



# 2020 NJ TSA HIGH SCHOOL SUPPLEMENT



Cover Art by:  
David Munera  
Roselle Park High School  
1st Place Promotional Design  
2019 NJ TSA High School Conference

## 2019-2020 New Jersey TSA Executive Committee

### **State Officers**

Regan Riehl	President	Colts Neck High School
Kate Donnelly	Vice President	Marine Academy of Science and Technology
Khushi Sabuwala	Secretary	High Technology High School
Ben Schornstein	Treasurer	Freehold Township High School
Catherine Barone	Reporter	Marine Academy of Science and Technology
Maryann Vazhapilly	Sergeant-at-Arms	Clearview Regional High School
Olivia Lieberman	Historian	Freehold Township High School
Ashni Kapadia	Parliamentarian	Manalapan High School

### **State Officer Advisors**

Ms. Melissa Parr	Clearview Regional High School
Ms. Angela Bavaro	Colts Neck High School
Mr. Thomas Jennings	Freehold Township High School
Ms. Megan Zummo	Freehold Township High School
Ms. Jennifer Garrity	High Technology High School
Mr. Shane Evans	Manalapan High School
Ms. Wendy Green	Marine Academy of Science & Technology

### **State Regional Coordinator**

Ms. Sherry Roses	Howell High School
------------------	--------------------

### **State Advisor and Corporate Member**

Mrs. Alison Goeke, Center for Excellence in STEM Education, Department of Technological Studies, School of Engineering, The College of New Jersey

### **Competitive Event Coordinator**

Mr. Henry Harms, Center for Excellence in STEM Education, Department of Technological Studies, School of Engineering, The College of New Jersey

### **Business Administrator**

Ms. Rebecca Turner, Center for Excellence in STEM Education, Department of Technological Studies, School of Engineering, The College of New Jersey

## Foreword

The diverse competitive events that are listed within this booklet are open to TSA chapters affiliated through registration with the New Jersey state office of TSA, completed by January 31, 2020. The High School State Conference will be held at The College of New Jersey on May 2, 2020.

### **How this booklet works**

The *NJ Supplement* works in conjunction with the National TSA Competitive Events Guide, which you will receive access to online after affiliation with the National TSA Office has taken place.

This booklet presents the competitive events offered at the NJ State Conference in alphabetical order as well as the maximum number of participants or teams permitted to compete from each chapter. Each New Jersey competitive event in this booklet lists only the modifications from the National guidelines. Substitute the NJ modification in this booklet for the number or letter on the National guidelines to ensure that your chapter meets the guidelines for the NJ Competitive Events.

### **Competitive Event Categories**

Competitive Events are organized according to the requirements for student participation in those competitions. There are three categories: **On-Site, Pre-Conference and Static.**

“On-site Events” require student participation on conference day. Some On-Site Events may even include components that must be completed and submitted prior to conference day. Because of the time commitment involved, students may participate in only one On-Site Event (and no more than four total events).

“Pre-Conference Events” require that entries be submitted prior to the conference, on a designated submission date established by NJ TSA. These entries are judged days prior to the conference and put on display the day of the conference. Some Pre-Conference events may have components or presentations that also take place the day of the conference.

“Static Events” require students to submit entries on conference day, however, students are not required to remain with their entries or make presentations. Static Events usually consist of students creating a display or prototype. These entries are checked-in the morning of the conference in the designated event room listed in the conference program. Judging takes place behind closed doors. After judging is finished, all entries are put on display for the remainder of the conference day.

### **Please be sure to read all sections of the *Supplement* carefully!**

It is the hope of the NJ TSA Executive Committee that this guide will enable teachers, advisors, students and competitive event judges to be better prepared for participation at the State Conference this spring.

Any questions may be directed to Mrs. Alison Goeke, NJ TSA State Advisor at (609)771-3244 or [goeke2@tcnj.edu](mailto:goeke2@tcnj.edu) or Henry Harms, NJ TSA Competitive Event Coordinator, at [harms@tcnj.edu](mailto:harms@tcnj.edu).

## General Rules Governing Competitive Events

### I. HIGH SCHOOL EVENTS

The officially approved **Level II** New Jersey TSA Competitive Events for high school are:

ON-SITE	PRE-CONFERENCE	STATIC
<b>Animatronics</b> 1 team of up to 6 members per chapter	<b>3D Animation</b> 3 teams of 2-6 members per chapter	<b>**Architectural Design</b> 1 individual, or 1 team of up to 6 members per chapter <i>Documentation submitted Pre-Conference</i>
<b>Chapter Team</b> 2 team of 6 members per chapter	<b>Biotechnology Design</b> 1 individual, or 1 team of up to 6 members per chapter	<b>Biomimicry</b> 2 teams of 3-6 members per chapter
<b>**Children's Stories</b> 1 individual, or 1 team of up to 6 members per chapter <i>Documentation/story submitted Pre-Conference</i>	<b>Coding</b> 2 teams of 1-2 members per chapter	<b>**Board Game Design</b> 1 team of up to 6 members per chapter <i>Documentation submitted Pre-Conference</i>
<b>Computer Integrated Manufacturing (CIM)</b> 2 teams of 2-6 members per chapter	<b>Computer-Aided Design (CAD), Architecture</b> 1 individual per chapter	<b>System Control Technology</b> 2 teams of 3 members per chapter
<b>Debating Technological Issues</b> 1 team of 2 members per chapter	<b>Computer-Aided Design (CAD), Engineering</b> 1 individual per chapter	<b>Transportation Modeling</b> 2 individuals per chapter
<b>Essays on Technology</b> 1 individual per chapter	<b>Cybersecurity</b> <b>NEW for 2020!</b> 2 teams of 2-6 members per chapter	
<b>Extemporaneous Speech</b> 1 individual per chapter	<b>Digital Video Production</b> 1 individual, or 1 team of up to 6 members per chapter	
<b>**Fashion Design and Technology</b> 2 teams of 2-4 members per chapter <i>Portfolio/garments submitted Pre-Conference</i>	<b>**Dragster Design</b> 2 individuals per chapter <i>Top 16 cars are raced on conference day</i>	
<b>Flight Endurance</b> 1 individual per chapter	<b>Engineering Design</b> 1 team of 3-6 members per chapter	
<b>Forensic Science</b> 1 team of 2 members per chapter	<b>Music Production</b> 1 individual, or 1 team of up to 6 members per chapter	
<b>**Future Technology Teacher</b> 3 individuals per chapter <i>Documentation submitted Pre-Conference</i>	<b>On Demand Video</b> 1 team of 2-6 members per chapter	
<b>Optical Engineering</b> 3 teams of 3-6 members per chapter	<b>Photographic Technology</b> 1 individual per chapter	
<b>Prepared Presentation</b> 1 individual per chapter	<b>Promotional Design</b> 2 individuals per chapter	
<b>Software Development</b> 2 teams of up to 6 members per chapter	<b>Scientific and Technical Visualization (SciVis)</b> 3 individuals, or 3 teams of up to 6 members per chapter	
<b>**Structural Design and Engineering</b> 1 team of 2 members per chapter <i>Bring Pre-Built Structure and Documentation</i>	<b>Video Game Design</b> 1 team of up to 6 members per chapter	
<b>Technology Bowl</b> 1 team of 3 members per chapter	<b>Webmaster</b> 1 team of 3-5 members per chapter	
<b>Technology Problem Solving</b> 1 team of 2 members per chapter		
<b>VEX Robotics</b> 1 team of up to 6 members per chapter	<b>**Event has both Pre-Conference, and On-Site or Static Components.</b>	

## II. PROJECT SUBMISSION

- A. On-site events require students to submit entries, make presentations and/or participate/compete in activities *at* the conference.
- B. Static events require students to submit a display or prototype the day of the conference, however, there is no presentation component along with the entry.
- C. Pre-Conference events require projects to be submitted and judged *prior to* the conference
  1. Pre-Conference entries mailed must be received by **April 8, 2020**.

Send to:  
NJ TSA/Alison Goeke  
The College of New Jersey  
2000 Pennington Rd.  
103 Armstrong Hall  
Ewing, NJ 08628

Please call (609)771-3336 or email ([tsa@tcnj.edu](mailto:tsa@tcnj.edu)) the NJ TSA office to indicate description/quantity of items being mailed and expected delivery date.

2. Entries dropped off at the NJ TSA office at The College of New Jersey must be received by **April 8, 2020**. Please call (609)771-3336 or email ([tsa@tcnj.edu](mailto:tsa@tcnj.edu)) the TSA office to arrange time for delivery.
3. A Northern NJ drop off site will be available on **April 7, 2020** from 3:30-5:00pm at Heritage Middle School, 20 Foxcroft Drive, Livingston, NJ 07039.
  - Items received after these dates may not be included in competitions.
  - Mailed deliveries should include provision for obtaining **proof of delivery**.
  - Packages should include a label or packing slip describing contents.

## III. PARTICIPATION IN COMPETITIVE EVENTS

- A. TSA members may only register and participate in **ONE On-site event**, and no more than **FOUR total events**.
- B. Students must be registered at the state conference in order to enter and become finalists/winners in a competition. **NO ON-SITE OR LATE REGISTRATIONS WILL BE ACCEPTED.**
- C. **No substitutions will be accepted after registration closes, or at the conference.** Substitutions in team events will be accepted only from pre-registered applicants, and only under extenuating circumstances.

- D. **No school or individual names labeled on projects**, except for events which require school/student information. **Otherwise only ID#'s are to be used.** Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolios, models, displays, copyright/release forms, etc.). Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).
- E. For all entries that require documentation materials (comprising a "portfolio") secured in a **CLEAR FRONT REPORT COVER**, visit this [site](#) for a sample report cover.
- F. Please be sure to make a copy of all video/electronic files (e.g. Music Production, Video Game Design, etc.) for yourself before the project is submitted.
- G. Projects/entries are picked up at the time stated in the conference program and or event display room. All entries not accounted for will be discarded the following day if no arrangements have been made with the NJ TSA office otherwise.
- H. Audio visual equipment will be provided for competitive events that require it.
- I. NJ TSA is not responsible for compatibility issues with electronic files. Judges will not be permitted to install programs to view files.
- J. Proper procedures for citing material taken from other sources must be followed as outlined in specific competitive event guidelines. Copyright procedures, checklist and forms must be completed and submitted with entries when necessary.
- K. No electronic communication devices of any kind are permitted during competitions and will result in disqualification.
- L. No one will be permitted to leave a test event and return unless instructed by judges.
- M. The maximum size of a team is 6 members, unless otherwise designated in a competition's eligibility guideline.
- N. In addition to the information found in the NJ Supplement, participants are responsible for knowing any updates, changes or clarifications that are made to competitive events prior to participation. This information is posted on both the National TSA and NJ TSA websites. It is crucial that students check the Competition Updates page of BOTH the NJ and National TSA websites. DIFFERENT information is posted on each site.



#### IV. COMPETITIVE EVENT ATTIRE

ALL STUDENTS ATTENDING THE CONFERENCE **MUST** wear either official TSA or business-like attire. Your cooperation with this policy will assist in providing a positive image for the organization and its members.

Please note—the Official TSA Shirt (royal blue) is mandatory for participation at the *National TSA Conference*. Students are strongly encouraged to wear the Official TSA Shirt to the NJ TSA *State Conference*, however, it is not required.

A. Official TSA Attire:

Blazer: navy blue with official TSA patch

Tie: scarlet red imprinted with official TSA logo (males only, optional for females)

Shirt or blouse: Official TSA Shirt (royal blue) (A white button-down with turn down collar may be substituted for the Official TSA Shirt at the NJ State Conference)

Pants or skirt: light gray

Dark socks: males only (black or dark blue)

Shoes: black dress shoes (unacceptable: athletic shoes, combat or work boots)

Sandals: females only may wear black open toe shoes or sandals

B. Business-like attire is considered to minimally include:

collared shirt/blouse

long pants (no shorts or jeans)

dresses/skirts

socks/hosiery

appropriate footwear

C. A Polo Shirt may be substituted for a collared shirt/blouse.

**Students NOT wearing official TSA or business-like attire *will lose 20 points from total score of each event entered and will not be granted entry into the awards ceremony.***

**A 20 point deduction will also result from the wearing of hats.**

**All individuals attending the awards ceremony must present their official State Conference ID Badge provided to them at registration. Anyone not in possession of their badge will not be admitted to the Awards Ceremony.**

#### V. PROPERTY DAMAGE OR LOSS

The College of New Jersey and TSA are not responsible for damage to or loss of property brought to the conference. Please remind students there is no need for them to bring any personal items such as laptops to the conference and that their personal belongings are their sole responsibility that they should not be left behind in any location on campus.

## VI. SCHOLARSHIPS AND AWARDS

### **NJ TSA Future Technology Teacher Scholarship**

The purpose of the NJ TSA Future Technology Teacher Scholarship is to support the mission of TSA by encouraging NJ TSA members to pursue careers as technology education teachers. A qualifying student will receive a \$500 scholarship to use toward continuing their education. The recipient will be announced at the State Conference.

[Click here](#) to view application requirements.

*Applications must be submitted by 5:00pm on April 8, 2020 to:*

Alison Goeke, State Advisor  
New Jersey Technology Student Association  
The College of New Jersey  
2000 Pennington Rd.  
103 Armstrong Hall  
Ewing, NJ 08628-0718  
Fax: 609.771.3330

### **TSA Technology Honor Society**

The TSA Technology Honor Society recognizes TSA members who excel in academics, leadership, and service to their school and community. The TSA Technology Honor Society is (1) an opportunity for student members to be recognized for their efforts and (2) designed to recognize TSA members who exemplify the high ideals of academics. Go to <http://www.tsaweb.org/Student-Achievement-Awards> to view and print forms. Please send completed forms to Alison Goeke ([goeke2@tcnj.edu](mailto:goeke2@tcnj.edu)/Fax#609-771-3330) by 5:00pm on April 8, 2020.



## VII. IMPORTANT DATES AND DEADLINES

### January 13, 2020

- State Conference Registration OPENS.

### January 13, 2020

- Design Problems for the following events will be posted on the [NJ TSA website](#):
  - Computer-Aided Design (CAD), Architecture
  - Computer-Aided Design (CAD), Engineering
  - Coding
  - Optical Engineering
  - System Control Technology
- Note- all other design problems/themes for 2020 can be found within this document, and on the [National TSA website](#)

### March 19, 2020

- On Demand Video theme posted at 5pm on [NJ TSA website](#)

### March 24, 2020

- On Demand Video entries must be emailed to the NJ TSA office (or postmarked) by 5pm.

### April 7, 2020

- All Pre-Conference entries must be received at the Northern NJ Drop-Off Site.

### April 8, 2020

- All Pre-Conference entries must be received at the NJ TSA office.

### April 8, 2020

- NJ TSA Future Technology Teacher Scholarship, Technology Honor Society and State Officer Nominations must be received at the NJ TSA office by 5pm.

### April 9, 2020

- State Conference Registration CLOSSES at 5pm (absolutely no changes can be made after this time).

### April 29, 2020

- Prepared Presentation topic posted at 5pm on [NJ TSA website](#)

### May 2, 2020

- NJ TSA High School State Conference, The College of New Jersey

### June 27-July 1, 2020

- National TSA Conference, Nashville, Tennessee

**Plan now to attend the**  
42<sup>th</sup> Annual  
National TSA Conference  
June 27-July 1, 2020  
Gaylord Opryland Resort and Convention Center  
Nashville, Tennessee  
Theme: *"Inspire a Shared Vision"*

## Level II – High School Events

### 3D Animation

#### Pre-Conference Event

2020 Theme: Create a 3D animation that illustrates the impact of humans on the environment.

<b>OVERVIEW:</b>	No semifinalists. No on-site problem. Entries submitted Pre-Conference.
<b>ELIGIBILITY:</b>	3 teams of 2-6 members per chapter.
<b>TIME LIMITS:</b>	<p><u>Preliminary Round</u>            1. Entries must be submitted and accessible via the Internet by 6:00pm on April 8, 2020.</p> <p>2. No changes are to be made after 6:00pm on April 8, 2020.</p> <p><u>No Semifinal Round</u>            Delete 1-4. No semifinalists. No onsite problem. No interview. No LEAP interview.</p>
<b>LEAP:</b>	No LEAP Report. No LEAP Interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Pre-Conference/Preliminary Round</u>            1. Teams email their entry to <a href="mailto:tsachall@tcnj.edu">tsachall@tcnj.edu</a>. No LEAP Report.</p> <p>2. The URL of the animation/video should be included in the body of the email. Documentation materials should be submitted as a PDF document and included as an attachment in the email. Be sure to include the ID# and “3D Animation” in the email subject line.</p> <p>3. All emails will be time stamped and serve as proof of submitting project on time.</p> <p>4. No semifinalists. Entries submitted Pre-Conference.</p> <p><u>No Semifinal Round</u>            Delete 1-9. No semifinalists. No onsite problem. No LEAP interview.</p> <p>10. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u>            B. and B.1. No LEAP Report.</p> <p><u>No Semifinal Round</u></p>

	<p>Delete A-E. No semifinalists. No onsite problem. No LEAP Report. No LEAP interview.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i></b></p> <p><i>Team ID#s may be used for team events. A Team ID# is the first four numbers of students' individual ID#s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></p>
<p><b>EVALUATION:</b></p>	<p><u>Preliminary Round</u> No change</p> <p><u>No Semifinal Round</u> Delete 1-3. No semifinalists. No onsite problem. No interview. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 80 points:</p> <ul style="list-style-type: none"> <li>• Documentation (40)</li> <li>• Animation (40)</li> </ul>

## Animatronics

### On-Site Event

2020 Theme: Create an Animatronic exhibit for a national park.

<b>OVERVIEW:</b>	No change
<b>ELIGIBILITY:</b>	1 team of up to 6 members per chapter
<b>TIME LIMITS:</b>	Delete 3. No semifinalists. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. No LEAP Report.</p> <p>5. No semifinalists.</p> <p><u>No Semifinal Round</u> Delete 1-4. No semifinalists. No LEAP Report. No LEAP interview.</p> <p>5. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p> <p>6. Entries remain on display after judging concludes. Teams pick up entries prior to conference departure.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> No change</p> <p><u>No Semifinal Round</u> Delete A-B. No semifinalists. No LEAP Report. No LEAP interview.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i></b> <b><i>Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></b></p>
<b>EVALUATION:</b>	<p>Delete 4. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 140 points:</p> <ul style="list-style-type: none"> <li>• Demonstration Interview (50)</li> <li>• Model Appearance (30)</li> <li>• Model Function (60)</li> </ul>

## Architectural Design

### Static Event (with Pre-Conference Component)

2020 Theme: Community Center

Design Problem: <https://tsaweb.org/competitions-programs/tsa/themes-problems>

<b>OVERVIEW:</b>	No change  Note: <b>Documentation portfolio submitted Pre-Conference.</b> Model submitted on conference day. Please also bring printout of documentation on conference day (does not need to be in clear front report cover).
<b>ELIGIBILITY:</b>	1 individual, or 1 team of up to 6 members per chapter
<b>TIME LIMITS:</b>	<u>Preliminary Round</u> 1. Documentation portfolio is to be emailed to <a href="mailto:tsachall@tcnj.edu">tsachall@tcnj.edu</a> by 6:00pm on April 8, 2020.  Delete 2. Documentation portfolio is to be emailed by 6:00pm on April 8, 2020.  <u>No Semifinal Round</u> Delete 1-2. No semifinalists. No semifinalist presentation/interview. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<u>Pre-Conference/Preliminary Round</u> 2. Documentation portfolio is to be emailed to <a href="mailto:tsachall@tcnj.edu">tsachall@tcnj.edu</a> by 6:00pm on April 8, 2020. Portfolio should be submitted as a PDF attachment to the email. No LEAP Report. Be sure to include ID# and "Architectural Design" in email subject line. Please bring printout of documentation on conference day (does not need to be in a clear front report cover).  3. Participants follow the above instructions for email submission.  4. All emails will be time stamped and serve as proof of submitting project on time.  7. All models will be judged. No semifinalists.  9. No semifinalists. Winners are announced at Awards Ceremony.  <u>No Semifinal Round</u> Delete 1-5. No semifinalists. No semifinalist presentation/interview.

	<p>No LEAP interview.</p> <p>6. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> A.2. No semifinalist presentation.</p> <p>A.3.a. No LEAP Report.</p> <p><u>No Semifinal Round</u> Delete A-B. No semifinalists. No semifinalist presentation/interview. No LEAP Report. No LEAP interview.</p> <p><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.) Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></p>
<b>EVALUATION:</b>	<p><u>Preliminary Round</u> No change.</p> <p><u>No Semifinal Round</u> Delete 1-2. No semifinalist presentation/interview. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 210 points:</p> <ul style="list-style-type: none"> <li>• Documentation (90)</li> <li>• Design Challenge (50)</li> <li>• Model (70)</li> </ul>



# Biomimicry

## Static Event

### 2020 Topic: Natural Resource Collection

**NOTE:** this event is being offered at the state level only; it is NOT an official TSA competitive event. Follow the guidelines/procedures below to prepare for entry into the state competition.

<b>OVERVIEW:</b>	<p>An increasing number of engineers and designers are looking to nature for inspiration in developing new products, systems and solutions to problems.</p> <p>Animals and plants have already come up with effective approaches to many of the same challenges humans face every day. Nature, after all, has gone through 3.8 billion years of research and development!</p> <p>Biomimicry is a new science that studies nature's best ideas, then imitates these designs to solve human problems.</p> <p>For this event, participants work as part of a team to research a given topic, identify a problem within that topic, and use biomimicry, or the example of an organism or system in nature, to solve the problem related to that topic.</p> <p>For example, if the topic were natural resource collection, students could apply the design of the shell of the namib desert beetle, which collects water directly out of the air, in the middle of the desert. The shell could be redesigned to collect water for desert communities with little access to water, or to anyone in need of fresh water.</p> <p>The team will create three (3) alternate solutions to solve the problem, choosing one (1) as their final solution. Each team will compile a portfolio, and create a poster board display.</p> <p><b>The topic for 2020 is Natural Resource Collection.</b> The portfolio and display are submitted on conference day.</p>
<b>PURPOSE:</b>	Participants apply the principles and practices of industrial design in developing and proposing a product inspired by nature.
<b>ELIGIBILITY:</b>	2 teams of 3-6 members per chapter.
<b>TIME LIMITS:</b>	Entries must be started and completed during the current school year. Portfolio and display are submitted on conference day.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.

<b>PROCEDURE:</b>	<ul style="list-style-type: none"> <li>A. Participants research and identify a problem within the designated topic.</li> <li>B. Using that problem, participants will find at least three (3) alternative solutions to that problem, inspired by nature.</li> <li>C. Participants select one of these solutions and explain why it is the best choice.</li> <li>D. Participants create a display of the final solution. A portfolio compiling all information will be submitted to the judges.</li> </ul>
<b>REGULATIONS:</b>	<ul style="list-style-type: none"> <li>A. Each team is required to secure the assistance of a biomimicry mentor; someone other than the TSA Advisor, who has experience related to the year's topic. The name, address, and occupation of this individual should be documented and included in the team's portfolio.</li> <li>B. Each team is encouraged to identify the demographics of the society where the problem exists. This information can be documented on the same page as the above and included in the team's portfolio.</li> <li>C. The entry will consist of a design portfolio and a poster board display.</li> <li>D. The solution (including design portfolio and display) must not exceed 3' wide x 4' high. The poster board display will include: <ul style="list-style-type: none"> <li>1. Name of the final solution, conference city, state and year.</li> <li>2. Rationale for the final solution.</li> <li>3. Detailed explanation of the final solution.</li> <li>4. A three (3)-dimensional technical or CAD drawing and/or rendering of the final solution.</li> </ul> </li> <li>E. Documentation materials (comprising "a portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8 ½ " x 11" pages, in this order: <ul style="list-style-type: none"> <li>1. Title page with the event title, the conference city and state, and the year; one (1) page.</li> <li>2. Table of contents; pages as needed.</li> <li>3. Mentor verification that includes the name, address, and occupation of the mentor; one (1) page.</li> <li>4. A design brief (format that follows) that describes the</li> </ul> </li> </ul>

design and its constraints; one (1) or more pages.

### **DESIGN BRIEF**

- Context:** States the nature of the engineering design
- Task:** Clearly states what the team will be involved in
- Restrictions:** Identifies any restrictions
- Investigations:** Identifies the research involved
- Development:** States essential elements involved in planning
- Production:** Identifies the expected result
- Evaluation:** Identifies the expected assessment procedure and criteria

5. A description of the problem solving steps; pages as needed.
6. 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 National TSA Competitive Events Guide); one (1) page.
7. Evidence of research conducted by the design team; pages as needed.
8. Documentation of brainstorming; pages as needed.
9. Descriptions and illustrations of three (3) possible solutions with a brief but concise evaluation of the merits of each; three (3) or more pages.
10. A detailed description of the final solution; pages as needed.
11. A three (3)-dimensional technical or CAD drawing and/or rendering of the final solution; the maximum sheet size is drawing sheet cut size B - 11"x17"; when this sheet size is used, the sheet must be hole-punched and folded or placed in a sheet protector for insertion in the portfolio; pages as needed.
12. Math and science concepts and applications involved in the final design solution; one (1) page.
13. A list of references and resources; MLA style must be used in citing all references and resources; pages as needed.

	<p>14. An evaluation of how well the final solution addresses the identified problem and an explanation of the impact of the solution on society; pages as needed.</p> <p><b>No school or individual names labeled on projects; only State Conference ID#'s are to be used.</b> Upon registering students for the <i>State Conference</i> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)  <i>Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></p>
<b>EVALUATION:</b>	<p>Please see the rating form on the following pages.</p> <p>Evaluation is based on 100 points:</p> <ul style="list-style-type: none"> <li>• Documentation (60 points)</li> <li>• Display (40 points)</li> </ul>
<b>STEM INTEGRATION:</b>	<p>This event aligns with the STEM educational standards noted below.</p> <p>Science, Technology, Engineering, Mathematics</p>
<b>PRIMARY LEADERSHIP SKILLS:</b>	<p>Leadership skills promoted in this event:</p> <ul style="list-style-type: none"> <li>• COMMUNICATION — Students choose an existing design problem and develop and explain their solution. Suggested leadership lessons: <i>Personality Types</i> and <i>Promote It</i></li> <li>• CRITICAL THINKING — Students analyze and evaluate a problem in order to develop an acceptable solution. Suggested leadership lessons: <i>And The Answer Is</i> and <i>Critical Thinking Tips</i></li> <li>• PROBLEM SOLVING — Students devise a plan that will yield an acceptable solution. Suggested leadership lessons: <i>Debate It</i> and <i>Effective Brainstorming</i></li> </ul> <p><i>Additional leadership skills promoted in this event: creative thinking, decision making, ethics, evaluation, organization, teamwork</i></p>
<b>TSA AND CAREERS:</b>	<p>This competition connects to one or more of the career areas featured in the TSA AND CAREERS section of the National TSA Competitive Events Guide. Use <i>The 16 Career Clusters</i> chart and the <i>TSA Competitions and The 16 Career Clusters</i> grid as resources for information about careers.</p>
<b>CAREERS RELATED TO THIS EVENT:</b>	<p>All fields of engineering and design (and related areas)</p>

Participant ID/Team ID# \_\_\_\_\_

# BIOMIMICRY

**2020 OFFICIAL RATING FORM**

**HIGH SCHOOL**

## Documentation (50 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Evaluators: 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 far 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.)			
<b>Portfolio components</b> See Regulation C (X1)	The portfolio is unorganized and/or is missing three or more components.	The portfolio is missing two components, and/or it is loosely organized.	The portfolio has one or no components missing and is clearly well organized.
<b>Definition and explanation of problem and solution</b> (X1)	The definition and explanation of the problem and/or the solutions to the problem are unclear; major grammatical errors are evident.	The definition and explanation of the problem, and/or the solutions to the problem are overgeneralized and/or not concise; some grammatical errors are present.	The definition and explanation of solutions to the problem are clear and concise, with few or no grammatical errors.
<b>Research base</b> (X1)	The research is inadequate and/or very few credible sources are cited.	The research is conducted appropriately, with some credible sources cited.	There is a comprehensive research base with fully credible sources cited.
<b>Supporting graphics and materials</b> (X1)	The graphics and supporting materials do not clarify the documentation, and/or they do not relate to the problem, and/or they may not be properly cited (MLA format).	The graphics and supporting materials are appropriate, properly cited (if needed), and supplement the documentation by providing clarity to the problem.	The graphics and supporting materials are of excellent quality; graphics clearly clarify abstract concepts and, if not original, are properly cited.
<b>Quality and effectiveness</b> (X1)	The work is sloppy and disorganized, as if thrown together.	The work is mostly organized and of sufficient quality.	The work is well organized and of exceptional quality.

**SUBTOTAL (50 points)**

## Display (40 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
<b>Communication of problem</b> (X1)	The problem is difficult to understand as communicated and is presented in an illogical manner.	The problem is communicated, and thoughts are somewhat organized and/or concise.	The problem is communicated in an organized, clear, and concise manner.
<b>Communication of solution</b> (X1)	The solution is difficult to understand as communicated and is presented in an illogical manner.	The solution is communicated, and thoughts are somewhat organized and/or concise.	The solution is communicated in an organized, clear, and concise manner.
<b>Creativity</b> (X1)	The work lacks creativity, with little or no integration of design principles.	Some creative elements are included, and essential design principles and elements are used somewhat effectively.	The work exudes creativity, and essential design principles and elements are integrated.
<b>Aesthetics and Artanship</b> (X1)	The work is unorganized and sloppy, and the display seems to be an afterthought.	The work is organized, with essential design principles given in a logical format.	The work reflects an exemplary use of layout and design principles to logically communicate important data.

**SUBTOTAL (40 points)**

Record Scores in the Column Spaces Below

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

Indicate the rule violated: \_\_\_\_\_

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (90 points)**

Comments:

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

Evaluator

Printed name: \_\_\_\_\_

Signature: \_\_\_\_\_



## Biotechnology Design

### Pre-Conference Event

2020 Area of Focus: The use of Biotechnology in sports

<b>OVERVIEW:</b>	Entries are submitted Pre-Conference.
<b>ELIGIBILITY:</b>	1 individual, or 1 team of up to 6 members per chapter.
<b>TIME LIMITS:</b>	1. No semifinalists. All teams provide a video presentation of no more than 5 minutes with their entry. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u>            3. Entries submitted Pre-Conference. No LEAP Report.</p> <p>5. No semifinalists.</p> <p><u>No Semifinal Round</u>            1-2. No semifinalists. All teams provide a video presentation of up to 5 minutes in length. Video should be accessible online (e.g. YouTube) and the URL should be included in the documentation materials.</p> <p>Delete 3. No LEAP interview.</p> <p>4. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u>            B.1. No LEAP Report</p> <p>B.8. Multimedia presentation is submitted in video form (up to 5 minutes in length). A print out of the URL containing the video is to be included.</p> <p>B.11. No USB flash drive submission. Video of multimedia presentation is to be accessible online and the URL is to be included in the documentation materials. Presentation becomes the property of NJ TSA.</p> <p><u>No Semifinal Round</u>            A. No semifinalists. All teams provide a video presentation of up to 5 minutes in length. Video should be accessible online (e.g. YouTube) and the URL should be include in the documentation materials.</p>

	<p>B. The presentation is not to exceed 5 minutes in length. No questions from judges. Video submission. Delete B.1-B.3. No semifinalists. Video presentation is submitted. No live presentation. No onsite component.</p> <p>Delete C. No Leap Report. No LEAP interview.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.) Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></b></p>
<p><b>EVALUATION:</b></p>	<p><u>Preliminary Round</u> No change</p> <p><u>No Semifinal Round</u> 1. No semifinalists. All teams provide a video presentation of up to 5 minutes in length</p> <p>Delete 2. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 170 points:</p> <ul style="list-style-type: none"> <li>• Documentation (50)</li> <li>• Display (60)</li> <li>• Presentation (video) (60)</li> </ul>

## **Board Game Design**

### **Static Event (with Pre-Conference Component)**

<b>OVERVIEW:</b>	No semifinalists. No demonstration/interview. Static event.  <b>Note: Documentation portfolio submitted Pre-Conference.</b> Board game and packaging submitted on conference day.
<b>ELIGIBILITY:</b>	1 team of up to 6 members per chapter
<b>TIME LIMITS:</b>	1-3. No semifinalists. No interview. No LEAP interview. Teams have five (5) minutes to setup game on conference day.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u>            2. No LEAP Report. Documentation portfolio is to be emailed to <a href="mailto:tsachall@tcnj.edu">tsachall@tcnj.edu</a> by 6:00pm on April 8, 2020. Portfolio should be submitted as a PDF attachment to the email. Be sure to include ID# and “Board Game Submission” in the email subject line. Board game/packaging is submitted on conference day. Please bring extra printout of documentation portfolio on conference day (does not need to be in clear front report cover).</p> <p>4. No semifinalists. Winners announced at Awards Ceremony.</p> <p><u>No Semifinal Round</u>            Delete 1-5. No semifinalists. No LEAP Report. No LEAP interview.</p> <p>6. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p> <p>7. Entries will remain on display after judging concludes. Conference attendees will have the opportunity to play games on display. Teams pick up entries prior to conference departure.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u>            C.1. No USB flash drive submission. Documentation portfolio is to be emailed to <a href="mailto:tsachall@tcnj.edu">tsachall@tcnj.edu</a> by 6:00pm on April 8, 2020. Portfolio should be submitted as a PDF attachment to the email. Be sure to include ID# and “Board Game Submission” in the email subject line. Please bring extra printout of documentation portfolio on conference day (does not need to be in clear front report cover).</p> <p>C.2. No USB flash drive submission. Documentation portfolio is emailed to <a href="mailto:tsachall@tcnj.edu">tsachall@tcnj.edu</a> Pre-Conference. Bring paper copy of documentation materials on conference day (does not need to be in</p>

	<p>clear front report cover).</p> <p>Delete C.4.a. No LEAP Report.</p> <p><u>No Semifinal Round</u> Delete A-D. No semifinalists. No demonstration/interview. Static event. No LEAP Report. No LEAP interview.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.) Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></b></p>
<p><b>EVALUATION:</b></p>	<p><u>Preliminary Round</u> 1. Portfolio submitted Pre-Conference.</p> <p><u>No Semifinal Round</u> Delete 1-3. No demonstration. No interview. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 130 points:</p> <ul style="list-style-type: none"> <li>• Documentation (70)</li> <li>• Packaging (30)</li> <li>• Board Game (30)</li> </ul>

## Chapter Team On-Site Event

<b>OVERVIEW:</b>	No semifinals. All teams make the oral presentation.
<b>ELIGIBILITY:</b>	1. 2 teams of 6 members per chapter.  3. No semifinalists. All teams take the written test and participate in the oral presentation.
<b>TIME LIMITS:</b>	<u>Preliminary Round</u> No change.  <u>No Semifinal Round</u> No semifinalists. All teams make the oral presentation. Time-related penalties apply.  Delete 1.b. No LEAP interview.  Delete 2. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP Interview.
<b>ATTIRE:</b>	Participants may wear <b>Official TSA Attire OR Business-Like Attire</b> , as described on Page 6-7 of this guide.
<b>PROCEDURE:</b>	<u>Preliminary Round</u> Delete 2. No LEAP Report.  Delete 4-5. No semifinalists. All teams make the oral presentation.  <u>No Semifinal Round</u> 1. No semifinalists. All teams make oral presentation.  Delete 5. No LEAP interview.  6. The 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> place winners are announced at the Awards Ceremony.
<b>REGULATIONS:</b>	<u>Preliminary Round</u> B. No semifinalists. All teams participate in the written test and oral presentation.  <u>No Semifinal Round</u> A. No semifinalists. All teams make oral presentation.  A.1. Materials provided by NJ TSA.  E. No LEAP interview.

	<p>G. No semifinalists. All teams make oral presentation.</p> <p>Delete H. No LEAP Report. No LEAP interview.</p>
<b>EVALUATION:</b>	<p><u>Preliminary Round</u></p> <p>1. No semifinalists. All teams make oral presentation.</p> <p>1.a. No semifinalists. All teams make oral presentation.</p> <p><u>No Semifinal Round</u></p> <p>Delete 2. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 220 points:</p> <ul style="list-style-type: none"> <li>• Team Written Test (10)</li> <li>• Business Meeting Demonstration (190)</li> <li>• Possible Bonus Points for Additional Motions/Actions (20)</li> </ul>



## Children's Stories

### On-Site Event (with Pre-Conference Component)

2020 Theme: Design a "choose your own adventure" book for children ages 5-8.

<b>OVERVIEW:</b>	No change  Note: <b>Documentation Portfolio and Storybook submitted Pre-Conference.</b> Teams participate in the reading and interview on conference day.
<b>ELIGIBILITY:</b>	1 individual, or 1 team of up to 6 members per chapter.
<b>TIME LIMITS:</b>	<u>No Semifinal Round</u> 1-2. No semifinalists. All teams participate in the reading and interview on conference day.  Delete 3. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<u>Pre-Conference</u> No change.  <u>Preliminary Round</u> 1. Participants submit their Documentation Portfolio and Storybook Pre-Conference. Documentation Portfolio must be printed and submitted in a clear front report cover. No USB drive. No LEAP Report. Documentation Portfolio (in clear front report cover) is submitted alongside physical storybook.  1.b. Please follow Pre-Conference drop off instructions on Page 5 of this guide.  3. No semifinalists. All teams participate in reading and interview.  <u>No Semifinal Round</u> 1-2. No semifinalists. All teams will participate in the reading and interview on conference day.  4. No LEAP interview.  6. No finalists. The 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> place winners are announced at the Awards Ceremony.
<b>REGULATIONS:</b>	<u>Preliminary Round</u> A. Documentation Portfolio must be printed and submitted in a clear

	<p>front report cover. No USB drive submission.</p> <p>C.1. Documentation Portfolio must be printed and submitted in a clear front report cover. No USB drive submission.</p> <p>C.2. No USB drive submission. Change TSA to NJ TSA.</p> <p>C.4. No PDF document. Printed copy of Documentation Portfolio submitted.</p> <p>C.4.a. No LEAP Report.</p> <p><u>No Semifinal Round</u></p> <p>A. No semifinalists. All teams will participate in the reading and interview on conference day.</p> <p>Delete E. No LEAP Report. No LEAP interview.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.) Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></b></p>
<p><b>EVALUATION:</b></p>	<p><u>Preliminary Round</u></p> <p>No change.</p> <p><u>No Semifinal Round</u></p> <p>1. No semifinalists. All teams participate in the reading and interview on conference day.</p> <p>Delete 2. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 220 points:</p> <ul style="list-style-type: none"> <li>• Documentation (90)</li> <li>• Storybook (100)</li> <li>• Reading and Interview (30)</li> </ul>

## Coding

### Pre-Conference Event

Design Problem will be posted on the NJ TSA website on January 13, 2020

<b>OVERVIEW:</b>	No onsite problem. Entries are submitted Pre-Conference. Design problem will be posted on the NJ TSA website on January 13, 2020.
<b>ELIGIBILITY:</b>	2 teams of 1-2 members per chapter
<b>TIME LIMITS:</b>	1. Design problem will be posted on January 13, 2020. Entries are submitted Pre-Conference. Submission instructions will be included in design problem.  Delete 2. No semifinalists. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. Entries are submitted Pre-Conference. No LEAP Report.</p> <p>2. Design problem will be posted on the NJ TSA website on January 13, 2020.</p> <p>3-4. Entries submitted Pre-Conference. Submission instructions will be included in design problem.</p> <p>6. No semifinalists.</p> <p><u>No Semifinal Round</u> Delete 1. No semifinalists. No onsite component. Entries submitted Pre-Conference. No LEAP interview.</p> <p>2. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> B-L. No onsite competition. Design problem posted on the NJ TSA website on January 13, 2020. Entries submitted Pre-Conference.</p> <p><u>No Semifinal Round</u> Delete A. No LEAP Report. No LEAP interview.</p> <p><i><b>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</b></i> <i>Team ID#s may be used for team events. A Team ID# is the first four numbers of</i></p>

	<i>students' individual ID#s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i>
<b>EVALUATION:</b>	Evaluation criteria will be included in the design problem.

## Computer-Aided Design (CAD), Architecture

### Pre-Conference Event

2020 Design Problem will be posted on the NJ TSA website on January 13, 2020

<b>OVERVIEW:</b>	No change The design problem will be posted on the NJ TSA website on January 13, 2020.
<b>ELIGIBILITY:</b>	1 individual per chapter
<b>TIME LIMITS:</b>	Delete 1-4. Entries must be completed during the school year and are submitted Pre-Conference. There is no on-site component. No LEAP interview.  The design problem will be posted on the NJ TSA website on January 13, 2020.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	Delete 1-4. The design problem will be posted on the NJ TSA website on January 13, 2020. Entries are submitted Pre-Conference. No LEAP Report.  Delete 6-10. No on-site component. No semifinalists. No LEAP interview.  11. Entries are displayed on conference day. Participants should pick up entries prior to departing the conference.  12. The 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> place winners are announced at the Awards Ceremony.
<b>REGULATIONS:</b>	Delete A-D. Entries must be completed during the school year and are submitted Pre-Conference. There is no on-site component.  Delete F. No USB flash drive submissions. <b>Designs submitted on a maximum paper size of 24" x 36" or smaller sheets mounted on a 24" x 36" sheet with no overlapping papers.</b>  Delete G. No semifinalists. No LEAP Report. No LEAP interview.  <i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i>
<b>EVALUATION:</b>	1. Delete "on screen." Delete 2. No LEAP Report. No LEAP interview.

	<p>Evaluation is based on 140 points:</p>
--	---

- Solution to Problem (40)
- Layout (60)
- Architectural Application (20)
- Software Utilization (20)



## Computer-Aided Design (CAD), Engineering Pre-Conference Event

2020 Design Problem will be posted on the NJ TSA website on January 13, 2020

<b>OVERVIEW:</b>	No change The design problem will be posted on the NJ TSA website on January 13, 2020.
<b>ELIGIBILITY:</b>	1 individual per chapter
<b>TIME LIMITS:</b>	Delete 1-4. Entries must be completed during the school year and are submitted Pre-Conference. There is no on-site component. No LEAP interview.  The design problem will be posted on the NJ TSA website on January 13, 2020.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	Delete 1-4. The design problem will be posted on the NJ TSA website on January 13, 2020. Entries are submitted Pre-Conference. No LEAP Report.  Delete 6-10. No on-site component. No semifinalists. No LEAP interview.  11. Entries are displayed on conference day. Participants should pick up entries prior to departing the conference.  12. The 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> place winners are announced at Awards Ceremony.
<b>REGULATIONS:</b>	Delete A-D. Entries must be completed during the school year and are submitted Pre-Conference. There is no on-site component.  Delete F. No USB flash drive submission. <b>Designs submitted on a maximum paper size of 24" x 36" or smaller sheets mounted on a 24" x 36" sheet with no overlapping papers.</b>  Delete G. No semifinalists. No LEAP Report. No LEAP interview.  <i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i>
<b>EVALUATION:</b>	1. Delete "on screen."

	<p>Delete 2. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 140 points:</p> <ul style="list-style-type: none"><li>• Solution to Problem (40)</li><li>• Layout (60)</li><li>• Engineering Application (20)</li><li>• Software Utilization (20)</li></ul>
--	---

## Computer Integrated Manufacturing (CIM) On-Site Event

2020 Theme: Students will design and create an original model of one of the simple machines that a teacher can use for a demonstration in class. All designs must be the original work of the students. Pre-made kits and designs will be disqualified. The final product will need to showcase the current conference city and state.

<b>OVERVIEW:</b>	No semifinalists. All teams assemble their entry and give live sales pitch.
<b>ELIGIBILITY:</b>	2 teams of 2-6 members per chapter.
<b>TIME LIMITS:</b>	1. No semifinalists. All teams deliver sales pitch and demonstrate/assemble the product.  2. No semifinalists. No LEAP interview. All teams deliver sales pitch and demonstrate/assemble the product.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. No LEAP Report.</p> <p>2-3. No semifinalists. All teams deliver sales pitch and demonstrate/assemble the product.</p> <p><u>No Semifinal Round</u> 1. No semifinalists. All teams deliver sales pitch and demonstrate/assemble the product.</p> <p>4. No LEAP interview.</p> <p>5. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> A.1. No LEAP Report.</p> <p><u>No Semifinal Round</u> No semifinalists. All teams participate in assembly and sales pitch session.</p> <p>Delete C. No LEAP Report. No LEAP interview.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are</i></b></p>

	<p><i>automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i></p> <p><i>Team ID#s may be used for team events. A Team ID# is the first four numbers of students' individual ID#s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></p>
<b>EVALUATION:</b>	<p>Delete 3. No LEAP requirements. No LEAP Report or interview.</p> <p>4. No semifinalists. All teams participate in sales pitch/demonstration.</p> <p>Evaluation is based on 190 points:</p> <ul style="list-style-type: none"> <li>• Documentation (100)</li> <li>• Component Analysis (40)</li> <li>• Presentation (50)</li> </ul>

## Cybersecurity (Conference Format TBD)

<b>OVERVIEW:</b>	<p>The Cybersecurity competition will be offered as part of the 2020 NJ TSA State Conference. Participants respond to a cybersecurity challenge by identifying a breach in computer security via “Capture the Flag” games. Participants must accurately address a series of problems within a specified, limited amount of time.</p> <p>Additional information on competition format (i.e. Pre-Conference or On-Site) will be shared as details are confirmed with the National TSA office.</p> <p>Please see the following eight pages for the 2020 Cybersecurity official guidelines.</p>
<b>ELIGIBILITY:</b>	2 teams of 2-6 members per chapter.
<b>TIME LIMITS:</b>	TBD
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	TBD
<b>REGULATIONS:</b>	TBD
<b>EVALUATION:</b>	TBD

## OVERVIEW

Participants respond to a cybersecurity challenge by identifying a breach in computer security via "Capture the Flag" games. Areas of challenge might include exploit development, digital puzzles, cryptography, reverse engineering, binary analysis, mobile security, etc. Participants must accurately address a series of on-site problems within a specified, limited amount of time. Conference semifinalists participate in a LEAP interview to demonstrate their knowledge and expertise in an authentic security environment, including leadership skills in effectively sourcing for solutions.

## ELIGIBILITY

Two (2) teams of two to six (2-6) members per chapter may participate, one (1) entry per team.

## TIME LIMITS

### PRELIMINARY ROUND

1. Teams are required to attend the orientation meeting prior to receiving access to the challenges.
2. Participants have forty-eight (48) hours, beginning at the event orientation meeting, to complete the online preliminary challenge.

### SEMIFINAL ROUND

1. Semifinalists will participate in a LEAP interview that will last a maximum of five (5) minutes.

## LEAP

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

## PROCEDURE

### PRE-CONFERENCE

1. Prior to registration, chapter advisors collect executed TSA Student and Parent Release and Acceptable Use Policy for Participating in Internet-Based Competitions Form for all participants and will verify having done so when registering for the national conference competitions via TSA's registration system. A link to the [TSA Student and Parent Release Form and Acceptable Use Policy for Participating in Internet-Based Competitions](#) can be found on the [TSA website](#).
2. The release form must be completed for every participant in order to compete in this event. Chapter advisors will keep copies of the executed forms and may be asked to procure them if needed.
3. Once registered and Student/Parent Consent forms are in possession by the chapter advisor, instructions to register teams to compete on-site via the CTFd platform will be sent to the chapter advisor by email. Please allow three (3) business days from the date of registration for receipt.

### PRELIMINARY ROUND

1. Participants report to the event area at the time and place stated in the conference program to attend the mandatory orientation session.
2. Participants submit a hard copy of the LEAP response.
3. Participants receive information pertaining to the on-site problems. Participants are required to provide their own computer hardware, including applicable software to solve challenges (e.g. NetCat or Putty; please refer to the CTFd rules and regulations page for additional information) and access to the challenges.

4. Teams have forty-eight (48) hours from the designated start time announced during the informational session to complete the online challenge. Teams that do not attend the informational session will not receive additional time and will need to meet with the CRC Manager of the event to participate.
5. For website support, teams shall contact the CRC coordinator or manager.
6. Solutions are scored in real-time and results will be posted on an online scoreboard. The URL will be provided on-site.
7. Twelve (12) semifinalist teams will be determined and posted by the CRC.

### SEMIFINAL ROUND

1. Semifinalist teams will sign up for a LEAP interview time slot and report to the location stated in the conference program at the designated time.
2. LEAP Interviews are conducted with no more than three (3) representatives per team. The interview will last a maximum of five (5) minutes.
3. Judges evaluate the overall performance of each team and ten (10) finalists will be determined.

### REGULATIONS

1. Teams who have not properly set-up their teams on CTFd prior to conference will not be permitted to participate at the National Conference. Teams will not be permitted to set-up their teams on-site.
2. Participants in this event should concentrate their efforts prior to the competition on researching, understanding, and practicing all aspects of cybersecurity. Please refer to the sample challenge topics listed below and the resources on the TSA website.

3. Materials:
  - a. Teams are responsible for providing:
    - One (1) Power strip
    - Pencils
    - Paper
    - Optional: Teams may choose to bring one (1) or two (2) auxiliary monitors
    - Students are responsible for providing their own computer(s), including applicable software to solve challenges (see CTFd Rules and Regulations for more information).
    - Internet access
4. Teams may receive online hints on the CTFd platform throughout the competition but are not given the solution by organizers.
5. Teams are not to share solutions between teams, but they may communicate with their own team members. The sharing of information between teams will result in automatic disqualification.
6. The LEAP Report:
  - a. Participants document the leadership skills they have developed and demonstrated while working on this event; they also must document a non-competitive event leadership experience.
  - b. Specific LEAP Report regulations may be found in the LEAP Program section of this guide, and on the TSA website.

### SAMPLE CHALLENGE TOPICS

This list serves only as an *example* of challenge categories.

1. **Web Security**
  - a. The Web Security category often features custom developed web applications which include some web security flaw that must be identified and exploited. Very often SQL injection, command injection, directory traversal, and XSS vulnerabilities are introduced and exploited in these categories.

- b. Examples:
  - i. Exploiting poor security controls in a website as a regular user to gain higher level access.
  - ii. Exploiting poor security practices in a website in order to read arbitrary data from the vulnerable server.
  - iii. Exploiting a SQL injection vulnerability to extract the content of an intentionally vulnerable server.

## 2. Forensics

- a. The Forensics category often features memory dumps, hidden files, or encrypted data which must be analyzed for information about underlying information.
- b. Examples:
  - i. Extracting hidden files from an image of a hard drive.
  - ii. Extracting hidden files from a memory dump.
  - iii. Determining the flow of data in a packet capture to ascertain the origin or destination of data.

## 3. Cryptography

- a. Cryptography is the reason we can use banking apps, transmit sensitive information over the web, and in general protect our privacy. However, a large part of CTFs is breaking widely used encryption schemes that are improperly implemented.
- b. Examples:
  - i. Securing web traffic (passwords, communication, etc.).
  - ii. Securing copyrighted software code.

## 4. Reverse Engineering

- a. The Reverse Engineering category often features programs from all operating systems which must be reverse engineered to determine how the program operates. Typically, the goal is to get the application to reach a certain point or perform some action in order to achieve a solution.
- b. Examples:
  - i. Determining what input will cause a program to return True.
  - ii. Disassembling a game to find a hidden Easter egg not normally accessible or a cheat code to make it easier to win the game.
  - iii. Optimizing a program to make it run to completion.
  - iv. Exploiting a buffer overflow with some security mitigations in place to gain a command shell and read a file.
  - v. Exploiting a format string vulnerability to gain a command shell and read a file.

## ADVANCED SAMPLE TOPICS

This list serves only as an *example* of challenge categories.

### 1. Binary Exploitation

- a. The Binary Exploitation category often features compiled programs that have a vulnerability allowing a competitor to gain a command shell on the server running the vulnerable program. This often requires reverse engineering skills.
- b. Examples:
  - i. Exploiting a buffer overflow to gain a command shell and read a file.
  - ii. Exploiting a buffer overflow with some security mitigations in place to gain a command shell and read a file.
  - iii. Exploiting a format string vulnerability to gain a command shell and read a file.



### EVALUATION

#### PRELIMINARY ROUND

The successful completion of the problems is evaluated, as is the time in which it takes teams to complete each challenge.

#### SEMIFINAL ROUND

The content and quality of the LEAP Report and interview will be evaluated.

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

- Vulnerability Assessor
- Chief Information Security Officer
- Forensic Expert
- Security Architect
- Security Director
- Incident Responder
- Security Manager
- Security Auditor
- Cryptographer
- Security Engineer
- Security Analyst

# CYBERSECURITY

## 2019 & 2020 OFFICIAL RATING FORM

### HIGH 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

PRELIMINARY ROUND (100 points)			
Record the completed score and time for the online preliminary problem.			
Team A Score:		Team B Score:	
Time (Needed for tie breaker):		Time (Needed for tie breaker):	
<b>PRELIMINARY ROUND SUBTOTAL (100 points)</b>			

SEMIFINAL LEAP INTERVIEW (10 points)			
CRITERIA	Minimal performance	Adequate performance	Exemplary performance
	1-4 points	5-8 points	9-10 points
<b>LEAP Report/ Interview</b> (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.
<b>SEMIFINAL LEAP INTERVIEW SUBTOTAL (10 points)</b>			

Record scores in the column spaces below.

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: \_\_\_\_\_

<b>SEMIFINAL SUBTOTAL (10 points)</b>
---------------------------------------

<b>TOTAL (110 points)</b>
---------------------------

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

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

1. Event coordinator
2. Judges:
  - a. Semifinal round, two (2) or more
3. Assistants for set-up and clean-up, two (2) or more.

### MATERIALS

1. Coordinator's packet, containing:
  - a. Event guidelines, one (1) copy for the coordinator and for each evaluator
  - b. TSA Event Coordinator Report
  - c. List of judges/assistants
  - d. Stick-on labels for entries, as needed
  - e. Envelope for LEAP Reports
2. Tables and chairs for participants
3. Tables and chairs for judges
4. A copy protocol for the online management materials/ onsite equipment as needed
5. Adequate conditions, tools, materials, monitoring, and testing devices for the problem

### 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 evaluators and assistants 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. One (1) hour before the semifinal event is to begin, meet with evaluators 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. Collect LEAP Reports, as part of the Go/No Go specifications, but do not review the reports at this time.
3. All participants and evaluators should be in the room at this time. Participants not present will still have the same submission time with no additional time. In order to compete, participants must be on the entry list or must have approval of the CRC.
4. Once teams are seated and general announcements have been given, distribute and review the procedure.
5. After the competition has started, late participants will need to contact the CRC manager to receive the instructions.
6. Check online progress throughout the preliminary event via the CTFd scoreboard.
7. After the designated time of forty-eight (48) hours has elapsed, the CTFd challenge site will become unavailable.
8. Twelve (12) semifinalist teams will be determined and posted by the CRC.

### SEMIFINAL ROUND

1. At least one hour before the event is scheduled to begin, meet with semifinalist judges to review time limits, procedures, and regulations. Review the LEAP report of semifinalist teams and discuss judging protocol. If questions arise that cannot be answered, speak with the event manager before the event begins.
2. 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
  - To disqualify the entry
  - The event coordinator, judges, and CRC manager must all initial either of these actions on the rating form.

3. Inspect the area in which the LEAP interviews will take place. Ensure that there is a table and seating for participants and evaluators.
4. Begin the interviews at the scheduled time by closing the doors and checking the entry list. All participants and evaluators should be in the room at this time.
5. Conduct semifinalist LEAP interviews. Interviews should be a maximum of five (5) minutes in length.
6. Evaluators determine the ranking of the ten (10) finalists and discuss and break any ties.
7. Review and submit the finalist results and all items/forms in the results envelope to the CRC room.
8. If necessary, manage security and the removal of materials from the area.

### SUPPORT

For competition support, organizers shall contact the CRC competitions manager.

# Debating Technological Issues

## On-Site Event

2020 Topic: Smartphones and Tablets in the Hands of Small Children (Ages 0-10)

Subtopic #1: Smartphones and tablets hinder learning when used in educational settings for children younger than 9 years old.

Subtopic #2: Children are more likely to become addicted to technology if given a smartphone or tablet of their own before age 10.

Subtopic #3: Smartphones and tablets in the hands of small children result in adverse health effects later in life.

<b>OVERVIEW:</b>	No change
<b>ELIGIBILITY:</b>	1 team of 2 members per chapter
<b>TIME LIMITS:</b>	Delete 2. No LEAP interview. No semifinalists.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<u>Preliminary Round</u> Delete 2.e. No LEAP Report. 21. No semifinalists.  <u>No Semifinal Round</u> Delete 1-5. No semifinalists. No LEAP interview. No finalists. The 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> place winners are announced at the Awards Ceremony.
<b>REGULATIONS:</b>	<u>Preliminary Round</u> 6. No semifinalists.  <u>No Semifinal Round</u> Delete A-B. No semifinalists. No LEAP Report. No LEAP interview.
<b>EVALUATION:</b>	Delete 3. No LEAP requirements. No LEAP Report. No LEAP interview.  Evaluation is based on 110 points: <ul style="list-style-type: none"> <li>• Debate (110)</li> </ul>

**Digital Video Production**  
**Pre-Conference Event**  
**2020 Theme: A Mystery Film**

<b>OVERVIEW:</b>	No change  <b>Note:</b> NJ TSA reserves the right to disqualify any entries that contain inappropriate content. These entries will not be judged.
<b>ELIGIBILITY:</b>	1 individual, or 1 team of up to 6 members per chapter
<b>TIME LIMITS:</b>	Delete 2. No semifinalists. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u>  1. Entries are submitted Pre-Conference. No LEAP Report. Documentation materials are to be printed and submitted in a clear-front report cover. Video is to be submitted on a USB flash drive (secured inside report cover).</p> <p>3. No semifinalists. Winners are announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u>  Delete 1-2. No semifinalists. No LEAP interview. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u>  A. No change.</p> <p>B. Documentation materials are to be printed and submitted in a clear-front report cover with single-sided, 8 1/2" x 11" pages. (Only video is to be submitted on the USB flash drive.)  Delete B.1. No LEAP Report.</p> <p><u>No Semifinal Round</u>  Delete A. No LEAP Report. No LEAP interview. No onsite component.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)  Team ID#s may be used for team events. A Team ID# is the first four numbers of students' individual ID#s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></b></p>

<b>EVALUATION:</b>	<p><u>Preliminary Round</u> No change.</p> <p><u>No Semifinal Round</u> No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 100 points</p> <ul style="list-style-type: none"><li>• Preproduction Documentation (30)</li><li>• Video production (70)</li></ul>



## **Dragster Design**

### **Pre-Conference Event**

<b>OVERVIEW:</b>	No change
<b>ELIGIBILITY:</b>	2 individuals per chapter
<b>TIME LIMITS:</b>	<p><b>Dragster and drawing submitted Pre-Conference.</b></p> <p><b>No car-builder interview. No LEAP interview.</b></p> <p><b>Cars that do not meet specifications will NOT be raced.</b></p>
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. Dragster and drawing submitted Pre-Conference. No LEAP Report.</p> <p><u>Semifinal Round</u> 1. No interview. No LEAP interview.</p> <p>4. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> No change.</p> <p><u>Semifinal Round</u> A.7. All CO2 cartridges for the race are provided by NJ TSA.</p> <p>Delete B. No LEAP Report. No LEAP interview.</p> <p><u>PLEASE NOTE:</u></p> <ul style="list-style-type: none"> <li>• <b>The top 16 dragsters meeting specifications will be raced in the double elimination bracket at the conference.</b></li> <li>• <b><u>Cars not meeting specs WILL BE DISQUALIFIED from the competition.</u></b></li> <li>• <b>A caliper will be used for all measurements</b></li> </ul> <p><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i></p>

	Place ID# on drawings and directly on dragster. It is recommend ID#'s are placed on bottom or back side of dragster with tape or label.
<b>EVALUATION:</b>	Delete 3. No interview.  Delete 5. No LEAP Report. No LEAP interview.  Evaluation is based on 105 points: <ul style="list-style-type: none"><li>• Dragster construction (50)</li><li>• Race (55)</li></ul>

## Engineering Design

### Pre-Conference Event

2020 Theme: Identify a need in a developing country and design a project that will empower that community to meet basic human needs (for ideas, check out: [Engineers Without Borders](#) and other similar organizations that are helping people build better, safer communities).

<b>OVERVIEW:</b>	Entries are submitted Pre-Conference. No semifinalists. All teams provide a video presentation.
<b>ELIGIBILITY:</b>	1 team of 3-6 members per chapter.
<b>TIME LIMITS:</b>	<p>1. No semifinalists. All teams will provide a video presentation of no more than 5 minutes, with their entry.</p> <p>Delete 2. Video presentation submitted Pre-Conference. No on-site component.</p> <p>Delete 3. No LEAP interview. No semifinalists.</p>
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u></p> <p>1.a. Portfolio is to be printed and submitted in a clear front report cover. No USB flash drive submission.</p> <p>Delete 1.d. No LEAP Report.</p> <p>3. No semifinalists. All portfolios, posters, displays, and videos will be evaluated.</p> <p>Delete 4. No semifinalists. Winners announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u></p> <p>1-2. No semifinalists. All teams provide a video presentation of up to 5 minutes in length. Video should be accessible online (e.g. YouTube) and the URL should be included in the documentation materials.</p> <p>Delete 3. No LEAP interview.</p> <p>4. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u></p> <p>C. Portfolio is to be printed and submitted in a clear front report cover and include single sided 8 1/2" x 11" pages. No USB flash drive</p>

	<p>submission.</p> <p>Delete C.1. No LEAP Report.</p> <p><u>No Semifinal Round</u>  A-B. No semifinalists. All teams provide a video presentation of up to 5 minutes in length. Video should be accessible online (e.g. YouTube) and the URL should be included in the documentation materials.</p> <p>Delete 3. No LEAP Report. No LEAP interview.</p> <p><i><b>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.) Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</b></i></p>
<p><b>EVALUATION:</b></p>	<p><u>Preliminary Round</u>  1. No semifinalists. All portfolios, posters, displays, and videos will be evaluated.</p> <p><u>No Semifinal Round</u>  1. No semifinalists. All teams provide a video presentation of up to 5 minutes in length.</p> <p>Delete 2. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 250 points:</p> <ul style="list-style-type: none"> <li>• Documentation (120)</li> <li>• Display (Poster and Models) (50)</li> <li>• Video Presentation (please note that "Responses to judges questions," and "LEAP Report/Interview" are eliminated) (80)</li> </ul>

## Essays on Technology

### On-Site Event

<b>OVERVIEW:</b>	No change
<b>ELIGIBILITY:</b>	1 individual per chapter
<b>TIME LIMITS:</b>	Delete 2. No semifinalists. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u>            2. No LEAP Report.</p> <p>3. Computers will be provided by NJ TSA.</p> <p>4. No USB flash drive needed. Directions for submission of completed essays will be provided on-site.</p> <p>9. No semifinalists. Winners announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u>            Delete 1. No semifinalists. No LEAP interview.</p> <p>2. No finalists. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u>            A-C. Computers will be provided by NJ TSA. Any use of the Internet during the competition will result in disqualification.</p> <p>D. No USB flash drive needed. Directions for submission of completed essays will be provided on-site.</p> <p>K. All essays become the property of NJ TSA. No USB flash drives.            Delete L. No LEAP Report. No LEAP interview.</p>
<b>EVALUATION:</b>	<p>Delete 2. No LEAP requirements.</p> <p>Evaluation is based on 110 points:</p> <ul style="list-style-type: none"> <li>• Essay (110)</li> </ul>

## Extemporaneous Speech

### On-Site Event

<b>OVERVIEW:</b>	No change
<b>ELIGIBILITY:</b>	1 individual per chapter
<b>TIME LIMITS:</b>	<u>Preliminary Round</u> No change  <u>No Semifinal Round</u> No semifinalists. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<u>Preliminary Round</u> 1. No LEAP Report.  8. No semifinalists. Winners are announced at the Awards Ceremony.  <u>No Semifinal Round</u> Delete 1-3. No semifinalists. No LEAP interview. Participants make preliminary speech only.
<b>REGULATIONS:</b>	<u>Preliminary Round (No Semifinal Round)</u> Delete D. No observers allowed. Delete F. No semifinal round. No semifinalists. No LEAP Requirements. No LEAP Report. No LEAP interview.
<b>EVALUATION:</b>	Delete 4. No LEAP requirements. No LEAP Report. No LEAP interview. No semifinalists.  Evaluation is based on 80 points: <ul style="list-style-type: none"> <li>• Speech (80)</li> </ul>

## Fashion Design and Technology

### On-Site Event (with Pre-Conference Component)

2020 Theme: Students must design and create three (3) garments to fit the theme "Futuristic Formal Wear." Students will need to integrate technology into each one of their garments. This can include, but is not limited to: lights, sound and mechanical elements.

<b>OVERVIEW:</b>	Portfolio, patterns and prototypes are submitted <b>Pre-Conference</b> . No semifinalists. <b>All teams participate in on-site presentation/interview on conference day.</b>
<b>ELIGIBILITY:</b>	2 teams of 2-4 members per chapter
<b>TIME LIMITS:</b>	1. No semifinalists. All teams participate in presentation/interview. Delete 2. No semifinalists. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. Entries are submitted Pre-Conference (please see Page 5 of this guide for submission information). No LEAP Report.</p> <p>3. No semifinalists. All teams participate in presentation/interview. These sessions are OPEN to audience members.</p> <p><u>No Semifinal Round</u> 1-5. No semifinalists. All teams participate in presentation/interview. These sessions are OPEN to audience members.</p> <p>Delete 6. No LEAP interview.</p> <p>8. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> Delete B.1.a. No LEAP Report.</p> <p>7. Change National TSA Conference to NJ TSA State Conference.</p> <p><u>No Semifinal Round</u> A-B. No semifinalists. All teams participate in presentation/interview.</p> <p>Delete C. No LEAP requirements. No LEAP Report. No LEAP interview.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are</i></b></p>

	<p><i>automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i></p> <p><i>Team ID#s may be used for team events. A Team ID# is the first four numbers of students' individual ID#s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></p> <p>Labels/tape are recommended for labeling garments, documentation, and on the outside of submission container and/or garment bag.</p>
<b>EVALUATION:</b>	<p>2. No LEAP Report. No LEAP interview.</p> <p>3. No semifinalists. All teams participate in presentation/interview.</p> <p>Evaluation is based on 220 points:</p> <ul style="list-style-type: none"> <li>• Documentation (90)</li> <li>• Patterns (30)</li> <li>• Quality of garments (30)</li> <li>• Presentation/Interview (70)</li> </ul>



## Flight Endurance On-Site Event

<b>OVERVIEW:</b>	No change  Plane, portfolio and flight box are built off-site and submitted for judging on conference day.
<b>ELIGIBILITY:</b>	1 individual per chapter
<b>TIME LIMITS:</b>	1. Participants are provided a minimum of 20 minutes for trim flights at the event site.  Delete 2. No semifinalists. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. No LEAP Report.</p> <p>11-12. No semifinalists. Winners are announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u> Delete 1. No semifinalists. No LEAP interview.</p> <p>2. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p> <p>Participants pick-up planes at the time/location specified by the event coordinator.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> Delete B.1. No LEAP Report.</p> <p><b>C. Plane must be contained in a flight box, which students must provide.</b></p> <p><u>No Semifinal Round</u> Delete A. No semifinalists. No LEAP Report. No LEAP interview.</p> <p><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i></p> <p>Place ID# on drawings and directly on plane. It is recommend ID#'s</p>

	are placed on bottom or back side of plane with tape or label.
<b>EVALUATION:</b>	Delete 4. No LEAP requirements. No LEAP Report. No LEAP interview. No semifinalists.  Evaluation is based on 120 points: <ul style="list-style-type: none"><li>• Documentation (60)</li><li>• Flight Times (60)</li></ul>

## Forensic Science

### On-Site Event

<b>OVERVIEW:</b>	No change
<b>ELIGIBILITY:</b>	1 team of 2 members per chapter
<b>TIME LIMITS:</b>	2. Ten (10) teams with the highest averaged scores from the written test will be selected as semifinalists and will advance to review the crime scene. Semifinalists are allotted ten (10) minutes to review the crime scene and gather evidence.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. No LEAP Report.</p> <p>3. Ten (10) teams with the highest averaged scores will be selected as semifinalists.</p> <p>4. A list of ten (10) semifinalist teams will be posted.</p> <p><u>Semifinal Round</u> 2.a. Teams must demonstrate three (3) techniques/procedures for evidence collection using their toolkits.</p> <p>Delete 3. No LEAP Report. No LEAP interview.</p> <p>4. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> No change.</p> <p><u>Semifinal Round</u> Delete F.11-F.12. No duster, dust, or fingerprint lifting tape needed.</p> <p>Delete G.1. Participants will NOT be required to collect fingerprints.</p> <p>Delete H. No LEAP Report. No LEAP interview.</p>
<b>EVALUATION:</b>	<p><u>Preliminary Round</u> 2. Ten (10) teams with the highest scores will be selected as the semifinalists for the onsite problem.</p> <p><u>Semifinal Round</u></p>

	<p>Delete 2. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 130 points:</p> <ul style="list-style-type: none"><li>• Written Test Score (50)</li><li>• Analysis of Crime Scene (80)</li></ul>
--	--

**Future Technology Teacher**  
**On-Site Event (with Pre-Conference Component)**

<b>OVERVIEW:</b>	No change  Note: <b>Portfolio submitted Pre-Conference.</b>
<b>ELIGIBILITY:</b>	3 individuals per chapter
<b>TIME LIMITS:</b>	1. No semifinalists. All participants make presentation on site.  Delete 5. No LEAP interview. No semifinalists. All participants make presentation.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<u>Preliminary Round</u> 2. No LEAP Report. Portfolio submitted Pre-Conference.  4. No semifinalists. All participants present lesson plan/activity.  <u>No Semifinal Round</u> 1. No semifinalists. All participants present lesson plan/activity.  4. No LEAP interview. No semifinalists. All participants give presentation.  5. No semifinalists. Judges will provide portfolios on conference day.  6. The 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> place winners are announced at the Awards Ceremony.
<b>REGULATIONS:</b>	<u>Preliminary Round</u> Delete F.1. No LEAP Report.  <u>No Semifinal Round</u> D. NJ TSA will provide computer, projector and screen. Delete I. No LEAP Report. No LEAP interview.  <i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i>
<b>EVALUATION:</b>	<u>Preliminary Round</u> No change.

No Semifinal Round

1-5. No semifinalists. All students present lesson plan/activity.

Delete 6. No LEAP Report. No LEAP interview.

Evaluation is based on 150 points:

- Documentation (70)
- Presentation (No LEAP Report/Interview) (70)
- Possible bonus points for audio/visuals (10)

## Music Production

### Pre-Conference Event

<b>OVERVIEW:</b>	No change
<b>ELIGIBILITY:</b>	1 individual, or 1 team of up to 6 members per chapter.
<b>TIME LIMITS:</b>	<p><u>Preliminary Round</u> No change.</p> <p><u>No Semifinal Round</u> Delete 1-2. No semifinalists. No interview. Entries submitted Pre-Conference. No LEAP interview.</p>
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. Portfolio and CD submitted Pre-Conference. No LEAP Report.</p> <p>Delete 3. No semifinalists. Winners are announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u> Delete 1-3. No semifinalists. No on-site component. Entries submitted Pre-Conference. No LEAP interview.</p> <p>4. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> D. Entries may be picked up at the time and place stated in the conference program.</p> <p>I. CD and documentation materials are submitted Pre-Conference. Delete J.1. No LEAP Report.</p> <p><u>No Semifinal Round</u> Delete A. No LEAP Requirements. No LEAP Report. No LEAP interview.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.) Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></b></p>

	ID#'s should be labeled on CD, CD case (if included) and portfolio.
<b>EVALUATION:</b>	<p><u>Preliminary Round</u> No change.</p> <p><u>No Semifinal Round</u> Delete 1-2. No presentation/interview. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 100 points:</p> <ul style="list-style-type: none"> <li>• Documentation (40)</li> <li>• Musical Piece (60)</li> </ul>



## On Demand Video Pre-Conference Event

2020 Theme will be posted on the NJ TSA website at 5pm on March 19, 2020

<b>OVERVIEW:</b>	<p>Participants will write, shoot and edit a sixty (60) second video.</p> <p>The theme and any required criteria will be announced on the NJ TSA website at <b>5pm on March 19, 2020</b>.</p> <p>The video and documentation must be <b>emailed to <a href="mailto:tsachall@tcnj.edu">tsachall@tcnj.edu</a> by 5pm on March 24, 2020</b>.</p> <p>Entries will be judged and put on display at the State Conference.</p> <p><b>Note:</b> NJ TSA reserves the right to disqualify any entries that contain inappropriate content. These entries will not be judged.</p>
<b>ELIGIBILITY:</b>	1 team of 2-6 members per chapter.
<b>TIME LIMITS:</b>	<p><u>Preliminary Round</u> 2. Theme will be posted on the NJ TSA website at 5pm on March 19, 2020. Entries must be received by NJ TSA by 5pm on March 24, 2020.</p> <p><u>No Semifinal Round</u> Delete 1. No semifinalists. No LEAP interview. No on-site component.</p>
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. Video and documentation submitted electronically by 5pm on March 24, 2020.</p> <p>Delete 2. No LEAP Report. No onsite problem.</p> <p>3. Theme will be posted on the NJ TSA website at 5pm on March 19, 2020.</p> <p>5. Video must be accessible online (e.g. YouTube). URL must be emailed to <a href="mailto:tsachall@tcnj.edu">tsachall@tcnj.edu</a>. Documentation should be included as a PDF attachment. Be sure to include ID# and "On Demand Video Submission" in email subject line.</p> <p>7. No semifinalists. Winners are announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u> Delete 1-2. No semifinalists. No LEAP interview.</p>

	<p>3. No finalists. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> Delete A.5. Entries are completed off-site and submitted Pre-Conference by March 24, 2020.</p> <p>B. Participants film their footage off-site and submit them Pre-Conference by March 24, 2020.</p> <p>C. Entries become the property of NJ TSA.</p> <p><u>No Semifinal Round</u> Delete A. No LEAP Report. No LEAP interview.</p> <p><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.) Team ID#s may be used for team events. A Team ID# is the first four numbers of students' individual ID#s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></p>
<b>EVALUATION:</b>	<p><u>Preliminary Round</u> 2. The video must incorporate the specified prop(s) and dialogue presented in the theme posted on the NJ TSA website on March 19, 2020.</p> <p><u>No Semifinal Round</u> No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 100 points:</p> <ul style="list-style-type: none"> <li>• Production (100)</li> </ul>

## Optical Engineering

### On-Site Event

2020 Design Problem will be posted on the NJ TSA website on January 13, 2020

**NOTE:** this event is being offered at the state level only; it is NOT an official TSA competitive event. Follow the guidelines/procedures below to prepare for entry into the state competition.

<b>OVERVIEW:</b>	<p>Participants work as part of a team to design and fabricate an optical device that meets a specific need. The focus will be on the design process; participants should incorporate innovation into their entry/solution.</p> <p>The solution should incorporate the application of optical and mathematical principles and should assess its impact on the community. Entries will consist of documentation materials and a display (including a prototype/device). Participants will present and defend their solution in a timed presentation.</p>
<b>ELIGIBILITY:</b>	3 teams of 3-6 members per chapter
<b>TIME LIMITS:</b>	<ol style="list-style-type: none"> <li>1. Entries must be started and completed during the current school year.</li> <li>2. Documentation materials, display and prototype/device are submitted on conference day.</li> <li>3. Teams will have 5 minutes to present and defend their solutions to judges.</li> <li>4. Judges may ask questions for an additional 5 minutes at the conclusion of the presentation.</li> </ol>
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<ol style="list-style-type: none"> <li>1. Participants submit their entries on conference day at the time and place stated in the conference program:             <ol style="list-style-type: none"> <li>a. documentation materials (portfolio) in a clear front report cover.</li> <li>b. display</li> <li>c. prototype/device</li> </ol> </li> <li>2. Teams sign up for a presentation time.</li> <li>3. Each team explains its research and solution to the challenge</li> <li>4. Entries are reviewed by a panel of Edmund Optics Engineers. Neither students nor advisors are present at this time.</li> </ol>

	<p>5 The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p> <p>6. Entries remain on display after judging. Teams should pick up their entries before departing on conference day.</p>
<p><b>REGULATIONS:</b></p>	<p>A. Teams must demonstrate a firm understanding of the challenge and problem they are addressing. A team’s entry must reflect thorough and serious research, as well as a creative and plausible solution.</p> <p>B. A team’s solution must include likely impacts to the environment, economy, and society, as well as any important ethical considerations, and/or political ramifications.</p> <p>C. Documentation materials (comprising “a portfolio”) are required and should be secured in a clear front report cover. The report cover must include the following single sided 8 1/2" x 11" pages, in this order:</p> <ol style="list-style-type: none"> <li>1. Title page with the challenge listed, event title, the conference city and state, and the year; one (1) page</li> <li>2. Table of contents; pages as needed</li> <li>3. Definition of the challenge/problem; one (1) page</li> <li>4. Explanation of importance: Explain why the problem is important to society and describe the necessary scientific and technical concepts, as well as current issues related to the challenge; two (2) pages</li> <li>5. Pages titled “Problem Solution”: Present the solution for the identified problem, with support from scientific concepts and principles drawn from evidence. Mathematical and graphic models should be included as necessary, as well as photographs of any physical models developed; seven (7) pages, maximum</li> <li>6. Patent Application: to include specification, drawing, and oath or declaration (refer to <a href="http://www.uspto.gov">www.uspto.gov</a>)</li> <li>7. Plan of Work log that covers the life of the project including date, task, time involved, team member responsible, and comments (see Forms Appendix or TSA website); pages as needed</li> <li>8. Page(s) titled “References and Resources” that cite books, interviews, professional journals, websites, etc., using Modern Language Association (MLA) style; pages as needed</li> </ol>

	<p>D. The size of the display may not exceed 15" deep x 3' wide x 4' high.</p> <p>E. A physical device (or prototype/s) is/are required and must remain within the display limits at all times (including during judging).</p> <p>F. If the display or physical model/s or prototype/s require power, they must be powered by dry cell(s) or photo-voltaic cells.</p> <ol style="list-style-type: none"> <li>1. The power supply must fit inside the display area.</li> <li>2. All power must be off once the team has completed set-up.</li> <li>3. Complete instructions must be provided for the judges to press one (1) button or flip one (1) switch to turn on the power supply for judging.</li> </ol> <p>H. No harmful or illegal substances are permitted. No viruses, live plants, or animals are permitted. No dangerous processes, experiments, or physical models may be displayed or demonstrated.</p> <p>I. During the presentation, each team will be given five (5) minutes to present and defend its entry to the judges.</p> <ol style="list-style-type: none"> <li>1. Judges may ask questions during the team's presentation for purposes of improved clarity and understanding and may also ask questions for an additional five (5) minutes at the conclusion of the presentation.</li> <li>2. During the presentation/interview teams will be expected to use their posters to enhance and explain their proposed solution/s to the challenge and problem addressed.</li> </ol> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.) Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></b></p>
<p><b>EVALUATION:</b></p>	<p>Evaluation is based on 230 points:</p> <ul style="list-style-type: none"> <li>• Documentation (120)</li> <li>• Display (including prototype/device) (50)</li> <li>• Presentation/Interview (60)</li> </ul> <p>Please see the rating form on the following pages.</p>
<p><b>STEM INTEGRATION:</b></p>	<p>This event aligns with the STEM educational standards noted below. Science, Technology, Engineering, Mathematics</p>

<p><b>PRIMARY LEADERSHIP SKILLS:</b></p>	<p>Leadership skills promoted in this event:</p> <ul style="list-style-type: none"> <li>• COMMUNICATION — Students choose an existing design problem and develop and explain their solution. Suggested leadership lessons: <i>Personality Types</i> and <i>Promote It</i></li> <li>• CRITICAL THINKING — Students analyze and evaluate a problem in order to develop an acceptable solution. Suggested leadership lessons: <i>And The Answer Is</i> and <i>Critical Thinking Tips</i></li> <li>• PROBLEM SOLVING — Students devise a plan that will yield an acceptable solution. Suggested leadership lessons: <i>Debate It</i> and <i>Effective Brainstorming</i></li> </ul> <p><i>Additional leadership skills promoted in this event: creative thinking, decision making, ethics, evaluation, organization, teamwork</i></p>
<p><b>TSA AND CAREERS:</b></p>	<p>This competition connects to one or more of the career areas featured in the TSA AND CAREERS section of the National TSA Competitive Events Guide. Use <i>The 16 Career Clusters</i> chart and the <i>TSA Competitions and The 16 Career Clusters</i> grid as resources for information about careers.</p>
<p><b>CAREERS RELATED TO THIS EVENT:</b></p>	<p>Optical engineer  Mechanical engineer  Manufacturing consultant  Mathematician  CAD Technician</p>

Participant ID/Team ID# \_\_\_\_\_

# OPTICAL ENGINEERING

**2020 OFFICIAL RATING FORM**

**HIGH SCHOOL**

CRITERIA	Minimal performance 1-4 points	Adequate Performance 5-8 points	Exemplary Performance 9-10	Record the scores in the column spaces below.
Evaluators: 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 far right. The X1, X2 or X3 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; an “adequate” score of 7 for an X3 criterion = 21 points.)				

## Documentation (120 Points)

<b>Portfolio components</b> (X1)	Portfolio is unorganized and/or is missing three or more components.	Portfolio has most components and is generally organized.	Portfolio has all required components and is well organized.	
<b>Problem definition</b> (X1)	The problem is not clearly written or defined; the problem does not fall within the grand challenge selected.	The problem is somewhat clearly written and defined.	The problem is clearly written, concise, and well defined; the problem falls within the grand challenge selected.	
<b>Explanation of importance</b> (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.	
<b>Problem solution</b> (X4)	A very brief explanation of the final solution is presented; there is a lack of creativity; descriptions are weak.	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 scientific and engineering evidence; the solution is plausible and creative.	
<b>Patent application</b> (X2)	The patent application is incomplete, poorly worded, or missing.	The patent application is complete, but adequately worded, with somewhat effective drawings.	The patent application is complete and effective in presenting the inventor’s product design.	
<b>Plan of Work log</b> (X1)	The log is poorly organized and/or incomplete.	The log is adequately detailed, organized, and contains most of the required components.	The log is very well done and contains all the required components.	
<b>References and resources</b> (X1)	There are few references listed, and/or references listed show little relevance to the project’s goal.	There are a sufficient number and quality of references listed.	Many quality references are listed, reflecting research in the areas covered.	

### DOCUMENTATION SUBTOTAL (120 points)

## Display and Model (50 Points)

<b>Aesthetics</b> (X1)	The display design is unattractive in appearance and shows a lack of understanding of graphic design principles.	The display design is somewhat attractive and shows an adequate understanding of the use of graphic design principles.	The display is of professional quality with an exemplary use of graphic design principles.	
<b>Model/Prototype</b> (X1)	Model is confusing and does not represent and/or support the proposed problem solution.	Model provides adequate representation and support of the proposed problem solution.	Model provides excellent representation and support of the proposed problem solution.	
<b>Overall impact</b> (X3)	The display and model does not detail or enhance the essential components of the team’s problem identification and solution.	The display and model somewhat detail and enhance the essential components of the team’s problem identification and solution.	The display and model greatly detail and enhance the essential components of the team’s problem identification and solution.	

### DISPLAY AND MODEL SUBTOTAL (50 points)

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

**Presentation/Interview (60 Points)**

<b>Organization</b> (X1)	Team seems unprepared and unorganized for the presentation/ interview, with an illogical explanation of the project.	Team is prepared for the interview and is somewhat organized in its presentation to judges; team's presentation thesis is, for the most part, logical and/or clear.	Team's presentation/interview with judges is well organized; the interview is concise and logical, with a clear explanation of the development of the project.	
<b>Knowledge</b> (X1)	Team members seem to have little understanding of the concepts in their project; vague interview answers are provided.	Team members have a generalized understanding of the concepts discussed and answer questions adequately.	Evidence is clear that team members have a thorough understanding of the concepts discussed; they answer questions thoroughly.	
<b>Articulation</b> (X1)	The presentation and interview provide an unclear, unorganized, and or illogical description of the project.	The presentation and interview offer a somewhat logical and easy-to-understand project description.	The presentation/interview provides a clear, concise, and easy-to-follow description of the project.	
<b>Delivery</b> (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.	
<b>Team participation</b> (X1)	Only one person in the group communicates with judges; there is little or no participation from other team members.	Team members all participate to some extent and seem to understand the concepts.	Team members seem to fully understand the concepts and share an equal role in the interview.	
<b>Responses to judges' questions</b> (X1)	The team's answers to questions reflect a lack of understanding and sophistication; only one or two team members contribute.	The team's answers to questions reflect an adequate degree of understanding and sophistication; team members all participate somewhat.	The team's answers to questions reflect a high degree of understanding and sophistication; team members participate equally.	

**PRESENTATION/INTERVIEW SUBTOTAL (60 points)**

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

To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL (230 points)**

Comments:

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

Printed Name: \_\_\_\_\_ Signature: \_\_\_\_\_



# Photographic Technology

## Pre-Conference Event

2020 Theme:

This year participants have the opportunity to show their photography skills taking action photos. Participants must create a portfolio featuring five (5) pictures at local sporting events. The events must be sporting events found in the 2020 Summer Olympics.

Note: Picture #1 must contain people and/or animals. All other pictures may or may not have people or animals in them. Make sure to read the event rules for further directions.

Pictures #1 & 2: Color picture taken during the day of a sporting event (can be indoors).

Picture #3: Color picture taken at night of a sporting event (must be outdoors).

Picture #4: Black and white picture of a sporting event

Picture #5: Student choice as to whether it is color or black and white, however, the picture must involve a slow shutter speed (you must provide the shutter speed it was shot at), and must be of a sporting event.

<b>OVERVIEW:</b>	No semifinalists. No on-site problem. Entries submitted Pre-Conference.
<b>ELIGIBILITY:</b>	1 individual per chapter
<b>TIME LIMITS:</b>	No semifinalists. No on-site component. Entries submitted Pre-Conference.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u>            1. Entries are submitted Pre-Conference on a USB flash drive. No LEAP Report.</p> <p>3. No semifinalists. Winners are announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u>            Delete 1-9. No on-site component. Entries submitted Pre-Conference. No LEAP Report. No LEAP interview.</p> <p>10. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u>            B. Images and documentation are submitted Pre-Conference on a USB flash drive.</p> <p>Delete L.1. No LEAP Report.</p> <p>M. Change National TSA Conference to NJ TSA State Conference.</p> <p><u>No Semifinal Round</u></p>

	<p>Delete A-L. No semifinalists. No on-site component. Entries are submitted Pre-Conference. No LEAP Report. No LEAP interview.</p> <p>Please read Regulations carefully, paying close attention to image size requirements, order of pages, etc.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i></b></p>
<p><b>EVALUATION:</b></p>	<p>1. No semifinal round.</p> <p>2. No semifinalists. Delete 3-4. No LEAP Report. No LEAP interview. No on-site component.</p> <p>Evaluation is based on 60 points:</p> <ul style="list-style-type: none"> <li>• Portfolio (60)</li> </ul> <p><b>Please take note of the Criteria used for evaluation of the Portfolio on the Official Rating Form:</b></p> <ul style="list-style-type: none"> <li>• Principles and elements of design and composition and creativity (10)</li> <li>• Technical quality (10)</li> <li>• Emotional impact (10)</li> <li>• Written statements (10)</li> <li>• Resources/References (20)</li> </ul>

## Prepared Presentation

### On-Site Event

The 2020 topic will be posted on the NJ TSA website on April 29, 2020

<b>OVERVIEW:</b>	The assigned topic will be posted on the NJ TSA website on April 29, 2020 at 5pm.
<b>ELIGIBILITY:</b>	1 individual per chapter
<b>TIME LIMITS:</b>	3. NJ TSA will provide a computer, projector and screen.  Delete 5. No semifinalists. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. No LEAP Report.</p> <p>2. The assigned topic will be posted on the NJ TSA website on April 29, 2020.</p> <p>4. NJ TSA will provide a computer, projector and screen.</p> <p>5. No semifinalists. Winners are announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u> Delete 1-4. No semifinalists. No LEAP Report. No LEAP interview.</p> <p>5. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round (No Semifinal Round)</u> B. The topic will be posted on the NJ TSA website at 5pm on April 29, 2020.</p> <p>F-G. NJ TSA will provide a computer, projector and screen.</p> <p>H. NJ TSA will provide the table (and projection screen).</p> <p>I.2. NJ TSA will provide a computer, projector and screen.</p> <p>Delete J. No observers allowed.</p> <p>Delete K. No LEAP Report. No LEAP interview.</p>
<b>EVALUATION:</b>	Delete 3. No LEAP Report. No LEAP interview.

	<p>Evaluation is based on 100 points:</p> <ul style="list-style-type: none"><li>• Documentation (30)</li><li>• Stage Presence (30)</li><li>• Organization (40)</li></ul>
--	--

## Promotional Design Pre-Conference Event

<b>OVERVIEW:</b>	No semifinalists. No on-site problem. Entries submitted Pre-Conference.
<b>ELIGIBILITY:</b>	2 individuals per chapter
<b>TIME LIMITS:</b>	Delete 1-2. No semifinalists. Entries submitted Pre-Conference. No on-site portion of the event. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. Entries are submitted Pre-Conference. No LEAP Report.</p> <p>3. No semifinalists. Winners are announced at the Awards Ceremony.</p> <p>Entries are displayed on conference day. Participants should pick up entries prior to departing the conference.</p> <p><u>No Semifinal Round</u> Delete 1-5. No semifinalists. No on-site component. No LEAP Report. No LEAP interview.</p> <p>6. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> 7. Change National TSA Conference to NJ TSA State Conference.</p> <p><u>No Semifinal Round</u> Delete A-I. No semifinalists. No on-site component. No LEAP Report. No LEAP interview.</p> <p><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i></p>
<b>EVALUATION:</b>	<p><u>Preliminary Round</u> No change.</p> <p><u>No Semifinal Round</u> Delete 1-2. No semifinalists. No LEAP Report. No LEAP interview.</p>

	<p>Evaluation is based on 110 points:</p>
--	---

- Promotional Folder Cover (40)
- Promotional Folder Contents (70)

## Scientific and Technical Visualization (SciVis) Pre-Conference Event

<b>OVERVIEW:</b>	No change.
<b>ELIGIBILITY:</b>	3 individuals, or 3 teams of up to 6 members per chapter.
<b>TIME LIMITS:</b>	<p><u>Preliminary Round</u> No change.</p> <p><u>No Semifinal Round</u> Delete 1-2. No semifinalists. No interview. No LEAP interview. Entries submitted Pre-Conference.</p>
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. Entries submitted Pre-Conference. No LEAP Report.</p> <p>3. No semifinalists. Winners are announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u> Delete 1-3. No semifinalists. No interview. No LEAP interview. Entries submitted Pre-Conference.</p> <p>4. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> B. Entries are displayed on conference day. Participants should pick up entries prior to departing the conference.</p> <p>Delete C.2.b. No LEAP Report.</p> <p><u>No Semifinal Round</u> Delete A-B. No semifinalists. No interview. No LEAP Report. No LEAP interview.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.) Team ID#s may be used for team events. A Team ID# is the first four numbers of students' individual ID#s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></b></p>

<b>EVALUATION:</b>	<p><u>Preliminary Round</u> No change.</p> <p><u>No Semifinal Round</u> Delete 1-2. No semifinalists. No interview. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 110 points:</p> <ul style="list-style-type: none"><li>• Documentation (40)</li><li>• Visualization (70)</li></ul>
--------------------	--



## Software Development On-Site Event

<b>OVERVIEW:</b>	No change.
<b>ELIGIBILITY:</b>	2 teams of up to 6 members per chapter
<b>TIME LIMITS:</b>	Delete 2. No semifinalists. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> 1. No LEAP Report.</p> <p>6. No semifinalists. Winners are announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u> Delete 1-2. No semifinalists. No LEAP Report. No LEAP interview.</p> <p>3. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> Delete A.1. No LEAP Report.</p> <p>B. Entries are picked up by participants at the time and place stated in the conference program.</p> <p>D. Change National TSA to NJ TSA.</p> <p><u>No Semifinal Round</u> Delete A. No LEAP Report. No LEAP interview.</p> <p><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.) Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></p>
<b>EVALUATION:</b>	<p><u>Preliminary Round</u> No change.</p> <p><u>No Semifinal Round</u> No LEAP Report. No LEAP interview.</p>

	<p>Evaluation is based on 160 points:</p>
--	---

- Documentation (40)
- Software Design (60)
- Presentation (60)

## Structural Design and Engineering

### On-Site Event

2020 Problem Statement and Forms: <https://tsaweb.org/competitions-programs/tsa/themes-problems>

<b>OVERVIEW:</b>	There is no on-site semifinalist construction problem. No semifinalists. All groups are present for the testing of their Pre-Built Structures.
<b>ELIGIBILITY:</b>	1 team of 2 members per chapter
<b>SAFETY EYEWEAR:</b>	1. No on-site phase of this event. Students must bring their own safety glasses. They must be worn in any marked safety zones within the competition room.
<b>TIME LIMITS:</b>	<p><u>Preliminary Round</u> No change.</p> <p><u>No Semifinal Round</u> Delete 1-3. No semifinalists. No on-site construction. No LEAP interview.</p>
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PRELIMINARY ROUND:</b>	<p><u>Pre-Built Structure Regulations</u> Delete B.1. No LEAP Report.</p> <p>All participants bring the following on conference day to be evaluated/tested:</p> <ul style="list-style-type: none"> <li>• Pre-Built Structure</li> <li>• Documentation materials including: <ul style="list-style-type: none"> <li>○ Title page</li> <li>○ Table of contents</li> <li>○ Team Verification Form</li> <li>○ Analysis and Assessment Form</li> <li>○ Drawing</li> </ul> </li> </ul> <p><u>Onsite Destructive Testing of Pre-Built Structures Procedure</u> D-E. No semifinalists. No onsite problem. 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>SEMIFINAL ROUND:</b>	<p><u>No Semifinalist Onsite Construction and Destructive Testing Procedure</u> Delete A-T. No semifinalists. No onsite construction. No LEAP Report. No LEAP interview.</p> <p><u>Procedure for Evaluation of Structures (Pre-Built Structures)</u> No change.</p>

	<p><b>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</b></p> <p><b>Team ID#s may be used for team events. A Team ID# is the first four numbers of students' individual ID#s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</b></p>
<b>EVALUATION:</b>	<p>All structures meeting requirements will be tested. Rank will be determined by the efficiency rating.</p> <p>No onsite construction. No LEAP Report. No LEAP interview.</p>

## System Control Technology

### Static Event

2020 Design Problem will be posted on the NJ TSA website on January 13, 2020

<b>OVERVIEW:</b>	Delete “onsite.” Model is constructed off-site during the school year.
<b>ELIGIBILITY:</b>	2 teams of 3 members per chapter
<b>TIME LIMITS:</b>	<p>1. The design problem will be posted on the NJ TSA website on January 13, 2020. Model is constructed off-site. No on-site portion.</p> <p>2. There will be a 15 minute set up time (students set up completed model and leave instructions for evaluators to operate the device).</p> <p>Delete 3-5. Model is constructed off-site. No on-site portion. No LEAP interview.</p>
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u> Delete 1-7. All components of project constructed off-site. Instructions must be left for evaluators to operate the device during evaluation. No LEAP Report. No LEAP interview.</p> <p>8. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> Delete H. No LEAP Report. No LEAP interview.</p> <p><b><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i></b> <b><i>Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></b></p>
<b>EVALUATION:</b>	<p><u>Preliminary Round</u> Delete 4. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 100 points:</p> <ul style="list-style-type: none"> <li>• Inventor’s Log (20)</li> <li>• Solution to Problem (60)</li> <li>• Programming Structure (20)</li> </ul>

## Technology Bowl

### On-Site Event

<b>OVERVIEW:</b>	All participants will complete a written exam and then participate in the oral competition.
<b>ELIGIBILITY:</b>	1 team of 3 members per chapter
<b>TIME LIMITS:</b>	<p><u>Preliminary Round</u> 1. Forty-five (45) minutes is allowed for the written test.</p> <p><u>No Semifinal Round</u> 1. No semifinalists. All teams will participate in the oral competition. No LEAP interview.</p>
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p>Delete ALL. Follow the procedures listed below:</p> <ul style="list-style-type: none"> <li>A. Following the written test, team members will report to the oral event area holding room for briefing at the designated time. After briefing, advisors must leave and the team will remain in the holding room until called for competition. Teams may visit with other teams; however, <b><u>no advisors or visitors</u></b> may enter the holding room.</li> <li>B. <b>No audience members are permitted into the oral event area.</b></li> <li>C. When instructed to do so, two (2) teams will enter the event area and be seated according to instructions.</li> <li>D. When a team has been defeated in any round of the oral event, the team is out of the competition.</li> <li>E. Questions will be drawn, as needed, from a card file resource bank.</li> <li>F. A team's total score is derived from the correct answers to the questions asked. For each correct answer, a team will receive ten (10) points. When a question has been completely read and a team is recognized to answer, if the team does not answer or answers incorrectly, five (5) points will be deducted from the team's score. In this instance, the other team does not have the opportunity to respond to this question, and the next question is read for both teams. If a question is being read and a team member presses the button before the question is finished, the member must answer completely as stated on the answer card. If the answer given is incorrect, the entire question will be read for the other team.</li> <li>G. A total of twelve (12) questions will be asked per round. <b>No questions will be repeated in another round.</b> In the case of the tie, five (5) additional questions will be asked. This procedure will</li> </ul>

	<p>continue until the tie is broken. The questions will be picked at random from the basic areas tested.</p> <p>H. <u>Bonus Question</u> There will be one additional question (bonus question). The bonus question will be announced, and the team that answers it correctly will have the opportunity to answer one additional question. This is the only time when team members may consult with each other before giving an answer. The team will have ten (10) seconds to give its answer. If a team gives an incorrect answer to the bonus question, then the question will be read to the other team. Bonus point scoring: If a team answers the bonus correctly, that team receives fifteen (15) points; if a team answers the bonus incorrectly, that team loses five (5) points from its score.</p> <p>I. A panel of evaluators will be available to respond to questions concerning acceptable answers.</p> <ol style="list-style-type: none"> <li>1. Rulings on acceptable answers will be made only during the round in question.</li> <li>2. Rulings will be made immediately, to do one of the following: <ol style="list-style-type: none"> <li>a. Accept only the answers listed on the card.</li> <li>b. Accept the student's answer and renew points, or remove the question and read another in its place.</li> <li>c. The rulings of the panel will be final.</li> </ol> </li> </ol>
<b>REGULATIONS:</b>	<p>Delete ALL. Follow regulations listed below:</p> <ol style="list-style-type: none"> <li>A. No transmitting or recording devices, including cell phones, will be permitted in the event area. No prompting will be permitted.</li> <li>B. The team member who "buzzes in" will have five (5) seconds to answer the question, without discussion.</li> <li>C. The team that answers the bonus question will be allowed ten (10) seconds to discuss the extra question and give an answer.</li> <li>D. After a question is read, the competing teams will have ten (10) seconds to answer. If neither team can answer the question, then another question will be read.</li> <li>E. If a team member "buzzes in" before a question is finished being read, that member must give the exact answer as printed on the card.</li> </ol>
<b>EVALUATION:</b>	<p>Delete ALL. Follow evaluation listed below:</p> <p>Evaluation is based on the total points from the three written tests plus the total points from the oral competition. Awards will be given to the top three (3) teams. No LEAP Report. No LEAP interview.</p>

## Technology Problem Solving On-Site Event

<b>OVERVIEW:</b>	No change
<b>ELIGIBILITY:</b>	1 team of 2 members per chapter
<b>TIME LIMITS:</b>	<u>Preliminary Round</u> No change.  <u>No Semifinal Round</u> No semifinalists. No LEAP interview.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<u>Preliminary Round</u> 1. No LEAP Report.  5. No semifinalists. Winners are announced at the Awards Ceremony.  <u>No Semifinal Round</u> Delete 1-3. No semifinalists. No LEAP Report. No LEAP interview.  4. The 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> place winners announced at the Awards Ceremony.
<b>REGULATIONS:</b>	<u>Preliminary Round</u> B. NJ TSA will provide all necessary tools and materials.  Delete D-G. NJ TSA will provide all necessary tools and materials. Each team member must bring his/her own safety glasses.  <u>No Semifinal Round</u> Delete A. No LEAP Report. No LEAP interview.
<b>EVALUATION:</b>	<u>Preliminary Round</u> 2. Scoring will be outlined on the design brief, which teams will receive on conference day.  <u>No Semifinal Round</u> No LEAP Report. No LEAP interview.



## Transportation Modeling

### Static Event

2020 Theme: A manned surface exploration vehicle for the Moon or Mars. Consideration must be shown or explained regarding how the vehicle will be transported and assembled at the destination.

<b>OVERVIEW:</b>	No change
<b>ELIGIBILITY:</b>	2 individuals per chapter
<b>TIME LIMITS:</b>	No semifinalists. No LEAP interview. No on-site component.
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u>            1. Entries are submitted on conference day. No LEAP Report.</p> <p>3. No semifinalists. Static event. Winners are announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u>            Delete 1-2. No semifinalists. No LEAP Report. No LEAP interview.</p> <p>3. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u>            Delete Documentation 2.a. No LEAP Report.</p> <p><u>No Semifinal Round</u>            Delete A. No LEAP Report. No LEAP interview.</p> <p><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</i></p>
<b>EVALUATION:</b>	<p><u>Preliminary Round</u>            No change.</p> <p><u>No Semifinal Round</u>            No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 120 points:</p> <ul style="list-style-type: none"> <li>• Model and Display (50)</li> <li>• Documentation (70)</li> </ul>

## VEX Robotics On-Site Event

<b>OVERVIEW:</b>	<p>For the 2020 TSA VRC Competition Guidelines, please go to <a href="http://tsaweb.org/competitions-programs/vex-robotics">http://tsaweb.org/competitions-programs/vex-robotics</a></p> <p>Questions related to VEX should be directed to:</p> <p>Matt Merfeld at the National TSA Office: <a href="mailto:mmerfeld@gsd404.org">mmerfeld@gsd404.org</a> or Henry Harms, NJ TSA Competitive Event Coordinator: <a href="mailto:harms@tcnj.edu">harms@tcnj.edu</a></p>
<b>ELIGIBILITY:</b>	<p>1 team of up to 6 members per chapter.</p> <p>NOTE: Teams that intend to compete at the National TSA VEX competition in June 2020 must register with RobotEvents.com by March 1, 2020.</p>
<b>TIME LIMITS:</b>	<p>The VEX competition will begin promptly at 9:30am on May 2, 2020 and will conclude when the Head-to-Head Tournament is completed (approximately 3pm).</p>
<b>LEAP:</b>	<p>No LEAP Report. No LEAP interview.</p>
<b>ATTIRE:</b>	<p>See Page 6-7 of this guide for required dress code.</p>
<b>PROCEDURE:</b>	<p>The VEX competition at the NJ TSA State Conference on May 2, 2020 will include the following:</p> <ul style="list-style-type: none"> <li>• Skills Challenge</li> <li>• Head-to-Head Tournament</li> </ul> <p>Each team will be assigned a table in the competition area where they can store materials, make adjustments to their robot, etc.</p>
<b>REGULATIONS:</b>	<p>Please go to: <a href="http://tsaweb.org/competitions-programs/vex-robotics">http://tsaweb.org/competitions-programs/vex-robotics</a></p>
<b>EVALUATION:</b>	<p>Please go to: <a href="http://tsaweb.org/competitions-programs/vex-robotics">http://tsaweb.org/competitions-programs/vex-robotics</a></p>

## Video Game Design Pre-Conference Event

Pick one sporting event that is featured in the 2020 Olympics and design a game based on that event. The Olympics itself does not have to be featured in the game. Please note that any reference to the Olympics cannot be used in your project as it violates copyright law. (Please review [this link](#) for additional information pertaining to the Olympics copyright regulations.) Participants may create an original logo.

<b>OVERVIEW:</b>	No semifinalists. No onsite component. Entries submitted Pre-Conference.
<b>ELIGIBILITY:</b>	1 team of up to 6 members per chapter.
<b>TIME LIMITS:</b>	<p><u>Preliminary Round</u>            1. Entries must be received (via email) and accessible via the Internet by 6:00pm on April 8, 2020.</p> <p>3. Emails will be time stamped and will serve as proof of submitting project on time.</p> <p>4.-5. Judges will view and evaluate the first five (5) minutes of the game.</p> <p><u>No Semifinal Round</u>            Delete 1-2. No semifinalists. No on-site component. No LEAP Report. No LEAP interview.</p>
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u>            1. No LEAP Report. Video game and documentation must be received by 6:00 pm on April 8, 2020.</p> <p>2. The game and documentation must be located online and accessible for evaluation. URL's are to be emailed to <a href="mailto:tsachall@tcnj.edu">tsachall@tcnj.edu</a> by 6:00pm on April 8, 2020. Be sure to include ID# and "Video Game Submission" in email subject line.</p> <p>4. Entries are judged prior to the State Conference and put on display on conference day.</p> <p>5. No semifinalists. Winners are announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u>            Delete 1-5. No semifinalists. No on-site component. No LEAP Report. No LEAP interview.</p>

	6. The 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> place winners are announced at the Awards Ceremony.
<b>REGULATIONS:</b>	<p><u>Preliminary Round</u> F. Judges will view and evaluate the first five minutes of the game.</p> <p>H. The required documentation must be located online. It is NOT to be submitted as a PDF attachment.</p> <p>Delete H.1. No LEAP Report.</p> <p>I. Change TSA to NJ TSA.</p> <p><u>No Semifinal Round</u> Delete A-B. No semifinalists. No LEAP Report. No LEAP interview.</p> <p><i>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the <u>State Conference</u> online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.) Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></p>
<b>EVALUATION:</b>	<p><u>Preliminary Round</u> 3. The first five minutes of the game will be evaluated.</p> <p><u>No Semifinal Round</u> Delete 1-2. No semifinalists. No LEAP Report. No LEAP interview.</p> <p>Evaluation is based on 115 points:</p> <ul style="list-style-type: none"> <li>• Documentation (30)</li> <li>• Game design (70)</li> <li>• Possible bonus points for exceptional game features (15)</li> </ul>

## **Webmaster**

### **Pre-Conference Event**

#### 2020 Theme: Embracing Electric Vehicles

**Context:** Consumers are researching electric vehicles more than ever with their frequent appearances on roadways. It is estimated that by 2030, nearly one-third of all vehicles in America will be electric – potentially opening the vehicle market to 320 million people worldwide. With peak fossil fuel consumption on the horizon, and electric vehicles becoming more affordable, the automotive industry is preparing to see a consumer shift in the near future.

**Challenge:** Create a fictional electric vehicle manufacturing company and design a website. The website should serve as a guide for information about the company and their electric vehicles offered. Present an overview of vehicles as if you were a consumer. Provide the type of vehicles your company creates, sells, and serves. Sections of the site may include photos, vehicle descriptions, specs, company history, contact, and news updates.

<b>OVERVIEW:</b>	No semifinalists. No on-site component. Entries submitted Pre-Conference.
<b>ELIGIBILITY:</b>	1 team of 3-5 members per chapter.
<b>TIME LIMITS</b>	<p>1. The URL must be emailed to <a href="mailto:tsachall@tcnj.edu">tsachall@tcnj.edu</a> by 6:00pm on April 8, 2020. Be sure to include ID# and “Webmaster Submission” in email subject line.</p> <p>1.a. After 6:00pm on April 8, 2020, no changes can be made to the website or documentation.</p> <p>1.d. All emails will be time stamped and serve as proof of submitting project on time.</p> <p>Delete 5-6. (1-2) No semifinalists. No on-site interview. No LEAP interview.</p>
<b>LEAP:</b>	No LEAP Report. No LEAP interview.
<b>ATTIRE:</b>	See Page 6-7 of this guide for required dress code.
<b>PROCEDURE:</b>	<p><u>Preliminary Round</u></p> <p>4. No LEAP Report.</p> <p>5. Entries are evaluated prior to the NJ TSA State Conference.</p> <p>6. No semifinalists. Winners are announced at the Awards Ceremony.</p> <p><u>No Semifinal Round</u></p> <p>Delete 1-4. No semifinalists. No on-site interview. No LEAP Report. No LEAP interview.</p> <p>5. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place winners are announced at the Awards Ceremony.</p>

<p><b>REGULATIONS:</b></p>	<p><u>Preliminary Round</u> No change.</p> <p><u>No Semifinal Round</u> Delete A-B. No semifinalists. No on-site interview. No LEAP Report. No LEAP interview.</p> <p><i><b>No school or individual names labeled on projects; only State Conference ID#'s are to be used. Upon registering students for the State Conference online, they are automatically assigned a State Conference ID#. This number needs to be on all parts of student projects (i.e. portfolio, display, model, etc.)</b></i>  <i>Team ID#'s may be used for team events. A Team ID# is the first four numbers of students' individual ID#'s (e.g. if a student ID# is 2345678, the Team ID# would be 2345. If there are multiple teams from one chapter for the same competition, include which team they are on (e.g. 2345-1, 2345-2, etc.).</i></p>
<p><b>EVALUATION:</b></p>	<p><u>Preliminary Round</u> No change.</p> <p><u>No Semifinal Round</u> Delete 1-2. No semifinalists. No on-site interview. No LEAP Report. No LEAP interview.</p> <p>Evaluation based on 130 points:</p> <ul style="list-style-type: none"> <li>• Website (130)</li> </ul>