# Technology Student Association (TSA)

## MIDDLE SCHOOL COMPETITIVE EVENTS GUIDE

for the 2020 and 2021 National TSA Conferences

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

# ACKNOWLEDGMENTS

TSA is grateful to many people for their advice and expertise in developing the competitive events program over the years. The organization especially appreciates the volunteer efforts of the members of the Competition Regulations Committee (CRC), noted below, who have written and refined the event specifications that appear in this guide.

This competitive events guide is dedicated in memory of

## Dr. Laura Hummel

Laura's contributions as a TSA Competition Regulations Committee (CRC) manager, her commitment to education, and her service to others have had a significant impact on the TSA community nationwide.

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## TSA MISSION

The Technology Student Association (TSA) enhances personal development, leadership, 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 250,000 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 different 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. They also promote leadership skills and a focus on future career choices.

## THE ROLE OF COMPETITIVE EVENTS

To follow its mission, TSA offers stimulating competitive events and recognition in both technology and leadership arenas. TSA believes that by participating in carefully designed competitions, students learn to do their best, thereby becoming "winners" whether or not they place in a competition. Many teachers find 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 Competition Regulations Committee (CRC), a standing group of technology amd engineering educators with hands-on classroom experience. The *Technology Student Association (TSA) Middle School Competitive Events Guide for the 2020 & 2021 National TSA Conferences* is the result of the work of CRC managers, competitive event coordinators, teachers, proposals of numerous TSA state and chapter advisors, and students that 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 *2020 & 2021 TSA Middle School Competitive Events Guide*, please note the following:

1. The format of this guide has been streamlined to help competitors and advisors know and clearly understand the TSA Conference General Rules and Regulations, and the procedures, regulations, and evaluation criteria 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. As an example, should a competitive event require a written test to be taken, there is no longer a specific reminder in the event guidelines for participants to bring their own pencil to the event.

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. Anyone who wishes 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. To enter a team event, the chapter designates only that it is participating; names of the individual team members are not necessary.

   c. Unless otherwise designated in a competition's eligibility guideline, 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.

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 requiring documentation materials (comprising a "portfolio") must be secured in a clear front report cover. Click here for a sample report cover.

5. All entries must be in English.

6. Students 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. For any competition that involves the use of a pencil (e.g., for taking a written test, 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.

8. 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 the event's official rating form.

9. 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 at the middle school level are:

      i. Career Prep, Children's Stories, Community Service Video, and Construction Challenge

      ii. Events that require submission of a Plan of Work Log 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.

10. 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 will become property of TSA and will not be returned.

E. Citations, References, and Copyrighted Material

1. For all applicable competitive events, citations or references must follow MLA (Modern Language Association) style.

2. All entries must be the original work of the student participant or student team.

3. All ideas, text, images, 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. For information about the use of the TSA logo, refer to Toolkit page of the TSA website.

5. Failure to follow any of the above procedures results in 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 are prohibited.

6. Failure to follow any of the above procedures results in disqualification.

### G. TSA Liability

8. TSA is not responsible or liable for any personal property, equipment, 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 involves written and semifinalist segments. All substitutions must be approved by the event manager and coordinator.

2. Change requests:
   a. Should a change be requested for any reason after the stated deadlines, a $50 change fee will be charged per person per event, if the change is approved.
   b. Only chapter members previously registered as competitors by the conference registration deadline will be eligible for change requests.
   c. TSA reserves the right to approve or not approve a requested change.
   d. Fees must be paid by credit card, check, or cash prior to any change being made.
   e. No changes will be made once competitions start.

### J. Event Judging

1. All events are judged in accordance with the stated event criteria as noted in this competitive events guide.

2. 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. Semifinalists

1. A rules violation that gives a contestant an unfair advantage will result in a twenty percent (20%) deduction of the total possible points in each preliminary and semifinalist round.

2. The coordinator or manager of an event has the right to disqualify a contestant when this type of incident occurs.

3. The event coordinator and manager must sign off on both a twenty percent (20%) deduction and a disqualification.

M. Semifinalists

1. All competitive events 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 charged with reviewing TSA's competitive events, updating them as necessary, and presiding over the competitive events at the annual national TSA conference. The all-volunteer 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. See who they are by clicking the TSA Directory on the TSA website.

• Questions about specific events may be addressed to event coordinators or event managers. Refer to the TSA Directory on the TSA website for complete contact information.

• 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 is grateful for 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 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 is 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

A. 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 changes 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
- 3-D 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
- Mobile apps
- 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)
- 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 July 1, 2020 in order to be considered for the next middle school guide.

Forms may be found 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 skirt:** gray

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

4.  Also required for the middle school or high school level Chapter Team event only (but may be worn for other competitions if preferred by participants):

    • **Blazer:** navy blue with official TSA patch

    • **Tie:** official TSA tie (males)

    Females are not penalized for wearing the official TSA tie to Chapter Team or any other competitive event

### GENERAL SESSION ATTIRE

1.  **Shirt:** The official TSA shirt (royal blue) is preferred; button-down shirt; polo/golf shirt

    • *Unacceptable:* T-shirts; halter tops; tank tops

2.  **Dress, skirt, or pants**

    • *Unacceptable:* jeans; baggy pants; exterior pocket pants; shorts

3.  **Shoes:** dress shoes worn with dark socks or 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

### AWARDS CEREMONY

1.  TSA General Session Attire is required for the Awards Ceremony.

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

# LEAP PROGRAM

L★E★A★P
Leadership. Education. Achievement. Personal Growth.

The *2020 & 2021 TSA Middle School Competitive Events Guide* integrates TSA's leadership program, **Leadership. Education. Achievement. Personal Growth. (LEAP)**, at the middle school level.

The purpose of LEAP is to encourage participants to be the best member they can be, as they seek knowledge about themselves, the organization, and their community, while demonstrating leadership. Based on the *Student Leadership Challenge*\* (SLC), middle school participants are asked to learn the SLC Practices, apply what they have learned, and respond in written form.

During the course of preparing for and participating in a TSA competitive event, participants will study the SLC Practices with their related behaviors, and put them into practice. In addition, participants will be asked to apply one of the SLC Practices to a leadership activity unrelated to a competitive event, bringing real world application to the SLC leadership principles.

To embrace the LEAP criteria and realize the impact the SLC Practices can have on the development of student leadership, LEAP has been integrated into each TSA competition as part of the official rules and rubric in the competitive events guide. Participants must use the SLC resources, in addition to other LEAP resources on the TSA website, as they complete the new competitive event LEAP Response requirement for all TSA competitions.

TSA believes that acquiring leadership skills is critical to the success of young people in the 21st century. The SLC lesson plans found on the TSA website provide TSA advisors with a venue for teaching, and students an opportunity to practice, these all-important skills.

## LEAP RESPONSE

- Participants are required to learn the SLC Practices.

- Participants will apply what they have learned by demonstrating the related behaviors of one or more SLC Practices in relation to their competitive event(s).

- Participants will complete either an individual or a team LEAP Response.

- An individual or team LEAP Response is required for all competitive events and must be submitted either 1) at event check-in, or 2) when participants arrive at an event at a designated time, whichever applies.

- The LEAP Response is a required document that must be submitted as part of the Go/No Go Specifications for every middle school event.

- LEAP Responses will be judged as part of the semifinal round in each event.

The LEAP Response form in the Forms Appendix of this guide or click on the link below:

LEAP Response Template – Team and Individual Events

Click below for additional resources:

Middle School LEAP Response Competition Engagement Regulations

LEAP Response Sample Statements

Middle School LEAP Judging Protocol

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# L★E★A★P

Leadership. Education. Achievement. Personal Growth.

## OVERVIEW

Participants document skills they have developed and demonstrated while working on a specific competitive event, according to *The Student Leadership Challenge (SLC) Five Practices for Becoming an Exemplary Leader\**. Participants also document skills learned for a non-competitive event leadership experience.

## REGULATIONS

A. LEAP Responses are required for all middle school events as part of the "Go/No Go" Specifications.

B. *Participants who do not submit a LEAP Response for an event will not be eligible to compete in that event.*

C. Responses will be submitted at the time and place stated in the conference program.

D. The LEAP Response (and all content/activities listed within) must be in progress or have been completed during the current school year.

E. Types of LEAP Responses

   1. Individual – Each participant is required to submit one (1) individual response for each individual event in which he/she is registered to compete.

   2. Team – Each team is required to submit one (1) team response for each team event in which it is registered to compete.

F. General Formatting Requirements

   1. Participants must use the official LEAP Response template found on the TSA website or in the Forms Appendix of this competitive events guide.

   2. Responses are limited to one (1) single-sided page per entry.

   3. Responses must be typed; the individual/team identification number may be hand-written.

G. LEAP Response Content

   1. The Participant/Team Information section must include the following:

      a. Participant ID number (individual events only); refers to the number assigned to a participant registered for a conference.

      b. Team ID number (team events only); refers to the number assigned to a team (chapter) registered for a conference.

      c. Competitive event name

   2. The Competitive Event Leadership Experiences section must include the following in paragraph form (a minimum of 100 and a maximum of 200 words): Name one (1) or more of the SLC Practices (see SLC resources) and describe how the practice(s) was applied throughout the competitive event process.

   3. The Non-Competitive Event Leadership Experiences section of the LEAP Response must include the following in paragraph form (a minimum of 50 and a maximum of 100 words): Name one (1) of the SLC Practices and describe how the practice was applied to actions/roles/responsibilities for the selected leadership activity.

   4. Multiple events (individual or team) may NOT be addressed in a single LEAP Response.

   5. Individuals/teams may use the same non-competitive leadership experience for multiple LEAP Responses.

   6. Refer to resources found on the TSA website for additional information and assistance in creating a LEAP Response.

## EVALUATION

Evaluation is based on the content and quality of the LEAP Response; points are awarded at the semifinalist level only. No interview is required.

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# LEAP LEGACY CHAPTER

# L·E·A·P
Leadership. Education. Achievement. Personal Growth.

## OVERVIEW

LEAP Legacy Chapter is a comprehensive leadership recognition program offered to middle and high school chapters as an optional national TSA activity that includes a competition component. Teams of two (2) to ten (10) members representing their chapters demonstrate – and are evaluated on – their involvement in LEAP activities related to The Student Leadership Challenge-Five Practices for Becoming an Exemplary Leader (SLC Practices)*.

## REGULATIONS

A. Chapters complete LEAP Legacy Portfolios, which consist of a cover page, an activities template, and supporting documents that are submitted electronically by chapter advisors online.

B. Portfolio submissions are evaluated by judges assembled by national TSA.

C. Based on minimum qualifying scores, one (1) middle school and one (1) high school per state will be selected as semifinalists.

D. Ten (10) middle school chapters and ten (10) high school chapters will be selected to advance as national semifinalists.

E. National semifinalist chapters compete as participants in the TSA Meet and Greet event at the annual national TSA conference.

F. First through third (1st – 3rd) place middle and high school chapters will receive $1,000, $500, and $250, respectively.

G. First through third (1st – 3rd) place chapter winners also will receive trophies on stage at the national TSA conference awards ceremony.

Find the forms below in the Forms Appendix of this guide, or click on the links below:

LEAP Legacy Chapter Program Guidelines

LEAP Legacy Chapter Portfolio

LEAP Legacy Chapter Evaluation Rubric

Click on the links below for additional resources:

LEAP Legacy Chapter – Sample Activities

LEAP Legacy Chapter Activity Summary and Evidence Sample

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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

16. **ESS3-2:** Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

17. **ESS3-3:** Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

18. **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

17. **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.

18. **ETS1-2:** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

19. **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.

20. **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.

*The Next Generation Science Standards (NGSS) were developed by educators, content experts and policymakers, using as a guiding document the Framework for K-12 Science Education from the National Research Council. The Next Generation Science Standards is a registered trademark of Achieve. Neither Achieve nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of this product, and do not endorse it.

**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 | | | | | | | | | | |
| CAD Foundations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Career Prep | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Challenging Technology Issues | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chapter Team | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Children's Stories | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coding | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Community Service Video | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction Challenge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cybersecurity | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Data Science and Analytics | | | | | | | | | | | | | | | | | | | | | | | | | | X | | X | X | X |
| Digital Photography | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dragster | | | | | | | | X | | | | | | | X | | | | | | | | | | | | | | | |
| Electrical Applications | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Essays on Technology | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flight | | | | | | | | X | | | | X | | | | | | | | | | | | | | | | | | |
| Forensic Technology | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Foundations of Information Technology (FIT) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inventions and Innovations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Junior Solar Sprint | | | | | | | | X | | | | | X | X | | | | | | | | | | | | | | | | |
| Leadership Strategies | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Website Design | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

## NEXT GENERATION SCIENCE STANDARDS – continued

| Event | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CAD Foundations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Career Prep | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Challenging Technology Issues | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chapter Team | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Children's Stories | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coding | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Community Service Video | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction Challenge | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cybersecurity | | | | | | | | | | | | | | | | | | | | | | | | X | | X | X | X | X |
| Data Science and Analytics | | | | | | | | | | | | | | | | | | | | | | | | X | X | | | | |
| Digital Photography | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dragster | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | X |
| Electrical Applications | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Essays on Technology | | | | | | | | | | | | | | | | | | | | | | X | | | | | | | |
| Flight | | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | |
| Forensic Technology | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Foundations of Information Technology (FIT) | | | | | | | | | | | | | | | | | | | | | | | | | | X | X | X | X |
| 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 | X |
| System Control Technology | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Tech Bowl | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Technical Design | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Video Game Design | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Website Design | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Technology Student Association (TSA) Middle School Competitive Events Guide for the 2020 and 2021 National TSA Conferences

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## TECHNOLOGY CONTENT STANDARDS

Standard 1:    Students will develop an understanding of the characteristics and scope of technology.

Standard 2:    Students will develop an understanding of the core concepts of technology.

Standard 3:    Students will develop an understanding of the relationships among technologies and the connections between technologies and other fields of study.

Standard 4:    Students will develop an understanding of the cultural, social, economic, and political aspects of technology.

Standard 5:    Students will develop an understanding of the effects of technology on the environment.

Standard 6:    Students will develop an understanding of the role of society in the development and use of technology.

Standard 7:    Students will develop an understanding of the influence of technology on history.

Standard 8:    Students will develop an understanding of the attributes of design.

Standard 9:    Students will develop an understanding of engineering design.

Standard 10:   Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

Standard 11:   Students will develop the abilities to apply the design process.

Standard 12:   Students will develop the abilities to use and maintain technological products and systems.

Standard 13:   Students will develop the abilities to assess the impact of products and systems.

Standard 14:   Students will develop an understanding of and be able to select and use medical technologies.

Standard 15:   Students will develop an understanding of and be able to select and use agricultural and related biotechnologies.

Standard 16:   Students will develop an understanding of and be able to select and use energy and power technologies.

Standard 17:   Students will develop an understanding of and be able to select and use information and communication technologies.

Standard 18:   Students will develop an understanding of and be able to select and use transportation technologies.

Standard 19:   Students will develop an understanding of and be able to select and use manufacturing technologies.

Standard 20:   Students will develop an understanding of and be able to select and use construction technologies.

These technology content standards are noted in *Standards for Technological Literacy: Content for the Study of Technology* (ITEEA, 2000/2002/2007) and are used with permission. (www.iteea.org)

**TECHNOLOGY CONTENT STANDARDS**

| Event | Standard Number → | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Biotechnology | | X | X | X | X | X | X | | | X | X | X | X | X | | X | X | | | | |
| CAD Foundations | | | | | | X | | | | X | X | | X | X | | | | | | | |
| Career Prep | | | | | | | | | 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 |
| Chapter Team | | | | | | | | | | | | X | | | | | | | | | |
| Children's Stories | | | | | | | | | X | | | X | | | | | | X | | | |
| Coding | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Community Service Video | | | | X | | | | | X | | | | X | | | | | X | | | |
| Construction Challenge | | | | | | | | | X | | | X | | | | | | X | X | | |
| Cybersecurity | | X | 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 | X | X | X |
| Digital Photography | | | | | | | | | X | X | | X | X | | | | | X | | | |
| Dragster | | | | | | | | | X | | | X | | | | | X | | | | X |
| Electrical Applications | | X | | | X | X | | | X | X | X | X | X | X | 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 | | |
| Forensic Technology | | | | X | | | | | | | X | | | | X | | | | X | | |
| Foundations of Information Technology (FIT) | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Inventions and Innovations | | | | | 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 | | |
| Leadership Strategies | | | | | | | | | | | X | | | | | | | | | | |
| Mass Production | | | | | | X | X | | X | X | X | X | X | X | | | | | | X | |
| Mechanical Engineering | | | | | | | | | X | X | X | X | X | | | | X | | | | X |
| Medical Technology | | | | | 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 | | X | X | X | | X | | X | | | | | | | | | | X | | | |
| Problem Solving | | | | | | | | | X | | X | X | | | | | | | | | |
| Promotional Marketing | | | | | | | | | X | X | | X | X | | | | | | | | |
| STEM Animation | | X | | X | | | | | X | | X | X | | | | | | X | | | |
| Structural Engineering | | | | | | | | | | | X | X | | | | | | | | | |
| System Control Technology | | | | X | | | | | X | X | X | X | X | | | X | X | X | X | X | X |
| Tech Bowl | | | | | | | | | X | X | | X | X | X | X | X | X | X | X | X | X |
| Technical Design | | | | | | | | | X | X | | X | | | | | | | | | |
| Video Game Design | | | | | | | | | X | X | | X | | | | | | X | | | |
| Website Design | | | | | | | | | X | X | X | X | X | X | | | | | | | |

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## 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.

| Event | A | B | C | D | E | F | G | H | I | J | K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Biotechnology | X | X | X | X | X | X | X | X |  | X |  |
| CAD Foundations | 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 |  |  |
| Construction Challenge | X |  |  | X | X | X | X |  |  |  |  |
| Cybersecurity |  | X | 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 | 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 | X | X |
| Forensic Technology | X | X |  |  |  |  | X |  |  | X |  |
| Foundations of Information Technology (FIT) | X | X | X | X | X | X | X | X | X | X | X |
| Inventions and Innovations | X |  | X | X | X |  | X |  | X |  |  |
| Junior Solar Sprint | X | X | 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 |  | X |
| Off the Grid |  | X | X | 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 | 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 | X | X | X | X |  | X | X | X | X | X |
| Technical Design |  |  | X |  |  | X | X |  |  |  |  |
| Video Game Design |  |  | X | X |  |  | X |  | X | X |  |
| 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 | | | | | | | | | | | × | × | × | | | | | | | | | | | | | × | | × | | | × | × | × | × | × |
| CAD Foundations | | | | | | | | × | × | | × | × | × | | | | | | | | | | | | | | | | | | | × | × | × | |
| Career Prep | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Challenging Technology Issues | | | | | | | | | | | | | | | | | | | | | | | | | | × | × | × | × | | × | × | | | |
| Chapter Team | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Children's Stories | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Coding | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Community Service Video | | | × | | | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | | |
| Construction Challenge | | | | | | | | | | | | × | × | | | × | | | | × | | | | | | | | | | | | | | | |
| Cybersecurity | | | | | | | × | | | | | | | × | × | × | × | | | × | | | | | | | | | | | | | | | |
| Data Science and Analytics | × | | × | × | | × | × | × | × | | | | | × | × | | | | | | | | × | × | | × | × | | | | × | × | × | × | × |
| Digital Photography | | | | | | | | | | | | | | | | | | | | × | | | | | | × | | × | | | | | | | |
| Dragster | | | | | | | × | × | × | | | × | × | | × | | | | × | | | | | | | | | | | | | × | | | |
| Electrical Applications | | | | | | | | | | | | × | × | × | × | | | × | × | | | | | | | | | | | | | × | | | |
| Essays on Technology | | | × | × | × | | | | | × | × | × | × | | × | | | | × | | | | | | | | | | | | | | | | |
| Flight | | × | | | | | | × | | | × | × | × | | | × | × | × | × | × | × | | × | | × | × | × | | | | | × | | | |
| Forensic Technology | | | | | | | | | | | | | | × | | × | | | | × | | | | | | | | | | | | | | | |
| Foundations of Information Technology (FIT) | | | | | | | | | | | | | | × | × | × | × | | | × | | | | | | | | | | | | | | | |
| 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 | | × | | | | | | | | | | × | | | | | | | × | × | | | | | | × | × | | | | | | | | |
| Website Design | | | | | | | | | | | | | | | | | | | × | × | | | | | | | | | × | × | | | | | |

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 (categories) are groups 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 the kinds of work opportunities prominent in those areas. The *TSA Competitions and Career Clusters* grid illustrates the interconnectedness between individual TSA competitions and the 16 career categories. They may be used as a starting point to help students become informed about careers and begin to develop a plan to reach career goals.

PATHWAYS TO COLLEGE & CAREER READINESS

**CareerClusters®**

The Career Clusters® brand logo and its extensions are the property of the Association for Career and Technical Education Foundation.

## 16 CAREER CLUSTERS®

**A. AGRICULTURE, FOOD & NATURAL RESOURCES**

The production, processing, marketing, distribution, financing, and development of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.

**B. ARCHITECTURE & CONSTRUCTION**

Careers in designing, planning, managing, building and maintaining the built environment.

**C. ARTS, A/V TECHNOLOGY & COMMUNICATIONS**

Designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services.

**D. BUSINESS MANAGEMENT & ADMINISTRATION**

Planning, organizing, directing and evaluating business functions essential to efficient and productive business operations; career opportunities are available in every sector of the economy.

**E. EDUCATION & TRAINING**

Planning, managing and providing education and training services, and related learning support services.

**F. FINANCE**

Planning services for financial and investment planning, banking, insurance, and business financial management.

**G. GOVERNMENT & PUBLIC ADMINISTRATION**

Executing governmental functions to include governance; national security; foreign service; planning; revenue and taxation; regulation; and management and administration at the local, state, and federal levels.

H.  HEALTH SCIENCES

Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.

I.  HOSPITALITY & TOURISM

Careers in management, marketing and operations of restaurants and other food services, lodging, attractions, recreation events and travel related services.

J.  HUMAN SERVICES

Preparing individuals for employment in career pathways that relate to families and human needs.

K.  INFORMATION TECHNOLOGY

Building linkages in IT occupations framework for entry level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services.

L.  LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY

Planning, managing, and providing legal, public safety, protective services, and homeland security, including professional and technical support services.

M.  MANUFACTURING

Planning, managing, and performing the processing of materials into intermediate or final products; related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

N.  MARKETING

Planning, managing, and performing marketing activities to reach organizational objectives.

O.  SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

Planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering), including laboratory and testing services, and research and development services.

P.  TRANSPORTATION, DISTRIBUTION & LOGISTICS

Planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water; related professional and technical support services, such as transportation infrastructure, planning and management, logistics services, mobile equipment and facility maintenance.

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 | |
| CAD Foundations | | X | X | | | | | | | | 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 | | |
| 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 |
| Foundations of Information Technology (FIT) | | X | X | X | X | X | X | X | X | X | X | X | X | 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 |
| Website Design | | | X | | | | | | | | X | X | | | X | | |

# APPRENTICESHIP.GOV

TSA and Apprenticeship.gov have begun a partnership which will enable TSA members and advisors to explore how apprenticeship programs can launch high-skilled, family-sustaining careers. Apprenticeship is a demand-driven, high-quality career pathway through which employers can develop and prepare their future workforce—and individuals can obtain paid work experience, classroom instruction, and a portable credential to earn and learn.

For some chapter advisors, your school may already offer a youth apprenticeship program where TSA members can take what they are learning and apply it at the next level. If not, you may want to explore if your school can start an apprenticeship program.

To learn more, please visit Apprenticeship.gov, which features new interactive resources to support the scaling of apprenticeship, including information to help middle school students explore careers and apprenticeships, stories of youth apprentices, and resources to help high school educators build an apprenticeship program.

# WHAT IS APPRENTICESHIP?

Apprenticeship is a career pathway where individuals can earn and learn at the same time!

## BENEFITS OF BECOMING AN APPRENTICE

**Paid Work**
Earn a paycheck from day one

**Classroom Training**
Gain knowledge and a quality education

**Mentorship**
Connect with people who can teach you

**Work-Based Learning**
Get hands-on industry training

**Portable Credentials**
Receive an industry-recognized credential

## EXAMPLES OF CAREER PATHWAYS

**INDUSTRY:** Information Technology
**CAREER:** Computer Programmer

**INDUSTRY:** Energy
**CAREER:** Solar Installer

**INDUSTRY:** Advanced Manufacturing
**CAREER:** Mechatronics Technician

**INDUSTRY:** Telecommunications
**CAREER:** Fiber Optic Technician

**INDUSTRY:** Healthcare
**CAREER:** Medical Coder

**INDUSTRY:** Finance and Business
**CAREER:** Banking Underwriter

**APPRENTICESHIP.GOV** Your new career is a click away. Visit **Apprenticeship.gov** for more information and to search among thousands of available jobs!

# MIDDLE SCHOOL COMPETITIVE EVENTS

## NEW EVENTS

- Cybersecurity
- Data Science and Analytics
- Foundations of Information Technology (FIT)

## 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

CAD Foundations

Career Prep

Challenging Technology Issues

Chapter Team

Children's Stories

Coding

Community Service Video

Construction Challenge

Cybersecurity

Data Science and Analytics

Digital Photography

Dragster

Electrical Applications

Essays on Technology

Flight

Forensic Technology

Foundations of Information Technology (FIT)

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

Website Design

# COMPETITIVE EVENTS ELIGIBILITY

| 2020 & 2021 MIDDLE SCHOOL COMPETITIONS | ELIGIBILITY |
|---|---|
| Each participant/team shall submit only one [1] entry for the following competitive events. | |
| Biotechnology | three (3) teams per state |
| CAD Foundations | two (2) individuals per state |
| 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 may participate; a team of one (1) individual is permitted |
| Coding | one (1) team of two (2) individuals per chapter |
| Community Service Video | one (1) team per chapter may participate; a team of one (1) is permitted |
| Construction Challenge | one (1) team per chapter |
| Cybersecurity | one (1) individual; two (2) members per chapter |
| Data Science and Analytics | three (3) teams of two to three (2-3) individuals per state are permitted |
| Digital Photography | three (3) individuals per state |
| Dragster | two (2) individuals per chapter, one (1) entry each |
| 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, one (1) entry each |
| Forensic Technology | one (1) team of two (2) individuals per chapter |
| Foundations of Information Technology (FIT) | one (1) individual; two (2) members per chapter |
| Inventions and Innovations | one (1) team of at least three (3) 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 two (2) individuals per chapter |
| Mechanical Engineering | one (1) team of three to six (3-6) members per chapter |
| Medical Technology | three (3) teams of at least two (2) individuals per team |
| Microcontroller Design | one (1) team per chapter may participate; a team of one (1) individual is permitted |
| Off the Grid | three (3) teams per state may participate; a team of one (1) is 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 at least two (2) individuals per chapter |
| Website Design | one (1) team of three to six (3-6) individuals per chapter |

# TSA COMPETITIVE EVENTS RATING FORM/RUBRIC

*The Technology Student Association (TSA) Middle School Competitive Events Guide for the 2020 & 2021 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

Advances in science have had a tremendous impact in the area of biotechnology, helping us grow more disease resistant plants, using our planet's resources more wisely, and understanding and using genetic engineering to our benefit. In this event, participants conduct research on a contemporary biotechnology issue of their choosing, document their research (student-performed research or a re-creation or simulation of research performed by the scientific community), and create a display. If appropriate, a model or prototype depicting an aspect of the issue may be included in the display. Semifinalist teams create a presentation and are interviewed about their topic.

Biotechnology is "any technique that uses living organisms, or parts of organisms, to make or modify products, improve plants or animals, or to develop microorganisms for specific purposes." – from *Standards for Technological Literacy*, ITEEA.

## ELIGIBILITY

Three (3) teams per state may participate.

## TIME LIMITS

Ten (10) minutes are allowed for the semifinalist presentation/interview.

## LEAP REPORT

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Team members select a contemporary issue concerning biotechnology.

2. Team members research the issue using resources, including—but not limited to—books, interviews, websites, magazines, professional journals, etc.

3. Team members prepare their documentation and display according to the regulations.

### PRELIMINARY ROUND

1. Participants report to the event area at the time and place stated in the conference program and submit a hard copy of the LEAP Response with no report cover.

2. No more than two (2) team members set up the display.

3. Entries are evaluated by judges with neither students nor advisors present.

4. A list of twelve (12) semifinalist teams (in random order) will be posted.

### SEMIFINAL ROUND

1. A representative from each semifinalist team will report at the time and location stated in the conference program to schedule a presentation/interview time.

2. A minimum of two (2) and a maximum of three (3) members of each semifinalist team report to the event area at the designated time and place.

3. Semifinalist team members will use their display and documentation for reference during the presentation/interview.

4. Semifinalists are allowed ten (10) minutes for the presentation/interview.

5. The LEAP Response will be judged in addition to the semifinalist presentation/interview.

6. Team members pick up their entry from the display area at the time and place stated in the conference program.

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

## REGULATIONS AND REQUIREMENTS

### 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. Documentation:

1. Documentation materials (comprising a "portfolio") are required and must be secured in a clear front report cover (click here for a sample) including 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

   c. Definition and explanation of the issue; one (1) page

   d. Research base: An explanation of the importance of the issue in human life today, including possible problems and solutions; maximum three (3) pages.

   e. Support materials such as logs, graphs, sketches, drawings, illustrations, photographs, etc.; maximum four (4) pages

   f. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible, and comments (see Forms Appendix: Plan of Work Log)

   g. A list of references and credible resources; a minimum of three (3) different types of resources must be used; examples of resources include, but are not limited to, books, interviews, professional journals, websites, magazines, etc; pages as needed.

   h. Work must be original or cited. For details, refer to the General Rules and Regulations.

C. Display guidelines:

1. The size of the display may not exceed 15" deep x 3' wide x 4' high.

2. Models or prototypes, if included, must fit within the allotted display space.

3. A/C electricity may not be used.

4. Dry cell or photo-voltaic cells may be used for power, if desired.

5. Any power source used must fit within the maximum display area.

6. If operating instructions are necessary, they must be clearly displayed.

7. Violation of the following will result in disqualification:

   a. No viruses, live plants, or animals may be used as a part of the display.

   b. No harmful or illegal substances may be displayed.

### SEMIFINAL ROUND

A. The semifinalist presentation/interview must include two to three (2-3) team members.

B. No more than two (2) team members may check in the entry and documentation.

C. Semifinalist team members will use their display and documentation for reference during the presentation/interview.

D. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

1. The documentation
2. The display
3. The semifinalist presentation/interview
4. The content and quality of the LEAP Response

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

# BIOTECHNOLOGY
## 2020 & 2021 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 is present
☐ Display is present
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

### DOCUMENTATION (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 (X1) | Portfolio is unorganized and/or missing three (3) or more components. | Portfolio has most components and it is somewhat organized. | Only one (1) or none of the components are missing in the portfolio; content and organization are clearly evident. | |
| Definition and explanation of issue (X1) | Definition and explanation of the issue are unclear. | Issue is defined and explained appropriately. | Clear and concise definition and explanation of the issue are 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 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. | |
| 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. | |
| **DOCUMENTATION SUBTOTAL (50 points)** | | | | |

### DISPLAY (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 | |
| Definition and explanation of the issue and solution (X1) | Unclear definition and explanation of the issue are 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, clear, and concise manner. | |

## DISPLAY (90 points) – continued

| | | | |
|---|---|---|---|
| **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) | Support information does not help to clarify documentation, and/or it is of little significance to the issue. | Support information is appropriate and helps supplement the documentation by providing clarity to the issue. | Support information is highly effective and of excellent quality. |
| **Research, references, and resources** (X1) | Documentation lacks an adequate research base, and/or very few credible sources are referenced. | Research is conducted appropriately, with adequate credible sources. | 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 organized somewhat concisely. | 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 organized somewhat concisely. | 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. |
| | | | **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: _____

| |
|---|
| **PRELIMINARY SUBTOTAL (140 points)** |

## SEMIFINAL PRESENTATION/INTERVIEW (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 | |
| **Organization** (X1) | Participants seem unorganized and unprepared for the presentation/interview, with an illogical explanation of the problem and solution. | Participants are generally prepared for the presentation/interview; the explanation of problem and solution are communicated and generally organized. | The presentation/interview 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 an understanding of the concepts in their project. | Participants show clear evidence of a thorough understanding of the project. | |

## SEMIFINAL PRESENTATION/INTERVIEW (80 points) – continued

| | | | | |
|---|---|---|---|---|
| Articulation (X1) | The presentation/interview is full of illogical thoughts that lack clarity, and/or there is insufficient information provided describing the project. | The presentation/interview is somewhat logical, generally easyto follow, and/or there is sufficient information provided describing the project. | The presentation/interview is clear, concise, and there is ample information provided describing the project. | |
| Delivery (X1) | The team is verbose and/or uncertain in its presentation/interview; participants' posture, gestures, and lack of eye contact diminish the delivery. | The team is somewhat well-spoken and clear in its presentation/interview; participants' posture, gestures, and eye contact result in an acceptable delivery. | 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. | |
| Team participation (X1) | The majority of the presentation/interview is made by one member of the team; the partner(s) 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. | |
| LEAP Response (20 points; 10% of total event points) | The team's efforts are not clearly communicated, lack detail, and/or are unconvincing; few, if any, attempts are made to identify and/or incorporate the SLC Practices and Behaviors. | The team's efforts are adequately communicated, include some detail, are clear, and/or are generally convincing; identification and/or incorporation of the SLC Practices and Behaviors is adequate. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and/or incorporation of the SLC Practices and Behaviors is excellent. | |
| **SEMIFINAL PRESENTATION/INTERVIEW 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.<br><br>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 (220 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 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. Measuring tape for judges

C. Display tables for entries

D. Table and chairs for event coordinator and judges

## RESPONSIBILITIES

### AT THE CONFERENCE

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

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

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

4. 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.

5. 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

1. Check in the entries at the time and place stated in the conference program.

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

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

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

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

6. Instruct participants to position displays for viewing.

## PRELIMINARY ROUND

1. Judges independently assess the entries.

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

   • To deduct twenty percent (20%) of the total possible points in this round

   • To disqualify the entry

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

3. Judges determine the twelve (12) semifinalists.

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

## SEMIFINAL ROUND

1. Meet with semifinalist judges and review time limits, procedures, and regulations, including the LEAP judging protocol. If questions arise that cannot be answered, speak to the event manager before the event begins.

2. Oversee semifinalist presentations/interviews.

3. Judges use the same official rating form for both the preliminary and semifinal round of evaluation.

4. Judges independently assess the entries.

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

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

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

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

# CAD FOUNDATIONS

## OVERVIEW

Participants in this event have the opportunity to 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

### PRELIMINARY ROUND

1. Thirty (30) minutes set-up time
2. Two (2) hours to develop the drawing(s)
3. One (1) hour for evaluation

## LEAP PROGRAM

An individual LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRELIMINARY ROUND

1. Participants report to the event area at the time and place stated in the conference program and submit a hard copy of the LEAP Response with no report cover.
2. 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.
3. Participants are given a design problem to solve during a two (2)-hour work session.
4. Participants work independently, without assistance from judges, teachers, fellow participants, other students, or observers.

5. At the end of the session, participants save their work on their hard drives and back up saved work on a USB flash drive. All USB Flash drives become the property of TSA and will not be returned.
6. One (1) additional hour is spent interviewing participants and evaluating the entries from each participant's computer monitor.
7. Participants break down and remove their equipment.

### SEMIFINAL ROUND

1. The LEAP Response will be judged for semifinalists.
2. Ten (10) finalists will be announced during the conference awards ceremony.

## REGULATIONS AND REQUIREMENTS

### PRELIMINARY ROUND

A. Participants provide:
1. Their own system, including hardware and CAD software.
   a. Only one [1] CPU and one [1] monitor are allowed per student
   b. Laptop computers are recommended
   c. Computers must be equipped with a USB port
2. One blank USB flash drive labeled with the registered student identification number, for submission (to become property of TSA)
3. Power strip/surge protector
4. 20' extension cord
5. Reference materials, which must be printed resources; no online resources will be allowed
6. Pencils
7. It is not necessary to bring a printer for this event.

B. Participants will be provided with sketching paper and electricity.

C. Participants are advised to save their work onto their hard drives every fifteen (15) minutes.

D.  TSA DOES NOT provide internet for students. The software students intend to use for the competition MUST be pre-loaded directly on their machines.

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.

E.  Participants identify their work using only their student identification number.

F.  Breakdown of equipment is permitted only after the work of all participants has been evaluated.

### SEMIFINAL ROUND

A.  The LEAP Response:

1.  Participants document the leadership skills they have developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

2.  Find the specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA website.

### EVALUATION

1.  The quality of the entry submitted for the on-site problem

2.  The content and quality of the LEAP Response

Refer to the official rating form for more information.

### STEM INTEGRATION

This event aligns with the STEM educational standards of Science, Technology, Engineering, and Mathematics.

### CAREERS RELATED TO THIS EVENT

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

• Engineer
• Automobile designer
• CAD professional
• Machine designer

# CAD FOUNDATIONS
## 2020 & 2021 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/monitor or laptop, CAD software, extension cord, power strip, and a flash drive are present.

☐ Completed LEAP Response is present

☐ ENTRY NOT EVALUATED

### LAYOUT (70 points)

Record scores in the column spaces below.

| CRITERIA | Minimal performance 1-4 points | Adequate performance 5-8 points | Exemplary performance 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 1-4 points | Adequate performance 5-8 points | Exemplary performance 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. | |

# CAD FOUNDATIONS

| | |
|---|---|
| **SOFTWARE UTILIZATION 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 (100 points)** | |

## SEMIFINAL LEAP RESPONSE (10 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| | 1-4 points | 5-8 points | 9-10 points | |
| **LEAP Response** (10% of total event points) | The individual's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The individual's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The individual's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| **SEMIFINAL LEAP RESPONSE SUBTOTAL (10 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 (10 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: _____

# CAD FOUNDATIONS
# 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 completed the preliminary round)

C. Assistants, one (1)

## 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. 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

## RESPONSIBILITIES

### AT THE CONFERENCE

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

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

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

4. 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.

5. 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

1. Check the registration list and assign participants to work stations.

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

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

4. All participants and judges should be in the room at this time. Participants not present may be disqualified.

5. Allow thirty (30) minutes for participants and their assistants (no more than one [1] per participant) to set up equipment.

6. At the end of the thirty (30)-minute set-up time, non-participants are required to leave the event area.

7. Review the time limits, procedures, regulations, and protocol of the event with the participants.

8. Distribute copies of the CAD problem.

9. Remind participants to save their work at regular time intervals.

10. Answer any appropriate questions concerning the CAD problem.

11. Begin the event and announce the ending time.

12. Judges and assistants monitor and evaluate participant progress and work.

13. Announce the time remaining to work at one (1) hour, thirty (30) minutes, fifteen (15) minutes, and five (5) minutes before time is called.

14. When time is called, participants stop, save their work on their hard drives, and back-up on their USB flash drives.

15. Each entry must include the student's identification number.

16. 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.

17. Judges independently assess the entries.

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

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

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

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

20. Judges determine the twelve (12) semifinalists.

**SEMIFINAL ROUND**

1. Judges independently evaluate the LEAP Response for each semifinalist participant using the official rating form.

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

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

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

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

# CAREER PREP

## OVERVIEW

Participants conduct research on a selected technology-related career according to a theme posted on the TSA website, and use this knowledge to prepare a letter of introduction and a chronological skills resume. The required documentation is submitted online, pre-conference, as a multipage PDF document. Semifinalists participate in a mock interview for the on-site challenge.

## ELIGIBILITY

One (1) individual per chapter may participate.

## TIME LIMITS

### PRELIMINARY ROUND

1. All components of the chapter's entry must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on May 15th.

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

3. Email verification of each team's entry will be made by June 10th.

### SEMIFINAL ROUND

1. Semifinalists participate in a mock interview of approximately ten (10) minutes.

## LEAP

An individual LEAP Response is required for this event.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Participants research a selected technology-related career according to a theme posted on the TSA website.

2. Participants prepare a letter of introduction and a chronological skills resume.

3. Participants submit the entry and the LEAP Response by 11:59 p.m. EST on May 15th. Submission information will be provided on the TSA website under Competition Updates.

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

5. Email verification of each team's entry will be made by June 10th.

### PRELIMINARY ROUND

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

### SEMIFINAL ROUND

1. Semifinalists report to the event area at the time and place stated in the conference program to schedule and participate in a mock interview.

2. **Simulating a real interview, semifinalists will bring with them an additional printed copy of their resume along with a LEAP response to the judges at the time of the interview.**

3. The LEAP Response will be judged for semifinalists.

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

## REGULATIONS AND REQUIREMENTS

### PRE-CONFERENCE

A. Participants access the theme for the specific year's career on the TSA Website under Competitions/Themes and Problems.

B. 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 letter of introduction.

C. In preparation for this event, participants thoroughly research the identified career and must be able to answer job-specific questions.

D. The job-specific letter of introduction, resume, and LEAP Response must be completed prior to the event.

E. Participants should use fictitious home address and telephone number information when completing the documents, **however, correct participant names must be used.**

F. Each participant submits a PDF of:

1. The letter of introduction:
   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

3. LEAP Response:
   a. Participants document the leadership skills they have developed and demonstrated while working on this event and on a non-competitive event leadership experience.
   b. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

G. The documentation must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on May 15th.

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

2. A PDF of the team LEAP Response must be submitted with the event entry. The submission form will have a separate place to upload this response from the required documentation.

3. Entries that require a request for access be granted will not be judged.

## SEMIFINAL ROUND

A. Participants report to the place stated in the conference program at the designated time with:

1. A hard-copy of the resume
2. A hard-copy of the LEAP Response.

B. Semifinalists participate in a mock interview.

## EVALUATION

1. The quality of the resume and letter of introduction.

2. The mock interview.

3. The content and quality of the LEAP Response (semifinalists only).

Refer to the official rating form for more information

## STEM INTEGRATION

This event aligns with the STEM educational standards of Science, Technology, and Engineering.

## 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.

# CAREER PREP
## 2020 & 2021 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 was submitted pre-conference and judged
☐ A completed LEAP Response
☐ ENTRY NOT EVALUATED

| LETTER OF INTRODUCTION (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. | |
| **LETTER OF INTRODUCTION SUBTOTAL (40 points)** | | | | |

## EVENT SPECIFIC RESUME (40 points)

| 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. | |
| EVENT 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 INTERVIEW (63 points)

| 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 communicated and generally organized. | Interview is logical, well organized, and easy to follow; the career choice is communicated in an organized and 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 INTERVIEW (63 points) – continued | | | | |
|---|---|---|---|---|
| **Articulation**<br>(X1) | Interview is full of illogical thoughts that lack clarity, and/or there is insufficient information provided about the career choice. | Interview is somewhat logical, easy-to-follow, and/or there is sufficient information provided describing the career choice. | The interview is clear and concise, and there is ample information provided about the career choice. | |
| **LEAP Response**<br>(13 points;<br>10% of total<br>event points) | The individual's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The individual's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The individual's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | | **SEMIFINAL INTERVIEW SUBTOTAL (63 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.<br><br>Indicate the rule violated: _____ | |

| | |
|---|---|
| **SEMIFINAL SUBTOTAL (63 points)** | |

| | |
|---|---|
| **To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.**  **TOTAL (143 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 for written entries

2. Semifinal Round: Two (2) or more for semifinalist interviews (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 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/PRELIMINARY ROUND

1. National TSA will collect entries until 11:59 p.m. EST on May 15th and send out receipt confirmations to participants. The results will be shared with the CRC manager, event coordinator, and assigned judges.

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

3. 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.

4. Judges determine the twelve (12) semifinalists and discuss and break any ties. Results will be posted on-site at the national conference on the first full day of conference.

### AT THE CONFERENCE

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

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

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

4. 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.

5. 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.

### SEMIFINAL ROUND

1. Meet with semifinalist judges and review time limits, procedures, and regulations. If questions arise that can't be answered, speak to the event manager before the event begins.

2. Oversee semifinalist mock interviews.

3. Judges use the same official rating form for both the preliminary and semifinalist round of judging.

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

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

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

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

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

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

# CHALLENGING TECHNOLOGY ISSUES

## OVERVIEW

Team members work together to prepare and deliver a debate-style presentation with participants explaining opposing views of a current technology issue. The current year's topics will be posted on the TSA website under Competitions/Themes and Problems.

## ELIGIBILITY

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

## TIME LIMITS

Team presentation:

1. Preparation time: Fifteen (15) minutes
2. Presentation time: Must be a minimum of two (2) minutes up to a maximum of four (4) minutes
3. Both members of a team must be present at the time stated in the conference program.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRELIMINARY ROUND

1. Participants report to the event area at the time and place stated in the conference program to:
   a. Receive an assigned presentation time
   b. Submit a hard copy of the team's LEAP Response with no report cover
2. Teams report with their materials to the preparation room at the assigned time.

3. Using a random draw procedure:
   a. The coordinator will draw one (1) topic from those posted on the TSA website under Competitions/Themes and Problems.
   b. The topic will be written on index cards and given to each team in the preparation room.

4. At the end of the fifteen (15)-minute preparation time, each team will be escorted to the presentation room where the team will present opposing views of the selected issue.

5. A list of twelve (12) semifinalist teams (in random order) will be posted.

### SEMIFINAL ROUND

1. A representative from each semifinalist team will report at the time and location stated in the conference program to schedule a presentation time.
2. Semifinalist teams report to the preparation room at their assigned time for the same procedure used in the preliminary round.
3. The LEAP Response will be judged for semifinalist teams.
4. Ten (10) finalists will be announced during the conference awards ceremony.

## REGULATIONS AND REQUIREMENTS

### PRELIMINARY AND SEMIFINAL ROUNDS

A. The same regulations apply to both the preliminary and semifinal rounds of judging for this event.
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. The team will present on one (1) topic from the topics posted on the TSA website under Competitions/Themes and Problems.

2. Team may use first names ONLY and no other identifying information during their presentation.

3. Each team states the selected topic/issue when prompted by the judges.

4. After stating the selected issue, the presentation time will begin 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 will notify 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.

E. The LEAP Response:

1. Teams document the leadership skills they have developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

1. The effective presentation of opposing views of an issue

2. The content and quality of the LEAP Response (semifinalists only)

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 connects to one (1) or more of the careers below:

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

# CHALLENGING TECHNOLOGY ISSUES

## 2020 & 2021 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 completed LEAP Response 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; presentation is too effusive or too dull; language is questionable or inappropriate for the setting. | Presentation is respectful; language is appropriate for the setting and word choices are generally precise. | Language is appropriate for the setting and free of bias; 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)** | | | | |

## CHALLENGING TECHNOLOGY ISSUES

| CON SIDE (70 points) | | | | |
|---|---|---|---|---|
| **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; presentation is too effusive or too dull; language is questionable or inappropriate for the setting. | Presentation is respectful; language is appropriate for the setting and word choices are generally precise. | Language is appropriate for the setting and free of bias; 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) | | | | |
|---|---|---|---|---|
| **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. | Both team members are engaged in the debate, but one clearly takes the lead; the other member only replies to or refutes statements. | Both team members are actively involved in the presentation, debate, and rebuttals of the topic; shared responsibility is evident throughout. | |
| | | | **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.<br><br>Indicate the rule violated: _____ | |

| | |
|---|---|
| **SEMIFINAL SUBTOTAL (150 points)** | |

## SEMIFINAL LEAP RESPONSE (15 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| **LEAP Response** (10% of the total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | | **LEAP RESPONSE SUBTOTAL (15 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 (15 points)** | |

| | |
|---|---|
| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.          **TOTAL (165 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

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 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/issue 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

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

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

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

4. 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.

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

### PRESENTATION TIME SIGN-UP

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

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

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

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

5. When the teams report to the event area:

a. Assign times for their presentations. Times should be scheduled at ten (10)-minute intervals.

b. Depending upon the number of entries, heats may be necessary to determine semifinalists.

### PRELIMINARY ROUND

1. Preparation:

a. After each team reports to the preparation room at the assigned time and participants have been seated, review the time limits and distribute paper.

b. Present the team with the topic selected.

c. Start the time and inform participants of the end of the preparation time.

d. Monitor students during the preparation time and supply extra paper if needed.

e. At the end of the 15-minute preparation time, collect the topic and escort the team to the presentation room.

2. Presentation:

   a. 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.

   b. Judges tell the team to start, and timing the event begins.

   c. 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.

   d. Time is called at four (4) minutes, at which point the speakers must stop.

3. Judges independently assess the entries.

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

   • To deduct twenty percent (20%) of the total possible points in this round

   • To disqualify the entry

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

5. Judges determine the twelve (12) semifinalists.

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

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

## SEMIFINAL ROUND

1. At least one (1) hour before the event begins, 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.

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

3. Oversee semifinalist presentation/interviews:

   a. When the semifinalist teams report to the presentation room at their assigned times, follow the same procedure used in the preliminary round.

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

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

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

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

7. 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, in which they 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

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

### SEMIFINAL ROUND

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

2. 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).

3. The secretary will have five (5) additional minutes to complete the minutes of the meeting.

4. 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 |

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## 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

### PRELIMINARY ROUND

1. Participants report for the test at the time and place stated in the conference program and submit a hard copy of the LEAP Response with no report cover.

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

3. 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

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

2. Semifinalist teams report for oral presentations at the time and place stated in the conference program.

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

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

    b. Each team then closes the meeting according to the prescribed procedure.

    c. 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.

    d. The secretary will have five (5) additional minutes to complete the minutes of the meeting.

    e. The LEAP Response will be judged for semifinalist teams.

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

## REGULATIONS

### 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 written test individually.

    1. These same six (6) team members will 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 required parliamentary actions, items of business, set-up time, and a presentation.

    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.

G. The LEAP Response:

1. Teams document the leadership skills they have developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

2. Find specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA website.

## EVALUATION

1. Written exam—Scores on a test of fifty (50) questions determine the semifinalist teams for the oral presentation

   a. Each team's average written test score is used to determine the twelve (12) semifinalist teams.

   b. A team's average test score is included in the final results.

2. The content and quality of the LEAP Response (semifinalist teams only).

Refer to the official rating form for more information.

## NOTES

1. There are a number of ways to learn about parliamentary procedure. The standard reference is *Robert's Rules of Order, Newly Revised*. Information about parliamentary procedure websites may be found online at: www.rulesonline.com/parliamentary_procedure_websites.htm

2. 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 Technology and Engineering.

## 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.

# CHAPTER OPENING AND CLOSING CEREMONIES

## OPENING CEREMONY

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

# CHAPTER TEAM
## 2020 & 2021 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.

☐ Completed LEAP Report is present
☐ ENTRY NOT EVALUATED

---

**TEAM WRITTEN 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 WRITTEN 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 (210 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. | |

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| BUSINESS MEETING DEMONSTRATION (210 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 (160 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. |
| **LEAP Response** (20 points; 10% of total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. |
| **BUSINESS MEETING DEMONSTRATION SUBTOTAL (210 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 (210 points)**

| **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)** | |

| **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.<br><br># of intervals X 5 = _____ (total deduction) | |

| 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: _____

# 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 each judge

2. TSA Event Coordinator Report

3. List of judges/assistants

4. Copies of parliamentary procedures written 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, pens, one (1) 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

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

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

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

4. 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.

5. 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

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

2. All participants and evaluators should be in the room at this time.

3. 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.

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

5. Administer the written test.

6. Determine individual and team scores.

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

   • To deduct twenty percent (20%) of the total possible points in this round

   • To disqualify the entry

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

8. Submit semifinalist results to the CRC for posting.

SEMIFINAL ROUND

1. 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.

2. 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.

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

4. 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.

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

6. Judges determine the ten (10) finalists. Any ties should be broken by using the teams' written test scores.

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

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

# CHILDREN'S STORIES

## OVERVIEW

Participants create an illustrated children's story that will incorporate educational and social values. The story may be written in a genre of choice. Examples are fables, adventures, non-fiction, fiction, and fairy tales. The story must revolve around the theme chosen for the given year. The theme will be posted on the TSA website under Competitions/Themes and Problems.

What is a story? For the purposes of this event, the term "story" refers to all types of literature structures — fables, fairy tales, poems, or instructional literature — and the included illustrations.

Who is a child? For the purposes of this event, children are defined as those twelve (12) years or younger.

## ELIGIBILITY

Three (3) teams per state may participate; a team of one (1) individual is permitted.

## TIME LIMITS

### SEMIFINAL ROUND

1. Twelve (12) minutes per team are allotted to read the story and share the illustrations with judges.
2. An additional five (5) minutes are allotted to answer judges' questions.

## LEAP

An individual or team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. In preparation for the event (and throughout the story development), participants research 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.).

2. Participants develop a high-quality children's storybook with illustrations.
3. Participants "field test" their storybook and document outcomes and findings in a portfolio.

## PRELIMINARY ROUND

1. Participants report to the time and place stated in the conference program. No more than two (2) team members drop off the team's entry.
2. Participants check-in:
   a. The storybook
   b. A hard copy of the portfolio
   c. A hard copy of the LEAP Response with no report cover, separated from the portfolio
3. Storybooks and portfolios are reviewed by judges with neither students nor advisors present.
4. A list of twelve (12) semifinalist teams (in random order) will be posted.

## SEMIFINAL ROUND

1. Semifinalist teams report to the event area at the time and place stated in the conference program to sign-up for a reading and interview time. Teams must arrive on time, according to their sign-up time.
2. Semifinalist teams will be represented by no more than two (2) members.
3. One member will be the team's reader, who will read the story to the judges.
4. Both members will participate in the interview process following the reading of the story. The interview process will last up to five (5) minutes.
5. No more than two (2) team members pick up the team's entry from the display area at the time and place stated in the conference program.
6. The LEAP Response will be judged for semifinalist teams.
7. Ten (10) finalists will be announced during the conference award ceremony.

## REGULATIONS AND REQUIREMENTS

### 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.

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 between five (5) and ten (10) minutes to read and view.

5. The maximum reading time is twelve (12) minutes. There is not a minimum length assigned to the reading time.

6. The physical storybook must not exceed 12" x 12" when closed.

7. There is no limit on the number of inside pages (may be one or two-sided).

8. The team must determine which format best presents the team's narrative and illustrations.

9. 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.

10. The storybook may include the name of the author(s) and illustrator(s) on the cover.

11. Copyrighted material is NOT PERMITTED.

12. The physical storybook must be the original work of the team members.

13. If narrative or illustrations appear in the story and they are not authored by one of the team members, the team will be disqualified.

14. The book must be designed, engineered, created, and bound together solely by the team; no professional binding is allowed.

15. Photographic verification of the book construction process must be included in the portfolio.

16. 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.

17. Publishing rights remain with the authors and illustrators.

B. Documentation/Portfolio:

1. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover (click here for a sample) and submitted with the hard copy storybook.

2. The portfolio must include the following pages in a single, multi-page PDF document in this order:

   a. Title page with the title of the story, the event title, the conference city and state, the year, and the team/individual chapter ID number; 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. A Plan of Work log (see Forms Appendix) that describes the development of the narrative, illustrations, and physical storybook; pages as needed

    i. The Plan of Work log must include a summary of the storybook's assessment during a "field test" with a group of children within the age group specified in the current year's which is posted on the TSA website under Competitions/Themes and Problems.

    ii. A "field test" is a reading of the storybook to a group of children in the intended target age range, similar to the process outlined in the semifinal round.

    iii. Participants must document each field test and record outcomes and findings; pages as needed.

    iv. A minimum of two (2) "field tests" must be conducted.

    v. 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, not to exceed one (1) page.

i. References/research sources; one (1) page.

## PRELIMINARY ROUND

A. No more than two (2) team members drop off the team's entry: storybook, portfolio, and LEAP Response 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.**

## SEMIFINAL ROUND

A. Two (2) members of each semifinalist team will 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. The team's reader will be given up to twelve (12) minutes to read the story to the judges.

C. The other team member must be prepared to discuss illustrations included in the story.

D. Both team members will participate in the interview process (lasting up to five [5] minutes) following the reading of the story.

E. The LEAP Response:

    1. Teams document the leadership skills they have developed and demonstrated while working on this event and on a non-competitive event leadership experience.

    2. Find specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

1. The portfolio
2. The story (narrative and illustrations)
3. The physical construction of the storybook

### SEMIFINAL ROUND

1. The performance and animated reading of the story
2. The interview
3. The content and quality of the LEAP Response

Refer to the official rating form for more information.

## STEM INTEGRATION

Depending upon the subject of the story this event may align to one (1) or more STEM areas. Refer to the STEM Integration section of this guide for more information.

## CAREERS RELATED TO THIS EVENT

This competition connects to one (1) or more of the career areas below:

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

# CHILDREN'S STORIES
## 2020 & 2021 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
☐ Storybook is present
☐ The story is 1999 words or less (verified in portfolio)
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

| DOCUMENTATION (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 and is well organized. | |
| **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. | |
| **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. | |
| **Plan of Work log** (X1) | Log is poorly organized and/or incomplete. | Log is adequately detailed and organized and contains all the required components, including a record of the periodic readings to children. | Log is well documented and contains all the required components, with special attention given to periodic readings to children. | |
| **Professional and technical information** (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 clear and complete. | Summary of the research, design, and writing process is very well written, detailed, clear, and complete. | |
| **Research base** (X2) | There are few references listed, and/or the references listed show little relevance to the project's goal. | There are a sufficient number of references listed; the quality is good. | Many quality references are listed, reflecting research in writing and illustrating for children, and in child development. | |
| **DOCUMENTATION SUBTOTAL (80 points)** | | | | |

# CHILDREN'S STORIES

| STORYBOOK (130 points) | | | |
|---|---|---|---|
| **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; is poorly constructed or is not bound. | Construction of the book is of good quality and demonstrates some degree of creativity and innovation; demonstrates 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** (X4) | 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 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. |
| **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: _____

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 (54 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. | |
| **Interview** (X2) | Team's responses to the judges' questions are incomplete and/or poorly articulated; responses show little understanding of the research or development of the project. | Team answers most of the judges' questions; team's answers are articulate and show some understanding of most of the concepts addressed in the project. | Team's responses to the judges' questions are detailed and articulate; answers reflect a high degree of understanding of the development of children's literature, including the artistic and technical concepts in both writing and illustrating for children. | |
| **LEAP Response/ Interview** (24 points; 10% of the total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| **SEMIFINAL READING AND INTERVIEW SUBTOTAL (54 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 (54 points)** | |

| | |
|---|---|
| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.    **TOTAL (264 points)** | |

Comments:

_____

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

JUDGE

Printed name: _____   Signature: _____

Technology Student Association (TSA) Middle School Competitive Events Guide for the 2020 and 2021 National TSA Conferences

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# CHILDREN'S STORIES
# EVENT COORDINATOR INSTRUCTIONS

## PERSONNEL

A. Event coordinator

B. Judges:

 1. Preliminary round, two (2) or more for portfolio judging

 2. Semifinal round, two (2) or more for semifinalist readings/interviews

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

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

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

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

 4. 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.

 5. 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

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

 2. Participants check-in:

 a. The storybook

 b. A hard copy of the portfolio

 c. A hard copy of the LEAP Response with no report cover, separated from the portfolio

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

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

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

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

 7. Position the entries for evaluation and viewing.

 8. Secure the entries in the designated area.

### PRELIMINARY ROUND

 1. Judges independently assess the entries.

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

 • To deduct twenty percent (20%) of the total possible points in this round

 • To disqualify the entry

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

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

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

## SEMIFINAL ROUND

1. Inspect the area in which the readings/interviews are to take place. Ensure that there is a table and seating for the interviews.

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

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

4. Conduct semifinalist readings/interviews using the same official rating form used for the preliminary round. Judges should be sure to ask interview questions.

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

6. Two (2) members of each semifinalist team will report to the event area at the time and place stated in the conference program to sign up for a reading and interview time.

7. The team's reader will be given up to twelve (12) minutes to read the story to the judges.

8. The other team member must be prepared to discuss illustrations included in the story.

9. Both team members will participate in the interview process (lasting up to five [5] minutes) following the reading of the story.

10. Judges score the presentations and LEAP Response.

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

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

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

# CODING

## OVERVIEW

Participants will demonstrate their knowledge of computer science and coding by taking a written test. Semifinalists will further demonstrate their programming knowledge by participating in an on-site programming challenge. Details about the on-site challenge (e.g., programming language to be used and practice problems) can be found on the TSA website under Competitions/Themes and Problems.

## ELIGIBILITY

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

## TIME LIMITS

### PRELIMINARY ROUND

1. Participants have one (1) hour to complete the written test; all participants will take the test simultaneously.

### SEMIFINAL ROUND

1. Participants have two (2) hours to complete the on-site challenge.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRELIMINARY ROUND

1. Participants report for the test at the time and place stated in the conference program and submit a hard copy of the LEAP Response with no report cover.
2. Both team members take the written test.
3. The top twelve (12) averaged scoring teams qualify as semifinalists.
4. A list of twelve (12) semifinalist teams (in random order) will be posted.

### SEMIFINAL ROUND

1. Semifinalist teams report at the time and place stated in the conference program.
2. The problem, evaluation criteria, and materials will be distributed to the teams on-site.
3. Participants must provide their own computer hardware and software.
4. Teams have two (2) hours to design and present their solution.
5. The LEAP Response will be judged for semifinalist teams.
6. Ten (10) finalists will be announced during the conference awards ceremony.

## REGULATIONS AND REQUIREMENTS

### PRELIMINARY ROUND

A. Participants will take a multiple choice test to evaluate their knowledge of software development, coding, operating systems, programming languages and algorithms.
B. Tests may be administered online or via a scan-type answer sheet. Please review the Competition Updates page on the TSA website.
C. Participants are responsible for bringing two (2) sharpened No.2 pencils to the test site.

### SEMIFINAL ROUND

A. All work must be completed in the event area during the time specified for the event.
B. 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. Teams do NOT have access to electrical power/outlets during the event.
D. Teams do NOT have access to the Internet during the event.

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

F.  All solutions must be tested, demonstrated and presented by participants in front of the judges.

G.  The LEAP Response:

1.  Participants document the leadership skills they have developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

2.  Find specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

1.  Each team's averaged written test score is used to determine the twelve (12) semifinalist teams.

### SEMIFINAL ROUND

1.  Semifinalists will be evaluated on the solution to the on-site problem, and the content and quality of their LEAP Response.

    a.  Each problem in the programming challenge will have an objective correct answer.

    b.  Second-best attempts or other objective criteria will be used to break ties when necessary.

    c.  Only as a last resort will subjective criteria, such as originality, be used to evaluate solutions.

## STEM INTEGRATION

Depending upon the subject of the problem, this event may align to one (1) or more STEM areas.

## CAREERS RELATED TO THIS EVENT

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

• Computer software engineer
• Mathematician

# CODING

## 2020 & 2021 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 is present
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

| WRITTEN TEST (50 points) | |
|---|---|
| WRITTEN 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) | |
|---|---|

Record scores in the column spaces below.

| ON-SITE PROBLEM – SUBJECTIVE (20 points) | | | | |
|---|---|---|---|---|
| **CRITERIA** | Minimal performance | Adequate performance | Exemplary performance | |
| | 1-4 points | 5-8 points | 9-10 points | |
| **Subjective criteria** (X2) | Team did not work well together, did not understand solution, and did not demonstrate an understanding of coding practices. | Team worked reasonably well together; team demonstrates an adequate understanding of the problem solutions and of coding practices. | Team works well together and demonstrates superior understanding of the solution and of coding practices. | |
| ON-SITE PROBLEM (SUBJECTIVE) SUBTOTAL (20 points) | | | | |

## ON-SITE PROBLEM – OBJECTIVE (80 points)

**Evaluation:** A finite unit of measure, such as elapsed time, linear distance, and/or strength, etc., is used to determine ranking.

| | | | | |
|---|---|---|---|---|
| **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)**

## LEAP RESPONSE (15 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance |
|---|---|---|---|
| **LEAP Response** (10% of the total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. |

**LEAP RESPONSE SUBTOTAL (15 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 (15 points)**

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL (165 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:

1. Semifinalist round, two (2) or more

C. Assistants to help check-in, distribute materials, monitor the tasks, and the clean up of the on-site activity, 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. 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

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

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

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

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

4. 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.

5. At least one (1) hour before the event is to begin, 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.

### PRELIMINARY ROUND

1. 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).

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

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

3. 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.

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

5. Distribute any neccessary materials.

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

7. Score the exams.

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

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

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

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

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

## SEMIFINAL ROUND

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

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

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

3. Teams do NOT have access to electrical power/outlets during the event.

4. Teams do NOT have access to the Internet during the event.

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

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

7. 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.

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

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

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

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

# COMMUNITY SERVICE VIDEO

## OVERVIEW

Participants create and submit a video that depicts their local TSA chapter's involvement with a community service project (such as the American Cancer Society) of their choice.

## ELIGIBILITY

One (1) team per chapter may participate. A team of one (1) individual is permitted.

## TIME LIMITS

1. All components of the chapter's entry must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on May 15th.

2. Email verification of each team's entry will be made by June 10th.

3. The video cannot exceed a duration of more than two and one-half (2½) minutes.

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

5. There is no minimum length restriction.

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

## LEAP

A team LEAP Response is required for this event.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Teams identify a community service project.

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

3. Participants submit a community service video and the team LEAP Response by 11:59 p.m. EST on May 15th.

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

### PRELIMINARY ROUND

1. A list of twelve (12) semifinalist teams (in random order) will be posted at the National TSA Conference.

### SEMIFINAL ROUND

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

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

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

4. The LEAP Response will be judged for semifinalists.

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

## REGULATIONS AND REQUIREMENTS

### 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 they may choose to upload the video. 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. The video entry must be submitted in a common video format suitable for viewing with VLC Player, utilizing a Microsoft Windows operating system.

F. This entry is exempt from General Rule F.8, which states that a chapter name must not appear in an entry.

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

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

I. Supporting Documentation:

1. Participants must complete the Student Copyright Checklist (see Forms Appendix) and save it as a PDF to be submitted electronically with the entry online. The submission form will have a separate link for documentation. .

2. If the entry contains images of people, proof of consent must be provided for each person in the video.

   - Minors require parental consent.
   - Use the Photo/Film/Video Consent and Release form (see Forms Appendix) for any individuals included in the video footage.
   - Participants must scan each completed consent form and save it as a PDF file to be submitted pre-conference.

### SEMIFINAL ROUND

A. Semifinalist teams comprised of two to six (2-6) members will have a maximum of five (5) minutes to respond to interview questions from judges.

B. The LEAP Response:

1. Participants document the leadership skills they have developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

2. Find specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA website.

## EVALUATION

1. The effectiveness of the video in portraying and highlighting the TSA chapter's involvement with a community service partner of their choice over the course of an academic year.

2. The content and quality of the LEAP Response (semifinalists only).

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 connects to one (1) or more of the careers below:

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

# COMMUNITY SERVICE VIDEO

## 2020 & 2021 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 pre-conference and judged.
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

| VIDEO PRODUCTION (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 | |
| **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)** | | | | |

# COMMUNITY SERVICE VIDEO

## VIDEO EFFECTIVENESS (100 points)

| CRITERIA | Minimal performance<br>1-4 points | Adequate performance<br>5-8 points | Exemplary performance<br>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 and one-half (2½) minutes. The video timing commences from the first sound or picture to the final sound or picture.

**PRELIMINARY SUBTOTAL (150 points)**

## SEMIFINAL INTERVIEW (59 points)

| CRITERIA | Minimal performance<br>1-4 points | Adequate performance<br>5-8 points | Exemplary performance<br>9-10 points | |
|---|---|---|---|---|
| Organization (X1) | Participants seem unorganized and unprepared; an illogical explanation of the design process is given. | Participants are generally prepared; explanation of the design process is communicated and generally organized. | The presentation/interview is logical, well organized, and easy to follow; the design process is communicated in a concise manner. | |
| Knowledge (X1) | 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. | |

| SEMIFINAL INTERVIEW (70 points) – continued | | | | |
|---|---|---|---|---|
| **Articulation**<br>(X1) | 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**<br>(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. | |
| **LEAP Response**<br>(19 points;<br>10% of total<br>event points) | The team/individual's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices | The team/individual's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team/individual's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | | **SEMIFINAL INTERVIEW SUBTOTAL (59 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 (59 points)** | |

| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.      **TOTAL (209 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 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/PRELIMINARY ROUND

1. National TSA will collect entries until 11:59 p.m. EST on May 15th and send out receipt confirmations to participants. The results will be shared with the CRC manager, event coordinator, and assigned judges.

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

3. 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.

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

### AT THE CONFERENCE

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

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

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

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

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

### SEMIFINAL ROUND

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

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

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

4. Manage completion of the on-site interviews and evaluate the LEAP Response.

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

   - To deduct twenty percent (20%) of the total possible points in this round

   - To disqualify the entry

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

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

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

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

# CONSTRUCTION CHALLENGE

## OVERVIEW

Participants submit a scale model/prototype, display, and portfolio that documents the use of their leadership and technical skills, to fulfill an identified community need related to construction. Semifinalists discuss their projects in a presentation and an interview.

## ELIGIBILITY

One (1) team per chapter may participate. Two to four (2-4) representatives per team may participate for the semifinalist presentation/interview.

## TIME LIMITS

### PRELIMINARY ROUND

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

### SEMIFINAL ROUND

1. Semifinalists have a maximum of ten (10) minutes to present and discuss their chapter's participation in a project and to answer the judges' questions.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Teams identify a community need related to construction and conduct research.
2. Teams create a scale model/prototype, display, and portfolio observing the regulations outlined in this guide.

### PRELIMINARY ROUND

1. No more than two (2) team members report to the time and place stated in the conference program to set up.

2. Participants check in:
   - The entry (scale model/prototype)
   - A display
   - A portfolio
   - A hard copy of the LEAP Response with no report cover, separated from the portfolio.

3. Entries are reviewed by judges. Neither students nor advisors are present at this time.

4. A list of twelve (12) semifinalist teams (in random order) will be posted.

### SEMIFINAL ROUND

1. A representative from each semifinalist team will report at the time and location stated in the conference program to schedule a presentation/interview time.

2. Two to four (2-4) representatives from each team meet with the event coordinator and judges at the designated time to give a brief presentation, discuss their chapter's community project, and answer the questions of the judges.

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

4. The LEAP Response will be judged for semifinalist teams.

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

## REGULATIONS AND REQUIREMENTS

### PRE-CONFERENCE

A. Chapters document involvement with the community through the use of a project journal (that provides in detail both student and community involvement), letters, interviews, pictures, newspaper clippings, or other such evidence.

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

E. Documentation:

1. Documentation materials (comprising a "portfolio") are required and must be secured in a clear front report cover (click here for a sample).

2. The report cover must include 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

   c. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible and comments (see Plan of Work log); pages as needed

   d. Project journal, letters from community members that verify chapter involvement, pictures of the project, newspaper clippings, and other relevant materials; 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. Research provided on the community need for the project; pages as needed

   g. Strategies and recommendations of the team that will address the community need; up to three (3) examples

F. If the entry (scale model/prototype or portfolio) contains images of people, proof of consent must be provided.

1. Minors require parental consent. (See Photo/Film/Video Consent and Release form in Forms Appendix)

2. The consent forms do not count in the page limits identified in Regulation E2.

G. 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. The chapter name or other identifying information may appear in the entry (only in newspaper clippings, photographs, etc.).

5. Identifying information must not be placed on the scale model/prototype, display, or in the portfolio for the purpose of revealing the TSA chapter.

   a. The entry is excluded from General Rule D.8.

## PRELIMINARY ROUND

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

## SEMIFINAL ROUND

A. Semifinalist teams comprised of two to four (2-4) members will have a maximum of ten (10) minutes to present and respond to interview questions from judges.

B. The LEAP Response:

1. Teams document the leadership skills they have developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION
### PRELIMINARY ROUND

1. Participants' involvement in a community project.

### SEMIFINAL ROUND

1. Points are awarded points based on a semifinalist presentation/interview, and the content and quality of the LEAP Response.

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 connects to one (1) or more of the careers below:

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

# CONSTRUCTION CHALLENGE

## 2020 & 2021 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
☐ Model/Prototype is present
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

### DISPLAY (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 | |
| Overall aesthetics (X2) | Model/prototype and display is sloppy and does not represent the project. | Model/prototype and display has some design flaws, but it represents the project. | Model/prototype and display has a high quality of craftsmanship and clearly depicts the project. | |
| | | | DISPLAY SUBTOTAL (20 points) | |

### 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 contents See Regulation E.2 (X1) | Portfolio is unorganized and/or is missing three (3) components. | Portfolio is generally organized but is missing two (2) components. | Portfolio content and organization are clearly evident; one (1) or no components may be missing. | |
| 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 time line (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. | |

## PORTFOLIO (30 points) – continued

| | Minimal | Adequate | Exemplary | |
|---|---|---|---|---|
| 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. | |
| | | | **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. <br><br> Indicate the rule violated: _____ | |

| | |
|---|---|
| **PRELIMINARY SUBTOTAL (70 points)** | |

## SEMIFINAL PRESENTATION/INTERVIEW (62 points)

| CRITERIA | Minimal performance 1-4 points | Adequate performance 5-8 points | Exemplary performance 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; a general and organized 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 an understanding of the concepts in their project. | Participants show clear evidence of a thorough understanding of the project. | |
| Delivery (X1) | Team is verbose and/or uncertain in its presentation/interview; participants' posture, gestures, and lack of eye contact diminish the presentation/interview. | Team is somewhat well-spoken and clear in its presentation/interview; participants' posture, gestures, and eye contact are adequately polished. | 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. | |
| 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. | |
| LEAP Response (12 points; 10% of the total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | | **SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (62 points)** | |

## CONSTRUCTION CHALLENGE

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 (62 points)**

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.　　　**TOTAL (132 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. Semifinalist 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 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

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

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

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

4. 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.

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

1. No more than two (2) team members check in:

- The entry (scale model/prototype)
- The portfolio
- A hard copy of the LEAP Response with no report cover, separated from the portfolio.

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

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

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

5. Secure the entries in the designated area.

### PRELIMINARY ROUND

1. Judges independently review the entries.

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

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

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

3. Judges determine the twelve (12) semifinalists.

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

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

# CONSTRUCTION CHALLENGE

### SEMIFINAL ROUND

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

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

3. One (1) representative from each semifinalist team will report to the event area at the time and place noted in the conference program to sign up for an interview time.

4. Two to four (2-4) representatives from each team meet with the event coordinator and judges at the designated time to give a brief presentation, discuss their chapter's community project, and answer the questions of the judges.

5. Manage completion of the on-site interviews and evaluate the LEAP Response.

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

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

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

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

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

# CYBERSECURITY

## OVERVIEW

Participants complete a Cybersecurity exam covering general cybersecurity vocabulary and knowledge needed to execute tasks commonly performed by all levels of cybersecurity professionals alike. Using digital presentation software such as Powerpoint, Prezi, or Moovly, participants shall prepare a presentation, addressing a specific cybersecurity issue, 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. The problem statement will be posted on the TSA website under Competition/Themes and Problems. Semifinalists exhibit proficiency by recommending security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.

## ELIGIBILITY

One (1) individual; two (2) members per chapter may participate.

## TIME LIMITS

### PRELIMINARY ROUND

Participants have one (1) hour to complete the test.

### SEMIFINAL ROUND

1. Digital presentations may be no more than three (3) minutes in length.
2. Participants have five (5) minutes to present.

## LEAP

A LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Participants research the issues surrounding cybersecurity.
2. Participants create a digital presentation according to the regulations.

### PRELIMINARY ROUND

1. Participants report for the test at the time and place stated in the conference program and submit a hard copy of the LEAP Response with no cover page.
2. Participants take the exam.
3. A list of twelve (12) semifinalists (in random order) will be posted.

### SEMIFINAL ROUND

1. Semifinalists will report at the time and location stated in the conference program to schedule the on-site challenge.
2. At least ten minutes prior to the scheduled time, semifinalists report to the event area with the required presentation hardware for the on-site challenge.
3. Participants have ten (10) minutes (see Time Limits) to present their solution to the corporate board members (i.e. judges).
4. The LEAP Response will be judged for semifinalists.
5. Ten (10) finalists will be announced during the conference awards ceremony.

## REGULATIONS AND REQUIREMENTS

### PRELIMINARY ROUND

A. Participants take a multiple choice test to evaluate their knowledge of basic cybersecurity fundamentals.
B. Tests may be administered online or via a scan-type answer sheet.

C. Depending on the format of the exam, which will be posted on the Competition Updates page three (3) months prior to the conference, participants shall be prepared to bring:

1. Two (2) sharpened No.2 pencils

2. One (1) laptop

3. Extra charged laptop battery

D. Should the test be administered online, participants will be required to use their own laptops to take the timed exam. Participants will not:

- be required to download software on-site.

- have access to electrical power/outlets during the event.

E. Participants will:

- be given one (1) hour to complete the sixty (60)-question exam with one (1) minute to read and answer each question.

- not be allowed to use additional resources when taking the exam.

F. Participants do not have access to the Internet during the event and may need to supply their own Internet depending upon the format of the exam.

G. Refer to the Competition Updates page (3) months prior the conference regarding logistics pertaining to the exam.

**SEMIFINAL ROUND**

A. Semifinalists report at the time and location stated in the conference program to schedule the on-site challenge.

B. Semifinalists report to the event area at the designated time and place.

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

- You are an employee at a large firm that is in need of cybersecurity as a result of a recent event (see Competitions/Themes and Problems on the TSA website). You must convince the corporate board members (i.e. judges) to invest in cybersecurity for the firm.

D. Participants shall focus on the following in their presentation*:

1. Identify and explain the security problem.

2. Explain how physical and digital security measures protect electronic information.

3. Use real-world data metrics and situations to support the claim.

4. Explain trade-offs when selecting and implementing cybersecurity recommendations.

E. Participants may 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.

F. Participants may use the presentation platform of their choice.

1. Video formats may be used (such as Moovly), however, participants may not pre-record the entire audio presentation. The participant must present key points orally to the corporate board members.

2. Presentations shall not last longer than three (3) minutes. Points will be deducted for presentations exceeding this time limit.

3. Highlight your proposal with creative visual elements (e.g. graphics, photos, titles, transitions) to actively engage the audience. Participants may use images and video clips "labeled for reuse," but must properly cite the source (refer to the General Rules).

G. 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 unless the image is "labeled for reuse."

- Minors require parental consent

- Use the Photo/Film/Video Consent and Release form (see Forms Appendix) for any individuals included in the presentation.

- Participants must attach the consent forms as the last pages of the digital presentation.

H. All presentation materials must be saved on the laptop or presentation hardware (e.g. I-Pad).

I. Internet access will not be provided.

J. Semifinalists are given three (3) minutes to present, and five (5) minutes to respond to questions.

K. The LEAP Response:

1. Participants document the leadership skills they have developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

2. Find specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA website.

## RESOURCES:

1. 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

2. Designing an Influential Presentation— Overview of how to tailor a presentation to influence an audience: www.presentation-pointers.com/showarticle/articleid/374

3. Moovly—Build animated content using a library of objects: www.moovly.com

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

5. 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

## EVALUATION

### PRELIMINARY ROUND

1. The test score is used to determine the twelve (12) semifinalists.

### SEMIFINAL ROUND

1. Semifinalists will be evaluated on their delivery and proposal during the oral presentation.

2. The content and quality of their LEAP Response.

Refer to the official rating form for more information.

## STEM INTEGRATION

Depending upon the subject of the problem, this event may align to one or more STEM areas.

## CAREERS RELATED TO THIS EVENT

This competition connects to one 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

# CYBERSECURITY
## 2020 & 2021 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/presentation hardware is present
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

## WRITTEN TEST (50 points)

| WRITTEN 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 ON-SITE PRESENTATION (120 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 (90 points)** | | | | |
| **Identification and explanation of issue** (X2) | Identification and explanation of the issue is unclear. | Issue is defined and explained appropriately. | 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 help to enhance the point. | The presentation exudes creativity; essential design principles and elements are well integrated. Presentation logically communicates an important idea and is engaging. | |

## SEMIFINAL ON-SITE PRESENTATION (120 points) – continued

### PRESENTATION (90 points) – continued

| | | | | |
|---|---|---|---|---|
| Communication of solution (X2) | A very brief explanation of the solution is presented; there is a lack of creativity in the solution and the necessity of the solution is not emphasized. | An adequate description of the solution is presented and supported by some amount of research and evidence; the solution is somewhat creative. | The solution is supported by the research gathered and is plausible and creative. The solution is communicated clearly and is appropriate. | |
| 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. | |

### STAGE PRESENCE (30 points)

| | | | | |
|---|---|---|---|---|
| Delivery (X2) | Participant is verbose and/or uncertain in his/her presentation; participants' posture, gestures, and lack of eye contact diminish the presentation. | Participant is somewhat well- spoken and clear in his/ presentation; participants' posture, gestures, and eye contact are acceptable in the presentation. | Participant is well-spoken and distinct in its presentation; the participants' 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 ON-SITE PRESENTATION SUBTOTAL (120 points)** | | |

## TIME DEDUCTIONS

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 | |
| TIME DEDUCTION | |
| **TOTAL TIME DEDUCTIONS** | |

| | |
|---|---|
| **PRESENTATION LEVEL SUBTOTAL (120 points)** | |

| SEMIFINAL LEAP RESPONSE (17 points) | | | | |
|---|---|---|---|---|
| **CRITERIA** | Minimal performance | Adequate performance | Exemplary performance | |
| **LEAP Response**<br>(10% of the total event points) | The individual's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The individual's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The individual's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | | **SEMIFINAL LEAP RESPONSE SUBTOTAL (17 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.<br><br>Indicate the rule violated: _____ | |

| | |
|---|---|
| **SEMIFINAL SUBTOTAL (137 points)** | |

| | |
|---|---|
| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.   **TOTAL (187 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:

    1. Semifinalist Round: Two (2) or more

C. Assistants for the set-up, monitoring, and clean-up of the on-site activity, 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/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. Twelve (12) copies of a well-written, technologically appropriate problem that can be objectively measured, one (1) copy per individual

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

I. A Projector (if available), and connections for both MAC and PC computers to project the presentation if desired.

J. Presentation screen or wall to project the presentation (if available)

K. Stopwatch or clock for the timekeeper

## RESPONSIBILITIES
### AT THE CONFERENCE

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

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

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

4. 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.

5. At least one (1) hour before the event is to begin, 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.

### PRELIMINARY ROUND

1. 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).

2. 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.

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

4. Should the test be administered via scan-type answer sheet, proceed with the following steps:

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

    b. All participants should be in the room at this time.

    c. Participants registered but not present shall be disqualified.

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

    e. Distribute the answer sheet (scan-type) and paper.

    f. Monitor the one (1)-hour written test.

    g. Score the exams if needed.

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

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

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

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

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

## SEMIFINAL ROUND

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

2. Semifinalists report to the event area at the time and place noted in the conference program to sign up for a presentation time.

3. Semifinalists report to the event area at the time and place for the on-site challenge with:

   • Maximum of one (1) laptop, or other presentation hardware (e.g. I-Pad)
   • Extra charged laptop battery

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

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

6. Participants must have the presentation downloaded and accessible on their computers.

7. Participants may project their presentation via the projector (if available).

8. Participants are given ten (10) minutes to present, broken down as follows:

   • Three (3) minutes for the presentation
   • Five (5) minutes to respond to questions

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

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

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

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

# DATA SCIENCE AND ANALYTICS

## OVERVIEW

Did you know that when you play your favorite video game your scores are recorded somewhere so that you can show your friends later? Now think of all the people out there playing the same game and saving all of their scores. The compilation of all this information is called 'big data'— a lot of information created by a lot of different people. All organizations use this data to make smart decisions. In the example of your favorite video game, a game developer might decide to create a second version of the game depending on the amount of high scores recorded. He/she may even analyze this data a step further and realize that there are no high scores recorded after a certain level, so they won't make levels quite so challenging in the next version of this game based on this information. Collecting and analyzing this data is called data science, and it is a common practice in every organization as the Internet makes it easier to collect data gathered from customers and clients. As a result, the field of data analytics continues to gain more traction as an important field in science.

Data science is a broad term for implementing 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. Using various processes, the data collected within organizations is then analyzed and synthesized into reports used during decision making processes to determine better practices for that organization. In this event, participants conduct research on an annual theme or topic, document their research in a supporting portfolio and create a display. Semifinalist teams report for 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

### PRELIMINARY ROUND

1. Five (5) minutes are allowed for the presentation.

### SEMIFINAL ROUND

1. Ten (10) minutes are permitted for data analysis and synthesis.
2. Three (3) minutes are allowed for presenting the analysis.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Participants review the annual problem under the Themes and Problems page of the TSA website.
2. Participants research the issue using resources including, but not limited to: books, interviews, websites, magazines, professional journals, etc.
3. Participants prepare their documentation and display according to the regulations.

### PRELIMINARY ROUND

1. Participants report to the event area at the time and place stated in the conference program to:
   - Set up the static entry display
   - Submit a hard copy of the LEAP Response with no report cover
   - Sign up for a presentation time
2. Participants report to the event area at the designated time and place to present to the judges.
3. Participants are allowed five (5) minutes for the presentation.
4. Static entries are evaluated by judges.
5. A list of twelve (12) semifinalist teams (in random order) will be posted.

**SEMIFINAL ROUND**

1. A representative from each semifinalist team will report at the time and place stated in the conference program to schedule a time for the on-site challenge.

2. Semifinalist teams report to the event area at the time and place stated in the conference program for the on-site challenge.

3. Semifinalist teams are allowed ten (10) minutes to review the data set in the holding room.

4. After ten (10) minutes has elapsed, semifinalists are given no more than three (3) minutes to present their analysis to the judges.

5. The LEAP Response will be judged in addition to the semifinalist challenge.

6. Teams pick up their entry from the display area at the time and place stated in the conference program.

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

## REGULATIONS AND REQURIEMENTS

**PRE-CONFERENCE**

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. Supporting documentation:

1. The documentation portfolio shall include all supporting material such as research notes, links to articles, sketches, illustrations, etc.

2. Documentation materials (comprising a "portfolio") are required and must be secured in a clear front report cover (Click here for a sample.) including 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. Supporting materials; maximum of ten (15) pages.

c. A list of references and credible resources; a minimum of three (3) different types of resources must be used; pages as needed

d. Consent forms (if applicable; refer to the display guidelines section of this event)

e. Work must be original or cited. For details, refer to the General Rules and Regulations.

C. Display guidelines:

1. The display shall include, at a minimum, the following major key points:

a. The definition and explanation of the issue.

b. An explanation of the importance of the issue including problems and possible solutions (if applicable).

c. 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 (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 unless the image is "labeled for reuse."

- Minors require parental consent
- Use the Photo/Film/Video Consent and Release form (see Forms Appendix) for any individuals included in the presentation.
- Participants must attach the consent forms within the 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. I-pad) must fit within the allotted display space.

6. A/C electricity may not be used.

7. Dry cell or photo-voltaic cells may be used for power, if desired.

8. Any power source used must fit within the maximum display area.

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.

## PRELIMINARY ROUND

A. The semifinalist presentation must include all team members.

B. Violation of the following regulations 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.

## SEMIFINALROUND

A. The on-site challenge must include all team members.

B. Semifinalist teams have ten (10) minutes to review and analyze the data set.

C. Semifinalists are permitted to:

1. Use their phones to conduct their research during this time, 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

D. 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.

E. Semifinalists are given three (3) minutes to present their analysis to the judges.

F. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

1. The documentation

2. The display

3. The semifinalist presentation

### SEMIFINAL ROUND

1. The content and quality of the LEAP Response

2. Analysis of the on-site 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.

## CAREERS RELATED TO THIS EVENT

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

- Data scientist
- Data analyst
- Actuary
- Economist
- Epidemiologist
- Forensic accountant
- Market researcher
- Meteorologist
- Operations research analyst
- Quality engineer

# DATA SCIENCE & ANALYTICS

## 2020 & 2021 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 is present
☐ Display is present
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

## SUPPORTING DOCUMENTATION (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 | |
| **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. | |
| **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. | |
| **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. | |
| **SUPPORTING DOCUMENTATION SUBTOTAL (50 points)** | | | | |

## 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 | |
| **Definition and explanation of the issue** (X1) | An unclear definition and explanation of the issue is presented. | Issue is defined and explained adequately. | Explanation is presented and communicated in an organized, clear, and concise manner. | |
| **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. | |

| DISPLAY (80 points) – continued | | | | |
|---|---|---|---|---|
| Communication of issue (X1) | It is difficult to understand the issue being communicated; an illogical explanation presented. | The issue is communicated and thoughts are organized somewhat concisely. | The issue 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 shows an organized presentation of the issue. | Display is exemplary in logically communicating important data. | |
| 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/interview; participants' posture, gestures, and eye contact result in a polished, natural, and effective delivery. | |
| | | | **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: _____ | |

| | |
|---|---|
| **PRELIMINARY SUBTOTAL (130 points)** | |

| SEMIFINAL PRESENTATION/INTERVIEW (79 points) | | | | |
|---|---|---|---|---|
| **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 support information provided. | The analysis is somewhat logical, generally easy to follow, and/or there is sufficient supporting information provided. | The analysis is clear, concise, and there is ample supporting information provided. | |
| Knowledge (X2) | Participants seem to have little understanding of the concepts in their analysis; responses to questions may be vague. | Participants exhibit an 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/interview; 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 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. | |

# DATA SCIENCE AND ANALYTICS

| SEMIFINAL PRESENTATION/INTERVIEW (79 points) – continued | | | | |
|---|---|---|---|---|
| **LEAP Response**<br>(19 points;<br>10% of the total<br>event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| **SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (79 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.<br><br>Indicate the rule violated: _____ | |

| | |
|---|---|
| **SEMIFINAL SUBTOTAL (79 points)** | |

| | |
|---|---|
| **To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.**     **TOTAL (209 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. 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 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

    6. Notecards

B. Measuring tape for judges

C. Display tables for entries

D. Table and chairs for event coordinator and judges

E. Projector (if available) or print outs of the semifinal on-site challenge, including the data chart

F. White board or wall for projecting the images (if applicable)

## RESPONSIBILITIES

### AT THE CONFERENCE

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

2. Report to the CRC room and obtain the contents of the coordinator's packet; check the contents.

3. Review the event guidelines and check to see that enough judges have been scheduled.

4. 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.

5. 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

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

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

3. Review the event guidelines and check to see that enough judges have been scheduled.

4. 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.

5. 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:

1. Participants report to the event area at the time and place stated in the conference program to:

    • Set up the static entry display

    • Submit a hard copy of the LEAP Response with no report cover

    • Sign up for a presentation time

2. Participants report at the assigned time to the event area at the time and place stated in the conference program for the presentation.

3. Judges assess the entries and may ask questions.

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

   - To deduct twenty percent (20%) of the total possible points in this round or
   - To disqualify the entry

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

5. Judges determine the twelve (12) semifinalists.

6. Submit the finalist results and all required forms in the results envelope to the CRC room.

### SEMIFINAL ROUND

1. Meet with semifinalist judges and review time limits, procedures, and regulations, including the LEAP judging protocol. If questions arise that cannot be answered, speak to the event manager before the event begins.

2. A representative from each semifinalist team will report at the time and place stated in the conference program to schedule a time for the on-site challenge.

3. Semifinalist teams report to the event area at the time and place stated in the conference program for the on-site challenge.

4. Semifinalist teams are allowed ten (10) minutes to review the data set in the holding room.

5. Semifinalists are permitted to:

   a. Use their phones to conduct their research in the holding room, however, Internet will not be provided

   b. Take notes on the index cards (to be provided by TSA)

   c. Reference their notes during the on-site challenge presentation to the judges

6. Semifinalists are not permitted to:

   a. Use their phones during the on-site challenge presentation to the judges

   b. Contact outside sources for assistance while in the holding room

7. After ten (10) minutes has elapsed, semifinalists are given no more than three (3) minutes to present their analysis to the judges.

8. While the team is presenting, the assistant will usher the next team into the holding room. Repeat this step until all the semifinalists have had the chance to present.

9. Judges use the same official rating form for both the preliminary and semifinal round of evaluation.

10. Judges assess the LEAP Responses.

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

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

13. Submit the finalist results and all required forms in the results envelope to the CRC room.

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

# DIGITAL PHOTOGRAPHY

## OVERVIEW

Participants produce a digital portfolio consisting digital photographs that represent or relate to a chosen theme (posted on the TSA website under Competitions/Themes and Problems). Individuals submit their portfolio entry electronically via a link provided on the Competition Updates page of the TSA website as a single, multipage PDF document. Semifinalists produce a series of digital photographs taken at the conference site during an on-site task within the time limit specified.

## ELIGIBILITY

Three (3) individuals per state may participate.

## TIME LIMITS

### PRELIMINARY ROUND

1. All components of the chapter's entry must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on May 15th.
2. Email verification of each team's entry will be made by June 10th.

### SEMIFINAL ROUND

1. One-half (½) hour is allowed to set up equipment and receive the on-site task and procedures.
2. Two (2) hours are permitted to complete the on-site task.

## LEAP

An individual LEAP Response is required for this event.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Participants produce a portfolio focusing on this year's theme while observing the outlined regulations.
2. Participants submit the entry and the LEAP Response by 11:59 p.m. EST on May 15th. Submission information will be provided on the TSA website under Competition Updates.
3. Email verification of each team's entry will be made by June 10th.

### PRELIMINARY ROUND

1. A list of twelve (12) semifinalists (in random order) will be posted on-site at the national TSA conference on the first full day of conference.

### SEMIFINAL ROUND

1. Semifinalists report to the event area at the time and place stated in the conference program, with all of the required equipment and software noted in the event Regulations section.
2. Semifinalists are allowed one-half (½) hour to set up and test their equipment.
3. At the end of the set-up time, the event coordinator present the on-site task and related procedure to the semifinalists.
4. The task will involve students taking photographs surrounding 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.
5. The coordinator will distribute TSA approved USB flash drives to the semifinalists.

6. Finalists are given two (2) hours to complete the task, including taking their pictures, and editing or enhancing them. The finalists must save the final photos in a multimedia presentation on the TSA approved USB flash drives, which are to be given to the judges.

7. The participant will sign-up for a presentation/interview time once the two (2) hours has concluded.

8. Judges assess the entries, including each participant's LEAP Response.

9. Semifinalists report to the event area at the time and place stated in the conference program for the presentation/interview.

10. The top ten (10) finalists will be announced at the awards ceremony.

## REGULATIONS AND REQUIREMENTS

### PRE-CONFERENCE

A. Students use their interpretation of the annual theme posted on the TSA website to unify the photographs included in the portfolio.

B. Participants are solely responsible for all aspects of the competition, including taking the photographs, editing, and completing the portfolio.

C. Preparing the portfolio:

1. The finished album must be saved as a single, multi-page PDF document with the pages presented in the following order:

   a. Cover page – must include the event title, the conference city and state, the year, the participant's ID number.

   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.

   c. Photos:
      i. Originality: photos must be taken, edited, and saved digitally by the participant, with no assistance.
      ii. Submission: the original photo and the edited version should appear together on the same page and must be labeled "ORIGINAL" and "EDITED."
      iii. The next page should include descriptions of the preceding photos along with a synopsis of how the original photo was edited/changed, and the rationale surrounding how the theme specifically is addressed by both the style and content of the photo.
      iv. Enhancements and/or editing should be done ethically and in a way that makes a better photograph.

   d. Resource page – must include a list of resources used to complete the album, including camera, software, and hardware, etc.

   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 consent forms must be included in the single, multi-page PDF album. **NOTE: If consent forms are missing, the entry will not be judged.**

D. The portfolio must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on May 15th.

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

2. The submission must point directly to the individual's portfolio. Entries that require a request for access be granted will not be judged.

**SEMIFINAL ROUND**

A.  Semifinalists are required to provide their own equipment, including:

    1.  A computer system (laptop preferred) with software installed.

    2.  A method to transfer the images to the computer (such as a media reader) for editing, and to the USB drives

    3.  Power strip

    4.  Extension cord

    5.  Tripod

    6.  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 NOT permitted as cameras

    7.  Semifinalists may bring optional related accessories (i.e., filters, reflectors, extra batteries, etc.) to use in the on-site competition.

B.  No internet access will be provided during the competition.

C.  TSA will provide two (2) USB flash drives for semifinalist participants to transfer their multimedia presentation. 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.

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

D.  Semifinalists will respond to questions during the interview, which will be conducted as part of the semifinalist on-site competition.

E.  The LEAP Response:

    1.  Participants document the leadership skills they have developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

    2.  Find specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA website.

## EVALUATION

1.  Points earned for the required images and documentation (preliminary and semifinal rounds)

2.  Scores on required images and the documentation portfolio determine the twelve (12) semifinalists

3.  The content and quality of the LEAP Report.

4.  The on-site interview

5.  Points earned through the on-site event determine the final ranking

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 connects to one (1) or more of the career areas below:

- Animator
- Photojournalist
- Research and development scientist
- Reporter
- Website designer

# DIGITAL PHOTOGRAPHY

## 2020 & 2021 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 electronically pre-conference
☐ Consent/Release forms are present (if required)
☐ Completed LEAP response is present
☐ ENTRY NOT EVALUATED

## PORTFOLIO ALBUM (60 points)

Record scores in the column spaces below.

| CRITERIA | Minimal performance<br>1-4 points | Adequate performance<br>5-8 points | Exemplary performance<br>9-10 points | |
|---|---|---|---|---|
| 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. | |
| Resources/ References (X1) | A reference list is present, but graphic and/or software packages used are not mentioned, and/or MLA format is not used, and/or the citations are inadequate. | A reference list is present and the primary software packages used are included; MLA format is used for an adequate number of resources. | Detailed and concise resources/ references are provided; all software packages used are included; MLA format is used for the citations. | |

| | |
|---|---|
| **PORTFOLIO ALBUM 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 (60 points)** | |

## SEMIFINAL CHALLENGE (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 | |
| **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 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. | |
| **Emotional Impact** (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. | |
| **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)** | |

# DIGITAL PHOTOGRAPHY

## SEMIFINAL PRESENTATION/INTERVIEW (79 points)

| CRITERIA | Minimal performance<br>1-4 points | Adequate performance<br>5-8 points | Exemplary performance<br>9-10 points | |
|---|---|---|---|---|
| **Organization**<br>Use of visual materials<br>(X1) | Participant seems unorganized and unprepared for the presentation/interview; illogical explanation of the photographs and/or stylistic elements is presented. | Participant is generally prepared for the presentation/interview; explanation of photographs and/or stylistic elements is communicated and generally organized. | The presentation/interview 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**<br>(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**<br>(X1) | The presentation/interview lacks clarity, and/or there is insufficient information provided describing the process. | The presentation/interview is somewhat logical, easy-to follow, and/or there is sufficient information describing the process. | The presentation/interview is clear, concise, and there is ample information describing the process. | |
| **Integration of theme**<br>(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**<br>(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. | |
| **LEAP Response**<br>(19 points;<br>10% of the total event points) | The individual's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The individual's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The individual's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| **SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (79 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.<br><br>Indicate the rule violated: _____ | |

| | |
|---|---|
| **SEMIFINAL SUBTOTAL (149 points)** | |

| | |
|---|---|
| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.　　**TOTAL (209 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; judging takes place online.

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. Results envelope with coordinator forms

B. Semifinal round materials

1. Evaluation schedule

2. Task and guidelines

3. At least twelve (12) TSA approved USB's for the on-site challenge

4. Blank stick-on labels for USB identification

5. Interview questions

6. One projector

7. One white board or wall to project the images.

8. One laptop with USB capabilities

## RESPONSIBILITIES

### PRE-CONFERENCE/PRELIMINARY ROUND

1. National TSA will collect entries until 11:59 p.m. EST on May 15th and send out receipt confirmations to participants. The results will be shared with the CRC manager, event coordinator, and assigned judges.

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

3. 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.

4. Judges determine the twelve (12) semifinalists and discuss and break any ties. Results will be posted on-site at the national conference on the first full day of conference.

### AT THE CONFERENCE

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

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

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

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

### SEMIFINAL ROUND

1. Before the on-site task session, check the room set-up. There should be enough seating, table space, and access to electricity for twelve (12) semifinalists.

2. Participants must bring their own equipment, including computers and cameras.

3. Review the on-site task and procedures with the participants.

4. Label the TSA approved USBs with the semifinalists' student ID numbers.

5. Distribute the TSA approved USBs to each participant.

6. Review procedures and the semifinalist task with judges.

7. Manage the semifinalist session with judges, who may observe participants taking pictures.

8. Manage the semifinalist evaluation and the removal of participants' equipment.

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

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

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

10. Judges determine the ten (10) finalists and discuss and break any ties that affect the top three (3) placements.

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

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

# DRAGSTER

## OVERVIEW

Participants design and produce a race-worthy $CO_2$-powered dragster according to stated specifications, using only specified materials. Special design requirements will be posted for this event on the TSA website under Competitions/Themes and Problems.

## ELIGIBILITY

Two (2) individuals per chapter may participate.

## TIME LIMITS

1. The dragster and drawing are submitted at the time and place stated in the conference program.

2. Sixteen (16) qualifying car builders will participate in a five (5)-minute interview.

3. Drawings and cars must be picked up at the specified time at the conclusion of the event.

## LEAP

An individual LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Participants design and create their dragster while working within the required specifications and considering the current year's theme/problem.

### PRELIMINARY ROUND

1. Participants check in the following at the time and place stated in the conference program:

   - The dragster entry
   - A full-size metric drawing of the completed vehicle
   - A hard copy of the LEAP Response with no report cover.

2. Entries are reviewed by judges to determine specification adherence and safety on the track.

3. Safe dragsters race for qualifying time on the same lane of a raceway.

4. The top sixteen (16) qualifying cars, based on time trials, are evaluated against the required specifications for this event.

5. Dragsters that do not meet event regulations are disqualified and lower qualifying cars are moved up until sixteen (16) dragsters meeting specifications are determined.

### SEMIFINAL ROUND

1. The top sixteen (16) car builders will report to the track at the posted time for a five (5)-minute interview.

2. The top sixteen (16) cars race in a double-elimination format to earn points for the race portion of the event.

3. Drawing, design, and body finish points are combined with race points to determine the final standings.

4. Following the race, participants pick up their entries from the display area at the time and place stated in the conference program.

5. The LEAP Response will be judged for semifinalists.

6. Ten (10) finalists will be announced during the conference award ceremony.

## REGULATIONS AND REQUIREMENTS

A. Each entry must be submitted at check-in with a full-size metric drawing of the completed vehicle.

   1. A two (2)-view (top and side) working 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.

B. The official distance between the start line and the finish line on the race track is twenty (20) meters.

C. Dragsters that do not meet the following specifications and tolerances are disqualified from the race.

## Dragster body

| | MINIMUM | MAXIMUM |
|---|---|---|
| 1. One (1)-piece, all-wood construction | | |

    a. Two (2) or more like or unlike pieces of wood glued together are not considered one (1)-piece, all-wood construction.

    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.

    d. Fiberglass 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.

| | MINIMUM | MAXIMUM |
|---|---|---|
| 2. Body length | 280mm | 300mm |
| 3. Body height with wheels | | 75mm |
| 4. Body mass (completed car without $CO_2$) <br>   * denotes specific school year requirement | *(2020) – 50g <br> *(2021) – 60g | 80g <br> 85g |
| 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. <br> (NOTE: This will be only be measured at 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 | 250mm |
| 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 | 4 | |
| 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 (CO₂ 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.<br>a. A minimum of 3mm thickness around the entire power plant hole must be maintained on the dragster for safety.<br>b. There should be no paint inside the $CO_2$ cartridge hole. | | |
| 2. Hole depth | 45mm | 55mm |
| 3. Safety zone thickness | 3mm | |
| 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.<br>a. Eye screws must not make contact with the racing surface.<br>b. The track string must pass through both eye screws, which are located on the center line of the bottom of the car.<br>c. Glue may be used to reinforce the eye screws.<br>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.<br>e. Any adjustments must be done prior to event check-in. | | |
| 2. Inside diameter | 3mm | 5mm |
| 3. Distance apart (at farthest points) | 150mm | 270mm |

## 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.<br>a. All four (4) wheels must touch the racing surface at the same time.<br>b. All wheels must roll.<br>c. Wheels must be made entirely from plastic.<br>d. Dimensions must be consistent for the full circumference of the wheel. | | |
| 2. Wheel diameter | 30mm | 40mm |
| 3. Wheel width*<br>* Width is determined by the continuous point of contact between the wheel and track or flat surface. | 2mm | 18mm |

D. No repair or maintenance is allowed after the entries have been submitted.

1. Any vehicle damaged during the race is evaluated by the event coordinator to determine whether or not the vehicle is allowed to race again.

2. In the event that the vehicle is damaged by conference personnel, the event coordinator rules as to whether 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.

3. Undamaged wheels that come off during the event may be replaced as determined by the event coordinator.

4. Damaged wheels may not be replaced.

E. All $CO_2$ cartridges for the race are provided by national TSA.

### SEMIFINAL ROUND

A. The semifinalist interview must include both team members.

B. The LEAP Response:

1. Teams document the leadership skills they have developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

### EVALUATION

1. Points earned through car design and appearance

2. Accuracy and quality of the drawing

3. The interview

4. Placement in the double elimination on-site race

5. The content and quality of the LEAP Response

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:

- Aeronautical engineer
- Automotive designer
- Automotive modeler
- Industrial designer
- Industrial engineer
- Mechanical engineer
- Race car engineer

# DRAGSTER
## 2020 & 2021 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.

_____

- ☐ Car is present
- ☐ Technical drawing is present
- ☐ Car is safe to race
- ☐ Completed LEAP Response is present
- ☐ ENTRY NOT EVALUATED

| DRAGSTER CONSTRUCTION (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 | |
| **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. | Dragster body is painted and finished but not in a quality way; body is dull and sticky. | Dragster body finish is exemplary; body is smooth, shiny, and exhibits quality. | |
| **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 well assembled, and adequately meets standards. | Dragster is properly assembled, with obvious evidence of attention to detail. | |
| **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. | |
| **DRAGSTER CONSTRUCTION SUBTOTAL (50 points)** | | | | |

## DRAGSTER

### INTERVIEW (20 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| | 1-4 points | 5-8 points | 9-10 points | |
| Car builder interview (X2) | The student 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 student demonstrates some knowledge of the dragster production and has adequate knowledge of some processes or reasoning behind the vehicle design. | The student shows competence and knowledge related to the design and production of the vehicle; the student is able to articulate "reasoning" behind the decisions made. | |
| | | | **INTERVIEW SUBTOTAL (20 points)** | |

| | |
|---|---|
| **PRELIMINARY SUBTOTAL (70 points)** | |

### LEAP RESPONSE (7 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| LEAP Response (10% of total event points) | The individual's efforts are not clearly communicated, lack detail, and/or are unconvincing; few, if any, attempts are made to identify and/or incorporate the SLC Practices and Behaviors. | The individual's efforts are adequately communicated, include some detail, are clear, and/or are generally convincing; identification and/or incorporation of the SLC Practices and Behaviors is adequate. | The individual's efforts are clearly communicated, fully-detailed, and convincing; identification and/or incorporation of the SLC Practices and Behaviors is excellent. | |
| | | | **LEAP RESPONSE SUBTOTAL (7 points)** | |

### 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 | |
| | | | | | | | **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. <br><br> Indicate the rule violated: _____ | |

| | |
|---|---|
| **SEMIFINAL SUBTOTAL (67 points)** | |

| | |
|---|---|
| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL (137 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 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, plans, and LEAP documents)

    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

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

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

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

4. 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

1. Participants report to the time and place stated in the conference program and check in:

    • The dragster entry

    • Full-size metric drawing of the completed vehicle

    • A hard copy of the LEAP response with no report cover.

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

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

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

5. Check to see that each entry drawing includes the participant's identification number in the upper right-hand corner of the paper.

6. Position each entry (dragster and drawing) for evaluation and viewing.

7. Secure the entries in the designated area.

## PRELIMINARY ROUND

1. 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.

2. Assist judges with evaluation of the design, drawing, and construction categories.

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

   • To deduct twenty percent (20%) of the total possible points in this round

   • To disqualify the entry

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

4. Begin the time trials at the scheduled time.

   a. Every race-worthy car should be tested.

   b. Students do not have to be present.

   c. Public viewing is allowed.

5. Position a judge at the starting gate to ensure that all cars are positioned in the starting gate correctly.

6. Position another judge at the finish line.

7. 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.

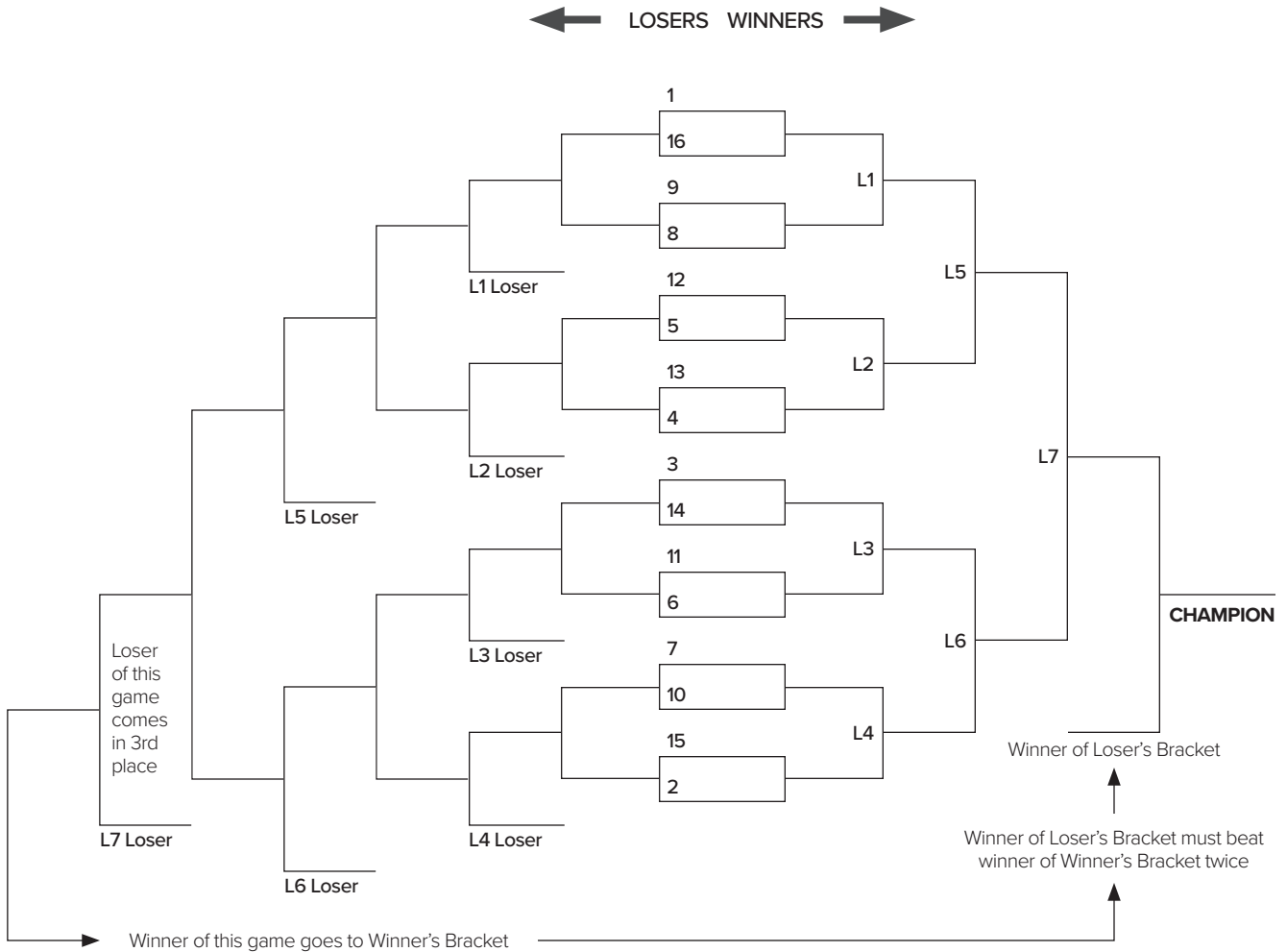8. Record preliminary times on a time trial record sheet.

9. Place each car in the double elimination race bracket (see next page for sample) according to the rank of its qualifying time.

10. Judges verify that the top sixteen (16) qualifying cars meet Regulation D specifications.

11. Entries that do not meet specifications are removed.

12. Cars that are damaged or broken during the qualifying round are deemed non-raceable and also are removed.

13. Only raceable cars, as determined by the judges, are allowed to compete for the semifinalist category.

14. Lower qualifying cars are moved up until there are sixteen (16) legal semifinalists.

15. Submit the semifinalist results to the CRC room.

## SEMIFINAL ROUND

1. Begin the semifinals at the scheduled time.

2. Car builders will report to the track at the posted time for a five (5)-minute interview.

3. Only the sixteen (16) qualifying cars are raced.

4. Students do not have to be present.

5. Public viewing is allowed.

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

7. Judges should use qualifying times to break any ties among the sixteen (16) qualifying cars.

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

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

# RACE BRACKET FOR 16-CAR DOUBLE ELIMINATION

Double Elimination Tournament Chart Seeded 16 player Field

LOSERS    WINNERS

1
16
L1
9
8
L1 Loser
12
5
L2
13
4
L2 Loser
L5 Loser
3
14
L3
11
6
L3 Loser
7
10
L4
15
2
L4 Loser
L6 Loser
L7 Loser

L5

L2

L7

L6

L3

L4

Loser of this game comes in 3rd place

**CHAMPION**

Winner of Loser's Bracket

Winner of Loser's Bracket must beat winner of Winner's Bracket twice

Winner of this game goes to Winner's Bracket

# ELECTRICAL APPLICATIONS

## OVERVIEW
Participants take a written test of basic electrical and electronic theory to qualify as semifinalists. 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 team of two (2) individuals per chapter may participate. No individuals will be allowed to compete.

## TIME LIMITS
### PRELIMINARY ROUND
1. Participants are allowed one (1) hour to complete the written test.

### SEMIFINAL ROUND
1. Semifinalists are allowed one (1) hour to solve the circuit problem.
2. Upon completion of the circuit, or at the end of the time limit, semifinalists are questioned about their solution in an interview.

## LEAP
A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE
TSA competition attire is required.

## PROCEDURE
### PRELIMINARY ROUND
1. Participants report to the event area at the time and place stated in the conference program and submit a hard copy of the LEAP Response with no report cover.
2. Both team members take the written test within the time limit.
3. The top twelve (12) teams with the highest averaged scores qualify as semifinalists.

4. A list of semifinalist teams (in random order) will be posted.

### SEMIFINAL ROUND
1. Semifinalists report to the event area at the time stated in the conference program.
2. Semifinalists will 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.
3. The LEAP Response will be judged in addition to the semifinalist interview.
4. Ten (10) finalists will be announced during the conference award ceremony.

## REGULATIONS AND REQUIREMENTS
### PRELIMINARY ROUND
1. The test may be administered online or via a scan-type answer sheet.
2. Particpants are to bring two (2) sharpened No. 2 pencils.

### SEMIFINAL ROUND
1. All work must be completed in the event area during the time specified for the event.
2. Semifinalists provide:
   a. A toolkit with identification (school name, address, and advisor cell phone number). Each tool kit must contain all required materials to fabricate the solution. The following is a suggested list of materials:
      i. (Minimum) 1.375" x 3.25" solderless circuit breadboard 10 x 30 pin positions
      ii. One (1) 9-volt battery with snap-on battery connector
      iii. One (1) 9-volt battery clip
      iv. One (1) speaker (wires pre-soldered)
      v. Two (2) LEDs
      vi. Twelve (12) connector wires

vii. Pushbutton switch (wires pre-soldered)

viii. One (1) photocell

ix. One (1) potentiometer

x. One (1) IN4003 diode

xi. One (1) IC555 integrated circuit

xii. One (1) 2N3906 transistor

xiii. One (1) 2N3904 transistor

xiv. Resistors (minimum of one [1] each, ohms): 10, 10K, 47, 100, 220, 1K, 2.2K, 3.3K, 6.8K, 16K, 33K, 120K, 330, 470K

xv. Capacitors (in microfarads): .01, .1, 10,100, 1000

xvi. S106B1 SCR

xvii. Wire strippers

xviii. Standard 4-function calculator (scientific calculators will not be permitted)

xix. Digital multimeter

3. Paper to complete on-site calculations will be provided by TSA.

4. All other equipment necessary to solve the on-site problem is provided by the coordinator.

5. Semifinalists remain with their circuit solution until the judges have completed the interview.

6. The LEAP Response:

a. Participants document the leadership skills they have developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

b. Find specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA Website.

## EVALUATION

### PRELIMINARY ROUND

1. The averaged team score is factored into the final total score.

### SEMIFINAL ROUND

1. The accuracy and degree of completion of the circuit problem in the allotted time, the interview, and the content and quality of the LEAP Response.

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 connects to one (1) or more of the careers below:

- Electrical engineer
- Electrical technician
- Electrician
- Electronic analyst
- Electronic designer
- Research assistant

# ELECTRICAL APPLICATIONS

## 2020 & 2021 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
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

---

**WRITTEN TEST SCORE (50 points)**

| | |
|---|---|
| **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 (80 points)**

Record scores in the column spaces below.

| CRITERIA | Minimal performance 1-4 points | Adequate performance 5-8 points | Exemplary performance 9-10 points | |
|---|---|---|---|---|
| **Solution accuracy** (X1) | 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. | The interview is somewhat logical, easy-to-follow, and/or there is sufficient information provided that describes the solution. | The interview is clear, concise, and there is ample information provided that describes the solution. | |
| **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. | |

## ELECTRICAL APPLICATIONS

### SEMIFINAL SOLUTION TO ON-SITE PROBLEM (80 points) – continued

| | | | | |
|---|---|---|---|---|
| **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 (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 INTERVIEW (13 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| **LEAP Response/ Interview** (10% of total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| **SEMIFINAL INTERVIEW SUBTOTAL (13 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 (93 points)** | |

| | |
|---|---|
| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.   **TOTAL (143 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 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

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

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

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

4. 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.

5. 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

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

2. 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.

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

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

5. Monitor the one (1)-hour written test.

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

   - To deduct twenty percent (20%) of the total possible points in this round

   - To disqualify the entry

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

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

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

### SEMIFINAL ROUND

1.  Provide the on-site circuit problem, any additional electrical components, and the worksheet to the semifinalists.

2.  Supervise the one (1)-hour on-site circuit problem.

3.  Judges conduct semifinalist interviews at a location separate from the other semifinalists

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

5.  Any ties should be broken on: first, test scores; second, interview points; third, electronic measurement accuracy.

6.  Judges determine the ten (10) finalists.

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

8.  Manage security and the removal of materials from the event area.

# ESSAYS ON TECHNOLOGY

## OVERVIEW

Participants will conduct research on specified subtopics of a broader technological area. The topic and subtopics will be posted on the TSA website under Competitions/Themes and Problems. Using the knowledge and resources gained through their research, participants will 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 and Semifinal Rounds: Participants have one (1) hour to complete the essay on-site.

## LEAP

An individual LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. In preparation for the event, participants research the topic and related subtopics (refer to Themes and Problems on the national TSA website).

2. Each participant shall record key points of their research using a 3" x 5" note card for *each* subtopic.

3. 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

1. Participants report to the event area at the time and place stated in the conference program with their prepared note cards.

2. Participants submit a hard copy of the LEAP Response with no report cover.

3. One (1) of the subtopics is randomly selected.

4. Timing begins after the subtopic is announced.

5. Using the information on the prepared 3" x 5" note cards, participants have one (1) hour to draft the detailed outline.

6. After one (1) hour the participants turn in a detailed outline and the corresponding note card for independent review by the judges.

7. A list of twelve (12) semifinalists will be posted in random order.

### SEMIFINAL ROUND
### The Essay

1. Semifinalists will write an essay on the subtopic as submitted, using their detailed outline.

2. Semifinalists will be given one (1) hour to write an essay on the subtopic.

3. After one (1) hour, each participant turns in an essay not to exceed five (5) pages.

4. Judges independently review entries, including LEAP Responses.

5. Ten (10) finalists are announced at the awards ceremony.

## REGULATIONS AND REQUIREMENTS

### PRELIMINARY ROUND

1. Materials:

   a. Each participant is required to bring one (1) 3" x 5" note card for each subtopic.

      i. 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.

      ii. Note cards are not to contain introductory or concluding paragraphs, nor are details to be written in sentence form.

      iii. 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.

    iv.  The outline on the note card may contain a thesis statement.

    v.  The bulleted outline for note cards must follow the required format on the following pages.

  b.  All research material brought into the event area must be handwritten on the note cards.

  c.  Each participant may also bring a hard copy dictionary and/or a thesaurus to the event (no electronic formats permitted).

  d.  Participants are responsible for bringing a blue or black ink pen to the event site, which may be "erasable."

  e.  Participants may also bring correcting fluid or correction tape to the site.

  f.  Each participant will be provided with lined paper.

2.  Detailed outline guidelines (to be submitted for judging):

  a.  Length is limited to two (2) handwritten pages, one (1) side of the paper only, single-spaced.

  b.  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.

  c.  Participants are required to follow the outline displayed within this event guide.

  d.  Requirements must include:

    i.  Introductory paragraph

    ii.  Details for a body (of the essay)

    iii.  Concluding paragraph

    iv.  All details are to be in sentence form.

3.  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.

4.  The relevant note card is to have the participant entry number written in the upper right-hand corner.

5.  Only participants are allowed in the event area.

6.  Should a participant finish before the allotted time expires, the participant is allowed to leave quietly but may not re-enter the event room.

7.  Twelve (12) semifinalists will be determined; semifinalists will write an essay on a subtopic.

## SEMIFINAL ROUND

1.  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).

2.  Participants are responsible for bringing a blue or black ink pen to the event site. The pen may be "erasable."

3.  Each participant will receive his/her outline, bibliography, and note card submitted from the preliminary round.

4.  Each essay must have the participant's entry number only written in the upper right-hand corner of each page submitted.

5.  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.

6.  With the essay, participants must turn in:

  a.  A one (1)-page bibliography (written on one [1] side of the paper only, using proper MLA bibliography format)

  b.  The outline from the preliminary round

  c.  The relevant note card

7.  All essays, outlines, and note cards become the property of national TSA.

8.  The LEAP Response:

  a.  Participants document the leadership skills they have developed and demonstrated while working on this event and on a non-competitive event leadership experience.

  b.  Find specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

1. Entries are evaluated according to the quality of the outline.

### SEMIFINAL ROUND

1. Entries are evaluated according to the quality of the essay and the content and quality of the LEAP Response.

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.

## CAREERS RELATED TO THIS EVENT

This competition connects 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

# ESSAYS ON TECHNOLOGY

## 2020 & 2021 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.

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- ☐ Note cards are present and contain appropriate bulleted outline
- ☐ Bibliography is present
- ☐ Completed LEAP Response is present
- ☐ ENTRY NOT EVALUATED

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### DETAILED OUTLINE (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 | |
| **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. | |

## DETAILED OUTLINE (80 points) – continued

| 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.<br><br>Indicate the rule violated: _____ | |
|---|---|

| | |
|---|---|
| **PRELIMINARY SUBTOTAL (80 points)** | |

Record scores in the column spaces below.

## ESSAY (107 points)

| 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. | |

## ESSAY (107 points) – continued

| | | | |
|---|---|---|---|
| **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. |
| **LEAP Response** (17 points; 10% of total event points) | The individual's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The individual's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The individual's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. |

| **ESSAY SUBTOTAL (107 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 (107 points)** | |
|---|---|

| To arrive at the TOTAL score, subtract rules violation points, as necessary. | **TOTAL SCORE (107 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 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

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

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

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

4. 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.

5. 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

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

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

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

4. All participants should be in the room at this time. Participants registered but not present may be disqualified.

5. Distribute five (5) sheets of ruled notebook paper to each participant. Provide additional paper as needed.

6. 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.

7. 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).

8. Randomly select one (1) of the subtopics. This subtopic becomes the subject for all the entries.

9. Instruct participants who finish before time is called that they may submit their work and leave quietly.

10. Five (5) minutes before the hour is up, make an announcement that the participants have five (5) minutes to complete their outlines.

11. Exactly one (1) hour after beginning, call time and collect the outlines, reference pages, note cards, and unused paper.

12. Supervise and assist the judges during the evaluation of the outlines and note cards.

13. Each entry must be read independently by two (2) judges.

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

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

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

15. 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.

16. Submit the semifinalist results to the CRC room.

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

## SEMIFINAL ROUND

1. Distribute participant's outlines and note cards from the preliminary round as participants check-in to the semifinalist round.

2. Distribute ten (10) sheets of ruled notebook paper to each participant. Provide additional paper as needed.

3. 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.

4. 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).

5. Each participant is required to turn in the outline and the note card used for the preliminary round.

6. Instruct participants who finish before time is called that they may submit their work and leave quietly.

7. Five (5) minutes before the hour is up, make an announcement that the participants have five (5) minutes to complete their essays.

8. Exactly one (1) hour after beginning, call time and collect the essays, reference pages, outlines, note cards, and unused paper.

9. Supervise and assist the judges during the reading of the essays.

10. Each entry must be assessed twice.

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

12. Judges determine the ten (10) finalists, discuss and break ties.

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

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

# FLIGHT

## OVERVIEW

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

1. Participants will test their prebuilt glider for three (3) flights with no additional trim time.

### SEMIFINAL ROUND

1. Participants have forty-five (45) minutes to construct a glider.
2. Participants are given a maximum of fifteen (15) minutes for trimming (test flights) of their glider.

## LEAP

An individual LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## SAFETY

1. Participants are required to provide and wear safety-approved eyewear during all phases of this event.
2. Prescription eye wear will need to have side shields to be considered safety eyewear.
3. 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.

4. TSA will not supply safety glasses.
5. 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

1. Participants check-in the following at the time and place stated in the conference program:
   a. The completed glider
   b. The portfolio
   c. A hard copy of the LEAP Response with no report cover, and separated from the portfolio
   d. Safety glasses

2. On-site Testing:
   a. During the testing participants must provide and wear safety glasses.
   b. No trim time is allotted during the preliminary round.
   c. After check-in, participants will test their prebuilt glider for three (3) flights.

3. Scoring: After the third flight, the three (3) flight times are averaged to obtain the average flight time; If a plane is unable to be tested the time will be marked as a zero (0).

4. Twenty (20) semifinalists will be determined by the top twenty (20) averaged test flight times.

5. Participants pick up their entries at the time specified in the conference program.

### SEMIFINAL ROUND
### On-site Reconstruction of Glider and Flight Testing

1. Twenty (20) semifinalist teams report to the event area at the time and place stated in the conference program.

2. Participants will provide their own toolbox and building materials for the on-site construction portion (see regulations).

3. Participants must provide and wear safety glasses.

4. Participants use their metric technical drawing to fabricate a glider.

5. Participants will have 30 minutes to trim their glider in the designated area.

6. Portfolios are evaluated.

7. Participants have three (3) opportunities to fly their gliders for official times.

8. 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.

   b. Flight time begins when the glider is released.

   c. Flight time ends when the glider hits the floor or ground, or when it comes to rest on an obstruction.

   d. One repair will be allowed after the individual time trials have begun

      i. The repair must be made in three (3) minutes or less.

      ii. No additional trimming will be allowed after the repair.

9. The combined flight time of the best three (3) of the four (4) flights is used to determine the twenty (20) semifinalists.

10. Ties are broken by determining the longest single flight time.

11. A list of twenty (20) semifinalists (in random order) will be posted.

## SEMIFINAL ROUND

1. The LEAP Response will be judged for semifinalists.

2. Ten (10) finalists will be announced during the conference award ceremony.

## REGULATIONS AND REQUIREMENTS

### PRE-CONFERENCE

A. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover (click here for a sample).

1. The report cover must include 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

   b. 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.

2. The technical drawing must:

   a. Be created using CAD, or be hand-drawn with traditional mechanical drawing instruments

   b. NOT be a freehand sketch

   c. Depict all parts that make up the glider

   d. Be drawn to full scale

   e. Be drawn on a single sheet of paper that does not exceed 11"X17"

   f. Participants are not allowed to enter the semifinal on-site glider construction round without a completed technical drawing included.

3. Pictures of two (2) test gliders will be included in the portfolio (one [1] picture of each test glider, for a total of two [2] pictures).

4. A flight log for each pictured test glider (see Flight Log sample) must be included.

5. 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).

6. A technical review of one flight log detailing launch, trim, and flights of the glider must be included.

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 event site 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 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 toolboxes

    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. Only balsa and/or basswood may be used to create the glider.

        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 bass wood or balsa wood to eliminate confusion with pre-made parts.

        ii. No precut pieces will be allowed.

        iii. Wood blank specifications:

            1. Only one (1) piece is allowed for each glider part listed. Choose wood carefully.

            2. The following table describes the wood blanks allowed. A blank is the starting size of material before cutting or sanding.

| 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<br>Measured without ballast (clay, etc) | MAX 300 mm or 11⅞" | | No extra length allowed for grip |
| Wing Span | MAX 300 mm or 11⅞" | | |
| Wing Chord | | MAX 76mm or 3" | Measured parallel to fuselage at widest point |
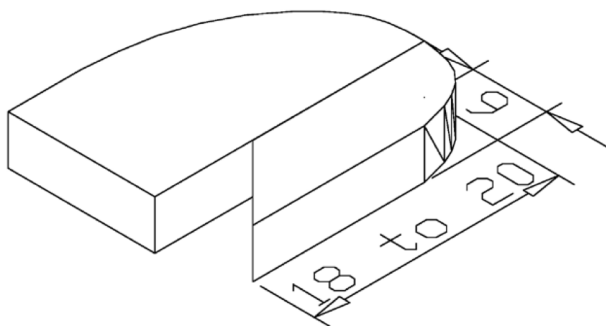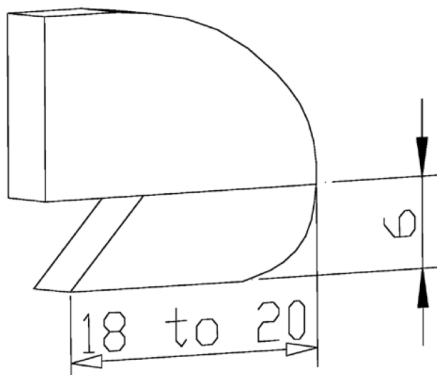


3. Catapult specifications (to be used for trim and testing at home, school, and during preparation prior to time trial flights):

   a. Catapults for timed flights at the national event site are supplied by TSA.

   b. During time trial flights, ONLY catapults 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. Rubber bands are available in bulk from office suppliers such as Office Max, Office Depot, and Staples.

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 toolbox, 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.

SEMIFINAL ROUND

A. The LEAP Response:

   1. Participants document the leadership skills they have developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

   2. Find specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA website.

## EVALUATION

1. Points earned for the quality of the documentation portfolio

2. Points earned for the accumulated flying time of three (3) trials

3. The content and quality of the LEAP Response (semifinalists only)

Refer to the official rating form for more information.
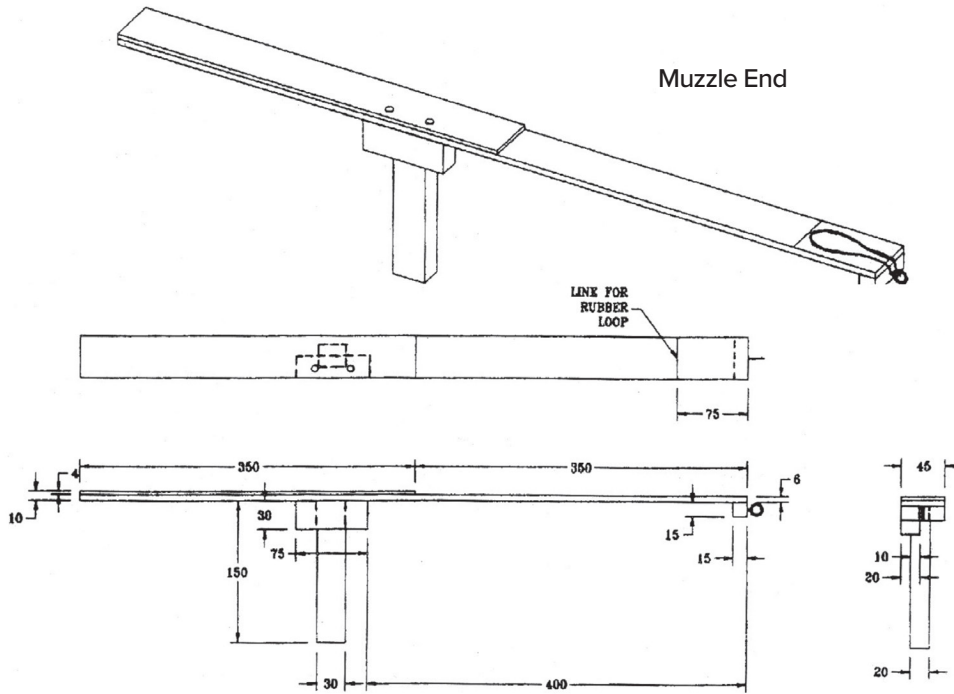
## STEM INTEGRATION

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

## CAREERS RELATED TO THIS EVENT

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

- Aeronautical engineer
- Aircraft systems engineer
- Physics instructor

## CATAPULT DRAWING



Muzzle End

LINE FOR RUBBER LOOP

## 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 | | | | |

# FLIGHT

## 2020 & 2021 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.

---

☐ Completed Glider is present
☐ Building material including toolkit are present
☐ Completed portfolio is present
☐ Completed LEAP document is present
☐ ENTRY NOT EVALUATED

## DOCUMENTATION (70 points)

Record scores in the column spaces below.

| CRITERIA | Minimal performance 1-4 points | Adequate performance 5-8 points | Exemplary performance 9-10 points | |
|---|---|---|---|---|
| Portfolio (X1) | Portfolio is unorganized and/or missing three or more components. | Portfolio may be missing up to two components; it is mostly organized. | All components are included in the portfolio, and content and organization are clearly evident. | |
| Full scale technical drawing (X1) | Technical drawing is missing two 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 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. | |
| 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. | |
| 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. | |
| 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. | Review of Flight Logs provide adequate details of launching, trimming and flying of one glider. | Review of Flight Logs are complete, with a thorough understanding of launching, trimming and flying of one glider. | |
| **DOCUMENTATION SUBTOTAL (70 points)** | | | | |

## FLIGHT

### FLIGHT TIMES (70 points)

Flight times recorded to the nearest one hundredth [.01] of a second.

| Duration of flight #1 | | | Seconds | Duration of flight #3 | | Seconds | |
|---|---|---|---|---|---|---|---|
| Duration of flight #2 | | | Seconds | Duration of flight #4 | | 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 | |

| SUBTOTAL FLIGHT SCORE (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 (140 points) | |
|---|---|

### LEAP RESPONSE (14 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance |
|---|---|---|---|
| LEAP Response (10% of total event points) | The individual's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The individual's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The individual's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. |

| LEAP RESPONSE SUBTOTAL (14 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 (154 points) | |
|---|---|

| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. | TOTAL (154 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 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 eye wear will need to have side shields to be considered safety eyewear.

C. Should a participant remove his/her eyewear during the event, s/he 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 glasses.

E. Participants must be instructed by their advisors on the proper use of cyanoacrylate (CA) glue.

## RESPONSIBILITIES

### AT THE CONFERENCE

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

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

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

4. 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.

5. 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

1. Check in participants at the time stated in the conference program.

2. Participants are to check in:

    a. The completed glider

    b. The portfolio

    c. A hard copy of the LEAP Response with no report cover, and separated from the portfolio

    d. Safety glasses

3. 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.

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

5. Distribute the list of entrants assigned to each designated judge/timer.

6. Timed flight procedure:

    a. Each flight time is recorded to the nearest one hundredth (.01) of a second.

    b. 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.

   c. Three (3) groups may fly simultaneously in the assigned area for the event, with consideration for the safety of gliders and participants.

   d. Each participant will receive a new rubber band for each of the test flights.

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

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

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

8. After the test flight, average the scores and determine finalists.

9. After the gliders have been tested, secure the holding area so that the gliders and documentation portfolios remain safe until the scheduled time for pickup.

## SEMIFINAL ROUND

1. Check-in semifinalists at the time stated in the conference program.

2. Check to verify that the tool-boxes and building materials are within the specifications outlined.

3. Announce any specific rules and regulations pertaining to the on-site construction challenge.

4. Manage the on-site construction of gliders.

5. 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.

6. Designate times for test flying/trimming and communicate the thirty (30) -minute segments scheduled for each group of participants.

7. Designate times for groups to make four (4) official flights for time.

8. Timed flight procedure:

   a. Each flight time is recorded to the nearest one hundredth (.01) of a second.

   b. After the fourth flight, the top three (3) flight times are averaged to obtain a score; each glider is placed with its documentation portfolio.

   c. Three (3) groups may fly simultaneously in the assigned area for the event, with consideration for the safety of gliders and participants.

   d. Each participant will receive a new rubber band for each of their test flights.

9. Documentation portfolios are judged.

10. Judges independently evaluate the LEAP Response for each semifinalist participant using the official rating form.

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

12. Judges determine the ten (10) semifinalists and discuss and break any ties.

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

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

# FORENSIC TECHNOLOGY

## OVERVIEW

Participants take a written test of basic forensic science theory to qualify as semifinalists. Semifinalists use their knowledge of forensic science to demonstrate the selected skill or technique to the judges. Each year, three (3) skills or techniques will be posted in under the Themes and Problems page on the TSA website. Students will need to be familiar with and able to demonstrate all three (3) skills. During the semifinalist portion, one (1) skill will be selected for the students to demonstrate to the judges.

## ELIGIBILITY

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

## TIME LIMITS

### PRELIMINARY ROUND

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

### SEMIFINAL ROUND

1. Five (5) minutes is allowed to set up supplies and prepare the demonstration. Supplies will be provided but students may bring their own if they prefer.
2. Ten (10) minutes is allowed to demonstrate their selected skill and answer questions from the judges.
3. Students will be allotted three (3) minutes to clean the demonstration area.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRELIMINARY ROUND

1. Team members report for the written test at the time and place stated in the conference program, and submit a hard copy of the LEAP Response with no report cover.
2. A forensic science test is administered to all team members at the same time.
3. Twelve (12) teams with the highest averaged scores are selected as semifinalists for the on-site problem.
4. A list of semifinalists in random order is posted.

### SEMIFINAL ROUND

1. Semifinalist teams report to sign up for a time slot for the on-site problem at the time and place stated in the conference program.
2. Each team will be given a copy of the skill they will be demonstrating.
   a. Participants use the allotted time to set up necessary materials and prepare the demonstration.
   b. Teams demonstrate the selected skill using proper forensic science techniques and answer questions about the skill to the judges.
   c. Participants clean the demonstration area and pack necessary supplies for the next competitors.
3. The LEAP response will be judged for semifinalists.
4. Ten (10) finalists will be announced during the conference award ceremony.

## REGULATIONS

### PRELIMINARY ROUND

A. Tests may be administered online or via a scan-type answer sheet. Please review the Competition Updates page of the TSA website.
B. Team members take the written test individually.

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

D. The same two (2) team members will compete in the semifinalist 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.

B. Team members write their team identification number on any material used to demonstrate their skill.

C. No reference materials may be used during this event.

D. No observers are allowed in the event or preparation rooms during the event.

E. Supplies will be provided to complete the demonstration, however, students may bring their own supplies.

F. If teams supply their own materials they will only be allowed to use the same type of materials provided by National TSA. For example, if the skill the students are demonstrating is "Taking and Lifting Fingerprints," students may bring their own dusting powder and duster, but would not be permitted to use a camera with micro capabilities unless it is provided by National TSA.

Optional tools:

1. Clipboard(s)

2. Blank sheets of paper (for note taking)

G. The LEAP Response:

1. Participants document the leadership skills they have developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

2. Find specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

1. A team's written test score

   a. The written test scores of the individual team members will be averaged and recorded as a single team score on the rubric.

   b. Twelve (12) teams with the highest scores will be selected as the semifinalists for the on-site problem.

### SEMIFINAL ROUND

1. A team's on-site problem performance, and the content and quality of the LEAP Response.

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 connects to one (1) or more of the careers below:

- Crime scene investigator
- Forensic anthropologist
- Forensic pathologist
- Forensic engineering scientist

# FORENSIC TECHNOLOGY

## 2020 & 2021 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.

☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

## WRITTEN TEST SCORES (50 points)

Record the written test scores of each of the two (2) team members (for team A and B) in the boxes below and then calculate the team average. Record the team average in the column space to the right.

| Team member 1 | | Team member 2 | | |
|---|---|---|---|---|
| | | **WRITTEN 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)**

## 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. | The team's demonstration is logical and generally articulate. | The team provides a concise, logical, and clear explanation of the skill they are demonstrating. | |
| **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. | |

## DEMONSTRATION (80 points) – continued

| 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. | |
| | | | **DEMONSTRATION SUBTOTAL (80 points)** | |

## LEAP RESPONSE (13 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| LEAP Response (10% of total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | | **LEAP RESPONSE SUBTOTAL (13 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 (93 points)**

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL (143 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. Judges:

   1. Preliminary round, two (2) or more

   2. Semifinal round, two (2) or more

C. Timekeepers for recording start/stop times

D. Monitors, one (1) per event room

## 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. 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. Stopwatches for timekeepers, one (1) per room

D. Tables and chairs in the analysis room

E. Copies of the semifinalist problem, one (1) per team and one (1) per judge

F. Supplies needed to demonstrate the selected skill

## RESPONSIBILITIES

### AT THE CONFERENCE

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

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

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

4. 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.

5. 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

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

2. 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.

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

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

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

6. Monitor the one (1)-hour written test.

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

   - To deduct twenty percent (20%) of the total possible points in this round

   - To disqualify the entry

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

8. Judges determine the twelve (12) semifinalists.

9. Submit semifinalist results to the CRC for posting.

10. The demonstration theme will be posted when the semifinalists are posted.

## SEMIFINAL ROUND

1. Set up the demonstration supplies in the designated room one (1) hour prior to the semifinalist sign-up time.

2. Facilitate semifinalist sign-up times at the designated location.

3. When each team enters the crime scene room, guide them to the demonstration area.

4. Notify students when time begins. Allow teams five (5) minutes to set up and prepare for the demonstration.

5. Allow ten (10) minutes for the students to demonstrate the selected skill.

6. At the end of the ten (10)-minute period, allow students two (2) minutes to clean up the work space and then escort the students out of the competition room.

7. Collect all materials, including any notes, prior to dismissing the participants.

8. Judges determine the ten (10) finalists. Any ties should be broken by using the highest average team score on the written test.

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

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

11. Manage security and removal of all materials from the competition area.

# FOUNDATIONS OF INFORMATION TECHNOLOGY (FIT)

## OVERVIEW

Participants complete a examination covering essential IT skills and knowledge needed to perform tasks commonly performed by all levels of IT professionals alike. Areas include but not limited to: using features and functions of common operating systems and establishing network connectivity, identifying common software applications and their purpose, and using security and web browsing best practices. Semifinalists exhibit proficiency and demonstrate creative problem solving by applying techniques to troubleshoot an industry-related challenge.

## ELIGIBILITY

One (1) individual; two (2) members per chapter may participate.

## TIME LIMITS

### PRELIMINARY ROUND

1. Participants have one (1) hour to complete the test.

### SEMIFINAL ROUND

1. Participants have fifteen (15) minutes to complete the on-site skills challenge
   a. Ten (10) minutes are allotted for troubleshooting the problem
   b. Five (5) minutes to present the solution

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRELIMINARY ROUND

1. Participants report for the test at the time and place stated in the conference program and submit the LEAP Response.

2. Participants take the exam.

3. A list of twelve (12) semifinalists (in random order) will be posted.

### SEMIFINAL ROUND

1. Semifinalists will report at the time and location stated in the conference program to schedule the on-site challenge.

2. At least ten minutes prior to the scheduled time, semifinalists report to the event area at the time and place stated in the conference program for the on-site challenge.

3. Participants have fifteen (15) minutes to complete the on-site challenge; ten (10) minutes are allotted for troubleshooting the problem and five (5) minutes to present.

4. The LEAP Response will be judged for semifinalists.

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

## REGULATIONS AND REQUIREMENTS

### PRELIMINARY ROUND

A. Participants take a multiple choice test to evaluate their knowledge of basic IT fundamentals.

B. Tests may be administered online or via a scan-type answer sheet.

C. Depending on the format of the exam, which will be posted on the Competition Updates page three (3) months prior to the conference, participants shall be prepared to bring:
   1. Two (2) sharpened No.2 pencils
   2. One (1) laptop
   3. Extra charged laptop battery

D. Should the test be administered online, participants will be required to use their own laptops to take the timed exam. Participants will not:
   • be required to download software on-site.
   • have access to electrical power/outlets during the event.

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E. Participants will:

- be given one (1) hour to complete the sixty (60)-question exam with one (1) minute to read and answer each question.
- need to provide Internet access (TSA will not supply Internet).
- not be allowed to use additional resources when taking the exam.

F. Refer to the Competition Updates page (3) months prior the conference regarding logistics pertaining to the exam.

### SEMIFINAL ROUND

A. Semifinalists report at the time and location stated in the conference program to schedule the on-site challenge.

B. Semifinalists report to the event area at the designated time and place.

C. Participants are administered the problem.

D. Semifinalists are given ten (10) minutes to troubleshoot the issue.

E. After ten minutes has commenced, the participant is allowed five (5) minutes to communicate the issue, approach, and resolution to the judges.

F. All solutions must be tested, demonstrated and presented by participants in front of the judges.

G. The LEAP Response:

1. Participants document the leadership skills they have developed and demonstrated while working on this event, and on a non- competitive event leadership experience.

2. Find specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

1. The test score is used to determine the twelve (12) semifinalists.

### SEMIFINAL ROUND

1. Semifinalists will be evaluated on their delivery and solution to the on-site problem, and the content and quality of their LEAP Response.

## STEM INTEGRATION

Depending upon the subject of the problem, this event may align to one or more STEM areas.

## CAREERS RELATED TO THIS EVENT

This competition connects to one or more of the careers below:

- Information support & services
- Network systems
- Programming & software development
- Web & digital communications
- Help desk
- Computer software engineer

# SAMPLE CHALLENGE TOPICS

This list serves only as an *example* of challenge categories.*

## DEVICES

1. Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices.

## HARDWARE & SOFTWARE

1. Assess issues pertaining to hardware/software components

2. Assess issues pertaining to the collection and exchange of data

## TROUBLESHOOTING

1. Systematically identify and fix problems with computing devices and their components.

## NETWORK COMMUNICATION AND ORGANIZATION

1. Understand the role of protocols and how they enable secure and precise communication.

## SAFETY LAW & ETHICS

1. Describe trade-offs between allowing information to be public and keeping information private and secure.

## STORAGE

1. Represent data using multiple encoding schemes.

## PROGRAM DEVELOPMENT

1. Systematically test and refine programs using a range of test cases to better meet the need of users and to evaluate whether programs function as intended.

## CULTURE

1. Compare tradeoffs associated with computing technologies that affect people's everyday activities and career options.

2. Discuss issues of bias and accessibility in the design of existing technologies.

*Challenge categories are based on the Computer Science Teachers Association (CTSA) K-12 standards.

# FOUNDATIONS OF INFORMATION TECHNOLOGY (FIT)

## 2020 & 2021 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 is present (if applicable)
☐ Completed LEAP Response 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)** | |

| SEMIFINAL ON-SITE PROBLEM – SUBJECTIVE (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 | |
| **Troubleshooting** (X2) | Participant did not understand the problem. The solution was not identified. Participant did not demonstrate an understanding of basic IT knowledge. | Participant demonstrated an adequate understanding of the problem. The solution was identified, but the participant struggled with the application of the solution. | Participant clearly understood the problem. Solution was identified, and applied appropriately. | |
| **Technical Skill** (X2) | Participant did not demonstrate knowledge of and an understanding of how to utilize the technological equipment and techniques; participant shows little or no creativity in troubleshooting methods. | Participant demonstrates some knowledge of and understanding of how to utilize the technological equipment and techniques; participant shows some creativity in applied techniques. | Participant clearly demonstrates knowledge and understanding of how to utilize the technological equipment and techniques; participant shows creativity and a high level of skill in applied techniques. | |

## SEMIFINAL ON-SITE PROBLEM – SUBJECTIVE (50 points) – continued

| Delivery (X1) | Participant is verbose and/or uncertain in his/her presentation; participants' posture, gestures, and lack of eye contact diminish the presentation. | Participant is somewhat well- spoken and clear in his/ presentation; participants' posture, gestures, and eye contact are acceptable in the presentation. | Participant is well-spoken and distinct in its presentation; the participants' posture, gestures, and eye contact result in a polished, natural, and effective presentation. | |
|---|---|---|---|---|
| | | **SEMIFINAL ON-SITE PROBLEM (SUBJECTIVE) SUBTOTAL (100 points)** | | |

*Record scores in the column spaces below.*

## SEMIFINAL LEAP RESPONSE (10 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| | 1-4 points | 5-8 points | 9-10 points | |
| LEAP Response (10% of the total event points) | The individual's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The individual's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The individual's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | **SEMIFINAL LEAP RESPONSE 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: _____

| | |
|---|---|
| **SEMIFINAL SUBTOTAL (60 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: _____

# FOUNDATIONS OF INFORMATION TECHNOLOGY (FIT) EVENT COORDINATOR INSTRUCTIONS

## PERSONNEL

A. Event coordinator

B. Judges:

  1. Semifinalist round, two (2) or more

C. Assistants for the set-up, monitoring, and clean-up of the on-site activity, 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/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. Twelve (12) copies of a well-written, technologically appropriate problem that can be objectively measured, one (1) copy per individual

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

I. Stopwatch or clock for the timekeeper

## RESPONSIBILITIES

### AT THE CONFERENCE

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

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

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

  4. 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.

  5. At least one (1) hour before the event is to begin, 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.

### PRELIMINARY ROUND

  1. 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).

  2. 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.

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

  4. Participants registered but not present shall be disqualified, unless they have received approval from the CRC. No additional time will be granted to take the exam.

  5. Should the test be administered via scan-type answer sheet, proceed with the following steps:

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

     b. All participants should be in the room at this time.

     c. Distribute the answer sheet (scan-type) and paper.

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

     e. Score the exams if needed.

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

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

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

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

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

## SEMIFINAL ROUND

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

2. Coordinate with the event manager to ensure that the stage is set for the on-site problem. Check and ensure that:

   - the required technical equipment is in place and functioning as needed.
   - the necessary connections are in place.
   - the problem can be easily replicated.

3. Semifinalists report to the event area at the time and place noted in the conference program to sign up for a skills presentation time.

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

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

6. Students must have software needed for the competition downloaded and accessible on their computers (requirements will be posted under the Competitions/Themes and Problems section of the TSA website).

7. 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.

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

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

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

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

# INVENTIONS AND INNOVATIONS

## OVERVIEW

Teams investigate and determine the need for an invention or innovation of a device, system, or process and then brainstorm ideas for a possible solution related to the current year's theme, noted on the TSA website under Competitions/Themes and Problems. Team entries must include documentation of the team's work through an interactive display and a model/prototype. Semifinalists make an oral presentation to a panel of judges (who act as venture capital investors) to persuade the panel to invest in their invention/innovation. Judges interview the participants.

## ELIGIBILITY

### PRELIMINARY ROUND

1. One (1) team of at least three (3) individuals per chapter may participate.

### SEMIFINAL ROUND

1. Three (3) team members may participate from a qualifying team.

## TIME LIMITS

Semifinalists will be allowed:

1. Two (2) minutes for set up
2. Five (5)-minutes for an oral presentation
3. Two (2) minutes for a question and answer session
4. One (1) minute for the removal of presentation items

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Teams identify a need that has the potential for the invention/innovation of a device, system, or process in relation to the current year's theme.

2. Team members research issues and gather information about the identified need. They should review the publication, *Standards for Technological Literacy* (and topics in this document regarding design and invention), so that relevant information can be included in the display.

3. Teams brainstorm ideas for possible inventions/innovations relative to the current year's problem statement and work on the design and details.

4. To feature the invention/innovation, teams develop documentation of their work through an interactive display and create a model/prototype.

5. Teams design and construct the model/prototype and any visual aid(s) to enhance the display. The model/prototype can be scaled and, therefore is more of a conceptual model—versus a working model—of a device, system, or process.

6. Teams prepare an oral presentation that will further explain the invention/innovation to a panel of judges acting as venture capitalists on-site at the conference.

### PRELIMINARY ROUND

1. No more than two (2) team members check-in the following at the time and place stated in the conference program:
   a. The interactive display
   b. The model/prototype
   c. A hard copy of the LEAP Response with no report cover

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

3. A list of twelve (12) semifinalists (in random order) will be posted.

## SEMIFINAL ROUND

1. Semifinalists will sign up for an oral presentation at the time and place stated in the conference program.

2. Representatives from each team report at the designated time to give a brief presentation and respond to inquiries from the judges.

3. The LEAP Response will be judged for semifinalist teams.

4. Ten (10) finalists will be announced at the awards ceremony.

## REGULATIONS AND REQUIREMENTS

### PRELIMINARY ROUND

A. The invention/innovation entry (of a device, system, or process) must be the result of an identified need.

B. Interactive display:
   1. Invention Name
   2. Description of the invention/innovation
   3. Explanation of the necessity
   4. Description of brainstorming process
   5. Drawings, or illustrations of the invention/innovation
   6. Process of building the model prototype
   7. The display must include at least three (3) elements that are interactive.
   8. The size of the display (the portfolio and the model/prototype) for the invention/innovation may not exceed 15" deep x 3' wide x 4' high.
   9. A/C electricity may not be used
   10. Dry cell or photo-voltaic cells may be used for power, if desired. Any power source used must fit within the maximum display area.
   11. If operating instructions are necessary, they must be clearly displayed.

12. Violation of the following will result in disqualification:
    a. No viruses, live plants, or animals may be used as a part of the display.
    b. No harmful or illegal substances may be displayed.

C. Model/Prototype:
   1. The model/prototype may be a scaled version of the invention/innovation idea.
   2. It is the invention/innovation idea that will be evaluated, however, 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
   4. A/C electricity may not be used.

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

E. Participants pick up their entries at the time specified in the conference program.

### SEMIFINAL ROUND

A. Semifinalist teams sign up for a presentation time on the date and time noted in the conference program.

B. Semifinalist presentation (oral)
   1. Time limits:
      a. Two (2) minutes for set-up
      b. Five (5) minutes for the presentation
      c. Two (2) minutes for a question/answer session
      d. One (1) minute for removal of the presentation items
   2. The presentation is limited to three (3) team members. Each member should be an active participant in the presentation.

3. The use of visual aid material is encouraged.

4. The goal of the team is to convince the judges that the invention/innovation is needed and has real-world potential.

B. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

1. The effectiveness of the display and the model/prototype.

### SEMIFINAL ROUND

1. The effectiveness of the participants to convince the judges that the invention/innovation is needed and workable, and that it has the potential for a return on an investment

2. The content and quality of the LEAP Response

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 connects to one (1) or more of the careers below:

- Engineer
- Multimedia designer
- Product designer
- Small business owner

# INVENTIONS AND INNOVATIONS

## 2020 & 2021 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.

☐ Display is present
☐ Model/Protype is present
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

| STATIC ENTRY (80 points) | | | | Record scores in the column spaces below. |
|---|---|---|---|---|
| **CRITERIA** | Minimal performance<br>1-4 points | Adequate performance<br>5-8 points | Exemplary performance<br>9-10 points | |
| **Display**<br>(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**<br>(X2) | Description of need for invention/innovation is provided, but it 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. | |
| **Illustration / drawings**<br>(X1) | Only one or two illustrations/sketches of the model/prototype are displayed, with little or no evidence that a model/prototype was well-developed or utilized. | Adequate illustrations/sketches 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. | |
| **Brainstorming process**<br>(X1) | Description of the brainstorming process includes little or no details. | Description of the brainstorming process is provided, with sufficient detail about the process. | There is clear evidence that brainstorming served as a key component of the process. | |
| **Model/Prototype**<br>(X2) | Model/Prototype is present but is not complete or is lacking in quality. | Model/Prototype is present and is good quality; the object portrays good craftsmanship and adequately portrays the invention or innovative ideal; the quality is aesthetically pleasing. | The Model/Prototype is complete and crafted exceptionally well, and quality is aesthetically pleasing; the model/proptype leaves no question to the idea or invention's use or reason. | |
| **STATIC ENTRY 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 (80 points)**

## SEMIFINAL PRESENTATION/INTERVIEW (85 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | Record scores in the column spaces below. |
|---|---|---|---|---|
| | 1-4 points | 5-8 points | 9-10 points | |
| **Organization** (X1) | Participants seem unorganized and unprepared for the presentation/interview; illogical explanation of the need and solution is presented. | Participants are generally prepared for the presentation/interview; explanation of the need and solution are communicated and generally organized. | The presentation/interview 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 an understanding of the concepts in their project. | Participants show clear evidence of a thorough understanding of the concepts in their project. | |
| **Articulation** (X1) | The presentation/interview is full of illogical thoughts that lack clarity, and/or there is insufficient information provided describing the project. | The presentation/interview is somewhat logical, easy-to-follow, and/or there is sufficient information provided describing the project. | The presentation/interview is clear, concise, and there is ample information provided describing the project. | |
| **Delivery** (X1) | The team is verbose and/or uncertain in its 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. | 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. | |
| **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. | |
| **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 generally are 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 interview questions; there is shared responsibility among the team members. | |
| **LEAP Response** (15 points; 10% of total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| **SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (85 points)** | | | | |

## INVENTIONS AND INNOVATIONS

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 (85 points)

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.     TOTAL (165 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 copy for the coordinator and each judge/assistant

    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. Table and chairs for event coordinator and judges

## RESPONSIBILITIES

### AT THE CONFERENCE

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

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

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

4. 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.

5. At least one 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.

## CHECK-IN

1. Check-in the entries at the time stated in the conference program.

2. No more than two (2) team members may check-in the entry.

3. Participants check-in:

    a. Interactive display

    b. Model/prototype

    c. The LEAP Response

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

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

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

7. 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

1. Judges independently review the entries.

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

    • To deduct twenty percent (20%) of the total possible points in this round

    • To disqualify the entry

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

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

4. Submit semifinalist results to the CRC room.

5. In the designated area, post a time sign-up list for semifinalist presentations and any instructions for the semifinalist participants.

6. Manage the pick-up of non-semifinalist entries.

## SEMIFINAL ROUND

1. Prepare a list of standard interview questions (five to ten [5-10]) to be asked of all participants.

2. At least one (1) hour before the semifinalist presentations are scheduled to begin, meet with judges/assistants to review time limits, procedures, standard questions for the semifinalist presentations, and regulations.

3. Check the area or room in which the presentations will take place for appropriate set up. Notify the event manager of any potential problems.

4. Check-in semifinalists at the time stated in the conference program. Confirm with the teams their order of presentation and the procedure.

5. Assist judges in completing the evaluation process.

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

7. Judges determine the ten (10) finalists, and break any ties for the top three (3) entries, as necessary.

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

9. Manage security for viewing 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 in grades 5-8 to apply science, technology, engineering, and mathematics (STEM) concepts, 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 is available in the Educational Resources link found on the AEOP JSS website.

## ELIGIBILITY

One (1) team of two to four (2-4) students per chapter may participate; one (1) entry per team.

Participants must be:
- Part of a registered Technology Student Association chapter, or
- Part of a group that competes at an approved Army host site

## TIME LIMITS

All models meeting safety and performance criteria will be given up to two (2) time trials.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## 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 will be distributed to each participating team member in the JSS event.

## PROCEDURE

### PRE-CONFERENCE

1. Participants design and create their solar-powered car while working within the required specifications.

2. Participants record their design processes in a portfolio.
3. Participants prepare a display to showcase only:
   a. The solar-powered model car
   b. A decorated shoebox
   c. The portfolio

### PRELIMINARY ROUND

1. Participants report to the time and place stated in the conference program and check in:
   a. A solar-powered model car
   b. The decorated shoebox
   c. The portfolio
   d. A hard copy of the LEAP Response with no report cover, separated from the portfolio

2. Entries are reviewed by judges to determine specification adherence and safety on the track.
3. All models meeting safety and performance criteria will be given up to two (2) time trials.
   a. The fastest time of these time trials will determine the sixteen (16) top semifinalist cars to be raced.
   b. Cars that are disqualified for any reason will not be permitted to participate in the semifinalist races.

4. Four (4) evaluated areas will be used to determine final standings (see criteria for assessment and racing performance on the official rating form).
5. A list of sixteen (16) semifinalists will be posted.

### SEMIFINAL ROUND

1. The semifinalist interview must include all team members.
2. 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.

3. The LEAP Response will be judged for semifinalist teams.

    a. Teams document the leadership skills they have developed and demonstrated while working on this event, and on a non-competitive event leadership experience.

    b. Find specific LEAP Response regulations in the LEAP Program section of this guide, and on the TSA Website.

4. Ten (10) finalists (selected based on the elimination racing process) will be announced during the conference award ceremony.

## REGULATIONS

### PRE-CONFERENCE

A. Documentation materials (comprising a "portfolio") are required and should be placed and secured in a clear front report cover (click here for a sample).

1. The report cover must include a label with the team ID and 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; 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 collector 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

    h. Sections of the portfolio may be organized by dividers

B. The display must include the model, decorated shoebox and portfolio only.

1. The model must accurately reflect the design process outlined in the online resources found on the AEOP JSS website.

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. The 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.

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 (23⅝ inches) length
    b. 30 cm (11¾ inches) width
    c. 30 cm (11¾ inches) height (as measured from the surface the car is resting upon to the highest point of the car, with all its components attached)

11. Each vehicle must include a mounted battery holder that is capable of holding two AA batteries. The battery holder needs a switch or another easy device to operate a method of 'switching on' the battery power at the starting line. For example, a Single Pole Double Throw (SPDT), center off switch, to change from solar panel to battery power would be appropriate.

12. Energy-enhancing devices, such as mirrors, must be firmly attached to the vehicle.

13. 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#.

14. 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.

15. 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.
    b. The model's motor power leads must be readily accessible for easy attachment to a battery pack.

E. A student-designed attachment device must be part of the car to accommodate the easy attachment and removal of 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 ⅝ cm 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 60 cm wide and 20 m 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 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.

4. No more than two (2) team members will be allowed in the start area.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. Judges may inspect cars at any time before, during, and after timed trials or semifinalist races.

13. 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.

B. The semifinalist interview must include all team members.

C. The LEAP Response:

    1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

    2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

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

## EVALUATION
### PRELIMINARY ROUND

1. The documentation portfolio
2. The artisanship and engineering of the model solar car
3. Creativity in the decoration of the shoebox
4. The model's racing performance
5. Time trials

### SEMIFINAL ROUND

1. The semifinalist interview, which includes all team members

2. The time trials regulations in the preliminary round also apply to the semifinal races. Semifinalist racing of the top sixteen (16) time trial winners, which will be conducted using a double elimination bracket. Teams will be ranked based on their fastest recorded time from time trials. Semifinal races will not be timed, however, the winner will be determined by the car that crosses the finish line first, barring any penalties.

3. The content and quality of the LEAP Response

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.

## STEM INTEGRATION

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

## CAREERS RELATED TO THIS EVENT

This competition connects 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. | | | | | | |

Advisor Signature: _____

# SUPPLIED COMPONENTS LIST

| Part | Description | Purchased Recycled | Cost |
|------|-------------|--------------------|------|
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|      |             |                    |      |
|      |             |          TOTAL     |      |

# RACE BRACKET FOR 16-CAR DOUBLE ELIMINATION

Double Elimination Tournament Chart Seeded 16 player Field

# JUNIOR SOLAR SPRINT
## 2020 & 2021 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
☐ Model car with solar panel is present
☐ A decorated shoebox
☐ The model is safe to participate in the time trials and, if deemed appropriate, the semifinalist races.
☐ The model meets all required specifications
☐ Completed LEAP Response is present

### 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 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)** | | | | |

# JUNIOR SOLAR SPRINT

| DOCUMENTATION (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** See Regulation A (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; 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 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 TOTAL (130 points)** | |

| 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 | |
| **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: _____ | |

## LEAP RESPONSE/INTERVIEW (39 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<br><br>(X3) | The student 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 student demonstrates some knowledge of the dragster production and has adequate knowledge of some processes or reasoning behind the vehicle design. | The student shows competence and knowledge related to the design and production of the vehicle; the student is able to articulate "reasoning" behind the decisions made. | |
| LEAP Response<br>(9 points;<br>10% of total seminfal points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | | **LEAP RESPONSE/INTERVIEW SUBTOTAL (39 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 (99 points)**

To arrive at the FINAL TOTAL score, subtract rules violation points, as necessary. **TOTAL SCORE (99 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 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

### AT THE CONFERENCE

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

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

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

4.  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.

### PRELIMINARY ROUND

1.  Participants report to the time and place stated in the conference program and check in:

    a.  The solar-powered model car and decorated shoebox

    b.  The portfolio

    c.  A hard copy of the LEAP Response with no report cover, separated from the portfolio

2.  Secure the entries in the designated area.

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

4.  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.

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

6.  Position the Junior Solar Sprint portfolios and models for viewing by the judges, and assist them as necessary during judging.

7.  Set up the race track prior to the time trials. Make necessary adjustments.

8.  Permit all vehicles (that can be safely operated) to participate in time trials.

9.  Vehicles that are disqualified will NOT be permitted to participate in the semifinalist races.

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

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

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

11. Judges determine the sixteen (16) semifinalists.

12. Submit the semifinalist results to the CRC room.

## SEMIFINAL ROUND

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

2. Repeat the race procedures from the preliminary round time trials to run the semifinal races.

3. Evaluate the LEAP Response for semifinalists.

4. Judges determine the ten (10) finalists, and break any ties for the top three (3) entries, as necessary.

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

6. At the designated time, return models and portfolios to student participants.

7. Manage security for viewing and the removal of materials from the event area.

# LEADERSHIP STRATEGIES

## OVERVIEW

Participants demonstrate leadership and team skills by preparing a presentation based on a selected challenge that officers of a TSA chapter might encounter.

## ELIGIBILITY

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

## TIME LIMITS

1. Presentations must be between three and five (3-5) minutes.

2. Teams will be penalized one (1) point per ten (10) seconds for speaking over five (5) minutes or under three (3) minutes.

3. Time commences when the first team member begins talking and concludes at the end of the presentation.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRELIMINARY ROUND

1. Team members report to the event area at the time and place stated in the conference program to sign-up for a presentation time and submit a hard copy of the LEAP Response with no report cover.

2. 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 will present. The cards with the unused topics are returned to the box.

3. 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.

4. The event coordinator introduces each team by team identification number only in the order of the sign-up time.

5. The timekeeper visually notifies the team of the time remaining for the presentation by using six (6) separate note cards. Each of the 5" x 7" note cards has a "time remaining in minutes" number on it (4, 3, 2, 1, ½, and 0), and each is shown to the team in descending order by the timekeeper during the presentation.

6. After speaking, the team returns the topic card to the judges so that it can be returned to the topics box.

7. Judges independently score each presentation according to the criteria on the official rating form.

8. A list of twelve (12) semifinalists (in random order) will be posted.

### SEMIFINAL ROUND

1. Semifinalists report to the event area at the time and place stated in the conference program to sign-up for a presentation time.

2. Semifinalist teams report to the event area at their assigned time for the same procedure used in the preliminary round, but with a different set of topics.

3. The LEAP Response will be judged for semifinalist teams.

4. Ten (10) finalists will be announced during the conference award ceremony.

## REGULATIONS AND REQUIREMENTS

### PRELIMINARY AND SEMIFINAL ROUNDS

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 will be 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.

H. The LEAP Response:

   1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

   2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

**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

   1. The team's effective use of problem-solving and cooperative skills to create and deliver a presentation that addresses a selected topic

   2. The content and quality of the LEAP Response

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.

## 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.

# LEADERSHIP STRATEGIES

## 2020 & 2021 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.

☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

| PRESENTATION (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 | |
| **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. | Team members generally are engaged in the process, though one member may take on more responsibility than the other(s). | All team members are equally and actively involved in the presentation. | |
| **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)** | | | | |

# LEADERSHIP STRATEGIES

## TIME DEDUCTIONS

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: _____

| **PRELIMINARY SUBTOTAL (80 points)** | |
| --- | --- |

## SEMIFINAL LEAP RESPONSE (8 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance |
| --- | --- | --- | --- |
| **LEAP Response** (10% of total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. |

| **SEMIFINAL LEAP RESPONSE SUBTOTAL (8 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 (8 points)** | |
| --- | --- |

| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.   **TOTAL (88 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 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. Six (6) 5" x 7" notecards for "time remaining in minutes" numbers (see Procedure E)

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

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

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

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

4. 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.

5. 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

1. Manage the smooth flow of participants according to these procedures:

a. 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.

b. 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.

c. 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.)

    d. The event coordinator introduces each team by registration number only in the order of the sign-up time.

2. After speaking, the team returns the topic card to the judges so that it can be returned to the topics box.

3. Judges independently rate each presentation according to the criteria on the official rating form.

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

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

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

5. When teams have finished, judges determine the semifinalists, consulting the timekeeper's record.

6. The timekeepers notify judges of any time under three (3) minutes or over five (5) minutes, for which deductions should be made.

7. Judges determine the twelve (12) semifinalists (if heats are used), and discuss and break any ties.

8. Submit semifinalist results to CRC for posting.

### SEMIFINAL ROUND

1. Repeat the process above to determine the finalists.

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

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

# MASS PRODUCTION

## OVERVIEW

Participants manufacture a marketable product related to the current year's theme, noted on the TSA website under Competitions/Themes and Problems. Teams will create three identical copies 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.

## ELIGIBILITY

One (1) team of at least two (2) individuals per chapter may participate. Two (2) members of a team must be present at a semifinalist presentation/interview.

## TIME LIMITS

The semifinalist presentation may be up to five (5) minutes in length, and the interview will be no more than five (5) minutes in length.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

During the school year, participants should follow these steps in preparing their entry:

1. Research designs for products related to the current year's theme.
2. Create working drawings.
3. Develop a prototype that can be replicated for three [3] identical copies of the product. Only the prototype will be submitted on-site as part of the entry.
4. Devise production plan flow chart(s).
5. Develop a personnel plan with assigned responsibilities.
6. Tool up for production.
7. Conduct a trial run and evaluate process effectiveness and efficiency.
8. Manufacture several products using line production techniques.
9. Be sure to include images and documentation of the additional copies of the prototype as part of the portfolio submission.
10. Document the team project with a photo time line.

### PRELIMINARY ROUND

1. Participants check-in the following at the time and place stated in the conference program:
   a. The documentation portfolio
   b. The prototype
   c. A hard copy of the LEAP Response with no report cover, separated from the portfolio
2. No more than two (2) team members may turn in an entry.
3. Entries are independently reviewed by judges with neither students nor advisors present.
4. A list of twelve (12) semifinalist teams (in random order) will be posted.

### SEMIFINAL ROUND

1. Representatives from each semifinalist team report to the event room at the time and place stated in the conference program.
2. Semifinalist teams present to the judges explaining the manufacturing process used in the production of the product.
3. The presentation is followed by an interview.
4. The LEAP Response is reviewed by the judges.
5. Ten (10) finalists are announced at the awards ceremony.
6. No more than two (2) students pick up their team's entry from the display area at the time and place stated in the conference program.

## REGULATIONS AND REQUIREMENTS

### PRE-CONFERENCE

A. Documentation

1. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover (click here for a sample).

2. The report cover must include 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

   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; three (3) pages maximum

   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; up to two (2) pages

   i. Photographic verification: photographic or digital images that verify the mass production of three (3) total identical copies including the prototype; up to two (2) pages

3. All documentation, with the exception of the LEAP Response, must be contained in the portfolio.

4. Tabs or dividers may be used between sections of the portfolio and are not counted as pages.

5. Sheet protectors may be used.

B. Prototype of product

1. Craftsmanship

   a. The product must display good craftsmanship.

   b. The product must maintain tolerances as indicated by the working drawings.

2. Appropriate materials: The product must use the materials in a manner that adds value to the product.

3. Efficiency of design: The product must address the identified consumer need, and use the materials effectively.

4. Aesthetics: The product must be pleasing to view.

5. Ergonomics: The product must be easy to use.

6. Appropriate solution: The product must function in a manner that solves the identified problem.

7. Creativity: The product must display an original solution to the identified consumer need.

8. ONLY the documentation contained within the portfolio and the prototype may be submitted for judging.

9. The documentation and prototype must be displayed in such a way that they do not exceed 15" deep x 15" wide x 15" high. Participants are encouraged to stack their items to avoid exceeding these limits.

10. A twenty percent (20%) deduction of the total possible points will take place should the three product copies and documentation be displayed in a manner that exceeds the dimensions outlined.

## PRELIMINARY ROUND

A. No more than two (2) team members may turn in an entry.

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

## SEMIFINAL ROUND

A. Two (2) team members may participate in the presentation/interview.

B. Participants will have three to five (3-5) minutes to explain their manufacturing process, finished product, and a plan to market their product.

C. Teams may bring and use audio/visual materials and a laptop for their presentation.

D. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

1. The documentation and the prototype

### SEMIFINAL ROUND

1. The presentation/interview and the content and quality of the LEAP Response

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:

• Electromechanical engineer
• Mechanical drafter
• Production planner
• Standards engineer

# MASS PRODUCTION
## 2020 & 2021 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
- ☐ Prototype is present
- ☐ Completed LEAP Response is present
- ☐ ENTRY NOT EVALUATED

| STATIC ENTRY (110 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** See Regulation A (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; effort and quality of work are evident. | |
| **Description of product** Instructions for use (X1) | Description of the product and instructions for its use are unclear. | Description of the product and instructions for its use are 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; they are generally organized and display overall quality. | Design effort components are included; effort and high quality of work are evident. | |
| **Working drawings** (X1) | Working drawings are sloppy and disorganized; they do not demonstrate labeling and dimensioning. | Working drawings are of sufficient quality, and 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. | |
| **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, and creativity or uniqueness are somewhat apparent. | Product is built to detailed standards, and it is of a quality that could be purchased by a consumer; the design is unique and demonstrates creativity. | |

## STATIC ENTRY (110 points) – continued

| | | | | |
|---|---|---|---|---|
| **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. | |
| **STATIC ENTRY SUBTOTAL (110 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 (88 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/ interview; illogical explanation of the product is presented; team exhibits difficulty with the use of audio/visual materials. | Participants are generally prepared for the presentation/interview; explanation of the product is communicated and generally organized; audio/visual materials are used somewhat effectively. | The presentation/interview 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. | |
| **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/or clear. | Participants show clear evidence of a thorough understanding of the project; the presentation is concise and logical. | |
| **Articulation** (X1) | The presentation/interview lacks clarity, and/or there is insufficient information provided describing the project. | The presentation/interview is somewhat logical, easy-to follow, and/or there is sufficient information describing the project. | The presentation/interview is clear, concise, and there is ample information describing the project. | |
| **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 generally 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; the participants' posture, gestures, and eye contact result in a polished, natural, and effective presentation/ interview. | |

# MASS PRODUCTION

| SEMIFINAL PRESENTATION/INTERVIEW (88 points) – continued | | | | |
|---|---|---|---|---|
| **LEAP Response**<br>(18 points;<br>10% of the total<br>event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | **SEMIFINAL LEAP INTERVIEW SUBTOTAL (88 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 (88 points)** | |

| | |
|---|---|
| **To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.**     **TOTAL (198 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 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. Tape measure to determine the size of the product

C. Display tables for entries

D. Chairs for event coordinator and judges

## RESPONSIBILITIES

### AT THE CONFERENCE

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

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

3. 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.

4. 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.

### CHECK-IN

1. Check-in the entries at the time stated in the conference program.

2. Participants check-in:

a. The documentation portfolio

b. One (1) prototype

c. The LEAP Response

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

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

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

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

### PRELIMINARY ROUND

1. Position documentation and products for viewing by judges.

2. Judges independently assess the entries.

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

- To deduct twenty percent (20%) of the total possible points in this round

- To disqualify the entry

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

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

5. Submit semifinalist results to the CRC room.

### SEMIFINAL ROUND

1.  Two (2) team members may participate in the presentation/interview.

2.  Participants will have three to five (3-5) minutes to explain their manufacturing process, finished product, and a plan to market their product.

3.  Teams may bring and use audio/visual materials and a laptop for their presentation.

4.  Judges independently assess the semifinal presentation/interview and LEAP Response.

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

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

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

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

# MECHANICAL ENGINEERING

## OVERVIEW

Teams will 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 in detail their knowledge of mechanical engineering and the application of their research as a design element or inspiration for their mechanical device, while observing the current year's theme. The theme will be posted on the TSA website under Competitions/Themes and Problems. Teams demonstrate and promote their work in a timed presentation.

## ELIGIBILITY

One (1) team of three to six (3-6) members per chapter is allowed to participate; one (1) entry per team.

## TIME LIMITS

1. Pre-built structures must be started and completed during the current school year.

2. The mechanical device must be checked-in and its functionality demonstrated during the preliminary round. Teams will be allowed:

   - Three (3) minutes to set up for the demonstration
   - Five (5) minutes for the actual demonstration
   - Three (3) minutes for resetting the device to the starting point
   - Time violation: a deduction of five (5) points will be incurred for exceeding any time limit and teams will be stopped 1 minute after the given time if exceeded

3. Semifinalist interviews lasting no more than ten (10) minutes are based on the mechanical device design process, and will not be open to the public.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Teams must:

   a. Identify and understand the use of subsystems within a larger system

   b. Research and identify an engineering design process chosen that influenced the design of your static entry

   c. Research and gather information about the uses and purposes of simple machines

   d. Brainstorm ideas for possible solutions

   e. Design and construct a mechanical system that can be used to solve the problem

   f. Prepare an oral presentation to further explain the team's research and solution

### PRELIMINARY ROUND

1. Participants check-in at the time and place indicated in the conference program, with no more than three (3) team members at event check-in:

   a. One (1) prototype of a mechanical device

   b. Documentation materials (comprising a "portfolio")

   c. A hard copy of the team LEAP Response with no report cover, separated from the portfolio

2. Upon check-in, entries are independently reviewed for safety hazards only.

3. Each team will sign up for a time to test the device.

4. Participants proceed to the place indicated in the conference program at the assigned time to sign up for demonstration time and submit the device and documentation.

5. Participants demonstrate the mechanical aspects of their device at the assigned time.

6. Judges evaluate the entry and its components.

7. A list of twelve (12) semifinalist teams (in random order) will be posted.

**SEMIFINAL ROUND**

1. Semifinalists participate in an on-site interview.

2. The LEAP Response and documentation materials will be judged for semifinalist teams.

3. All entry materials must be picked up by no more than three (3) team members at the time and place stated in the conference program.

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

## REGULATIONS AND REQUIREMENTS

**PRELIMINARY ROUND**

A. Documentation materials (comprising a "portfolio") are required and must be secured in a clear front report cover (click here for a sample).

1. The report cover must include 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. Identification and explanation of engineering design process; up to six (6) pages

   c. Explanation of usage of simple machines in solution for design efforts

   d. Bill of Materials

   e. Photographic verification of work

B. Team LEAP Response

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership eperience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

C. Mechanical Device/Display

1. Mechanical Device must fit within the size requirement published in the current year's problem/theme.

2. Must reflect and incorporate the theme, in addition to components of the engineering design process researched.

## EVALUATION

**PRELIMINARY ROUND**

1. The portfolio

2. The design and performance of the system, specifically as it relates to the research and theme.

3. The participant's overall understanding of mechanical engineering and the engineering design process through the device demonstration.

**SEMIFINAL ROUND**

1. The content and quality of the interview and LEAP Response (semifinalists only).

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 connects to one (1) or more of the careers below:

- Engineer
- Multimedia designer
- Product designer
- Small business owner

# MECHANICAL ENGINEERING

## 2020 & 2021 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
☐ Device is present
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

| MECHANICAL 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 | |
| **Portfolio** (X1) | Portfolio is missing three (3) or more components, and it is unorganized; it is messy and of low quality. | Portfolio has most components, is somewhat organized, and exhibits some quality. | All components are included and there is clear evidence of quality and organization. | |
| **Engineering design process** (X2) | 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. | |
| **Mechanical device 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. | |
| **Demonstration of device** (X3) | Device works with only two to three (2-3) modifications made beyond the starting point. | Device works with only one (1) modification made beyond the intended starting point. | Device works with no modifications made beyond the starting point. | |
| **MECHANICAL DEVICE 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 (80 points)** | |

# MECHANICAL ENGINEERING

## SEMIFINAL LEAP RESPONSE/INTERVIEW (74 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| | 1-4 points | 5-8 points | 9-10 points | |
| Organization (X1) | Participants seem unorganized and unprepared; an illogical explanation of the solution is given. | Participants are generally prepared; explanation of the solution is communicated and generally organized. | The presentation/interview is logical, well organized, and easy to follow; the solution is communicated in a concise manner. | |
| Knowledge (X2) | Participants seem to have little under-standing 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 (X1) | 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 is verbose and/or uncertain; participants' posture, gestures, and lack of eye contact diminish the presentation/interview. | The team is somewhat well-spoken and clear; participants' posture, gestures, and eye contact are adequate. | The team is well-spoken and distinct; participants' posture, gestures and eye contact result in a polished, natural, and effective presentation/interview. | |
| Team participation (X1) | The majority of the delivery is made by one (1) member of the team; the partner(s) are disengaged from the presentation. | All team members generally are engaged in the process, although one (1) member may take on more responsibility than others. | All team members are actively involved in the presentation and responses to interview questions; there is a shared responsibility among the team members. | |
| LEAP Response (14 points; 10% of total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| SEMIFINAL LEAP RESPONSE/INTERVIEW SUBTOTAL (74 points) | | | | |

## TIME DEDUCTIONS

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

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 (74 points)

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.     TOTAL (154 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

2. Semifinal round, two (2) or more

C. Assistants, two to three (2-3)

## 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. 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. Tables and chairs for team presentations, as needed

E. Stopwatches

## RESPONSIBILITIES

### AT THE CONFERENCE

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

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

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

4. 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.

5. 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

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

2. Check the entry for safety only.

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

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

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

6. Secure the entries in the designated area.

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

### PRELIMINARY ROUND

1. 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.

2. Prepare a list of interview questions (five to ten [5-10]) to be asked of all semifinalists.

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

   • To deduct twenty percent (20%) of the total possible points in this round

   • To disqualify the entry

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

4. Judges independently assess the entries to determine the twelve (12) semifinalists.

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

6. Manage the pick-up of non-semifinalist entries.

## SEMIFINAL ROUND

1. Judges evaluate the LEAP Response.

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

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

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

# MEDICAL TECHNOLOGY

## OVERVIEW

Participants conduct research on a contemporary medical technology issue of their choosing, 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. Semifinalists give a presentation.

## ELIGIBILITY

1. Three (3) teams per state, two (2) or more individuals per team may participate.
2. The semifinalist presentation must include two to three (2-3) members of a team.

## TIME LIMITS

Semifinalists will be allowed up to ten (10) minutes for a presentation.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Team members choose a contemporary medical technology issue they would like to research.
2. Team members prepare their documentation display and prototype according to the regulations for this event.

## PRELIMINARY ROUND

1. Participants check in the following at the time and place stated in the conference program:
   a. The documentation display
   b. The model/prototype

2. No more than two (2) team members set up the display.
3. Entries are reviewed by judges with neither students nor advisors present.
4. A list of twelve (12) semifinalist teams (in random order) will be posted.

## SEMIFINAL ROUND

1. A representative from each semifinalist team will report at the time and location stated in the conference program to schedule a presentation. Two to three (2-3) representatives from each semifinalist team report to the event area at the time scheduled for the team's presentation.
2. Semifinalist team representatives make their presentation and may be asked questions by judges.
3. The LEAP Response will be judged for semifinalist teams.
4. Team members pick up their entry from the display area at the time and place stated in the conference program.
5. Ten (10) finalists will be announced during the conference award ceremony.

## REGULATIONS AND REQUIREMENTS

### PRE-CONFERENCE

A. Team members must understand the fundamental concepts and principles of the contemporary medical technology issue they select. Research should focus on significant impacts (opportunities and risks) on the environment, economy, and society, as well as any important ethical considerations.

B. Documentation/Display:

1. Documentation materials should be exhibited in a creative and effective manner on a stand-alone display.

2. Definition and explanation of the issue and solution.

3. An explanation of the impacts of the issue, such as relevance to environmental, economic, social, and/or ethical considerations.

4. Supporting information such as logs, graphs, sketches, drawings, illustrations, photographs.

5. A list of references and credible resources should be secure in a clear report cover (click here for a sample), along with the LEAP Response form; pages as needed.

6. The size of the display may not exceed 15" deep x 3' wide x 4' high.

7. The display must incorporate the use of design principles.

8. Appropriate graphic representations may be used in the display.

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

C. Model/Prototype of the solution:

1. Participants must create a model or prototype of the medical technology solution chosen.

2. Models/prototypes may be 3D printed or CNC manufactured.

3. Models 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. If operating instructions are necessary (including electronics), they must be clearly displayed.

7. Photographic verification of design and creation of the model or prototype must be included.

8. Dry cell or photo-voltaic cells may be used for power, if desired.

## PRELIMINARY ROUND

A. Once the display set-up time frame has closed, no one may re-enter the event area.

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. Each team must send two to three (2-3) representatives to a semifinalist presentation, which will last no longer than ten (10) minutes.

B. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

# EVALUATION

## PRELIMINARY ROUND

1. The documentation and the display

## SEMIFINAL ROUND

1. The presentation and content and quality of the LEAP Response

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:

- Dietitian
- Doctor
- Medical technologist
- Nurse
- Pharmacist
- Prosthetics practitioner

# MEDICAL TECHNOLOGY

## 2020 & 2021 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.

---

- ☐ Display Board
- ☐ Reference/Resource Page is Included
- ☐ Model/prototype is present
- ☐ Completed LEAP Response is present
- ☐ ENTRY NOT EVALUATED

| DOCUMENTS/DISPLAY (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 | |
| **Definition and explanation of the issue and solution** (X1) | Unclear definition and explanation of the issue are evident; it is difficult to understand the solution being communicated; an illogical explanation is presented. | Issue is defined and explained adequately; an explanation of the solution is adequately communicated. | There is evidence of a clear and concise definition and explanation of the issue; explanation of the solution is presented and communicated in an organized, clear, 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 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. | |
| **Supporting information** (X1) | Support information does not help to clarify documentation, and/or it is of little significance to the issue. | Support information is appropriate and helps supplement the documentation by providing clarity to the issue. | Support information is highly effective and of excellent quality. | |
| **Research, references, and resources** (X1) | Documentation lacks an adequate research base, and/or very few credible sources are referenced. | Research is conducted appropriately, 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 presented. | The issue is communicated and thoughts are organized somewhat concisely. | 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 organized somewhat concisely. | 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. | |

## DOCUMENTS/DISPLAY (90 points) – continued

| | | | |
|---|---|---|---|
| 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. | Display is exemplary in logically communicating important data. |

**DOCUMENTS/DISPLAY SUBTOTAL (90 points)**

## MODEL/PROTOTYPE (40 points)

| CRITERIA | Minimal performance 1-4 points | Adequate performance 5-8 points | Exemplary performance 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. | 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 organized somewhat concisely. | 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 integrated in the display. | 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 shows an organized presentation of the issue. | Model/prototype is exemplary in logically communicating important data. |

**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 (130 points)**

## SEMIFINAL PRESENTATION (79 points)

| CRITERIA | Minimal performance 1-4 points | Adequate performance 5-8 points | Exemplary performance 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 problem and solution are communicated and generally 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 (79 points) – continued

| | | | |
|---|---|---|---|
| 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. |
| Articulation (X1) | The presentation/interview is full of illogical thoughts that lack clarity, and/or there is insufficient information provided describing the project. | The presentation/interview is somewhat logical, generally easy to follow, and/or there is sufficient information provided describing the project. | The presentation/interview is clear, concise, and there is ample information provided describing the project. |
| Team participation (X1) | The majority of of the presentation is made by one member of the team; partner(s) 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). | Team members are actively involved in the presentation and responses to questions; there is shared responsibility among team members. |
| 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. |
| LEAP Response (19 points; 10% of the total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. |
| **SEMIFINAL PRESENTATION SUBTOTAL (79 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 (79 points)** | |

| | |
|---|---|
| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.　　**TOTAL (209 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 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. Measuring tape for judges

C. Display tables for entries

D. Table and chairs for event coordinator and judges

## RESPONSIBILITIES

### AT THE CONFERENCE

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

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

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

4. 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.

5. At least one (1) hour before the event is scheduled to begin, 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.

## PRELIMINARY ROUND

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

2. No more than two (2) Team members set up and check in:

a. Documentation Display

b. Model/Prototype

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

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

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

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

7. Prior to judging, position displays for viewing if needed.

8. Judges individually evaluate the entries.

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

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

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

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

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

## SEMIFINAL ROUND

1. Meet with judges to review time limits, procedures, and regulations for the semifinalist portion of the event.

2. Conduct semifinalist presentations.

3. If judges ask questions, they should be the same questions for each team for the purpose of comparing one team to another.

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

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

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

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

# MICROCONTROLLER DESIGN

## OVERVIEW

Teams develop 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 Competitions/Themes and Problems. Teams demonstrate and promote their work in a timed presentation.

## ELIGIBILITY

1. One (1) team per chapter may participate; a team of one (1) individual is permitted
2. No more than three (3) team members may participate in the presentation

## TIME LIMITS

Teams will be allowed:

1. Five (5) minutes to set up for the presentation
2. Five (5) minutes for the actual presentation
3. Three (3) minutes for removal of any items used in the presentation

Time violation: a deduction of five (5) points will be incurred for exceeding the five (5) minute presentation time limit.

## LEAP

A LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Participants develop a working digital device (product).
2. Participants create a portfolio, documenting their research and process.
3. Participants prepare an oral presentation.

### PRELIMINARY ROUND

1. Participants check in the following at the time and place stated in the conference program:
   a. The device (product)
   b. The documentation portfolio
   c. A hard copy of the LEAP Response with no report cover, separated from the portfolio
2. Participants sign up for a presentation time.
3. Portfolios are reviewed by judges in advance of the presentations.
4. No more than three (3) team members report to the designed event area at the assigned time.
   a. These three (3) team members will:
      i. Present their research findings
      ii. An explanation of the value of their product
      iii. A demonstration of the product's functionality
5. Judges may ask questions after the presentation is finished.

### SEMIFINAL ROUND

1. The LEAP Response will be judged for semifinalist participants.
2. Ten (10) finalists will be announced during the conference awards ceremony.

## REGULATIONS AND REQUIREMENTS

### PRE-CONFERENCE

A. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover (click here for a sample).

　1. The report cover must include 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 educational and/or social value of the project; pages as needed for each requirement.

　　d. Research into the problem; three (3) pages maximum

　　e. A Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member(s) responsible, and comments (See Plan of Work log in the Forms Appendix); one (1) page.

　　f. Circuit diagrams

　　g. Source code

　　h. Materials list

　　i. Team's evaluation of its work

　　j. List of references used for the project

B. Product

　1. The device (product) must include a programmed microcontroller that controls the device functionality.

　2. Aesthetics: The product must be well-designed and show good craftsmanship.

　3. Functionality: The product must operate as intended; remote control technology may be used to operate the device.

　4. Educational/Social Value: The product must have a level of educational and/or social value.

　5. Marketability: The product should be marketable.

　6. AC power and/or a dry cell battery may be used.

### PRELIMINARY ROUND

A. Presentation

　1. Participants are given five (5) minutes to set up their device.

　2. Participants are given five (5) minutes to explain the problem their device solves, and demonstrate the functionality of the device.

　3. A deduction of five (5) points will be incurred for exceeding the five (5)-minute presentation time limit.

　4. Judges may ask questions after the presentation.

　5. Participants will be allowed three (3) minutes for the removal of any items used in the presentation.

B. All portfolios and presentations become the property of TSA, Inc., and will not be returned after the event.

### SEMIFINAL ROUND

A. The LEAP Response:

　1. Participants document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

　2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

　1. The quality of work and overall benefit showcased in the participant portfolio

　2. The team's ability to promote their device (product), both to expand end-user usage and attract future developers

　3. The content and quality of the LEAP Response

Refer to the official rating form for more information.

## ADDITIONAL RESOURCES

www.avr-tutorials.com

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.

## CAREERS RELATED TO THIS EVENT

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

- Manufacturing
- Software engineer
- Technical writer

# MICROCONTROLLER DESIGN

## 2020 & 2021 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.

☐ Project portfolio is present
☐ Product is present
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

| DOCUMENTATION (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 | |
| **Portfolio components** See Regulation A (X1) | Portfolio is unorganized, missing three (3) or more of the required components (such as circuit diagrams, source code, and marketing plan, etc.), and/or components are of poor quality. | Portfolio is somewhat organized, contains most components, and is of adequate quality. | Portfolio is organized and includes all required components. | |
| **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 SUBTOTAL (20 points)** | | | | |

| PRODUCT (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 | |
| **Complexity** (X2) | Product is not complex, or not very complex; 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. | |

| PRODUCT (100 points) – continued | | | | |
|---|---|---|---|---|
| **Effectiveness** (X1) | Product does not appropriately provide a solution to the problem. | Product loosely provides a solution to the problem. | The solution to the problem is clear in the product. | |
| **Educational and/or social value** (X1) | Product does not have any, or has very little, educational and/or social value. | The product has adequate educational and/or social value. | The product has high social and educational value. | |
| **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 SUBTOTAL (90 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. | |
| **Delivery** (X1) | The participant(s) is/are verbose and/or uncertain in presenting; participants' posture, gestures, and lack of eye contact diminish the presentation. | The participant(s) is/are somewhat well-spoken and clear in presenting; participants' posture, gestures, and eye contact are acceptable in the presentation. | The participant(s) is/are well-spoken and distinct in presenting; participants' posture, gestures, and eye contact result in a polished, natural, and effective presentation. | |
| **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 points total will be incurred for exceeding the five-minute presentation time limit). Record the deduction. | |

| | |
|---|---|
| **PRELIMINARY SUBTOTAL (150 points)** | |

## MICROCONTROLLER DESIGN

| SEMIFINAL LEAP RESPONSE (15 points) | | | | |
|---|---|---|---|---|
| **CRITERIA** | Minimal performance | Adequate performance | Exemplary performance | |
| **LEAP Response** (10% of the total event points) | The team/individual efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team/individual efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team/individual efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | | **SEMIFINAL LEAP RESPONSE SUBTOTAL (15 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.<br><br>Indicate the rule violated: _____ | |

| | |
|---|---|
| **SEMIFINAL SUBTOTAL (15 points)** | |

| | |
|---|---|
| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.          **TOTAL (165 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. 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. Chairs, one (1) per participant

C. Stopwatch for timing presentations

## RESPONSIBILITIES

### AT THE CONFERENCE

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

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

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

4. 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.

5. At least one (1) hour before the event is scheduled to begin, meet with your 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

1. Check-in the entries at the time stated in the conference program.

2. Teams are required to bring:

   a. The device (product)

   b. The documentation portfolio

   c. A hard copy of the LEAP Response with no report cover, separated from the portfolio

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

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

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

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

7. Assign students a five (5)-minute time frame for their presentation at check-in.

8. Judges independently review each static entry and conduct presentations at the designated time for each team.

9. Presentations:

   a. Inspect the area in which the presentations are to be held.

   b. There must be seating for at least five (5) people at a table with space for a computer and a display.

   c. Conduct presentations.

   d. Judges may ask questions after the presentation.

   e. Time violation: a deduction of five (5) points will be incurred for exceeding the five (5) minute presentation time limit.

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

    • To deduct twenty percent (20%) of the total possible points in this round

    • To disqualify the entry

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

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

12. Submit the semifinalist results to the CRC room.

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

## SEMIFINAL ROUND

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

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

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

4. 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. In this event, participants conduct research on a sustainable architectural design for a home in a country of the team's choosing (other than its home 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. Semifinalist teams will give a presentation and are interviewed about their design. The design brief for this competition will be posted on the TSA website under Competitions/Themes and Problems.

## ELIGIBILITY

### PRELIMINARY ROUND

1. Three (3) teams per state may participate; a team of one (1) is permitted

### SEMIFINAL ROUND

1. A maximum of three (3) team members participate in the presentation/interview

## TIME LIMITS

The semifinal presentation/interview will be no longer than ten (10) minutes.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Team members select a country and design a sustainable home based on that country's climate conditions, raw materials available, construction methods, and infrastructure.

2. Team members research their chosen country using resources, such as books, interviews, websites, magazines, professional journals, etc.

3. Participants prepare their documentation, display, and model according to the regulations for this event.

4. Participants prepare a presentation.

### PRELIMINARY ROUND

1. Participants check in the following at the time and place stated in the conference program:
   a. The model
   b. The display
   c. The documentation portfolio
   d. A hard copy of the LEAP Response with no report cover, separated from the portfolio

2. Entries are evaluated by judges independently, with neither students nor advisors present.

3. A list of twelve (12) semifinalists (in random order) will be posted.

### SEMIFINAL ROUND

1. Two (2) to three (3) team members report to the event location for a presentation/interview at the time and place stated in the conference program.

2. The LEAP Response will be judged for semifinalist teams.

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

## REGULATIONS AND REQUIREMENTS

### 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. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover (click here for a sample).

    1. The report cover must include 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

        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. A list of references and credible resources; a minimum of three (3) different types of resources must be used; examples of resources include, but are not limited to, books, interviews, professional journals, websites, magazines, etc.; pages as needed

        h. Plan of Work Log that indicates preparation for the event, as noted by date, task, time involved, team member responsible, and comments (see Plan of Work Log in the Forms Appendix)

C. 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 (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' high.

### PRELIMINARY ROUND

A. No more than two (2) team members check in the entry and setup the display, observing the following:

    1. Models or prototypes 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 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. The semifinalist presentation/interview, which must include two to three (2-3) team members, will not exceed ten (10) minutes.

B. The presentation must be based on the display and the portfolio. No additional materials or devices will be allowed for the presentation.

C. The LEAP Response:

   1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

   2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

   1. The documentation and display

### SEMIFINAL ROUND

   1. The presentation/interview and the content and quality of the LEAP Response.

Refer to the official rating form for more information.

## STEM INTEGRATION

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

## CAREERS RELATED TO THIS EVENT

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

- Appraiser
- Architect
- Construction manager
- Interior designer
- Urban and regional planner

# OFF THE GRID
## 2020 & 2021 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
☐ Display and model are within size requirements
☐ Drawings are present
☐ LEAP Response is present
☐ ENTRY NOT EVALUATED

### DOCUMENTATION (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** See Regulation B (X1) | Portfolio is unorganized and/or missing three (3) or more components. | Portfolio has most components and is generally organized; it has sufficient content. | All components are included in the portfolio; content and organization are excellent. | |
| **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 clearly documented. | All of the research area 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** See Regulation B.1.f (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 generally presented appropriately. | There is clear evidence of the appropriate use of applicable resources and references. | |
| **Plan of Work log** (X1) | The Plan of Work log lacks major elements of documentation. | The Plan of Work log is somewhat complete, and generally reflects the time and work necessary for the project. | The Plan of Work log completely and accurately reflects the time and work necessary for the project. | |
| **DOCUMENTATION SUBTOTAL (80 points)** | | | | |

## DESIGN CHALLENGE (30 points)

| 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. | |
| 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. | |
| | | | DESIGN CHALLENGE SUBTOTAL (30 points) | |

## DISPLAY AND MODEL (60 points)

| 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, and they are adequately presented. | 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; essential design principles are generally used effectively. | 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. | |
| Model (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. | |
| | | | DISPLAY AND MODEL 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 (170 points) | |

## SEMIFINAL PRESENTATION/INTERVIEW (72 points)

| 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 interview; illogical explanation of the problem and solution is presented. | Participant(s) is/are generally prepared for the interview; explanation of the problem and solution are generally communicated. | Interview is logical and easy to follow; the problem and solution are communicated in a concise manner. |
| Articulation (X1) | The interview is full of illogical thoughts that lack clarity, and/or there is insufficient information provided describing the project. | The interview is somewhat logical, easy-to-follow, and/or there is sufficient information provided describing the project. | The interview is clear, concise, and there is ample information provided describing the project. |
| Delivery (X1) | The participant(s) is/are verbose and/or uncertain in its interview; participants' posture, gestures, and lack of eye contact diminish the interview. | The participant(s) is/are somewhat well spoken and clear in its interview; participants' posture, gestures, and eye contact are acceptable in the interview. | The participant(s) is/are well-spoken and distinct in its interview; participants' posture, gestures, and eye contact result in a polished, natural, and effective 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. |
| LEAP Response (22 points; 10% of the total event points) | The team/individual's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team/individual's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team/individual's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. |

Record scores in the column spaces below.

**DISPLAY AND MODEL SUBTOTAL (72 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 (72 points)**

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.     **TOTAL (242 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 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

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

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

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

4. 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.

5. 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

1. Ensure the model and display does not exceed: 15" deep x 3' wide x 4' high.

2. Check to make sure the entry do NOT include:

   • Viruses, live plants, or animals

   • Harmful or illegal substances.

3. Participants check in:

   a. The model

   b. The display

   c. The documentation portfolio

   d. A hard copy of the LEAP Response with no report cover, separated from the portfolio

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

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

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

8. Place a team identification number stick-on label in the lower right-hand corner of each display.

9. Secure the entries in the designated area.

10. Judges independently assess the entries.

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

    • To deduct twenty percent (20%) of the total possible points in this round

    • To disqualify the entry

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

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

13. Submit semifinalist results to the CRC for posting.

14. Create an interview/presentation sign-up sheet.

**SEMIFINAL ROUND**

1. The semifinalist presentation/interview, which must include two to three (2-3) team members, will not exceed ten (10) minutes.

2. The presentation must be based on the display and the portfolio. No additional materials or devices will be allowed for the presentation.

3. Judges review the presentation and ask pertinent interview questions.

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

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

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

7. 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 Competitions/Themes and Problems for the current conference theme.

## ELIGIBILITY

Three (3) individuals per state may participate.

## TIME LIMITS

1. Each speech should be no less than three (3) minutes and no more than five (5) minutes.
2. A one (1)-point deduction will be incurred for each ten (10)-second interval under or over the allotted time for speaking.

## LEAP

An individual LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRELIMINARY ROUND

1. Participants report to the event area at the time and place stated in the conference program to receive an assigned presentation time and submit a hard copy of the LEAP Response.
2. The event coordinator introduces each student identification number only and in the order of scheduled times.
3. Participants deliver their speech in the allotted time limit.
4. A list of twelve (12) semifinalists (in random order) will be posted.

### SEMIFINAL ROUND

1. Semifinalists report to the event area at the time and place stated in the conference program to receive an assigned presentation time.
2. Semifinalist speeches follow the same procedure as in the preliminary round.
3. The LEAP Response will be judged for semifinalists.
4. Ten (10) finalists will be announced during the conference awards ceremony.

## REGULATIONS

### 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. No observers are allowed in the event room during heats.
J. Observers are allowed to sit in the audience during the semifinals.
K. Observers may not enter or leave during a speech.
L. No audio or visual recording devices (including cell phones, digital cameras, etc.) by any observer are permitted.
M. No talking or gesturing is permitted.
N. Participants are not allowed to hear the speech of any other participant.

O. Participant scores are penalized one (1) point per ten (10)-second interval for speaking over or under the allotted time.

P. Time commences when the speech begins.

Q. There should be no applause until a speech has concluded.

**SEMIFINAL ROUND**

A. All regulations from the preliminary round apply to the semifinal round.

B. The LEAP Response:

  1. Individuals document the leadership skills he/she has developed and demonstrated while preparing for this event and on a non-competitive event leadership experience.

  2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

  1. The quality, content, and effectiveness of the speech

  2. The speaker's stage presence

  3. The content and quality of the LEAP Response

Refer to the official rating form for more information.

## STEM INTEGRATION

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

## 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

# PREPARED SPEECH
## 2020 & 2021 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.

_____

☐ Completed LEAP Response 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. | |
| Body (X1) | Body of speech is poorly organized; content does not properly cover or represent the concepts 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. | |
| Conclusion (X1) | Conclusion fails to summarize or clearly clarify the information presented in the speech. | Conclusion generally summarizes the content and theme of the speech. | The conclusion is effective, interesting, and memorable; it fully brings finality to the speech. | |
| **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 to deliver the speech somewhat detracts from the overall speech. | 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. | |

# PREPARED SPEECH

| STAGE PRESENCE (30 points) – continued | | | |
|---|---|---|---|
| **Articulation**<br>(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)** | |

Record scores in the column spaces below.

| ORGANIZATION (30 points) | | | |
|---|---|---|---|
| **CRITERIA** | Minimal performance | Adequate performance | Exemplary performance |
| | 1-4 points | 5-8 points | 9-10 points |
| **Effectiveness and quality of presentation**<br>(X1) | 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**<br>(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**<br>(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 (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: _____

| TIME DEDUCTIONS | |
|---|---|
| One (1) point per ten (10)-second interval is deducted for speaking under three (3) minutes or over five (5) minutes.<br>Time commences when the competitor begins speaking. | |
| TOTAL TIME FOR SPEECH | |
| **TOTAL TIME DEDUCTIONS** | |

Record scores in the column spaces below.

| **PRELIMINARY SUBTOTAL (90 points)** | |
|---|---|

## SEMIFINAL LEAP RESPONSE (9 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| **LEAP Response** (10% of total event points) | The individual's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The individual's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The individual's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | **SEMIFINAL LEAP RESPONSE SUBTOTAL (9 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 (9 points)** | |

| | |
|---|---|
| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL (99 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 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

1. Attend the mandatory coordinator's meeting.

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

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

4. 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.

5. 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

1. The event coordinator takes the first participant to the event room.

2. 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.

3. Approximately every eight to ten (8-10) minutes, the event coordinator or the coordinator assistant will escort another participant to the event room.

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

    • To deduct twenty percent (20%) of the total possible points in this round

    • To disqualify the entry

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

5. Judges determine the twelve (12) semifinalists.

6. Submit the semifinalist results to the CRC for posting.

7. Create a sign-up sheet for the semifinal round.

### SEMIFINAL ROUND

1. Using the same official rating form for semifinalists, judges assess the semifinalist speeches and determine the ten (10) finalists.

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

3. Through discussion, judges break any ties that affect the top three (3) placements.

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

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

# PROBLEM SOLVING

## OVERVIEW

Participants use their 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

Two (2) hours for the design and construction of the solution are permitted.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRELIMINARY ROUND

1. Participants report to the event area at the time and place stated in the conference program and submit their LEAP Response.
2. The problem, the evaluation criteria, and the materials are distributed.
3. Teams are allowed two (2) hours to design and construct a solution.
4. Each solution is tested as soon as possible after the construction phase is completed. Some problems may require teams to be present for testing.

### SEMIFINAL ROUND

1. The LEAP Response will be judged for semifinalist teams.
2. Ten (10) finalists are announced at the awards ceremony.

## REGULATIONS

### PRELIMINARY ROUND

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.

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 construction material, all other tape may only be used as a temporary fastening or hold down device)

    d. A cutting surface that prevents table-top marring (required)

    e. Rulers, straightedges, and/or measuring scales

    f. Abrasives sheets, sponges, 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

    k. One (1) roll masking tape no wider than ¾"

E. Participants without a tool box will not be allowed to compete.

F. Sharing tools between teams is not permitted.

G. 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. If there is a second infraction, the team will be disqualified.

    4. Sunglasses are not suitable eyewear.

### SEMIFINAL ROUND

A. The LEAP Response:

    1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

    2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

1. Each team's solution is evaluated objectively.

2. A finite measure, such as elapsed time, horizontal or vertical distance, and/or strength, is used to determine the best solution.

3. Solution designs will be used to break ties.

4. Only as a last resort does the event coordinator use subjective measurement, such as originality, to evaluate solutions.

5. The content and quality of the LEAP Response will be evaluated.

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:

- Computer network specialist
- Detective
- Mechanical engineer
- Nurse
- Project manager

# PROBLEM SOLVING
## 2020 & 2021 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.

☐ Toolbox present and meets size requirements
☐ Safety glasses are worn on each team member
☐ Completed LEAP response is present
☐ 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: _____

**PRELIMINARY SUBTOTAL (60 points)**

## SEMIFINAL LEAP RESPONSE (6 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance |
|---|---|---|---|
| **LEAP Response** (10% of the total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. |

**SEMIFINAL LEAP RESPONSE SUBTOTAL (6 points)**

## PROBLEM SOLVING

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 (6 points)**

**To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.** **TOTAL (66 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

2. Semifinal 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 each judge

2. TSA Event Coordinator Report

3. List of judges/assistants

4. Stick-on labels for identifying entries

5. Copies of the tool template, as needed

6. Stopwatch for timekeeper

7. 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

## RESPONSIBILITIES

### AT THE CONFERENCE

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

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

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

4. 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.

5. 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

1. Distribute materials as appropriate, prior to the start of the event.

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

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

4. 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.

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

6. Each team will submit their toolbox to the coordinator and judges for size verification.

7. 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.

8. Judges and monitors observe the entire construction phase, with judges measuring solutions as soon as appropriate.

9. Judges will collect the solution design when the team's solution is submitted for testing.

10. Judges will use the designs to break any ties in order to determine the twelve (12) semifinalists.

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

   • To deduct twenty percent (20%) of the total possible points in this round

   • To disqualify the entry

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

12. Submit the semifinalist results to the CRC room.

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

## SEMIFINAL ROUND

1. Judges will independently evaluate the LEAP requirements and discuss and break any ties in order to determine the ten (10) finalists.

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

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

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

# PROMOTIONAL MARKETING

## OVERVIEW

Participants create a marketing portfolio observing the theme and required elements, which will be electronically submitted pre-conference. The theme and submission instructions will be posted on the TSA website under Competitions/Themes and Problems. The semifinalists are challenged to work creatively within a given time frame to design a solution to a problem given on-site using their own computer/laptop work station.

## ELIGIBILITY

One (1) individual per chapter is allowed to participate.

## TIME LIMITS

### PRE-CONFERENCE

1. All components of the chapter's entry must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on May 15th.

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

3. Email verification of each team's entry will be made by June 10th.

### SEMIFINAL ROUND

1. Fifteen (15) minutes will be allowed to set up before the event.

2. One (1) hour will be allotted to complete, save, and submit the on-site problem.

3. Students take their computers with them when the problem is submitted.

## LEAP

An individual LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Participants create a three (3)-part TSA Marketing Portfolio containing:
   a. A printable advertisement
   b. A wearable design
   c. Digital signage

2. Teams submit the printable advertisement and wearable design electronically as multiple page PDF documents separated into the following categories:
   a. The printable advertisement and supporting documentation for the design
   b. Wearable sign and supporting documentation for the design
   c. The LEAP Report

3. Teams submit the digital signage part of the marketing portfolio via a URL link.

4. All components of the chapter's entry are submitted via a link provided on the Competition Updates page of the TSA website. The entry must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on May 15th.

5. Email verification of each team's entry will be made by June 10th.

### PRELIMINARY ROUND

1. A list of twelve (12) semifinalist teams (in random order) will be posted on-site at the national TSA conference.

### SEMIFINAL ROUND

1. Semifinalists report to the event area at the time and place stated in the conference program with a computer, a power strip/surge protector, and an extension cord.

2. The coordinator will distribute TSA approved USB flash drives to the semifinalists.

3. Semifinalists complete the on-site layout and design problem within the one (1)-hour time limit.

4. Semifinalists will save their final entry to the USB flash drive for submission.

5. The LEAP Response will be judged for semifinalists.

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

## REGULATIONS AND REQUIREMENTS

### PRE-CONFERENCE

A. The required elements are posted on the website under Competition/Themes and Problems.

B. Pre-conference, participants design the following three (3) components as part of the Marketing Portfolio:

1. Printable signage to include, but not limited to:

   a. National TSA logo (refer to D for specifics)

   b. City and state of the current year's national TSA conference

   c. Date, place, time and other details of the event

   d. Must be viewable and saved as a PDF.

2. Participants design a chapter-wearable based on the theme and requirements posted on the TSA website under Competitions/Themes and Problems. This design must be viewable and saved as a PDF.

3. Participants create digital signage using presentation software, and should include:

   a. National TSA logo

   b. Date, place, time and other pertinent details of the event

   c. The digital signage must be between two to two and one half (2 – 2½) minutes in duration.

   d. A URL link must be provided for submission, which points directly to the team's entry.

4. The TSA logo can be used only in accordance with trademark policies that appear on the TSA website under "Resources > Toolkit".

C. Additional information about design work needs to be a typed PDF file submitted with the corresponding design PDF file, 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. Written permission for all copyrighted material must be included. (See Student Copyright Checklist in the Forms Appendix)

4. Notation of the type of software program(s) used for designs and layout

5. If the entry contains images of people, proof of consent must be included as a separate PDF file and submitted with the other required documentation. Images of minors require parental consent. (See Photo/Film/Video Consent and Release in the Forms Appendix)

D. All components of the chapter's entry must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on May 15th.

E. The submission must point directly to the individual's entry. Entries that require a request for access be granted will not be judged.

### SEMIFINAL ROUND

A. Semifinalist participants are required to bring:

1. A computer with software (a laptop computer is recommended)

2. A power strip/surge protector

3. An extension cord

4. No printer is needed

B. Clip art may be used for the on-site problem, but the use of a template is not permitted.

C. The on-site work must be an original creation.

D. Students are responsible for providing their own graphic library.

E. Internet access is permitted, but it will not be provided by TSA.

F. TSA cannot guarantee the availability of cellular and/or Wi-Fi signals in the competition room.

G. Participants may leave the room only with permission from the event coordinator.

H. Students will save the design solution for the on-site problem on the TSA approved USB for submission.

I. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

1. The quality of the layout and design, the content, and the effectiveness and originality of the Marketing Portfolio.

2. The quality of the layout and design, the content, and the effectiveness and originality of the on-site design challenge.

3. The content and quality of the LEAP Response (semifinalists only).

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:

- Ad copy writer
- Telecommunications manager
- Internal communications manager
- Volunteer manager
- Public affairs specialist

# PROMOTIONAL MARKETING

## 2020 & 2021 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.

☐ Promotional Marketing entry was submitted online pre-conference

☐ Completed LEAP Response is present

☐ ENTRY NOT EVALUATED

| PRINT 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 | |
| **Layout and design** (X1) | Layout/design does not resemble a promotional poster, 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. | Poster encompasses all standardized layout practices, and creativity is at the forefront of the design. | |
| **Content** (X1) | Poster 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.. | Poster is missing one to two (1-2) elements listed in the minimal criteria. | All elements are included in the poster. | |
| **Effectiveness** (X1) | Poster does not convey intended message, and/or it contains unrelated text/graphics. | Poster conveys the overall intended message, and it contains topic-related text/graphics. | Poster 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 poster, and/or they are considered as an afterthought. | Poster exhibits incorporation of most design principles (alignment, consistency, contrast, unity, white space), and the overall layout is aesthetically pleasing. | Poster is aesthetically pleasing, and all design principles are well incorporated into the design and layout. | |
| **PRINT DESIGN SUBTOTAL (50 points)** | | | | |

## WEARABLE MARKETING (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 | |
| 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 will draw 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 aesthetically pleasing. | Graphic is aesthetically pleasing, and all design principles are well incorporated into the design and layout. | |
| **WEARABLE MARKETING SUBTOTAL (50 points)** | | | | |

## DIGITAL SIGNAGE (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) | 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 See Regulation C (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: _____

# PROMOTIONAL MARKETING

| | **PRELIMINARY SUBTOTAL (150 points)** | |
|---|---|---|

**SEMIFINAL PROBLEM (70 points)**

<div style="text-align: right; font-size: small;">Record scores in the column spaces below.</div>

| 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 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. | Project incorporates most creativity principles, and it results in an adequate/average presentation. | Project is a truly unique presentation; it includes most of the applicable principles of creativity. | |
| **LEAP Response** (20 points; 10% of the total event points) | The individual's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The individual's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The individual's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | **SEMIFINAL PROBLEM 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 (70 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: _____

# 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 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

7. At least twelve (12) TSA approved USB's for the on-site challenge

B. Tables, one (1) per participant

C. Chairs, one (1) per participant

## RESPONSIBILITIES

### PRE-CONFERENCE/PRELIMINARY ROUND

1. National TSA will collect entries until 11:59 p.m. EST on May 15th and send out receipt confirmations to participants by June 10th. The results will be shared with the CRC manager, event coordinator, and assigned judges

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

3. 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.

4. Judges determine the twelve (12) semifinalists and discuss and break any ties. Results will be posted on-site at the national conference on the first full day of conference.

### AT THE CONFERENCE

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

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

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

4. 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.

5. 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.

### SEMIFINAL ROUND

1. At the designated time, check in semifinalists and monitor them as they set up their work area.

2. Label the TSA approved USB's with the semifinalists' student ID numbers.

3. Distribute semifinalist participant TSA-approved USB flash drives.

4. Provide the on-site problem.

5. Supervise the one (1) hour on-site layout and design problem.

6. Supervise the evaluation process of the on-site problem.

7. After the evaluation, supervise the removal of computers by the participants and collect the USB entries.

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

   • To deduct twenty percent (20%) of the total possible points in this round

   • To disqualify the entry

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

•

9. Judges determine the top ten (10) finalists.

10. Judges discuss and break any ties that affect the top three (3) placements.

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

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

# STEM ANIMATION

## OVERVIEW

Participants use computer graphics tools and design processes (i.e., animation) to communicate, inform, analyze and/or illustrate a topic, idea, subject, or concept that focuses on one (1) or more of the following areas: science, technology, engineering, or mathematics (STEM); sound may accompany graphic images. Participants will find the current year's theme posted on the TSA website under Competitions/Themes and Problems for this information. A documentation portfolio with the STEM animation comprise the entry. Semifinalists make a presentation.

## ELIGIBILITY

Three (3) teams per state may participate.

## TIME LIMITS

### PRELIMINARY ROUND

1. All components of the chapter's entry, must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on May 15th.
2. Entries received or changes made to submitted entries after this deadline will not be judged.
3. Email verification of each team's entry will be made by June 10th.
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 length.
6. 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

1. Ten (10) minutes is allowed to present the animation to the judges.

## LEAP

A team LEAP Response is required for this event.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Participants design and create a STEM animation video, portfolio, and the team LEAP Response.
2. Participants submit the entry by 11:59 p.m. EST on May 15th.
3. Submission information will be provided on the TSA website under Competition Updates.

### PRELIMINARY ROUND

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

### SEMIFINAL ROUND

1. 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.
2. Each semifinalist team explains its portfolio to the judges, discussing the purpose, value, research and design, and development process of its work.
3. The LEAP Response will be judged for semifinalist teams.
4. Ten (10) finalists will be announced during the conference awards ceremony.

## REGULATIONS

### PRELIMINARY ROUND

A. The documentation portfolio must be saved as a single, multi-page PDF document with the pages presented in the following order:
   1. Title page with the event title, the conference city and state, the year, and the team ID number; one (1) page

2. Table of contents; pages as needed

3. Purpose of animation; one (1) page

4. Images of a hand-sketched storyboard 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

5. Written description of what the animation illustrates or demonstrates; one (1) page

6. List of references that includes sources for materials, copyrighted and otherwise; pages as needed; the term "Fair Use" and similar terms are not acceptable citations when creating the list of references.

7. Permission letters for copyrighted material; pages as needed

8. List of software and hardware used in the development of the animation; one (1) page

9. Plan of 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

10. A completed Student Copyright Checklist (see Forms Appendix); pages as needed

B. The 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 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 (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. A PDF of the team LEAP Response must be submitted with the event entry. The submission form will have a separate place to upload this response from the website URL and digital portfolio.

## SEMIFINAL ROUND

A. The presentation team may not exceed two (2) members.

B. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

1. The quality of the portfolio and the animation

### SEMIFINAL ROUND

1. The presentation and the content and quality of the LEAP Response

Refer to the official rating form for more information.

## NOTE

Find information about STEM Animation on this website:
www.ncsu.edu/project/stemgaming/scivis.html

## 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:

- Computer animator
- Game designer
- Instructional technologist
- Software engineer

# STEM ANIMATION
## 2020 & 2021 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 and judged
- ☐ Animation was submitted prior to conference and judged
- ☐ No copyrighted music, graphics, or other components
- ☐ Completed LEAP Response
- ☐ ENTRY NOT EVALUATED

## 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 | |
| **Digital Portfolio** See Regulation A (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, 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. | |
| **PORTFOLIO SUBTOTAL (30 points)** | | | | |

## ANIMATION (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 | |
| **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 (74 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 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. |

# STEM ANIMATION

| SEMIFINAL PRESENTATION (74 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. | |
| **LEAP Response** (14 points; 10% of the total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| **SEMIFINAL PRESENTATION SUBTOTAL (74 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 (74 points)**

**To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.**          **TOTAL (154 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. 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 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. Tables for entries

C. One (1) computer with monitor as needed for judges

D. One (1) extension cord and one (1) power strip as needed for judges

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

## RESPONSIBILITIES

### PRE-CONFERENCE/PRELIMINARY ROUND

1. National TSA will collect entries until 11:59 p.m. EST on May 15th and send out receipt confirmations to participants by June 10th. The results will be shared with the CRC manager, event coordinator, and assigned judges.

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

3. 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

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

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

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

4. 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.

5. 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, and regulations. If questions arise that cannot be answered, speak to the CRC event manager before the evaluation begins.

### SEMIFINAL ROUND

1. Semifinalists report to the event area at the time and place stated in the conference program.

2. Each semifinalist team signs up for a time to present its animation.

3. During the presentation, semifinalist team representatives will explain their work and answer any questions the judges may ask.

4. Judges independently assess the twelve (12) semifinalist teams.

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

   - To deduct twenty percent (20%) of the total possible points in this round or

   - To disqualify the entry

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

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

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

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

# STRUCTURAL ENGINEERING

## OVERVIEW

Teams apply the principles of structural design and engineering through basic research, design, construction, and destructive testing to determine the design efficiency of a structure. Details about the structure and information related to it will be posted on the TSA website under Competitions/Themes and Problems. The on-site semifinalist problem will be a variation of the pre-conference problem posted on the TSA website.

## ELIGIBILITY

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

## SAFETY EYEWEAR

Participants are required to wear safety-approved eyewear during the on-site phase of this event. Prescription eyewear will need to have side shields to be considered safety eyewear. Should a team member remove the eyewear and fail to replace it, he/she will be reminded once. If there is a second infraction, the team will be disqualified. Sunglasses are not suitable.

## TIME LIMITS

1. On-site structures (semifinalist teams only) must be started, completed, and checked in during the three (3) hours allowed for design and construction.

2. 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 noted in the conference program. Work must begin during the time scheduled for the event.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Teams review the details about the structure under Competitions/Themes and Problems on the TSA website.

2. Participants conduct research and apply principles of structural design and engineering to their current structure while considering the theme.

3. Pre-built structures must be started and completed during the current school year.

4. All work must be completed by the team members only, and verified by the team's chapter advisor using the Team Verification form.

5. Teams must provide a full-size, three (3)-view (front, top, and right end) drawing (hand or computer-generated) of their structure.

### PRELIMINARY ROUND –
### On-site Destructive Testing of Pre-Built Structures

1. Participants check in the following at the time and place stated in the conference program:

   a. Pre-built structure and any related required materials (including the Analysis and Assessment form)

   b. Portfolio documentation materials

   c. A hard copy of the LEAP Response with no report cover, separated from the portfolio

2. Participants are required to wear safety approved eyewear (refer to the Safety Eyewear section of this guide).

3. Structures will be assessed and will undergo destructive testing.

4. Destructive testing of pre-built structures is not open for public viewing.

5. Destructive testing will be completed using structural testing equipment, as designated by TSA.

6. When the destructive testing is completed, a list of twenty (20) semifinalist teams will be posted.

### SEMIFINAL ROUND – On-site Construction

1. The twenty (20) semifinalist teams will take part in the on-site problem, which will feature the construction and destructive testing of a designated structure to determine the ten (10) finalist teams.

2. Twenty (20) semifinalist teams report to the event area at the time and place stated in the conference program.

3. Teams will be seated by a monitor.

4. The design problem will be explained and a list of directions for the construction problem will be provided.

5. Teams have a three (3) hour window when drawing begins and building stops, typically allotted as:

   a. Thirty (30) minutes to review the problem and create a sketch/drawing of their solution.

   b. Two and one-half (2 and ½) hours to review the problem and construct a solution.

6. During the building of the team's structure, construction regulations must be observed.

7. 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.

8. Participants may leave early, but they must first complete check-out as directed.

9. 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.

10. Teams must identify their structure with only their team ID number, using the label provided.

11. Structures are allowed to dry in a secure area until destructive testing time.

### SEMIFINAL ROUND – Destructive Testing

1. Structures are checked for rules violations and weighed before testing.

2. Destructive testing is completed by evaluators and is open for spectator viewing.

3. 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.

4. Judges review the LEAP Response.

5. The top ten (10) finalist teams will be announced.

## REGULATIONS AND REQUIREMENTS

### PRE-CONFERENCE

A. Documentation materials (comprising a "portfolio") are required and must be secured in a clear front report cover (click here for a sample) including the following single-sided, 8½" x 11" pages, in this order:

1. Title page that includes the event title, the conference city and state, the year, and the team/chapter ID number; one (1) page

2. Team Verification form completed

3. The Analysis and Assessment form completed.

4. Completed LEAP Response

5. Full size drawing of one-side view of your structure.

6. A cut parts list of the materials used in the construction of your structure.

### PRELIMINARY ROUND

A. Participants must provide and wear safety glasses for this portion of the event.

B. Drawing and pre-built structures must be completed prior to check-in.

C. 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 <u>suggested</u> 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 will be issued a packet of construction materials (necessary balsa 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 <u>not</u> 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. LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## 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, and the content and quality of the LEAP Response (semifinalists only).

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.

## 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

# STRUCTURAL ENGINEERING – MIDDLE SCHOOL ANALYSIS AND ASSESSMENT

| PRE-BUILT STRUCTURE | |
|---|---|
| **For TEAMS:** | |
| How many structures were designed, built, and tested prior to competition? | |
| Record the weight of the structure designated for competition: | |
| Predict the ultimate load-carrying capacity of the structure: | |
| Predict where or how the structure will fail: | |
| What are the four major types of forces that act on a structure under stress? | |
| | |
| | |
| | |
| What is the static load of a structure? | |
| What part of a testing device should be considered live load? | |
| What effect would a shorter length test block have during stress testing? | |
| **For JUDGES:** | |
| Record the weight of the structure after check-in and prior to testing: | |
| Record the actual load-carrying capacity of the structure: | |

# STRUCTURAL ENGINEERING

## 2020 & 2021 OFFICIAL RATING FORM

# MIDDLE SCHOOL

Judges: Using minimal (1-3 points), adequate (4-7 points), or exemplary (8-10 points) performance levels as a guideline, 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
    ☐ The Analysis and Assessment form completed
    ☐ Full size drawing of one-side view of your structure
    ☐ A complete cut parts list for your structure
☐ Completed LEAP Response is present.
☐ ENTRY NOT EVALUATED

## PRE-BUILT STRUCTURE (Construction) – (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 of + or -⅛" for height.

| Regulation | Noncompliant | | Compliant | |
|---|---|---|---|---|
| Outside width of structure | The outside width of the structure is greater than the designated construction width; the structure does not fit inside the PVC testing tube. | | 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 is less than the required construction space; the PVC test pipe does not fit inside of the structure. | | The inside structure space is greater than the required construction space; the PVC test pipe fits inside of the structure. | |
| Construction materials | Material other than ⅛" by ⅛" balsa was used in the construction of the tower. | | Only ⅛" by ⅛" balsa was used in the construction of the tower. | |
| Substructure* | A substructure is present. | | No substructure is present | |
| Laminations | Laminations were used in the construction of the tower. | | No laminations were used in the construction of the the tower. | |
| 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. | |

| PRE-BUILT STRUCTURE (Construction) – continued | |
|---|---|
| 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. | |
| 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. | |

| PRE-BUILT STRUCTURE TOTAL POINTS (40 points) | |
|---|---|

Record scores in the column spaces below.

| DRAWING (10 points) | | | | |
|---|---|---|---|---|
| **CRITERIA** | Minimal performance | Adequate performance | Exemplary performance | |
| | 1-3 points | 4-7 points | 8-10 points | |
| 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. | |
| | | | **DRAWING SUBTOTAL (10 points)** | |

| PRELIMINARY SUBTOTAL (50 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 of + or -⅛" | | | |
| **Regulation** | **Noncompliant** | | **Compliant** |
| Team of two | Only one (1) team member is present. | | Both team members are present |
| Safety eyeware | 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 structure does not fit inside the PVC testing tube. | | 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 is less than the required construction space; the PVC test pipe does not fit inside of the structure. | | The inside structure space is greater than the required construction space; the PVC test pipe fits inside of the structure. | |
| Construction materials | Material other than ⅛" by ⅛" balsa was used in the construction of the tower. | | Only ⅛" by ⅛" balsa was used in the construction of the tower. | |
| Substructure* | A substructure is present. | | No substructure is present | |
| Laminations | Laminations were used in the construction of the tower. | | No laminations were used in the construction of the tower. | |
| 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 | | | | |
| 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. | | | | |

| ON-SITE STRUCTURE TOTAL POINTS (40 points) | |
|---|---|

# STRUCTURAL ENGINEERING

| SEMIFINAL LEAP RESPONSE (10 points) | | | | |
|---|---|---|---|---|
| **CRITERIA** | Minimal performance | Adequate performance | Exemplary performance | |
| | 1-4 points | 5-8 points | 9-10 points | |
| **LEAP Response** (X1) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| **SEMIFINAL LEAP RESPONSE SUBTOTAL (10 points)** | | | | |

Rules violations 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 (100 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 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' rule

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

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

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

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

4.  Check to see that all event equipment and materials have been secured.

5.  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

1.  Oversee participant check-in of the following entries:

    a.  Pre-built structure and any related required materials (including the Analysis and Assessment form)

    b.  Portfolio documentation materials

    c.  A hard copy of the LEAP Response with no report cover, separated from the portfolio

2.  Coordinate and manage the on-site testing of pre-built structures.

3.  Coordinate the recording and tabulation of results with judges (refer to the Evaluation section of this event).

4.  Determine the twenty (20) semifinalist teams.

5.  Submit semifinalist results to the CRC for posting.

6.  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

1.  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 will begin at the posted time.

2.  Both members of a team must be present during check-in.

3.  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 noted in the conference program.

4.  Work must begin during the time frame scheduled for this portion of the event.

### SEMIFINAL ROUND
#### On-site Construction

1.  Assign team construction locations.

2.  When all teams are seated, distribute instructions and review these, as well as any details for the assigned structure.

3.  Teams will be allowed a maximum of three (3) hours to complete their structure:

    a.  Thirty (30) minutes of this time is allotted for completing the design drawing.

    b.  Two and one-half (2 ½) hours, is allotted for actual construction.

4.  When a team notifies a monitor that the required sketch is complete, and the monitor confirms this, the team will receive a materials packet and may begin the on-site construction phase of the event.

5.  No additional supplies are provided during the event.

6.  Call time at the end of the allotted three (3) hour time-frame. All teams must stop working at this point.

7.  All work stops at the coordinator's signal. Note any teams that fail to comply with coordinator or monitor directions after one (1) warning and issue a penalty of 20% to the team's total score.

### SEMIFINAL ROUND
#### Team Check-out

1.  Establish the procedure for check-in and recording of finished structures.

2.  Designate an area for storage, and allow for the return of construction materials.

3.  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.

4. Teams check-in excess supplies as directed by the monitors.

5. Ensure that teams identify their structure with only their team ID number, using the label provided.

6. 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).

7. Once check-out is complete, all participants leave the competition area. Participants may leave early, but they must complete check-out as directed.

8. The structures are secured by the monitor and allowed to dry for a minimum of twelve (12) hours.

## SEMIFINAL ROUND
### Destructive Testing

1. After the structures have dried, judges report to the event area at the time and place stated in the conference program.

2. Judges test each structure and spectators are permitted during the testing period.

3. Judges evaluate the LEAP Response.

## EVALUATION

1. Check (with assistance from judges) all structures for regulations compliance. Structures that are in compliance will be tested without penalty.

   a. Weigh all structures before testing and record the weight on the evaluation rubric.

   b. 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.)

   c. Apply an increasing load to the structure, via the test block or attachment, until the structure fails.

   d. 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.

   e. 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.

   f. The highest numeric efficiency determines the winner. In the case of an efficiency tie, the greatest weight held by the tied entries will determine the winner.

2. Structures will not be tested if:

   a. A non-compliance construction regulation violation was determined before testing.

   b. The structure cannot be placed on the tester.

   c. The testing attachment cannot be properly placed within or on the structure.

   d. Straight pins are left in the structure.

   e. There is a failure of a participant to wear safety eyewear and/or to follow safe practices.

   f. Laminations fail to comply with the guidelines as specified in the current year's challenge.

   g. Failure to use each of the materials specified in the current year's challenge.

3. Structures with one (1) construction regulation non-compliance mark will be tested, but a 20% penalty will be noted on the rating form. (The penalty, a 20% reduction of the greatest weight held in the competition, is subtracted from the team's failure weight. This penalty factor will not be determined until all structures have been tested).

4. Manage, with assistance from judges, the destructive testing of all structures that were not officially tested due to non-compliance.

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

   • To deduct twenty percent (20%) of the total possible points in this round

   • To disqualify the entry

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

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

7. Semifinalist teams may pick up their structures at a time determined by the event coordinator.

# SYSTEM CONTROL TECHNOLOGY

## OVERVIEW

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:

1. Thirty (30) minutes for set up (team captain)
2. Fifteen (15) minutes for analysis (team)
3. Two and a half (2 ½) hours for problem solution (team)

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

1. Each team selects a team captain prior to the orientation meeting.
2. A team orientation meeting will take place at the beginning of the event at the conference.
3. 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.
4. Teams submit a hard copy LEAP Response at event check-in with no report cover.

5. 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.
6. Teams must complete their description or interpretation of the problem during this time.
7. Each team is given a maximum of two and one-half (2½) hours to:
   a. Construct a model that simulates realistic industrial processes
   b. Program the model
   c. Test the solution
   d. Describe the program and mechanical features of the model-solution
   e. Complete directions for judges to use to activate the model
8. When finished, teams save their programs and leave them on-screen in operable form with the ability to be reset.
   a. Before leaving the event room, teams demonstrate the operation of the model with judges present.
   b. Judges may ask questions during the demonstration.
   c. After judges have observed the operation of a team's model, the team leaves the room.
   d. 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.
   e. Evaluation of the solutions takes place without the teams present.
9. Team members report to the event area at the time and place stated by the event coordinator to pick up their equipment.
10. The LEAP Response will be judged for all teams.
11. Ten (10) finalists will be announced during the conference awards ceremony.

## REGULATIONS

### 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. 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.

D. 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)

E. 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.

F. Programs must be written completely on-site.

G. Use or modification of any programs written prior to the competition result in disqualification.

H. 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.*

I. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

1. Written work

2. Model function

3. Programming structure and efficiency

4. The content and quality of the LEAP Response (semifinalists only)

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:

• 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:

# SYSTEM CONTROL TECHNOLOGY

## 2020 & 2021 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
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

---

**INVENTOR'S LOG (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 | |
| **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)**

Record scores in the column spaces below.

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| | 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. | |

**SOLUTION TO PROBLEM (60 points) – continued**

| | | | | |
|---|---|---|---|---|
| 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 (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)** | |

| | |
|---|---|
| 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.<br><br>Indicate the rule violated: _____ | |

| | |
|---|---|
| **PRELIMINARY SUBTOTAL (100 points)** | |

## SYSTEM CONTROL TECHNOLOGY

### LEAP RESPONSE (10 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| | 1-4 points | 5-8 points | 9-10 points | |
| **LEAP Response** (10% of total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | | **LEAP RESPONSE 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: _____

**SEMIFINAL SUBTOTAL (10 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

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

2. Report to the CRC room and obtain the coordinator's packet; check contents.

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

4. 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.

5. 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

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

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

3. 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.

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

5. Secure teams' equipment in the area designated.

6. At the orientation meeting, obtain identification numbers for each team captain and the captain's respective team.

   a. Judges must be present at the orientation meeting.

   b. Review the time limits, procedure, and regulations with team captains.

7. Distribute the problem and Inventor's Log to teams at the beginning of the event.

8. Teams have fifteen (15) minutes to complete their interpretation of the problem, using the Inventor's Log.

9. Each team is given two and one-half (2 ½) hours to complete the remaining portion of the event.

10. Prior to leaving the event room, teams must demonstrate that their device/model is operable and has the ability to reset.

   a. Judges must observe this demonstration and may ask a few questions.

   b. Judges also may take notes, but evaluation of a team's work occurs only after the team has left the event room.

11. Judges independently evaluate the entries.

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

    • To deduct twenty percent (20%) of the total possible points in this round

    • To disqualify the entry

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

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

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

### SEMIFINAL ROUND

1. Judges independently evaluate the entries.

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

3. Judges determine the ten (10) finalists.

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

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

# TECH BOWL

## OVERVIEW

Students demonstrate their knowledge of TSA and concepts addressed in the technology content standards by completing an objective test; 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

1. The one (1)-hour test is administered to all members of the team at the same time.

### SEMIFINAL ROUND

1. Teams selected as semifinalists must be available as scheduled for oral competition.

## LEAP

An individual or team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRELIMINARY ROUND

1. Participants report to the event area at the time and place stated in the conference program and submit a hard copy of the LEAP Response with no report cover.
2. Participants follow the specific regulations and adhere to the directions provided on-site by the event coordinator.

3. All team members take the exam.
4. Each team is assigned a number by the event coordinator. This number establishes the initial order of participation in the oral portion of the event.
5. The sixteen (16) top-scoring teams qualify as semifinalists.
6. A list of semifinalists (in random order) will be posted.

### SEMIFINAL ROUND

1. Semifinalist team members and their advisor report to the oral event area holding room at the time and place stated in the conference program.
2. After a short briefing, advisors leave and the teams remain in the holding room until they are called for competition.
3. When instructed to do so, two (2) teams enter the event area and are seated according to instructions.
4. Teams are paired using the semifinalist teams' bracket.
5. Questions are drawn from a card file resource bank.
6. 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.
7. 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.
8. The LEAP Response will be judged for semifinalists.
9. The top ten (10) finalist teams will be announced at the awards ceremony.

## REGULATIONS

### PRELIMINARY ROUND/WRITTEN EXAM

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

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

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

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 during the time allocated, the participant will then follow check out procedures as directed by the event coordinator. 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 all three (3) team members determines team ranking.

### SEMIFINAL ROUND/ORAL COMPETITION

A. Sixteen (16) teams, based upon the written 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 are asked twelve (12) questions, one of which is a bonus question.

   1. The questions will be selected by the coordinator and manager of the event.

   2. The last question of every round is the bonus question.

   3. Questions, to include the bonus question, may not be discussed by teams.

4. If a team answers the bonus question correctly, the team is are given an additional question to answer. The team may discuss this question.

5. If the bonus question is not answered correctly, participants are not given an additional question.

6. The team member who "buzzes in" to answer a question has five (5) seconds to answer the question without discussion.

7. After a question is read, competing teams have ten (10) seconds to answer. If neither team can answer the question, the challenge continues and the next numbered question is read.

8. 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 on the answer card.

9. If the answer is incorrect, the reader will read the entire question for the opposing team.

10. A team's score is derived from the total number of correct answers to the questions asked.

   a. Twelve (12) questions are asked per round; no questions are repeated in another round.

   b. A correct answer will give the team ten (10) points, and an incorrect answer will result in a loss of five (5) points.

   c. In case of a tie, three (3) additional questions and bonus questions are asked. d. If a tie exists after the first tiebreaker round, then three (3) additional questions and bonus questions are asked.

   d. This procedure continues until the tie is broken.

   e. Bonus questions are worth fifteen (15) points.

G. Teams that leave the holding room before being called for competition are eliminated.

H. Teams may visit with other teams in the holding room.

I. No advisors or visitors may enter the holding room.

J. Team members may not enter the oral event area as spectators until after their team has been entirely eliminated from competition.

K. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

1. Each team's average written test score is used to determine the sixteen (16) semifinalist teams.

### SEMIFINAL ROUND

1. Semifinalists will be evaluated on their performance during the oral competition, and the content and quality of the LEAP Response

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:

- Computer technician
- Construction analyst
- Engineer
- Entrepreneur
- Technology education instructor

# TECH BOWL

## 2020 & 2021 OFFICIAL RATING FORM

# MIDDLE SCHOOL

Competition Round ID# _____

Team #_____(A) Team #_____(B)

Scorekeeper's Signature _____

## TEST (50 points)

Record the test scores of each of the three (3) team members (for team A and B) in the boxes below and then calculate the team average. Record the team average in the column space to the right.

|  |  | Team A Average | Team B Average |
|---|---|---|---|
| Team member 1 (A) (B)   Team member 2 (A) (B)   Team member 3 (A) (B) | | | |
| **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: _____

| | Team A Average | Team B Average |
|---|---|---|
| **PRELIMINARY SUBTOTAL (50 points)** | | |

## SEMIFINAL LEAP RESPONSE (14 points)

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline, 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.

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | Record scores in the column spaces below. |
|---|---|---|---|---|
| | 1-4 points | 5-8 points | 9-10 points | |
| **LEAP Response** (10% of the total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| **SEMIFINAL LEAP RESPONSE SUBTOTAL (14 points)** | | | | |

## SEMIFINAL ORAL COMPETITION

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 | Team # | | Team # | | Team A Running Score | Team B Running Score |
|---|---|---|---|---|---|---|---|
| 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 | | | | | | |
| Bonus question | +15 for correct, -5 for incorrect response | | | | | | |
| Additional question | +5 points for answering correctly | | | | | | |
| | **SEMIFINAL ORAL COMPETITION SUBTOTAL** | | | | | | |

| Tie Breaker Questions | | Team # | | Team # | | | |
|---|---|---|---|---|---|---|---|
| 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** | | | | | | |

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 (14 points)**

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL (154 points)**
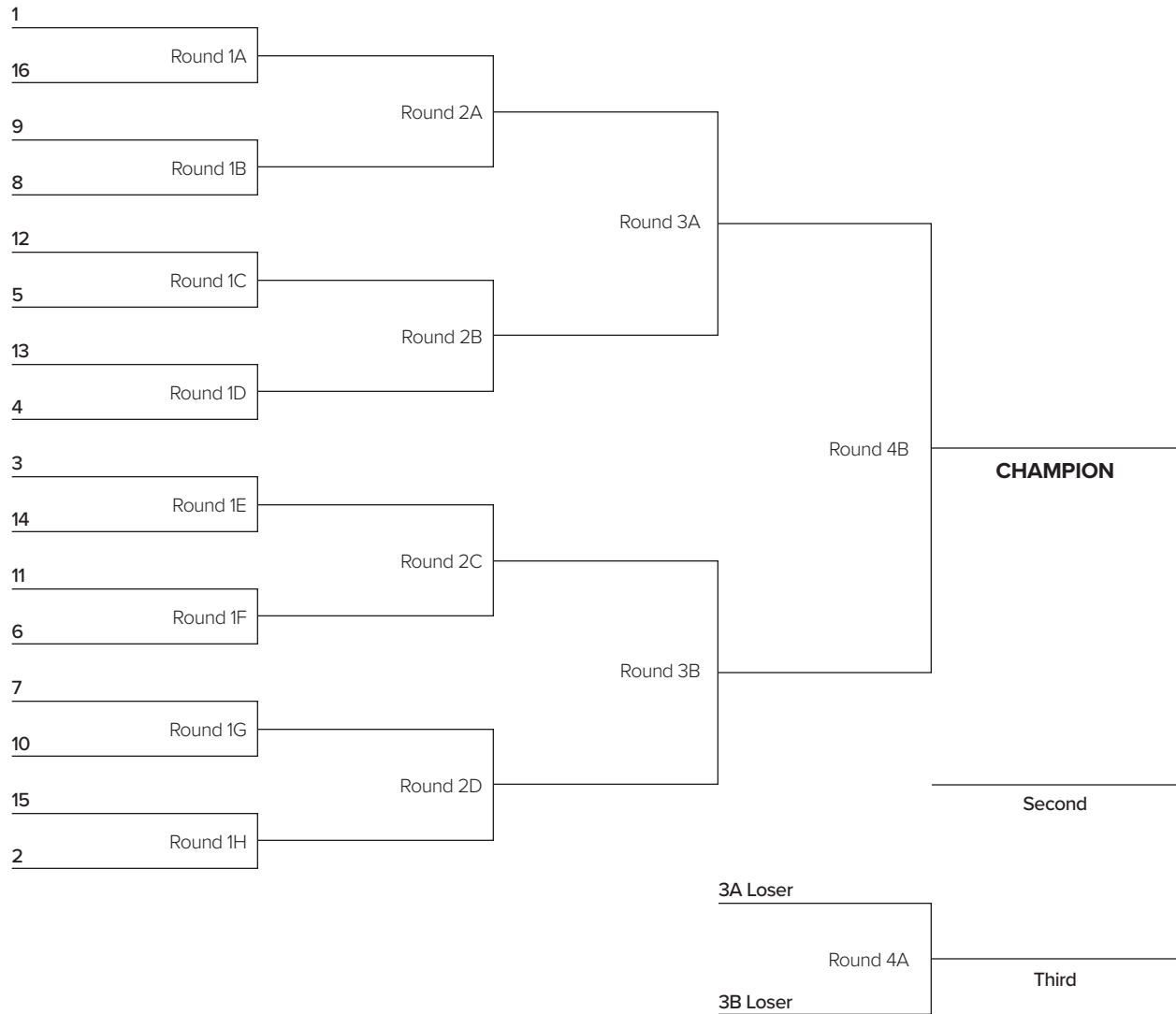
**Comments:**

_____

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

**JUDGE**

Printed name: _____     Signature: _____

**SEMIFINALIST TEAMS BRACKET**                                                    **MIDDLE SCHOOL**

1

16 ─── Round 1A

9

8 ─── Round 1B

Round 2A

12

5 ─── Round 1C

13

4 ─── Round 1D

Round 2B

Round 3A

Round 4B

**CHAMPION**

3

14 ─── Round 1E

11

6 ─── Round 1F

Round 2C

7

10 ─── Round 1G

15

2 ─── Round 1H

Round 2D

Round 3B

Second

3A Loser

Round 4A

3B Loser

Third

| Note to evaluators: This is a single elimination format (semifinalist teams ONLY). | | | |
|---|---|---|---|
| Team 1 | | Team 9 | |
| Team 2 | | Team 10 | |
| Team 3 | | Team 11 | |
| Team 4 | | Team 12 | |
| Team 5 | | Team 13 | |
| Team 6 | | Team 14 | |
| Team 7 | | Team 15 | |
| Team 8 | | Team 16 | |

# 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. Judges, for semifinal LEAP Response evaluation, two (2)

H. Assistants for oral competition, 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 event judges/assistants

4. Copies of the written test (coded A or B), 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 technology bowl test bank, with questions and the acceptable answer(s) clearly typed

## RESPONSIBILITIES

### AT THE CONFERENCE

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

2. Report to the CRC room and obtain the coordinator's packet.

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

4. 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.

5. 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

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

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

3. 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.

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

5. Distribute the scan forms to the participants, if applicable.

    a. Direct participants to fill in their student identification number and test code letter in the appropriate spaces.

    b. Provide an opportunity for any questions about the scan form.

5. Distribute the written test with the help of the proctors (tests are coded A or B).

    a. Participants seated next to each other should not have the same coded test; tests should be alternating (e.g. A, B, A, B).

    b. Instruct the participants to keep the tests face down until they are directed to turn them over and begin.

6. 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.

7. Exactly one (1) hour from the time that the participants begin the test, call time.

    a. Direct students to check out with a test proctor once they are finished with their test.

    b. Proctors collect all tests and students immediately leave the testing room.

    c. If a line forms students must remain completely silent. Any talking will result in a zero score for their test.

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

    • To deduct twenty percent (20%) of the total possible points in this round

    • To disqualify the entry

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

5. Determine the sixteen (16) semifinalist teams based on team members' averaged score on the written test.

6. Prepare a list of the sixteen (16) semifinalist teams and submit it to the CRC for posting.

## SEMIFINAL ROUND/ORAL COMPETITION

1. Run the oral component of the event as described in the Procedure section.

2. A panel of judges will review the LEAP resposes to determine the semifinalist seeding.

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

4. Judges determine the ten (10) finalists and break any ties that affect the top three (3) placements.

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

# TECHNICAL DESIGN

## OVERVIEW

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.

## LEAP

A team LEAP Response is required for this event and must be submitted at event check-in.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRELIMINARY ROUND

1. Teams report to the event area at the time and place stated in the conference program to:

   - Receive the design brief and instructions about where and when to submit their solution and portfolio to the problem the next day.
   - Submit a hard copy of LEAP Response with no report cover.

2. Teams follow the technical design process loop to solve the provided engineering design problem.

3. All work must be completed solely by the teams entered in this competition. No outside help is permitted.

### SEMIFINAL ROUND

1. The LEAP Response will be judged for semifinalist teams.

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

## REGULATIONS AND REQUIREMENTS

### PRELIMINARY ROUND
**Design Preparation**

A. Students prepare a portfolio that includes each step of the technical design process loop. (Figure 1).
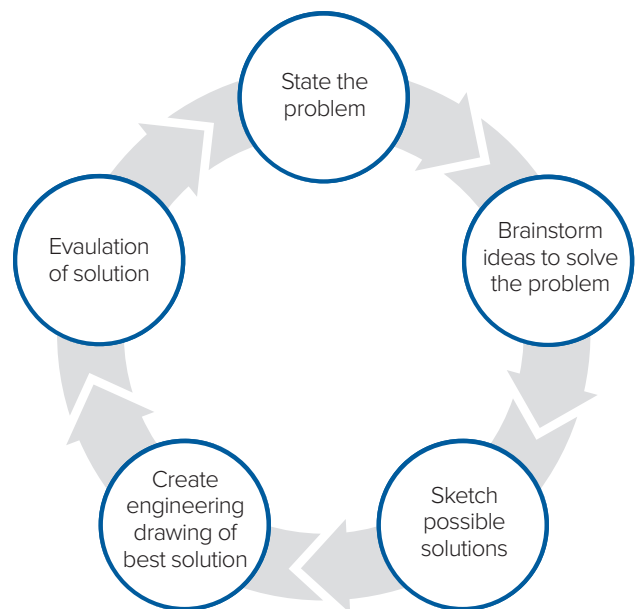


Figure 1: Technical design process loop

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 materials (comprising a "portfolio") are required and should be secured in a clear front report cover (click here for a sample).

1. The report cover must include 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."

E. 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.

F. 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.

G. 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.)

Many professionals have a desk that has limited space for supplies, laptops, monitors, and other materials. Design a storage system that is no larger than 10" x 12" x 12" that can hold pencils/pens, office supplies, cell phones, a 20fl oz water bottle, and additional items that you desire. Considering the potential for condensation with fluids, select the best material for the solution. The solution can be numerous smaller parts of the same shape/size that can be joined as desired to form a complete system within the limits.

## SEMIFIAL ROUND

A. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

1. Each element of the portfolio
2. The overall technical design process
3. The content and quality of the LEAP Response (semifinalists only).

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.

## CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the career areas:

- Designer
- Engineer
- Quality assurance engineer
- Engineering manager
- Creative consultant

# TECHNICAL DESIGN
## 2020 & 2021 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
☐ Completed LEAP Response is present
☐ ENTRY NOT EVALUATED

| SOLUTION (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 | |
| **Portfolio** See Regulation D (X1) | Not all portfolio pages are included, and/or the pages are formatted incorrectly. | Most portfolio elements are included, organized, and formatted correctly. | Outstanding organization skills are evident in the preparation of the portfolio. | |
| **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: _____

**PRELIMINARY SUBTOTAL (100 points)**

## SEMIFINAL LEAP RESPONSE (10 points)

| CRITERIA | Minimal performance | Adequate performance | Exemplary performance | |
|---|---|---|---|---|
| | 1-4 points | 5-8 points | 9-10 points | |
| LEAP Response (10% of total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
| | | | **SEMIFINAL LEAP RESPONSE 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: _____

**SEMIFINAL SUBTOTAL (10 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: _____

# 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 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

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

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

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

4. Inspect the area or room in which the event is being held for appropriate setup, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

5. At least one (1) hour before the judging of solutions is scheduled to begin, meet with judges to review the procedures and regulations of 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

1. Meet with all teams at the time and location scheduled in the conference program.

2. Collect LEAP Responses.

3. Distribute a copy of the technical design problem to each team.

4. Ensure that all participants understand the event requirements, as well as the time and place to submit their entry.

5. Begin entry check-in at the time and place noted in the conference program..

### PRELIMINARY ROUND

1. Collect the student portfolios and the problem solution at the time and place stated in the conference program.

2. Judges independently review each entry with neither students nor advisors present.

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

   • To deduct twenty percent (20%) of the total possible points in this round

   • To disqualify the entry

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

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

5. Submit the semifinalist results to the CRC room.

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

### SEMIFINAL ROUND

1. Judges independently review each entry.

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

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

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

# VIDEO GAME DESIGN

## OVERVIEW

Participants develop, build, and launch an E-rated, online game that focuses on the subject of their choice. The game should be interesting, exciting, visually appealing, and intellectually challenging. The game and all required documentation must be submitted — and will be evaluated — online, pre-conference. Semifinalist teams (list posted at the conference) participate in an on-site interview to demonstrate the knowledge and expertise they gained during the development of the game.

## ELIGIBILITY

1. One (1) team of at least two (2) individuals per chapter may participate.
2. Up to six (6) members of the team may participate in the semifinalist interview.

## TIME LIMITS

### PRE-CONFERENCE

1. 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. EST on May 15th.
2. Email verification of each team's entry will be made by June 10th.
3. The game submitted for evaluation must be greater than three (3) minutes in length of play and must be interactive.
4. A deduction of five (5) points total will be incurred for a game that completes under the three (3)-minute time minimum.
5. The timing of the game segment starts with the first image or sound presented.
6. Games must be playable from the deadline until the end of the National TSA Conference.

### SEMI-FINAL

1. Semifinalists participate in an on-site interview that lasts approximately five to ten (5-10) minutes.

## LEAP

A team LEAP Response is required for this event.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Teams design an online game.
2. Teams may design the game based on a subject of their choice.
3. The game entry, documentation, and the team LEAP response must be submitted by 11:59 p.m. EST on May 15th.
4. Submission information will be provided on the TSA website under Competition Updates.

### PRELIMINARY ROUND

1. A list of twelve (12) semifinalist teams (in random order) will be posted on-site.

### SEMIFINAL ROUND

1. Semifinalist teams sign up for an interview time on the date and time noted in the conference program.
2. All six (6) members from each semifinalist team may report to the event area for their interview.
3. Semifinalist teams will have a chance to answer questions about their documentation, game, the game's purpose, value, design, rules, and development process.
4. The LEAP Response will be judged for semifinalist teams.
5. Ten (10) finalists will be announced during the conference awards ceremony.

## REGULATIONS AND REQUIREMENTS

### PRE-CONFERENCE

A. The game and required documentation must be located online and accessible for evaluation by 11:59 p.m. EST on May 15th.
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 or request that access be granted will not be judged.

D. Game instructions must be clear and understandable.

E. Entries must be a team project.

F. Judges must be able to play the game to the third (3rd) level.

G. The game must include original work of the team.

1. Game architecture, game engines, graphics, and sounds may be used from other sources.

2. Work that is not created by the team must have proper documentation, showing copyright permissions and/or license for usage in the game segment.

H. The required documentation (noted below) must be submitted with the game URL address in the form of a multiple page PDF attachment:

1. A completed Student Copyright Checklist (see Forms Appendix).

2. A hand-drawn storyboard, which depicts the design concept of the video game; pages as needed.

3. Purpose and description of the game, the target audience, and a detailed explanation of how to play the game, including a list of control functions; two (2) pages.

4. A completed Plan of Work Log (see Forms Appendix); pages as needed.

5. Permission letters for the use of copyrighted material; pages as needed (if applicable.)

I. A separate section in the online submission form is reserved for the required PDF of the LEAP Response.

J. Required documentation becomes the property of TSA

### SEMIFINAL ROUND

A. Two to six (2-6) team members participate in a semifinal interview.

B. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

### PRE-CONFERENCE/PRELIMINARY ROUND

1. The quality of the required documentation

2. The game's aesthetics, flow, story, content, sound (preferred but not required), and characters

3. The first three (3) levels of the game

4. Up to ten (10) bonus points may be added by the judges for exceptional game features, or for content showing exemplary educational and social value

### SEMIFINAL ROUND

1. A semifinalist interview

2. The content and quality of the LEAP Response

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 career areas:

- Animator
- Computer programmer
- Electronic game designer
- Electronic game technician

# VIDEO GAME DESIGN
## 2020 & 2021 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 game is playable from the deadline until the end of National Conference
☐ Completed LEAP Response was submitted online pre-conference
☐ ENTRY NOT EVALUATED

### DOCUMENTATION (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 | |
| Game directions and control functions (X1) | Game explanation is difficult to follow; functions provided are illogical or incorrect. | Game directions can be followed and generally sync with overall workings of the game; most control functions match the functions of the game. | Game explanation is easy to follow, and control functions clearly match the game functions. | |
| Storyboard (X1) | Storyboard is sloppy, disorganized, and incomplete and/or does not follow overall flow of the game design. | Storyboard is generally organized and includes aspects and overall scenes of the game. | Storyboard is complete, concise, neat, and follows the overall flow of the game. | |
| | | | DOCUMENTATION SUBTOTAL (20 points) | |

### GAME DESIGN (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 | |
| Creativity and artisanship (X2) | Game lacks creativity; poor artisanship and development are evident. | Game exhibits adequate creativity and artisanship. | Game is highly creative and well crafted. | |
| Technical skill (X2) | Game lacks originality and shows few technical skills. | Game is original and shows some evidence of programming skills. | Game is original, highly artistic, and shows evidence of programming skills. | |
| Storyline/flow of the game (X1) | Game follows little or no storyline; there is little to no logical flow to the game. | Game follows a storyline and flows adequately from one scene/level to another. | Game is well-organized and flows smoothly from one scene/level to the next. | |
| Overall appeal (X3) | Game is dull and monotonous; it is not engaging. | Game is adequate and maintains complexity and focus. | Game is extremely entertaining and engaging. | |
| | | | GAME DESIGN SUBTOTAL (80 points) | |

# VIDEO GAME DESIGN

## 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.<br><br>Indicate the rule violated: _____ | |

**PRELIMINARY SUBTOTAL (100 points)**

## SEMIFINAL INTERVIEW (76 points)

Record scores in the column spaces below.

| CRITERIA | Minimal performance<br>1-4 points | Adequate performance<br>5-8 points | Exemplary performance<br>9-10 points | |
|---|---|---|---|---|
| **Organization**<br>(X1) | Participants seem unorganized and unprepared for the interview; illogical explanation of the game is presented. | Participants are generally prepared for the interview; explanation of the game is communicated and generally organized. | The interview is logical, well organized, and easy to follow; the game explanation is communicated in an organized and concise manner. | |
| **Knowledge**<br>(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 their project. | |
| **Articulation**<br>(X1) | The interview is full of illogical thoughts that lack clarity, and/or there is insufficient information provided describing the project. | The interview is somewhat logical, easy to follow, and/or there is sufficient information provided describing the project. | The interview is clear, concise, and there is ample information provided describing the project. | |
| **Team participation**<br>(X1) | The majority of the delivery is made by one (1) member of the team; the partner(s) may be disengaged in the interview. | Team members generally are engaged in the interview, 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**<br>(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 distinct in its interview; participants' posture, gestures, and eye contact are acceptable in the interview. | The team is well-spoken and distinct in its interview; participants' posture, gestures, and eye contact result in a polished, natural, and effective interview. | |
| **LEAP Response/Interview**<br>(16 points;<br>10% of total<br>event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |

**SEMIFINAL INTERVIEW SUBTOTAL (76 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.<br><br>Indicate the rule violated: _____ | |

| | |
|---|---|
| **SEMIFINAL SUBTOTAL** (76 points) | |

| | |
|---|---|
| To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.　　**TOTAL** (176 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; judging takes place online. (Note: judge must have experience or familiarity with running executable files or video game production).

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 each judge

2. TSA Event Coordinator Report

3. List of judges/assistants

4. Results envelope with coordinator forms

B. Evaluation of Video Game Design entries and determination of semifinalists takes place before the conference.

1. Coordinators must bring the evaluation results to the conference on a flash drive.

2. A semifinalist list will be posted at the conference on the first full day of competition.

C. Tables for entries

D. One (1) extension cord for the semifinalist evaluation team

E. One (1) power bar with surge protection for semifinalists, as needed

F. Laptop computer with high speed Internet capability

G. Tables and chairs for event coordinator, semifinalist judges, and participants

## RESPONSIBILITIES

### PRE-CONFERENCE/PRELIMINARY ROUND

1. National TSA will collect entries until 11:59 p.m. EST on May 15th and send out receipt confirmations to participants by June 10th. The results will be shared with the CRC manager, event coordinator, and assigned judges.

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

3. 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

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

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

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

4. 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.

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

### SEMIFINAL ROUND

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

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

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

4. Distribute the guidelines for the interview.

5. Manage completion of the on-site interviews.

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

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

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

7. Judges determine the ten (10) finalists and discuss and break any ties that affect the top three (3) placements.

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

# WEBSITE DESIGN

## OVERVIEW

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 Competitions/ Themes and Problems. Semifinalists (determined prior to the conference) participate in an on-site conference interview, with an emphasis on web design as it pertains to their solution, to demonstrate the knowledge and expertise gained during the development of the website.

## ELIGIBILITY

- One (1) team of three to six (3-6) individuals per chapter may participate.
- Up to six (6) members of a team participate in the semifinalist interview.

## TIME LIMITS

### PRE-CONFERENCE

1. 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. EST on May 15th.

2. After 11:59 p.m. on May 15th changes may not be made to the website.

3. Should a team makes changes or updates to the website after submitting the URL/entry, those changes will not be considered by the judges.

4. Email verification of each team's entry will be made by June 10th.

### SEMIFINAL ROUND

1. Semifinalists participate in an on-site interview that lasts approximately five to ten (5-10) minutes.

## LEAP

A team LEAP Response is required for this event.

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

1. Participants obtain the middle school event design brief from the TSA website under Competitions/ Themes and Problems.

2. Participants design a website while observing the theme and design requirements.

3. All questions pertaining to Website Design should be emailed to the event coordinator or the event manager.

4. Participants submit the URL and a PDF of the LEAP Response online prior to the conference via the link provided on the TSA website under Competition Updates. The submission form will have a separate place to upload the team's LEAP response from the website URL.

5. All questions pertaining to Website Design should be emailed to the event coordinator or the event manager.

6. Judges review and score the entries prior to the national TSA conference.

### PRELIMINARY ROUND

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

### SEMIFINAL ROUND

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

2. Up to six (6) members of the semifinalist team may report to the event area at the appropriate time for the interview.

3. Each semifinalist team will be interviewed by the judges for approximately five to ten (5-10) minutes.

4. The LEAP Response will be judged for semifinalist teams.

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

## REGULATIONS

### PRE-CONFERENCE/PRELIMINARY ROUND

A. Participants must launch their entry on a web server that can be accessed via the Internet 24 hours a day, seven (7) days a week, 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. 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. All web pages must be completed during the current school year.

3. If copyrighted material, such as text, images, or sound from other sources is used, proper written permission must be included/documented.

4. Participants must submit a completed Student Copyright Checklist (in PDF format) as a link on their website reference page. (See Forms Appendix)

5. Participants also must include a completed Plan of Work log (in PDF format) as a link on their website reference page. (See Forms Appendix)

E. All entries must be compatible using the latest versions of Internet Explorer, Firefox, Chrome, etc. on both desktop and mobile devices.

F. In addition to basic HTML code, the website may contain Java applets, HTML5, Shockwave, Flash, and other state-of-the-art web-based applications.

G. The website must be finished, submitted, and accessible via the Internet by 11:59 p.m. EST on May 15th.

### SEMIFINAL ROUND

A. Each team sends up to six (6) members to represent the chapter in the on-site interview.

B. The LEAP Response:

1. Teams document the leadership skills the team has developed and demonstrated while working on this event and on a non-competitive event leadership experience.

2. Find the specific LEAP Response regulations in the LEAP Program section of this guide and on the TSA website.

## EVALUATION

### PRELIMINARY ROUND

1. The team's entry, targeting overall design and originality

2. The scope and sequence of the design brief solution

3. The website's compatibility with different browsers and screen resolutions

4. The appropriate use of new Internet and web-based applications

### SEMIFINAL ROUND

1. The quality of the interview

2. The content and quality of the LEAP Response

Refer to the official rating form for more information.

## NOTE

The Website Design submission procedure noted in this guide applies to entries for the national TSA conference only, and not to TSA state conferences.

## 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 career areas:

- Computer engineer
- Computer programmer
- Researcher
- Software designer
- Webmaster

# WEBSITE DESIGN
## 2020 & 2021 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 and mobile devices.
☐ Design brief solution with no copyright or plagiarism issues
☐ Completed LEAP Response
☐ ENTRY NOT EVALUATED

## WEBSITE DEVELOPMENT (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 | |
| 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 have an attractive and usable layout; it is easy to locate most important elements. | Web pages have an exceptionally attractive and usable 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, and enhance reader interest or understanding; there are few or no broken images. | Graphics are related to the theme/purpose of the site; they 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); a user rarely becomes lost. | 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 consistent across pages. | Colors, fonts, and unvisited and visited links form a pleasing palette, complement the content, and are consistent across pages. | |

## WEBSITE DESIGN

| WEBSITE DEVELOPMENT (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 DEVELOPMENT 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 (75 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 interview; illogical explanation of the website is presented. | Participants are generally prepared for the interview; explanation of the website is communicated and generally organized. | The interview is logical, well organized, and easy to follow; the website explanation is 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 an understanding of the concepts in their project. | Participants show clear evidence of a thorough understanding of the project. | |
| Articulation (X1) | The interview is full of illogical thoughts that lack clarity, and/or there is insufficient information provided describing the project. | The interview is somewhat logical, easy to follow, and/or there is sufficient information provided describing the project. | The interview is clear, concise, and there is ample information provided describing the project. | |
| 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 generally are 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 wellspoken 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 (75 points) – continued

| LEAP Response/ Interview (15 points; 10% of total event points) | The team's efforts are not clearly communicated, lack detail, and are unconvincing; few, if any, attempts are made to identify and incorporate the SLC Practices. | The team's efforts are adequately communicated, include some detail, are clear, and are generally convincing; identification and incorporation of the SLC Practices are satisfactory. | The team's efforts are clearly communicated, fully-detailed, and convincing; identification and incorporation of the SLC Practices are excellent. | |
|---|---|---|---|---|
| | | **SEMIFINAL INTERVIEW SUBTOTAL (75 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 (75 points)**

**To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.**  **TOTAL (165 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 for pre-conference judging

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. Pre-conference evaluations: these should be brought to the conference by the event coordinator on a USB flash drive; only the scores of those who qualify as semifinalists are needed for conference on-site evaluation

3. TSA Event Coordinator Report

4. List of judges/assistants

5. Results envelope with coordinator forms

B. The latest version of Internet Explorer, Firefox, Chrome, etc.

C. List of questions for on-site interviews

D. Laptop computer with high speed Internet capability

## RESPONSIBILITIES

### PRE-CONFERENCE\PRELIMINARY ROUND

1. National TSA will collect entries until 11:59 p.m. EST on May 15th and send out receipt confirmations to participants by June 10th. The results will be shared with the CRC manager, event coordinator, and assigned judges.

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

3. 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.

4. Judges determine the twelve (12) semifinalists and discuss and break any ties. Results will be posted on-site at the national conference on the first full day of conference.

5. At least five (5) days prior to the national TSA conference, make accessible the online storage utility link for the entries.

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

### AT THE CONFERENCE

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

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

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

4. 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.

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

### SEMIFINAL ROUND

1. Review the time limits, procedures, and regulations with judges and clear up any questions or misunderstandings.

2. Distribute the guidelines for the interview to the judges.

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

4. Manage completion of the on-site interviews.

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

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

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

6.  Judges determine the ten (10) finalists and discuss and break any ties that affect the top three (3) placements. Determine the procedure for breaking ties before the on-site competition begins.

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

# FORMS APPENDIX

## TECHNOLOGY STUDENT ASSOCIATION PLAN OF WORK

| | Date | Task | Time involved | Team member responsible (student initials) | Comments |
|---|---|---|---|---|---|
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |
| 6. | | | | | |

Advisor signature _____

# 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.

# 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, 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**

# 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 _____

Chapter name_____

School name_____

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.

# MIDDLE SCHOOL LEAP RESPONSE
# TEAM & INDIVIDUAL EVENTS

Enter the team ID if the competitive event is a team event and the individual ID if the competitive event is an individual event. The ID number must match the number that was submitted when registering for the event.

Team ID: _____

or

Individual ID: _____

Competitive Event: _____

1. COMPETITIVE EVENT LEADERSHIP EXPERIENCES

   How did you or your team apply one (1) or more of *The Student Leadership Challenge*\* Practices to this competition? (100 to 200 words)

2. NON-COMPETITIVE EVENT LEADERSHIP EXPERIENCE

   How did you or your team apply one (1) of *The Student Leadership Challenge*\* Practices to a leadership activity in one (1) of the following categories: *Leadership Roles; Community Service/Volunteer Experiences; Career Planning*? (50 to 100 words)

# LEAP LEGACY CHAPTER RECOGNITION PROGRAM GUIDELINES

L★E★A★P
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## OVERVIEW

LEAP Legacy Chapter is a comprehensive leadership recognition program offered to middle and high school chapters as an optional national TSA activity that includes a competition component. Chapters (in a team of three to ten members) demonstrate – and are evaluated on – their involvement in LEAP activities related to *The Student Leadership Challenge-Five Practices for Becoming an Exemplary Leader* (SLC-five practices)* modules. Chapter semifinalists compete as participants in the TSA Meet and Greet event at the annual national TSA conference.

TSA members are encouraged to use the free Student Leadership Challenge (SLC) sample resources found on the TSA website when participating in the LEAP Legacy Chapter recognition program. These free resources are applicable to all LEAP activities. Complete Student Leadership Challenge publications are available for purchase, but not required for participation in any aspect of LEAP.

## CHAPTER PARTICIPATION

A.  Chapters submit a LEAP Legacy Chapter portfolio (see portfolio) to national TSA by March 31st.

B.  Portfolios will be evaluated by judges assembled by national TSA. Judges will not evaluate portfolios submitted from their home state. Based on minimum qualifying scores, one middle school and one high school per state will be selected as semifinalists. Ten middle school chapters and ten high school chapters will be selected to advance as national semifinalists and will be notified of their standing by May 1st. Portfolios that do not meet the minimum qualifying score will not advance to the semifinalist round, even if there are no viable portfolios from an individual state.

C.  National semifinalists are expected to attend the national TSA conference at their own expense to participate in the TSA Meet and Greet event, where they will have the opportunity to showcase their leadership activities and achievements to conference attendees. LEAP Legacy Chapter semifinalists will be judged anonymously at the Meet and Greet and ten finalists and their rank will be determined. First through third place middle school and high school chapters will receive $1,000, $500, and $250, respectively. They also will receive trophies on stage at the awards ceremony.

## PORTFOLIO

Chapters document their leadership activities in a portfolio consisting of a Cover Page, Activity Summary and Evidence, and supporting documents. The portfolio provides information about the leadership activities in which chapters have participated.

A.  Portfolios that are incomplete or submitted incorrectly will not be evaluated.

B.  All content/activities provided must have been completed during the past twelve months. For example, if a chapter has not yet competed in its state conference as of March 31st, activities related to the most recent state conference (within the last 12 months) may be cited.

C.  Portfolios will be submitted electronically by the TSA chapter advisor via online no later than March 31st each year. Portfolios should not be mailed to the national TSA office. Portfolio submissions received via US mail or express mail will not be evaluated.

D.  General portfolio formatting requirements (Cover Page, Activity Summary and Evidence)

1.  Participants must use the official Cover Page and Activity Summary and Evidence templates.

2.  All portfolio content must be typed.

E.  Portfolio content

1.  Cover Page

The Cover Page of the portfolio should include the following:

a.  Chapter name and level (middle school or high school)

b.  Number of participating students

c.  School name and address

d.  Chapter advisor name and email address

e.  Other general information

2.  Activity Summary and Evidence

Referencing the LEAP Legacy Chapter Activities Summary and Evidence Sample and the Evaluation Rubric, chapters will list their actions/roles/responsibilities on the Activity Summary and Evidence template using the five *Student Leadership Challenge* practices:

- Model the Way
- Inspire a Shared Vision
- Challenge the Process
- Enable Others to Act
- Encourage the Heart

3.  Supporting Documents

Supporting documents must accompany the completed Activity Summary and Evidence template and serve as evidence of the chapter's LEAP Legacy Chapter activities. A minimum of two (2) activities with two (2) corresponding evidence-supporting documents for each *Student Leadership Challenge* practice must be provided. Supporting document file names must reference the *Student Leadership Challenge* practice they support. For example, documents provided as evidence for activities that support the Model The Way practice, could be named MTW1, MTW2 and so forth. It must be clear what supporting documents apply to each of the Five Practices. File names of documents must clearly indicate which *Student Leadership Challenge* practice is supported.

## TSA MEET AND GREET (NATIONAL SEMIFINALIST ROUND)

A.  National TSA will secure judges to evaluate the portfolios of LEAP Legacy Chapter submissions to TSA and determine the ten middle school and the ten high school national finalists. LEAP Legacy Chapter national semifinalists will be notified by national TSA by May 1st.

B.  A maximum of two student members may represent their LEAP Legacy Chapter during the Meet and Greet event. Chapters may rotate members throughout the Meet and Greet event.

C.  Guidelines for table top displays and/or presentation materials for the Meet and Greet will be provided to LEAP Legacy Chapter national semifinalists.

D.  LEAP Legacy Chapter national semifinalists are judged anonymously at the Meet and Greet and the ten finalists and their rank will be determined.

E.  Chapters may participate in LEAP Legacy Chapter annually if they choose, even if they have won in a prior year.

## LEAP LEGACY CHAPTER NATIONAL PARTICIPANTS AND FINALISTS WILL ALSO RECEIVE THE FOLLOWING:

A.  First through third place national finalist LEAP Legacy Chapter middle school and high school chapters will receive cash awards of $1,000, $500, and 250, respectively. They also will receive finalist pins and trophies on stage at the national TSA conference awards ceremony.

B.  School names of semifinalists will be posted on the TSA website and listed in the national TSA conference program.

C.  A letter of congratulations and a LEAP Legacy Chapter certificate will be sent to each finalist chapter's school principal.

D.  All LEAP Legacy Chapter national finalists will be recognized on stage and will receive a LEAP pin.

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## LEAP LEGACY CHAPTER
# PORTFOLIO COVER PAGE

Chapter/school:_____

Chapter level (middle school or high school): _____

Number of student participants: _____

School address: _____

City/state/zip:_____

Chapter advisor: _____

Chapter advisor's email address: _____

Summarize – in 100 words or less – the chapter's activities for the LEAP Legacy Chapter program:

**Required Signatures**

Chapter president _____ Date _____

Chapter advisor _____ Date_____

Principal _____ Date _____

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## LEAP LEGACY CHAPTER
# ACTIVITY SUMMARY AND EVIDENCE SAMPLE

| The Student Leadership Challenge: Five Practices For Becoming an Exemplary Leader* | Student Leadership Challenge Behaviors* | LEAP Legacy Chapter Activities | Supporting Documents |
|---|---|---|---|
| **PRACTICE** | | | |
| MODEL THE WAY | Follow through on promises and commitments | | |
| | Set a personal example through actions | | |
| | Align others with principles and standards | | |
| | Seek feedback about impact of actions | | |
| | Make sure teammates support common values | | |
| | Talk about values and principles | | |
| INSPIRE A SHARED VISION | Look ahead and communicate future ideas | | |
| | Describe ideal capabilities | | |
| | Talk about how future could be improved | | |
| | Be upbeat and positive | | |
| | Communicate purpose and meaning | | |
| | Show others how their interests can be realized | | |
| CHALLENGE THE PROCESS | Challenge current skills and abilities | | |
| | Break projects into smaller do-able portions | | |
| | Search for innovative ways to improve | | |
| | Ask "What can we learn?" | | |
| | Take initiative in experimenting | | |
| | Help others try out new ideas | | |
| ENABLE OTHERS TO ACT | Foster cooperative relationships with others | | |
| | Actively listen to diverse viewpoints | | |
| | Treat others with respect | | |
| | Support the decisions other people make | | |
| | Give people freedom and choice | | |
| | Provide leadership opportunities for others | | |
| ENCOURAGE THE HEART | Praise people | | |
| | Encourage others | | |
| | Express appreciation for people's contributions | | |
| | Publicly recognize alignment with values | | |
| | Celebrate accomplishments | | |
| | Creatively recognize people's contributions | | |

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LEAP LEGACY CHAPTER
# EVALUATION RUBRIC

| The Student Leadership Challenge: Five Practices For Becoming an Exemplary Leader* | LEAP Criteria | Minimal Performance 1-4 Points | Adequate Performance 5-8 Points | Exemplary Performance 9-10 Points | Score |
|---|---|---|---|---|---|
| **PRACTICE** — **MODEL THE WAY** | **GOALS** | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts to set goals and follow through with actions. | Provided adequate evidence (e.g. state advisor and TSA peer accounts) of efforts to set goals and follow through with actions. | Provided exemplary evidence (e.g. external accounts of expert feedback and support) of efforts to set goals and follow through with actions. | |
| | **ALIGNMENT** | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts to align with others and seek feedback. | Provided adequate evidence (e.g. state advisor and TSA peer accounts, written evidence) of efforts to align with others and seek feedback. | Provided exemplary evidence (e.g. external accounts of expert feedback and support; written/video evidence) of efforts to align with others and seek feedback. | |
| | **VALUES AND PRINCIPLES** | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts to establish common values and principles. | Provided adequate evidence (e.g. state advisor accounts and TSA peer accounts written evidence) of efforts to establish common values and principles. | Provided exemplary evidence (e.g. external accounts of expert feedback and support; published evidence) of efforts to establish common values and principles. | |
| | | | | **SUBTOTALS (30 pts)** | |

| The Student Leadership Challenge: Five Practices For Becoming an Exemplary Leader* | LEAP Criteria | Minimal Performance 1-4 Points | Adequate Performance 5-8 Points | Exemplary Performance 9-10 Points | Score |
|---|---|---|---|---|---|
| **PRACTICE** — **INSPIRE A SHARED VISION** | **ENVISION** | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts to prepare for future activities and identify ideal capabilities. | Provided adequate evidence (e.g. state advisor and TSA peer accounts) of efforts to prepare for future activities and identify ideal capabilities. | Provided exemplary evidence (e.g. external accounts of expert feedback and support) of efforts to prepare for future activities and identify ideal capabilities. | |
| | **AQUIRE** | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts/actions taken to learn new things in order to accomplish the activity. | Provided adequate evidence (e.g. state advisor and TSA peer accounts, written evidence) of efforts/actions taken to learn new things in order to accomplish the activity. | Provided exemplary evidence (e.g. external accounts of expert feedback and support; written/video evidence) of efforts/actions taken to learn new things in order to accomplish the activity. | |
| | **COMMUNICATE** | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts to communicate with others. | Provided adequate evidence (e.g. state advisor and TSA peer accounts, written evidence) of efforts to communicate with others. | Provided exemplary evidence (e.g. external accounts of expert feedback and support; published evidence) of efforts to communicate with others. | |
| | | | | **SUBTOTALS (30 pts)** | |

# LEAP LEGACY CHAPTER
# EVALUATION RUBRIC

**L·E·A·P** — Leadership. Education. Achievement. Personal Growth.

### The Student Leadership Challenge: Five Practices For Becoming an Exemplary Leader*

| PRACTICE | LEAP Criteria | Minimal Performance 1-4 Points | Adequate Performance 5-8 Points | Exemplary Performance 9-10 Points | Score |
|---|---|---|---|---|---|
| CHALLENGE THE PROCESS | INNOVATION | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts to engage in an activity that has not been done before by the participating chapter or other TSA chapters. | Provided adequate evidence (e.g. state advisor and TSA peer accounts) of efforts to engage in an activity that has not been done before by the participating chapter or other TSA chapters. | Provided exemplary evidence (e.g. external accounts of expert feedback and support) of efforts to engage in an activity that has not been done before by the participating chapter or other TSA chapters. | |
| | INQUIRY | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts to seek projects that require experimentation. | Provided adequate evidence (e.g. state advisor and TSA peer accounts, written evidence) of efforts to seek projects that require experimentation. | Provided exemplary evidence (e.g. external accounts of expert feedback and support; written/video evidence) of efforts to seek projects that require experimentation. | |
| | | | | **SUBTOTALS (20 pts)** | |

### The Student Leadership Challenge: Five Practices For Becoming an Exemplary Leader*

| PRACTICE | LEAP Criteria | Minimal Performance 1-4 Points | Adequate Performance 5-8 Points | Exemplary Performance 9-10 Points | Score |
|---|---|---|---|---|---|
| ENABLE OTHERS TO ACT | EMPATHY | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts to actively listen to diverse viewpoints and support diverse ideas. | Provided adequate evidence (e.g. state advisor and TSA peer accounts) of efforts to actively listen to diverse viewpoints and support diverse ideas. | Provided exemplary evidence (e.g. external accounts of expert feedback and support) of efforts to actively listen to diverse viewpoints and support diverse ideas. | |
| | COLLABORATION | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts to support the decisions other people make, give people freedom and choice, and provide leadership opportunities for others. | Provided adequate evidence (e.g. state advisor and TSA peer accounts, written evidence) of efforts to support the decisions other people make, give people freedom and choice and provide leadership opportunities for others. | Provided exemplary evidence (e.g. external accounts of expert feedback and support; written/video evidence) of efforts to support the decisions other people make, give people freedom and choice and provide leadership opportunities for others. | |
| | | | | **SUBTOTALS (20 pts)** | |

# L·E·A·P

Leadership. Education. Achievement. Personal Growth.

## LEAP LEGACY CHAPTER
# EVALUATION RUBRIC

| The Student Leadership Challenge: Five Practices For Becoming an Exemplary Leader* | | LEAP Criteria | Minimal Performance 1-4 Points | Adequate Performance 5-8 Points | Exemplary Performance 9-10 Points | Score |
|---|---|---|---|---|---|---|
| PRACTICE | ENCOURAGE THE HEART | ADVOCACY | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts to publicly support a cause or need within a community. | Provided adequate evidence (e.g. state advisor and TSA peer accounts) of efforts to publicly support a cause or need within a community. | Provided exemplary evidence (e.g. external accounts of expert feedback and support) of efforts to publicly support a cause or need within a community. | |
| | | RECOGNITION | Provided minimal evidence (e.g. personal accounts, written confirmation) of efforts to express appreciation and creatively recognize the contributions of others, as well as celebrate their accomplishments. | Provided adequate evidence (e.g. state advisor and TSA peer accounts, written evidence) of efforts to express appreciation and creatively recognize the contributions of others, as well as celebrate their accomplishments. | Provided exemplary evidence (e.g. external accounts of expert feedback and support; written/video evidence) of efforts to express appreciation and creatively recognize the contributions of others, as well as celebrate their accomplishments. | |
| | | | | | SUBTOTALS (20 pts) | |
| | | | | | TOTAL (120 pts) | |

Comments:

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

JUDGE

Printed name: _____  Signature: _____