's report
   9. Copies of the Chapter Team Official Minutes document
   10. Paper, six (6) pens, one (1) nonprogrammable calculator, and six (6) 3" x 5" note cards, per team
   11. Results envelope with coordinator forms
B. Coordinators are responsible for creating the test to be administered at the national conference; copies will be provided by the national TSA office.
C. Officer's symbols and gavel
D. United States flag
E. State flag (optional)
F. Stopwatches
G. Table rostrum, if available
H. One (1) long table or two (2) tables and six (6) chairs for team members
I. One (1) table and three (3) chairs for judges

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.
B. Report to the CRC room and check the contents of the coordinator's packet.
C. Review the event guidelines and check to see that enough personnel have been scheduled.
D. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, etc. Notify the event manager of any potential problems.
E. At least one (1) hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Begin the event at the scheduled time by closing the doors and checking the entry list.
B. All participants and evaluators should be in the room at this time.
C. Late participants and/or entries are considered on a case-by-case basis and only when lateness is caused by events beyond the participant's control.
D. In order to compete, participants must be on the entry list or must have approval of the CRC.
E. Administer the written test.
F. Determine individual and team scores.
G. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:
   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.
H. Submit semifinalist results to the CRC for posting.

SEMIFINAL ROUND

A. Check in semifinalists at the time stated in the conference program. Inform the teams of their order of performance and review the procedure to be followed.

B. When a team enters the oral performance room, the materials (secretary's minutes, copy of Chapter Team Official Minutes form for secretary's minutes, a treasurer's report, a copy of the TSA creed, and a list of parliamentary actions) are provided to the president. At this point, begin the allotted time.

C. The event coordinator or an assistant is responsible for introducing each team by entry number only when the previous team has finished its presentation.

D. Teams may take chapter paraphernalia (officer symbols and gavel only) into the performance room if desired, or they may use what is provided by the event coordinator.

E. Discuss rule violations (e.g. 20% deduction, disqualification) and have all relevant parties initial the rating form.

F. Judges determine the ten (10) finalists and discuss and break any ties.

G. Submit the finalist results and all related forms in the results envelope to the CRC room.

H. If necessary, manage security and the removal of materials from the area.

CHILDREN'S STORIES

OVERVIEW

Applying leadership and 21st century skills, participants create an illustrated children's story of high artistic, instructional, and social value. The narrative may be written in prose or poetry and take the form of a fable, adventure story, or other structure. The physical story book should be of high quality and designed to meet the annual theme, which will be posted on the TSA website under *Themes & Problems*.

ELIGIBILITY

Three (3) teams per state may participate; individual entries are permitted.

TIME LIMITS

SEMIFINAL ROUND

A. Twelve (12) minutes are allowed for the semifinal reading.

B. An additional five (5) minutes are allowed to answer questions.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the annual design challenge on the TSA website under *Themes & Problems*.

B. Participants concentrate their efforts in researching, writing, and illustrating children's books and literature, as well as the creation of storybooks similar to the annual design challenge (e.g., pop-ups, interactive books, etc.).

C. Participants develop and construct a high-quality children's storybook with illustrations.

D. Participants record the design process in a documentation portfolio.

E. Participants "field test" their storybook and document outcomes and findings.

PRELIMINARY ROUND

A. No more than two (2) team representatives report to the time and place stated in the conference program to check in:

   1. The storybook
   2. The documentation portfolio

B. Entries are reviewed by judges with neither students nor advisors present.

   1. Judges score the Storybook criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.
   2. Judges score the Documentation criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

C. A list of twelve (12) semifinalist teams (in random order) is posted.

SEMIFINAL ROUND

A. One (1) team representative reports to the event area at the time and place stated in the conference program to sign up for a reading and interview time.

B. No more than two (2) representatives report at the assigned time and place for the reading and interview.

   1. One representative is the team's reader, who reads the story to the judges.
   2. Both representatives participate in the interview process following the reading of the story. The interview process lasts up to five (5) minutes.

C. Judges score the reading and interview criteria.

D. No more than two (2) team representatives pick up the team's entry from the display area at the time and place stated in the conference program.

E. Ten (10) finalists are announced during the conference award ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Storybook:

1. Participants design and create an entirely original storybook, complete with narrative and illustrations to meet the annual design challenge.
2. The physical storybook should be of high quality, designed to meet the age group for which it is intended. For the purposes of this event, children are defined as those twelve (12) years or younger.
3. Together with the storybook, the narrative and accompanying illustrations should result in an experience that delights, enlightens, and contributes to the wholesome development of a child.
4. The storybook and narrative with accompanying illustrations should take no more than ten (10) minutes to read and view.
5. The physical storybook must not exceed 12" x 12" when closed.
6. There is no limit on the number of inside pages (may be one or two-sided).
7. The team must determine which format best presents the team's narrative and illustrations.
8. There must be a minimum of seven (7) illustrations that enhance the story and deepen the child's understanding and enjoyment of the reading experience.
    a. An illustration on the book's cover may count as one (1) of the required seven (7) illustrations. The team may use the cover illustration within the story as well
    b. All illustrations MUST be original, freehand, and/or computer-generated drawings made by the team member(s).
    c. All computer-generated work MUST be developed from primitive lines and shapes and be the sole work of the team members(s).
    d. Physical or computer templates, previously existing drawings, characters, backgrounds, etc., are NOT PERMITTED. The storybook may include the name of the author(s) and illustrator(s) on the cover. This inclusion of the name of the author(s) and illustrator(s) is an exception to the General Rules.
9. Copyrighted material is NOT PERMITTED.
10. The physical storybook must be the original work of the team members.
11. If narrative or illustrations appear in the story and they are not authored by one of the team members, the team will be disqualified.
12. The book must be designed, engineered, created, and bound together solely by the team; no professional binding is allowed.
13. Photographic verification of the book construction process must be included in the portfolio.
14. The story must be no more than fifteen hundred (1500) words.
    a. There will be a five (5)-point deduction for every hundred (100) words over the fifteen hundred (1500) word limit.
    b. Stories containing two thousand (2000) or more words will be disqualified.
    c. There is no minimum number of words required.
15. Publishing rights remain with the authors and illustrators.

B. Documentation Portfolio:

1. Documentation portfolio is required and must be secured in a clear front report cover with the following single-sided, 8½" x 11" pages, in this order:
    a. Title page with the title of the story, the event title, the conference city and state, the year, the team/individual chapter ID number, and the word count (number of words comprising the story's narrative); one (1) page

b. Table of contents; pages as needed
c. Purpose of story; one (1) page, to include:
    i. Story's intent
    ii. Summary of storyline and theme
    iii. Intended audience (age, gender, demographics, and special disabilities, if any)
    iv. Word count – Number of words comprising the story's narrative
d. Photographic verification of book construction and binding; pages as needed
e. Field Tests Summary. A "field test" is a reading of the storybook to a group of children in the intended target age range; pages as needed
    i. A minimum of two (2) field tests must be conducted.
    ii. Participants must document each field test with a summary paragraph that details the outcomes and findings.
    iii. Each summary paragraph must include the date, time, and location of the field test.
    iv. Each "field test" must be signed off by the chapter advisor.
f. Research summary: A written summary of the research, writing strategies, problems encountered, and solutions developed in the writing and illustrating of the story; one (1) page.
g. Project summary: A written summary of the research into the creation of storybooks similar to the annual design challenge (e.g., paper folding, interactive features in books). The summary must include the process and challenges the team encountered and the solutions developed in overcoming them; one (1) page.
h. A list of tools, software (if any), and techniques used in the creation of the physical storybook and illustrations; pages as needed.
i. References/research sources; one (1) page.
j. Work Log (see Forms Appendix); pages as needed
k. Photo/Film/Video Consent and Release Forms. If the entry contains images of people (minors require parental consent), proof of consent must be included (see Forms Appendix); pages as needed

PRELIMINARY ROUND

A. No more than two (2) team representatives drop off the storybook and documentation portfolio at the time and place stated in the conference program. **NOTE: The documentation portfolio and storybook must be submitted together, in order for the entry to be judged.**

EVALUATION

PRELIMINARY ROUND

Tier 1

A. The physical storybook

Tier 2

B. The documentation portfolio

SEMIFINAL ROUND

A. The reading
B. The interview

Refer to the official rating form for more information.

STEM INTEGRATION

Depending upon the subject of the story this event may align with one (1) or more of the STEM (Science, Technology, Engineering, and Mathematics) educational standards. Refer to the STEM Integration section of this guide for more information.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Writer
- Illustrator
- Educator
- Editor
- Publisher
- Graphic artist

Participant/Team ID# _____

CHILDREN'S STORIES

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ TIER 1 – Storybook is present

☐ TIER 2 – Documentation portfolio is present and the story is 1999 words or less (verified on cover page and in portfolio)

☐ ENTRY NOT EVALUATED

TIER 1 – STORYBOOK (130 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Story Narrative (X3)	Narrative is poorly written; there is little apparent purpose; it is lacking a coherent theme and storyline.	Narrative's purpose is clear, with a focused theme and storyline; the narrative has good pacing and development of characters and events.	Narrative is extremely well written with a clear purpose; storyline is fast paced and exciting; the details are rich and enchanting.	
Illustrations (X3)	Artisanship of the illustrations reflects little technical skill; illustrations add little value to the story's narrative, storyline, and/or theme.	Artisanship of most illustrations reflects good technical skill; illustrations add to the story's narrative, storyline, and theme.	Artisanship of illustrations is excellent, reflecting sophisticated technical skills; illustrations enhance the story's narrative, storyline, and theme, and they are of high esthetic quality.	
Book Construction and Concept (X3)	Book construction demonstrates little or no creativity or innovation; minimal consideration is given to basic design principles and book construction; book is poorly constructed or is not bound.	Construction of the book is of good quality and demonstrates some degree of creativity and innovation and an understanding of basic design principles; adequate choice of materials was used in its construction.	Book is designed with attention to detail; construction is of high quality and demonstrates a thorough understanding of design principles; an excellent choice of materials was used in the construction of the book.	
Impact (X3)	Story (narrative, with the illustrations) is lacking in purpose and coherence; it is not very interesting; it lacks artistic, and/or instructional, and/or social value.	Story (narrative, with the illustrations) reflects a purpose and incorporates artistic, instructional, and social value; it is somewhat compelling and entertaining.	Story (narrative, with the illustrations) is beautifully told; it is compelling, entertaining, purposeful, and it reflects high artistic, instructional, and social value.	
Theme (X1)	The annual theme is not addressed.	The annual theme is somewhat addressed but doesn't contribute to the effectiveness of the overall design.	The annual theme is addressed and contributes to the effectiveness of the overall design.	
			TIER 1 – STORYBOOK SUBTOTAL (130 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
TIER 1 – SUBTOTAL (130 points)	

TIER 2 – DOCUMENTATION PORTFOLIO (80 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
Purpose of Story (X1)	Story's intent, storyline, and theme are poorly explained and/or the intended audience is not identified.	Story's intent, storyline, theme, and intended audience are adequately explained.	Story's intent, storyline, theme, and intended audience are complete and well explained.	
Photographic Verification (X1)	Photographic verification is very unorganized or is missing.	Photographic verification is somewhat disorganized and is missing a few components; the process is somewhat outlined.	Photographic verification has all components and is well organized; the process is clearly outlined.	
Field Test Summaries (X1)	Summaries are poorly organized and/or incomplete.	Summaries are adequately detailed and organized and contains most of the required components, including a record of the field tests.	Summaries are well documented and contains all the required components, with special attention given to field tests.	
Research and Project Summary (X2)	Summary of the research, design, and writing process is poorly done and/or is incomplete.	Summary of the research, design, and writing process is generally clear and complete.	Summary of the research, design, and writing process is very well written, detailed, clear, and complete.	
Tools and Software (X1)	Lists are missing several components, and/or they are unorganized.	Most components are included; the lists are generally organized and complete.	All components are included and organized in the lists.	
Research Base (X1)	There are few references listed, and/or the references listed show little relevance to the project's goal; sources lack credibility.	There are a sufficient number of references listed, with some credible references.	Many credible and high-quality references are listed, reflecting research in writing and illustrating for children, and in child development.	
TIER 2 – DOCUMENTATION PORTFOLIO SUBTOTAL (80 points)				

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
Story length violation: For stories exceeding 1500 words, a deduction of 5 points will be incurred for every 100 words more than 1500 and up to 2000. Stories of 2000 words or greater will be disqualified. Example: 1600 – 1699 words, 5 points; 1700 – 1799 words, 10 points; 1800 – 1899 words, 15 points; 1900 – 1999 words, 20 points; 2000 words and above, disqualified.	

PRELIMINARY SUBTOTAL (210 points)	

SEMIFINAL READING AND INTERVIEW (30 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Story's Reading (X1)	Story's reading is lackluster; reader shows little enthusiasm; delivery is halting and difficult to understand; story is read too quickly to permit viewing of the illustrations.	Story's reading is generally good; reader's speech is clear and mostly well-paced and enthusiastic; sufficient time is given for reflection on the illustrations.	The story's reading is exemplary; the reading is clear, well paced, and enthusiastic; sufficient time is given to reflect upon and appreciate the illustrations.	
Knowledge (X1)	Participants seem to have little understanding of the concepts in their project; answers to questions may be vague.	Participants exhibit a general understanding of the concepts in their project.	Participant shows clear evidence of a thorough understanding of their project.	
Articulation (X1)	Communication of the design process is unclear, unorganized, and/or illogical; leadership and/or 21st century skills are not evident.	Communication of the design process is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the design process is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
SEMIFINAL READING AND INTERVIEW SUBTOTAL (30 points)				

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
SEMIFINAL SUBTOTAL (30 points)	
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (240 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

CHILDREN'S STORIES
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

1. Preliminary round, two (2) or more
2. Semifinal round, two (2) or more

C. Assistants for check-in, two (2)

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge
2. TSA Event Coordinator Report
3. List of judges/assistants
4. Stick-on labels for identifying entries
5. Results envelope with coordinator forms

B. Stopwatch

C. Display tables for entries (minimum width 18")

D. Table and chairs for judges and two (2) semifinalist team representatives.

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, tables, chairs, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is scheduled to begin, meet with the judges to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

EVENT CHECK-IN

A. Check in the entries at the time stated in the conference program.

B. Participants check in:

1. The storybook
2. The documentation portfolio

C. Each entry must include the participant's identification number in the upper right-hand corner of the entry.

D. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

E. In order to compete, participants must be on the entry list or must have approval of the CRC.

F. Requirements for attire do NOT apply during check-in, only on the first day of the conference.

G. Position the entries for evaluation and viewing.

H. Secure the entries in the designated area.

PRELIMINARY ROUND

A. Judges independently review the entries based on the following criteria:

Tier 1

1. Judges score the storybook criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.

Tier 2

2. Judges score the documentation criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

B. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

1. To deduct twenty percent (20%) of the total possible points in this round
2. To disqualify the entry

The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

C. Submit the semifinalist results and all related items/forms in the results envelope to the CRC room for posting.

D. Create a semifinalist sign-up sheet for each team's final presentation.

SEMIFINAL ROUND

A. Two (2) team representatives report to the event area at the time and place stated in the conference program to sign up for a reading and interview time.

B. Two (2) team representatives report at the assigned time and place for the seminal reading and interview.

C. Discuss rule violations (e.g. 20% deduction, disqualification) and have all relevant parties initial the rating form.

D. Manage the readings and interviews:

   1. The team's reader is given up to twelve (12) minutes to read the story to the judges.
   2. The other team member must be prepared to discuss illustrations included in the story.
   3. Both team members participate in the interview process (lasting up to five [5] minutes) following the reading of the story.

E. Judges score the reading and interview criteria.

F. Judges determine the ten (10) finalists and discuss and break any ties.

G. Submit the finalist results and all related forms in the results envelope to the CRC room.

H. If necessary, manage security and the removal of materials from the event area.

CODING

OVERVIEW

Participants demonstrate their knowledge of computer science and coding by taking a test. Applying leadership and 21st century skills, semifinalists participate in an on-site programming challenge. Specific requirements, such as the programming language, are posted on the TSA website under *Themes & Problems*. Completed solutions are objectively measured to determine the best and most effective solution for the stated problem.

ELIGIBILITY

One (1) team of two (2) individuals per chapter may participate.

TIME LIMITS

PRELIMINARY ROUND

A. One (1) hour is allowed for the test.

SEMIFINAL ROUND

A. Two (2) hours are allowed for the on-site challenge.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRELIMINARY ROUND

A. Participants report at the time and place stated in the conference program for the test.

B. Both team members take the test simultaneously.

C. A list of twelve (12) semifinalist teams (in random order) is posted.

SEMIFINAL ROUND

A. Participants bring their own computer systems to the event area at the time and place stated in the conference program.

B. Participants are given a problem, evaluation criteria, materials, and allotted two (2) hours for the design and construction of the solution.

C. Each solution is tested and presented to the judges as soon as completed.

D. Ten (10) finalists are announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Tests may be administered online or via a scan-type answer sheet. Please review the *Competition Updates* page on the TSA website.

B. Participants are responsible for bringing two (2) sharpened No.2 pencils to the test site.

C. Team members take the test individually.

D. Student identification numbers must be entered on the scan form in the space indicated.

E. Participants must stop work immediately when time is called.

F. Should a participant complete the test before the time allocated is over, the participant will submit the test and scantron form to the coordinator without any form of communication with any other member. Failure to do so results in disqualification of the participant.

G. All tests must be turned in before leaving the test area.

H. The average of the test scores of the two (2) team members determines team ranking.

SEMIFINAL ROUND

A. Participants respond to a design challenge consisting of a series of coding problems that must be completed on-site at the conference within a two (2)-hour time frame.

B. All work must be completed in the event area during the time specified for the event.

C. Participants are required to bring:
    1. One (1) laptop. Laptop must be fully charged with enough battery for the duration of the semifinal round.
    2. One (1) computer mouse (if desired).
    3. Pencils and/or pens.
    4. Notebook paper or copier paper.
    5. Portable power bank (if desired).
D. Participants do NOT have access to electrical power/outlets during the event.
E. Participants do NOT have access to the Internet during the event. The use of hot spots is not permitted.
F. Participants must have all software development tools needed for the competition downloaded and accessible on their computers.
G. All solutions must be tested, demonstrated and presented by participants in front of the judges.

EVALUATION

PRELIMINARY ROUND

A. Each team's averaged test score

SEMIFINAL ROUND

A. The solution to the on-site problem
    1. Each problem in the programming challenge will have an objective correct answer.

STEM INTEGRATION

Depending upon the subject of the problem, this event has connections to one (1) or more of the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Computer software engineer
- Mathematician

Participant/Team ID# _____

CODING

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Computer hardware is present

☐ ENTRY NOT EVALUATED

TEST (50 points)	
TEST SUBTOTAL (50 points)	
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
PRELIMINARY SUBTOTAL (50 points)	

ON-SITE PROBLEM – OBJECTIVE (80 points)					
Evaluation: The ranking will be determined based on the submission time of the solution(s) to the on-site problem.					
1st: 80 Points	**2nd:** 75 Points	**3rd:** 70 Points	**4th**: 65 Points	**5th:** 60 Points	
6th: 55 Points	**7th:** 50 Points	**8th:** 45 Points	**9th:** 40 Points	**10th:** 35 Points	
ON-SITE PROBLEM (OBJECTIVE) SUBTOTAL (80 points)					
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____					
SEMIFINAL SUBTOTAL (80 points)					

CODING

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.	**TOTAL** (130 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

CODING
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges, two (2) or more

C. Assistants, two (2) or more

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Results envelope with coordinator forms

B. Tables and chairs for participants

C. Tables and chairs for judges

D. Coordinators are responsible for creating the test to be administered at the national conference; hard copies will be provided by the national TSA office, if applicable.

E. Answer sheets (scan-type) and paper

F. Extra sharpened No.2 pencils

G. Twelve (12) copies of a well-written, technologically appropriate problem for each semifinalist team that can be objectively measured; one (1) copy per team

H. Adequate conditions, tools, materials, monitoring, and testing devices for the problem

I. Stopwatch or clock for timekeeper

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is to begin, meet with judges to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Prior to the conference, the event coordinator shall become familiar with the format of the exam (refer to the *Competition Updates* page of the TSA website).

B. Begin the event at the scheduled time by closing the doors and checking the entry list.

C. All participants and judges should be in the room at this time.

D. Late participants and/or entries are considered on a case-by-case basis and only when lateness is caused by events beyond the participant's control.

E. In order to compete, participants must be on the entry list or must have approval of the CRC.

F. Distribute any neccessary materials.

G. Monitor the one (1)-hour test.

H. Score the exams.

I. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

J. Judges determine the twelve (12) semifinalists and discuss and break any ties.

K. Submit semifinalist results and all related forms in the results envelope to the CRC room.

SEMIFINAL ROUND

A. At least one (1) hour before the event is scheduled to begin, meet with semifinalist judges to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

B. Check in the semifinalist teams and equipment. Teams must bring:

   1. One (1) laptop
   2. Extra charged laptop battery or extra charged laptop as backup (but only one laptop may be used at any time)
   3. One (1) computer mouse
   4. Teams may also bring pencils and paper.

C. Participants do NOT have access to electrical power/outlets during the event.

D. Participants do NOT have access to the Internet during the event.

E. Participants must have all software development tools needed for the competition downloaded and accessible on their computers.

F. Once teams are seated and general announcements have been given, distribute and review the problem and start the time.

G. All solutions must be tested, demonstrated and presented by participants in front of the judges. Judges and assistants observe, with judges evaluating solutions as soon as appropriate.

H. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

I. Judges determine the ten (10) finalists and discuss and break any ties.

J. Submit the finalist results and all related forms in the results envelope to the CRC room.

K. Manage security and the removal of materials from the area.

COMMUNITY SERVICE VIDEO

OVERVIEW

Applying leadership and 21st century skills, participants create and submit a video that depicts their local TSA chapter's involvement with a community service project (e.g., American Cancer Society) of their choice.

ELIGIBILITY

One (1) team per chapter may participate. Individual entries of one (1) are permitted.

TIME LIMITS

PRE-CONFERENCE

A. All components of the chapter's entry (community service video URL and documentation PDF) must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on a designated date in mid-May.

B. The video cannot exceed duration of more than two (2) minutes.

C. A deduction of five (5) points will be applied to videos exceeding the time limit.

D. There is no minimum length restriction.

E. The video will be timed from the first sound or picture to the final sound or picture.

SEMIFINAL ROUND

A. Ten (10) minutes are allowed for the semifinal presentation and interview broken down as follows:

   1. Seven (7) minutes for the presentation
   2. Three (3) minutes to respond to questions from judges

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Teams identify a community service project.

B. Teams prepare a video observing the requirements set forth under the Regulations and Requirements section of this event.

C. Participants submit the community service video URL and the documentation PDF by 11:59 pm EST on a designated date in mid-May.

D. Submission information will be provided on the TSA website under *Competition Updates*.

PRELIMINARY ROUND

A. A list of twelve (12) semifinalist teams (in random order) is posted on the first full day of conference.

SEMIFINAL ROUND

A. Semifinalist teams sign up for an interview time at the date and time noted in the conference program.

B. The semifinalist team or individual may report to the event area for the interview.

C. Semifinalist teams will have a chance to answer questions about their entry, the video's purpose, value, design, and development process.

D. Ten (10) finalists will be announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Participants may choose to submit their entry electronically via a HYPERLINK to the designated submission file as an UNLISTED YouTube URL of the video, or a shareable link in cloud storage. The video and required documentation must be located online and accessible for evaluation.

B. If a URL is provided, the URL must point directly to the participant's entry. Entries that require a software download or request that access be granted will not be judged.

C. Entries received, or changes made to submitted entries after the deadline will not be judged.

D. The year must be clearly illustrated at the beginning of the video.

E. This entry is exempt from General Rule D.9., which states that a chapter name must not appear in an entry.

F. All video footage, graphics, special effects, and audio clips must be originally created/filmed by the participants.

G. No commercial or copyrighted material may be used, regardless of copyright fair use policy.

H. Documentation:

1. Participants will submit documentation online via a single PDF file containing all of the requirements below. Documentation must be submitted as one PDF file (not multiple files). Combine the Student Copyright Checklist with all Photo/Film/Video Consent and Release Forms into one PDF file.
    a. Participants must complete the Student Copyright Checklist (see Forms Appendix) and save it as a PDF to be submitted electronically with the entry online; one (1) page
    b. Photo/Film/Video Consent and Release Forms. If the entry contains images of people (minors require parental consent), proof of consent must be included for each person in the video (see Forms Appendix); pages as needed

SEMIFINAL ROUND

A. One (1) team representative reports at the time and place stated in the conference program to sign-up for a presentation/interview time.

B. Semifinalist teams report at least ten (10) minutes prior to their assigned time to the designated place for their presentation/interview.

C. Semifinalist teams will have a chance to make a presentation and answer questions about their entry, the video's purpose, value, design, and development process.

D. Ten (10) minutes are allowed for the semifinal presentation and interview broken down as follows:

1. Seven (7) minutes for the presentation
2. Three (3) minutes to respond to questions from the judges

EVALUATION

PRELIMINARY ROUND

A. The video

SEMIFINAL ROUND

A. The presentation and interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Videographer
- Director
- Actor
- Screenplay writer
- Audiovisual technician

Participant/Team ID# _____

COMMUNITY SERVICE VIDEO

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Video entry was submitted
☐ Documentation PDF was submitted
☐ ENTRY NOT EVALUATED

VIDEO PRODUCTION (50 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Planning (X1)	Video shows little or no evidence of planning, analysis, or research.	Video shows good analysis of the project; concepts make sense.	Video shows a complete and insightful analysis; content is outlined properly.	
Camera (X1)	Problems are evident with camera focus, steadiness, and framing.	Camera work is clearly focused and framed; creative and close-up shots are somewhat used.	Steady and creative shots that enhance the video are evident in the camera work; there is good use of close-ups.	
Lighting (X1)	Poor ambient lighting choices and/or heavy back-lighting are evident.	Adequate lighting on subjects and proper lighting techniques are evident.	Excellent and creative use of lighting to propel the story emotionally is evident.	
Continuity and Pacing (X2)	Show sequencing in the video is incomprehensible; shots are left too long; edit points have glitches.	Pace and timing of the video are well structured; clips move along, telling the story; moderate use of transitions is evident.	Shots logically pace the story in an interesting way; excellent and purposeful use of transitions is evident.	
			VIDEO PRODUCTION SUBTOTAL (50 points)	

VIDEO EFFECTIVENESS (100 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Topic and Context (X3)	Video does not show clear evidence of where and when the event(s) happened and why.	Video shows where and when the event(s) happened and why they occurred.	Video shows where and when the event(s) happened, why they occurred, and what factors contributed to their development.	
Theme (X2)	The theme is not clear, or the project has a loose-fitting, vaguely stated connection.	Video conveys the theme and implies the connection.	Video shows a thorough understanding of the theme and clearly uses the theme as a basis throughout.	
Significance of Topic (X2)	Video shows little evidence of the significance/importance of the topic.	Video states the topic's significance adequately.	Video clearly states the significance of the topic.	
Creativity and Originality (X1)	Little original thought or creativity are evident in the design and production of the video.	Original thought and creative elements are expressed and generally highlighted in the video.	Originality and creativity are at the forefront of the video.	
Video Efficacy (X2)	The video does not meet project goals; an unclear, sloppy message is evident.	The video topic is presented with insights; viewer can see that the video adequately meets the objective.	The video is highly focused, with a rich variety of supporting material.	
			VIDEO EFFECTIVENESS SUBTOTAL (100 points)	

Rules violations (a deduction of 20% of the total possible points in the semifinalist section) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____

TIME DEDUCTION
Five (5) points is deducted for the video duration exceeding two (2) minutes. The video timing commences from the first sound or picture to the final sound or picture.

PRELIMINARY SUBTOTAL (150 points)

SEMIFINAL PRESENTATION/INTERVIEW (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Knowledge (X2)	Participants seem to have little understanding of the concepts in their project; answers to questions are vague.	Participants exhibit a general understanding of the concepts in their project.	Participants show clear evidence of a thorough understanding of the concepts in the project.	
Articulation (X2)	The presentation/interview is full of illogical thoughts that lack clarity, and/or there is insufficient information provided that describes the project.	The presentation/interview is somewhat logical, easy-to-follow, and/or there is sufficient information provided that describes the project.	The presentation/interview is clear, concise, and there is ample information provided that describes the project.	
Delivery (X1)	The team/individual is verbose and/or uncertain; participants' posture, gestures, and lack of eye contact diminish the interview.	The team/individual is somewhat well-spoken and clear; participants' posture, gestures, and eye contact are adequate.	The team/individual is well-spoken and distinct; participants' posture, gestures and eye contact result in a polished, natural, and effective interview.	
			SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (50 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
SEMIFINAL SUBTOTAL (50 points)	
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (200 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

COMMUNITY SERVICE VIDEO EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

1. Preliminary round, two (2) or more (judging takes place online).
2. Semifinalist round, two (2) or more (preferably the same judges as the preliminary round).

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge
2. TSA Event Coordinator Report
3. List of judges/assistants
4. One (1) stopwatch
5. Results envelope with coordinator forms

B. Table and chairs for judges

RESPONSIBILITIES

PRE-CONFERENCE

A. National TSA will collect entries until 11:59 p.m. EST on a designated date in mid-May. The results will be shared with the CRC manager, event coordinator, and assigned judges.

B. Review entries as they are submitted to the designated online storage utility.

C. Manage communication and pre-conference evaluation (at least two [2] or more judges should be recruited earlier in the year). Coordinate with the Judge Manager.

D. Collect completed rating forms electronically and bring them to the conference on a flash drive.

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is scheduled to begin, meet with judges to review time limits, procedures, regulations, evaluation, and all other details related to the event.

SEMIFINAL ROUND

A. At least one (1) hour before the event is scheduled to begin, meet with judges and review the time limits, procedures, and regulations.

B. Determine the procedure for breaking ties before the on-site competition begins.

C. Semifinalist teams report to the event area at the time and place noted in the conference program to sign up for an interview time.

D. Manage completion of the on-site interviews.

E. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

1. To deduct twenty percent (20%) of the total possible points in this round
2. To disqualify the entry

The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

F. Judges determine the ranking of the ten (10) finalists and discuss and break any ties.

G. Submit the finalist results and all related forms in the results envelope to the CRC room.

H. If necessary, manage security and the removal of materials from the event area.

COMPUTER-AIDED DESIGN (CAD) FOUNDATIONS

OVERVIEW

Applying leadership and 21st century skills, participants demonstrate their understanding of CAD fundamentals as they create a two-dimensional (2D) graphic representation of an engineering part or object. For example, participants may be given an isometric drawing and would be expected to generate the required 2D views, complete with dimensions.

ELIGIBILITY

Two (2) individuals per state may participate.

TIME LIMITS

A. Thirty (30) minutes to set-up.

B. Two (2) hours to develop the drawing(s).

C. One (1) hour for final evaluation process.

ATTIRE

TSA competition attire is required.

PROCEDURE

A. Participants bring their own computer systems to the event area at the time and place stated in the conference program.

B. Each participant, with one (1) assistant (an instructor, fellow student, or adult chaperone), is allowed thirty (30) minutes to set up and test equipment. At the end of the thirty (30)-minute set-up period, assistants are required to leave the area.

C. Participants are given a design problem to solve during a two (2)-hour work session.

D. Participants work independently, without assistance from judges, teachers, or fellow participants.

E. At the end of the session, participants save their work on their hard drives and back up saved work on a USB flash drive.

F. At the end of the session, participants will submit their final projects as a .PDF file on the USB flash drive. All USB flash drives become the property of TSA and will not be returned

G. Judges circulate to evaluate the entries and ask questions of the participants.

H. Participants shall reserve one (1) additional hour for the final evaluation process.

I. Participants report to the event area at the time and place stated by in the conference program to pick up their equipment.

J. The top ten (10) finalists are announced during the awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

A. Participants provide their own computer hardware:

1. Only one (1) CPU and one (1) monitor are allowed per student. Laptop computers are recommended.
2. Computers must be equipped with a USB port.
3. Computers must have the all software needed to complete the challenge installed prior to the start of the event.
4. Students may use online software, but National TSA WILL NOT provide internet access.
5. Students may opt to provide their own hotspots, but National TSA WILL NOT guarantee reception quality or functionality.
6. One blank USB flash drive labeled with the registered student identification number, for submission.
7. Power strip/surge protector
8. 20' extension cord
9. Reference materials, which must be printed resources; no online resources will be allowed.
10. Pencils
11. Printers are not necessary. Students may not bring printers.

B. Participants are provided with sketching paper and electricity.
C. Participants are advised to save their work onto their hard drives every fifteen (15) minutes.
D. Participants identify their work using only their student identification number.
E. Participants are not permitted to:
    1. Leave the event room without permission from the event coordinator. If a participant must use the restroom he/she is accompanied by an escort.
    2. Share solutions to problems, reference materials, hardware, or software.
F. Breakdown of equipment is permitted only after the work of all participants has been evaluated.

EVALUATION

A. A PDF of the design solutions submitted on a USB. Participants must be able to save their drawing as a PDF without assistance.

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Engineer
- Automobile designer
- CAD professional
- Machine designer

Participant/Team ID# _____

CAD FOUNDATIONS

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Computer hardware is present
☐ USB drive is present
☐ CAD Software is present
☐ ENTRY NOT EVALUATED

LAYOUT (70 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Geometry and Drawing Orientation (X2)	The correct views, constructive geometry, and orientation have not been selected or used throughout the drawing process and final layout.	Most of the views, constructive geometry, and orientation selected and used are correct and in the proper layout.	All of the views, constructive geometry, and orientation that have been selected and used are correct and in the proper layout.	
Line Conventions (X2)	Proper line types have not been used throughout the drawing process.	Most of the proper line conventions have been used, with one or two mistakes.	All of the correct line types are used in the correct locations.	
Dimensioning (X2)	Many of the necessary dimensions are missing or placed incorrectly.	Most of the required dimensions are included and placed correctly.	All of the necessary dimensions are included and correctly placed; this includes hole & thread notes (if applicable).	
Title Block (X1)	The title block is missing or is missing scale, title of drawing, student ID, or date.	The title block is present, but is missing either scale, title of drawing, student ID, or date.	The title block is present and contains all required elements: scale, title of drawing, student ID, and date.	
			LAYOUT SUBTOTAL (70 points)	

SOFTWARE UTILIZATION (30 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Application of Drawing Knowledge (X1)	There is little evidence that the student is able to read and interpret mechanical drawings.	There is some evidence that the student is able to read and interpret mechanical drawings.	There is overwhelming evidence that the student can read and interpret mechanical drawings.	
Use of CAD Features and Functions (X2)	There is little evidence of an understanding and application of CAD functions.	There is evidence of a general understanding and effective application of CAD functions.	A complete and effective understanding and application of CAD functions is evident.	
			SOFTWARE UTILIZATION SUBTOTAL (30 points)	

Rules violations (a deduction of 20% of the total possible points in the semifinalist sections above) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (100 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

COMPUTER-AIDED DESIGN (CAD) FOUNDATIONS EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator
B. Judges, two (2) or more
C. Assistants, one (1)

MATERIALS

A. Coordinator's packet, containing:
    1. Event guidelines, one (1) copy for the coordinator and for each judge
    2. TSA Event Coordinator Report
    3. List of judges/assistants
    4. Results envelope with coordinator forms
B. One (1) ream of 8½" x 11" white copier paper
C. Statement of problem as a hard-copy sketch; copies, as needed
D. Tables and chairs for event coordinator, judges, and participants
E. Access to AC electricity for each member.

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.
B. Report to the CRC room and check the contents of the coordinator's packet.
C. Review the event guidelines and check to see that enough personnel have been scheduled.
D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.
E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

ON-SITE CHALLENGE

A. Check the registration list and assign participants to work stations.
B. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.
C. In order to compete, participants must be on the entry list or must have approval of the CRC.
D. All participants and judges should be in the room at this time. Participants not present may be disqualified.
E. Allow thirty (30) minutes for participants and their assistants (no more than one [1] per participant) to set up equipment.
F. At the end of the thirty (30)-minute set-up time, non-participants are required to leave the event area.
G. Review the time limits, procedures, regulations, and protocol of the event with the participants.
H. Distribute copies of the CAD problem.
I. Remind participants to save their work at regular time intervals.
J. Answer any appropriate questions concerning the CAD problem.
K. Begin the event and announce the ending time.
L. Announce the time remaining to work at one (1) hour, thirty (30) minutes, fifteen (15) minutes, and five (5) minutes before time is called.
M. When time is called, participants stop, save their work on their hard drives, and back-up on their USB flash drives.
N. Each entry must include the student's identification number.
O. Participants are required to remain in the area while their entries are being judged, but may be asked to leave the room while judges discuss entries.
P. Judges circulate and evaluate entries as they are completed.

Q. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

R. Breakdown of equipment is permitted only after the work of ALL participants has been evaluated.

S. Judges determine the ten (10) finalists and discuss and break any ties.

T. Submit the finalist results and all related forms in the results envelope to the CRC room.

U. If necessary, manage security and the removal of materials from the event area.

CONSTRUCTION CHALLENGE

OVERVIEW

Applying leadership and 21st century skills, participants submit a scale model, display, and portfolio that documents the design idea, to fulfill an identified community need related to construction. Semifinalists demonstrate expertise in construction design through a presentation and an interview.

ELIGIBILITY

One (1) team of at least two (2) individuals per chapter may participate.

TIME LIMITS

PRELIMINARY ROUND

A. The project must have been in progress or completed during the current school year.

SEMIFINAL ROUND

A. Ten (10) minutes are allowed for the semifinal presentation and interview broken down as follows:
   1. Seven (7) minutes for the presentation
   2. Three (3) minutes to respond to questions from judges

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants identify a community need related to construction and conduct research.

B. Participants create a scale model/prototype, display, and documentation portfolio while observing the regulations.

PRELIMINARY ROUND

A. No more than two (2) team representatives report at the time and place stated in the conference program to check in:
   1. The scale model/prototype
   2. A display
   3. A documentation portfolio

B. Entries are reviewed by judges with neither students nor advisors present based on the following criteria:
   1. Judges score the Model/Prototype and Display criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.
   2. Judges score the Documentation criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

C. A list of twelve (12) semifinalist teams (in random order) is posted.

SEMIFINAL ROUND

A. A representative from each semifinalist team reports at the time and place stated in the conference program to schedule a presentation/interview time.

B. Two to four (2-4) representatives from each team report at the assigned time and place to participate in a brief presentation, discuss their chapter's community project, and respond to questions.

C. Participants pick up their entries from the display area at the time specified in the conference program.

D. Ten (10) finalists are announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. The chapter must address the impact of the construction project on the community. “Community” is defined as within an area near the school.

B. Chapters must be involved in the majority of stages of development of the project, from planning to construction (where appropriate), by experiencing as many facets of the undertaking as possible.

C. The history of long-term or ongoing projects that began in a previous year or that continue beyond the current school year may be included with the documentation, however, the scale model/prototype and portfolio must be based on current year activities.

D. Model/Prototype and Display:

   1. The materials that make up the scale model/prototype must be student-constructed and assembled.
   2. The display may occupy a space no more than 15" deep x 3' wide x 4' high.
   3. A/C electricity may not be used.
   4. If the display and/or model/prototype requires power, they must be powered by dry-cell batteries or photo-voltaic cells.
      a. The power supply must physically fit within the display dimensions.
      b. All power must be switched off once the team has completed set-up.
      c. If teams want judges to activate any electronic device in their model/prototype/display, complete instructions must be provided to judges on how to power up the model/display.
   5. If operating instructions are necessary, they must be clearly displayed and should include information about turning on devices, logging in, etc.

E. Once the display set-up time frame has closed, participants may not re-enter the event area.

F. Identifying information must not be placed on the scale model/prototype, display, or in the portfolio for the purpose of revealing the TSA chapter, however, the entry is excluded from General Rule D.9, and the chapter name or other identifying information may appear in the entry documentation portfolio but only in media clippings, photographs, etc.

G. Documentation Portfolio:

   1. Documentation portfolio is required and must be secured in a clear front report cover with the following single-sided, 8½" x 11" pages, in this order:
      a. Title page with the event title, the conference city and state, the year, and the team/chapter ID number; one (1) page
      b. Table of contents; pages as needed
      c. Work Log (see Forms Appendix); pages as needed
      d. Project journal, letters from community members that verify chapter involvement, pictures of the project, and other relevant materials that detail the project from inception to completion; pages as needed
      e. Photo time line of project photos (before, during, and after the project), with dates and team members involved; pages as needed
      f. Identification of community need and community impact through research provided on the community need for the project; pages as needed
      g. Strategies and recommendations of the team that address the community need; up to three (3) examples; pages as needed
      h. References must follow a professional citation style of the competitors choosing. Failure to use a professional citation style will result in a rules violation of 20% (twenty percent). Some examples of professional citation styles include MLA, APA, Chicago, and IEEE; pages as needed.

i. Photo/Film/Video Consent and Release Forms. If the entry contains images of people (minors require parental consent), proof of consent must be included for each person (see Forms Appendix); pages as needed

PRELIMINARY ROUND

A. No more than two (2) team representatives set up the entry and submit the portfolio for judging.

SEMIFINAL ROUND

A. Using leadership and/or 21st century skills, two to four (2-4) represenatives are allowed a maximum of ten (10) minutes to present and respond to interview question.

EVALUATION

PRELIMINARY ROUND

Tier 1

A. The model/prototype

B. The display

Tier 2

C. The documentation portfolio

SEMIFINAL ROUND

A. The presentation and interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Architect
- Community planner
- Construction manager
- General contractor
- Product designer

Participant/Team ID# _____

CONSTRUCTION CHALLENGE

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ TIER 1 – Model/prototype and display are present
☐ TIER 2 – Documentation portfolio is present
☐ ENTRY NOT EVALUATED

TIER 1 – MODEL/PROTOTYPE/DISPLAY (40 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Model/Prototype (X2)	Model/prototype is sloppy and does not represent the project.	Model/prototype has some design flaws, but it represents the project.	Model/prototype has a high quality of craftsmanship and clearly depicts the project.	
Display (X2)	Display is sloppy and does not represent the project.	Display has some design flaws, but it represents the project.	Display has a high quality of craftsmanship and clearly depicts the project.	
			TIER 1 – MODEL/PROTOTYPE/DISPLAY SUBTOTAL (40 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

TIER 1 – SUBTOTAL (40 points)	

TIER 2 – DOCUMENTATION PORTFOLIO (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Contents (X1)	Portfolio is unorganized and/or is missing three (3) components.	Portfolio is generally organized but is missing two (2) components.	Portfolio has all required components in order and is well organized.	
Work Log (X1)	Log is poorly organized and/or incomplete.	Log is adequately detailed, generally organized, and contains all the required components.	Log is well documented and contains all the required components.	

TIER 2 – DOCUMENTATION PORTFOLIO (60 points) – continued				
Project Journal (X1)	Little or no student involvement is evident in the project; work is unorganized and/or sloppy.	Community letters, photos, and/or news clippings documenting student involvement in the project are included in the portfolio.	A well-organized and thorough documentation of student involvement, from inception to completion of the project, is included in the portfolio.	
Photo Timeline (X1)	Photo timeline is sloppy and/or unorganized and hard to read and understand; key dates are missing.	Photo timeline is formatted in a somewhat organized manner and is generally easy to read/interpret; it includes most key dates.	Photo timeline has all key dates listed from inception to completion; the timeline is creative and organized.	
Identification of Community Need and Community Impact (X1)	Identification of the community need and impact lacks clarity; wordy, illogical, unorganized explanations are included.	Identification of the community need and impact is generally organized, with a mostly logical explanation and concisely written information.	Clear and concise identification of the community need and impact is evident, with a logical explanation related to the need.	
Strategies and Recommendations (X1)	Two (2) or fewer strategies/ recommendations are presented; they are not well-connected to the community need identification.	Two (2) or more strategies/ recommendations are presented; some are connected to the research collected.	Three (3) or more strategies/ recommendations are presented, all of which are connected to the research that was collected and analyzed.	
			TIER 2 – DOCUMENTATION PORTFOLIO SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (100 points)

SEMIFINAL PRESENTATION/INTERVIEW (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the presentation/ interview; an illogical explanation of the need and solution is presented.	Participants are generally prepared for the presentation/interview; an acceptable explanation of the need and solution are communicated.	Presentation/interview is logical, well organized, and easy to follow; the need and solution are communicated in an organized and concise manner.	
Knowledge (X2)	Participants seem to have little understanding of the concepts in their project; answers to questions may be vague.	Participants exhibit a general understanding of the concepts in their project.	Participants show clear evidence of a thorough understanding of the project.	
Articulation (X1)	Communication of the design process is unclear, unorganized, and or illogical; leadership and/or 21st century skills are not evident.	Communication of the design process is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the design process is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
Team Participation (X1)	The majority of the delivery is made by one member of the team; the partner(s) may be disengaged from the presentation/interview.	Team members generally are engaged in the presentation/ interview, though one (1) member may take on more responsibility than the other(s).	All team members are actively involved in the presentation/ interview and responses to questions; there is shared responsibility between team members.	

SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (50 points)	
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
SEMIFINAL SUBTOTAL (50 points)	
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (150 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

CONSTRUCTION CHALLENGE
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

1. Preliminary round, two (2) or more
2. Semifinal round, two (2) or more

C. Assistants:

1. Two (2) or more individuals assigned to check in, receive entries, and direct students to the display set-up area
2. One (1) individual assigned for security during the set-up time

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge
2. TSA Event Coordinator Report
3. List of judges/assistants
4. Stick-on labels for identifying entries
5. Results envelope with coordinator forms

B. Display tables for entries (needed at set-up time through pick-up time prior to the close of the conference)

C. Stopwatch to monitor semifinalist presentations and interviews

D. Tables and chairs for event coordinator and judges

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is scheduled to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

EVENT CHECK-IN

A. No more than two (2) team representatives check in:

1. The scale model/prototype
2. The display
3. The documentation portfolio

B. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

C. In order to compete, participants must be on the entry list or must have approval of the CRC.

D. Requirements for attire do NOT apply during check-in, only on the first day of the conference.

E. Secure the entries in the designated area.

PRELIMINARY ROUND

A. Judges independently review the entries based on the following criteria:

Tier 1

1. Judges score the model/prototype and display criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.

Tier 2

2. Judges score the documentation criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

B. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

1. To deduct twenty percent (20%) of the total possible points in this round
2. To disqualify the entry

The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

C. Submit semifinalist results and all related forms in the results envelope to the CRC room.

D. If necessary, manage security and the removal of materials from the event area.

SEMIFINAL ROUND

A. One (1) semifinalist team representative reports to the time and place stated in the conference program to sign-up for an interview time.

B. Two to four (2-4) team representatives report at the assigned time and place for the presentation/ interview.

C. Manage completion of the presentation/interviews.

D. Discuss rule violations (e.g. 20% deduction, disqualification) and have all relevant parties initial the rating form.

E. Judges determine the ten (10) finalists and discuss and break any ties.

F. Submit the finalist results and all related forms in the results envelope to the CRC room.

G. If necessary, manage security and the removal of materials from the event area.

H. Participants pick up their entries from the display area at the time specified in the conference program.

CYBERSECURITY

OVERVIEW

Participants complete a cybersecurity test covering general cybersecurity vocabulary and knowledge needed to execute tasks commonly performed by all levels of cybersecurity professionals. Applying leadership and 21st century skills, participants prepare a presentation addressing a specific cybersecurity issue and present to a group of hypothetical corporate board members (i.e., judges). Participants must explain the importance of cybersecurity and why it is essential that the organization invest in such measures. Participants will answer questions from the judges following the presentation. The problem statement will be posted on the TSA website under *Themes & Problems*.

ELIGIBILITY

Three (3) individuals per chapter may participate.

TIME LIMITS

A. One (1) hour to complete the test.

B. Five (5) minutes are allowed for the presentation and interview broken down as follows:

   1. Three (3) minutes for the presentation
   2. Two (2) minutes to respond to questions from judges

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the annual problem on the TSA website under *Themes & Problems*.

B. Participants prepare a presentation according to the regulations.

PRELIMINARY ROUND

A. Participants report at the time and place stated in the conference program for the test.

B. A list of twelve (12) semifinalists (in random order) is posted.

SEMFINAL ROUND

A. Participants report at the time and place stated in the conference program to schedule a time for the semifinal presentation.

B. Semifinalists report at the assigned time and place stated in the conference program for the presentation.

C. Semifinalists present their presentation to the judges and answer questions.

D. Ten (10) finalists are announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Participants take the test individually.

B. Tests may be administered online or via a scan-type answer sheet. Please review the *Competition Updates* page on the TSA website.

C. Scan-type forms are furnished by the event coordinator, if applicable.

D. Participants are responsible for brining two (2) sharpened No. 2 pencils to the test site.

E. Participant identification numbers must be entered on the scan form in the space indicated.

F. Failure to follow instructions will result in the score sheet not being scored.

G. Participants must stop work immediately when time is called.

H. Should the participant complete the test before the time allocated is over, the participant will submit the test and scantron form to the coordinator without any form of communication with any other members. Failure to do so results in disqualification of the participant.

I. All tests must be turned in before leaving the test area.

SEMIFINAL ROUND

A. The Presentation

1. Any participant that is late or fails to arrive to present at the designated time results in an automatic disqualification.
2. Participants enter this event with the current year's problem which can be found on the *Competition Updates* page on the TSA website.
3. No identifying information other than the participant's identification number and conference title and year are permitted.
4. Participants shall focus on the following in their presentation:
    a. Identify and explain the security problem.
    b. Explain how physical and digital security measures protect electronic information.
    c. Use real-world data metrics and situations to support the claim.
    d. Explain trade-offs when selecting and implementing cybersecurity recommendations.
5. Participants must use fictitious company names if needed for both the company in which the participant is "employed," as well as the fictitious company offering cybersecurity services. Real names may not be used.
6. Participants may use the presentation platform of their choice, such as PowerPoint, Prezi or Google Slides, however, audio may not be used.
    a. Participants need to provide their own laptop. AC power will not be provided.
    b. Each laptop device needs an HDMI connection or HDMI adapter.
7. The participant must orally present key points to the corporate board members.
8. No commercial or copyrighted material may be used.
9. Highlight your proposal with creative visual elements (e.g., graphics, photos, titles, transitions) to actively engage the audience. Participants may use images "labeled for reuse," but must properly cite the source (refer to the General Rules).
10. Photo/Film/Video Consent and Release Forms. If the entry contains images of people (minors require parental consent), proof of consent must be included for each person (see Forms Appendix).
11. Staple or paperclip the citation page (if necessary) and any Photo/Film/Video Consent and Release Forms (if necessary) together and present them to the corporate board members (judges) prior to the presentation.
12. Timing:
    a. Participants are allowed five (5) minutes for the presentation, broken down as follows:
    b. Three (3) minutes to present solution to the theme/problem
    c. Two (2) minutes to answer questions
    d. A timepiece may be used by the participants, if desired
    e. One (1) point per ten (10)-second interval is deducted for speaking over three (3) minutes. Time commences when the presenter begins speaking.

B. Judges score the presentation.

C. The top ten (10) finalists are announced at the TSA conference awards ceremony.

EVALUATION

PRELIMINARY ROUND

A. The test

SEMIFINAL ROUND

A. The presentation

Refer to the official rating form for more information

RESOURCES

A. Organizing a Visual Presentation—An overview of the steps involved in organizing a visual presentation: 2012books.lardbucket.org/books/successful-writing/s18-01-organizing-a-visual-presentati.html

B. Designing an Influential Presentation— Overview of how to tailor a presentation to influence an audience: blog.hubspot.com/marketing/persuasive-presentation

C. How to create a Google Slides presentation: support.google.com/docs/answer/2763168

D. Free Presentation Tools— A roundup of presentation tools that are free (or have a free level): guthriejensen.com/blog/free-presentation-tools

E. Making Videos from PowerPoint Presentations—Learn step-by-step how to create an HD YouTube video from a PowerPoint presentation and a companion audio recording: www.youtube.com/watch?v=aNkfZvjPHFE

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Information support & services
- Network systems
- Programming & software development
- Web & digital communications
- Technical support specialist
- Computer software engineer
- Cybersecurity engineer
- Cryptographer
- Cyber Crime Investigator
- Cyber defense incident responder
- Cyber forensics expert
- Cyber legal advisor
- Cyber operator
- Vulnerability assessor

Participant/Team ID# _____

CYBERSECURITY

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Participant is present for presentation/interview
☐ ENTRY NOT EVALUATED

TEST (50 points)	
TEST SUBTOTAL (50 points)	
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
PRELIMINARY SUBTOTAL (50 points)	

SEMIFINAL PRESENTATION/INTERVIEW (130 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
PRESENTATION/INTERVIEW (100 points)				
Identification and Explanation of Issue (X2)	Identification and explanation of the issue is unclear.	Issue is defined and explained appropriately, however, some points need clarification.	A clear and concise definition and explanation of the issue is evident.	
Explanation of Importance (X2)	There is little evidence of research; there is a lack of understanding of the issues cited.	There is some evidence of research; an adequate understanding of the issues is present.	Thorough research is clearly evident with a firm understanding of the issues established.	
Creativity, Aesthetics, and Artisanship (X1)	The presentation lacks creativity; the work is unorganized and sloppy.	Some visual elements of creativity exist in the work; presentation is generally organized in its explanation of the issue and the visual elements somewhat enhance the presentation.	The presentation exudes creativity; essential design principles and elements are well integrated; presentation logically communicates an important idea and is engaging.	

SEMIFINAL PRESENTATION/INTERVIEW (130 points) – continued				
PRESENTATION/INTERVIEW (100 points) – continued				
Articulation (X2)	Communication of the proposal is unclear, unorganized, and or illogical; leadership and/or 21st century skills are not evident.	Communication of the proposal is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the proposal is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
Overall Impact (X2)	The presentation does not detail or enhance the essential components of the participant's problem identification and proposal.	The presentation somewhat enhances the essential components of the participants problem identification and solution.	The presentation greatly details and enhances the essential components of the participant's problem identification and solution.	
Interview (X1)	Responses to questions are not clear and show evidence that the member is not knowledgeable of the subject.	Responses to questions are clear and organized and demonstrate knowledge of the subject.	Responses to the questions are highly clear and well organized and demonstrate high knowledge of the subject.	
STAGE PRESENCE (30 points)				
Delivery (X1)	Participant is verbose and/or uncertain in his/her presentation; participant's posture, gestures, and lack of eye contact diminish the presentation.	Participant is somewhat well-spoken and clear in his/her presentation; participants' posture, gestures, and eye contact are acceptable in the presentation.	Participant is well-spoken and distinct in its presentation; the participant's posture, gestures, and eye contact result in a polished, natural, and effective presentation.	
Appearance (X1)	Participant's appearance is unprofessional, sloppy, and/or inappropriate.	Participant's appearance is adequate and appropriate.	Participant's appearance is clearly exceptional, appropriate, and professional.	
Confidence (X1)	Participant appears nervous during the presentation; poor posture, poor eye contact, and lack of confidence are evident; participant reads the presentation from notes.	Participant is generally poised, displays eye contact, and is confident, with little sign of nervousness; participant reads from the presentation or notes for key points, but presents clearly.	Participant "commands" the room, and is exceptionally poised, confident, and positive; participant does not use rely heavily on the presentation or reference materials.	
			SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (130 points)	

TIME DEDUCTIONS		
One (1) point per ten (10)-second interval is deducted for speaking over three (3) minutes. Time commences when the competitor begins speaking.		
TOTAL TIME FOR PRESENTATION		
TIME DEDUCTION		
	TOTAL TIME DEDUCTIONS	

Record scores in the column spaces below.

SEMIFINAL SUBTOTAL (130 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL (180 points)**	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

CYBERSECURITY
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges, two (2) or more

C. Assistants for the set-up, monitoring, and clean-up of the preliminary and the semifinal rounds, two (2) or more

MATERIALS

A. Coordinator's packet, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants/proctors
   4. Results envelope with coordinator forms

B. Tables and chairs for participants

C. Tables and chairs for judges

D. Coordinators are responsible for creating the test to be administered at the national conference; copies will be provided by the national TSA office

E. Answer sheets (scan-type) and paper (if applicable)

F. Extra sharpened No.2 pencils (if applicable)

G. A projector (if available), and connections for both MAC and PC computers to project the presentation if desired.

H. Presentation screen or wall to project the presentation (if available)

I. Stopwatch or clock for the timekeeper

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is to begin, meet with judges to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Prior to the conference, the event coordinator shall become familiar with the format of the exam (refer to the *Competition Updates* of the TSA website).

B. Late participants and/or entries are considered on a case-by-case basis and only when lateness is caused by events beyond the participant's control.

C. In order to compete, participants must be on the entry list or must have approval of the CRC.

D. Should the test be administered via scan-type answer sheet, proceed with the following steps:
   1. Begin the event at the scheduled time by closing the doors and checking the entry list.
   2. All participants should be in the room at this time.
   3. Participants registered but not present shall be disqualified.
   4. In order to compete, participants must be on the entry list or must have approval of the CRC.
   5. Distribute the answer sheet (scan-type) and paper.
   6. Monitor the one (1)-hour test.
   7. Score the exams if needed.

E. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:
   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges and CRC manager must all initial either of these actions on the rating form.

F. Judges determine the twelve (12) semifinalists and discuss and break any ties.

G. Submit the finalist results and all related forms in the results envelope to the CRC room.

SEMIFINAL ROUND

A. Semifinalists report at the time and place stated in the conference program to sign up for a presentation time.

B. Semifinalists report at the assigned time and place for the on-site challenge with:
   1. One (1) laptop, or other presentation hardware (e.g. iPad)

C. Participants do NOT have access to electrical power/ outlets during the event.

D. Participants can have access to the Internet during the event.

E. Participants must have the presentation downloaded and accessible on their computers.

F. Participants may project their presentation via the projector (if available).

G. Participants are given eight (8) minutes to present, broken down as follows:
   1. Two (2) minutes to set up
   2. Three (3) minutes for the presentation
   3. Two (2) minutes to respond to questions
   4. One (1) minute to clear material

H. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

I. Judges determine the ten (10) finalists and discuss and break any ties.

J. Submit the finalist results and all related forms in the results envelope to the CRC room.

K. Manage security and the removal of materials from the area.

DATA SCIENCE AND ANALYTICS

OVERVIEW

Data science is a broad term for implementing a variety of methods to find connections between data to gain insightful knowledge about a particular issue. Data analytics is an even more focused way of sorting through collected data to make predictions.

Applying leadership and 21st century skills, participants conduct research on the annual topic posted on the TSA website under *Themes & Problems*, document their research in a supporting portfolio and create a display. Semifinalist teams participate in a timed, on-site challenge in which they must review specific data sets, provide insights, make predictions, and present their findings.

ELIGIBILITY

Three (3) teams of two to three (2-3) individuals per state are permitted.

TIME LIMITS

SEMIFINAL ROUND

A. Thirty (30) minutes are allowed for data analysis and synthesis.

B. Five (5) minutes are allowed to present.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the annual topic on the TSA website under *Themes & Problems*.

B. Participants research the issue using credible resources, analyze the data, and draw conclusions.

C. Participants prepare their documentation and display according to the regulations.

PRELIMINARY ROUND

A. Participants report at the time and place stated in the conference program to:

   1. Set up the static entry display
   2. Submit the documentation portfolio

B. Entries are reviewed by judges and based on the following criteria:

   1. Judges score the display criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.
   2. Judges score the documentation criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

C. A list of twelve (12) semifinalist teams (in random order) is posted.

SEMIFINAL ROUND

A. A representative from each semifinalist team reports at the time and place stated in the conference program to schedule a time for the on-site challenge.

B. Semifinalist teams report at the assigned time and place stated in the conference program for the on-site challenge.

C. Semifinalist teams are allowed thirty (30) minutes to review the data set in the holding room.

D. Late participants will not receive extra time to analyze the data.

E. After thirty (30) minutes has elapsed, semifinalists are given no more than five (5) minutes to present their analysis to the judges.

F. Teams pick up their entry from the display area at the time and place stated in the conference program.

G. Ten (10) finalists are announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Participants must understand the fundamental concepts and principles of the contemporary issue researched. Research about the issue shall focus on:

   1. Analysis of the collected data.

2. Representation of that data in statistical graphs.
3. Synthesis of the collected data in terms of factors influencing the issue, societal impacts, and ethical considerations.

B. Display:

1. The display shall include, at a minimum, the following major key points:
   a. The team identification number and the event name in the upper-right hand corner of the display. No other identifying information shall be included.
   b. The definition and explanation of the issue.
   c. An explanation of the importance of the issue including problems, impact, and possible solutions or recommendations (if applicable).
   d. Emphasis shall be placed on the graphs, which should depict not only the issue, but any causational factors.
2. Highlight your display with creative visual elements (e.g., photos, titles) to actively engage the audience. Participants may use images "labeled for reuse," but must properly cite the source(s) on the display (refer to the General Rules).
3. No commercial or copyrighted material may be used. If the entry contains images of people, proof of consent must be provided for each person in the presentation.
   a. Minors require parental consent
   b. Use the Photo/Film/Video Consent and Release form (see Forms Appendix) for any individuals included in the presentation.
   c. Participants must attach the consent forms within the documentation portfolio
4. May be three-dimensional as long as it does not exceed the size limitations of 15" deep x 3' wide x 4' high
5. Any digital display (e.g. iPad) must fit within the allotted display space. All power must be switched off once the team has completed set-up. If teams want judges to activate any electronic device in their display, complete instructions must be clearly displayed and should include information about turning on devices, logging in, etc.
6. A/C electricity may not be used.
7. If the display requires power, it must be powered by dry-cell batteries or photo-voltaic cells.
8. Any power source used must fit within the display dimensions.
9. No viruses, live plants, or animals may be used as a part of the display.
10. No harmful or illegal substances may be displayed.
11. Once the display set-up time frame has closed, participants may not re-enter the event area.

C. Documentation Portfolio:

1. The documentation portfolio shall include all supporting material such as research notes, links to articles, sketches, illustrations, etc.
2. Documentation portfolio is required and must be secured in a clear front report cover with the following single-sided, 8½" x 11" pages, in this order:
   a. Title page that includes the event title, the conference city and state, the year, and the team/chapter ID number; one (1) page
   b. Table of contents; pages as needed
   c. Supporting materials; maximum of ten (10) pages
   d. A summary of the issue, one (1) page
   e. Analysis of the data collected; pages as needed
   f. A summary of findings and recommendation, one (1) page
   g. A list of references and credible resources; a minimum of three (3) different types of resources must be used; pages as needed
   h. Work Log (see Forms Appendix); pages as needed
   i. Photo/Film/Video Consent and Release Forms. If the entry contains images of people on the display or in the documentation portfolio (minors require parental consent), proof of consent must be included for each person (see Forms Appendix); pages as needed

SEMIFINAL ROUND

A. The on-site challenge must include all team members.

B. Participants report at the assigned time and place stated in the conference program and are ushered into the holding room.

C. Once in the holding room participants are given the data set and have thirty (30) minutes to analyze the data and draw conclusions.

D. Data will be provided to participants as a .csv file and be given to participants on a USB drive to transfer to their personal devices for analysis.

E. Participants are permitted to present for up to five (5) minutes on their analysis, conclusions, and/or recommendations.

F. Participants are permitted to:

1. Use their laptops, including Microsoft Excel or a similar tool, to conduct their research during this time, however, Internet will not be provided. AC electricity will not be provided to participants; laptops must be charged and be able to run for the entirety of the event.
2. Take notes on the index cards (to be provided by TSA)
3. Reference their notes during the on-site challenge presentation to the judges

G. Participants are NOT permitted to:

1. Use their phones during the presentation to the judges
2. Contact outside sources for assistance while in the holding room.

EVALUATION

PRELIMINARY ROUND

Tier 1

A. The display

Tier 2

B. The documentation portfolio

SEMIFINAL ROUND

A. Analysis of the on-site challenge

B. The presentation

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Data scientist
- Data analyst
- Actuary
- Economist
- Epidemiologist
- Forensic accountant
- Market researcher
- Meteorologist
- Operations research analyst
- Quality engineer

Participant/Team ID# _____

DATA SCIENCE & ANALYTICS

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ TIER 1 – Display is present
☐ TIER 2 – Documentation portfolio is present
☐ ENTRY NOT EVALUATED

TIER 1 – DISPLAY (80 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Explanation of Impacts (X1)	Explanation is missing a discussion of the issue's relevance to environmental, economic, social, and/or ethical considerations.	Explanation addresses some of the issues relevant to environmental, economic, social, and/or ethical considerations.	Explanation includes a full discussion of the issue's relevance to environmental, economic, social, and/or ethical considerations.	
Data Charts and Graphs (X2)	The data is not represented in charts and graphs.	The data is represented in charts and graphs and somewhat supports the analysis of the team.	The data is represented in charts and graphs and supports the analysis of the team.	
Communication of Issue (X2)	It is difficult to understand the issue being communicated in the display; display organization does not aid in conveying the points.	The issue is somewhat communicated by the data presented, imagery, and organization of the display.	The issue is communicated in an organized, clear, and concise manner through effective use of imagery and the display organization.	
Creativity (X2)	The display lacks creativity; no, or very few, design principles are integrated in the display.	Some elements of creativity exist in the display, and essential design principles are generally evident.	The display exudes creativity; essential design principles and elements are well integrated.	
Aesthetics and Artisanship (X1)	Work is unorganized and sloppy; display seems to be an afterthought or thrown together.	Display shows an organized presentation of the issue; design and layout considerations are evident in some aspects.	Display is exemplary in logically communicating important data; design and aesthetics are considered and add to the effectiveness of the display.	
			TIER 1 – DISPLAY SUBTOTAL (80 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

TIER 1 – SUBTOTAL (80 points)

TIER 2 – DOCUMENTATION PORTFOLIO (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
Support Materials (X2)	Support materials do not help clarify the documentation or are of little significance to the issue.	Support materials are appropriate and help supplement documentation by providing clarity to the issue.	Support materials are of excellent quality; if not original, they are cited; support materials clarify the issue.	
Research Base (X2)	Research is inadequate, and/or very few credible sources are referenced.	Research has been conducted appropriately, with some credible sources included.	Research indicates evidence of a comprehensive assortment of materials that are credible sources.	
Quality, Effectiveness, and Mechanics (X1)	Portfolio appears to have been thrown together; distracting errors in punctuation, grammar, and spelling are evident in the documentation.	Portfolio is generally organized; punctuation, grammar, and spelling are generally correct, with few errors.	Work is of exceptional quality and well organized; punctuation, grammar, and spelling are correct, with no errors.	
			TIER 2 – DOCUMENTATION PORTFOLIO SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (140 points)	

SEMIFINAL PRESENTATION (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Articulation (X2)	The analysis is full of illogical thoughts that lack clarity, and/or there is insufficient supporting information provided; leadership and/or 21st century skills are not evident.	The analysis is somewhat logical, generally easy to follow, and/or there is sufficient supporting information provided; leadership and/or 21st century skills are somewhat evident.	The analysis is clear, concise, and there is ample supporting information provided; leadership and/or 21st century skills are clearly evident.	
Knowledge (X2)	Participants seem to have little understanding of the concepts in their analysis; responses to questions may be vague.	Participants exhibit a general understanding of the concepts in their analysis.	Participants show clear evidence of a thorough understanding of data analysis; the analysis is accurate and supported by evidence.	
Delivery (X1)	The team is verbose and/or uncertain in their analysis; the participants' posture, gestures, and lack of eye contact diminish the delivery; participants rely too heavily on the notes.	The team is somewhat well-spoken and clear in their analysis; participants' posture, gestures, and eye contact result in an acceptable delivery; participants rely on the notes	The team is well-spoken and distinct in its presentation; participants' posture, gestures, and eye contact result in a polished, natural, and effective delivery.	
Team Participation (X1)	The majority of the presentation is made by one member of the team; the partner(s) may be disengaged.	Team members are generally engaged in the process, though one member may take on more responsibility than the other(s).	All team members are actively involved in the presentation.	

SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (60 points)	
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
SEMIFINAL SUBTOTAL (60 points)	
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (200 points)	

Comments:

_____

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

DATA SCIENCE AND ANALYTICS EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

1. Preliminary round, two (2) or more
2. Semifinal round, two (2) or more

C. Assistant, one (1)

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge
2. USB containing .csv for semi finalists
3. TSA Event Coordinator Report
4. List of judges/assistants
5. Stick-on labels for identifying entries
6. Results envelope with coordinator forms
7. Notecards (any size)
8. Pencils/pens

B. Measuring tape for judges

C. Display tables for entries

D. Table and chairs for event coordinator and judges

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough judges have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, tables, chairs, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

EVENT CHECK-IN

A. Check in the entries at the time stated in the conference program. Participants:

1. Set up the static entry display
2. Submit the documentation portfolio

B. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

C. In order to compete, participants must be on the entry list or must have CRC approval.

D. Requirements for attire do NOT apply during check-in, only on the first day of the conference.

E. Each entry must include the team's identification number in the upper right-hand corner of the entry.

F. Instruct participants to position the entries for viewing.

G. Secure the entries in the designated area.

PRELIMINARY ROUND

A. Entries are reviewed by judges based on the following criteria:

Tier 1

1. Judges score the display criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.

Tier 2

2. Judges score the documentation portfolio criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

B. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

1. To deduct twenty percent (20%) of the total possible points in this round
2. To disqualify the entry

The event coordinator, judges and CRC manager must all initial either of these actions on the rating form.

C. Judges determine the twelve (12) semifinalists.

D. Submit the finalist results and all required forms in the results envelope to the CRC room.

SEMIFINAL ROUND

A. A representative from each semifinalist team reports to the time and place stated in the conference program to sign-up for the on-site challenge.

B. Semifinalist teams report at the assigned time and place stated in the conference program for the on-site challenge.

C. Semifinalist teams are allowed thirty (30) minutes to review the data set in the holding room.

D. Semifinalists are permitted to:

   1. Use their phones to conduct their research in the holding room, however, Internet will not be provided
   2. Take notes on the index cards (to be provided by TSA)
   3. Reference their notes during the on-site challenge presentation to the judges

E. Semifinalists are not permitted to:

   1. Use their phones during the on-site challenge presentation to the judges
   2. Contact outside sources for assistance while in the holding room

F. After thirty (30) minutes has elapsed, semifinalists are given no more than five (5) minutes to present their analysis to the judges.

G. While the team is presenting, the assistant ushers the next team into the holding room. Repeat this step until all the semifinalists have had the chance to present.

H. Judges use the same official rating form for both the preliminary and semifinal round of evaluation.

I. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

J. Judges determine the ten (10) finalists and discuss and break any ties.

K. Submit the finalist results and all required forms in the results envelope to the CRC room.

L. If necessary, manage security and the removal of materials from the event area.

DIGITAL PHOTOGRAPHY

OVERVIEW

Applying leadership and 21st century skills, participants produce a digital photographic portfolio that represents or relates to a chosen theme posted on the TSA website under *Themes & Problems*. Semifinalists demonstrate competency in the production of a series of digital photographs taken at the conference site within the time limit specified and complete a presentation/interview.

ELIGIBILITY

Three (3) individuals per state may participate.

TIME LIMITS

PRELIMINARY ROUND

A. All components of the individual's entry (digital photographic portfolio PDF) must be finished, submitted, and accessible via the Internet by 11:59 p.m. ET on a designated date in mid-May.

SEMIFINAL ROUND

A. One-half (½) hour is allowed to set up equipment and receive the on-site challenge and procedures.

B. Two (2) hours are allowed to complete the on-site challenge.

C. The presentation/interview will be three (3) minutes with two (2) minutes for the presentation and one (1) minute for the interview.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants review the annual theme posted on the TSA website under *Themes & Problems*.

B. Participants produce a digital photographic portfolio while observing the regulations.

C. Participants submit the digital photographic portfolio PDF by 11:59 p.m. ET on a designated date in mid-May.

D. Submission information will be provided on TSA website under *Competition Updates*.

PRELIMINARY ROUND

A. A list of twelve (12) semifinalists (in random order) is posted on the first full day of conference.

SEMIFINAL ROUND

A. Participants report at the time and place stated in the conference program for the on-site challenge with all of the required equipment and software noted in the Regulations and Requirements section.

B. Participants are allowed one-half (½) hour to set up and test their equipment.

C. At the end of the set-up time, the event coordinator presents the on-site challenge and related procedure to the semifinalists.

D. The challenge involves students taking photographs addressing a specific theme, or documenting a current aspect of the conference, such as a competitive event, a special focus of the site, a general session, etc.

E. Participants are responsible for supplying USB flash drives for the on-site challenge.

F. Semifinalists are given two (2) hours to complete the challenge, including taking their pictures, and editing or enhancing them. Editing must take place in the event room.

G. The semifinalists save the final photos in a multimedia presentation on the USB flash drives, which will become property of TSA.

H. The participant signs up for a presentation/interview time once the two (2) hours has concluded.

I. Participants report at the assigned time and place stated in the conference program for the presentation/interview.

J. Judges assess the entries and the interview responses.

K. The top ten (10) finalists are announced at the awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Photographs included in the portfolio must be unified.

B. Participants are solely responsible for all aspects of the competition, including taking the photographs, editing, and completing the portfolio.

C. Digital Photographic Portfolio:

1. The digital photographic portfolio must be submitted as a multi-page PDF document with pages in this order:
    a. Cover page – must include the event title, the conference city and state, the year, and the participant's ID number; one (1) page.
    b. Summary of the theme – must follow the annual challenge, including a detailed description of how the theme was interpreted by the participant, why the particular subjects were chosen, as well as the challenges that were faced in the selection of the subjects, in taking the photos, and in selecting and editing the final images; pages as needed.
    c. Photos:
        i. Submission: the original photo and the edited version should appear together on the same page and must be labeled "ORIGINAL" and "EDITED."
        ii. On the same page or on the page immediately following the Original and Edited photos should be a description of the two photos. The description should include the photo's meta data (camera make/model, f/stop, exposure time, ISO speed, focal length) and include a synopsis of how the original photo was edited/changed, and how the theme is addressed by both the style and content of the edited photo.
        iii. Enhancements and/or editing should be done ethically and in a way that makes a better photograph.
        iv. The order of the photos in the portfolio should be as follows: Original photo and edited photo on the same page, description on the same or following page, then repeat for the remaining photos.
    d. Resource page – must include a list of resources used to complete the portfolio, including camera, software, hardware, etc. Students must also cite any external resources used, if applicable. These resources must be cited using a professional citation style of the competitors choosing. Some examples of professional citation styles include MLA, APA, Chicago, and IEEE; pages as needed
    e. Consent and Release Forms – Recognizable individuals pictured in the images must give their written consent before the images can be used in this event (see Photo/Film/Video Consent and Release form in Forms Appendix). All necessary consent forms must be included at the end of the multi page PDF album. Students may note in their photo description when a consent form has been deemed necessary and is included in the portfolio; pages as needed (if needed). NOTE: If consent forms are deemed necessary by the judges and have not been included by the competitor, the entry will not be judged.

D. The entry must be finished, submitted, and accessible via the Internet by 11:59 p.m. ET on a designated date in mid-May.

E. Entries received, or changes made to submitted entries after this deadline will not be judged.

SEMIFINAL ROUND

A. Participants are required to provide their own equipment, including:

1. One (1) laptop. Laptop must be fully charged with enough battery for the duration of the semifinal round

2. One (1) computer mouse (if desired)
3. Portable power bank (if desired)
4. A method to transfer the images to the computer (such as a media reader) for editing, and to the USB drives
5. USB drive(s); The USB flash drives and the images contained therein become property of National TSA, Inc., and will not be returned. The images may be used in future TSA promotional materials and publications.
6. Tripod
7. DSLR or dedicated "point-and shoot" camera, with a timer feature and/or remote trigger as well as the ability to be mounted to a tripod; cell phones are permitted as cameras
8. Semifinalists may bring optional related accessories (i.e., filters, reflectors, extra batteries, etc.) to use in the on-site challenge.

B. Participants do NOT have access to electrical power/outlets during the event.

C. No internet access will be provided during the competition.

D. When preparing their multimedia presentation, semifinalists must include the following information for each photograph:

1. Camera make (e.g., Nikon, Canon, Panasonic, Sony, etc.)
2. Camera model (e.g., CoolPix, Rebel, 5D, etc.)
3. F-stop at which each photograph was taken
4. Exposure time of each photograph
5. ISO value, aperture (f-stop number), and shutter speed
6. How the photo relates to the on-site challenge
7. Any software or apps used to edit the photograph

E. All multimedia presentations of images must be saved to a USB drive and will be given to judges after their presentation/interview.

EVALUATION

PRELIMINARY ROUND

A. The digital photographic portfolio

SEMIFINAL ROUND

A. The multimedia presentation

B. The presentation/interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Animator
- Photojournalist
- Research and development scientist
- Reporter
- Website designer

Participant/Team ID# _____

DIGITAL PHOTOGRAPHY

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Digital portfolio was submitted
☐ Consent/Release forms are present (if required)
☐ ENTRY NOT EVALUATED

DIGITAL PHOTOGRAPHIC PORTFOLIO (70 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
Principles and Elements of Design and Composition and Creativity (X2)	There is little or no evidence of an understanding or creative use of compositional elements (line, shape, form, value, space, texture, color, framing, emphasis, balance, unity, contrast, movement/rhythm and pattern/repetition).	Images demonstrate some knowledge and creative use of compositional elements (line, shape, form, value, space, texture, color, framing, emphasis, balance, unity, contrast, movement/rhythm and pattern/repetition).	Images clearly demonstrate excellent and creative use of a variety of compositional elements (line, shape, form, value, space, texture, color, framing, emphasis, balance, unity, contrast, movement/rhythm and pattern/repetition).	
Technical Quality (X1)	Photos are out of focus; blurriness is unintentional and does not contribute to the overall composition; photos display incorrect exposure values, white balance, and/or range of tones; there is little or no consideration given to lighting and/or special effects.	Photos are in focus; photos display correct exposure values, white balance, and/or range of tones; images exhibit some attention to lighting and/or the use of special effects.	Photo subject(s) are in sharp focus; blurriness is used effectively to enhance the composition; photos display correct exposure values, white balance, and/or range of tones; images are enhanced by attention to lighting and/or the use of special effects.	
Conveyance of the Theme (X1)	The images are flat and lack a clear connection to the theme; viewers are not drawn into the scene; images do not clearly convey the theme/challenge.	The images show some emotional depth; viewers make an emotional connection with the images/pictures and are drawn into the scene or learn something from the subject(s); images convey the competition theme/challenge.	The images show emotional depth; viewers make an instant emotional connection with the pictures and are drawn into the scene or learn something from the subject(s); images clearly convey the competition theme/challenge.	
Written Statements (X1)	A written statement may or may not accompany each photo, and/or the statement includes only some of the photo's meta data (camera make/model, f/stop, exposure time, ISO speed, focal length), and/or an explanation of the relevance of the image to the challenge is not present and/or is written poorly.	A written statement accompanies each photo; the statement includes most of the photo's meta data (camera make/model, f/stop, exposure time, ISO speed, focal length); an explanation of the relevance of the image to the challenge is included.	A written statement accompanies each photo; the statement includes the photo's meta data (camera make/model, f/stop, exposure time, ISO speed, focal length); an explanation of the relevance of the image to the challenge is presented in a clear and concise manner.	

DIGITAL PHOTOGRAPHIC PORTFOLIO (70 points) – continued				
Resources/ References (X1)	A reference list is present, but graphic and/or software packages used are not mentioned, and/or a professional citation format is not used, and/or the citations are inadequate.	A reference list is present and the primary software packages used are included; a professional citation format is used for an adequate number of resources.	Detailed and concise resources/ references are provided; all software packages used are included; a professional citation format is used for the citations.	
			DIGITAL PHOTOGRAPHIC PORTFOLIO SUBTOTAL (70 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (70 points)	

SEMIFINAL CHALLENGE (70 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Principles and Elements of Design/ Composition and Creativity (X2)	There is little or no evidence of an understanding or creative use of compositional elements (line, shape, form, value, space, texture, color, framing, emphasis, balance, unity, contrast, movement/rhythm and pattern/repetition).	Images demonstrate some knowledge and creative use of compositional elements (line, shape, form, value, space, texture, color, framing, emphasis, balance, unity, contrast, movement/rhythm and pattern/repetition).	Images clearly demonstrate excellent and creative use of a variety of compositional elements (line, shape, form, value, space, texture, color, framing, emphasis, balance, unity, contrast, movement/ rhythm and pattern/repetition).	
Technical Skill (X2)	Participants do not demonstrate knowledge of and understanding of how to utilize photographic equipment and techniques; participants show little or no creativity in staging and photographing subjects.	Participants demonstrate some knowledge of and an understanding of how to utilize photographic equipment and techniques, or use it only minimally in the on-site challenge; participants show some creativity in staging and photographing subjects.	Participants clearly demonstrate knowledge and understanding of how to utilize photographic equipment and techniques; participants show creativity in staging and photographing subjects; participants show a high level of skill in the use of the tools to create high quality images.	
Technical Quality (X1)	Photos are out of focus; blurriness is unintentional and does not contribute to the overall composition; photos display incorrect exposure values, white balance, and/or range of tones; there is little or no consideration given to lighting and/or special effects.	Photos are in focus; photos display correct exposure values, white balance, and/or range of tones; images exhibit some attention to lighting and/or the use of special effects.	Photo subject(s) are in sharp focus; blurriness is used effectively to enhance the composition; photos display correct exposure values, white balance, and/or range of tones; images are enhanced by attention to lighting and/or the use of special effects.	
Impact and Theme (X1)	The images are flat and lack emotional depth; viewers are not drawn into the scene; images do not clearly convey the theme/challenge.	The images show some emotional depth; viewers make an emotional connection with the images/pictures and are drawn into the scene or learn something from the subject(s); images convey the competition theme/challenge.	The images show emotional depth; viewers make an instant emotional connection with the pictures and are drawn into the scene or learn something from the subject(s); images clearly convey the competition theme/challenge.	

SEMIFINAL CHALLENGE (70 points) – continued				
Written Statements (X1)	A written statement may or may not accompany each photo, and/or the statement includes only some of the photo's meta data (camera make/model, f/stop, exposure time, ISO speed, focal length), and/or an explanation of the relevance of the image to the challenge is not present and/or is written poorly.	A written statement accompanies each photo; the statement includes most of the photo's meta data (camera make/model, f/stop, exposure time, ISO speed, focal length); an explanation of the relevance of the image to the challenge is included.	A written statement accompanies each photo; the statement includes the photo's meta data (camera make/model, f/stop, exposure time, ISO speed, focal length); an explanation of the relevance of the image to the challenge is presented in a clear and concise manner.	
			SEMIFINAL CHALLENGE SUBTOTAL (70 points)	

SEMIFINAL PRESENTATION/INTERVIEW (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization Use of visual materials (X1)	Participant seems unorganized and unprepared for the presentation; illogical explanation of the photographs and/or stylistic elements is presented.	Participant is generally prepared for the presentation; explanation of photographs and/or stylistic elements is communicated and somewhat organized.	The presentation is logical, well organized, and easy to follow; explanation of the photographs and/or stylistic elements are communicated in an organized and concise manner.	
Knowledge (X1)	Participant seems to have little understanding of the stylistic photographic elements used.	Participant exhibits an understanding of the stylistic photographic elements used in their project; the presentation is for the most part, logical and/or clear.	Participants show clear evidence of a thorough understanding of the stylistic photographic elements; the presentation is concise and logical.	
Articulation (X1)	Communication of the design process is unclear, unorganized, and or illogical; leadership and/or 21st century skills are not evident.	Communication of the design process is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the design process is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
Integration of Theme (X2)	The current theme is not demonstrated in the product.	The current theme is adequately demonstrated in the product.	The current theme is exceptionally well demonstrated in the product.	
Delivery (X1)	The participant is verbose and/or uncertain in his/her presentation/ interview; participants' posture, gestures, and lack of eye contact diminish the presentation/interview.	The participant is somewhat well-spoken and clear in his/her presentation/interview; participants' posture, gestures, and eye contact are acceptable in the presentation/ interview.	The participant is well-spoken and distinct in its presentation/interview; the participants' posture, gestures, and eye contact result in a polished, natural, and effective presentation/ interview.	
			SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

SEMIFINAL SUBTOTAL (130 points)

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.	**TOTAL** (200 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

DIGITAL PHOTOGRAPHY EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

1. Preliminary round, two (2) or more (online)
2. Semifinal round, two (2) or more

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge
2. TSA Event Coordinator Report
3. List of judges/assistants
4. Results envelope with coordinator forms

B. Semifinal round materials

1. Evaluation schedule
2. Challenge and guidelines
3. Blank stick-on labels for USB identification
4. Interview questions
5. One laptop with USB capabilities

RESPONSIBILITIES

PRE-CONFERENCE

A. National TSA will collect entries until 11:59 p.m. ET on a designated date in mid-May. The results are shared with the CRC manager, event coordinator, and assigned judges.

B. Review entries as they are submitted to the designated online storage utility.

C. Manage communication and pre-conference evaluation (at least two [2] or more judges should be recruited earlier in the year). Coordinate with the Judge Manager.

D. Collect the rating forms electronically and bring them to conference on a flash drive.

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. On the first full day of the conference, post a list of the twelve (12) semifinalists in random order.

SEMIFINAL ROUND

A. Before the on-site challenge session, check the room set- up. There should be enough seating, table space, and access to electricity for twelve (12) semifinalists.

B. Participants must provide their own equipment, including computers and cameras. Label the USBs with the semifinalists' identification numbers.

C. Begin the event at the scheduled time by closing the doors and checking the entry list.

D. Late entries are considered on a case-by-case basis and only when the lateness is caused by circumstances beyond the participant's control.

E. In order to compete, participants must be on the entry list or must have approval of the CRC.

F. All participants should be in the room at this time. Participants registered but not present may be disqualified.

G. Review the on-site challenge and procedures with the participants.

H. Manage the semifinalist session with judges, who may observe participants taking pictures or editing.

I. As participants complete the on-site challenge, collect the USBs and manage the removal of participants' equipment.

J. As participants depart, ensure they sign up for the presentation/interview.

K. Judges independently score the multimedia presentation.

L. Participants report at the time and place stated in the conference program for the presentation/interview

M. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

N. Judges determine the ten (10) finalists and discuss and break any ties.

O. Submit the finalist results and all related forms in the results envelope to the CRC room.

P. If necessary, manage security and the removal of materials from the event area.

DRAGSTER

OVERVIEW

Applying leadership and 21st century skills, Participants design and produce a race-worthy CO_2-powered dragster according to stated specifications, using only specified materials. The current year's theme/problem will be posted on the TSA website under *Themes & Problems*.

ELIGIBILITY

Two (2) individuals per chapter may participate.

TIME LIMITS

A. The dragster and drawing are submitted at the time and place stated in the conference program.

B. All raceable cars will make one (1) qualifying time run, then judges check for spec compliance, leaving the top sixteen (16) legal cars as semifinalists for the Final Race.

C. Sixteen (16) qualifying car builders participate in a five (5)-minute interview.

D. Drawings and cars must be picked up at the specified time and place stated in the conference program.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants design and create their dragster while working within the required specifications and considering the current year's theme/problem.

B. Participants review and implement the annual theme/problem posted on the TSA website under *Themes & Problems*.

PRELIMINARY ROUND

A. Participants check in the following at the time and place stated in the conference program:

1. The dragster
2. One (1) full-size metric drawing of the completed vehicle
3. One (1) letter-sized printed document listing all parts and materials

B. Entries are reviewed by judges to determine specification adherence and safety on the track.

C. Safe dragsters race for qualifying time on the same lane of a raceway.

D. The top sixteen (16) qualifying cars, based on time trials, are evaluated against the required specifications for this event.

E. Dragsters that do not meet event regulations are disqualified and lower qualifying cars are moved up until sixteen (16) dragsters meeting specifications are determined.

F. Judges score the dragster body production quality, paint finish, assembly, the technical drawing scale and dimensioning as well as drawing completion and precision quality.

SEMIFINAL ROUND

A. The top sixteen (16) car builders report to the track at the posted time for a five (5)-minute interview.

B. The top sixteen (16) cars race in a double-elimination format to earn points for the race portion of the event.

C. Drawing, design, materials list, and body finish points are combined with race points to determine the final standings.

D. Following the end of the race, participants pick up their entries from the display area at the time and place stated in the conference program.

E. Ten (10) finalists are announced during the conference award ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Each entry must be submitted at check-in with a full-size metric drawing with materials list of the completed vehicle.

1. A two (2)-view (top and side) full scale technical drawing with metric dimensions must be made on 11" x 17" drawing paper.
2. The drawing must be developed using standard engineering practices and procedures; it may be produced using traditional drafting methods or CAD.
3. The title block includes only the student's identification number, which is assigned at conference registration and is placed on the entry and drawing during check-in.
4. A one (1) letter sized page with the Materials List must be printed on or attached to the back of the technical Drawing
5. The letter-sized parts and materials list must be printed on or fixed to the back of the technical drawing.

SEMIFINAL ROUND

A. Semifinalists report at the time and place in the conference program to sign up for an interview time.

B. Semifinalists arrive at the time and place in the conference program for the interview.

C. The Race:
   1. The official distance between the start line and the finish line on the race track is twenty (20) meters.
   2. Dragsters that do not meet the following specifications and tolerances are disqualified from the race
   3. No repair or maintenance is allowed after the entries have been submitted.
      a. Any vehicle damaged during the race is evaluated by the event coordinator to determine whether or not the vehicle is allowed to race again.
      b. In the event that the vehicle is damaged by conference personnel, the event coordinator rules as to whether or not the vehicle may be repaired by the participant entering the vehicle; this is the only reason a participant is allowed to touch his/her vehicle after registration.
      c. Undamaged wheels that come off during the event may be replaced as determined by the event coordinator.
   4. All CO_2 cartridges for the race are provided by national TSA.

EVALUATION

PRELIMINARY ROUND

Tier 1

A. Sixteen (16) qualifying entries

SEMIFINAL ROUND

Tier 2

B. Dragster construction, interview, and race points

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Aeronautical engineer
- Automotive designer
- Automotive modeler
- Industrial designer
- Industrial engineer
- Mechanical engineer
- Race car engineer

Dragster body

	MINIMUM	MAXIMUM
1. The Dragster body must be one (1) piece of any species of wood or can be from plastics, including urethane modeling foam. It may be produced using traditional hand tools, power tool, CNC Milling and 3D printing, following applicable safety rules. a. Two (2) or more like or unlike pieces of material glued together are not considered one (1)-piece b. Any type of lamination will result in disqualification. c. No add-ons, such as body strengtheners, fenders, plastic canopy, exhausts, or air foils may be attached to or enclosed within the vehicle. Hydro dipping technique is permitted. d. Fiberglass, vinyl wrap, and shrink wrap are considered body strengtheners and cannot be used on the car body for any reason. e. Decals may be used for decoration only; they may not be used to gain an aerodynamic advantage, i.e., decals cannot cover the exterior axle holes or be used to cover open areas of the body.		
2. Body length * denotes specific school year requirement	*(2024) – 220mm *(2025) – 205mm	230mm 215mm
3. Body height with wheels		75mm
4. Body mass (completed car without CO_2) * denotes specific school year requirement	*(2024) – 45g *(2025) – 60g	65g 70g
5. Body width at the point the axles pass through the body, front and back	35mm	42mm
6. Vehicle total width (including wheels).		90mm

Axles/axle holes/wheelbase

	MINIMUM	MAXIMUM
1. Dragsters must have two (2) axles per car, no more.		
2. Bottom of axle hole or bearing above bottom of car body. (NOTE: This will only be measured at the lowest point of the side surfaces of the wood car body at the axle hole.)	5mm	10mm
3. Axle hole from front and rear of car	10mm	100mm
4. Wheelbase (axle distance apart at farthest points)	105mm	Not specified
5. Bearings, bushings and lubricants may be used.		
6. Glue may only be used to secure bearings to body.		

Spacer washers/clips

	MINIMUM	MAXIMUM
1. Spacer washers		10
2. Axle clips		8
3. Silicone or any other type of glue/adhesive may not be used in place of wheel clips to hold wheels or axles in place.		

Power plant (CO_2 cartridge hole)	MINIMUM	MAXIMUM
1. The power plant hole must be at the farthest point at the rear of the car and must be drilled parallel to the racing surface to assure proper puncture of the CO_2 cartridge. a. A minimum of 5mm thickness around the entire power plant hole must be maintained on the dragster for safety. b. There should be no paint inside the CO2 cartridge hole.		
2. Hole depth	45mm	55mm
3. Safety zone thickness	5mm	
4. Chamber diameter	19mm	20mm
5. Lowest point of chamber diameter to race surface (with wheels)	26mm	40mm

Eye screws	MINIMUM	MAXIMUM
1. Dragsters must have no more than two (2) eye screws per car that meet tolerances. a. Eye screws must not make contact with the racing surface. b. The track string must pass through both eye screws, which are located on the center line of the bottom of the car. c. Eye screws may be glued in place with CA glue or epoxy. d. It is the responsibility of the car designer/engineer to see that the eye screw holes are tightly closed to prevent the track string from slipping out. e. Any adjustments must be done prior to event check-in.		
2. Inside diameter	3mm	5mm
3. Distance apart (at farthest points)	150mm	Not Specified

Wheels	MINIMUM	MAXIMUM
1. A dragster must have exactly four (4) wheels, each of which separately must meet regulations in items in 2 and 3 below. a. All four (4) wheels must touch the racing surface at the same time. b. All wheels must roll. c. Wheels must be made entirely from plastic. d. Dimensions must be consistent for the full circumference of the wheel.		
2. Wheel diameter	30mm	40mm
3. Wheel width* * Width is determined by the continuous point of contact between the wheel and track or flat surface.	2mm	18mm

Participant/Team ID# _____

DRAGSTER

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ TIER 1 – Car is present
☐ TIER 2 – Dragster construction, interview, and race points
☐ ENTRY NOT EVALUATED

TIER 1 – PRELIMINARY DRAGSTER QUALIFYING RACE / POST RACE INSPECTION	YES
Qualified Top 16 Legal (still safe to race) Cars for Interview and Final Race. If marked YES, place an "X" in the final box. If not in the Top 16, please leave blank.	

TIER 2 – DRAGSTER CONSTRUCTION (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Dragster Body Production Quality (X1)	Dragster exhibits poor production quality; little or no attention to detail is evident; surface is crude and rough.	Dragster shows evidence of proper production techniques; dragster is adequate but needs improvement.	Excellent production techniques are displayed in the dragster; obvious attention to detail and quality is evident.	
Body Paint/Finish (X1)	Surface preparation is inadequate; body is unprimed, with poorly applied final finish. Body is rough; paint is rough or sticky.	Dragster body is painted and finished but is of average quality; body surface is inconsistent.	Dragster body finish is exemplary; body is smooth, shiny, exhibits creative paint layouts and details.	
Vehicle Assembly (X1)	Dragster exhibits poor or sloppy assembly of parts (loose wheels, eye screws are not level, and/or they are loose, etc.).	Dragster is adequately assembled; meets standards.	Dragster is properly assembled, with obvious evidence of attention to detail, showing ingenuity.	
Drawing Scale and Dimensioning (X1)	Drawing is present, but it is not to scale; dimensions are missing, or dimensioning is poorly done.	Drawing is acceptable, true to scale, and it is a close representation of the vehicle; some dimensions are missing.	Drawing is exemplary, exact, and includes all pertinent dimensions.	
Drawing Completion and Quality (X1)	Drawing work is sloppy, missing parts, and lacking quality.	Drawing is complete; quality is average.	Drawing is complete, precise, and of exceptional quality.	
Materials List (X1)	Materials list is not complete.	Materials list is present and lists the majority of parts.	Materials list is complete and detailed.	
			TIER 2 – DRAGSTER CONSTRUCTION SUBTOTAL (60 points)	

SEMIFINAL INTERVIEW (20 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Car Builder Interview (X2)	The participant shows very limited knowledge of (and has difficulty articulating) how the car was produced or decisions made during the production; the participant exhibits a basic understanding of design elements and functionality, and the rationale is inconsistent or absent.; leadership and/or 21st century skills are not evident.	The participant demonstrates some knowledge of the dragster production and has adequate knowledge of some processes or reasoning behind the vehicle design; leadership and/or 21st century skills are somewhat evident.	The participant shows competence and knowledge related to the design and production of the vehicle; the participant is able to articulate "reasoning" behind the decisions made.; leadership and/or 21st century skills are clearly evident.	
			SEMIFINAL INTERVIEW SUBTOTAL (20 points)	

SEMIFINAL RACE (60 points)							
1st	2nd	3rd	4th	5th & 6th	7th & 8th	9th-12th	13th – 16th
60 Points	55 Points	50 Points	45 Points	40 Points	35 Points	30 Points	25 Points
						SEMIFINAL RACE SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

SEMIFINAL SUBTOTAL (140 points)

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (140 points)

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

DRAGSTER
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:
   1. Preliminary round, two (2) or more
   2. Semifinal round, two (2) or more

C. Recorder for double elimination chart, one (1)

D. Assistants, two (2)

MATERIALS

A. Coordinator's packet, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Stick-on labels for identifying entries (three [3] per entry; one [1] each for the car and plans)
   5. Time trial record sheet
   6. Qualifier Interview Time Slot sheet
   7. Double elimination bracket chart
   8. Results envelope with coordinator forms

B. CO_2 cartridges

C. Go/No-Go gauges for all judges

D. Metric scientific scales (triple beam balance or digital)

E. Mono-filament fishing line (50lb) for track (4 pre-tied, 2 on track, and 2 reserve)

F. Race track set, including a starting gate and a finish gate with digital timer and winning lane indicator

G. Padding for the finish gate

H. One (1) or more test cars

I. Tables for the display of cars and for evaluation

J. Table at the starting line for arranging and holding cars prior to the races

K. Table at the finish gate for the placement of cars after the races and to hold eliminated cars

L. Table for the official time keeper

M. When using a computer controlled track, provide the proper computer for the software being used, all necessary connections, and a printer (placed on the official time keeper's table)

N. A method for displaying the time trial and race brackets

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

CHECK-IN

A. Participants report to the time and place stated in the conference program and check in:
   1. The dragster entry
   2. Full-size metric drawing of the completed vehicle
   3. A letter-sized, printed materials list fixed to the back of the technical drawing

B. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

C. In order to compete, participants must be on the entry list or must have approval of the CRC.

D. Requirements for attire do NOT apply during check-in, only on the first day of the conference.

E. Check to see that each entry drawing includes the participant's identification number in the upper right-hand corner of the paper.

F. Position each entry (dragster and drawing) for evaluation and viewing.

G. Secure the entries in the designated area.

PRELIMINARY ROUND

A. At least one (1) hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

B. Assist judges with evaluation of the design, drawing, and construction categories.

C. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

D. Begin the time trials at the scheduled time.

   1. Every race-worthy car should be tested.
   2. Students do not have to be present.
   3. Public viewing is allowed.

E. Position a judge at the starting gate to ensure that all cars are positioned in the starting gate correctly.

F. Position another judge at the finish line.

G. If there is a misfire or if a time is not properly recorded, a rerun may be ordered at the discretion of the event coordinator.

H. Record preliminary times on a time trial record sheet.

I. Place each car in the double elimination race bracket (see next page for sample) according to the rank of its qualifying time.

J. Judges verify that the top sixteen (16) qualifying cars meet Regulation C specifications.

K. Entries that do not meet specifications are removed.

L. Cars that are damaged or broken during the qualifying round are deemed non-raceable and also are removed.

M. Only raceable cars, as determined by the judges, are allowed to compete for the semifinalist category.

N. Lower qualifying cars are moved up until there are sixteen (16) legal semifinalists.

O. Submit the semifinalist results to the designated location.

P. Post Semifinalist List and at a designated time and place have semifinalists sign up for interview times.

SEMIFINAL ROUND

A. Begin the semifinals at the scheduled time.

B. Car builders report to the track at the posted time for a five (5)-minute interview.

C. Only the sixteen (16) qualifying cars are raced.

D. Students do not have to be present.

E. Public viewing is allowed.

F. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

G. Judges use qualifying times to break any ties among the sixteen (16) qualifying cars.

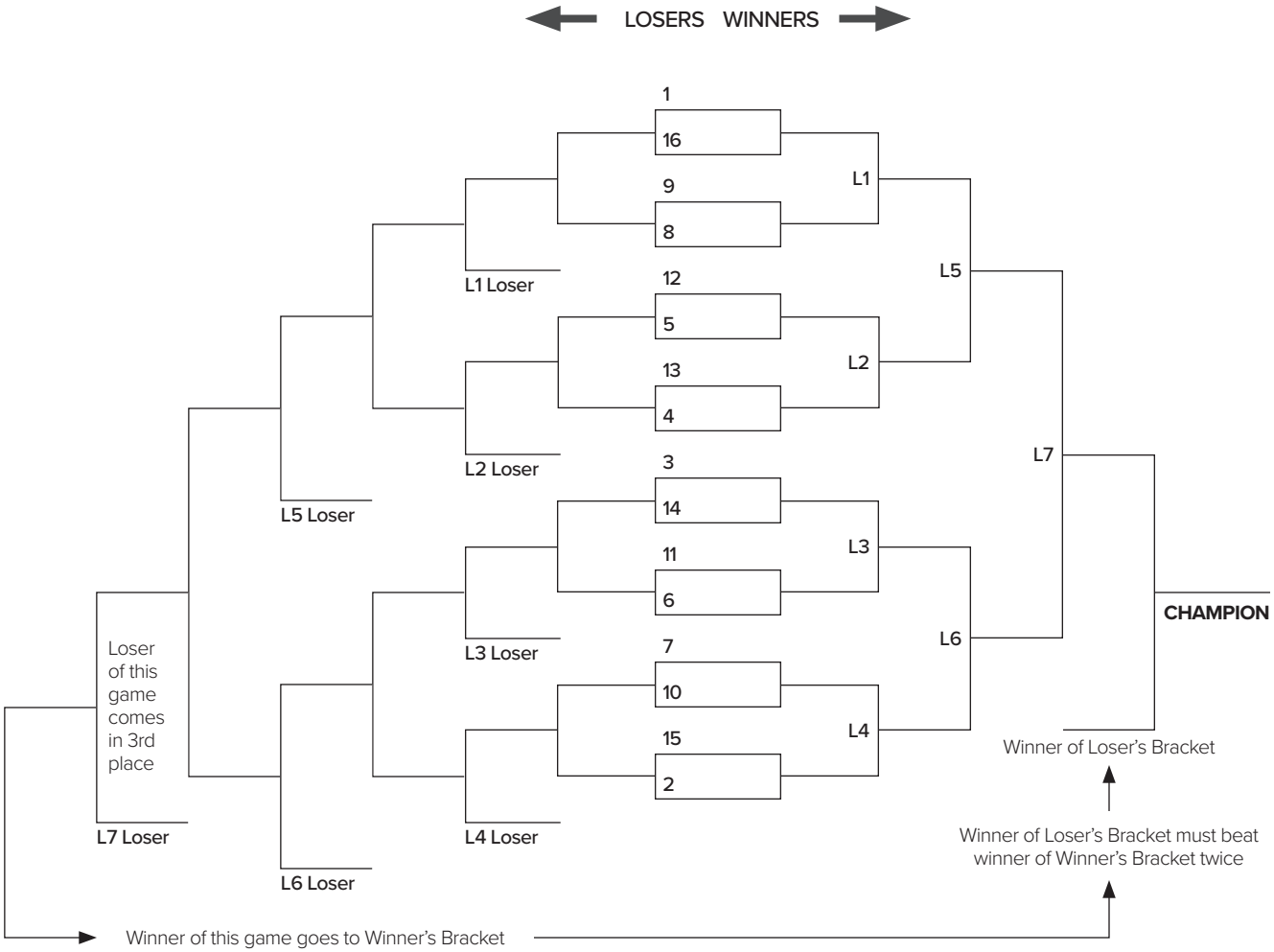
H. Submit the finalist results and all related forms in the results envelope to the designated location.

I. If necessary, manage the security and removal of materials from the event area.

J. Checking for ID, allow competitors to claim their entries at a specified time at the track location.

RACE BRACKET FOR 16-CAR DOUBLE ELIMINATION

Double Elimination Tournament Chart Seeded 16 player Field



ELECTRICAL APPLICATIONS

OVERVIEW

Participants take a test of basic electrical and electronic theory to qualify as semifinalists. Applying leadership and 21st century skills, semifinalists assemble a specific circuit from a schematic diagram using their own kit and make required electrical measurements. Semifinalists explain their solution during an interview.

ELIGIBILITY

One (1) team of two (2) individuals per chapter may participate. No individuals will be allowed to compete.

TIME LIMITS

PRELIMINARY ROUND

A. Participants are allotted one (1) hour to complete the test.

SEMIFINAL ROUND

A. Semifinalists are allotted one (1) hour to solve the circuit problem.

B. Upon completion of the circuit, or at the end of the time limit, semifinalists are questioned about their solution in an interview.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRELIMINARY ROUND

A. Participants report to the event area at the time and place stated in the conference program for the test.

B. Participants follow the specific regulations and adhere to the directions provided on-site by the event coordinator.

C. Team members take the test individually within the time limit.

D. The top twelve (12) teams qualify as semifinalists.

E. The preliminary round score will be the average test score for the two (2) members.

F. A semifinalist list (in random order) is posted.

SEMIFINAL ROUND

A. Participants report to the event area at the time stated in the conference program.

B. Participants build a circuit from the provided schematic diagram and make electronic measurements with their multimeter at the designated positions in the circuit, within the time limit, using their own kit.

C. The semifinalist teams are interviewed before they leave.

D. Ten (10) finalists are announced during the conference award ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Team members take the test individually.

B. Tests may be administered online or via a scan-type answer sheet. Please review the *Competition Updates* page of the TSA website.

C. Scan-type forms are furnished by the event coordinator, if applicable.

D. Participants are responsible for bringing two (2) sharpened No.2 pencils to the test site.

E. Participant identification numbers must be entered on the scan form in the space indicated.

F. Failure to follow instructions will result in the scoresheet not being scored.

G. Participants must stop work immediately when time is called.

H. Should a participant complete the test before the time allocated is over, the participant will submit the test and scantron form to the coordinator without any form of communication with any other member. Failure to do so results in disqualification of the participant.

I. Test must be turned in before leaving the test area.

J. The average of the scores of the two (2) team members determines team ranking.

K. These same two (2) team members compete in the semifinal round, should the team qualify.

SEMIFINAL ROUND

A. All work must be completed in the event area during the time specified for the event.

B. Semifinalists provide:

   1. A toolkit with identification (school name, address, and advisor cell phone number). Each toolkit must contain all required materials to fabricate the solution. The following is a suggested list of materials:

      a. (Minimum) 1.375" x 3.25" solderless circuit breadboard 10 x 30 pin positions
      b. One (1) 9-volt battery with snap-on battery connector
      c. One (1) speaker (wires pre-soldered)
      d. Two (2) LEDs
      e. Twelve (12) connector wires
      f. Pushbutton switch (wires pre-soldered)
      g. One (1) photocell
      h. One (1) potentiometer
      i. One (1) IN4003 diode
      j. One (1) IC555 integrated circuit
      k. One (1) 2N3906 transistor
      l. One (1) 2N3904 transistor
      m. Resistors (minimum of one [1] each, ohms): 10, 10K, 47, 100, 220, 1K, 2.2K, 3.3K, 6.8K, 16K, 33K, 120K, 330, 470K
      n. Capacitors (in microfarads): .01, .1, 10,100, 1000
      o. S106B1 SCR
      p. Wire strippers
      q. Standard 4-function calculator (scientific calculators will not be permitted)
      r. Digital multimeter

C. Paper to complete on-site calculations is provided by TSA.

D. All other equipment necessary to solve the on-site problem is provided by the coordinator.

E. Semifinalists remain with their circuit solution until the judges have completed the interview.

EVALUATION

PRELIMINARY ROUND

A. The average of the team members' scores is factored into the final total score.

SEMIFINAL ROUND

A. The accuracy and degree of completion of the circuit problem in the allotted time, and the exit interview, determine the final standings.

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Electrical engineer
- Electrical technician
- Electrician
- Electronic analyst
- Electronic designer
- Research assistant

Participant/Team ID# _____

ELECTRICAL APPLICATIONS

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Toolkit is present

☐ ENTRY NOT EVALUATED

WRITTEN TEST SCORE (50 points)	
AVERAGE OF THE TWO (2) TEAM MEMBER'S WRITTEN TEST SCORE SUBTOTAL (50 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (50 points)	

SEMIFINAL SOLUTION TO ON-SITE PROBLEM (90 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Solution Accuracy (X2)	Solution attempt is evident but the solution is not complete, and/or there is no final solution.	Solution is not complete, though some measurements can be taken.	Solution is accurate and complete.	
Proper Use of Components (X1)	Components are not used properly, and/or they are placed in the wrong sequence.	Components are used correctly, however, they may be placed in the improper sequence.	Components are used correctly and they are in the proper sequence and arrangement.	
Accuracy of Measurements (X1)	Measurements taken and calculated are 0-49% accurate.	Measurements taken and calculated are 50-89% accurate.	Measurements taken and calculated are 90-100% accurate.	
Articulation (X1)	The interview is full of illogical thoughts that lack clarity, and/or there is insufficient information provided describing the solution; leadership and/or 21st century skills are not evident.	The interview is somewhat logical, easy-to-follow, and/or there is sufficient information provided that describes the solution; leadership and/or 21st century skills are somewhat evident.	The interview is clear, concise, and there is ample information provided that describes the solution; leadership and/or 21st century skills are somewhat evident.	

SEMIFINAL PROBLEM SOLUTION (90 points) – continued				
Delivery (X1)	Participants are verbose and/or uncertain in the interview; participant's posture, gestures, and lack of eye contact diminish the interview.	Participants are somewhat well spoken and clear in the interview; participant's posture, gestures, and eye contact are acceptable in the interview.	Participants are well-spoken and distinct in the interview; participant's posture, gestures, and eye contact result in a polished, natural, and effective interview.	
Organization (X1)	The team seems unorganized and unprepared for the interview; an illogical explanation of the solution is presented.	The team is generally prepared for the interview; an explanation of the solution is communicated adequately.	The interview is logical and easy to follow; the solution is communicated in an organized and concise manner.	
Knowledge (X2)	The team seems to have little understanding of the necessary concepts; answers to questions may be vague.	The team exhibits understanding of the concepts involved in the solution.	The team shows clear evidence of a thorough understanding of the concepts involved in the solution.	
			SEMIFINAL SOLUTION TO ON-SITE PROBLEM SUBTOTAL (90 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

SEMIFINAL SUBTOTAL (90 points)

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (140 points)

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

ELECTRICAL APPLICATIONS
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator
B. Judges, semifinal round, two (2) or more
C. Proctors (preliminary round to administer the written test), two (2) or more
D. Assistants, two (2)

MATERIALS

A. Coordinator's packet, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
B. Stick-on labels for identifying entries
C. Coordinators are responsible for creating the test to be administered at the national conference; copies will be provided by the national TSA office.
D. Results envelope with coordinator forms
E. Stopwatch for the assistant/timekeeper
F. Twelve (12) wire strippers (participants are required to provide their own within the toolkit)
G. On-site problem:
   1. Twelve (12) copies of the on-site circuit diagram problem, one (1) for each team
   2. Twelve (12) copies of the calculation worksheet, one (1) for each team
   3. Any additional electrical components needed for the on-site problem
H. Adequate conditions (inside or outside) for on-site testing devices as needed for the designated circuit
I. Tables and chairs for the participants, event coordinator and judges

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.
B. Report to the CRC room and check the contents of the coordinator's packet.
C. Review the event guidelines and check to see that enough personnel have been scheduled.
D. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.
E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Begin the event at the scheduled time by closing the doors and checking the entry list.
B. Late participants and/or entries are considered on a case-by-case basis and only when lateness is caused by events beyond the participant's control.
C. In order to compete, participants must be on the entry list or must have approval of the CRC.
D. All participants and judges should be in the room at this time.
E. Manage the one (1)-hour written test.
F. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:
   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

G. Judges determine the twelve (12) semifinalists and discuss and break any ties.
H. Submit semifinalist results and all related forms in the results envelope to the CRC room.

SEMIFINAL ROUND

A. Participants report at the time and place stated in the conference program for the semifinal challenge.
B. Provide the on-site circuit problem, any additional electrical components, and the worksheet to the semifinalists.
C. Supervise the one (1)-hour on-site circuit problem.
D. Judges conduct semifinalist interviews at a location separate from the other semifinalists
E. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.
F. Any ties should be broken on: first, test scores; second, interview points; third, electronic measurement accuracy.
G. Judges determine the ten (10) finalists and discuss and break any ties.
H. Submit the finalist results and all related forms in the results envelope to the CRC room.
I. Manage security and the removal of materials from the event area.

ESSAYS ON TECHNOLOGY

OVERVIEW

Applying leadership and 21st century skils, participants conduct research on specified subtopics of a broader technological area. The topic and subtopics will be posted on the TSA website under *Themes & Problems*. Participants apply the knowledge and resources gained through their research to write a comprehensive essay on the one (1) subtopic that is designated on-site.

ELIGIBILITY

Three (3) individuals per state may participate.

TIME LIMITS

PRELIMINARY ROUND

A. One (1) hour for the on-site detailed outline and corresponding note challenge.

SEMIFINAL ROUND

A. One (1) hour to complete the on-site essay challenge.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. In preparation for the event, participants research the topic and related subtopics (refer to Themes & Problems on the TSA website).

B. Each participant shall record key points of their research using a 3" x 5" note card for each subtopic.

C. Note cards (1 per subtopic) may be used for the preliminary round of the on-site challenge at the conference.

PRELIMINARY ROUND

Creating a Detailed Outline

A. Participants report to the event area at the time and place stated in the conference program with their prepared note cards.

B. One (1) of the subtopics is randomly selected.

C. Timing begins after the subtopic is announced.

D. Using the information on the prepared 3" x 5" note cards, participants have one (1) hour to draft the detailed outline.

E. After one (1) hour the participants turn in the relevant note card, a detailed outline, and a one (1) page bibliography for independent review by the judges.

F. A list of twelve (12) semifinalists will be posted in random order.

SEMIFINAL ROUND

The Essay

A. Semifinalists will write an essay on the subtopic as submitted, using their detailed outline.

B. Semifinalists will be given one (1) hour to write an essay on the subtopic.

C. After one (1) hour, each participant turns in an essay not to exceed five (5) pages.

D. Judges independently review entries.

E. Ten (10) finalists are announced at the awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Materials:

1. Each participant is required to bring one (1) 3" x 5" note card for each subtopic.
    a. Participants must handwrite notes on one side of the 3" x 5" note cards (one [1] for each subtopic), and the sources and references will be handwritten on the other side of the note card.

   b. Participants are not permitted to enter the competition area with computer-generated notes, notes that are not handwritten, or notes not contained on 3" x 5" note cards.
   c. The outline on the note card may contain a thesis statement.
   d. The bulleted outline for note cards must follow the required format on page 160.
2. All research material brought into the event area must be handwritten on the note cards.
3. Each participant may also bring a hard copy dictionary and/or a thesaurus to the event (no electronic formats permitted).
4. Participants are responsible for bringing a blue or black ink pen to the event site, which may be "erasable."
5. Participants may also bring correcting fluid or correction tape to the site.
6. Each participant will be provided with lined paper.

B. Detailed outline guidelines (to be submitted for judging):
   1. Length is limited to two (2) handwritten pages, one (1) side of the paper only, single-spaced.
   2. Each submitted outline page must have the participant entry number only (i.e., no other identifying information) written in the upper right-hand corner of each page.
   3. Participants are required to follow the outline displayed within this event guide.
   4. Requirements must include:
      a. Introductory paragraph
      b. Details for a body (of the essay)
      c. Concluding paragraph
      d. All details are to be in sentence form.

C. With the outline, participants must turn in a one (1) page bibliography (written on one [1] side of the paper only, using proper MLA bibliography format), and the relevant note card.

D. The relevant note card is to have the participant entry number written in the upper right-hand corner.

E. Only participants are allowed in the event area.

F. Should a participant finish before the allotted time expires, the participant is allowed to leave quietly but may not re-enter the event room.

G. Twelve (12) semifinalists will be determined; semifinalists will write an essay on a subtopicc.

SEMIFINAL ROUND

A. Participants are allowed to bring correcting fluid or correction tape, and a hard-copy dictionary and/or thesaurus to the event (no electronic formats will be permitted).

B. Participants are responsible for bringing a blue or black ink pen to the event site. The pen may be "erasable."

C. Each participant will receive his/her outline, bibliography, and note card submitted from the preliminary round.

D. Each essay must have the participant's entry number only written in the upper right-hand corner of each page submitted.

E. The essay must be no more than five (5) pages, written on one (1) side of the paper only, and double-spaced. The list of references (bibliography) is not included in the five (5) pages.

F. With the essay, participants must turn in:
   1. A one (1)-page bibliography (written on one [1] side of the paper only, using proper MLA bibliography format)
   2. The outline from the preliminary round
   3. The relevant note card

G. All essays, outlines, and note cards become the property of national TSA.

EVALUATION

PRELIMINARY ROUND

A. The outline

SEMIFINAL ROUND

A. The essay

Refer to the official rating form for more information.

NOTE

When conducting research, participants should consider source credibility and be aware that some web-based resources may have misleading, misrepresentative, or inaccurate information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Economist
- Engineer
- Research technician
- Scientist
- Technical writer

OUTLINE FORMAT FOR NOTE CARDS

TITLE OF ESSAY

A. INTRODUCTION

1. Thesis statement (may be written in sentence form)

B. BODY

1. Point A
    a. Supporting detail
    b. Supporting detail
2. Point B
    a. Supporting detail
    b. Supporting detail
3. Point C
    a. Supporting detail
    b. Supporting detail

C. CONCLUSION

DETAILED OUTLINE FORMAT PRELIMINARY ROUND

TITLE OF ESSAY

A. INTRODUCTORY PARAGRAPH

B. BODY

1.
    a.
        i.
        ii.
    b.
        i.
        ii.
2.
    a.
        i.
        ii.
    b.
        i.
        ii.
3.
    a.
        i.
        ii.
    b.
        i.
        ii.

C. CONCLUDING PARAGRAPH

Participant/Team ID# _____

ESSAYS ON TECHNOLOGY

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Relevant note card is present
☐ Detailed outline is present
☐ Bibliography is present
☐ ENTRY NOT EVALUATED

DETAILED OUTLINE (80 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Format (X1)	Outline only minimally follows the required format.	Outline generally follows the format, with most items from the format included.	Outline clearly follows the format; elements are in the proper sequence, and all items are included.	
Thesis (X1)	Thesis is not a complete thought and/or is inappropriate for the essay; essay title and thesis do not correlate with one another; thesis lacks creativity.	Thesis is evident, and the idea behind the thesis is generally clear, concise, and/or creative; essay title correlates with the thesis.	Thesis is well structured, concise, and creative; essay title correlates well with thesis.	
Introduction (X1)	Introduction lacks detail; thesis does not help to establish the writer's position.	Introduction creates some interest; thesis clearly states the writer's position.	Introduction is well developed; the thesis clearly states a significant and compelling position.	
Body of Essay (X1)	Outline of paragraphs lacks main points to support the thesis, and/or there is a poor development of ideas.	Outline of paragraphs includes main points that are related to the thesis; examples have adequate supporting details.	Outline of paragraphs provides well-developed main points directly related to the thesis; supporting examples are concrete and detailed.	
Conclusion (X1)	Conclusion is recognizable, but it does not effectively summarize the topic.	Conclusion effectively summarizes the points of the topic.	Conclusion clearly wraps up the points of the topic and goes beyond restating the thesis.	
Organization (X1)	No discernible organization is apparent.	There is a logical progression of ideas in the outline; some structure is evident.	The outline conveys a logical progression of ideas, with a clear structure that enhances the thesis.	
Mechanics (X1)	Outline contains distracting errors in punctuation, grammar, and spelling; handwriting is messy and/or illegible.	Punctuation, spelling, and grammar are generally correct, with few errors; handwriting is adequate and/or mostly legible.	Punctuation, spelling, and grammar are correct, with no errors; handwriting is easy to read.	
Bibliography (X1)	References are not used effectively and/or do not pertain to the topic; limited quality sources are used; bibliography is not in the proper MLA format.	Most sources used are credible and of good quality; most references help to support the essay topic; bibliography is in the proper MLA format, with only minor errors.	Outline includes multiple and varied sources, all of which are credible, appropriate, and support the topic; bibliography is in proper MLA format, with no errors.	

DETAILED OUTLINE SUBTOTAL (80 points)	
Rules violations (a deduction of 20% of the total possible points in the semifinalist section) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
PRELIMINARY SUBTOTAL (80 points)	

ESSAY (90 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Thesis (X1)	Thesis is not a complete thought and/or is inappropriate for the essay; essay title and thesis do not correlate with one another; thesis lacks creativity.	Thesis is evident, but the idea behind the thesis may not be clear or concise, and/or it may be lacking in creativity; essay title somewhat correlates with the thesis.	Thesis is well structured, concise, appropriate, and creative; essay title correlates well with thesis.	
Introductory Paragraph (X1)	Introduction provides background but may lack detail; thesis does not help to establish the writer's position.	Introduction creates interest; thesis clearly states the position.	Introduction is well developed, it engages the reader, and it creates interest; the thesis clearly states a significant and compelling position.	
Body Paragraphs (X1)	Paragraphs lack main points to support the thesis, and/or there is a poor development of ideas.	Paragraphs include main points that are related to the thesis; supporting details are adequate.	Paragraphs provide well-developed main points directly related to the thesis; supporting examples are concrete and detailed.	
Concluding Paragraph (X1)	Conclusion is recognizable, but it does not effectively summarize the topic.	Conclusion effectively summarizes the topic.	Conclusion wraps up the points of the essay and goes beyond restating the thesis.	
Organization (X1)	No discernible organization is apparent; transitions are not present.	There is a logical progression of ideas in the essay; transitions are present throughout the essay.	The essay conveys a logical progression of ideas, with a clear structure that enhances the thesis; transitions are mature and graceful.	
Style (X1)	The style is confusing and hard to follow; it contains fragments and/or run-on sentences; word choice is simple, ordinary, and/or repetitive.	The style is generally clear, but sentences may lack variety; word choice is appropriate.	The style is smooth, skillful and coherent; sentences are strong and expressive, with varied structure; word choice is appropriate and mature.	
Mechanics (X1)	Essay contains distracting errors in punctuation, grammar, and spelling; handwriting is messy and/or illegible.	Punctuation, spelling, and grammar are generally correct, with few errors; handwriting is generally legible.	Punctuation, spelling, and grammar are correct, with no errors; handwriting is easy to read.	
Research Base (X1)	Essay lacks an adequate research base, and/or very few credible sources are referenced.	Research is conducted appropriately, with generally credible sources.	Essay conveys a comprehensive research base that includes clearly credible sources.	
Bibliography (X1)	References are not used effectively and/or do not pertain to the topic; limited quality sources are used; bibliography is not in the proper MLA format.	Most sources used are credible and of good quality; most references help to support the essay topic; bibliography is in the proper MLA format, with only minor errors.	Essay incorporates multiple and varied sources, all of which are credible, appropriate, and support the topic; bibliography is in proper MLA format, with no errors.	

ESSAY SUBTOTAL (90 points)	
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
SEMIFINAL SUBTOTAL (90 points)	
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (170 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

ESSAYS ON TECHNOLOGY
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

   1. Preliminary round, two (2) for every twenty (20) outlines submitted
   2. Semifinal round, two (2) or more

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Stopwatch
   5. Results envelope with coordinator forms

B. Securable room (preferable) during time of the event

C. Lined paper, five (5) sheets per participant in the preliminary round; ten (10) sheets per each participant in the semifinal found

D. Subtopics, one (1), which is chosen on-site as the essay topic

E. Paper clips and staplers for securing note cards, outlines, and essays

F. Tables and chairs for event coordinator, judges, and participants

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area or room in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Begin the event at the scheduled time by closing the doors and checking the entry list.

B. Late entries are considered on a case-by-case basis and only when the lateness is caused by circumstances beyond the participant's control.

C. In order to compete, participants must be on the entry list or must have approval of the CRC.

D. All participants should be in the room at this time. Participants registered but not present may be disqualified.

E. Distribute five (5) sheets of ruled notebook paper to each participant. Provide additional paper as needed.

F. Instruct participants to identify their outline with only their entry number written in the upper right hand corner of each page submitted. No other identifying information may be included.

G. Remind participants to single-space their outline and submit no more than two (2) pages for evaluation, plus a single page for references, and the note card used for research (each with their entry number in the upper right hand corner).

H. Randomly select one (1) of the subtopics. This subtopic becomes the subject for all the entries.

I. Instruct participants who finish before time is called that they may submit their work and leave quietly.

J. Five (5) minutes before the hour is up, make an announcement that the participants have five (5) minutes to complete their outlines.

K. Exactly one (1) hour after beginning, call time and collect the outlines, reference pages, note cards, and unused paper.

L. Supervise and assist the judges during the evaluation of the outlines and note cards.

M. Each entry must be read independently by two (2) judges.

N. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

O. The two (2) scores for each entry are averaged and the top twelve (12) entries are determined. These twelve (12) entries are to be posted as semifinalists.

P. Submit the semifinalist results to the CRC room.

Q. If necessary, manage security and the removal of materials from the area.

SEMIFINAL ROUND

A. Distribute participant's outlines and note cards from the preliminary round as participants check-in to the semifinalist round.

B. Distribute ten (10) sheets of ruled notebook paper to each participant. Provide additional paper as needed.

C. Instruct participants to identify their essay with only their entry number written in the upper right hand corner of each page of the essay submitted. No other identifying information may be included.

D. Remind participants to double space their written work and submit no more than five (5) essay pages, plus a single page for references (with their entry number in the upper right hand corner).

E. Each participant is required to turn in the outline and the note card used for the preliminary round.

F. Instruct participants who finish before time is called that they may submit their work and leave quietly.

G. Five (5) minutes before the hour is up, make an announcement that the participants have five (5) minutes to complete their essays.

H. Exactly one (1) hour after beginning, call time and collect the essays, reference pages, outlines, note cards, and unused paper.

I. Supervise and assist the judges during the reading of the essays.

J. Each entry must be assessed twice.

K. Discuss rule violations (e.g. 20% deduction, disqualification) and have all relevant parties initial the rating form.

L. Judges determine the ten (10) finalists, discuss and break ties.

M. Submit the finalist results and all related forms in the results envelope to the CRC room.

N. If necessary, manage security and the removal of materials from the area.

FLIGHT

OVERVIEW

Applying leadership and 21st century skills, participants study the principles of flight and design in order to fabricate a glider that stays in flight for the greatest elapsed time. The glider must be designed to be launched from a catapult that is provided on-site. The design process is documented in a portfolio that is submitted for evaluation.

ELIGIBILITY

Two (2) individuals per chapter may participate.

TIME LIMITS

PRELIMINARY ROUND

A. Participants test their pre-built glider for four (4) flights with no additional trim time.

SEMIFINAL ROUND

A. Forty-five (45) minutes are allowed for the construction of a glider.

B. Ten (10) minutes are allowed for trimming (test flights) of their glider.

ATTIRE

TSA competition attire is required.

SAFETY

A. Participants are required to provide and wear safety-approved eyewear during all phases of this event.

B. Prescription eyewear needs to have side shields to be considered safety eyewear.

C. Should a participant remove his/her eyewear during the event, he/she will be reminded once to replace it. If there is a second infraction, the participant will be disqualified and asked to leave the competition.

D. TSA will not supply safety eyewear.

E. Participants must be instructed by their advisors on the proper use of cyanoacrylate (CA) glue.

PROCEDURE

PRELIMINARY ROUND

On-site Testing of Pre-Built and Trimmed Gliders

A. Participants report to the time and place stated in the conference program with:

1. The completed glider
2. The documentation portfolio
3. Safety eyewear

B. On-site Testing:

1. During the testing participants must provide and wear safety eyewear.
2. No trim time is allotted during the preliminary round.
3. After check-in, participants will test their pre-built glider for four (4) flights.
4. Launch Procedures:
    a. Participants are called by their group timer to the designated launch area.
        i. Each participant receives a turn to fly his/her glider.
        ii. Participants must do all four (4) flights consecutively during their turn.
        iii. The glider is hooked to the rubber loop of the catapult provided by TSA, and the participant pulls the glider's shark tooth point back to the wooden stop in front of the 350mm stop block or less on the catapult. The altitude and angle of the catapult (with the glider on it) are determined by participants as the glider is launched.
        iv. The participant releases the glider after getting the OK from the official timer.
5. Flight time begins when the glider is released.
6. Flight time ends when the glider hits the floor or ground, or when it comes to rest on an obstruction.

7. One repair is allowed after the individual time trials have begun.
    a. The repair must be made in three (3) minutes or less.
    b. No additional trimming is allowed after the repair.

C. Scoring: After the fourth flight, the top three (3) flight times are combined to obtain the total flight time; if a plane is unable to be tested the time is marked as a zero (0).

D. Twenty (20) semifinalists are determined by the top twenty (20) total test flight times.

E. Ties are broken by determining the longest single flight time.

F. Participants pick up their entries at the time and place stated in the conference program.

SEMIFINAL ROUND

On-site Reconstruction of Glider and Flight Testing

A. Twenty (20) semifinalist teams report to the event area at the time and place stated in the conference program to demonstrate the leadership and/or 21st century skills acquired by participating in an on-site reconstruction of the glider.

B. Participants provide their own tool box and building materials for the on-site construction portion (see regulations).

C. Participants must provide and wear safety eyewear.

D. Participants use their metric technical drawing to fabricate a glider.

E. Participants have ten (10) minutes to trim their glider in the designated area.

F. Documentation portfolios are evaluated.

G. Participants are allowed four (4) opportunities to fly their gliders for official times. The semifinal launch procedures are the same as the preliminary round.

H. The combined flight time of the best three (3) of the four (4) flights is used to determine the ten (10) finalists.

I. Ties are broken by determining the longest single flight time.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Documentation Portfolio:

1. Documentation portfolio is required and must be secured in a clear front report cover with the following single-sided, 8½" x 11" pages, in this order:
    a. Title page with event title conference city and state, the current year, and the participant's ID number; one (1) page
    b. Table of contents; pages as needed
    c. Full-size metric technical drawing of the glider including dimensions on an 11" x 17" paper, which may be folded to fit into the sheet protector. The technical drawing must:
        i. Be created using CAD, or be hand-drawn with traditional mechanical drawing instruments
        ii. NOT be a freehand sketch
        iii. Depict all parts that make up the glider
        iv. Be drawn to full scale
        v. Be drawn on a single sheet of paper that does not exceed 11" x 17"
        vi. Participants are not allowed to enter the semifinal on-site glider construction round without a completed technical drawing included
    d. Pictures of two (2) test gliders are included in the portfolio (one [1] picture of each test glider, for a total of two [2] pictures)
    e. A flight log for each pictured test glider (see Flight Log sample) must be included; pages as needed

f. A detailed drawing demonstrating compliance with the rules and features, including design principles used in building and adjusting gliders, must be included on 11" x 17" paper (may be folded to fit in the sheet protector)

g. A technical review of one flight log detailing launch, trim, and flights of the glider must be included; pages as needed

B. For pre-built glider and home-testing catapult regulations and specifications, refer to the "Glider Reconstruction Materials" section in the semifinal round of this guide.

PRELIMINARY ROUND

The Flight Test

A. Participants are required to provide and wear safety eyewear for this event.

B. Catapults for timed flights at the National TSA Conference are supplied by TSA.

C. During time trial flights, ONLY catapults provided by TSA may be used.

D. No trim time is allotted.

SEMIFINAL ROUND

Reconstruction of the Glider

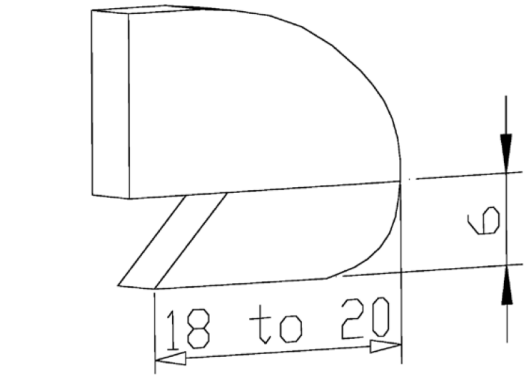
A. Participants demonstrate their expertise by reconstructing the glider.

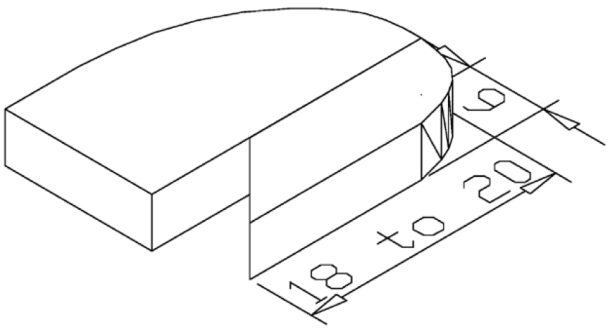
B. Participants are required to provide their own tool box for use in the semifinal on-site construction challenge. Participants should bring only the tools needed and leave the rest behind. Transporting and checking in will be made simpler with a smaller and lighter tool box.

1. Each tool box must:
   a. Include identification (school name, address, and advisor cell phone number)
   b. Not exceed twenty (20) inches (508 mm) length x ten (10) inches (254 mm) width x ten (10) inches (254 mm) height
   c. Contain all items needed to fabricate the solution
   d. Participants are not permitted to share tool boxes
   e. The following is a suggested list of tools:
      i. Cutting devices – none may be electric
      ii. Adhesives – This event requires the use of cyanoacrylate glue (best known as Super/Krazy glue) instead of aliphatic resin glue. Participants should practice with this material before the conference.
      iii. Aerosol and electric applicators are not allowed
      iv. A bottle of Uncure or Debonder is recommended
      v. A single two (2)-ounce bottle of accelerant (pump or drip) is permitted
      vi. Temporary fastening devices
      vii. Straight pins
      viii. Clamps
      ix. Tape
      x. A cutting surface that prevents table-top marring (required)
      xi. Rulers, straightedges, and/or measuring scales
      xii. Abrasives sheets, sponges, boards
      xiii. Marking devices (pens, pencils, etc.) and sharpener
      xiv. Sheet of wax paper, as large as is needed for the competition (required)
2. Glider reconstruction materials (supplied by the participant)
   a. Participants are not permitted to share.
   b. Moldable ballast material, i.e., clay
   c. Any materials are allowed to be used to create the glider. The material blanks must fit the regulations below.

BLANKS	Length	Width	Thickness
Fuselage	MAX 300mm or 11⅞"	MIN 13mm or ½"	MIN 3mm or ⅛"
Wing	MAX 300mm or 11⅞"	MAX 76mm or 3"	MIN 1.5mm or 1/16"
Stabilizer	MAX 150mm or 5⅞'	MAX 50mm or 2"	MIN .75mm or 1/32"
Fin	MAX 76mm or 3'	MAX 25mm or 1"	MIN .75mm or 1/32"
Shark Tooth	MAX 20mm or ¾"	MAX 6mm or ¼"	MIN 3mm or ⅛"

FINISHED GLIDER SIZE	Length	Width	Notes
Fuselage Measured without ballast (clay, etc)	MAX 285.75mm or 11¼"		No extra length allowed for grip
Wing Span	MAX 285.75mm or 11¼"		
Wing Chord		MAX 76mm or 3"	Measured parallel to fuselage at widest point
Shark Tooth			Can be part of the fuselage or added on after. Dimensions per the illustration below





i. Templates, jigs, and fixtures MAY be used in constructing gliders (these are to help facilitate fast and accurate construction), however, these templates, jigs, and fixtures must be developed and built by students, and must not be the same material as the blanks to eliminate confusion with pre-made parts.

ii. Blank specifications:

1. Only one (1) piece is allowed for each glider part listed. Choose materials carefully.
2. A blank is the starting size of material before cutting or sanding.
3. The semifinal glider individual parts must be cut from the blanks on-site during the semifinal round.

3. Catapult specifications (to be used for trim and testing at home, school, and during preparation prior to time trial flights):

a. Catapults for timed flights at the National TSA Conference are supplied by TSA.
b. During time trial flights, ONLY catapults and rubber bands provided by TSA may be used.
c. Catapults are made from hardwood or plywood.
d. Participants who prefer to do so may use their own catapults during trim flights.
e. Catapult wooden stick dimensions:
    i. Laminate a piece of wood (10mm thick x 45mm wide x 700mm long) to a second piece of wood (6mm thick x 45mm wide x 350mm long), aligning the pieces at the handle end and gluing them face-to-face (see drawing).
    ii. The handle is 20mm thick x 30mm wide x 150mm long and is attached by screws to a 15mm thick x 30mm wide x 75mm long block using a middle-lap joint. The 75mm long block then is screwed to the laminated main catapult stick beginning at 400mm from the muzzle end.
    iii. The rubber loop is a #19 rubber band 3½" x 1/16" threaded through the screw eye of the launcher.
    iv. The screw eye is attached to the center of the 15mm thick x 15mm wide x 45mm long wooden block connected to the underside of the muzzle end of the catapult.

4. Storage container—All student-made items and fixtures must fit in the tool box, which is not to exceed 254mm high x 254mm wide x 508mm long.
5. Student made fixtures may include:
    a. Traction plate with sandpaper (150mm x 300mm maximum) attached to a thin piece of rigid material, i.e., plywood, foam core board, press board, cardboard, plastic, etc.
    b. Dihedral fixture — this is an all-wood apparatus that assists in sanding the critical dihedral joints and secures the model as the glue dries to ensure a precise prototype.

EVALUATION

PRELIMINARY ROUND

Tier 1

A. The combined flight time of the best three (3) of the four (4) flights determine the top twenty (20) semifinalists. Scores will be reset to zero (0) for the semifinalist round.

SEMIFINALIST ROUND

Tier 2

A. The documentation portfolio
B. Points earned for the combined flight time of the best three (3) of the four (4) flights

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

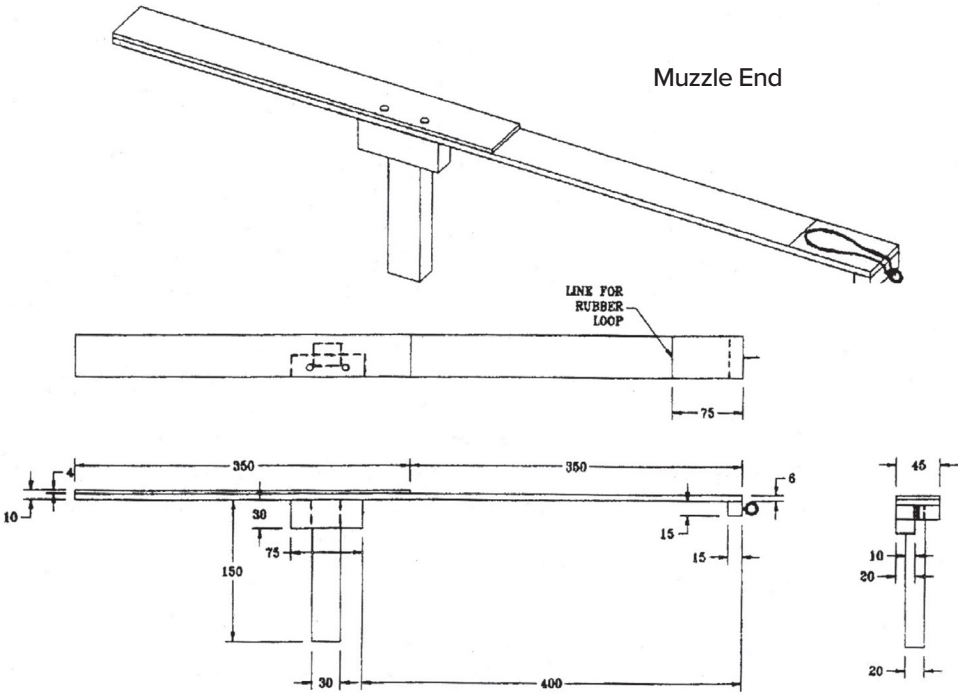
- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Aeronautical engineer
- Aircraft systems engineer
- Physics instructor

CATAPULT DRAWING



FLIGHT LOG SAMPLE

Glider #1 or Glider #2 (circle one)			Dates:	
Flight #	**Time aloft**	**Flight pattern**	**Trim adjustment**	**Advisor sign off**
#1				
#2				
#3				
#4				
#5				
#6				
#7				
#8				
#9				
#10				

Participant/Team ID# _____

FLIGHT

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ TIER 1 – Glider is present for flight times
☐ TIER 2 – Building material including toolkit, documentation portfolio, completed technical drawing
☐ ENTRY NOT EVALUATED

TIER 1 – FLIGHT TIMES		
Flight times recorded to the nearest tenth (.1) of a second. Enter the top three (3) flight times		
Duration of Flight #1	Seconds	
Duration of Flight #2	Seconds	
Duration of Flight #3	Seconds	
TIER 1 – FLIGHT TIMES (combine flight #1, flight #2, and flight #3)	**TOTAL SECONDS**	

TIER 2 – SEMIFINAL DOCUMENTATION PORTFOLIO (70 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
Full Scale Technical Drawing (X1)	Technical drawing is missing two (2) or more components; parts of the glider are not shown; non-metric dimensioning is used; technical drawing is not drawn to full scale and/or is on paper larger than 11" x 17", and/or it is sloppy.	Technical drawing may be missing one (1) component; the technical drawing is largely correct and neatly completed.	All components are included in the technical drawing and the drawing is correctly and neatly completed.	
Technical Drawing/Built Glider Correlation (X1)	Glider built for the competition does not match the technical drawing in dimensions or appearance; glider is not designed/built properly for the event.	Glider is similar to the technical drawing within a tolerance of 5mm; glider is designed correctly to fly in the competition.	Glider is within a tolerance of 2mm of the technical drawing; glider is constructed exactly as the technical drawing illustrates.	
Test Glider Pictures (X1)	One test glider photo is missing, and/or pictures are not clearly visible, and/or they lack definition/detail of each glider.	Pictures of both test gliders are included; each picture is clearly visible, but pictures provide only adequate definition and/or detail.	Both test glider pictures include significant details and annotations about each glider; clearly visible pictures are defined.	

TIER 2 – SEMIFINAL FLIGHT TIMES (70 points) – continued				
Detail Drawing (X1)	Detail drawing is unclear, non-compliant with the regulations and design feature specifications; adjustments are not addressed or are missing.	Detail drawing illustrates compliance with most rules and design features used in building; adequate details for adjustments are provided.	Detail drawing illustrates compliance with all rules and design features used in building and adjusting the glider.	
Flight Logs (X1)	One flight log is missing, and/or the logs are incomplete, and/or advisor signature is not included.	Both logs are included and they are generally complete.	Both logs are included and are complete, with a thorough understanding of a flight log's purpose as a flight aid.	
Technical Review of Flight Log (X1)	Review of flight logs are missing many details of launching; trimming and flying of one glider are not clear; leadership and/or 21st century skills are not evident.	Review of flight logs provide adequate details of launching, trimming and flying of one glider; leadership and/or 21st century skills are somewhat evident.	Review of flight logs are complete, with a thorough understanding of launching, trimming and flying of one glider; leadership and/or 21st century skills are clearly evident.	
			TIER 2 – SEMIFINAL DOCUMENTATION PORTFOLIO SUBTOTAL (70 points)	

SEMIFINAL FLIGHT TIMES (70 points)							
Flight times recorded to the nearest one hundredth [.01] of a second. Enter the top three (3) flight times.							
Duration of Flight #1						Seconds	
Duration of Flight #2						Seconds	
Duration of Flight #3						Seconds	
SEMIFINAL FLIGHT TIMES (combine flight #1, flight #2, and flight #3)						**TOTAL SECONDS**	
1st	**2nd**	**3rd**	**4th**	**5th**	**5th**	**7th**	**8th**
70 Points	67 Points	64 Points	61 Points	58 Points	55 Points	52 Points	49 Points
9th	**10th**	**11th & 12th**	**13th & 14th**	**15th & 16th**	**17th & 18th**	**19th – 20th**	
46 Points	43 Points	36 Points	30 Points	24 Points	18 Points	12 Points	
						SEMIFINAL FLIGHT SCORE SUBTOTAL (70 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

SEMIFINAL SUBTOTAL (140 points)	
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (140 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

FLIGHT
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

   1. Preliminary round, two (2) or more
   2. Semifinal round, two (2) or more

C. Assistants, two (2) or more

D. Timekeepers, two (2) or more

MATERIALS

A. Coordinator's packet, containing

   1. Event guidelines, one (1) copy for the coordinator and for each judge/assistant
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Stopwatches, two (2) or more
   5. Results envelope with coordinator forms

B. Other supplies

   1. Measuring scales
   2. First aid kit with strip bandages and debonder
   3. Catapults, five (5)
   4. #19 rubber bands

C. Metric rulers

SAFETY

A. Participants are required to provide and wear safety-approved eyewear during all phases of this event.

B. Prescription eyewear needs to have side shields to be considered safety eyewear.

C. Should a participant remove their eyewear during the event, they will be reminded once to replace it. If there is a second infraction, the participant will be disqualified and asked to leave the competition.

D. TSA will not supply safety eyewear.

E. Participants must be instructed by their advisors on the proper use of cyanoacrylate (CA) glue.

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Check in participants at the time stated in the conference program.

B. Participants check in:

   1. The completed glider
   2. The documentation portfolio
   3. Safety eyewear

C. Late participants and/or entries are considered on a case-by-case basis and only when lateness is caused by events beyond the participant's control.

D. In order to compete, participants must be on the entry list or must have approval of the CRC.

E. Distribute the list of entrants assigned to each designated judge/timer.

F. Timed flight procedure:

   1. Each flight time is recorded to the nearest one hundredth (.01) of a second.
   2. After the fourth flight, the top three (3) flight times are added together, then divided by three (3) to obtain the average flight score; each glider is placed with its documentation portfolio.

3. Three (3) groups may fly simultaneously in the assigned area for the event, with consideration for the safety of gliders and participants.
4. Each participant receives a new rubber band for each of the test flights.

G. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:
   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

H. After the test flight, combine the scores and determine the top twenty (20) semifinalists. Evaluate the gliders to make sure they meet the rules criteria.

I. After the gliders have been tested and evaluated, secure the holding area so that the gliders and documentation portfolios remain safe until the scheduled time for pickup.

SEMIFINAL ROUND

A. Check in semifinalists at the time stated in the conference program.

B. Check to verify that the tool boxes and building materials are within the specifications outlined.

C. Announce any specific rules and regulations pertaining to the on-site construction challenge.

D. Manage the on-site construction of gliders.

E. After the gliders have been constructed, secure the holding area so that the gliders and documentation portfolios remain safe until the scheduled time for trimming.

F. Designate times for test flying/trimming and communicate the thirty (30)-minute segments scheduled for each group of participants.

G. Designate times for groups to make four (4) official flights for time.

H. Timed flight procedure:
   1. Each flight time is recorded to the nearest one hundredth (.01) of a second.
   2. After the fourth flight, the top three (3) flight times are averaged to obtain a score; each glider is placed with its documentation portfolio.
   3. Three (3) groups may fly simultaneously in the assigned area for the event, with consideration for the safety of gliders and participants.
   4. Each participant receives a new rubber band for each of their test flights.
   5. Judges calculate scores based on the results of the test flight.
   6. Gliders are evaluated.

I. Documentation portfolios are judged.

J. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

K. Judges determine the ten (10) finalists and discuss and break any ties.

L. Submit the finalist results and all related forms in the results envelope to the CRC room.

M. If necessary, manage security and the removal of materials from the event area.

FORENSIC TECHNOLOGY

OVERVIEW

Participants take a test of basic forensic science theory to qualify as semifinalists. Applying leadership and 21st century skills, semifinalists demonstrate expertise of forensic science concepts through the application of techniques within a limited time frame. Each year, three (3) skills or techniques will be posted on the TSA website under *Themes & Problems*. Students will need to be familiar with and able to demonstrate all three (3) skills. During the semifinalist portion, the students will demonstrate one (1) skill to the judges. Students will be notified of the presentation topic upon completion of the written test.

ELIGIBILITY

One (1) team of two (2) individuals per chapter may participate. No individuals will be allowed to compete.

TIME LIMITS

PRELIMINARY ROUND

A. One (1) hour to complete the test.

SEMIFINAL ROUND

A. Five (5) minutes is allowed to set up supplies and prepare the demonstration. Semifinalists are required to bring their own supplies.
B. Ten (10) minutes is allowed to demonstrate the selected skill and answer questions from the judges.
    1. Seven (7) minutes for the demonstration
    2. Three (3) minutes for the interview.
C. Three (3) minutes is allowed to clean the demonstration area.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRELIMINARY ROUND

A. Participants report for the test at the time and place stated in the conference program.
B. A forensic science test is administered to both team members at the same time.
C. Twelve (12) teams with the highest averaged scores are selected as semifinalists for the on-site problem.
D. A list of semifinalists in random order is posted.

SEMIFINAL ROUND

A. Participants report at the time and place stated in the conference program to sign-up for the on-site skills challenge.
B. Participants report at the assigned time and place for the on-site skills challenge.
C. Each team is given a copy of the skill they are required to demonstrate upon completion of their written test.
    1. Participants use the allotted time to set up necessary materials and prepare the demonstration.
    2. Participants demonstrate the selected skill in the application of using proper forensic science techniques, and to respond to questions.
    3. Participants clean the demonstration area and pack necessary supplies for the next competitors.
D. The top ten (10) finalists are announced during the conference award ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Team members take the test individually.
B. Tests may be administered online or via a scan-type answer sheet. Please review the Competition Updates page of the TSA website.
C. Scan-type forms are furnished by the event coordinator, if applicable.
D. Participants are responsible for bringing two (2) sharpened No.2 pencils to the test site.
E. Participant identification numbers must be entered on the scan form in the space indicated.
F. Failure to follow instructions will result in the scoresheet not being scored.
G. Participants must stop work immediately when time is called.
H. Should a participant complete the test before the time allocated is over, the participant will submit the test and scantron form to the coordinator without any form of communication with any other member. Failure to do so results in disqualification of the participant.
I. Test must be turned in before leaving the test area.
J. The average of the scores of the two (2) team members determines team ranking.
K. These same two (2) team members compete in the semifinal round, should the team qualify.

SEMIFINAL ROUND

A. No reference may be made concerning the name of the team, the team members, or their school. Team members write their team identification number on any material used to demonstrate their skill.
B. No reference materials may be used during this event.
C. No observers are allowed in the event or preparation rooms during the event.
D. Participants are responsible for bringing all of the necessary supplies to the semifinalist demonstration. National TSA will not provide any supplies.

EVALUATION

PRELIMINARY ROUND

A. The averaged team's test score

SEMIFINAL ROUND

A. The demonstration/interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Crime scene investigator
- Forensic anthropologist
- Forensic pathologist
- Forensic engineering scientist

Participant/Team ID# _____

FORENSIC TECHNOLOGY

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Team is present for demonstration
☐ ENTRY NOT EVALUATED

TEST SCORES (50 points)	
Record the average score of the two (2) team members in the box below. Record the team average in the column space to the right.	
Average score of the two (2) team members	
TEST SUBTOTAL (50 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	

PRELIMINARY SUBTOTAL (50 points)	

SKILLS DEMONSTRATION (80 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Knowledge (X2)	The team is unprepared and unorganized for the presentation.	Team members have a general understanding of the forensic science skill and answer questions adequately.	There is clear evidence that team members have a thorough understanding of the forensic science skill; they answer questions well and confidently.	
Articulation (X1)	The team's demonstration is not logical or articulate; leadership and/or 21st century skills are not evident.	The team's demonstration is logical and generally articulate; leadership and/or 21st century skills are somewhat evident.	The team provides a concise, logical, and clear explanation of the skill they are demonstrating; leadership and/or 21st century skills are clearly evident.	

SKILLS DEMONSTRATION (80 points) – continued				
Team Participation (X1)	Only one team member communicates with judges; there is no participation from the other team members.	Team members participate equally, but only one member seems to fully understand the concepts.	Team members seem to fully understand the concepts and share an equal role in the demonstration.	
Skill Demonstration (X2)	Team members are unable to successfully demonstrate the designated skill.	Team members are able to partially demonstrate the designated skill.	Team members are successful and effective in their skill demonstration.	
Technique (X2)	No indication of proper technique is used during the demonstration	Some indication of proper technique is used during demonstration.	Proper technique is used during the demonstration.	
			SKILLS DEMONSTRATION SUBTOTAL (80 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

SEMIFINAL SUBTOTAL (80 points)

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (130 points)

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

FORENSIC TECHNOLOGY
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Proctors

   1. Preliminary round, three (3) or more

C. Judges

   1. Semifinal round, two (2) or more

MATERIALS

A. Coordinator's packet containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Results envelope with coordinator forms

B. Coordinators are responsible for creating the test to be administered at the national conference; copies are provided by the national TSA office.

C. Stopwatches for timekeepers, one (1) per room

D. Tables and chairs in the analysis room

E. Copies of the selected skill, one (1) per team and one (1) per judge

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Begin the event at the scheduled time by closing the doors and checking the entry list.

B. Late participants and/or entries are considered on a case-by-case basis and only when lateness is caused by events beyond the participant's control.

C. In order to compete, participants must be on the entry list or must have approval of the CRC.

D. All participants and judges should be in the room at this time.

E. In order to compete, participants must be on the registration list or must have approval of the CRC.

F. Monitor the one (1)-hour test.

G. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

H. Judges determine the twelve (12) semifinalists.

I. Submit semifinalist results to the CRC for posting.

J. The demonstration theme is posted when the semifinalists are posted.

SEMIFINAL ROUND

A. Facilitate semifinalist sign-up times at the designated location.

B. When each team enters the demonstration room, guide them to the demonstration area.

C. Notify students when time begins. Allow teams five (5) minutes to set up and prepare for the demonstration.

D. Allow ten (10) minutes for the students to demonstrate the selected skill.

E. At the end of the ten (10)-minute period, allow students three (3) minutes to clean up the work space and then escort the students out of the competition room.

F. Collect all materials, including any notes, prior to dismissing the participants.

G. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

H. Judges determine the ten (10) finalists and discuss and break any ties.

I. Submit the finalist results and all related forms in the results envelope to the CRC room.

J. Manage security and removal of all materials from the competition area.

INVENTIONS AND INNOVATIONS

OVERVIEW

Applying leadership and 21st century skills, participants research and brainstorm the need for an invention or innovation of a device, system, or process related to the current year's theme, which will be posted on the TSA website under *Themes & Problems*. Team entries must include documentation of the team's work through a static display and a model/prototype. Semifinalists give a "sales pitch" presentation to a panel of judges (who act as venture capital investors) to persuade the panel to invest in their invention/innovation.

ELIGIBILITY

PRELIMINARY ROUND

One (1) team of three (3) to six (6) individuals per chapter may participate.

TIME LIMITS

Ten (10) minutes are allowed for the semifinal presentation and interview broken down as follows:

A. One (1) minute for set-up

B. Seven (7) minutes for the presentation

C. Two (2) minutes to respond to questions from judges

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the annual theme on the TSA website under *Themes & Problems*.

B. Participants concentrate their efforts in researching and identifying a need that has the potential for the invention/innovation of a device, system, or process.

C. Participants design a scaled model/prototype, which may be a conceptual model or a working model of a device, system, or process.

D. Participants document the design through the creation of a static display.

E. Participants prepare a "sales pitch" presentation that further explains the invention/innovation to a panel of judges acting as venture capitalists.

PRELIMINARY ROUND

A. No more than two (2) team representatives report at the time and place stated in the conference program to check in:

   1. The static display
   2. The model/prototype

B. Entries are evaluated by the judges with neither students nor advisors present based on the following criteria:

   1. Judges score the static display criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.
   2. Judges score the Documentation Portfolio criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalists.

C. A list of twelve (12) semifinalists (in random order) is posted.

SEMIFINAL ROUND

A. One (1) team representative reports at the time and place stated in the conference program to sign up for a presentation time.

B. Three (3) team representatives report at least ten (10) minutes prior to their assigned time to the designated place for their presentation.

C. Semifinalist team representatives make a "sales pitch" presentation to the judges (venture capitalists).

D. The "sales pitch" presentation beings on the timekeepers signal.

E. Team representatives pick-up their entry from the display area at the time and place stated in the conference program.

F. The top ten (10) finalists are announced at the awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. The invention/innovation entry (of a device, system, or process) must be the result of an identified need.

B. Static display:

1. The size of the display (including the model/prototype) for the invention/innovation may not exceed 15" deep x 3' wide x 4' high.
2. Content:
   a. Invention name
   b. Description of the invention/innovation
   c. Explanation of the necessity
   d. Description of brainstorming process
   e. Drawings or illustrations of the invention/innovation. If the entry contains images of people, proof of consent but be included on the back of the display. Images of minors require parental consent (see Forms Appendix)
   f. Process of building the model/prototype
3. A/C electricity may not be used.
4. If the display and/or model/prototype requires power, they must be powered by dry-cell batteries or photo-voltaic cells.
   a. The power supply must physically fit within the display dimensions.
   b. All power must be switched off once the team has completed set-up.
   c. If teams want judges to activate any electronic device in their model/prototype/display, complete instructions must be provided to judges on how to power up the model/display.
5. The display must be presented as if it were in a product show case geared toward an audience of venture capitalists.

C. Model/Prototype:

1. The model/prototype may be a scaled version of the invention/innovation idea.
2. The idea should be realistic and have the potential to be workable.
3. The following options may be used to provide direct current electrical power for the model/prototype when it is demonstrated during the semifinalist presentation. No other electrical source may be used.
   a. Up to 4 "C" or "D" batteries, OR
   b. Up to 8 "AA" or "AAA" batteries

D. Once the display set-up time frame has closed, participants may not re-enter the event area.

E. Violation of the following will result in disqualification:

1. No viruses, live plants, or animals may be used as part of the display.
2. No harmful or illegal substances may be displayed

PRELIMINARY ROUND

A. No more than two (2) team representatives report at the time and place stated in the conference program to check in:

1. The static display
2. The model/prototype

B. Entries are independently reviewed by judges.

C. A list of twelve (12) semifinalist teams (in random order) is posted.

SEMIFINAL ROUND

A. Up to three (3) representatives from each team report at the time and place stated in the conference program for the "sales pitch" presentation.

B. Using leadership and/or 21st century skills, the goal of the team is to convince the judges that the invention/innovation is needed and has real-world potential.

C. Representatives may reference their display and documentation during the presentation and interview.

D. Teams may bring and use audio/visual materials or a laptop for their presentation. AC power will not be provided or available. Projectors and screens are not permitted.

E. Time limits:
   1. One (1) minute for set-up
   2. Seven (7) minutes for presentation
   3. Two (2) minutes to respond to questions from judges
   4. A five-(5) point deduction will be incurred for any time infraction.

EVALUATION

PRELIMINARY ROUND

Tier 1

A. The static display

Tier 2

B. The model/prototype

SEMIFINAL ROUND

A. The "sales pitch" presentation

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Commercial and industrial design
- Engineer
- Entrepreneur
- Marketing strategist
- Product designer
- Small business owner

Participant/Team ID# _____

INVENTIONS AND INNOVATIONS

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ TIER 1 – Display is present
☐ TIER 2 – Model/prototype is present
☐ ENTRY NOT EVALUATED

TIER 1 – STATIC DISPLAY (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Display (X2)	Display is not complete; the information is irrelevant to the invention/innovation, and the display is lacking in aesthetic quality.	Display includes most components; the idea featured is adequately described; the quality is aesthetically pleasing.	Display is complete; information presented promotes the invention/innovation exceptionally well, and the quality is aesthetically pleasing; the display incorporates the required interactive components.	
Need and Description (X2)	Description of need for invention/innovation is provided, but is unclear and unconvincing; there is not enough detail; invention/innovation is not sensible, practical, or rational in nature.	Description of need for invention/innovation is generally convincing, with some detail; invention/innovation is realistic and generally meets the need as defined	Description of need for invention/innovation is fully explained, defined, and detailed precisely; invention/innovation accurately and convincingly meets the need as defined.	
Brainstorming Process (X1)	Description of the brainstorming process provides little or no details.	Description of the brainstorming process is provided, and includes some detail about the process.	There is clear evidence that brainstorming served as a key component of the process.	
Illustration/ Drawings (X1)	Only one or two illustrations/drawings of the model/prototype are displayed, with little or no evidence that a model/prototype was well-developed or utilized.	Adequate illustrations/drawings of the model/prototype are included and are generally representative of the concept.	High quality illustrations/drawings of the model/prototype are provided and documented completely.	
			TIER 1 – STATIC DISPLAY SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

TIER 1 – SUBTOTAL (60 points)

TIER 2 – MODEL/PROTOTYPE (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Craftsmanship (X1)	The model/prototype shows minimal craftsmanship in design and creation.	The model/prototype shows adequate craftsmanship in design and creation.	The model/prototype shows exceptional craftsmanship in design and creation.	
Feasibility (X1)	The model/prototype is not realistic and does not have the potential to be workable.	The model/prototype is mostly realistic, but would need some changes to be fully workable.	The model/prototype is very realistic and is completely workable in it's current iteration.	
Theme (X1)	There is minimal association to the annual theme and/or the model/ prototype could not meet the identified need.	There is adequate association to the annual theme and the model/ prototype could potentially meet the identified need.	The model/prototype appropriately meets the identified need and is highly associated to the annual theme.	
Product Overall Marketability (X2)	The model/prototype does not represent a marketable product and would not be of interest to venture capitalists.	The model/prototype is adequately marketable and would be of slight interest to venture capitalists.	The model/prototype is high marketable and would be of great interest to venture capitalists.	
			TIER 2 – MODEL/PROTOTYPE SUBTOTAL (50 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (110 points)	

SEMIFINAL SALES PITCH PRESENTATION/INTERVIEW (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the presentation; illogical explanation of the need and solution is presented.	Participants are generally prepared for the presentation; explanation of the need and solution are communicated and generally organized.	The presentation is logical, well organized, and easy to follow; the need and solution are communicated in a concise manner.	
Knowledge (X1)	Participants seem to have little understanding of the concepts in their project; answers to questions may be vague.	Participants exhibit a basic understanding of the concepts in their project.	Participants show clear evidence of a thorough understanding of the concepts in their project.	
Articulation (X1)	Communication of the design process is unclear, unorganized, and/or illogical; leadership and/or 21st century skills are not evident.	Communication of the design process is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the design process is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
Creativity of Presentation (X2)	Presentation lacks imagination, originality, and detail; there is limited use of audio/visual materials.	Presentation is generally effective, innovative, and convincing; use of audio/video materials provides information about the invention/ innovation.	Presentation is inspiring, inventive, resourceful, and completely convincing; use of audio/visual materials is exceptional in providing information about the invention/ innovation.	

SEMIFINAL SALES PITCH PRESENTATION/INTERVIEW (60 points) – continued				
Team Participation (X1)	The majority of the delivery is made by one member of the team; the partner(s) are disengaged from the presentation.	Team members are generally engaged in the process, though one member may take on more responsibility than the other(s).	Team members are actively involved in the presentation and responses to the interview questions; there is shared responsibility among the team members.	
			SEMIFINAL SALES PITCH PRESENTATION/INTERVIEW SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	

TIME DEDUCTIONS	
A five-(5) point deduction will be incurred for any time infraction.	

SEMIFINAL SUBTOTAL (60 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (170 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

INVENTIONS AND INNOVATIONS EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

1. Preliminary round, two (2) or more
2. Semifinal round, two (2) or more

C. Assistants, two (2) or more

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge.
2. TSA Event Coordinator Report
3. List of judges/assistants
4. Stick-on labels for identifying entries
5. Results envelope with coordinator forms

B. Display tables for entries

C. Table and chairs for team presentations, as needed

D. Stopwatch

E. Measuring tape

F. Table and chairs for event coordinator and judges

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

CHECK-IN

A. Check-in the entries at the time stated in the conference program.

B. No more than two (2) team representatives may check-in the:

1. Static display
2. Model/prototype

C. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

D. In order to compete, participants must be on the entry list or must have approval of the CRC.

E. Requirements for attire do NOT apply during check-in, only on the first day of the conference.

F. Each entry must include the team's identification number in the upper right-hand corner of the display and somewhere visible on the model/ prototype.

PRELIMINARY ROUND

A. Judges independently review the entries.

1. The initial round of judging scores the static display entires to determine the top twenty-four (24) participants.
2. The second round of judging scores the model/ prototype of the twenty-four (24) identified participants based on the initial round of judging to determine the twelve (12) semifinalists.

B. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

1. To deduct twenty percent (20%) of the total possible points in this round
2. To disqualify the entry

The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

C. Judges determine the twelve (12) semifinalists and discuss and break any ties.

D. Submit the semifinalist results and all related forms in the results envelop to the CRC room.

E. Create a sign-up sheet for semifinalist presentations and communicate any instructions to the semifinalist participants.

SEMIFINAL ROUND

A. Semifinalists report to sign-up for the presentation at the time and place stated in the conference program.
B. Check in semifinalists and confirm with the teams their order of presentation and the procedure. Team representatives should report at least ten (10) minutes prior to their assigned time to the designated place for their presentation.
C. Manage the presentations and interviews.
D. Discuss rule violations and have all relevant parties initial the rating form.
E. Judges independently assess the semifinal presentation and interview.
F. Judges determine the top ten (10) finalists and discuss and break any ties.
G. Submit the finalist results and all related forms in the results envelope to the CRC room.
H. If necessary, manage security and the removal of materials from the event area.

JUNIOR SOLAR SPRINT

OVERVIEW

Junior Solar Sprint (JSS), an Army Educational Outreach Program (AEOP), provides a hands-on opportunity for students to apply science, technology, engineering, and mathematics (STEM) concepts, along with leadership and 21st century skills such as creativity, teamwork, and problem-solving skills, as they design, construct, and race a solar-powered car.

A wealth of resources for teachers to implement the JSS program can be found on the AEOP JSS website.

ELIGIBILITY

One (1) team of two to four (2-4) individuals per chapter may participate; one (1) entry per team.

Participants must be:

A. Part of a registered Technology Student Association chapter, or

B. Part of a group that competes at an approved Army host site

TIME LIMITS

PRELIMINARY ROUND

A. All components of the chapter's entry (documentation portfolio PDF only) must be finished, submitted, and accessible via the Internet by 11:59 p.m. ET on a designated date in mid-May.

B. All models meeting safety and performance criteria are given up to two (2) time trials.

ATTIRE

Participants may choose to wear either the TSA approved JSS T-shirt or the official TSA competition attire at the JSS time trials and semifinal event. T-shirts are distributed to each participating team member in the JSS event.

PROCEDURE

PRE-CONFERENCE

A. Participants design and create their solar-powered car while working within the required specifications.

B. Participants record their design processes in a documentation portfolio.

C. Participants prepare a display to showcase only:

1. The solar-powered model car
    a. An 18" x 34" display area will be available for the cars during static judging
2. A decorated shoebox

D. Participants submit the documentation portfolio PDF by 11:59 p.m. ET on a designated date in mid-May.

E. Submission information will be provided on the TSA website under Competition Updates.

PRELIMINARY ROUND

A. Participants report to the time and place stated in the conference program and check in:

1. A solar-powered model car
2. The decorated shoebox

B. Entries are reviewed by judges to determine specification adherence and safety on the track.

C. All models meeting safety and performance criteria will be given up to two (2) time trials.

1. The fastest time of these time trials will determine the sixteen (16) top semifinalist cars to be raced.
2. Cars that are disqualified for any reason will not be permitted to participate in the semifinalist races.

D. Four (4) evaluated areas will be used to determine final standings (see criteria for assessment and racing performance on the official rating form).

E. A list of sixteen (16) semifinalists will be posted.

SEMIFINAL ROUND

A. The semifinalist interview must include a minimum of two (2) team members.

B. The top sixteen (16) fastest cars from the time trials compete in a single or double elimination racing process. The process will be determined by the event coordinator.

C. Ten (10) finalists (selected based on the elimination racing process) will be announced during the conference award ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Documentation Portfolio:
   1. The documentation portfolio must be submitted as a multi-page PDF document with pages in this order:
      a. Title page with the event title, conference city and state, the year, and the team/chapter ID number; one (1) page
      b. Table of contents; pages as needed
      c. Project Log (see the Competition Project Log attached to this event) that indicates preparation for the competition, as noted by date, task, time involved, obstacles/issues encountered, modifications made, team member responsible, and any comments; pages as needed
      d. Design drawings; pages as needed
         i. Must show the model with a minimum of two (2) views
         ii. The drawings must be developed using standard engineering practices and procedures (including measurements/ dimensions)
         iii. The drawings may be produced using traditional drafting methods or CAD
         iv. Rough sketches should be included
      e. Design details of the model, including model size, wheel size, gear ratio, specifications of the motor and solar panel used, etc; one (1) page
      f. Components list; one (1) page (see the Supplied Components worksheet attached to this event)
      g. Design process description, including pre-testing notes of various configurations of the model and revision notes about the model design throughout the process; pages as needed

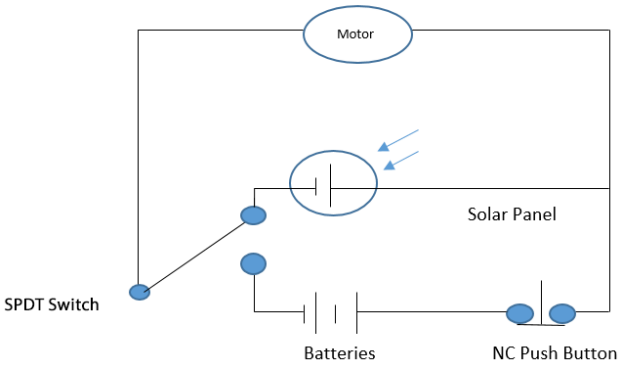
B. Display:
   1. must include the model, decorated shoebox and portfolio only.
   2. A decorated shoebox will be used as the display stand for the model car:
      a. The shoebox must be decorated and reflect creativity.
      b. The shoebox must have a label with a team ID.
   3. The portfolio must be placed with the model car.

C. Solar-Powered Model Car:
   1. The model must accurately reflect the design process outlined in the online resources found on the AEOP JSS website.
   2. The materials used to construct the model car must cost less than $50. The $50 does not include the cost of the panel. For example, Pitsco's Ray Catcher Sprint Deluxe Solar Vehicle costs $52.95. The Ray Catcher panel costs $38.25. Therefore, the cost of just the materials in the kit would be the difference between the two costs, $14.70.
   3. Original receipts for all materials purchased must be recorded in the Supplied Components List.
   4. If using recycled materials, documentation must show how these items were obtained.
   5. Recycled materials are not included in the $50 maximum.
   6. Model cars that exceed the $50 construction cost limit will be disqualified from the competition.
   7. The vehicle must be structurally sound without the solar panel attached.

D. Solar Paneling:
   1. One (1) solar panel (limited to a maximum output of 3.2 W), and one (1) motor (limited to a maximum 3.0 VDC) are allowed per car
   2. The Ray Catcher Sprint Kit sold by Pitsco (www.pitsco.com/Ray-Catcher-Sprint-Kit) or the JSS Solar Panel sold by Solar Made (www.solarmade.com/store/product/jss-kit) are the only panels that can be used in the competition.
   3. Solar panels cannot be shaved, drilled, or delaminated.

4. Only the motor supplied in the kit can be used.
5. Motors cannot be re-wound or disassembled.
6. If an evaluation group convened by the event coordinator determines that the solar panel and/or motor have been modified, the car and team will be disqualified from the competition.
7. The solar panel cannot be used as the chassis, or body, of the car.
8. The axles and wheels cannot be directly attached to the solar panel.
9. Reflectors, supports, and power leads can be added to these components as needed, but they must fit within the required dimensions.
10. The model car must, with the solar panel attached, not exceed the following dimensions:
    a. 60 cm (23 ⅝ inches) length
    b. 30 cm (11 13⁄16 inches) width
    c. 30 cm (11 ¾ inches) height (as measured from the surface the car is resting upon to the highest point of the car, with all its components attached)

JSS Wiring Diagram



11. Each vehicle must include a mounted battery holder that is capable of holding two AA batteries. This system needs a switch and button as illustrated. This is to be used at the starting line as follows:
    a. on the "READY" command the button is depressed and held, this opens the circuit.
    b. on the "SET" command the switch is flipped, to connect the batteries to the motor.
    c. on the "GO" command the button is released, thereby closing the circuit, sending power to the motor, causing the vehicle to move.
12. The team is encouraged to decorate the body of the car, but a clearly visible 3 cm square space must be available on the car to display the team ID#.
13. If it is determined that the vehicles will be raced using solar power, the sun's light is the only energy source that can be used to power the vehicle. Batteries, capacitors, flywheels, or any other energy storage devices are prohibited.
14. If the sun's energy is judged insufficient by the event coordinator, two (2) AA 1.5 V batteries will be furnished for each team
    a. Only the provided batteries are permitted to power the model.

E. A student-designed attachment device must be part of the car to accommodate the easy attachment and removal from a guide wire for steering. A purchased screw eye or eye bolt is not considered a student designed attachment device.
    1. A guide wire, such as fishing line, will be no more than 1.5 cm (⅝") from the surface of the track.
    2. The wire will go through the attachment device on the car and serve as a steering mechanism to keep the car in its lane. **This must be done without disconnecting the guide wire.**
    3. Both ends of the guide wire will be fixed to the track. This is the only allowable method of steering the car.
    4. No radio control is permitted in the car.
    5. Lane changing or lane crossing will result in a Did Not Finish (DNF) standing.
    6. A car's race that is impacted by an out-of-control vehicle will be allowed an opportunity to run the race again.
    7. A car that lacks steering control and interferes with other cars in other lanes will not be allowed to race again.

F. If a car is deemed unsafe, it will not be allowed to run in the time trials or the semifinalist races.

G. If the model is safe, but does not meet the required specifications, it will be allowed to run in the time trials but not the semifinalist races.

H. The remainder of the vehicle can be innovative in design and materials.

PRELIMINARY ROUND

Time Trials

A. The race lane must be 60cm wide and 20m long.

B. The track will be a hard flat surface, such as a tennis court or a smooth-surfaced running track.

C. The time trial/race specifications are as follows:

1. Tables will be set up for teams to make adjustments and minor repairs to cars prior to each time trial and the semifinalist heats.
    a. Teams that are "next up" to be timed or raced are given priority to use the tables.
    b. Teams must supply their own tools.
2. Time trials and semifinalist races will not be delayed to permit adjustments or repairs to cars. If a repair is needed during time trials, a three (3)-minute time limit for repairs will be permitted.
3. Prior to semifinals, teams will have an opportunity to perform up to two (2) trial races during a practice run session.
4. At race time, each car will be placed with the most forward part of the vehicle set even with the starting line and all of its wheels in contact with the ground.
    a. Each solar car's panel car will be covered completely by an opaque sheet covering that does not touch the solar panel.
    b. The opaque sheet will be removed at the start of the race, allowing the vehicle to collect solar power and start driving.
5. No more than two (2) team representatives will be allowed in the race area; one at the starting line, one to catch.
6. All cars will be started when the official signal is given.
    a. Each car will have up to two (2) time trials, unless otherwise determined by the event coordinator.
    b. The fastest time recorded will determine the sixteen (16) cars to race in the semifinal portion of the event.
    c. If, for any reason, a car is not able to participate in the time trials, or race at its scheduled time, it may be disqualified.
7. The judges will note the official time for each time trial.
    a. At the time designated, if a car does not start the time trial, OR if during the time trial it does not finish, it will be noted as a Did Not Finish (DNF).
    b. If a car has a false start, the entry will be given one (1) more opportunity to race.
8. One (1) team member must wait at the finish line to catch the vehicle for each timed trial. Team members are responsible for finding someone to catch their vehicle if another team member is unavailable.
9. After each timed trial or race, the vehicle and team member must remain at the finish line until the time is recorded for the vehicle.
10. No one, including team members and spectators, may accompany or touch the vehicle on the track during a timed trial or semifinalist race.
    a. Vehicles stalled on the track can be retrieved after the end of the trial or the race has been declared by the lead judge.
    b. A violation of this rule will result in disqualification of the offending team.
11. Challenges must be made before the next timed trial or race begins.
    a. Any challenges must come from team members who are actively competing, not the coach/advisor, parent, or coordinator.
    b. Any challenges need to be directed to the lead judge.
    c. The decisions of the judges regarding challenges are final.
12. Only competing students and race officials may be in the race area.
    a. Spectators, including coaches/advisors, parents, coordinators, and non-competing students, must remain in the designated spectator area throughout the duration of races.

b. Teams will be disqualified if a spectator, including a coach/advisor or parent, interferes with a race. This includes a coach/advisor or parent helping team members get their car on/off the guide wire.

13. Judges may inspect cars at any time before, during, and after timed trials or semifinalist races.
14. Any additional rules, regulations, or guidelines established by the event coordinator must be followed.

SEMIFINAL ROUND

Semifinalist Racing

A. Regulations and procedures outlined in the preliminary round time trials are repeated for semifinalist racing.

EVALUATION

PRELIMINARY ROUND

A. The documentation portfolio
B. The artisanship and engineering of the model solar car
C. Creativity in the decoration of the shoebox
D. Semifinalist Interview
E. Head-to-head race results

SEMIFINAL ROUND

A. The semifinalist interview, which includes a minimum of two (2) team members.
B. The time trials regulations in the preliminary round also apply to the semifinal races.
C. Semifinalist racing of the top sixteen (16) time trials winners will be conducted using a double elimination bracket.
D. Teams will be ranked in the double elimination bracket based on their fastest recorded time from time trials. No points are awarded for the time trials.
E. Semifinal races will not be timed, however, the winner will be determined by the car that crosses the finish line first, barring any penalties.

Refer to the official rating form for more information.

NOTES

A. Junior Solar Sprint (JSS) is an Army Educational Outreach Program (AEOP) competition. Information about AEOP opportunities can be found at www.usaeop.com.
B. An array of support materials, such as correlations to STEM standards, a glossary of terms, course outlines, and lesson plans can be found at www.usaeop.com/program/jss once registered.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Energy efficiency technician
- Mechanical engineer
- Solar engineer
- Solar panel installer
- Solar sales consultant

COMPETITION PROJECT LOG

JUNIOR SOLAR SPRINT COMPETITION

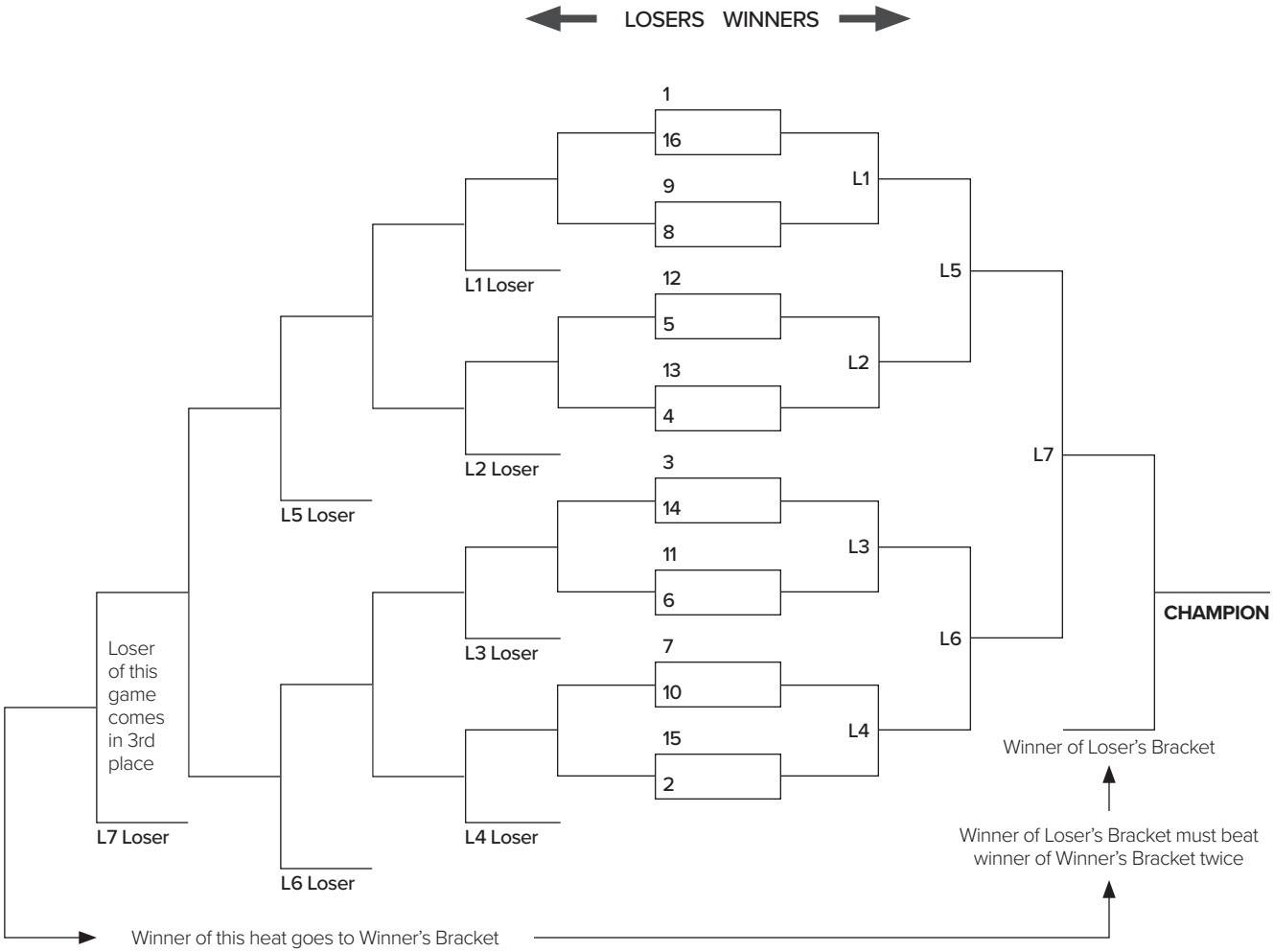
Date	Task	Time involved	Team member responsible	Obstacles encountered	Modifications made	Comments
1.						
2.						
3.						
4.						
5.						
6.						
7.						

SUPPLIED COMPONENTS LIST

Part	Description	Purchased Recycled	Cost
		TOTAL	

RACE BRACKET FOR 16-CAR DOUBLE ELIMINATION

Double Elimination Tournament Chart Seeded 16 player Field



Participant/Team ID# _____

JUNIOR SOLAR SPRINT

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Documentation portfolio was submitted
☐ ENTRY NOT EVALUATED

DOCUMENTATION PORTFOLIO (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	A number of portfolio components are missing.	Most of the portfolio components are included, but the portfolio lacks overall quality.	The portfolio includes all required components in order; it is neat and properly organized; effort and quality are evident.	
Project Log (X1)	The Project Log is lacking significant portions; it is messy and demonstrates lack of effort.	The Project Log is acceptable, with most information included.	The Project Log is complete and accurate; the presentation is neat and orderly; a great deal of effort is evident.	
Design Drawings (X1)	Some drawings are missing and/or drawings are of poor quality.	Drawings are acceptable; all required views are shown.	Drawings are accurate and complete; all required views are present; rough sketches are included.	
Design Details/ Components List (X1)	Several details of the model, such as model size, wheel size, and gear ratio are missing and/or are poor; the components list is very limited.	Most details of the model, such as model size, wheel size, and gear ratio are included; most components are included.	All details of the model, such as model size, wheel size, and gear ratio are present; all components are included.	
Design Process Description (X1)	The design process description lacks detail and is poorly documented.	Most of the design process description is present.	All parts of the design process description are present.	
			DOCUMENTATION PORTFOLIO SUBTOTAL (50 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

DISPLAY AND MODEL (80 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Display/Decorated Shoebox (X2)	The quality of the display is extremely poor and/or exceeds size requirements; the shoebox is not decorated and there is no creativity.	The display is adequately created and meets the size specifications; the shoebox is decorated and creative.	The display is exemplary, includes eye-catching details, and meets the size specifications; the shoebox is creatively decorated and shows exceptional originality.	
Model Design (X2)	The design of the solar model is poor and shows little effort.	The design of the solar model is adequate but not of exceptional quality.	The design of the solar model exhibits exceptional quality.	
Model Creativity/ Originality (X2)	The solar model car design lacks creativity and originality; little effort is apparent; car is an exact, or nearly an exact replica of purchased kit.	The solar model car design demonstrates an adequate level of creativity and originality; at least one (1) modification has been made to the car.	The solar model car design shows exceptional creativity, originality, artisanship, and engineering.	
Model Construction (X2)	The solar model car lacks quality of construction.	The solar model car demonstrates adequate quality of construction.	The solar model car demonstrates exceptional quality of construction.	
			DISPLAY AND MODEL SUBTOTAL (80 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

PRELIMINARY TOTAL (130 points)

PRELIMINARY JUNIOR SOLAR SPRINT TIME TRIAL / POST RACE INSPECTION	YES
Qualified Top 16 in Time Trial Speed to proceed to Interview and Final Race. If marked YES, place an "X" in the final box. If not in the Top 16, please leave blank.	

SEMIFINAL CAR BUILDER INTERVIEW (40 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Car Builder Interview (X2)	The team shows very limited knowledge of (and has difficulty articulating) how the car was produced or decisions made during the production; the student exhibits a basic understanding of design elements and functionality, and the rationale is inconsistent or absent.	The team demonstrates some knowledge of the vehicle production and has adequate knowledge of some processes or reasoning behind the vehicle design.	The team shows competence and knowledge related to the design and production of the vehicle; the student is able to articulate "reasoning" behind the decisions made.	
Articulation (X2)	Communication of the design process is unclear, unorganized, and or illogical; leadership and/or 21st century skills are not evident.	Communication of the design process is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the design process is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	

SEMIFINAL CAR BUILDER INTERVIEW (40 points) – continued	
SEMIFINAL CAR BUILDER INTERVIEW SUBTOTAL (40 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

SEMIFINAL RACE (60 points)							
Points are assigned based on results from double elimination bracket.							
1st	2nd	3rd	4th	5th & 6th	7th & 8th	9th – 12th	13th – 16th
60 Points	55 Points	50 Points	45 Points	40 Points	35 Points	30 Points	25 Points
SEMIFINAL RACE SUBTOTAL (60 points)							

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

SEMIFINAL TOTAL (60 points)	

To arrive at the FINAL TOTAL score, subtract rules violation points, as necessary.	**TOTAL** (230 points)

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

JUNIOR SOLAR SPRINT
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges, six (6) or more

C. Assistants, six (6) or more

MATERIALS

A. Coordinator's packet containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. Stick-on labels for identifying entries
   4. Race bracket form
   5. Results envelope with coordinator forms

B. Batteries (AA 1.5 V) (in the event that the sun provides insufficient energy), two (2) per entry plus spares on-site

C. Braided fishing line for the track:

   1. Four (4) pre-tied
   2. Two (2) on track

D. Race track set, including a starting gate and finish gate with digital timer

E. Spare stopwatches for back-ups

F. Padding for the finish gate

G. Tables for the display and evaluation of entries (cars and portfolios)

H. Lane Assignment Board to be used for a display of semifinals racing

I. Tables and chairs for event coordinator, judges, and official assistants

J. A large display for the final 16 bracket

K. A gauge to measure line height at the beginning and end of the line

RESPONSIBILITIES

PRE-CONFERENCE

A. National TSA will collect entries until 11:59 p.m. ET on a designated date in mid-May. The results are shared with the CRC manager, event coordinator, and assigned judges.

B. Review entries as they are submitted to the designated online storage utility.

C. Manage communication and pre-conference evaluation (at least two [2] or more judges should be recruited earlier in the year). Coordinate with the Judge Manager.

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event will be held for appropriate set-up, including location for displays and the evaluation of portfolios, racing site, chairs, tables, outlets, etc.

E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Participants report to the time and place stated in the conference program and check in:

   1. The solar-powered model car and decorated shoebox

B. Secure the entries in the designated area.

C. Late participants and/or entries are considered on a case-by-case basis and only when lateness is caused by events beyond the participant's control.

D. In order to compete, participants must be on the entry list or must have approval of the CRC.

E. Position the Junior Solar Sprint portfolios and models for viewing by the judges, and assist them as necessary during judging.

F. Set up the race track prior to the time trials. Make necessary adjustments.

G. Permit all vehicles (that can be safely operated) to participate in time trials.

H. Vehicles that are disqualified will NOT be permitted to participate in the semifinalist races.

I. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

J. Judges determine the sixteen (16) semifinalists.

K. Submit the semifinalist results to the CRC room.

SEMIFINAL ROUND

A. Post the top sixteen (16) cars with interviews times.

B. Car builders will report to the track at the posted time for a five (5)-minute car builder interview.

C. Conduct interviews with the qualifying top sixteen (16) car builders.

D. Begin the semifinals at the scheduled time.

E. Run the semifinalist race. A sample double-elimination bracket follows.

F. Only the sixteen (16) qualifying cars are raced.

G. Public viewing is allowed.

H. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

I. Judges use qualifying times to break any ties among the sixteen (16) qualifying cars.

J. Submit the finalist results and all related forms in the results envelope to the CRC room.

K. If necessary, manage the security and removal of materials from the event area.

LEADERSHIP STRATEGIES

OVERVIEW

Applying leadership and 21st century skills, teams prepare a presentation based on a selected challenge that TSA chapter officers might encounter, within a specified, limited amount of time.

ELIGIBILITY

Three (3) teams of three (3) individuals per state may participate.

TIME LIMITS

A. Presentations must be between three and five (3-5) minutes.

B. Teams will be penalized one (1) point per ten (10) seconds for speaking over five (5) minutes or under three (3) minutes.

C. Time commences when the first team member begins talking and concludes at the end of the presentation.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRELIMINARY ROUND

A. Team members report to the event area at the time and place stated in the conference program to sign up for a presentation time.

B. Participants report at the time and place stated in the conference program, five (5) minutes prior to the assigned presentation time.

C. At the team's assigned time, one (1) team member draws three (3) cards – each containing one (1) topic – from a box and selects one (1) topic from the three (3) on which the team presents. The cards with the unused topics are returned to the box.

D. After selecting a topic, the first team enters a preparation room separate from the presentation room and is given fifteen (15) minutes to prepare the team presentation. Multiple teams may be in the preparation room together during the rotation period due to conference logistics.

E. The event coordinator introduces each team by team identification number only in the order of the sign-up time.

F. As participants present, the timekeeper visually notifies the team when it has reached the three minutes minimum time by holding up a 5" x 7" notecard with "3:00" displayed.

G. After speaking, the team returns the topic card to the judges.

H. Judges independently score each presentation according to the criteria on the official rating form.

I. A list of twelve (12) semifinalists (in random order) is posted.

SEMIFINAL ROUND

A. Participants report at the time and place stated in the conference program to sign up for a presentation time.

B. Participants report at their assigned time and place for the same procedure used in the preliminary round, but with a different set of topics.

C. Ten (10) finalists are announced during the conference award ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

A. No reference may be made concerning the name of the team, the team members, or their school.

B. Each presentation must be the result of the team's own effort.

C. No reference materials or devices may be brought to the preparation room.

D. Any notes for the presentation must be written during the fifteen (15)-minute preparation period.

   1. Each team is provided a maximum of three (3) 3" x 5" blank notecards.

2. Although teams are permitted to use notes when speaking, it should be noted that deductions in scoring may be made for this practice if it detracts from the effectiveness of the presentation.

E. No observers are allowed in the event or preparation rooms during heats, though they may be present during the semifinals.
   1. No talking or gesturing is permitted.
   2. Observers are NOT allowed to enter or leave during a presentation.
   3. THERE IS NO APPLAUSE UNTIL THE PRESENTATION HAS CONCLUDED.

F. Teams are penalized one (1) point per ten (10) seconds for speaking over five (5) minutes or under three (3) minutes.

G. Each member of a team must participate in the presentation.

Sample Topic Questions:

Topics that might be encountered by teams in this event may include but are not limited to:

1. A newly created school ruling does not allow for school related travel out of state. How will your chapter approach a solution to the problem?
2. A mandated curriculum severely limits opportunities for students to select and schedule elective courses such as technology education. What can be done to resolve this issue?
3. Plans to upgrade athletic facilities within the school district severely limit previously approved plans to fund technology education with needed maintenance and equipment expenditures. What will you do in an attempt to resolve this dilemma?
4. A school policy that pertains to fundraising activity now requires such funds to become part of a general pool to be distributed at the discretion of the school administrator regardless of who or how they were raised. What will be your plan of action to reverse this decision?
5. Conflict exists within the local chapter related to members who are not engaged within their committee assignments. If the problems are not resolved, the health of the chapter will deteriorate. How do you plan to solve this problem?
6. It is assumed that our school's technology and engineering program will be strengthened through the support of local businesses and industries. Currently, there is little participation of these groups. How might we change this?

EVALUATION

A. The presentation

Note: Scores are reset for the semifinal round and are not added to the preliminary scores.

Refer to the official rating form for more information.

NOTE

Participants are encouraged to rely on an outline format in presenting their plans, using short sentences and bullet points as appropriate.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the career areas featured in the TSA AND CAREERS section of this guide. Careers will vary based on the student's area of interest.

Participant/Team ID# _____

LEADERSHIP STRATEGIES

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ A team of three individuals is present
☐ ENTRY NOT EVALUATED

PRESENTATION (80 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Communication of Problem (X1)	It is difficult to understand the problem being communicated.	The problem is communicated in a somewhat organized and/or concise manner.	Communication of the problem is presented in an organized, clear, and concise manner.	
Communication of Solution (X1)	It is difficult to understand the solution being communicated.	The solution is communicated in a somewhat organized and/or concise manner.	Communication of the solution is presented in an organized, clear, and concise manner.	
Impact (X2)	The presentation is unconvincing, uninteresting, and/or lacks compelling and attention-holding ideas.	The presentation is somewhat convincing, with generally interesting ideas.	The presentation is convincing, with compelling and attention-holding ideas.	
Team Participation (X2)	The majority of the delivery is made by one member of the team; the partner(s) are disengaged from the presentation; leadership and/or 21st century skills are not evident.	Team members generally are engaged in the process, though one member may take on more responsibility than the other(s); leadership and/or 21st century skills are somewhat evident.	All team members are equally and actively involved in the presentation; leadership and/or 21st century skills are clearly evident.	
Team Presence (X1)	The team's appearance is unprofessional, sloppy, and inappropriate.	The team's appearance is adequate, appropriate, and professional.	The team's appearance is appropriate, professional, and polished.	
Delivery (X1)	The team is verbose and/or uncertain in its presentation; participants' posture, gestures, and lack of eye contact diminish the presentation.	The team is somewhat well-spoken and distinct in its presentation; participants' posture, gestures, and eye contact are acceptable in the presentation.	The team is well-spoken and distinct in its presentation; participants' posture, gestures, and eye contact result in a polished, natural, and effective presentation.	
			PRESENTATION SUBTOTAL (80 points)	

TIME DEDUCTIONS	Record scores in the column spaces below.
One (1) point per ten (10)-second interval is to be deducted for speaking under the three (3) minutes or over the five (5) minutes allotted for the presentation. Presentation time commences when the first presenter begins speaking.	
PRESENTATION DELIVERY TIME	
TOTAL TIME DEDUCTION POINTS	
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
SUBTOTAL (80 points)	
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (80 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

LEADERSHIP STRATEGIES
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

   1. Preliminary round, two (2) or more, for the first round of presentations
   2. Semifinal round, two (2) or more for semifinalist presentations

C. Timekeepers for recording presentation start/stop times, one (1) per event room

D. Monitors, one (1) per event room

MATERIALS

A. Coordinator's packet containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Results envelope with coordinator forms

B. Speaker's stand/podium

C. Stopwatches for timekeepers, one (1) per heat and two (2) per preparation room

D. One (1) 5" x 7" notecard with "3:00 minutes" displayed (see Procedure F)

E. 3" x 5" blank notecards, for participants to outline their presentation

F. 3" x 5" topic cards – a minimum of five (5) different topics from which to select

G. Tables and chairs in the preparation room

H. Chairs for the audience, for semifinals only

I. Table and chairs for the event coordinator, judges, and timekeeper

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Manage the smooth flow of participants according to these procedures:

   1. After selecting a topic from the three (3) randomly drawn topics, the first team enters a preparation room separate from the presentation delivery room and is given fifteen (15) minutes to prepare a presentation.
   2. Seven (7) minutes after the first team enters the preparation room, the second team enters the preparation room, goes to a different section of the room, and begins its presentation preparation, again with fifteen (15) minutes allowed for preparation; and so on for all the teams.
   3. Each team in turn is allowed to enter the presentation room at seven (7)-minute intervals, thus enabling a constant flow of participants to speak before the evaluators in a timely fashion. (This allows for one [1] minute to enter the presentation room and announce the entry number, up to five [5] minutes for the presentation, and one [1] minute to exit the room.)

4. The event coordinator introduces each team by registration number only in the order of the sign-up time.

B. After speaking, the team returns the topic card to the judges so that it can be returned to the topics box.

C. Judges independently rate each presentation according to the criteria on the official rating form.

D. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

1. To deduct twenty percent (20%) of the total possible points in this round
2. To disqualify the entry

The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

E. The timekeepers notify judges of any time under three (3) minutes or over five (5) minutes, for which deductions should be made.

F. When teams have finished, judges determine the semifinalists, consulting the timekeeper's record.

G. Judges determine the twelve (12) semifinalists (if heats are used), and discuss and break any ties.

H. Submit semifinalist results to CRC for posting.

I. Create a semifinal sign-up sheet for presentations.

SEMIFINAL ROUND

A. Repeat the preliminary round processes to determine the finalists.

B. Discuss rule violations (e.g. 20% deduction, disqualification) and have all relevant parties initial the rating form.

C. Judges determine the ten (10) finalists and discuss and break any ties.

D. Submit the finalist results and all related forms in the results envelope to the CRC room.

E. If necessary, manage security and the removal of materials from the area.

MASS PRODUCTION

OVERVIEW

Applying leadership and 21st century skills, participants manufacture a marketable product addressing the annual theme, noted on the TSA website under *Themes & Problems*. Teams create three (3) identical copies of a product to demonstrate their skill and knowledge pertaining to the mass production process, however, the official entry is comprised of a documentation portfolio and only one (1) prototype. Semifinalists present their product and participate in an interview.

ELIGIBILITY

One (1) team of at least three individuals per chapter may participate.

TIME LIMITS

Ten (10) minutes are allowed for the semifinal presentation and interview broken down as follows:

A. One (1) minute for set-up

B. Seven (7) minutes for the presentation

C. Two (2) minutes to respond to questions from judges

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the annual theme on the TSA website under *Themes & Problems*.

B. Participants research designs for products and develop a prototype that can be replicated for three (3) identical copies of the product. Only one (1) prototype will be submitted on-site as a part of the entry.

C. Create working drawings and devise production plan flow chart(s).

D. Tool up for production.

E. Conduct a trial run and evaluate the process for effectiveness and efficiency.

F. Manufacture several products using line production techniques.

G. Document the process with photographic images of the additional copies of the prototype as part of the portfolio submission.

H. Document the team project with a photo timeline.

PRELIMINARY ROUND

A. No more than two (2) team representatives report at the time and place stated in the conference program to check in:

   1. One (1) prototype
   2. The documentation portfolio

B. Entries are reviewed by judges with neither students nor advisors present.

   1. Judges score the Prototype criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.
   2. Judges score the Documentation criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

C. A list of twelve (12) semifinalist teams (in random order) is posted.

SEMIFINAL ROUND

A. One (1) team representative reports at the time and place stated in the conference program to sign-up for a presentation time.

B. Up to three (3) team representatives report at least ten (10) minutes prior to their assigned time to the designated place for their presentation.

C. Semifinalist team representatives participate in the on-site presentation and interview.

D. Team representatives pick-up their entry from the display area at the time and place stated in the conference program.

E. The top ten (10) finalists are announced at the awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Documentation Portfolio:
   1. Documentation portfolio is required and must be secured in a clear front report cover with the following single-sided, 8½" x 11" pages, in this order.
      a. Title page with the event title, the product name, the conference city and state, the year, and the team/chapter ID number; one (1) page
      b. Table of contents; pages as needed
      c. Description of the product: a written description of the product, instructions for its use, the overall advantages and usefulness of the product, its audience, and related safety considerations; one (1) page
      d. Design efforts: sketches, pictures, magazine clippings, and other graphic design elements used in the development of the final design; maximum three (3) pages
      e. Drawings:
         i. An orthographic drawing in three (3) views with dimensions to aid production; one (1) page
         ii. An assembly drawing or a pictorial drawing with labels; one (1) page
      f. Materials list: a list of materials (including sizes and market value) used to fabricate the product; each item or sub-assembly should be identified as student produced, standard stock item, or purchased subassembly; one (1) page
      g. Tools and machines list: a list of any hand, power, and stationary tools and/or machines used to fabricate the product; one (1) page
      h. Production plan: a production outline or flow chart; pages as needed.
      i. Photo/Film/Video Consent and Release Forms. If the entry contains images of people (minors require parental consent), proof of consent must be included for each person (see Forms Appendix); pages as needed
      j. Work Log (see Forms Appendix); pages as needed
   2. All documentation must be contained in the portfolio.
   3. Tabs or dividers may be used between the sections of the portfolio and are not counted as pages.
   4. The documentation portfolio will be collected by the coordinator during event submission and placed with the prototypes following all submissions.

B. Prototype of Product:
   1. The prototype must be displayed in such a way that it does not exceed 15" deep x 24" wide x 24" high. The documentation portfolio will be collected by the coordinator and placed with the prototypes following all submissions.
   2. Craftsmanship:
      a. The product must display good craftsmanship.
      b. The product should show creative thinking by the students.
   3. Appropriate materials: The product must use the materials in a manner that adds value to the product.
   4. Efficiency of design: The product must address the identified consumer need, and use the materials effectively.
   5. Aesthetics: The product must be pleasing to view.
   6. Ergonomics: The product must be easy to use.
   7. Appropriate solution: The product must function in a manner that solves the identified problem.
   8. Creativity: The product must display an original solution to the identified consumer need.

9. ONLY the documentation contained within the portfolio and the prototype may be submitted for judging.

PRELIMINARY ROUND

A. No more than two (2) team representatives report at the time and place stated in the conference program to check in:
   1. One (1) prototype
   2. The documentation portfolio
B. Entries are independently reviewed by judges with neither students nor advisors present.
C. Once the display set-up time frame has closed, participants may not re-enter the event area.

SEMIFINAL ROUND

A. Using leadership and/or 21st century skills, the goal of the team is to demonstrate their skill and knowledge pertaining to the mass production process.
B. The presentation is limited to three (3) team representatives. Each member should be an active participant in the presentation.
C. Representatives may reference their documentation portfolio and prototype during the presentation and interview.
D. Teams may bring and use audio/visual materials or a laptop for their presentation. AC power will not be provided or available. Projectors and screens are not permitted.
E. Time limits:
   1. One (1) minute for set-up
   2. Seven (7) minutes for presentation
   3. Two (2) minutes to respond to questions from judges
   4. A five-(5) point deduction will be incurred for any time infraction.

EVALUATION

PRELIMINARY ROUND

Tier 1

A. The prototype

Tier 2

B. The documentation portfolio

SEMIFINAL ROUND

A. The presentation/interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Electromechanical engineer
- Mechanical drafter
- Production planner
- Standards engineer

Participant/Team ID# _____

MASS PRODUCTION

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ TIER 1 – One (1) copy of the prototype is present and does not exceed 15" x 24" x 24"
☐ TIER 2 – Documentation portfolio is present
☐ ENTRY NOT EVALUATED

TIER 1 – PROTOTYPE (40 points)				
Product (X2)	Product is not built to detailed standards; it is poorly constructed and finished; it lacks creativity and imagination.	Product is somewhat built to detailed standards; the design is satisfactory and works; creativity or uniqueness are somewhat apparent.	Product is built to detailed standards, and is of a quality that could be purchased by a consumer; the design is unique and demonstrates creativity.	
Product Functionality (X1)	Little specific functionality per the original specification is demonstrated.	The product meets some of the functionality per the original specification.	The end product exhibits functionality as per the original specifications.	
Tolerance of Example (X1)	Materials are not joined cleanly and are not consistent with working drawings.	Materials are somewhat joined cleanly and are fairly consistent with working drawings.	Materials are joined cleanly and are consistent with working drawings.	
			TIER 1 – PROTOTYPE SUBTOTAL (40 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

TIER 1 – SUBTOTAL (40 points)	

TIER 2 – DOCUMENTATION PORTFOLIO (70 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	Portfolio is missing several components and/or is unorganized; it is messy and lacking quality.	Most components are included; portfolio is generally organized and displays some quality.	All components are included in order; effort and quality of work is evident.	
Description of Product Instructions for use (X1)	Description of the product and instruction for its use are unclear.	Description of the product and instructions for its use are somewhat defined and explained.	Description of the product and instructions for its use are defined and explained precisely.	
Design Efforts (X1)	Most design effort components are missing, and/or they are unorganized; they are messy and lack quality.	Some design effort components are included; components are generally organized and display overall quality.	Design effort components are included; effort and high quality of work is evident.	
Working Drawings (X1)	Working drawings are sloppy and disorganized; they do not demonstrate labeling and dimensioning.	Working drawings are of sufficient quality; most are labeled and dimensioned.	Working drawings are of excellent quality and are correctly labeled and dimensioned.	
Materials List Tools and Machines List (X1)	Lists are missing several components, and/or they are unorganized.	Most components are included; the lists are generally organized and complete.	All components are included and organized in the lists.	
Production Plan (X1)	Plan is missing several components, and/or it is unorganized.	Components of the plan are mostly included, and the plan is generally organized.	All components are included and well-organized in the plan.	
Photographic Verification (X1)	Photographic verification is not complete, and/or images are missing.	Photographic verification is complete, and the quality of images is adequate.	Photographic verification is clear and supports all aspects of the process.	
			TIER 2 – DOCUMENTATION PORTFOLIO SUBTOTAL (70 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (110 points)	

SEMIFINAL PRESENTATION/INTERVIEW (70 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization Use of audio/visual materials (X1)	Participants seem unorganized and unprepared for the presentation; illogical explanation of the product is presented; team exhibits difficulty with the use of audio/visual materials.	Participants are generally prepared the for the presentation; explanation of the product is communicated and generally organized; audio/visual materials are used somewhat effectively.	The presentation is logical, well-organized, and easy to follow; explanation of the product is communicated in an organized and concise manner; the use of audio/visual materials is effective, organized, and logical.	

SEMIFINAL PRESENTATION/INTERVIEW (70 points) – continued				
Knowledge (X2)	Participants seem to have little understanding of the concepts in their project; the presentation does not clearly define the product; answers to questions may be vague.	Participants exhibit an understanding of the concepts in their project; the presentation is, for the most part, logical and clear.	Participants show clear evidence of a thorough understanding of the project; the presentation is concise and logical.	
Articulation (X1)	Communication of the project is unclear, unorganized, and/or illogical; leadership and/or 21st century skills are not evident.	Communication of the project is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the project is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
Integration of Theme (X2)	The current theme is not demonstrated in the product, and/or the product is not realistic and functional.	The current theme is adequately demonstrated in the product, and the product is fairly realistic and functional.	The current theme is exceptionally well demonstrated in the product, and the product is extremely realistic and functional.	
Delivery (X1)	The team is verbose and/or uncertain in its presentation/ interview; participants' posture, gestures, and lack of eye contact diminish the presentation/interview.	The team is somewhat well-spoken and clear in its presentation/ interview; participants' posture, gestures, and eye contact are acceptable in the presentation/ interview.	The team is well-spoken and distinct in its presentation/interview; participants' posture, gestures, and eye contact result in a polished, natural, and effective presentation/ interview.	
			SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (70 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

TIME DEDUCTIONS	
A five-(5) point deduction will be incurred for any time infraction.	

SEMIFINAL SUBTOTAL (70 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (180 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

MASS PRODUCTION
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

1. Preliminary round, two (2) or more
2. Semifinal round, two (2) or more

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge
2. TSA Event Coordinator Report
3. List of judges/assistants
4. Stick-on labels for identifying entries
5. Results envelope with coordinator forms

B. Display tables for entries

C. Table and chairs for team presentations, as needed

D. Stopwatch

E. Measuring tape

F. Table and chairs for event coordinators and judges

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

CHECK-IN

A. Check in the entries at the time stated in the conference program.

B. No more than two (2) team representatives may check in:

1. One (1) prototype
2. The documentation portfolio

C. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

D. In order to compete, participants must be on the entry list or must have approval of the CRC.

E. Requirements for attire do NOT apply during check-in, only on the first day of the conference.

F. Each entry must include the team's identification number in the upper right-hand corner of the documentation portfolio and somewhere visible on the model/prototype.

PRELIMINARY ROUND

A. Judges independently review the entries based on the following criteria:

Tier 1

Judges score the prototype criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.

Tier 2

Judges score the documentation criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

B. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

1. To deduct twenty percent (20%) of the total possible points in this round
2. To disqualify the entry

The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

C. Judges determine the twelve (12) semifinalists and discuss and break any ties.

D. Submit semifinalist results to the CRC room.

E. Create a sign-up sheet for semifinalist presentations and communicate any instructions to the semifinalist participants.

F. Manage the pick-up of non-semifinalist entries.

SEMIFINAL ROUND

A. Prepare a list of five to ten (5-10) standard interview questions to be asked of all participants.

B. Semifinalists report to sign-up for the presentation at the time and place stated in the conference program.

C. Check in semifinalists and confirm with the teams their order of presentation and the procedure. Team representatives should report at least ten (10) minutes prior to their assigned time to the designated place for their presentation.

D. Manage the presentations and interviews.

E. If judges ask questions, they should be the same questions for each team for the purpose of comparing one team to another.

F. Discuss rule violations and have all relevant parties initial the rating form.

G. Judges independently assess the semifinal presentation and interview.

H. Judges determine the top ten (10) finalists and discuss and break any ties.

I. Submit the finalist results and all related forms in the results envelope to the CRC room.

J. If necessary, manage security and the removal of materials from the event area.

MECHANICAL ENGINEERING

OVERVIEW

Applying leadership and 21st century skills, participants design and build a mechanical device to solve the problem statement for the identified theme. Through device functionality, presentation, and documentation, the team members demonstrate their knowledge of mechanical engineering and the application of their solution. The challenge is to make a vehicle that meets the stated Vehicle Specifications and comes to rest exactly the required distance in the fastest time for the specific conference year. The current year's problem statement will be posted on the TSA website under *Themes & Problems*.

ELIGIBILITY

One (1) team of two to three (2-3) individuals per chapter may participate.

TIME LIMITS

A. Pre-built vehicle must be started and completed during the current school year.

B. The entry must be checked in at the time and place stated in the conference program. At check-in, one team member will sign up for a time slot to return and run the vehicle.

ATTIRE

TSA competition attire is required for submission, the preliminary round, and semifinalist interview.

PROCEDURE

PRE-CONFERENCE

A. Teams must identify and understand the use of subsystems within a larger system

B. Teams must research and identify an engineering design process chosen that influenced the design of the vehicle

C. Participants review and implement the annual problem statement posted on the TSA website under *Themes & Problems*.

PRELIMINARY ROUND

A. One (1) team member checks in the entry (see below) at the time and place stated in the conference program:

   1. One (1) Mousetrap Car
   2. Documentation portfolio including a materials list, a ½ scale technical drawing on letter-sized (8½" x 11") that shows the side and top views of the finished product, and a written description detailing the process
   3. The technical drawing title block includes only the student's identification number, which is assigned at conference registration and is placed on the entry and drawing during check-in

B. Upon check-in, the team member signs up for a performance time slot

C. Judges evaluate the entries and corresponding components related to the Go/No Go specifications

D. Participant teams report to the place indicated in the conference program at least five (5) minutes ahead of their time slot. There will be a testing area to prep the vehicle prior to their assigned time.

E. Once called, participants must have their vehicles ready to run and take the vehicle to the start line

F. On the "start" command by the conference staff, all vehicles will be set off toward the target line

G. The timing of the vehicle will begin when any part of the vehicle passes over the start line and will end when the vehicle comes to a complete stop

H. The distance from the target line will be measured in centimeters, from the point of the vehicle that first passed the start line to the finish line or target. The measurement will be taken after the vehicle comes to a complete stop on it's own.

I. Cars in an assigned time slot will be set on the start line at their assigned time and will run one at a time in a staggered start. The vehicle must steer itself and remain in the lane in which it started. If a car leaves its assigned lane and makes contact with another car, its run is not scored, and the car that was struck by the car that left its lane will be allowed to run again.

J. Each car has two attempts. The best attempt is recorded.

K. Each team has a short two (2)-minute exit interview with the judges

L. The top twenty (20) entries based on the score total that passed the Go/No Go inspection will have their documentation portfolios judged and points combined with performance points and interview points to determine the finalists.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Documentation portfolio is required and must be secured in a clear front report cover with the following single-sided, 8½" x 11" pages, in this order:
   1. Title page with the event title, the conference city and state, the year, and the team/chapter ID number; one (1) page
   2. Table of contents; pages as needed
   3. Identification and explanation of the engineering design process used to produce the vehicle; maximum six (6) pages
   4. Materials list; one (1) page
   5. A ½ scale technical drawing on A size paper which includes a top and right-side view of the finished product; one (1) page
   6. Written description of the design and construction of the solution which includes photographic verification; pages as needed

B. Test track
   1. The test track consists of lanes created by tape on the conference site floor creating three (3) to five (5) lanes 5' wide. Track surface description (carpet or concrete) will be posted on the TSA website under *Themes & Problems* under the current year. The length from start to the target line is based on the assigned distance for that year. Three (3) to five (5) vehicles will run simultaneously.

C. Vehicle
   1. Vehicle must meet the following requirements:
      a. The overall dimensions of the Mouse Trap Car cannot exceed 20" L x 10" W x 12" H. The measurement is taken while the car is in resting position.
      b. The vehicle MUST be powered by a single VICTOR brand mouse trap measuring 3⅞" L x 1¾" W. The mouse trap spring CANNOT BE ALTERED to add power in any way.
      c. The vehicle must have three (3) or four (4) wheels that make contact with the race surface.
      d. Vehicles MUST be self-starting. The vehicle may not start with additional potential and/or kinetic energy other than what is stored in the mouse trap spring. Rubber bands or any other elastic materials may not be used in the launch mechanism.
      e. The vehicle must steer itself and may not receive a push in any direction in order to avoid a collision.
      f. No repair or maintenance is allowed after the entries have been submitted.

EVALUATION

PRELIMINARY ROUND

A. Each vehicle has two attempts. The best attempt score will be kept.

B. The scoring will be: the total of the time in seconds added to the distance from the finish line in centimeters when the vehicle comes to a rest and stops. Score=time (seconds) + distance from finish line (cm). The lowest number is the best car.

C. A car that leaves its lane and strikes another car will not be scored for that attempt.

D. Any vehicle damaged during the 1st run is evaluated by the event coordinator to determine whether or not the vehicle is allowed to race again.

E. Each team will have a two (2)-minute exit interview with the judges

F. Entries placing 1st through 20th will receive points based on that placement as specified in the scoring rubric

SEMIFINAL ROUND

A. The documentation portfolio of the top 20 teams, based on performance and exit interview scoring, will be judged and points will be added to determine the top 10 finalists.

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Engineer
- Multimedia designer
- Product designer
- Small business owner

Participant/Team ID# _____

MECHANICAL ENGINEERING

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Documentation portfolio is present
☐ Vehicle is present
☐ Single VICTOR brand mouse trap measuring: 3⅞" L x 1¾" W is the vehicle power source
☐ Vehicle dimensions do not exceed 20" L x 10" W x 12" H
☐ ENTRY NOT EVALUATED

ENTRY PERFORMANCE				
Each team completes two runs. Enter the data of the best run for the team.				
Total Run Time (seconds) to Full Stop		Centimeters from target line at Full Stop		
TOTAL RUN TIME + CENTIMETERS FROM TARGET LINE AT FULL STOP = ENTRY PERFORMANCE SUBTOTAL				

PLACEMENT FROM BEST OF TWO RUNS (60 points)							
1st	2nd	3rd	4th	5th & 6th	7th & 8th	9th – 12th	13th – 20th
60 Points	55 Points	50 Points	45 Points	40 Points	35 Points	30 Points	25 Points
PLACEMENT FROM BEST OF TWO RUNS SUBTOTAL (60 points)							

INTERVIEW (20 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Team Interview (X2	Participants show very limited knowledge of (and have difficulty articulating) how the car was produced or decisions made during the production; participants do not exhibit a basic understanding of design elements and functionality, and the rationale is inconsistent or absent. Responses from fewer than all team members.	Participants demonstrate some knowledge of the vehicle production and have adequate knowledge of some processes or reasoning behind the vehicle design. At least some input received from all team members.	All participants show competence and knowledge related to the design and production of the vehicle; participants are able to articulate "reasoning" behind the decisions made. All members of the team contribute.	
INTERVIEW SUBTOTAL (20 points)				

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
PRELIMINARY SUBTOTAL (80 points)	

PORTFOLIO CONTENTS (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
Engineering Design Process (X1)	The description of the engineering design process is unclear, unconvincing, and lacks project details.	The description of the engineering design process includes some project details and explanation of steps in the design process.	The description of the engineering design process includes a full explanation of each step in the process; the description is defined, and detailed.	
Mouse Trap Car Drawings (X1)	Only one (1) drawing/sketch of the model is included with little to no labeling.	Two (2) or more drawings/sketches of the model are included and are labeled.	Detailed drawings/sketches of the entire device/model are provided and appropriately labeled.	
Bill of Materials (X1)	A Bill of Materials is included, but more than one (1) material is missing.	A Bill of Materials is included with one (1) material missing; Bill of Materials is generally organized.	A Bill of Materials is included; it includes all components and is organized.	
Written Description of Design/ Construction (X1)	The written description is unclear and/or contains distracting errors in punctuation, grammar, and spelling.	The written description is somewhat clear; punctuation, spelling, and grammar are generally correct, with few errors.	The written description is extremely clear; punctuation, spelling, and grammar are correct, with no errors.	
PORTFOLIO CONTENTS SUBTOTAL (50 points)				

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
SEMIFINAL SUBTOTAL (50 points)	
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (130 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

MECHANICAL ENGINEERING EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

1. Preliminary round, two (2) or more (timed run and exit interview; one (1) one per lane)
2. Semifinal round, portfolio judging, two (2) or more

C. Assistants

1. One (1) per lane
2. One (1) to manage the prep track area.
3. One (1) to manage a computer where the times and distance from target are recorded in a spreadsheet

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge
2. TSA Event Coordinator Report
3. List of judges/assistants
4. Stick-on labels for identifying entries
5. Results envelope with coordinator forms

B. Display tables for entries

C. Tables and chairs for event coordinator and judges

D. Stopwatches, one (1) for each lane

E. Tape measure (with cm capability), one (1) for each lane

F. Computer with scoring spreadsheet

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Tape down the test lanes on the floor. Three (3) to five (5) parallel lanes with the start line to finish line measured to the distance for the conference year.

E. Tape down identical lanes nearby for teams next up on the time slot to make one test run prior to the official runs.

F. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

G. At least one (1) hour before the event is to begin meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

CHECK-IN

A. Check in the entries at the time stated in the conference program.

B. Check the entry for safety only.

C. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

D. In order to compete, participants must be on the entry list or must have approval of the CRC.

E. Requirements for attire do NOT apply during check-in, only on the first day of the conference.

F. Secure the entries in the designated area.

G. Each entry must include the participant's identification number in the upper right-hand corner of the entry.

PRELIMINARY ROUND

A. Meet with judges to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

B. Decide on a single exit interview question to be asked of all semifinalists.

C. Conduct timed runs. Measure and record the distance from the target line and the start to stop time. Give the best run time and distance for each entry to computer record keeper to be entered into the spreadsheet.

D. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

E. After all preliminary runs have concluded, the computer record keeper will sort the list by the total scores column in the event spreadsheet to determine the top twenty (20) entries. Any tie for the last position is broken by the closest distance to the target. If still tied, use time to full stop. Fastest wins the second tie breaker.

F. Points will be awarded for the best run based on the placement scores. (1st = 60pts, 2nd=55pts, etc.) and entered into the judges' rubric with the exit interview score.

G. The top twenty (20) entries based on the total of the placement score and the exit interview score is determined.

H. Manage the pick-up of non-semifinalist entries.

SEMIFINAL ROUND

A. Judges independently assess the portfolio entries of the twenty (20) semifinalists and enter scores in the respective rubrics

B. Judges determine the ten (10) finalists and discuss and break any ties.

C. Submit the finalist results and all related forms in the results envelope to the CRC room.

D. Manage security and student pick up of all entries at the assigned time and the removal of materials from the area.

MEDICAL TECHNOLOGY

OVERVIEW

Applying leadership and 21st century skills, participants conduct research on a contemporary medical technology issue, related to the current year's theme, noted on the TSA website under *Themes & Problems,* document their research and solution, and present their documentation through a static display. The entry may include student research, or a re-creation or simulation of research performed by the scientific community. A student-designed model or prototype depicting an aspect of the issue will also be included in addition to the display. Semifinalist teams participate in an on-site presentation/interview.

ELIGIBILITY

Three (3) teams per state may participate.

TIME LIMITS

Ten (10) minutes are allowed for the semifinal presentation and interview broken down as follows:

A. One (1) minute for set-up

B. Seven (7) minutes for the presentation

C. Two (2) minutes to respond to questions from judges

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the annual theme posted on the TSA website under *Themes & Problems*.

B. Participants research the issue using credible sources.

C. Participants prepare their display and model/prototype according to the regulations.

PRELIMINARY ROUND

A. No more than two (2) team representatives report at the time and place stated in the conference program to check in the display and the model/prototype.

B. Entries are evaluated by the judges with neither students nor advisors present based on the following criteria:

   1. Judges score the static display criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.
   2. Judges score the Documentation Portfolio criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalists.

C. A list of twelve (12) semifinalist teams (in random order) is posted.

SEMIFINAL ROUND

A. One (1) team representative reports at the time and place stated in the conference program to sign-up for a presentation time.

B. Three (3) team representatives report at least ten (10) minutes prior to their assigned time to the designated place for their presentation.

C. Semifinalist team representatives participate in the on-site presentation and interview.

D. Team representatives pick-up their entry from the display area at the time and place stated in the conference program.

E. The top ten (10) finalists are announced at the awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Students must understand the fundamental concepts and principles of the contemporary medical technology issue they research. Research about the issue should focus on significant impacts (opportunities and risks) on the environment, economy, and society, as well as any important ethical considerations.

B. Display Guidelines:

1. The size of the display may not exceed 15" deep x 3' wide x 4' high.
2. Supporting materials, such as research, references, and resources, should be exhibited in a creative and effective manner on a stand-alone display and should include at a minimum:
    a. Team identification number
    b. Summary of the issue researched
    c. Societal impact, including economic, social, environmental, and ethical considerations
    d. Supporting information such as logs, graphs, sketches, drawings, illustrations, and photographs
    e. Photographic verification: Photographic or digital images clearly displaying the design and creation of the model/prototype.
    f. The display must incorporate the use of design principles. Participants highlight the display with creative visual elements (e.g., photos, titles) to actively engage the audience. Participants may use images "labeled for "re-use," but must properly cite the source (refer to the TSA Membership System/Total TSA/Competition Forms and Resources).
    g. Copyright: Citation of all ideas, fonts, and images from sources other than the designer, and/or that are copyrighted (most fonts and images found on the web are copyrighted material unless purchased or offered as free-domain) and MUST be included on the back of the display. Clip art must be documented.
    h. Written permission for all copyrighted material must be included on the back of the display (see Forms Appendix).
    i. Photo/Film/Video Consent and Release Forms. If the entry contains images of people (minors require parental consent), proof of consent must be included for each person and included on the back of the display (see Forms Appendix).
3. A/C electricity may not be used.
4. If the display and/or model/prototype requires power, they must be powered by dry-cell batteries or photo-voltaic cells.
    a. The power supply must physically fit within the display dimensions.
    b. All power must be switched off once the team has completed set-up.
    c. If teams want judges to activate any electronic device in their model/prototype/display, complete instructions must be provided to judges on how to power up the model/display.

C. Model/Prototype

1. Participants must create a model or prototype of the medical technology solution chosen
2. Models/prototypes may use additive and/or subtractive manufacturing of any traditional, Computer Numerical Control (CNC), 3D printing, or laser technology available to the participant
3. Models/prototypes may not be commercially purchased or obtained from a medical facility or other retail supplier
4. A/C electricity may not be used
5. Any power source used must fit within the maximum display area
6. Dry cell or photo-voltaic cells may be used for power, if desired
7. Photographic verification of the design and creation of the model or prototype must be included as part of the display.
8. If operating instructions are necessary (including electronics), they must be clearly displayed.

D. Once the display set-up time frame has closed, participants may not re-enter the event area.
E. Violation of the following will result in disqualification:
    1. No viruses, live plants, or animals may be used as a part of the display
    2. No harmful or illegal substances may be displayed.

SEMIFINAL ROUND

A. The presentation is limited to three (3) team representatives. Each member should be an active participant in the presentation.
B. Representatives may reference their display and documentation during the presentation and interview.
C. Teams may bring and use audio/visual materials or a laptop for their presentation. Projectors and screens are not permitted.
D. Time limits:
    1. One (1) minute for set-up
    2. Seven (7) minutes for presentation
    3. Two (2) minutes to respond to questions from judges
    4. A five-(5) point deduction will be incurred for any time infraction.

EVALUATION

PRELIMINARY ROUND

Tier 1

A. The display

Tier 2

B. The model/prototype

SEMIFINAL ROUND

A. The presentation/interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Dietitian
- Doctor
- Medical technologist
- Nurse
- Pharmacist
- Prosthetics practitioner

Participant/Team ID# _____

MEDICAL TECHNOLOGY

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ TIER 1 – Display is present
☐ TIER 2 – Model/prototype is present
☐ ENTRY NOT EVALUATED

TIER 1 – DISPLAY (80 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Explanation of Impacts (X2)	Explanation is missing a discussion of the issue's relevance to environmental, economic, social, and/or ethical considerations.	Explanation addresses some of the issue's relevance to environmental, economic, social, and/or ethical considerations.	Explanation includes a full discussion of the issue's relevance to environmental, economic, social, and/or ethical considerations.	
Supporting Information (X1)	Supporting information does not help to clarify the issue and/or it is of little significance to the issue.	Supporting information is somewhat appropriate and helps provide some clarity to the issue.	Supporting information is highly effective and of excellent quality.	
Research, References, and Resources (X1)	Research is inadequate, and/or very few credible sources are referenced.	Research is conducted appropriately, with some adequate credible sources.	A comprehensive research base that includes credible sources is evident.	
Communication of Issue (X1)	It is difficult to understand the issue being communicated; an illogical explanation is presented.	The issue is communicated and thoughts are somewhat organized.	The issue is communicated in an organized, clear, and concise manner.	
Communication of Solution (X1)	It is difficult to understand the solution being communicated; an illogical explanation is presented.	The solution is communicated and thoughts are somewhat organized.	The solution is communicated in an organized, clear, and concise manner.	
Creativity (X1)	The display lacks creativity; no, or very few, design principles are integrated in the display.	Some elements of creativity exist in the display, and essential design principles are generally evident.	The display exudes creativity; essential design principles and elements are well integrated.	
Aesthetics and Artisanship (X1)	Work is unorganized and sloppy; display seems to be an afterthought or thrown together.	Display generally depicts the issue.	Display is exemplary in logically communicating the issue.	
			TIER 1 – DISPLAY SUBTOTAL (80 points)	

TIER 2 – MODEL/PROTOTYPE (40 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Model/Prototype (X1)	Model/prototype is present but not complete, or is lacking in overall quality.	Model/prototype is present and is good quality but missing detail to adequately portray the project's focus.	Exemplary model/prototype is present and shows great detail in portraying the project's focus.	
Communication of Solution (X1)	It is difficult to understand the solution being communicated; an illogical explanation is presented.	The solution is communicated and thoughts are somewhat organized.	The solution is communicated in an organized, clear, and concise manner.	
Creativity (X1)	The model/prototype lacks creativity; no, or very few, design principles are evident.	Some elements of creativity exist in the model/prototype, and essential design principles are generally evident.	The model/prototype exudes creativity; essential design principles and elements are well integrated.	
Aesthetics and Artisanship (X1)	Work is unorganized and sloppy; model/prototype seems to be an afterthought or thrown together.	Model/prototype depicts a generally organized conceptualization of the issue.	Model/prototype is exemplary in logically communicating the issue.	
			TIER 2 – MODEL/PROTOTYPE SUBTOTAL (40 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (120 points)

SEMIFINAL PRESENTATION/INTERVIEW (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the presentation, with an illogical explanation of the problem and solution.	Participants are generally prepared for the presentation; explanation of the problem and solution are somewhat communicated and organized.	The presentation is logical, well-organized, and easy to follow; the problem and solution are communicated in an organized and concise manner.	
Knowledge (X2)	Participants seem to have little understanding of the concepts in their project; answers to questions may be vague.	Participants exhibit a basic understanding of the concepts in their project.	Participants show clear evidence of a thorough understanding of the project.	
Articulation (X1)	Communication of the solution is unclear, unorganized, and/or illogical; leadership and/or 21st century skills are not evident.	Communication of the solution is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the solution is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
Team Participation (X1)	Majority of the presentation/ interview is made by one member of the team; the partners may be disengaged from the presentation.	Team members generally are engaged in the presentation, though one member may take on more responsibility than the other(s).	All team members are actively involved in the presentation/ interview; there is shared responsibility among team members.	

SEMIFINAL/INTERVIEW PRESENTATION (60 points) – continued				
Delivery (X1)	The team is verbose and/or uncertain in its presentation/ interview; participants' posture, gestures, and lack of eye contact diminish the presentation.	The team is somewhat well-spoken and clear in its presentation/ interview; participants' posture, gestures, and eye contact are acceptable in the presentation.	The team is well-spoken and distinct in its presentation/interview; participants' posture, gestures, and eye contact result in a polished, natural, and effective presentation.	
			SEMIFINAL/INTERVIEW PRESENTATION SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____

TIME DEDUCTIONS
A five-(5) point deduction will be incurred for any time infraction.

SEMIFINAL SUBTOTAL (60 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.	**TOTAL** (180 points)

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

MEDICAL TECHNOLOGY
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator, one (1)

B. Judges:

   1. Preliminary round, two (2) or more
   2. Semifinal round, two (2) or more

C. Assistants for check-in, two (2)

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Stick-on labels for identifying entries
   5. Results envelope with coordinator forms

B. Display tables for entries

C. Table and chairs for team presentations, as needed

D. Stopwatch

E. Measuring tape

F. Table and chairs for event coordinator and judges

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is scheduled to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Check in the entries at the time stated in the conference program.

B. No more than two (2) team representatives set up and check in:

   1. The display
   2. The model/prototype

C. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

D. In order to compete, participants must be on the entry list or must have approval of the CRC.

E. Requirements for attire do NOT apply during check-in, only on the first day of the conference.

F. Each entry must include the team's identification number in the upper right-hand corner of the display and somewhere visible on the model/prototype.

PRELIMINARY ROUND

A. Independently score the display criteria and model/prototype.

B. Judges independently review the entries based on the following criteria:

   Tier 1

   Judges score the display criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.

   Tier 2

   Judges score the model/prototype criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

C. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either::

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

D. Judges determine the twelve (12) semifinalists and discuss and break any ties.
E. Submit semifinalist results to the CRC room.
F. Create a sign-up sheet for semifinalist presentations/interviews and communicate any instructions to the semifinalist participants.
G. Manage the pick-up of non-semifinalist entries.

SEMIFINAL ROUND

A. Prepare a list of five to ten (5-10) standard interview questions to be asked of all participants.
B. Semifinalists report to sign-up for the presentation at the time and place stated in the conference program.
C. Check in semifinalists and confirm with the teams their order of presentation and the procedure. Team representatives should report at least ten (10) minutes prior to their assigned time to the designated place for their presentation.
D. Manage the presentations and interviews.
E. If judges ask questions, they should be the same questions for each team for the purpose of comparing one team to another.
F. Discuss rule violations and have all relevant parties initial the rating form.
G. Judges independently assess the semifinal presentation and interview.
H. Judges determine the top ten (10) finalists and discuss and break any ties.
I. Submit the finalist results and all related forms in the results envelope to the CRC room.
J. If necessary, manage security and the removal of materials from the event area.

MICROCONTROLLER DESIGN

OVERVIEW

Applying leadership and 21st century skills, participants design a working digital device (product) with real-world applications. Through product demonstration and documentation, the team demonstrates in detail its knowledge of microcontroller programming, simple circuitry, and product design and marketing. The project should have educational and social value, and conform to the theme for the year. The theme will be posted on the TSA website under *Themes & Problems*. Teams demonstrate and promote their work in a timed presentation.

ELIGIBILITY

One (1) team per chapter may participate; individual entries are permitted

TIME LIMITS

Participants are allowed:

A. Five (5) minutes to set up for the presentation.
B. Five (5) minutes for the presentation.
C. Three (3) minutes for removal of any items.
D. A deduction of five (5) points will be incurred for exceeding the five (5)-minute presentation time limit.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants concentrate their efforts in the design and development of a working digital device (product).
B. Participants create a portfolio, documenting their research and process.
C. Participants prepare an oral presentation.

ON-SITE CHALLENGE

A. No more than three (3) team representatives report at the time and place stated in the conference program with:
    1. The device (product)
    2. The documentation portfolio
B. Participants are assigned a presentation time upon check-in.
C. One (1) to three (3) team representatives present the following at their assigned time:
    1. Research findings
    2. An explanation of the value of their product
    3. A demonstration of the product's functionality
D. The device will be taken by the team at the completion of the presentation or will be picked up by the team at the time and location posted in the conference program.
E. Judges score the entries and presentation.
F. Ten (10) finalists are announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Documentation Portfolio:
    1. Documentation portfolio is required and must be secured in a clear front report cover with the following single-sided, 8½" x 11" pages, in this order:
        a. Title page with the event title, the conference city and state, the year, and the team identification number; one (1) page
        b. Table of contents; pages as needed
        c. A description of the team's project, including an explanation of the theme; pages as needed
        d. Research into the problem; three (3) pages maximum
        e. Work Log (see Forms Appendix); pages as needed
        f. Circuit diagrams; pages as needed
        g. Source code; pages as needed
        h. Materials list; pages as needed
        i. Team's evaluation of its work; pages as needed

j. References and resources list in a professional citation style of the competitors choosing; pages as needed. Failure to use a professional citation style will result in a rules violation of 20% (twenty percent). Some examples of professional citation styles include MLA, APA, Chicago, and IEEE.

B. The Device (product):
   1. The device (product) must include a programmed microcontroller that controls the device functionality.
   2. Aesthetics: The product must be well-designed, design elements are incorporated, and show good craftsmanship.
   3. Functionality: The product must operate as intended; remote control technology may be used to operate the device.
   4. The product must be relevant to the given theme.
   5. Coding and Circuit Design: The product must show proper and effective use of coding and circuit methods.
   6. AC power and/or a dry cell battery may be used.
   7. The device may be no larger than 18" x 12" x 12".

ON-SITE CHALLENGE

A. The Presentation:
   1. Participants are given five (5) minutes to set up their device and five (5) minutes to explain the problem and demonstrate the functionality of the device.
   2. A deduction of five (5) points will be incurred for exceeding the five (5)-minute presentation time limit.
   3. Judges may ask questions after the presentation.
   4. Participants are allowed three (3) minutes for the removal of any items used in the presentation.

B. All portfolios become the property of TSA and will not be returned after the event.

C. The device will be taken by the team at the completion of the presentation or will be picked up by the team at the time and location posted in the conference program.

EVALUATION

A. The product

B. The documentation

C. The presentation

Refer to the official rating form for more information.

ADDITIONAL RESOURCES

www.pictutorials.com/what_is_microcontroller.htm

www.newbiehack.com/MicrocontrollerTutorial.aspx

people.ece.cornell.edu/land/courses/ece4760/FinalProjects

www.circuitstoday.com/8051-projects-and-circuits

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Manufacturing
- Software engineer
- Technical writer

Participant/Team ID# _____

MICROCONTROLLER DESIGN

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ The documentation portfolio is present
☐ The device (product) is present
☐ ENTRY NOT EVALUATED

DOCUMENTATION PORTFOLIO (30 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X2)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
Research (X1)	Research is inadequate, and/or very few credible sources are referenced.	Research is adequate, and mostly credible sources are included.	The research is comprehensive, and credible resources are included.	
			DOCUMENTATION PORTFOLIO SUBTOTAL (30 points)	

DEVICE (80 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Complexity (X2)	Product lacks complexity; it includes little or no code, and/or circuit design and control technology complexity.	The product exhibits some degree of complexity; it includes code, circuit design, and control technology complexity.	The product is complex and highly functional; it includes code, circuit design, and control technology complexity.	
Creativity (X2)	The product lacks creativity; very little original thought in developing the project is evident.	Some elements of creativity are expressed; the product is somewhat original.	The work exudes creativity; the product is highly original.	
Technical Skill (X2)	Little technical skill is exhibited in the code and circuit design.	A beyond-basic degree of technical skill is exhibited in the code and circuit design.	A level of mastery of coding and circuit design is exhibited.	
Connection to the Theme (X1)	Product does not have any, or has very little, connection to the theme.	The product has adequate connection to the theme.	The product has high connection to the theme.	
Design Principles (X1)	Product demonstrates little to no use of design principles.	Product demonstrates adequate use of design principles.	Product demonstrates exceptional use of design principles.	

PRODUCT (80 points) – continued	
PRODUCT SUBTOTAL (80 points)	

PRESENTATION (40 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	Participant(s) seem unorganized and unprepared for the presentation; the presentation is illogical.	Participant(s) are generally prepared for the presentation; explanation of the product is communicated and generally organized.	The presentation is logical, well organized, and easy to follow; explanation of the product is communicated in an organized and concise manner.	
Articulation (X1)	Communication of the product functionality and design process is unclear, unorganized, and or illogical; leadership and/or 21st century skills are not evident.	Communication of the product functionality and design process is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the product functionality and design process is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
Product Demonstration (X2)	Participant(s) is/are unable to successfully demonstrate the product, and/or the product does not work, or barely works, as intended.	Participant(s) is/are able to partially demonstrate the functionality of the product; the product somewhat works as intended.	Participant(s) is/are successful and effective in the product demonstration; the product works exactly as intended.	
PRESENTATION SUBTOTAL (40 points)				

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
Time violation (a deduction of five [5] points total will be incurred for exceeding the five [5]-minute presentation time limit). Record the deduction.	

PRELIMINARY SUBTOTAL (150 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (150 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

MICROCONTROLLER DESIGN
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

   1. Presentation, two (2) or more

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Results envelope with coordinator forms

B. Chairs, one (1) per participant

C. Stopwatch for timing presentations

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is scheduled to begin, meet with your judges/assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

ON-SITE CHALLENGE

A. No more than three (3) team representatives report at the time and place stated in the conference program with:

   1. The device (product)
   2. The documentation portfolio

B. Each entry must include the participant's identification number in the upper right-hand corner of the entry.

C. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

D. In order to compete, participants must be on the entry list or must have approval of the CRC.

E. Assign students a five (5)-minute time frame for their presentation at check-in.

F. Judges circulate to review documentation and entry prior to the presentation.

G. Presentations:

   1. Inspect the area in which the presentations are to be held.
   2. There must be seating for at least five (5) people at a table with space for a computer and device (product).
   3. Conduct presentations.
   4. Judges may ask questions after the presentation.
   5. A deduction of five (5) points will be incurred for exceeding the five (5)-minute time limit.

H. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

I. Judges determine ten (10) finalists and discuss and break any ties.

J. Submit the finalist results and all related forms in the results envelope to the CRC room.

K. Manage security and the removal of materials from the area.

OFF THE GRID

OVERVIEW

Throughout the world, people are working to become more self-sustaining when it comes to landscaping and architectural design. Sometimes the purpose is to live off the grid, other times it is to create a smaller carbon footprint; yet other times it is to meet a need in locations where there is not access to power, water, or other basics. There are many options for sustainability throughout the world, but sometimes a location limits or enables those options.

Applying leadership and 21st century skills, participants conduct research on a sustainable architectural design for a home in a country of the team's choosing other than the team's resident country. Teams will create a display and a model. The model can be of the home the team designs or of a specific aspect of their design.

Semifinalists demonstrate competency by presenting and responding to questions about their design. The design brief for this competition will be posted on the TSA website under *Themes & Problems*.

ELIGIBILITY

Three (3) teams per state may participate; individual entries are permitted

TIME LIMITS

Ten (10) minutes are allowed for the semifinal presentation and interview broken down as follows:

A. Seven (7) minutes for the presentation

B. Three (3) minutes to respond to questions from judges

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the design brief posted on the TSA website under *Themes & Problems*.

B. Participants select a country and design a sustainable home based on that country's climate conditions, raw materials available, construction methods, and infrastructure.

C. Participants concentrate their efforts researching conditions in their chosen country and sustainability efforts.

D. Participants prepare their documentation, display, and model according to the regulations.

E. Participants prepare to present.

PRELIMINARY ROUND

A. No more than two (2) team representative report at the time and place stated in the conference program to check in:

   1. The display
   2. The model
   3. The documentation portfolio

B. Entries are evaluated by judges independently, with neither students nor advisors present based on the following criteria:

   1. Judges score the Display and Model criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.
   2. Judges score the Documentation Portfolio criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

C. A list of twelve (12) semifinalists (in random order) is posted.

SEMIFINAL ROUND

A. No more than two (2) team representatives report at the time and place stated in the conference program to sign up for a presentation/interview time.

B. One to three (1-3) team representatives report at the assigned time and place stated in the conference program to participate in the presentation/interview.

C. Judges score the presentation/interviews.

D. Ten (10) finalists are announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Participants must understand the fundamental concepts and principles of the sustainable architecture that they are implementing. Research should focus on the country's environment, climate, natural resources, and economy.

B. Display and Model:

1. The display must include:
    a. Model of the solution or model of a system used for the design
    b. The chosen country's name
    c. A world map clearly indicating the location of the chosen country, the location of the current year's National TSA Conference, and the distance in miles between the two (2) locations
    d. A tri-fold flyer or brochure that provides basic information and facts about the chosen country and a description of the design features of the home (one [1] piece of 8½" x 11" paper)
    e. The team's documentation portfolio
2. The size of the display and model may not exceed 15" deep x 3' wide x 4' tall. The documentation portfolio must be placed in the display with the model and remain within the dimensions.
3. A/C electricity may not be used.
4. If the display and/or model requires power, they must be powered by dry-cell batteries or photo-voltaic cells.
    a. The power supply must physically fit within the display dimensions.
    b. All power must be switched off once the team has completed set-up.
    c. If teams want judges to activate any electronic device in their model/display, complete instructions must be provided to judges on how to power up the model/display.
5. Once the display set-up time frame has closed, participants may not re-enter the event area.

C. Documentation Portfolio:

1. Documentation portfolio is required and must be secured in a clear front report cover with the following single-sided, 8½" x 11" pages, in this order:
    a. Title page with the event title, the conference city and state, the year, and the team ID number; one (1) page
    b. Table of contents; one (1) page
    c. A description of how the team interpreted the design challenge and an explanation of the style and merits of the solution; two (2) pages
    d. A description of the country's environment, climate, natural resources, and economy; three (3) pages
    e. Building materials used in the construction of the home interior and exterior surfaces of the architectural design (this is different from the list of the model construction materials); one (1) page
    f. CAD drawings for the required drawings (each drawing to be submitted on maximum drawing sheets cut size B [11" x 17"] with appropriate scale size noted on the drawing); pages as needed
        i. Original floor plan/s of the design
        ii. Landscape plan
        iii. Diagrams explaining design elements
    g. References and resources page. Participants must cite a minimum of three (3) different types of credible resources; pages as needed
    h. Work Log (see Forms Appendix); pages as needed

PRELIMINARY ROUND

A. No more than two (2) team representatives check in the entry and set up the display, observing the following:

1. Models must fit within the allotted display space

2. A/C electricity is prohibited
3. Dry cell or photo-voltaic cells may be used for power, if desired
4. The power source used must fit within the maximum display area
5. If operating instructions or login information are necessary, they must be clearly displayed

B. Violation of the following will result in disqualification:
   1. No viruses, live plants, or animals may be used as a part of the display.
   2. No harmful or illegal substances may be displayed.

SEMIFINAL ROUND

A. Participants may reference the display and the portfolio. No additional materials or devices are allowed for the presentation.

EVALUATION

PRELIMINARY ROUND

Tier 1

A. The display

B. The model

Tier 2

C. The documentation portfolio

SEMIFINAL ROUND

A. The presentation/interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Appraiser
- Architect
- Construction manager
- Interior designer
- Urban and regional planner

Participant/Team ID# _____

OFF THE GRID

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ TIER 1 – Display and model are present
☐ TIER 2 – Documentation portfolio is present
☐ ENTRY NOT EVALUATED

TIER 1 – DISPLAY (40 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Display Components (X1)	Display is unorganized and/or is missing three (3) or more components.	Display has most components and is generally organized; it has sufficient content.	All components are included in the display content and the organization is excellent.	
Communication of Solution (X1)	The description of the country and design is unclear or vague; there is little to no mention of the sustainable design features.	The description of the country and design of the style are included; however, some sustainable design features are missing.	The description of the country and design of the style are clear, effective, and convincing.	
Creativity (X1)	Display lacks originality; none or very few design principles are integrated in the display.	Some resourcefulness and ingenuity are evident in the display; some essential design principles are generally used.	There is clear evidence of an inventive, unique, and creative display; essential design principles and elements are integrated.	
Brochure (X1)	The brochure is missing or is not effective in communicating the solution to the challenge and the country chosen.	Most of the brochure is well designed and informative about the solution to the challenge and the country chosen.	The brochure effectively informs the reader of the solution to the challenge and the country chosen.	
			TIER 1 – DISPLAY SUBTOTAL (40 points)	

TIER 1 – MODEL DESIGN (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Effectiveness of Design (X1)	The design is ineffective in meeting the needs of the challenge.	The design is somewhat effective in meeting the needs of the challenge.	The design is clearly effective in meeting the needs of the challenge.	
Aesthetic Appeal and Functionality (X1)	There is little to no evidence of consideration of aesthetics and curb appeal in the design; systems in the model do not match or work with the design.	There is some evidence that aesthetics and curb appeal have been considered in the design; most systems in the model match or work with the design.	There is clear evidence that aesthetics and curb appeal are fully and effectively integrated into the design; all systems in the model work with the design.	

TIER 1 – MODEL DESIGN (50 points) – continued				
Creativity and Innovation (X1)	The design lacks originality and exhibits few, if any, creative and/or innovative applications.	Some unique, innovative, and creative concepts are incorporated in the overall design.	Unique, creative, and innovative approaches are fully incorporated into the design.	
Model Design (X2)	The model is not informative and does not effectively nor accurately represent the design.	Most of the model is informative and accurately represents the design.	The model effectively displays the solution to the challenge and accurately represents the design.	
			TIER 1 – MODEL DESIGN SUBTOTAL (50 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

TIER 1 – SUBTOTAL (90 points)	

TIER 2 – DOCUMENTATION PORTFOLIO (80 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
Description of Design Interpretation (X1)	The description of the design and style is unclear or vague; includes little or no mention of the sustainable design features.	The description of the design and explanation of the style are included; they are adequately presented.	The descriptions and merits of the design, and an explanation of the style, are clear, effective, and convincing.	
Description of the Chosen Country (X1)	There is little or no evidence of research done; the country's environment, climate, natural resources, and economy were not addressed clearly or at all.	Most, but not all, of the required areas of research are present and documented; some aspects are missing.	All of the research areas are clearly documented and well presented.	
Building Materials (X1)	Many elements are missing or incomplete.	Most, but not all, elements are included.	All elements are included, and are detailed and explained clearly.	
Drawings (X2)	A few of the required drawings are present, but they are lacking in quality.	Most, but not all, of the required drawings are included and are in the proper format.	All required drawings are included and in the proper format.	
Resources/ References (X1)	There is little to no effort to provide resources or references.	Resources and references are included and are somewhat credible.	There is clear evidence of the appropriate use of applicable resources and references.	
Work Log (X1)	The Work Log lacks major elements of documentation.	The Work Log is somewhat complete, and generally reflects the time and work necessary for the project.	The Work Log completely and accurately reflects the time and work necessary for the project.	
			TIER 2 – DOCUMENTATION PORTFOLIO SUBTOTAL (80 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (170 points)	

SEMIFINAL PRESENTATION/INTERVIEW (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	Participant(s) seem unorganized and unprepared for the presentation; illogical explanation of the problem and solution is presented.	Participant(s) is/are generally prepared for the presentation; explanation of the problem and solution are generally communicated.	Presentation is logical and easy to follow; the problem and solution are communicated in a concise manner.	
Articulation (X1)	Communication of the design project is unclear, unorganized, and or illogical; leadership and/or 21st century skills are not evident.	Communication of the design project is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the design project is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
Delivery (X1)	The participant(s) is/are verbose and/or uncertain in its presentation/ interview; participants' posture, gestures, and lack of eye contact diminish the presentation/interview.	The participant(s) is/are somewhat well-spoken and clear in its presentation/interview; participants' posture, gestures, and eye contact are acceptable in the presentation/ interview.	The participant(s) is/are well-spoken and distinct in its presentation/ interview; participants' posture, gestures, and eye contact result in a polished, natural, and effective presentation/interview.	
Knowledge (X2)	Participant(s) exhibit little understanding of the concepts in their project; answers to questions may be vague.	Participant(s) exhibit a general understanding of the concepts in their project.	Participant(s) show clear evidence of a thorough understanding of the project.	
			SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (50 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	

SEMIFINAL SUBTOTAL (50 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (220 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

OFF THE GRID
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

   1. Preliminary round, two (2) or more
   2. Semifinal round, two (2) or more

C. Assistants for check-in, two (2)

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Stick-on labels for entries, as needed
   5. Results envelope with coordinator forms

B. Tables for entries

C. Tables and chairs for event coordinator and judges

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

EVENT CHECK-IN

A. Check in participants at the time and place stated in the conference program.

B. No more than two (2) participants check in:

   1. The model
   2. The display
   3. The documentation portfolio

C. Ensure the model and display does not exceed: 15" deep x 3' wide x 4' high. Measurements need to be taken immediately after the model and display have been set up by the competitors.

D. Check to make sure the entry does NOT include:

   1. Viruses, live plants, or animals
   2. Harmful or illegal substances.

E. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.

F. In order to compete, participants must be on the entry list or must have approval of the CRC.

G. Requirements for attire do NOT apply during check-in, only on the first day of the conference.

H. Place a team identification number stick-on label in the lower right-hand corner of each display.

I. Secure the entries in the designated area.

PRELIMINARY ROUND

A. Judges independently review the entries based on the following criteria:

Tier 1

1. Judges score the display and model criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.

Tier 2

2. Judges score the documentation criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

B. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:
   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

C. Judges determine twelve (12) semifinalists and discuss and break any ties.

D. Submit semifinalist results to the CRC for posting.

E. Create an interview/presentation sign-up sheet.

SEMIFINAL ROUND

A. One (1) team representative reports at the assigned time and place to sign up for the presentation/ interview.

B. One to three (1-3) team representatives report at the assigned time and place for the presentation/ interview.

C. Participants may reference the display and the portfolio. No additional materials or devices are allowed for the presentation.

D. Judges review the presentation and ask pertinent interview questions.

E. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

F. Judges determine the ten (10) finalists and discuss and break any ties.

G. Submit the finalist results and all related forms in the results envelope to the CRC room.

H. Manage security and removal of all materials from the area.

PREPARED SPEECH

OVERVIEW

Participant delivers a speech that reflects the theme of the current National TSA Conference. See the TSA website under *Themes & Problems* for the current conference theme.

ELIGIBILITY

Three (3) individuals per state may participate.

TIME LIMITS

A. Each speech should be no less than three (3) minutes and no more than five (5) minutes.

B. A one (1)-point deduction will be incurred for each ten (10)-second interval under or over the allotted time for speaking.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRELIMINARY ROUND

A. Participants report to the event area at the time and place stated in the conference program to receive an assigned presentation time.

B. The event coordinator introduces each student by identification number only and in the order of scheduled times.

C. Participants deliver their speech in the allotted time limit.

D. A list of twelve (12) semifinalists (in random order) will be posted.

SEMIFINAL ROUND

A. Semifinalists report to the event area at the time and place stated in the conference program to receive an assigned presentation time.

B. Semifinalist speeches follow the same procedure as in the preliminary round.

C. Ten (10) finalists will be announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Each speech must be the result of the participant's own efforts.

B. The topic for the Prepared Speech event is the published theme of the current year's conference.

C. Information about technology and TSA is appropriate as long as it relates to the published theme.

D. Participants are not permitted to use any type of props, computers, display boards, etc.

E. Costumes are not permitted.

F. Participants may use note cards during the speech.

G. Participants may not reveal their school, chapter name, or city, but the appearance of a state name on an official TSA badge is acceptable.

H. TSA will provide a podium in the event room.

I. Participant scores are penalized one (1) point per ten (10)-second interval for speaking over or under the allotted time

J. Time commences when the speech begins.

K. Participants are not allowed to hear the speech of any other participant.

L. No observers are allowed in the event room during heats.

SEMIFINAL ROUND

A. All regulations and requirements from the preliminary round apply to the semifinal round.

B. Observers are allowed to sit in the audience during the semifinals.

C. Observers may not enter or leave during a speech.

D. No talking, gesturing, or interaction with the audience is permitted.

E. There should be no applause until a speech has concluded.

F. No audio or visual recording devices (including cell phones, digital cameras, etc.) by any observer are permitted.

EVALUATION

A. The quality, content, and effectiveness of the speech

B. The speaker's stage presence

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Entertainment/television broadcaster
- Lawyer
- Politician
- Speech writer
- Teacher/trainer

Participant/Team ID# _____

PREPARED SPEECH

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Participant is present
☐ ENTRY NOT EVALUATED

CONTENT (30 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Introduction (X1)	Introduction is weak, with little effort made to highlight the theme and/or to generate interest and enthusiasm for the topic.	Effort is evident; introduction creates a moderate level of interest.	Introduction is effective, stimulating, and engaging; a strong effort is made to highlight the theme and/or to generate interest and enthusiasm for the topic.	
Body (X1)	Body of speech is poorly organized; content does not properly cover or represent the concepts and theme being presented.	Body of speech is adequately presented and is somewhat interesting.	Body of speech is clearly and effectively presented in an exceptionally interesting manner; the speech is memorable and conveys the theme.	
Conclusion (X1)	Conclusion fails to summarize or clarify the information presented in the speech.	Conclusion generally summarizes the content and theme of the speech.	The conclusion is effective, interesting, and memorable; the summary fully brings finality to the speech and the theme.	
			CONTENT SUBTOTAL (30 points)	

STAGE PRESENCE (30 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Appearance (X1)	Participant's appearance is unprofessional, sloppy, and/or inappropriate.	Participant's appearance is adequate and appropriate.	Participant's appearance is clearly exceptional, appropriate, and professional.	
Confidence (X1)	Participant appears nervous during speech; poor posture, poor eye contact, and lack of confidence are evident; participant reads speech from note cards.	Participant is generally poised, displays eye contact, and is confident, with little sign of nervousness; participant's use of note cards is minimal.	Participant "commands" the room, and is exceptionally poised, confident, and positive; participant does not use note cards for the speech, or note cards do not detract from the overall speech.	

STAGE PRESENCE (30 points) – continued				
Articulation (X1)	Participant conveys an inconsistent use of proper grammar, word pronunciation, acceptable pitch, and tone.	Participant generally uses proper grammar and pronunciation, and varies the tone and pitch in the delivery.	Smooth and effective articulation, proper grammar, correct pronunciation, and varied tone and pitch are used throughout the speech.	
			STAGE PRESENCE SUBTOTAL (30 points)	

ORGANIZATION (40 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Effectiveness and Quality of Presentation (X2)	Speech is poorly prepared, not interesting, and not representative of the stated theme.	Speech is adequate in most areas but exceptional in none of them.	Speech is exceptional and memorable; the observer can easily understand and relate to the speech.	
Knowledge of Material (X1)	Minimal factual support is evident in the speech; the content of the speech does not relate to the theme; the participant does not convey understanding of the theme.	Factual support is provided in the speech, but the support does not always relate to the theme or match the content of the speech.	Factual support is provided in the speech; it has a strong relationship to the theme and enhances the content of the speech.	
Organization (X1)	The speech is difficult to follow or understand.	The speech is adequately organized and delivered.	The speech is clearly organized and easy to follow; the delivery is exceptional.	
			ORGANIZATION SUBTOTAL (40 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

TIME DEDUCTIONS		Record scores in the column spaces below.
One (1) point per ten (10)-second interval is deducted for speaking under three (3) minutes or over five (5) minutes. Time commences when the competitor begins speaking.		
TOTAL TIME FOR SPEECH		
TOTAL TIME DEDUCTIONS		

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (100 points)

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

PREPARED SPEECH
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator
B. Judges:
   1. Preliminary round, two (2) per heat room
   2. Semifinal round, two (2) or more
C. Timekeeper, one (1)
D. Coordinator assistant (to serve as an escort from the holding area to the heat rooms), one (1)

MATERIALS

A. Coordinator's packet, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. One (1) stopwatch for each event room
   5. Results envelope with coordinator forms
B. Podium
C. Chairs for audience
D. Tables and chairs for two (2) or more judges

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory coordinator's meeting.
B. Report to the CRC room and check the contents of the coordinator's packet.
C. Review the event guidelines and check to see that enough personnel have been scheduled.
D. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.
E. At least one (1) hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. The event coordinator takes the first participant to the event room.
B. The event coordinator or assistant introduces the participant by entry number only. No name tags or clothing identifying the hometown, school, or chapter of the participant are allowed. A state name on a TSA patch is acceptable.
C. Approximately every eight to ten (8-10) minutes, the event coordinator or the coordinator assistant will escort another participant to the event room.
D. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:
   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.
E. Judges determine the twelve (12) semifinalists.
F. Submit the semifinalist results to the CRC for posting.
G. Create a sign-up sheet for the semifinal round.

SEMIFINAL ROUND

A. Using the same official rating form for semifinalists, judges assess the semifinalist speeches and determine the ten (10) finalists.
B. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.
C. Through discussion, judges break any ties that affect the top three (3) placements.
D. Submit the finalist results and all related forms in the results envelope to the CRC room.
E. If necessary, manage security and the removal of materials from the event area.

PROBLEM SOLVING

OVERVIEW

Participants apply leadership and 21st century skills in problem solving to develop a finite solution to a stated problem provided on-site. Participants work as a team to provide the best solution, which is measured objectively.

ELIGIBILITY

One (1) team of two (2) individuals per chapter may participate.

TIME LIMITS

Ninety (90) minutes for the design and construction of the solution are permitted.

ATTIRE

TSA competition attire is required.

PROCEDURE

ON-SITE CHALLENGE

A. Participants report to the event area at the time and place stated in the conference program with their team tool box and safety eye glasses.

B. The problem, the evaluation criteria, and the materials are distributed.

C. Teams will be given a two (2) hour window to begin construction of a solution

D. Teams are allowed ninety (90) minutes to design and construct a solution.

E. Each solution is tested as soon as possible after the construction phase is completed. Some problems may require teams to be present for testing.

F. The top ten (10) finalists are announced at the awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

A. All work must be completed in the event area during the time specified for the event.

B. Specific materials related to the on-site problem will be provided by TSA.

C. Only the materials issued to each team by the event coordinator may be used in the development of the solution. Exceptions are adhesives (glue) and masking tape from each team's toolbox.

D. Participants are required to provide their own tool box/container, which must:

1. Include identification (school name, address, and advisor cell phone number).
2. Not exceed twenty (20) inches (508 mm) length x ten (10) inches (254 mm) width x ten (10) inches (254 mm) height.
3. Contain all tools and materials needed to fabricate the solution. The following is a suggested list:
    a. Cutting devices; NONE may be electric
    b. Adhesives:
        i. Aerosol and electric applicators are not allowed
        ii. A bottle of Uncure or Debonder is recommended
    c. Temporary fastening devices
        i. Straight pins
        ii. Clamps
        iii. Tape (only masking tape may be used as a construction material of the final solution)
    d. A cutting surface that prevents table-top marring (required)
    e. Rulers, straightedges, and/or measuring scales
    f. Marking devices (pens, pencils, etc.) and sharpener
    g. Sheet of wax paper, (up to 9 square feet)
    h. Pliers, wrenches, nut drivers, as needed
    i. Safety glasses and side shields, as required
    j. One (1) roll masking tape no wider than ¾"

E. Participants without a tool box will not be allowed to compete.

F. As teams enter the competition area, each will be given a copy of the Verifications Sheet. The Verifications Sheet is a list of tool box contents as listed in Rules and Regulations D3 a-k.

G. Sharing tools between teams is not permitted.

H. Participants are required to provide and wear safety-approved eyewear for this event.

   1. Safety eyewear shall be worn at event check-in.
   2. Prescription eyewear will need to have side shields to be considered safety eyewear.
   3. Should a team member remove his/her eyewear, he/she will be reminded once to replace it.
   4. Sunglasses are not suitable eyewear.

EVALUATION

A. Each team's solution is evaluated objectively.

B. A finite measure, such as elapsed time, horizontal or vertical distance, and/or strength, is used to determine the best solution.

C. Ties shall be broken according to the entry with the earlier testing time given the advantage

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Computer network specialist
- Detective
- Mechanical engineer
- Nurse
- Project manager

Participant/Team ID# _____

PROBLEM SOLVING

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Tool box is present and meets size requirements
☐ Safety glasses are worn by each team member
☐ ENTRY NOT EVALUATED

TESTING OF SOLUTION (60 points)						
Evaluation: A finite unit of measure, such as elapsed time, linear distance, and/or strength, etc. is used to determine ranking for this event.						
1st: 60 Points	**2nd:** 55 Points	**3rd:** 50 Points	**4th**: 45 Points	**5th:** 40 Points	**6th:** 35 Points	
7th: 30 Points	**8th:** 25 Points	**9th:** 20 Points	**10th:** 15 Points	**11th:** 10 Points	**12th:** 5 Points	
					TESTING OF SOLUTION SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (60 points)

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

PROBLEM SOLVING
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

   1. Preliminary round, two (2) or more

C. Timekeeper/monitors, one (1) or more

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Stick-on labels for identifying entries
   5. Stopwatch for timekeeper
   6. Results envelope with coordinator forms

B. A well-written, technologically appropriate problem that can be objectively measured; one (1) for each team

C. Adequate conditions (inside or outside), on-site problem materials, monitoring, and testing devices for the designated problem

D. Tables and chairs for participants

E. Tables and chairs for event coordinator and judges

F. Tool Box Verifications Sheet, one (1) copy per team

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

ON-SITE CHALLENGE

A. Distribute materials as appropriate, prior to the start of the event.

B. Begin the event at the scheduled time by closing the doors and checking the entry list.

C. All participants and judges should be in the room at this time.

D. Late participants and/or entries are considered on a case-by-case basis and only when lateness is caused by events beyond the participant's control.

E. In order to compete, participants must be on the entry list or must have approval of the CRC.

F. Each team will submit their tool box to the coordinator and judges for size verification.

G. Once teams are seated (checked against the entry list) and general announcements have been made, the event problem will be distributed, reviewed, and time will be started.

H. Judges and monitors observe the entire construction phase, with judges measuring solutions as soon as appropriate.

I. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

J. Submit the semifinalist results to the CRC room.

K. If necessary, manage security and the removal of materials from the event area.

PROMOTIONAL MARKETING

OVERVIEW

Applying leadershup and 21st century skills, participants create a marketing portfolio observing the theme and required elements, which will be electronically submitted pre-conference. The theme will be posted on the TSA website under *Themes & Problems*. Semifinalists design a solution to an on-site challenge.

ELIGIBILITY

One (1) individual per chapter may participate.

TIME LIMITS

PRE-CONFERENCE

A. All components of the chapter's entry (marketing portfolio PDF and digital signage URL) must be finished, submitted, and accessible via the Internet by 11:59 p.m. ET on a designated date in mid-May.

B. Entries received, or changes made to submitted entries after this deadline will not be judged.

SEMIFINAL ROUND

A. Fifteen (15) minutes is allowed to set up.

B. One (1) hour is allotted to complete, save, and submit the on-site challenge.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the annual theme and on the TSA website under *Themes & Problems*.

B. Participants concentrate their efforts in creating a three (3)-part marketing portfolio containing:

1. A printable advertisement
2. A wearable design
3. Digital signage

C. Participants submit the printable advertisement and wearable design electronically as multi-page PDF documents separated into the following categories:

1. The printable advertisement and supporting documentation for the design
2. Wearable design and supporting documentation for the design

D. Participants submit the digital signage part of the marketing portfolio via a URL link.

E. All components of the chapter's entry (marketing portfolio PDF and digital signage URL) must be finished, submitted, and accessible via the Internet by 11:59 p.m. ET on a designated date in mid-May.

F. Submission information will be provided on the TSA website under *Competition Updates*.

PRELIMINARY ROUND

A. A list of twelve (12) semifinalists (in random order) is posted on the first full day of conference.

SEMIFINAL ROUND

A. Semifinalists report at the time and place stated in the conference program with a laptop computer.

B. Semifinalists are responsible for bringing their own USB flash drive.

C. Semifinalists complete the on-site layout and design challenge within the one (1)-hour time limit.

D. Once semi-finalists complete their solution to the the design challenge, they will save their final entry to the the USB flash drive as a multimedia presentation or PDF format. The participant will then alert the coordinator and wait for judges to evaluate their final product on the participant's computer screen.

E. Judges independently assess the entries. Once judges are finished with their evaluation, the participant must submit the USB to the coordinator and may leave and take their computer out of the room.

F. Ten (10) finalists are announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. The required elements are posted on the TSA website under *Themes & Problems*.

B. Use of the TSA logo is permitted as long as it adheres to the current TSA Branding Guide.

C. Pre-conference, participants design the following three (3) components as part of the marketing portfolio based on the theme and requirements posted on the TSA website under *Themes & Problems*:

   1. Printable signage must be viewable and saved as a PDF.
   2. Participants design a wearable design. This design must be viewable and saved as a PDF.
   3. Participants create digital signage using presentation software. This multimedia signage would be scrolling throughout an event.
      a. A URL link must be provided for submission, which points directly to the team's entry.

D. Additional information about design work needs to be a typed PDF file submitted with the corresponding design PDF file (pages as needed), and include the following:

   1. Notation of all ideas, fonts, and images that are completely original.
   2. Citation of all ideas, fonts, and images from sources other than the designer, and/or that are copyrighted (most fonts and images found on the web are copyrighted material unless purchased or offered as free-domain).
   3. Notation of the type of software program(s) used for designs and layout.

E. Copyright information

   1. Student Copyright Checklist (see Forms Appendix); one (1) page.
   2. Photo/Film/Video Consent and Release Forms. If the entry contains images of people (minors require parental consent), proof of consent must be included for each person (see Forms Appendix); pages as needed

F. The solution must be the combination of each of the items as one (1) PDF (the URL of the digital signage will be submitted separate from the PDF). Combine the printable signage, wearable design, additional information about design work, the Student Copyright Checklist, and any necessary Photo/ Film/Video Consent and Release forms into a single PDF with the file name "Marketing Portfolio" and the individual student ID number.

G. The URL submission of the digital signage must point directly to the individual's entry. Entries that require a request for access be granted will not be judged.

H. All components of the chapter's entry (marketing portfolio PDF and digital signage URL) must be finished, submitted, and accessible via the Internet by 11:59 p.m. ET on a designated date in mid-May.

SEMIFINAL ROUND

A. Semifinalists report at the time and location provided in the conference program to complete the on-site layout and design challenge with-in the one (1) hour time limit.

B. Participants are required to bring:

   1. One (1) laptop. Laptop must be fully charged with enough battery for the duration of the semifinal round.
   2. One (1) computer mouse (if desired).
   3. Pencils and/or Pens.
   4. Notebook paper or copier paper.
   5. Portable power bank (if desired).

C. Participants do NOT have access to electrical power/ outlets during the event.

D. Clip art may be used for the on-site challenge, but the use of a template is not permitted. Students are responsible for providing their own graphic library.

E. The on-site work must be an original creation.

F. Internet access is permitted, but it will not be provided by TSA. TSA cannot guarantee the availability of cellular and/or Wi-Fi signals in the competition room.

G. Students save the design solution for the on-site problem as a multimedia presentation or PDF on the USB for submission.

H. Judges will evaluate the solution to the design challenge on the screen of the participant.

I. Participants may leave the room only with permission from the event coordinator.

EVALUATION

A. The marketing portfolio

B. The design challenge

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Ad copy writer
- Telecommunications manager
- Internal communications manager
- Volunteer manager
- Public affairs specialist

Participant/Team ID# _____

PROMOTIONAL MARKETING

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ The PDF of the Marketing Portfolio was submitted
☐ The URL of the Digital Signage was submitted
☐ ENTRY NOT EVALUATED

PRINT DESIGN (50 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Layout and Design (X1)	Layout/design does not resemble a promotional printed design, is not the correct size, and/or it is missing essential elements.	Most elements of design are followed; the design is the correct size, and few mistakes are made in the layout.	Printed design encompasses all standardized layout practices, and creativity is at the forefront of the design.	
Content (X1)	Printed design is missing three (3) or more of the following elements: Conference city/state and year, TSA logo, time, place, date and cost of the event.	Printed design is missing one to two (1-2) elements listed in the minimal criteria.	All elements are included in the printed design.	
Effectiveness (X1)	Printed design does not convey intended message, and/or it contains unrelated text/graphics.	Printed design generally conveys the intended message, and contains topic-related text/graphics.	Printed design message is easily understood and interpreted, with exceptional use of related graphics and text.	
Incorporation of Graphic Design Principles (X2)	Design principles (alignment, consistency, contrast, unity, white space) are not incorporated adequately into the printed design, and/or they are considered as an afterthought.	Printed design exhibits incorporation of most design principles (alignment, consistency, contrast, unity, white space), and the overall layout is aesthetically pleasing.	Printed design is aesthetically pleasing, and all design principles are well incorporated into the design and layout.	
			PRINT DESIGN SUBTOTAL (50 points)	

WEARABLE DESIGN (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
First Impression (X1)	The design is sloppy, and/or it is difficult to see; there is poor choice of colors; the artwork is not suited for a wearable item, and/or it leaves an unfavorable impression.	The design has good points, but some details may detract from the overall quality.	The design is eye catching; attention to detail is obvious.	
Dominance (X1)	Eyes are drawn away from what should have been the focal point by some other component of the graphic.	A general attempt is made to use a graphic component that draws attention to the design's main idea.	The design's main components draw eyes to the appropriate location and/or focal point of the graphic.	
Use of Fonts/Words in Design (X1)	Fonts/words are not readable; location or size are not appropriate for the design.	Fonts/words are mostly appropriate, but there is room for improvement.	Fonts/words, their size, and their location are clearly appropriate for the design.	
Incorporation of Graphic Design Principles (X2)	Design principles (alignment, consistency, contrast, unity, white space), are not incorporated adequately into the graphic, and/or they are considered as an afterthought.	Graphic incorporates most design principles (alignment, consistency, contrast, unity, white space), and the overall layout is somewhat aesthetically pleasing.	Graphic is aesthetically pleasing, and all design principles are well incorporated into the design and layout.	
			WEARABLE DESIGN SUBTOTAL (50 points)	

DIGITAL SIGNAGE (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Layout and Design (X1)	Signage lacks the use of design principles (alignment, consistency, contrast, unity, white space, color scheme) and presentation formatting (animations, transitions, and timings).	Signage contains some design principles and presentation formatting.	Excellent use of formatting to develop the design and layout of the presentation is evident.	
Audience (X1)	Audience is not considered in the development of the signage; inadequate language is used.	Tone and language are of average quality for the audience.	The signage is written specifically for an audience, with professional tone and language.	
Sentence Structure (X1)	Simple sentence structure is used throughout the signage, and there are multiple grammatical errors.	Writing is generally engaging and informative; only a few grammatical errors are evident.	Signage is well-written with little to no grammatical errors evident.	
Content (X1)	Signage is missing three or more of the required elements.	Signage is missing one or two of the required elements.	All elements are included in the signage.	
Effectiveness (X1)	Signage does not convey intended message appropriately, and/or it contains unrelated text/graphics.	Signage conveys overall intended message, but it contains some inadequate and/or unrelated text/graphics.	The message of the signage is easily understood and interpreted, with exceptional use of related text/graphics.	
			DIGITAL SIGNAGE SUBTOTAL (50 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (150 points)	

SEMIFINAL CHALLENGE (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Layout and Design (X1)	Layout/design does not incorporate or consider three (3) or more of the following design principles: alignment, consistency, contrast, unity, white space.	Layout/design includes most design principles; overall layout is somewhat aesthetically pleasing.	Aesthetically pleasing design is evident, and all design principles are incorporated into the design and layout.	
Solution to Project (X2)	Project is missing three (3) or more attributes of the solution's criteria.	Most attributes of the solution's criteria are included.	All attributes of the solution's criteria are included.	
Effectiveness (X1)	Project does not convey intended message appropriately, and/or it contains unrelated text/graphics.	Project delivers the overall intended message, and it contains basic graphics.	Project message is easily understood and interpreted, with exceptional use of related graphics and text.	
Originality (X1)	Project does not incorporate or consider four (4) or more of the following principles of creativity: freshness, idea cultivation, realness, bravery, momentum, visual signaling; leadership and/or 21st century skills are not evident.	Project incorporates most creative principles, and results in an adequate/average presentation; leadership and/or 21st century skills are somewhat evident.	Project is a truly unique presentation; it includes most of the applicable principles of creativity; leadership and/or 21st century skills are clearly evident.	
			SEMIFINAL CHALLENGE SUBTOTAL (50 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
SEMIFINAL SUBTOTAL (50 points)	
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (200 points)	

Comments:

_____

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

PROMOTIONAL MARKETING
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

   1. Preliminary round, two (2) or more
   2. Semifinal round, two (2) or more

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Stick-on labels for identifying entries
   5. On-site problem for semifinalists, twelve (12) copies
   6. Results envelope with coordinator forms

B. Tables, one (1) per participant

C. Chairs, one (1) per participant

RESPONSIBILITIES

PRE-CONFERENCE

A. National TSA will collect entries until 11:59 p.m. ET on a designated date in mid-May. The results are shared with the CRC manager, event coordinator, and assigned judges

B. Review entries as they are submitted to the designated online storage utility

C. Manage communication and pre-conference evaluation (at least two [2] or more judges should be recruited earlier in the year). Coordinate with the Judge Manager.

D. Judges determine the twelve (12) semifinalists and discuss and break any ties.

E. Results are posted on-site at the national conference on the first full day.

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. On the first full day of the conference, post a list of the twelve (12) semifinalists in random order.

SEMIFINAL ROUND

A. At the designated time, check-in the semifinalists and monitor them as they set up their work area.

B. Label the semifinalist USB drives (provided by the semifinalists) with the semifinalists' student ID numbers.

C. Provide the on-site problem.

D. Supervise the one (1) hour on-site layout and design problem.

E. Manage the evaluation process of the on-site problem.

F. After the evaluation, supervise the removal of computers by the participants and collect the USB entries.

G. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

H. Judges determine the top ten (10) finalists and discuss and break any ties.

I. Submit the finalist results and all related forms in the results envelope to the CRC room.

J. If necessary, manage security and the removal of materials from the event area.

STEM ANIMATION

OVERVIEW

Applying leadership and 21st century skills, participants use computer graphics tools and design processes (e.g., animation) to communicate, inform, analyze and/or illustrate a topic, idea, subject, or concept that focuses on one (1) or more of the STEM (science, technology, engineering, or mathematics) areas. Sound may accompany graphic images. Participants will find the current year's theme posted on the TSA website under *Themes & Problems* for this information. Semifinalists make a presentation.

ELIGIBILITY

Three (3) teams per state may participate.

TIME LIMITS

PRELIMINARY ROUND

A. All components of the chapter's entry (documentation portfolio PDF and animation URL) must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on a designated date in mid-May.
B. Entries received or changes made to submitted entries after this deadline will not be judged.
C. The animation is not to exceed three (3) minutes in length. There is no minimum time requirement.
D. There will be a three (3)-point deduction for each fifteen (15) seconds, or fraction thereof, over the three (3)-minute length.
E. The animation time is calculated from the start of the first image or sound to the end of the last image or sound.

SEMIFINAL ROUND

A. Ten (10) minutes is allowed to present the animation to the judges.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the annual theme posted on the TSA website under *Themes & Problems*.
B. Participants design and create a STEM animation video and documentation portfolio.
C. Participants submit the documentation portfolio PDF and animation URL by 11:59 p.m. EST on a designated date in mid-May.
D. Submission information will be provided on the TSA website under *Competition Updates*.

PRELIMINARY ROUND

A. A list of twelve (12) semifinalists (in random order) is posted on the first full day of conference.

SEMIFINAL ROUND

A. No more than two (2) representatives from each semifinalist team may report to the event area for the presentation at the time and place stated in the conference program.
B. Each semifinalist team explains its portfolio to the judges, discussing the purpose, value, research and design, and development process of its work.
C. Ten (10) finalists will be announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. Documentation Portfolio:

1. Documentation portfolio is required and must be submitted as a single, multi-page PDF document with pages in this order:
    a. Title page with the event title, the conference city and state, the year, and the team ID number; one (1) page
    b. Table of contents; pages as needed
    c. Purpose of animation; one (1) page
    d. Images of a hand-sketched storyboard (no digital screen captures) that documents the flow and progression of the animation, with written notes; special effects, audio cues, dialogue, transitions, and scene duration should be incorporated into the storyboard; pages as needed
    e. Written description of what the animation illustrates or demonstrates; one (1) page
    f. List of references that includes sources for materials, copyrighted and otherwise; the term "Fair Use" and similar terms are not acceptable citations when creating the list of references; (pages as needed)
    g. Permission letters for copyrighted material; pages as needed
    h. List of software and hardware used in the development of the animation; one (1) page
    i. Work Log that indicates preparation for the event, as noted by date, task, time involved, team member responsible, and comments (see Forms Appendix); pages as needed
    j. A completed Student Copyright Checklist (see Forms Appendix); one (1) page

B. Animation:

1. The video must be submitted in a common video format suitable for viewing with a VLC player, utilizing a Microsoft Windows operating system.
2. The URL must point to the main page of the team's entry. Entries that require a request for access to be granted will not be judged.
3. Each animation must advance automatically once it has been opened and started by judges.
4. The animation is not to exceed three (3) minutes in length.
5. There will be a three (3)-point deduction for each fifteen (15) seconds, or fraction thereof, over the three (3)-minute maximum length. For example: An animation that runs 37 seconds beyond the three (3)-minute limit will receive a deduction of nine (9) points.
6. Sound may accompany the animation, but it is not required.
7. All video footage, graphics, special effects, and audio clips must be originally created/filmed by the participants.
8. Where applicable, all ideas, text, images, and sound from other sources must be cited.
9. If copyrighted material is used, proper written permission must be included in the documentation portfolio (see Student Copyright Checklist in Forms Appendix).
10. Absolutely no purchased content may be used in any part of the animation. (Purchased content includes, but is not limited to, texture, models, and royalty free music.)
11. Free and purchased items from sites like PowToons and Animaker are not acceptable for this event.

EVALUATION

PRELIMINARY ROUND

A. The quality of the portfolio and the animation

SEMIFINAL ROUND

A. The project presentation

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Computer animator
- Game designer
- Instructional technologist
- Software engineer

Participant/Team ID# _____

STEM ANIMATION

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Portfolio was submitted prior to conference
☐ Animation was submitted prior to conference
☐ ENTRY NOT EVALUATED

DOCUMENTATION PORTFOLIO (30 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Digital Portfolio (X1)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
Purpose and Description (X1)	The purpose and description of the animation idea are unclear.	The purpose and description of the animation are explained appropriately.	The purpose and description of the animation are clear and concisely written.	
Storyboard (X1)	The hand-sketched storyboard is sloppy, seems to have been thrown together after the creation of the animation, and/or it does not correlate with the animation.	The storyboard is drawn appropriately and largely correlates with the completed animation.	The storyboard is of exceptional aesthetic and artistic value and clearly correlates with the animation.	
			DOCUMENTATION PORTFOLIO SUBTOTAL (30 points)	

ANIMATION (50 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Communication of Animation (X1)	It is difficult to understand the idea being communicated; an illogical explanation is presented.	The idea is communicated, and thoughts are somewhat organized and/or concise.	The idea is communicated in an organized, clear, and concise manner.	
Creativity (X1)	The animation lacks creativity; no, or very few, design principles are integrated in the animation.	Some elements of creativity are expressed, and essential design principles are used somewhat effectively.	The animation exudes creativity; essential design principles and elements are integrated.	

ANIMATION (50 points) – continued				
Aesthetics and Artisanship (X1)	Unorganized, sloppy work is evident; the animation seems to be an afterthought and/or thrown together.	An organized presentation of essential issues in a logical format is evident.	An exemplary use of layout and design principles to logically communicate important data is evident.	
Graphical Representations (X1)	Graphical representations do not help to clarify the idea, or they are of little significance to the idea.	Graphical representations are appropriate and help supplement the idea by providing some clarity.	Graphical representations are of excellent quality and completely clarify the idea.	
Originality (X1)	The animation lacks imagination, originality, and artistic detail.	The animation is effective and innovative, conveying some depth.	The animation is inspiring, inventive, resourceful, and completely motivating.	
			ANIMATION SUBTOTAL (50 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

TIME DEDUCTIONS	
A three (3)-point deduction will be incurred for each fifteen (15) seconds, or fraction thereof, over the three (3)-minute animation maximum length.	
TOTAL ANIMATION TIME	
NUMBER OF TIME INTERVAL DEDUCTIONS	
TOTAL TIME DEDUCTIONS	

Record scores in the column spaces below.

PRELIMINARY SUBTOTAL (80 points)	

SEMIFINAL PRESENTATION (60 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the presentation; illogical explanation of the idea is presented.	Participants are generally prepared for the presentation; an explanation of idea is communicated and generally organized.	The presentation is logical, well organized, and easy to follow; the idea is communicated in an organized and concise manner.	
Articulation (X1)	The presentation is full of illogical thoughts that lack clarity, and/or there is insufficient information provided describing the project.	The presentation is somewhat logical, easy to follow, and/or there is sufficient information provided describing the project.	The presentation is clear, concise, and there is ample information provided describing the project.	

Record scores in the column spaces below.

SEMIFINAL PRESENTATION (60 points) – continued				
Delivery (X1)	The team is verbose and/or uncertain in its presentation; participants' posture, gestures, and lack of eye contact diminish the presentation.	The team is somewhat well-spoken and clear in its presentation; participants' posture, gestures, and eye contact are acceptable in the presentation.	The team is well-spoken and distinct in its presentation; participants' posture, gestures, and eye contact result in a polished, natural, and effective presentation.	
Knowledge (X2)	Participants seem to have little understanding of the concepts in their project.	Participants exhibit an understanding of the concepts in their project.	Participants show clear evidence of a thorough understanding of their project.	
Team Participation (X1)	The majority of the delivery is made by one member of the team; the partner may be disengaged from the presentation.	Both team members generally are engaged in the process, though one member may take on more responsibility than the other.	Both team members are actively involved in the presentation and responses to any questions; there is shared responsibility between team members.	
			SEMIFINAL PRESENTATION SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____

SEMIFINAL SUBTOTAL (60 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (140 points)	

Comments:

_____

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

STEM ANIMATION
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

   1. Preliminary round, two (2) or more
   2. Semifinal round, two (2) or more

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Results envelope with coordinator forms

B. One (1) computer with monitor as needed for judges

C. One (1) extension cord and one (1) power strip as needed for judges

D. Tables and chairs for event coordinator, judges, and participants

RESPONSIBILITIES

PRE-CONFERENCE/PRELIMINARY ROUND

A. National TSA will collect entries until 11:59 p.m. ET on a designated date in mid-May. The results are shared with the CRC manager, event coordinator, and assigned judges.

B. Review entries as they are submitted to the designated online storage utility.

C. Manage communication and pre-conference evaluation (at least two [2] or more judges should be recruited earlier in the year). Coordinate with the Judge Manager.

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the evaluation of entries is to begin, meet with your judges and check in personnel to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the CRC event manager before the evaluation begins.

SEMIFINAL ROUND

A. Semifinalists report to the event area at the time and place stated in the conference program.

B. Each semifinalist team signs up for a time to present its animation.

C. During the presentation, semifinalist team representatives will explain their work and answer any questions the judges may ask.

D. Judges independently assess the twelve (12) semifinalist teams.

E. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and CRC manager to determine either

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

F. Judges determine the ten (10) finalists and discuss and break any ties.

G. Submit the finalist results and all related forms in the results envelope to the CRC room.

H. If necessary, manage security and the removal of equipment and materials from the area.

STRUCTURAL ENGINEERING

OVERVIEW

Participants apply leadership and 21st century skills by collaborating with their team members to build a designated structure. Teams apply the principles of structural design and engineering through research, design, construction, destructive testing, and assessment to determine the design efficiency of a structure. Details about the structure and information related to it will be posted as a design brief on the TSA website under *Themes & Problems*. The on-site semifinalist problem is a variation of the pre-conference design brief posted on the TSA website.

ELIGIBILITY

One (1) team of two (2) individuals per chapter may participate.

SAFETY EYEWEAR

A. Participants are required to wear safety-approved eyewear during the on-site phase of this event.
B. Prescription eyewear needs to have side shields to be considered safety eyewear.
C. Should a team member remove the eyewear and fail to replace it, s/he will be reminded once.
D. If there is a second infraction, the team will be asked to leave the competition.
E. Sunglasses are not suitable.

TIME LIMITS

A. On-site structures (semifinalist teams only) must be started, completed, and checked in during the three (3) hours allowed for design and construction.
B. Semifinalist participants with time conflicts must present a written explanation of the conflict to the event coordinator at least one (1) hour before the construction time stated in the conference program. Work must begin during the time scheduled for the event.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the design brief on the TSA website under *Themes & Problems*.
B. Participants conduct research and apply principles of structural design and engineering to their current structure.
C. Pre-built structures must be started and completed during the current school year.
D. All work must be completed by the team members only, and verified by the team's chapter advisor using the Team Verification form on the TSA website under *Themes & Problems*.
E. Participants render a full-size, three (3)-view (front, top, and right end) drawing (hand or computer- generated) of their structure.
F. The team develops a cuts part list of materials.

PRELIMINARY ROUND

On-site Destructive Testing of Pre-Built Structures

A. Participants report at the time and place stated in the conference program and check-in:
    1. Pre-built structure with a label that includes only the team number
    2. Documentation portfolio
    3. Pre-built structure and documentation portfolio in a plastic storage box. The plastic storage box size cannot exceed 12" tall, 16" wide, 18" long. The plastic box will protect the solution and contain the necessary documentation
B. Structures are assessed and undergo destructive testing.
C. Destructive testing of pre-built structures is not open for public viewing.
D. Destructive testing is completed using structural testing equipment, as designated by TSA.
E. When the destructive testing is completed, a list of twenty (20) semifinalist teams is posted.

SEMIFINAL ROUND

On-site Construction

A. The twenty (20) semifinalist teams participate in the on-site problem, which feature the construction and destructive testing of a designated structure to determine the ten (10) finalist teams.
B. Twenty (20) semifinalist teams report to the event area at the time and place stated in the conference program.
C. Teams are seated by a monitor.
D. The design problem is explained and a list of directions for the construction problem is provided.
E. Teams have a three (3)-hour window when drawing begins and building stops, typically allotted as:
    1. Thirty (30) minutes to review the problem and create a sketch/drawing of their solution.
    2. Two and one-half (2 and ½) hours to review the problem and construct a solution.
F. During the building of the team's structure, construction regulations must be observed.
G. All work stops at the coordinator's signal. Teams that fail to comply with coordinator or monitor directions, after one (1) warning, will be issued a penalty of 20% of the team's total score.
H. Participants may leave early, but they must first complete check-out as directed.
I. Teams return all supplied items as directed, and clean and clear their work stations. Failure to do so will result in a 20% penalty deduction.
J. Teams must identify their structure with only their team ID number, using the label provided.
K. Structures are allowed to dry in a secure area until destructive testing time.

Destructive Testing

A. Structures are checked for rules violations and weighed before testing.
B. Destructive testing is completed by evaluators and is open for spectator viewing.
C. When all testing is completed, the greatest failure weight of all tested structures is recorded on the rating form, the efficiency rating of individual structures is calculated, and ranking is determined.
D. Subjective criteria are scored only after all destructive testing is completed. The subjective criteria are the team participation during semifinals, the pre-built drawing in the portfolio, and the portfolio.
E. The top ten (10) finalist teams are announced at the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE

A. Documentation Portfolio:
    1. Documentation portfolio is required and must be secured in a clear front report cover with the following single-sided, 8½" x 11" pages, in this order:
        a. Title page that includes the event title, the conference city and state, the year, and the team/chapter ID number; one (1) page
        b. Team Verification form; one (1) page
        c. Full-size, three (3)-view drawing of the structure (solution can be on 11" x 17" paper and folded as necessary)
        d. A cut parts list of the materials used in the construction of your structure.

PRELIMINARY ROUND

A. Pre-built structures and documentation portfolio must be completed prior to check-in.
B. The testing of pre-built structures is not open to spectators.

SEMIFINAL ROUND

A. Participants must provide and wear safety glasses for this portion of the event.

B. Participants are required to provide their own tool box (with identification [school name, address, and advisor cell phone number]), which should not exceed twenty (20) inches (508 mm) length x ten (10) inches (254 mm) width x ten (10) inches (254 mm) height. The box must contain all items needed to fabricate the solution.
   1. The following is a suggested list:
      a. Cutting devices; NONE may be electric
      b. Adhesives
         i. Aerosol and electric applicators are not allowed
         ii. A bottle of Uncure or Debonder is recommended
      c. Temporary fastening devices
         i. Straight pins
         ii. Clamps
         iii. Tape
      d. A cutting surface that prevents table-top marring (required)
      e. Rulers, straightedges, and/or measuring scales
      f. Abrasives sheets, sanding sponges, emery boards
      g. Marking devices (pens, pencils, etc.) and sharpener
      h. Sheet of wax paper, as large as is needed for the competition (required)
      i. Pliers, wrenches, nut drivers, as needed
      j. Safety glasses and side shields, as required

C. Planning and fabrication supplies are provided by TSA. Teams are issued a packet of construction materials (such as a specific type of wood) to use for fabrication of the on-site designed structure once the team's drawing of the on-site solution is complete.
   1. Planning and fabrication supplies (these materials may not be part of the structure submitted for testing):
      a. 11" x 17" paper with ¼" grids for sketching the structure
      b. Pin board
      c. A sheet of wax paper
      d. Structure label

D. Teams that fail to comply with coordinator or monitor directions, after one (1) warning, will be issued a penalty of 20% of the team's total score.

E. Filming and the taking of photographs is prohibited during the viewing of structure, judging, and testing.

F. Subjective criteria is scored during or after semifinal construction.

G. In the event of a tie at the conclusion of the semifinal round, the solution that is higher on the 'on-site structure total points' will receive the higher placement on the top ten (10) finalist teams that will be announced at the awards ceremony.

EVALUATION

Evaluation is based on the compliance and design efficiency of a pre-built structure and an on-site structure (semifinalists only), both of which are destructively tested. Subjective criteria will be scored only after all destructive testing is completed.

Please see the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

TSA AND CAREERS

This competition has connections to one (1) or more of the careers below:

- Architect
- Civil engineer
- Engineering technician
- Mathematician
- Structural engineer
- Structural iron and steel work technician

Participant/Team ID# _____

STRUCTURAL ENGINEERING

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

- ☐ Team of two is present
- ☐ The structure is present, identified, and in its storage box
- ☐ The Team Portfolio is present and includes:
  - ☐ The Team Verification form (completed)
  - ☐ Three (3)-view drawing of the structure
  - ☐ A complete cut parts list for your structure
- ☐ ENTRY NOT EVALUATED

PRE-BUILT STRUCTURE (On-Site Destructive Testing) – (40 points)				
Indicate N for non-compliant or C for compliant, for each regulation in the Construction section. One non-compliant mark will result in the entry not being evaluated. Dimensional criteria will have a tolerance identified in the design brief.				
Regulation	**Noncompliant**		**Compliant**	
Outside Width of Structure	The outside width of the structure is greater than the designated construction width.		The outside width of the structure is within the designated tolerance of the assigned construction width.	
Outside Height of Structure	The height of the structure is greater or less than the designated tolerance of the assigned construction height.		The height of the structure is within the designated tolerance of the assigned construction height.	
Inside Structure Width	The inside structure space, if provided in the design brief, is less than the required construction space.		The inside structure space, if provided in the design brief, is greater than the required construction space.	
Construction Materials	Material other than the correct construction material was used in the construction of the solution.		Only the correct construction materials are used in the construction of the solution.	
Substructure	Substructure, if allowed in the design brief, is not applied correctly.		Substructure, if allowed in the design brief, is applied correctly.	
Laminations	Laminations used in the construction of the solution fail to comply with the design brief.		Laminations used in the construction of the solution comply with the design brief.	
Coating of Materials	Coating of the construction materials with glue is present.		No coating of the construction materials with glue is present.	
Testing Rod and Block Clearance	The testing block and rod cannot be placed and passed through the center of the structure to allow for testing.		The testing block and rod pass freely through the center of the structure to allow for testing.	
			DISQUALIFIED	
			PRE-BUILT STRUCTURE APPROVED FOR TESTING	
			Record the mass (weight) of the structure (in grams to the nearest tenth of a gram) prior to testing.	

PRE-BUILT STRUCTURE (On-Site Destructive Testing) – continued					
Record the failure weight in pounds to the nearest tenth of a pound.					
Determine the efficiency (shown to three decimal places) by multiplying the failure weight (or adjusted failure weight, as applicable) by 4.54 and then dividing by the mass (weight) of the structure.					
1st: 40 Points	**2nd:** 39 Points	**3rd:** 38 Points	**4th**: 37 Points	**5th:** 36 Points	
6th: 35 Points	**7th:** 34 Points	**8th:** 33 Points	**9th:** 32 Points	**10th:** 31 Points	
11th: 30 Points	**12th:** 29 Points	**13th:** 28 Points	**14th**: 27 Points	**15th:** 26 Points	
16th: 25 Points	**17th:** 24 Points	**18th:** 23 Points	**19th:** 22 Points	**20th:** 21 Points	
PRE-BUILT STRUCTURE TOTAL POINTS (40 points)					

PRELIMINARY SUBTOTAL (40 points)	

ON-SITE STRUCTURE (Qualification) – (40 points)				
For the ON-SITE STRUCTURE: Indicate N for non-compliant or C for compliant, in the Qualification and Construction sections below. In the Qualification section, one non-compliant mark will result in disqualification. In the Construction section, one non-compliant mark will result in the structure not being evaluated. Dimensional height criteria will have a tolerance identified in the design brief.				
Regulation	**Noncompliant**		**Compliant**	
Team of Two	Only one (1) team member is present.		Both team members are present.	
Safety Eyewear	Warnings about eyewear are issued.		No warnings about eyewear are issued.	
Structure Identification	The identification sticker is not attached.		The identification sticker is attached.	
Tools and Fabrication Supplies	Inappropriate tools or supplies are brought to the event.		Appropriate tools and supplies are brought to the event.	
ON-SITE STRUCTURE (Construction)				
Outside Width of Structure	The outside width of the structure is greater than the designated construction width.		The outside width of the structure is within the designated tolerance of the assigned construction width.	
Outside Height of Structure	The height of the structure is greater or less than the designated tolerance of the assigned construction height.		The height of the structure is within the designated tolerance of the assigned construction height.	
Inside Structure Width	The inside structure space, if provided in the design brief, is less than the required construction space.		The inside structure space, if provided in the design brief, is greater than the required construction space.	
Construction Materials	Material other than the correct construction material was used in the construction of the solution.		Only the correct construction materials are used in the construction of the solution.	
Substructure	Substructure, if allowed in the design brief, is not applied correctly.		Substructure, if allowed in the design brief, is applied correctly.	
Laminations	Laminations used in the construction of the solution fail to comply with the design brief.		Laminations used in the construction of the solution comply with the design brief.	
Coating of Materials	Coating of the construction materials with glue is present.		No coating of the construction materials with glue is present.	
Testing Rod and Block Clearance	The testing block and rod cannot be placed and passed through the center of the structure to allow for testing.		The testing block and rod pass freely through the center of the structure to allow for testing.	

ON-SITE STRUCTURE (40 points) – continued					
				DISQUALIFIED	
				ON-SITE STRUCTURE APPROVED FOR TESTING	
				Record the mass (weight) of the structure (in grams to the nearest tenth of a gram) prior to testing.	
				Record the failure weight in pounds to the nearest tenth of a pound.	
				Determine the efficiency (shown to three decimal places) by multiplying the failure weight (or adjusted failure weight, as applicable) by 4.54 and then dividing by the mass (weight) of the structure.	
1st: 40 Points	**2nd:** 39 Points	**3rd:** 38 Points	**4th**: 37 Points	**5th:** 36 Points	
6th: 35 Points	**7th:** 34 Points	**8th:** 33 Points	**9th:** 32 Points	**10th:** 31 Points	
11th: 30 Points	**12th:** 29 Points	**13th:** 28 Points	**14th**: 27 Points	**15th:** 26 Points	
16th: 25 Points	**17th:** 24 Points	**18th:** 23 Points	**19th:** 22 Points	**20th:** 21 Points	
				ON-SITE STRUCTURE TOTAL POINTS (40 points)	

SUBECTIVE CRITERIA (30 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Team Participation On-Site (X1)	The majority of the construction is done by one member of the team; the partner may be disengaged.	Both team members generally are engaged in the process, though one member may take on more responsibility than the other.	Both team members are actively involved in the construction; there is shared responsibility between team members.	
Pre-Built Drawing (X1)	The submitted drawing was incomplete, not accurate, of proper quality, or was not to scale; a complete parts list was not included.	The submitted drawing was complete but lacked clarity, accuracy, or was of poor quality, the parts diagram was not complete or was incorrect.	The submitted drawing was complete, accurate, and to scale; the parts list was complete and accurate.	
Portfolio (X1)	Portfolio is unorganized and/or missing three (3) or more components; leadership and/or 21st century skills are not evident.	Portfolio includes most components and is generally organized; leadership and/or 21st century skills are somewhat evident.	All components of the portfolio are included in order, and content and organization are clearly evident; leadership and/or 21st century skills are clearly evident.	
			SUBECTIVE CRITERIA SUBTOTAL (30 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____

SEMIFINAL SUBTOTAL (70 points)	
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (110 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

STRUCTURAL ENGINEERING EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges

1. Preliminary round to evaluate pre-built structures, two (2) or more
2. Semifinal round, to qualify structures after construction, two (2) or more
3. Semifinal round, destructive test judges, two (2) or more
   a. One (1) to weigh the structure, record structure weight, and record failure weight
   b. One (1) to bring the structure to the testing location, position the structure on the testing device, operate the tester, and then remove and store the structure following testing

C. Construction monitor, one (1) per twenty teams

D. Timekeeper, one (1)

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge
2. TSA Event Coordinator Report
3. List of judges/assistants
4. Stick on labels for identifying entries
5. Results envelope with coordinator forms

B. Testing equipment, provided by TSA

C. Sample structures for both testing sessions that can be used to demonstrate the testing procedure and to determine that the testing equipment is working properly.

D. Evaluation and recording equipment

1. Gram scale (3-decimal place calculation)
2. Tape measure or 2' ruler
3. Evaluation gauges (rulers)

E. Site requirements

1. Construction session
   a. Tables and chairs suitable for cutting and gluing
   b. Work area, at least 2' x 3' for each team (suggested space is two (2) teams per 6' x 2' or 8' x 2' area)
   c. One (1) chair per participant
   d. Tables for equipment check-out and check-in
   e. Tables and chairs for evaluators
   f. Secured area for drying entries and storing supplies
2. Testing session
   a. Tables for storage of structures
   b. Table for weighing
   c. Table for testing
   d. Table for recording
   e. Tables for storage of failed structures
   f. Chairs for spectators
   g. Barricade to separate testing area from spectators
3. Semifinalist team packets provided by TSA containing construction materials and instructions.
   a. Construction tools per team, to be used and returned to the event coordinator or helpers after construction:
      i. Pin board as supplied, but generally a one-foot by two-foot (1' x 2') piece of fiber or foam board
      ii. Grid paper, ¼" x ¼" grid on 11" x 17" paper for structure sketch (to remain with the completed structure when turned in)
      iii. Wax paper to cover the pin board (to remain with the completed structure when turned in)
      iv. Label for structure
   b. Construction materials – balsa as needed for each team
   c. Instructions

RESPONSIBILITIES

A. Prepare the structure problem statement (including any necessary related information) for posting on the TSA website.

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Check to see that all event equipment and materials have been secured.

E. One (1) hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

EVENT CHECK-IN

A. Check in participants at the time and place stated in the conference program.

B. Participants check in:

1. The pre-built structures
2. The documentation portfolio

C. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC.

D. Late entries are considered on a case-by-case basis and only when the delay is caused by events beyond participant control.

PRELIMINARY ROUND/PRE-BUILT STRUCTURE

A. Coordinate and manage the on-site testing of pre-built structures, the recording of results, and the determination of the twenty (20) semifinalist teams.

B. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and CRC manager to determine either:

1. To deduct 20% of the total possible points or
2. To disqualify the entry

The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

C. Submit semifinalist results to the CRC for posting.

D. Assemble semifinalist packets of construction materials and directions for the twenty (20) on-site semifinalist teams.

SEMIFINAL ROUND

Team Check-in for On-site Construction

A. Check-in will begin at the time noted in the conference program and will continue until all teams arriving on time have been checked in and seated. The event begins at the posted time.

B. Both members of a team must be present during check-in.

C. No team is allowed to begin late unless its members have complied with the following: Participants with time conflicts must present a written explanation of the conflict to the event coordinator at least one (1) hour before the construction time stated in the conference program.

D. Work must begin during the timeframe scheduled for this portion of the event.

On-site Construction

A. Assign team construction locations.

B. When all teams are seated, distribute instructions and review these, as well as any details for the assigned structure.

C. Teams are allowed a maximum of three (3) hours to complete their structure:

1. Thirty (30) minutes of this time is allotted for completing the design drawing.
2. Two and one-half (2½) hours, is allotted for actual construction.

D. When a team notifies a monitor that the required sketch is complete, and the monitor confirms this, the team receives a materials packet and may begin the on-site construction phase of the event.

E. No additional supplies are provided during the event.

F. Call time at the end of the allotted three (3)-hour timeframe. All teams must stop working at this point.

G. All work stops at the coordinator's signal. Failure to comply with instructions will result in a penalty of 20% to the team's total score.

Team Check-out

A. Establish the procedure for check-in and recording of finished structures.

B. Designate an area for storage, and allow for the return of construction materials.

C. Coordinate the return and removal of all supplied items and ensure that teams clean and clear their work stations. Deduct a 20% penalty for teams that do not comply.

D. Teams check in excess supplies as directed by the monitors.

E. Ensure that teams identify their structure with only their team ID number, using the label provided.

F. Teams place their structures in the storage area with the sketch as directed by the monitor. The structure must be identified with the team number only (using the label provided in the materials packet).

G. Once check-out is complete, all participants leave the competition area. Participants may leave early, but they must complete check-out as directed.

H. The structures are secured by the monitor and allowed to dry for a minimum of twelve (12) hours.

Destructive Testing

A. After the structures have dried, judges report at the time and place stated in the conference program.

B. Judges test each structure and score the results.

C. Judges score the Subjective Criteria for semifinalists after destructive testing has taken place.

EVALUATION

A. Check (with assistance from judges) all structures for regulations compliance. Structures that are in compliance are tested without penalty.

1. Weigh all structures before testing and record the weight on the evaluation rubric.
2. Use the testing device, designated by TSA, to test each structure. (A specific testing block or attachment for the structure may be necessary for the on-site problem.)
3. Apply an increasing load to the structure, via the test block or attachment, until the structure fails.
4. Record the greatest failure weight on the rubric. This weight is the greatest weight recorded (of all the tested structures) during testing before they fail.
5. Determine each structure's efficiency by the greatest failure weight x 4.54, divided by the weight of the structure in grams; round off the efficiency to three (3) decimal places and record it on the rubric.
6. The highest numeric efficiency determines the winner. In the case of an efficiency tie, the greatest weight held by the tied entries determines the winner.

B. Structures will not be tested if:

1. A non-compliance construction regulation violation was determined before testing.
2. The structure cannot be placed on the tester.
3. The testing attachment cannot be properly placed within or on the structure.
4. Straight pins are left in the structure.
5. There is a failure of a participant to wear safety eyewear and/or to follow safe practices.
6. Laminations fail to comply with the guidelines as specified in the current year's challenge.
7. Failure to use each of the materials specified in the current year's challenge.

C. Manage, with assistance from judges, the destructive testing of all structures that were not officially tested due to non-compliance.

D. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

E. Judges use the evaluation metrics and determine the placement of ten (10) finalists.

F. Submit the finalist results and all other related forms in the results envelope to the CRC room.

G. If necessary, manage the security and removal of materials from the event area.

H. Semifinalist teams may pick up their structures at a time determined by the event coordinator.

SYSTEM CONTROL TECHNOLOGY

OVERVIEW

Applying leadership and 21st century skills, participants use a team approach to develop a computer- controlled model solution to a given problem, typically one based on an industrial setting. Teams analyze the problem, build a computer-controlled mechanical model, program the model, explain the program and mechanical features of the model-solution, and leave instructions for judges to operate the device.

ELIGIBILITY

One (1) team of three (3) individuals per state may participate.

TIME LIMITS

The preliminary round consists of three (3) phases:

A. Thirty (30) minutes for set up (team captain)

B. Fifteen (15) minutes for analysis (team)

C. Two and a half (2 ½) hours for problem solution (team)

D. All students participate in an interview at the conclusion of the programming

ATTIRE

TSA competition attire is required.

PROCEDURE

A. Each team selects a team captain prior to the orientation meeting.

B. A team orientation meeting will take place at the beginning of the event at the conference.

C. The captain checks-in for the team during the set-up time by submitting his/her student identification number and the team's identification number for the written and model portions of the event.

D. The problem and the Inventor's Log are presented to teams at the beginning of the thirty (30) minute problem analysis session prior to model-building.

E. Teams must complete their description or interpretation of the problem during this time.

F. Each team is given a maximum of two and one-half (2½) hours to:

1. Construct a model that simulates realistic industrial processes
2. Program the model
3. Test the solution
4. Describe the program and mechanical features of the model-solution
5. Complete directions for judges to use to activate the model

G. When finished, teams save their programs and leave them on-screen in operable form with the ability to be reset.

1. Before leaving the event room, teams demonstrate the operation of the model with judges present.
2. Judges may ask questions during the demonstration.
3. After judges have observed the operation of a team's model, the team leaves the room.
4. The coordinator determines the amount of time permitted for the team's demonstration based on the number of teams and the complexity of the problem.
5. Evaluation of the solutions takes place without the teams present.

H. Team members report to the event area at the time and place stated by the event coordinator to pick up their equipment.

I. Ten (10) finalists will be announced during the conference awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. No reference materials or building cards are allowed.

B. Participants provide their own laptop computer with hardware and software systems. All equipment must be labeled with the team's identification number, advisor name, and advisor contact information.

C. Access to AC power will be provided. One electrical outlet per team. Each team should bring a power strip.

D. Each team provides pencils and scrap paper along with its own materials kit, which must be appropriate to build a system that can identify, secure, and move objects and that has light and/or sound outputs.

E. A problem will be developed by the coordinator based upon the assumption that every materials kit will contain at least:

1. Two (2) optical sensors
2. Two (2) touch sensors
3. Two (2) motors
4. Two (2) audio and two (2) light outputs
5. Gears, wheels, and axles appropriate to build a motorized vehicle and/or conveyor belt
6. Balls, blocks, and pegs that can be used as objects to be moved and manipulated
7. Velcro, tape, clamps, and other materials to secure or move the above objects (balls, blocks, and pegs)
8. No cutting devices may be used during the on-site challenge; materials must retain the original form in which they were brought to the competition.
9. Power tools may not be used.

F. The following definitions are an integral part of the event regulations:

1. Repeatability – the device is programmed to reset automatically.
2. Functional control – the device must accomplish the task in an efficient manner and be user friendly.
3. Model-solution – the physical device must simulate the realistic processes used in the industry.
4. Conservation of materials – the model reflects the best use of materials to solve the problem, without being overbuilt.

G. Programs must be written completely on-site.

H. Use or modification of any programs written prior to the competition result in disqualification.

I. An example of a problem for this event is provided below to help students understand and interpret a typical issue common to business and industry that might be used at a national TSA conference.

Johnson Recycling Center needs an automatic system for separating its two primary types of recycling material products. If type A material is detected in the product, the system should move the product to the right side of a sorting line. If type B material is detected on the assembly line, the product should be delivered to the left side. Whenever a product is delivered, a light or buzzer should activate for 10 seconds to alert workers that a product is available on one or the other of the sorting lines. The system should then reset to separate and deliver a new product. Design a prototype that can automatically deliver at least four products without any user intervention, then reset.

EVALUATION

A. Inventor's Log

B. Model function

C. Programming structure and efficiency

D. Interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- CNC programmer
- Computer programmer
- Robotics engineer

SYSTEM CONTROL TECHNOLOGY INVENTOR'S LOG

Participant/Team ID# _____

Use only the space provided. This section must be completed DURING the process of problem analysis.

1. Description or interpretation of the given problem:

The two parts below must be completed AFTER the problem analysis session.

2. Description of the team solution (explain the unique features of the program and model):

3. Directions to evaluators to start the system:

Participant/Team ID# _____

SYSTEM CONTROL TECHNOLOGY

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Laptop computer is present
☐ Materials kit is present
☐ ENTRY NOT EVALUATED

INVENTOR'S LOG (20 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Description of Problem (X1)	The written description is incomplete, and/or it is illogical and unorganized; the description is simply a restatement of the problem's guidelines.	The written description includes a logical and general understanding of the problem's guidelines.	An organized, logical, and concisely written description of the problem is provided; it includes all major aspects of the problem's guidelines, as well as original thoughts.	
Description of Solution and Activation Instructions (X1)	The team's written solution does not correlate with the final system creation; the solution is illogical related to the problem's guidelines, and/or directions to activate the solution are included but incomplete.	The team's written solution correlates generally with the final system creation; adequate directions to activate the solution are included.	A strong correlation between the team's written solution and final system creation is provided; the solution is written clearly and concisely; activation instructions are included and written concisely.	
			INVENTOR'S LOG SUBTOTAL (20 points)	

SOLUTION TO PROBLEM (60 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Realistic Simulation (X1)	The simulation is not realistic; it has an abstract design that would not work effectively in its intended environment.	The simulation is somewhat realistic and logically designed, and it may work effectively in its intended environment.	The simulation is realistic and similar to a system that would be effective in its intended environment.	
Dependability of Solution (X1)	The solution is not constructed with dependability in mind; when the system is operated, construction pieces fall off, etc.	Most of the solution is well constructed and dependable, with only a few components that are questionable.	Every component of the solution is well constructed and dependable; practical construction techniques have been used.	
Conservation of Materials (X1)	An inefficient use of construction materials is obvious; too many unnecessary materials are incorporated into the design.	Most of the components of the solution are designed with conservation in mind; the construction is generally adequate.	All components of the solution are designed and assembled with conservation of materials in mind; the construction is elegant and not overbuilt.	

SOLUTION TO PROBLEM (60 points) – continued				
Solution to Problem (X2)	The solution is missing three (3) or more required attributes/criteria and several do not function as intended.	The solution includes most of the required attributes/criteria, and they function adequately.	The solution includes all required attributes/criteria listed in the design details, and all attributes function appropriately and correctly.	
Ingenuity and Creativity (X1)	The solution and design are unauthentic, complex, and do not function as a system.	The solution has some original ideas in its design, and its construction is adequate.	The solution is truly unique and authentic; its construction is concise and designed with simplicity.	
			SOLUTION TO PROBLEM SUBTOTAL (60 points)	

Record scores in the column spaces below.

PROGRAMMING STRUCTURE (20 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Programming Efficiency (X1)	The software used to program the system is overly complex and inefficient; advanced programming techniques, which would have simplified the programming of specific tasks, are not included.	The programming software is efficient, with some advanced features that simplify the solution's criteria and/or attributes.	A concise and logical programming application is used that incorporates advanced features to simplify the solution's criteria and/or attributes.	
Program Structure (X1)	The programming structure is illogical, unorganized, or overly complicated and/or complex; the program does not reset.	There is evidence of an organized programming structure and adequate use of sub-routines; the program resets.	The programming structure is concise and predictable; there is appropriate use of sub-routines where needed; the program resets.	
			PROGRAMMING STRUCTURE SUBTOTAL (20 points)	

Record scores in the column spaces below.

DEMONSTRATION/INTERVIEW (10 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Articulation (X1)	Communication of the design process is unclear, unorganized, and or illogical; leadership and/or 21st century skills are not evident.	Communication of the design process is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the design process is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
			DEMONSTRATION/INTERVIEW SUBTOTAL (10 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (110 points)

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (110 points)

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

SYSTEM CONTROL TECHNOLOGY EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

   1. Preliminary round, two (2) or more
   2. Semifinal round, two (2) or more

C. Assistants, two (2)

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Stopwatches
   5. Copies of the written problem
   6. Copies of the Inventor's Log
   7. Results envelope with coordinator forms

B. Large room with sufficient electrical outlets to accommodate a first place team from every state and affiliated country

C. Power strips with surge protectors and extension cords

D. One (1) table and three (3) chairs per team

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area(s) or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Begin the event at the scheduled time by closing the doors and checking the entry list.

B. All participants and judges should be in the room at this time.

C. Late participants and/or entries are considered on a case-by-case basis and only when lateness is caused by events beyond the participant's control.

D. In order to compete, participants must be on the entry list or must have approval of the CRC.

E. Secure teams' equipment in the area designated.

F. At the orientation meeting, obtain identification numbers for each team captain and the captain's respective team.

   1. Judges must be present at the orientation meeting.
   2. Review the time limits, procedure, and regulations with team captains.

G. Distribute the problem and Inventor's Log to teams at the beginning of the event.

H. Teams have fifteen (15) minutes to complete their interpretation of the problem, using the Inventor's Log.

I. Each team is given two and one-half (2 ½) hours to complete the remaining portion of the event.

J. Prior to leaving the event room, teams must demonstrate that their device/model is operable and has the ability to reset.

   1. Judges must observe this demonstration and may ask a few questions.
   2. Judges also may take notes, but evaluation of a team's work occurs only after the team has left the event room.

K. Judges independently evaluate the entries.

L. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges and CRC manager must all initial either of the violations on the rating form.

M. Judges determine the twelve (12) semifinalists and discuss and break any ties.

N. If necessary, manage security and the removal of materials from the event area.

SEMIFINAL ROUND

A. Judges independently evaluate the entries.

B. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

C. Judges determine the ten (10) finalists.

D. Submit the finalist results and all related forms in the results envelope to the CRC room.

E. If necessary, manage security and the removal of materials from the event area.

TECH BOWL

OVERVIEW

Participants demonstrate their knowledge of TSA and concepts addressed in the technology content standards by completing an objective test. Applying leadership and 21st century skills, semifinalist teams participate in a question/response, head-to-head competition.

ELIGIBILITY

One (1) team of three (3) individuals per chapter may participate. Teams that take the test and advance to the semifinalist portion of the event must be comprised of the same three (3) members.

TIME LIMITS

PRELIMINARY ROUND

A. The one (1)-hour test is administered to all members of the team at the same time.

SEMIFINAL ROUND

A. Teams selected as semifinalists must be available as scheduled for oral competition.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRELIMINARY ROUND

A. Participants report to the event area at the time and place stated in the conference program.
B. Participants follow the specific regulations and adhere to the directions provided on-site by the event coordinator.
C. All team members take the test individually.
D. The sixteen (16) top-scoring teams qualify as semifinalists.
E. A list of semifinalists (in random order) will be posted.

SEMIFINAL ROUND

A. Semifinalist team members (and their advisor, if available) report to the oral event area holding room at the time and place stated in the conference program.
B. After a short briefing, advisors leave and the teams remain in the holding room until they are called for competition.
C. Teams are paired using the semifinalist teams' bracket.
D. Each team will be listed on the bracket by their chapter ID.
E. When instructed to do so, two (2) teams enter the event area and are seated according to instructions.
F. Questions are drawn from a card file resource bank.
G. If equipment malfunctions, a question that is being considered at that time automatically is eliminated. If equipment malfunctions three (3) times, time is called by the event coordinator to set up back-up equipment. After equipment has been set up and tested, the event continues from the point where it stopped.
H. Once a team is eliminated, the team is out of the oral competition except for the round in which the third and fourth positions are determined.
I. The top ten (10) finalist teams will be announced at the awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND/WRITTEN EXAM

A. Team members take the test individually.
B. Tests may be administered online or via a scan-type answer sheet. Please review the *Competition Updates* page on the TSA website.

C. Scan-type forms are furnished by the event coordinator, if applicable.

D. Participants are responsible for bringing two (2) sharpened No.2 pencils to the test site.

E. Student identification numbers must be entered on the scan form in the space indicated.

F. Participants must stop work immediately when time is called.

G. Should a participant complete the test before the time allocated is over, the participant will submit the test and scantron form to the coordinator without any form of communication with any other member. Failure to do so results in disqualification of the participant.

H. All tests must be turned in before leaving the test area.

I. The average of the test scores of all three (3) team members determines team ranking.

SEMIFINAL ROUND/ORAL COMPETITION

A. Sixteen (16) teams, based upon the test results, are selected as semifinalists.

B. All three (3) members of a semifinalist team must be available to participate at the scheduled time for the oral competition portion of the event.

C. If a team or member is late for participation, that team forfeits and is eliminated from competition.

D. No transmitting or recording devices are permitted to assist in answering a question in the event area.

E. No prompting is permitted.

F. Teams that leave the holding room before being called for competition are eliminated.

G. Teams may visit with other teams in the holding room.

H. No advisors or visitors may enter the holding room once the semifinal round begins.

I. Team members may not enter the oral event area as spectators until after their team has been entirely eliminated from competition.

J. Questions, to include the bonus question, may not be discussed by teams. Team members may only discuss the additional question.

K. Ten (10) teams are announced as finalists during the awards ceremony. The highest test scores of the teams that were eliminated in the initial round will receive 9th and 10th place. The highest test scores of the teams that were eliminated in the second round will be used to determine 5th-8th place.

L. The procedures for reading questions and "buzzing in" are as follows:

1. The team member who buzzes in to answer a question has five (5) seconds to answer the question without discussion.
2. After a full question is read, competing teams have ten (10) seconds to answer without discussion. If neither team buzzes in, the reader moves to the next question.
3. If a team member buzzes in before a question is finished being read, the reader ceases reading and the team member must give the exact answer as printed with the question without discussion. If the answer is incorrect, the reader reads the entire question for the opposing team.

M. A team's score is derived from the total number of correct answers to the questions asked:

1. Twelve (12) questions and an additional question are asked per round; no questions are repeated in another round.
2. For questions 1-11, a correct answer gives the team ten (10) points, and an incorrect answer results in a loss of five (5) points.
3. The 12th question is the bonus question and is worth fifteen (15) points; there is no penalty for an incorrect answer.
4. If the bonus question is not answered correctly, participants are not given an additional question.
5. If a team answers the bonus question correctly, the team is given an additional question to answer. There is no penalty for an incorrect answer. The team may discuss this question. A correct answer for the additional question is worth five (5) points.
6. In case of a tie, three (3) additional questions are asked. This procedure continues until the tie is broken.

EVALUATION

PRELIMINARY ROUND

A. Each team's average written test score is used to determine the sixteen (16) semifinalist teams.

SEMIFINAL ROUND

A. Semifinalists will be evaluated on their performance during the oral competition.

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Computer technician
- Construction analyst
- Engineer
- Entrepreneur
- Technology education instructor

TECH BOWL

2024 & 2025 OFFICIAL SCORE SHEET

MIDDLE SCHOOL

Competition Round ID# _____

Team #_____(A) Team #_____(B)

Scorekeeper's Signature _____

SEMIFINAL ROUND – ORAL COMPETITION		TEAM A	TEAM B
Mark an X in the box beside the team that gives the correct response to the question and an O beside the team that gives an incorrect response. Record the scores for each response in the column to the right.			
Question #	**Points**		
1.	+10 for correct, -5 for incorrect response		
2.	+10 for correct, -5 for incorrect response		
3.	+10 for correct, -5 for incorrect response		
4.	+10 for correct, -5 for incorrect response		
5.	+10 for correct, -5 for incorrect response		
6.	+10 for correct, -5 for incorrect response		
7.	+10 for correct, -5 for incorrect response		
8.	+10 for correct, -5 for incorrect response		
9.	+10 for correct, -5 for incorrect response		
10.	+10 for correct, -5 for incorrect response		
11.	+10 for correct, -5 for incorrect response		
12. Bonus question	+15 for answering the bonus question correctly; no penalty for answering the bonus question incorrectly		
Additional question	+5 for answering the additional question correctly; no penalty for answering the additional question incorrectly		
	ORAL COMPETITION SUBTOTAL (130 points)		

Tie Breaker Questions			
1.	+10 for correct, -5 for incorrect response		
2.	+10 for correct, -5 for incorrect response		
3.	+10 for correct, -5 for incorrect response		
	TIE BREAKER QUESTIONS SUBTOTAL (30 points)		

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____		
SEMIFINAL SUBTOTAL (160 points)		
To arrive at the TOTAL score, subtract rules violation points, as necessary. **TOTAL** (160 points)		

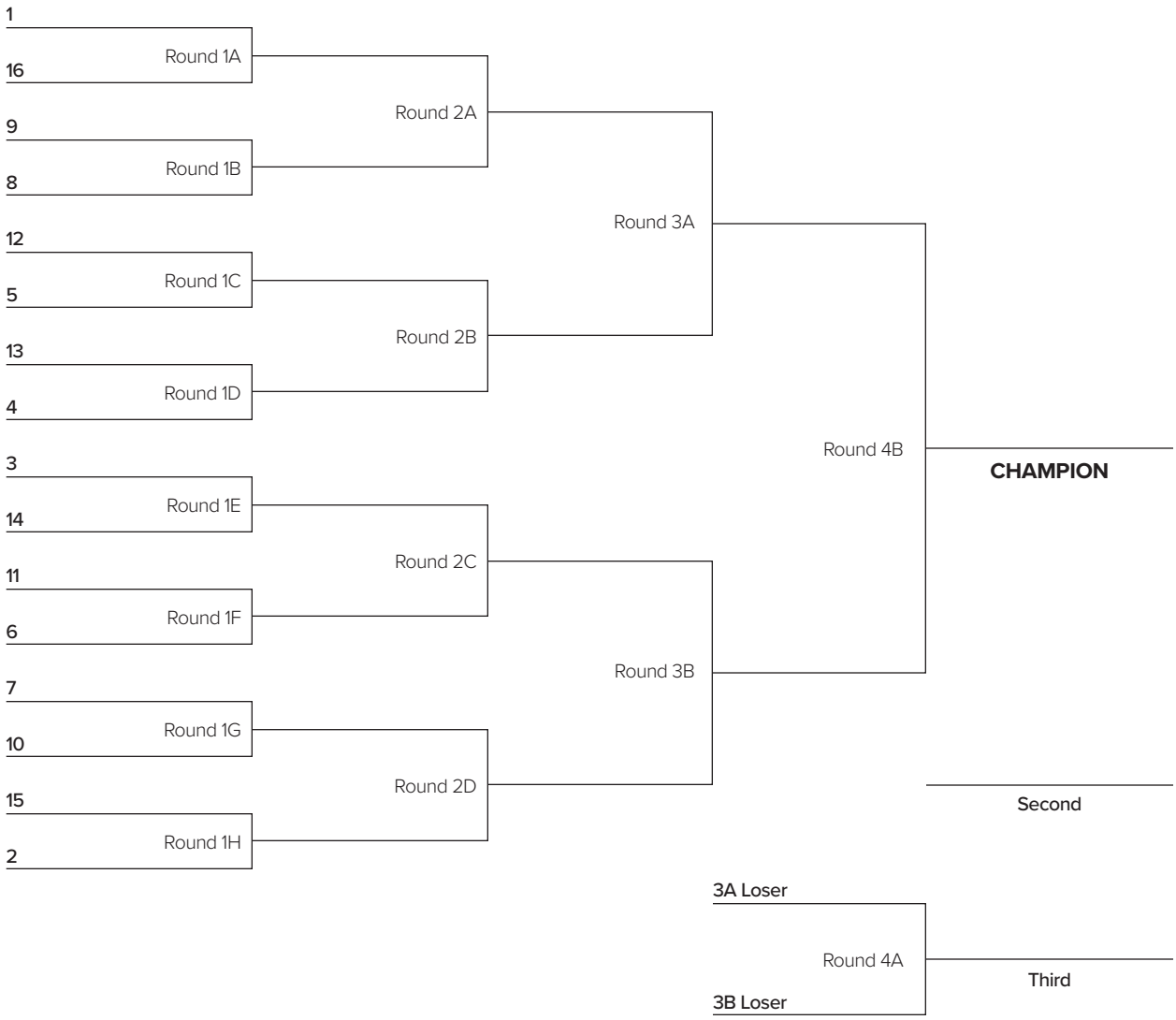
Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

SEMIFINALIST TEAMS BRACKET — MIDDLE SCHOOL



Note to evaluators: This is a single elimination format (semifinalist teams ONLY). Seed is determined by team ranking on written test.			
Seed 1	Team #	Seed 9	Team #
Seed 2	Team #	Seed 10	Team #
Seed 3	Team #	Seed 11	Team #
Seed 4	Team #	Seed 12	Team #
Seed 5	Team #	Seed 13	Team #
Seed 6	Team #	Seed 14	Team #
Seed 7	Team #	Seed 15	Team #
Seed 8	Team #	Seed 16	Team #

TECH BOWL
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator
B. Timer for written exam, one (1)
C. Proctors for written exam, four (4)
D. Timekeeper for oral competition, one (1)
E. Scorekeeper for oral competition, one (1)
F. Moderator for oral competition, one (1)
G. Assistants for oral competition, two (2)

MATERIALS

A. Coordinator's packet, containing:
    1. Event guidelines, one (1) copy for the coordinator and for each judge
    2. TSA Event Coordinator Report
    3. List of event judges/assistants
    4. If hard copies of the test are being used, have one (1) for each participant (these tests must be returned immediately following the event).
    5. Results envelope with coordinator forms
B. Test:
    1. Stopwatch for timekeeper
    2. Tables and chairs or tablet armchairs to accommodate all participants
    3. Scan machine and forms
    4. Coordinators are responsible for creating the test to be administered at the national conference; copies will be provided by the national TSA office.
C. Oral competition
    1. Table and chairs for the event judges
    2. Two (2) tables and six (6) chairs for the event team, facing the moderator and audience
    3. Tech Bowl bracket
    4. List of chapters for the event
    5. Buzzer system and controls
    6. A printed sign (to be placed outside the oral competition room) stating that no filming, taking of photos, or use of any electronic recording devices will be allowed in the competition room
    7. Stopwatch for timekeeper
    8. 5" x 8" question cards selected from the tech bowl test bank, with questions and the acceptable answer(s) clearly typed

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.
B. Report to the CRC room and check the contents of the coordinator's packet.
C. Review the event guidelines and check to see that enough personnel have been scheduled.
D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.
E. At least one (1) hour before the event is scheduled to begin, meet with judges/assistants to review time limits, procedures, regulations, evaluation, and any other details associated with the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

PRELIMINARY ROUND

A. Begin the event at the scheduled time by closing the doors and checking the entry list.
B. All participants and event judges should be in the room at this time.
C. Late participants and/or entries are considered on a case-by-case basis and only when lateness is caused by events beyond the participant's control.
D. In order to compete, participants must be on the entry list or must have approval of the CRC.

E. Distribute the scan forms to the participants, if applicable.
   1. Direct participants to fill in their student identification number and test code letter in the appropriate spaces.
   2. Provide an opportunity for any questions about the scan form.

F. Ensure the following testing procedure is applied with the help of the proctors.
   1. If the test is administered as hard copies, instruct the participants to keep the tests face down until they are directed to turn them over and begin.
   2. If exams are administered electronically, instruct participants not to begin until the scheduled time.

G. Acting as the timer and with proctors positioned around the event room, direct the participants to turn their test over, place their code number and the code letter found on the test on their scan form, and begin.

H. Exactly one (1) hour from the time that the participants begin the test, call time.
   1. Direct students to check out with a test proctor once they are finished with their test.
   2. Proctors collect all tests and students immediately leave the testing room.
   3. If a line forms students must remain completely silent. Any talking will result in a zero score for their test.

I. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:
   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

J. Determine the sixteen (16) semifinalist teams based on team members' averaged score on the written test.

K. Prepare a list of the sixteen (16) semifinalist teams and submit it to the CRC for posting.

SEMIFINAL ROUND/ORAL COMPETITION

A. Run the oral component of the event as described in the Procedure section.

B. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.

C. Judges determine the ten (10) finalists and break any ties that affect the top three (3) placements.

D. Submit the finalist results and all related forms in the results envelope to the CRC room.

TECHNICAL DESIGN

OVERVIEW

Applying leadership and 21st century skills, participants demonstrate their ability to use the technical design process to solve an engineering design problem on-site at the conference.

ELIGIBILITY

One (1) team of two (2) individuals per chapter may participate.

TIME LIMITS

Twenty-four (24) hours is allowed to solve the engineering design problem.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRELIMINARY ROUND

A. Teams report to the event area at the time and place stated in the conference program to:
   1. Receive the design brief and instructions about where and when to submit their solution and portfolio to the problem the next day.

B. Teams follow the technical design process loop to solve the provided engineering design problem.

C. All work must be completed solely by the teams entered in this competition. No outside help is permitted.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

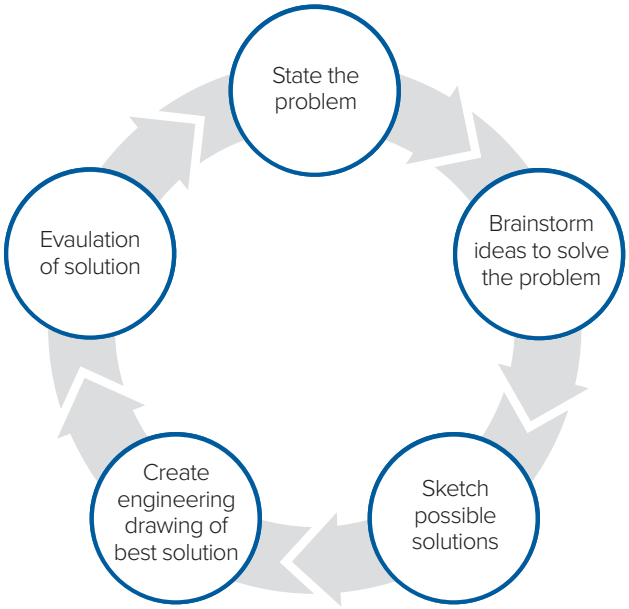


Figure 1: Technical design process loop

PRELIMINARY ROUND

Design Preparation

A. Students prepare a portfolio that includes each step of the technical design process loop. (Figure 1).

B. Students develop a problem statement interpretation from the problem provided.

C. The portfolio should show a logical progression from one step of the loop to the next.

D. Documentation Portfolio:
   1. Documentation portfolio is required and must be secured in a clear front report cover with the following single-sided, 8½" x 11" pages, in this order:
      a. Title page with the event title, conference city and state, the year, and the team/chapter ID number; one (1) page
      b. Table of contents; one (1) page
      c. Team's interpretation of the problem, including a list of criteria and constraints set forth in the design brief; one (1) page

d. Demonstrated use of a brainstorming technique of the team's choice (mind mapping, reverse engineering, word association, etc.), to develop ideas to solve the problem; brainstorming ideas should be documented; one (1) page

e. At least three (3) hand-drawn sketches of different solution options to a given problem. One (1) page for each hand-drawn sketch; three (3) pages total

   i. Each hand-drawn solution must be developed based on the selected brainstorming technique.

   ii. Each hand-drawn sketch also must include a solution pro/con list written on each sketch to aid in selecting the best design;

   iii. Label the first solution "Solution Option 1," the second "Solution Option 2," and the third "Solution Option 3."

f. Based on the pro/con list for each of the hand-drawn solutions to the problem, select the best solution and create an engineering drawing based on the solution; one (1) page.

g. Using the engineering drawing of the final solution, write a paragraph that evaluates the final solution and answers the following question, "Does the final design meet all the elements set forth in the design brief?"; one (1) page.

E. A sample design brief is provided below to help students understand a typical engineering design problem for this event

Design Brief Sample

(This design brief is ONLY an example of the type of problem that participants may expect at the conference.)

Aircraft carriers are much shorter than a typical airport runway. How do aircraft mange to gain enough speed for takeoff over a much shorter distance? A catapult gives them the extra boost they need to take-off.

An elementary school teacher would like to use the basic principles of this technology to teach his/her students about kinetic and potential energy, but apply the same knowledge to launching a small paper airplane.

Design a hand-held paper airplane launcher that a classroom teacher can incorporate into a classroom lesson and have the students build as a class project.

Your solution must be able to be built by 5th grade students using materials and supplies that they can bring from home and incorporate a rubber band as the power source.

The solutions have a maximum length of 9", width of 8", and a height of 7".

The solution is contained in a documentation portfolio. A prototype or model is not allowed.

EVALUATION

A. Each element of the portfolio

B. The overall technical design process

Refer to the official rating form for more information.

STEM INTEGRATION

This event has the connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Designer
- Engineer
- Quality assurance engineer
- Engineering manager
- Creative consultant

Participant/Team ID# _____

TECHNICAL DESIGN

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Portfolio is present
☐ ENTRY NOT EVALUATED

SOLUTION (100 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
Interpretation of Problem (X1)	Interpretation of the problem is vague, with few or no criteria/constraints included in the description; statement is difficult to understand.	Interpretation of the problem, criteria, and constraints are included and generally identified.	Interpretation of the problem is well-developed and further investigates the included criteria/constraints.	
Brainstorming Technique (X1)	There is no clear evidence of the use of brainstorming to interpret the design of the problem.	Use of brainstorming (which incorporates the problem statement, criteria, and constraints to solve problem) is apparent.	Exceptional and organized use of brainstorming (which incorporates each element of the design brief) is evident.	
Solution Option 1 (X1)	Sketch is sloppy and poorly constructed, and/or it appears to be included as an afterthought to the design; there is no design pro/con list, or it is incomplete.	Sketch is generally well drawn and includes the pro/con list; evidence of the final design is illustrated in the sketch.	Sketch is of exceptional quality and includes a creative pro/con list; clear transformation from the sketch to the final design is evident.	
Solution Option 2 (X1)	Sketch is sloppy and poorly constructed, and/or it appears to be included as an afterthought to the design; there is no design pro/con list, or it is incomplete.	Sketch is generally well drawn and includes pro/con list; evidence of the final design is illustrated in the sketch.	Sketch is of exceptional quality and includes a creative pro/con list; clear transformation from the sketch to the final design is evident.	
Solution Option 3 (X1)	Sketch is sloppy and poorly constructed, and/or it appears to be included as an afterthought to the design; there is no design pro/con list, or it is incomplete.	Sketch is generally well drawn and includes a pro/con list; evidence of the final design is illustrated in the sketch.	Sketch is of exceptional quality and includes a creative pro/con list; clear transformation from the sketch to the final design is evident.	
Final Solution (X2)	Solution conveys a sloppy design, and/or does not incorporate key elements in the design brief, and/or drafting techniques are not proper.	Solution incorporates most elements laid out in the design brief; drawing uses proper drafting techniques and methods.	Solution exudes creativity and addresses all design brief elements; proper drafting techniques are used in the design.	

SOLUTION (100 points) – continued				
Evaluation of Design (X2)	Evaluation is poorly written; it is a reiteration of the design brief elements, with little or no examination of the finished design.	Evaluation satisfactorily answers the question "Does the final design meet all the elements set forth in the design brief?"	Evaluation response is creative and unbiased; it is well written and answers the posed question completely.	
			SOLUTION SUBTOTAL (100 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.	**TOTAL** (100 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

TECHNICAL DESIGN
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges, two (2) or more

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges
   4. Results envelope with coordinator forms

B. One (1) copy of the technical design problem (in design brief format) for each team

RESPONSIBILITIES

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area or room in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. At least one (1) hour before the judging of solutions is scheduled to begin, meet with judges to review the procedures, regulations, evaluation, and any other details associated with the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

EVENT CHECK-IN AND DESIGN PROBLEM DISTRIBUTION

A. Meet with all teams at the time and location scheduled in the conference program.

B. Distribute a copy of the technical design problem to each team.

C. Ensure that all participants understand the event requirements, as well as the time and place to submit their entry.

D. Begin entry check-in at the time and place stated in the conference program.

PRELIMINARY ROUND

A. Collect the documentationn portfolios and the problem solution at the time and place stated in the conference program.

B. Judges independently review each entry with neither students nor advisors present.

C. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

D. Judges determine the ten (10) finalists and discuss and break any ties.

E. Submit the finalist results and all related forms in the results envelope to the CRC room.

F. If necessary, manage security and the removal of materials from the event area.

VIDEO GAME DESIGN

OVERVIEW

Applying leadership and 21st century skills, participants develop a video game that focuses on the subject of their choice. The game must be interesting, exciting, visually appealing, and intellectually challenging. The rating of the game must meet the ESRB rating for E for Everyone.

The game and all required documentation must be submitted on-line, Pre-conference. Semifinalist teams participate in an on-site presentation and interview to demonstrate the knowledge and expertise they gained during the development of the game.

ELIGIBILITY

One (1) team of two (2) to six (6) individuals per chapter may participate.

TIME LIMITS

PRE-CONFERENCE/PRELIMINARY ROUND

A. All components of the chapter's entry (website address URL and documentation PDF) must be submitted by 11:59 p.m. ET on a designated date in mid-May.
B. The game submitted for evaluation must be greater than three (3) minutes in length of play and must be interactive.
C. A deduction of five (5) points total will be incurred for a game that completes in under the three (3)- minute time minimum.
D. The timing of the game segment starts with the first image or sound presented.
E. Games must be playable from the deadline until the end of the National TSA Conference.

SEMIFINAL ROUND

A. Ten (10) minutes are allowed for the on-site presentation and interview broken down as follows:
    1. Five (5) minutes for the presentation
    2. Five (5) minutes for the interview

ATTIRE

TSA competition attire is required for the semifinal presentation/interview..

PROCEDURE

A. Participants design an online game based on the subject of their choice.
B. Participants record their process through a documentation portfolio.
C. The game entry (website address URL and documentation portfolio PDF) must be submitted by 11:59 p.m. ET on a designated date in mid-May.
D. The submission information and deadline will be provided in January on the TSA website under *Competition Updates*.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRELIMINARY ROUND

A. All online game submissions must be a hyperlink to the online game and be accessible for evaluation by the deadline posted on the TSA website under *Competition Updates*. Participants may choose the hosting site, but the hyperlink must point directly to the entry.
B. Entries received, or changes made to submitted entries after this deadline will not be judged.
C. The URL must point to the team's entry. Entries that require a software download, running an executable file (.exe), or request that access be granted will not be judged.
D. Video Game:
    1. Must be a hyperlink to the online game.
    2. Must be the original work of the team.

3. Work that is not created by the team must have proper documentation, showing copyright permissions and/or license for usage in the game segment.
4. When creating the game, the game must be free of any weapons or violence as stated in the general rules.
5. Game instructions must be clear and understandable.
6. Judges must be able to play the game to the third (3rd) level.
7. The game submitted for evaluation must be greater than three (3) minutes in length of play and must be interactive.
8. A deduction of five (5) points total will be incurred for a game that completes under the three(3)-minute time minimum.
9. The timing of the game segment starts with the first image or sound presented.
10. Games must be playable from the submission deadline until the end of the National TSA Conference.
11. Bonus points may be awarded for exceptional game features or content.

E. The Documentation Portfolio
   1. The portfolio must include the following pages in a multi-page PDF document with pages in this order:
      a. Title page with the event title, the conference city and state, the year, and the team's identification number; one (1) page
      b. Table of contents; pages as needed
      c. Purpose and description of the game, the target audience, including market research, explanation of how the game is unique, and a detailed explanation of how to play the game, including a list of control functions; two (2) pages
      d. A hand-drawn or digitally sketched storyboard that depicts the design concept of the video game; pages as needed. No screenshots of the game will be permitted as part of the storyboard.
      e. The Student Copyright Checklist (see Student Copyright Checklist in the Forms Appendix). Failure to include the Student Copyright Checklist will result in disqualification.
      f. Permission letters for the use of copyrighted material; if applicable, pages as needed.
      g. Work Log (see Forms Appendix); pages as needed

F. Judges score the entries.

G. A list of twelve (12) semifinalist teams (in random order) is posted on the first full day of conference.

SEMIFINAL ROUND

A. Participants from each semifinalist team report at the time and place stated in the conference program to sign up for a presentation time.

B. Semifinalist teams report to the assigned time and place.

C. Participants make a presentation to the judges about their video game.

D. The game may be available on the laptop of the semifinal judges, but Internet access may not be provided. Prepare for no Internet access. Semifinalist teams must bring one (1) laptop that has a full charge. Prepare a multimedia presentation on the laptop using screen snags or pictures that does not require Internet access. The presentation may be from a judges' laptop, the team laptop with Internet access, or the team laptop without Internet access..

E. Semifinalists do NOT have access to electrical power/ outlets during the event.

F. The presentation shall not last longer than five (5) minutes.

G. Judges will ask questions up to five (5) minutes following the presentation.

H. The top ten (10) finalists are announced at the TSA conference awards ceremony.

EVALUATION

PRELIMINARY ROUND

A. The first three (3) levels of the game

B. The documentation portfolio

C. Up to ten (10) bonus points may be added by the judges for exceptional game features, or for content showing exemplary education and social value.

SEMIFINAL ROUND

A. The presentation

B. The interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Animator
- Audio Engineer
- Computer Programmer
- Game Designer
- Game Play Tester
- Professional Gamer
- Writer

Participant/Team ID# _____

VIDEO GAME DESIGN

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ PDF of the documentation portfolio was submitted
☐ Video game is accessible and playable online
☐ Student Copyright Checklist is present
☐ ENTRY NOT EVALUATED

VIDEO GAME DESIGN (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Creativity and Artwork (X1)	The game lacks creativity and originality; little effort is evident in the quality of the artwork.	The game is original and exhibits adequate creativity and artistic quality.	The game is original, hightly creative, and well crafted; artwork and graphics contribute to the enjoyability of the game.	
Technical Skill (X1)	The game lacks evidence of programming skills.	The game shows some evidence of programming skills.	The game shows strong evidence of programming skills.	
Storyline/Flow of the Game (X1)	The game follows little or no storyline; there is little to no logical flow to the game.	The game follows a storyline and flows adequately from one (1) scene/ level to another.	The game is well-organized and flows smoothly from one (1) scene/ level to the next, enhancing the game play.	
Game Mechanics (X1)	The game lacks appropriate use of game mechanics; little feedback is provided to the player, the controls are difficult to use, and/or the objectives of the game are unclear.	The game has adequate use of game mechanics and there is some evidence care in the design of player feedback, objectives, or player controls.	The game has exemplary use of game mechanics and there is evidence of significant consideration placed on the design of player feedback, objectives, and controls.	
Overall Appeal (X2)	Playing the game is not enjoyable, dull, and/or monotonous; interacting in game play is a struggle.	The game is somewhat interesting, easy, and enjoyable to play; most game design concepts are incorportated.	The game is innovative and entertaining; design principles are incorportated, which make playing the game easy and enjoyable.	
			VIDEO GAME DESIGN SUBTOTAL (60 points)	

DOCUMENTATION PORTFOLIO (40 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
Game Directions, Control Functions, and Market Research (X1)	The game explanation is difficult to follow; no market research is provided; functions provided are illogical or incorrect.	The game directions can be followed and generally sync with overall workings of the game; some market research is provided; most control functions match the functions of the game.	The game explanation is easy to follow, market research is thorough, and control functions clearly match the game functions.	
Storyboard (X2)	The storyboard is sloppy, disorganized, and incomplete and/or does not follow overall flow of the game design.	The storyboard is generally organized and includes aspects and overall scenes of the game.	The storyboard is complete, concise, neat, and follows the overall flow of the game.	
			DOCUMENTATION SUBTOTAL (40 points)	

TIME DEDUCTIONS	
A deduction of five (5) points total will be incurred for a game that completes under the three (3) minute time minimum.	
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	

PRELIMINARY SUBTOTAL (100 points)	

SEMIFINAL PRESENTATION (50 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the presentation; illogical explanation of the game is presented.	Participants are generally prepared for the presentation; explanation of the game is communicated and generally organized.	The presentation is logical, well organized, and easy to follow; the game explanation is communicated in an organized and concise manner.	
Knowledge (X2)	Participant s seem to have little understanding of the concepts in their project; answers to questions may be vague.	Participants exhibit an understanding of the concepts in their project.	Participants show clear evidence of a thorough understanding of their project.	
Articulation (X1)	Communication of the design process is unclear, unorganized, and or illogical; leadership and/or 21st century skills are not evident.	Communication of the design process is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the design process is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
Team Participation (X1)	The majority of the delivery is made by one (1) member of the team; the partner(s) may be disengaged in the presentation.	Team members are generally engaged in the presentation, though one (1) member may take on more responsibility than the other(s).	All team members are actively involved in the presentation and responses to questions; there is shared responsibility among team members.	

SEMIFINAL PRESENTATION SUBTOTAL (50 points)	
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
SEMIFINAL SUBTOTAL (50 points)	

BONUS (10 points)

CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Bonus Points Unique and exceptional features (X1)	The game demonstrates some unique and exceptional features and/or exemplary educational value.	The game is very good but limited in uniqueness.	The game is outstanding and unique.	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (150 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

VIDEO GAME DESIGN
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Judges:

1. Preliminary round, two (2) or more
2. Semifinal round, two (2) or more (preferably the same judges from the preliminary round).

MATERIALS

A. Coordinator's packet, containing:

1. Event guidelines, one (1) copy for the coordinator and for each judge
2. TSA Event Coordinator Report
3. List of judges/assistants
4. Results envelope with coordinator forms

B. Tables for entries

C. One (1) extension cord for the semifinalist evaluation team

D. One (1) power bar with surge protection for semifinalists, as needed

E. Laptop computer with high speed Internet capability

F. Tables and chairs for event coordinator, semifinalist judges, and participants

RESPONSIBILITIES

PRE-CONFERENCE

A. National TSA will collect entries until 11:59 p.m. ET on a designated date in mid-May. The results will be shared with the CRC manager, event coordinator, and assigned judges.

B. Review entries as they are submitted to the designated online storage utility.

C. Manage communication and pre-conference evaluation (at least two [2] or more judges should be recruited earlier in the year). Coordinate with the Judge Manager.

D. Judges determine the twelve (12) semifinalists and discuss and break any ties.

E. At least five (5) days prior to the National TSA Conference, make accessible the online storage utility link for the entries.

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

PRELIMINARY ROUND

A. On the first full day of the conference, post a list of the twelve (12) semifinalists in random order.

SEMIFINAL ROUND

A. At least one (1) hour before the event is scheduled to begin, meet with judges, and review time limits, procedures, regulations, evaluation, and all other details related to the event.

B. Determine the procedure for breaking ties before the on-site competition begins.

C. No more than two (2) semifinalists representatives report at the time and place stated in the conference program to sign up and participate in the on-site presentation.

D. Up to six (6) representatives report at the assigned time and place for the presentation.

E. Manage completion of the presentation.

F. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

1. To deduct twenty percent (20%) of the total possible points in this round
2. To disqualify the entry

The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

G. Judges determine the ten (10) finalists and discuss and break any ties.

H. Submit the finalist results and all related forms in the results envelope to the CRC room.

VLOGGING

OVERVIEW

Applying leadership and 21st century skills, participants use digital video technology to create original content around a pre-determined technology theme. Vlogging encourages good storytelling, videography, and editing techniques to create a coherent series of creative work. Participants will find the current year's theme posted on the TSA website under *Themes & Problems* for this information. Semifinalists complete in on-site challenge to produce additional video(s). Required criteria, such as props, lines of dialog, topics, etc. will be revealed at the semifinalists orientation meeting.

ELIGIBILITY

Two (2) teams of two (2) to six (6) members per chapter may participate.

TIME LIMITS

PRELIMINARY ROUND

A. All components of the chapter's entry (video series URL and documentation portfolio PDF) must be finished, submitted by 11:59 p.m. ET on a designated date in mid-May.

B. The video series may not exceed 6 minutes in length for all videos included.

C. The timing starts with the first sound of the first video and continues until the last sound of the final video.

SEMIFINAL ROUND

A. The number of videos and timing will be revealed at the semifinalist orientation meeting.

B. Participants have thirty-six (36) hours, beginning at the semifinalists orientation meeting, to complete the entire production.

ATTIRE

TSA competition attire is required for this event.

PROCEDURE

PRE-CONFERENCE

A. Participants access the annual theme posted on the TSA website under Themes & Problems.

B. Participants concentrate their efforts on the design of a series of original digital videos, while observing the regulations and requirements.

C. Participants record their process in a documentation portfolio.

D. Participants submit the video series URL and documentation portfolio PFD by 11:59 p.m. ET on a designated date in mid-May.

E. The submission information and deadline will be provided in January on the TSA website under *Competition Updates*.

PRELIMINARY ROUND

A. Entries are evaluated by the judges with neither students nor advisors present based on the following criteria:

   1. Judges score the Vlog Series criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.
   2. Judges score the Documentation Portfolio criteria of those top twenty-four contestants to determine the top twelve (12) semifinalist teams.

B. A list of twelve (12) semifinalists (in random order) is posted on the first full day of conference.

SEMIFINAL ROUND

A. Semifinalists report at the time and place stated in the conference program to receive the on-site challenge information. TSA competition attire is required to receive the on-site challenge.

B. The event coordinator distributes the materials, information, directions, and deadlines to each team.

C. Each team supplies its own video production and editing equipment to complete its entry.

D. Teams are responsible for submitting a hyperlink of their video solution and a PDF of a completed Student Copyright Checklist using the submission procedures provided by the event coordinator.

E. Entries are reviewed independently by judges.

F. The top ten (10) finalists are announced at the awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERNENCE

A. The Video Series:
   1. Participants may choose any video hosting site that allows for a playlist feature (such as UNLISTED YouTube Playlist of UNLISTED YouTube Videos)
   2. The URL must point directly to the participant's playlist. Entries that require a software download, request access be granted, or have multiple video links not in a playlist will not be judged.
   3. Entries received, or changes made to submitted entries after the deadline, will not be judged.
   4. All video footage, graphics, special effects, and audio clips must be originally created/filmed by the participants.
   5. All ideas, text, images, and sound from other sources must be properly cited.
   6. If copyrighted material is used, proper written permission must be included. NOTE: The video production produce will not be judged if copyright procedures are not followed.

B. The documentation portfolio must be submitted with the playlist URL address in the form of a multi-page PDF document with pages in this order:
   1. Title page with the event title, the title of the vlog series, the conference city and state, and the year, one (1) page.
   2. Table of contents; pages as needed
   3. Purpose and description of the video series; one (1) page
   4. Overview of each video in the series; up to two (2) pages
   5. Hand sketched storyboard (screenshots are not acceptable); pages as needed
   6. Video scripts; pages as needed
   7. List of hardware and software used in the development of the videos; one (1) page
   8. Team's self-evaluation of the video series, using the criteria for TIER-1 VLOG SERIES on page 322 (can be in paragraph format or a copy of the rubric portion with data from the team); one (1) page
   9. List of references that include sources for materials (copyrighted and non-copyrighted); pages as needed
   10. Permission letters for copyrighted material (including clips and images); pages as needed
   11. Student Copyright Checklist (see Forms Appendix); one (1) page
   12. Signed Photo/Film/Video Consent and Release forms for all video participants (see Forms Appendix); pages as needed
   13. Work Log (see Forms Appendix); pages as needed

C. The video and documentation portfolio must adhere to the general rules F. Prohibited Materials, References, and Images.

SEMIFINAL ROUND

A. Semifinalists report at the time and place stated in the conference program to receive the on-site challenge information. TSA competition attire is required to receive the on-site challenge.

B. Participants produce a video while observing the following:
   1. Participants film their footage, which must be appropriate for the TSA community, only at officially sanctioned conference locations as described by the event coordinator.
   2. Teams are not allowed to film in sleeping rooms, restrooms, bathrooms, restaurants, or elevators/escalators.
   3. Participants may not disturb any event in progress, enter a restricted evaluation area, interrupt a conference function, or participant in behavior unbecoming of a conference participant.

4. At the event meeting, the event coordinator explains any further filming restrictions on the specific property.
5. Failure to follow these instructions will result in disqualification.

C. TSA competition attire is optional for the participants in the video.

D. Teams may use no more than one (1) video camera for the video production.

E. Teams must edit their projects on a nonlinear editing system or their camera. Teams are responsible for providing their own editing equipment.

F. All video footage must be the original work of the team and must have been completed during the event timeline.

G. All members, adults, or children that are visible in the video must be registered members of the conference.

H. On-site Submission Information:

1. Participants may choose any video hosting site (such as an UNLISTED YouTube URL), or a sharable link in cloud storage, as long as the video(s) is located online and accessible for evaluation.
2. The URL must point directly to the participant's entry. Entries that require a software download or request access be granted will not be judged.
3. Entries received or changes made to submitted entries after the deadline will not be judged.
4. Students must complete the Student Copyright Checklist (see Forms Appendix) and save it as a PDF to be submitted electronically with the entry online.
5. When applicable, all ideas, text, images, and sounds from other sources must be cited. Copyrighted materials may NOT be used. If including a citation page, the page must be included as the second page of the Student Copyright Checklist in PDF in H.4.
6. National TSA will not provide wireless Internet.

EVALUATION

PRELIMINARY ROUND

Tier 1

A. The vlog series

Tier 2

B. The documentation portfolio

SEMIFINAL ROUND

A. The interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration
- Creativity
- Critical Thinking
- Flexibility/Adaptability
- Integrity
- Initiative
- Perseverance
- Problem Solving
- Risk Taking
- Teamwork

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Audio/video operator or technician
- Cinematographer
- Film/video editor
- Screen editor

Participant/Team ID# _____

VLOGGING

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ TIER 1 – Vlog playlist is located online and contains all videos
☐ TIER 2 – PDF of the documentation portfolio was submitted
☐ ENTRY NOT EVALUATED

TIER 1 – VLOG SERIES (80 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Videos (X1)	The video shots have obvious problems with focus, steadiness, and framing.	The video shots are somewhat focused and framed and there is a limited use of close-ups.	The videos are enhanced by steady, creative shots and incorporate excellent use of close-ups.	
Audio (X1)	The audio quality is poor, a result of primary use of the on-camera microphone for recording.	The audio quality is clear with good levels, and reflects the correct use of microphones and audio techniques.	The audio quality is excellent, with the use of additional audio clips/cues that enhance the video production.	
Lighting (X1)	The video reflects poor ambient lighting choices and/or the use of heavy back-lighting.	The video reflects adequate lighting on subjects and the proper use of lighting techniques.	The video reflects an excellent and creative use of lighting, which propels the story emotionally.	
Continuity and Pacing (X2)	The sequencing of the video series is confusing or incomprehensible; shots are left on too long, edit points/transitions are "glitchy", and/or continuity between videos is not used.	The pace and timing of the video series are generally structured; the shots move along, helping to tell the story, there is some use of transitions, and the videos in the series generally flow from one to the next.	The video series and shots are logically paced and move the story along in an interesting way, with excellent and purposeful use of transitions.	
Creativity and Originality (X1)	There is little original thought or creativity in the design and production, resulting in what appears to be a simple piecing together of events.	The videos reflects some original and creative elements.	Originality and creativity are at the forefront of the video, with thematic elements incorporated in a highly authentic way.	
Video Series Effectiveness (X2)	The work does not meet the project goals, has an unclear message, and reflects sloppy work.	The topic is presented with some insight, and the videos meet most project goals.	The videos are focused, with a clear message and a rich variety of supporting material.	
			TIER 1 – VLOG SERIES SUBTOTAL (80 points)	

TIER 2 – DOCUMENTATION PORTFOLIO (30 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio Components (X1)	Portfolio is unorganized and/ or missing three (3) or more components.	Portfolio includes most components and is generally organized.	All components of the portfolio are included in order, and content and organization are clearly evident.	
Purpose and Description (X1)	The purpose and description of the animation idea are unclear.	The purpose and description of the animation are explained appropriately.	The purpose and description of the animation are clear and concisely written.	
Storyboard (X1)	The hand-sketched storyboard is sloppy, seems to have been thrown together after the creation of the animation, and/or it does not correlate with the animation.	The storyboard is drawn appropriately and largely correlates with the completed animation.	The storyboard is of exceptional aesthetic and artistic value and clearly correlates with the animation.	
			TIER 2 – DOCUMENTATION PORTFOLIO SUBTOTAL (30 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	

PRELIMINARY SUBTOTAL (110 points)	

SEMIFINAL ON SITE CHALLENGE (80 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Camera Handling (X1)	Serious problems with focus, steadiness, and framing are evident.	Most shots are focused and framed, with adequate close-ups included.	Steady and creative shots that enhance the video are utilized, and excellent close-ups are included.	
Lighting (X1)	Numerous shots are improperly lit; bleaching, shadows, or unbalanced conditions may be evident in some shots; there is no evidence of an attempt to correct problems.	Most shots are properly lit, either through ambient lighting or the use of techniques to correct poor lighting conditions.	All shots are well lit, either through ambient lighting or the use of techniques to correct poor lighting conditions.	
Audio (X1)	Audio may be unclear, distorted, or washed out from poor signal-to-noise ratio; there is evidence of the use of a built-in camera microphone that detracts from the message.	The audio is clear, with consideration given to a good signal-to-noise ratio; background or ambient noise may occasionally be a distraction.	The audio is clear and recorded with good signal-to-noise ratio, displaying skillful microphone choice, placement, and technique.	
Continuity and Pacing (X2)	The story sequencing is confusing; shots are too long or "clipped" with edit points appearing "glitchy" , there is little continuity between the videos in the series.	The pace and timing are well structured; clips move along and tell the story, with moderate use of transitions; there is good continuity between videos in the series.	The video series is clearly focused, with a rich variety of supporting material; there is excellent continuity between videos in the series.	
Video Effectiveness (X2)	The video does not meet project goals, presents an unclear message, and/or is sloppy overall.	The video topic is presented with insights; the video series adequately meets the objective(s).	The video series is clearly focused with a rich variety of supporting material.	

SEMIFINAL ON SITE CHALLENGE (80 points) – continued				
Use of Required Props/Dialogue/ Content (X1)	The required materials, such as props or dialog, are not well incorporated in the production or appear as an afterthought.	The required materials, such as props or dialogue, are adequately incorporated and somewhat essential to the production's plot and tend to add some artistic value and further the plot.	The required materials, such as props or dialogue, are communicated effectively and are integral to the production of the plot, adding artistic value.	
			SEMIFINAL ON SITE CHALLENGE SUBTOTAL (80 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____

SEMIFINAL SUBTOTAL (80 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (190 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

VLOGGING
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator
B. Assistant for check-in, one (1)
C. Judges:
    1. Preliminary round, two (2) or more
    2. Semifinal round, two (2) or more

MATERIALS

A. Coordinator's packet, containing:
    1. Event guidelines, one (1) copy for the coordinator and for each judge
    2. TSA Event Coordinator Report
    3. List of judges/assistants
    4. Results envelope with coordinator forms
B. One (1) computer with monitor as needed for judges
C. One (1) extension cord and one (1) power strip as needed for judges
D. Tables and chairs for event coordinator, judges, and participants

RESPONSIBILITIES

PRE-CONFERENCE

A. National TSA will collect entries until 11:59 p.m. ET on a designated date in mid-May. The results are shared with the CRC manager, event coordinator, and assigned judges.
B. Review entries as they are submitted to the designated online storage utility.
C. Manage communication and pre-conference evaluation (at least two [2] or more judges should be recruited earlier in the year). Coordinate with the Judge Manager.
D. Judges determine the twelve (12) semifinalists and discuss and break any ties.

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.
B. Report to the CRC room and check the contents of the coordinator's packet.
C. Review the event guidelines and check to see that enough personnel have been scheduled.
D. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.
E. At least one (1) hour before the evaluation of entries is to begin, meet with your judges and check in, personnel to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the CRC event manager before the evaluation begins.

SEMIFINAL ORIENTATION

A. Prior to the semifinalist orientation meeting, the coordinator should tour the facilities and develop a list of restricted areas and/or specific restrictions for the event. This event should be shared with the event manager prior to the event meeting. The coordinator should mention at the event meeting that teams must be courteous to all guests in common areas or designated filming areas.
B. Meet with all participants at the designated time and place to deliver the specific criteria, including any required props and dialog.
    1. Ensure that all participants understand regulations regarding equipment allowed, behavior, deadlines, and submission requirements.
    2. Share the online submission link with the participants.
    3. Late entries are considered on a case-by-case basis and only when the dley is caused by events beyond the participant's control.
    4. In order the compete, participants must be on the entry list, or must have approval of the CRC.

SEMIFINAL SCORING

A. Close the online submission link.

B. Ensure judges have access to the entries.

C. Judges independently evaluate the entries.

D. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and CRC manager to determine either:

   1. To deduct 20% of the total possible points or
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

E. Judges determine the ten (10) finalists and discuss and break any ties.

F. Submit the finalist results and all related forms in the results envelop to the CRC room.

WEBSITE DESIGN

OVERVIEW

Applying leadership and 21st century skills, participants are required to design, build, and launch a website that features the team's ability to incorporate the elements of website design, graphic layout, and proper coding techniques. The design brief for this event will be posted on the TSA website under *Themes & Problems*. Semifinalists participate in an interview, with an emphasis on web design as it pertains to their solution, to demonstrate the knowledge and expertise gained during the design process.

ELIGIBILITY

One (1) team of at least three (3) and a maximum of six (6) individuals per chapter may participate.

TIME LIMITS

PRE-CONFERENCE/PRELIMINARY ROUND

A. All components of the chapter's entry, including the website address (URL) for the entry, must be finished, submitted, and accessible via the Internet by 11:59 p.m. ET on a designated date in mid-May.

SEMIFINAL ROUND

A. Up to ten (10) minutes is allowed for the interview.

ATTIRE

TSA competition attire is required.

PROCEDURE

PRE-CONFERENCE

A. Participants access the middle school event design brief from the TSA website under *Themes & Problems*.

B. Participants design a website while observing the theme and design requirements.

C. The website address URL (which includes the documentation) must be submitted by 11:59 p.m. ET on a designated date in mid-May.

D. Submission information will be provided on the TSA website under *Competition Updates*.

PRELIMINARY ROUND

A. A list of twelve (12) semifinalist teams (in random order) is posted on the first full day of conference.

SEMIFINAL ROUND

A. Participants report at the time and place stated in the conference program to sign-up for an interview.

B. Participants report at the assigned time and place for the interview.

C. Judges score the interviews.

D. The top ten (10) finalists are announced at the awards ceremony.

REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

PRE-CONFERENCE/PRELIMINARY ROUND

A. Participants must launch their entry on a web server that can be accessed via the Internet twenty-four (24) hours a day, seven (7) days a week, fifty-two (52) weeks per year.

B. Each entry must consist of web pages that specifically display the chapter's solution to the middle school design brief.

C. The URL must point to the main page of the team's entry. Entries that require a request for access be granted will not be judged.

D. All web pages must be completed during the current school year.

E. The solution to the design brief is developed as a series of web pages with a minimum of three (3) pages and no maximum of pages linked under the main design brief solution web page.
   1. One (1) of the pages must list all sources of information used to create the website.
   2. If copyrighted material, such as text, images, or sound from other sources is used, proper written permission must be included/documented on one (1) of the pages.
   3. Participants must submit a completed Student Copyright Checklist (in PDF format) as a link on their website reference page. (See Forms Appendix); one (1) page
   4. Participants also must include a completed Work Log (in PDF format) as a link on their website reference page. (See Forms Appendix); pages as needed

F. All entries must be compatible using the latest versions of Microsoft Edge, Firefox, Chrome, etc. on a desktop/laptop computer.

G. In addition to basic HTML code, the website may contain Java applets, HTML5, Shockwave, and other state-of-the-art web-based applications.

H. Framework systems, such as Drupal, Joomla, WordPress, Bootstrap, or other current technologies may be used. If a framework system is used, a statement affirming the framework was built by the team must be posted on an "About" section or page.

I. The website must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on a designated date in mid-May.

J. Changes made after submission will result in disqualification from the event.

SEMIFINAL ROUND

A. Up to six (6) team representatives must be prepared to discuss at a minimum:
   1. Overall website design and originality
   2. Design brief
   3. The appropriate use of new Internet and web-based applications (different browsers, monitor resolution, plug-ins, etc.).

EVALUATION

PRELIMINARY ROUND

A. The website

SEMIFINAL ROUND

A. The interview

Refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT

This event provides opportunity for students to build and develop leadership and 21st century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Computer engineer
- Computer programmer
- Researcher
- Software designer
- Webmaster

Participant/Team ID# _____

WEBSITE DESIGN

2024 & 2025 OFFICIAL RATING FORM

MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Website URL that is functional on a desktop/laptop
☐ Design brief solution with no copyright or plagiarism issues
☐ ENTRY NOT EVALUATED

WEBSITE (90 points)				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column spaces below.
	1-4 points	5-8 points	9-10 points	
Content (X1)	Several inaccuracies occur in the information provided by students; the website does not align with the design brief criteria; not enough content is included, or content is very incomplete.	Most information provided by students on the website is applicable to the design brief criteria.	All information provided by students on the website is applicable to the design brief criteria.	
Layout (X1)	Web pages are cluttered looking or confusing; it is often difficult to locate important elements.	Web pages generally have an appealing and user-friendly layout; it is easy to locate most important elements.	Web pages have an exceptionally attractive and user-friendly layout; It is easy to locate all important elements; white space, graphics, and/or alignment are used effectively to organize material.	
Graphics (X1)	Graphics seem randomly chosen and are of low quality, and/or they distract the reader; many images are broken.	Graphics are related to the theme/ purpose of the site, are of good quality; graphics generally enhance the user's interest or understanding; there may be a few broken images.	Graphics are related to the theme/ purpose of the site; graphics are thoughtfully cropped, exhibit high quality, and they enhance reader interest or understanding; there are no broken images.	
Navigation (X1)	Some links are missing and/or do not navigate to the pages described; a user typically feels lost.	Links for navigation are adequately labeled; they allow for easy movement from one page to related pages (forward and back), although user may become lost in some areas.	Links for navigation are clearly labeled, consistently placed, and allow for easy navigation from one page to related pages (forward and back); a user does not become lost.	
Color Scheme (X1)	Colors, fonts, and unvisited and visited links make the content hard to read or otherwise distracting.	Colors, fonts, and unvisited and visited links do not detract from the content and are somewhat consistent across pages.	Colors, fonts, and unvisited and visited links form a pleasing palette, complement the content, and are consistent across pages.	

WEBSITE (90 points) – continued				
Interest (X1)	Participants have provided only the minimum amount of information and have not transformed the information to make it more interesting to the targeted audience.	Participants have tried to make the content of the website interesting to the targeted audience.	Participants have made an exceptional attempt to ensure that the content of the website is interesting to the targeted audience.	
Spelling and Grammar (X1)	There are many spelling and/or grammatical errors in the site.	There are a few spelling and/or grammatical errors in the site.	There are either no, or very minor, spelling or grammatical errors in the site.	
Solution to Design Brief (X2)	Website is missing three or more criteria and/or constraints of the design brief.	Website includes most criteria and/or constraints of the design brief.	Website includes all components of the design brief.	
			WEBSITE SUBTOTAL (90 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

PRELIMINARY SUBTOTAL (90 points)

SEMIFINAL INTERVIEW (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the interview.	Participants are generally prepared and are somewhat organized for the interview.	Participants' interview is organized, logical, and easy to follow.	
Knowledge (X2)	Participants seem to have little understanding of the concepts in their project; answers to questions may be vague.	Participants exhibit an basic understanding of the concepts in their project.	Participants show clear evidence of a thorough understanding of the project.	
Articulation (X1)	Communication of the design process is unclear, unorganized, and or illogical; leadership and/or 21st century skills are not evident.	Communication of the design process is somewhat logical and clear; leadership and/or 21st century skills are somewhat evident.	Communication of the design process is clear, concise, and logical; leadership and/or 21st century skills are clearly evident.	
Team Participation (X1)	The majority of the delivery is made by one (1) member of the team; the partner(s) may be disengaged from the interview.	Team members are generally engaged in the process, though one (1) member may take on more responsibility than the other(s).	All team members are actively involved in the interview and responses to questions; there is shared responsibility among team members.	
Delivery (X1)	The team is verbose and/or uncertain in its interview; participants' posture, gestures, and lack of eye contact diminish the interview.	The team is somewhat well spoken and clear in its interview; participants' posture, gestures, and eye contact are acceptable in the interview.	The team is well-spoken and distinct in its interview; the participants' posture, gestures, and eye contact result in a polished, natural, and effective interview.	
			SEMIFINAL INTERVIEW SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated: _____	
SEMIFINAL SUBTOTAL (60 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL** (150 points)	

Comments:

I certify these results to be true and accurate to the best of my knowledge.

JUDGE

Printed name: _____ Signature: _____

WEBSITE DESIGN
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator, one (1)

B. Judges:

   1. Preliminary round, two (2) or more
   2. Semifinal round, two (2) or more

MATERIALS

A. Coordinator's packet, containing:

   1. Event guidelines, one (1) copy for the coordinator and for each judge
   2. TSA Event Coordinator Report
   3. List of judges/assistants
   4. Results envelope with coordinator forms

B. The latest version of Microsoft Edge, Firefox, Chrome, etc.

C. List of questions for on-site interviews

D. Laptop computer with high speed Internet capability

RESPONSIBILITIES

PRE-CONFERENCE

A. National TSA will collect entries until 11:59 p.m. ET on a designated date in mid-May. The results are shared with the CRC manager, event coordinator, and assigned judges.

B. Review entries as they are submitted to the designated online storage utility.

C. Manage communication and pre-conference evaluation (at least two [2] or more judges should be recruited earlier in the year). Coordinate with the Judge Manager.

D. Judges determine the twelve (12) semifinalists and discuss and break any ties.

AT THE CONFERENCE

A. Attend the mandatory event coordinator's meeting at the designated time and location.

B. Report to the CRC room and check the contents of the coordinator's packet.

C. Review the event guidelines and check to see that enough personnel have been scheduled.

D. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

PRELIMINARY ROUND

A. On the first full day of the conference, post a list of the twelve (12) semifinalists in random order.

B. Create a semifinalist sign-up sheet.

SEMIFINAL ROUND

A. Semifinalists report at the time and place stated in the conference program to sign-up for an interview.

B. Semifinalists report at the assigned time and place for the interview.

C. Manage completion of the on-site interviews

D. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:

   1. To deduct twenty percent (20%) of the total possible points in this round
   2. To disqualify the entry

   The event coordinator, judges, and CRC manager must initial either of these actions on the rating form.

E. Judges determine the ten (10) finalists and discuss and break any ties.

F. Submit the finalist results and all related forms in the results envelope to the CRC room.

FORMS APPENDIX

Downloadable forms are available in TSA Membership System/Total TSA/ Competition Forms and Resources

TECHNOLOGY STUDENT ASSOCIATION WORK LOG

Date	Task	Time involved	Team member responsible (student initials)	Comments
1.				
2.				
3.				
4.				
5.				
6.				

STUDENT COPYRIGHT CHECKLIST *(for students to complete and advisors to verify)*

STUDENT: Answer question 1 below.

1) Does your solution to the competitive event integrate any type of music and/or sound? ☐ YES ☐ NO

   If NO, go to question 2.

   If YES, is the music and/or sound copyrighted? ☐ YES ☐ NO

   If YES, move to question 1A. If NO, move to question 1B.

   1A) Have you asked for author permission to use the music and/or sound in your solution and included that permission (letter/form) in your documentation? If YES, move to question 2. If NO, ask for permission and if permission is granted, include the permission in your documentation.

   1B) Is the music/sound royalty free, or did you create the music/sound yourself? If YES, cite the royalty free music/sound OR your original music/sound properly in your documentation.

CHAPTER ADVISOR: Sign below regarding your student's answer(s) to the use of music/sound in his/her competitive event solution. Even if your student answers "NO" to question 1, please sign below noting that you have evaluated the competitive event solution and the student answered the question(s) accurately.

I, _____ (chapter advisor), have checked my student's solution and confirm that any use of music/sound is done so with proper permission and is cited correctly in the student's documentation and/or the solution has been found to have no music/sound included.

STUDENT: Answer question 2 below.

2) Does your solution to the competitive event integrate any graphics/videos? ☐ YES ☐ NO

   If NO, go to question 3.

   If YES, is(are) the graphics/videos copyrighted, registered and/or trademarked? ☐ YES ☐ NO

   If YES, move to question 2A. If NO, move to question 2B.

   2A) Have you asked for author permission to use the graphics and/or videos in your solution and included a permission (letter/form) in your documentation for graphic/video used? If YES, move to question 3. If NO, ask for permission and if permission is granted, include the permission in your documentation.

   2B) Is(are) the graphics/videos royalty free, or did you create your own graphic? If YES, cite the royalty free graphics/videos OR your own original graphics/videos properly in your documentation.

CHAPTER ADVISOR: Sign below regarding your student's answer(s) to the use of graphics/videos in his/her competitive event solution. Even if your student answers "NO" to question 2, please sign below noting that you have evaluated the competitive event solution and the student answered the question(s) accurately.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of graphics/videos with proper permission and is cited correctly in the student's documentation and/or the solution has been found to have no graphics/videos included.

STUDENT: Answer question 3 below.

3) Does your solution to the competitive event use another's thoughts or research? ☐ YES ☐ NO

   If NO, this is the end of the checklist.

   If YES, have you properly cited other's thoughts or research in your documentation? ☐ YES ☐ NO

   CHAPTER ADVISOR: Sign below regarding your student's answer(s) to having integrated any thoughts/research of others in his/her competitive event solution. Even if your student answers "NO" to question 3, please sign below noting that you have evaluated the competitive event solution and the student answered the question(s) accurately.

   I, _____ (chapter advisor), have checked my student's solution and confirm that the use of the thoughts/research of others is done so with proper permission and is cited correctly in the student's documentation and/or the solution has been found to have all original thought with no use of other's thoughts/research.

Student Name: _____

Chapter Advisor Signature: _____

PHOTO/FILM/VIDEO CONSENT AND RELEASE

I hereby give permission for images of my child or myself (as applicable), captured during Technology Student Association (TSA) activities through film, photo or digital camera, to be used solely for the purposes of TSA promotional materials and publications, including the TSA website, and I waive any rights of compensation or ownership thereto.

Name of Minor in Images (please print)

Name of Minor's Parent/Guardian (please print)

Name of Adult in Images (please print)

Parent/Guardian or Adult's Signature (as applicable)

Date

NEW COMPETITIVE EVENT PROPOSAL

New proposals may only be submitted by a chapter or state advisor or TSA alumni and must be submitted by September 1 of the prior conference year in order to be considered for the next guide. Please attach any additional pages as necessary.

Name of Competitive Event: _____

Level: ☐ High School ☐ Middle School

Overview (description of the event and participant expectations):

Eligibility for entry (how many teams/individuals can participate):

Limitations (such as time or entry submission requirements):

Resources (i.e. are the resources a limiting factor, or are they affordable/readily available to all populations? Can this be executed at the national level?):

Specific regulations:

Required personnel:

Alignment with STEM standards (how does this align with STEM standards?):

What are the societal benefits for learning this information? How can this be applied in a real world context?

Do you know of a TSA Chapter, at the regional or state level, that executes this event at conferences? If so, whom?

_____

Name Date

_____

Email Phone Number

How are you affiliated with TSA? ☐ Chapter Advisor ☐ Alumni ☐ Other: _____

Mail to: CRC, c/o National TSA, 1904 Association Drive, Reston, VA 20191-1540; Email to: general@tsaweb.org

EVENT REVISION SUGGESTION

As TSA expands its membership and participation in competitive events increases, competitive events may require revision. TSA consistently tracks and monitors misinterpretations and strives to revise the guide to improve clarity. TSA encourages input so that competitive events continue to improve. Use this form to note how outcomes for competitive events may be improved.

Competitive Event: _____

Level: ☐ High School ☐ Middle School

Note a reference to the exact section and page number (if applicable): _____

Specifically state the suggestion. List exactly what should be deleted, replaced, and/or added to the event rule or procedure.

Provide a rationale and list the pros and cons of this proposed update.

In your opinion, will the update to this event change the space requirements at the conference? ☐ YES ☐ NO
If yes, provide your rationale.

In your opinion, will the update to this event require additional resources? ☐ YES ☐ NO
If yes, provide your rationale.

Enter any additional comments

Print Name	Signature	Date
State Advisor's Name	Signature	Date
Contact Email	Contact Phone	

Mail to: CRC, c/o National TSA, 1904 Association Drive, Reston, VA 20191-1540; Email to: general@tsaweb.org

RULES INTERPRETATION PANEL GRIEVANCE

Site of National TSA Conference _____

Advisor's Name _____

School Name _____

State _____

Competitive Event (including level) _____

Student or Team Identification Number _____

STATEMENT OF CONCERN (Please print or type.)

_____

Signature of Advisor Date

_____

Signature of State Advisor Date

The decisions of the Rules Interpretation Panel (RIP) at the National Conference are final.

RULES INTERPRETATION PANEL RESPONSE TO GRIEVANCE

PANEL MEMBERS

Signature Date

Signature Date

Signature Date

Site of National TSA Conference _____

Date _____

Competitive Event (including level)_____

Student or Team Identification Number_____

Advisor's Name_____

STATEMENT OF RESPONSE

The decisions of the Rules Interpretation Panel (RIP) at the National Conference are final.