Virginia TSA
Competitive Events
Addendum

For Use at the 2021 Virginia TSA
Regional and State Conferences

An Addendum to the National TSA
2020-2021
Middle School Total TSA Guidelines
AND
2021-2022
High School Total TSA Guidelines

Version 2, January 5, 2021
ACKNOWLEDGEMENTS

The Virginia TSA Addendum to the Curricular Resource Guides reflects provisions made for Technology Education Regional Fairs and Technosphere recognition programs in Virginia. This addendum will assist Virginia TSA advisors and TSA members to plan for leadership and competitive events during the 2020-2021 school year.

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PURPOSE AND GOALS FOR COMPETITIVE EVENTS AND RECOGNITION PROGRAMS

Virginia TSA's annual program of leadership development and competitive events provides students opportunities beyond the traditional classroom/laboratory setting which add to their increased knowledge and understanding of an ever-changing technical world.

Five goals form the foundation of Virginia TSA's Annual Program of Activities. Consistent with their aptitudes, interests, and educational needs, all technology education students in Virginia will:

1. Gain contact with industrial and business personnel, and resources to acquire technological understanding, consumer knowledge, and competencies that lead to responsible citizenship and a more productive society.
2. Acquire democratic understanding and practice through leadership and team/group activities.
3. Plan, organize, and carry out worthy activities and projects that contribute to an improvement or service to the community.
4. Through the free enterprise system, become aware of employment or self-employment opportunities and the educational requirements for making career choices.
5. Become recognized for technological awareness, scholarship, and leadership ability.

COMPETITIVE EVENTS REFLECT A KNOWLEDGE AND UNDERSTANDING OF TECHNOLOGY

Competitive events should be used as learning activities for students in technology education classes. Three outcomes are related to the study of technology.

Understand the Technical World

Students’ knowledge and understanding of technical content can be increased by...

- speaking or writing about technology
- drawing, constructing, or manufacturing technological inventions or products
- Identifying tools, machines, materials and processes.
- graphically representing impacts of technology
- describing technological systems
- solving technological problems

Development of Technical Adaptive Skills

Students use their knowledge and technical competence to create solutions to problems facing people by…

- drawing and modeling architectural solutions
- designing and assembling electronic devices
- creating graphic illustrations and information sources
- constructing quality products for comfort and use
- manufacturing or modeling products
- solving problems using technology
Appreciation for High Standards of Work and Safety

Students exhibit pride in work well done by…

- informing the public, parents, and fellow students about the value of technology education
- displaying their projects, drawings, and other learning activities
- demonstrating technological literacy
- attracting attention through good design and aesthetic arrangement
- promoting careers in technology

MOTIVATION OF STUDENTS THROUGH COMPETITIVE EVENTS

The Competitive Events Guide should be made available to students. Some competitive events have criteria that relate specifically to course content, while others can be entered by any student. Competition can be used to motivate student work both in classes and chapters. Competitive events relate to most courses and can be used as intra-curricular learning activities by any student. Certain events test students’ understanding of basic technological concepts and processes, while others challenge students to apply their technical skills in problem solving and research.

The following steps will help teachers to motivate students through competitive events:

1. Introduce competitive events to each class early in the school year.
2. Select competitive events related to course content.
3. Use competitive events as co-curricular learning activities.
4. Evaluate students’ progress through competition and other experiences.
5. Involve class members, parents, and school staff in judging local chapter activities.
6. Register students in regional, state, and national conferences.
7. Recognize students who compete through news media, awards programs, and school assemblies.
COMPETITION LEVELS

INDIVIDUAL EVENTS

Student members shall participate in individual events according to their official grade classification level in school:

<table>
<thead>
<tr>
<th>Level</th>
<th>Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle</td>
<td>6 - 8</td>
</tr>
<tr>
<td>High</td>
<td>9 - 12</td>
</tr>
</tbody>
</table>

TEAM EVENTS

Teams shall participate according to the official school classification level as identified in the school name:

<table>
<thead>
<tr>
<th>Level</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle</td>
<td>Middle, Intermediate, or Junior High School</td>
</tr>
<tr>
<td>High</td>
<td>High Schools</td>
</tr>
</tbody>
</table>

RECOGNITION PROGRAMS

Chapters shall participate according to the official school classification level as identified in the school name where the chapter is affiliated:

<table>
<thead>
<tr>
<th>Level</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle</td>
<td>Middle, Intermediate, or Junior High Schools</td>
</tr>
<tr>
<td>High</td>
<td>High Schools</td>
</tr>
</tbody>
</table>

SPECIAL PROGRAM EVENTS

Schools shall participate according to the official school classification level as identified in the school name:

<table>
<thead>
<tr>
<th>Level</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle</td>
<td>Middle, Intermediate, or Junior High Schools</td>
</tr>
<tr>
<td>High</td>
<td>High Schools</td>
</tr>
</tbody>
</table>
ELIGIBLE PARTICIPANTS

STUDENTS

Regional Fair and Technosphere participation is available to Virginia TSA members who are:

1. Enrolled for the current school year in grades K-12.
2. Affiliated through a chapter at the national level
3. Officially registered for participation.
4. Abide by the behavior code adopted by Virginia TSA.

CHAPTERS

Chapter participation is available to nationally affiliated Virginia TSA chapters in good standing as of January 31, 2021 and registered for the activity. For fall virtual competitive events, you need to be affiliated before a particular events registration closes.

SCHOOLS

Participation is available to all K-12 Virginia schools, both public and private, which offer officially recognized technology education programs, or which enroll students from feeder schools that officially recognized technology education programs.

VIRGINIA TSA STUDENTS COMPETING AT NATIONAL TSA COMPETITION

If a student places 1st, 2nd, or 3rd in a Technosphere competitive event that requires the state to select the national representative(s) for the same competitive event, the chapter advisor of the respective Technosphere winner(s) must notify the Virginia TSA State Advisor via email by May 21, 2021 if they plan to register and compete in the same competitive event at the National TSA Conference. If the Virginia TSA State Advisor does not receive notice and confirmation from the respective chapter advisor that their student will compete in the respective competitive event by May 21st, the State Advisor will proceed to contact the 4th, 5th, or 6th place winners, and so forth until Virginia TSA can confirm a state representative for the respective competitive event. NOTE: Once this process starts, the Technosphere 1st, 2nd, or 3rd place winners, and so forth, shall forfeit their eligibility to compete in the same competitive event at the National TSA Conference.

Note to the Teacher: All students are encouraged to prepare early for leadership development activities and competitive events. Advisors should ensure students have reviewed completely ALL Rules and Guidelines, general and specific, for their respective competitive event(s). Advisors and students are further encouraged to regularly check the following link for updates and clarification of specific events regulations and guidelines:
http://tsaweb.org/Updates-and-Clarification
GENERAL COMPETITIVE EVENT GUIDELINES

ADVISOR RESPONSIBILITIES

The advisor shall:

1. Notify students and parents of the need for accident insurance coverage.
2. Obtain the signature of both student and parent on the Delegate Conduct Agreement, medical release, and other required forms.
3. File the list of students who have completed the Delegate Conduct Agreement form, medical release form and student liability form with the school principal's office.
4. Notify Virginia TSA of any special needs for students with disabilities.
5. Read and enforce the Delegate Conduct Agreement and assume all obligations required by this Code.
6. Email or mail registration forms and papers according to deadline printed in the Registration Packet for each conference, event or activity. (Examples: Hotel Reservation, competitive events and recognition programs, etc.)
7. Monitor all TSA students in attendance at regional and state activities.
8. Assume full responsibility for their students at all Regional, State, or National Conferences.
9. Encourage students early to prepare high quality products resultant of exceptional planning, design, and implementation.
10. Enter students or projects in local and/or regional competition to select students for participation at the state level. Students or projects entered illegally in a competitive event will be disqualified from competition.
11. Ensure that no explosives, combustible materials, useable weapons, or any type of inappropriate or unsafe items are entered or exhibited.
12. Know and understand criteria for competitive events entered and clarify rules for students using the correct documents.
13. Recognize students through news media, awards programs, and school assemblies.
14. Provide supervision for a maximum of ten (10) students per advisor and/or chaperone.
15. Enforce proper conduct and dress which is expected of all members throughout any Virginia TSA sponsored event. Participants violating or ignoring conduct rules risk unseating their entire delegation and disqualifying their chapter’s competitive event entries. Individual participants may be sent home at their own expense. Curfews will be enforced, and students must be in assigned rooms by the announced time.
# GENERAL COMPETITIVE EVENT GUIDELINES

I. The 2020-2021 Virginia TSA official competitive events are:

<table>
<thead>
<tr>
<th>MIDDLE SCHOOL PROGRAM</th>
<th>HIGH SCHOOL PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biotechnology</td>
<td>Animatronics</td>
</tr>
<tr>
<td>CAD Foundations</td>
<td>Architectural Design</td>
</tr>
<tr>
<td>Career Prep</td>
<td>Biotechnology Design</td>
</tr>
<tr>
<td>Challenging Technology Issues</td>
<td>Board Game Design</td>
</tr>
<tr>
<td>Chapter Team</td>
<td>Chapter Team</td>
</tr>
<tr>
<td>Children’s Stories</td>
<td>Children’s Stories</td>
</tr>
<tr>
<td>Coding</td>
<td>Coding</td>
</tr>
<tr>
<td>Community Service Video</td>
<td>CIM (Computer Integrated Manufacturing)</td>
</tr>
<tr>
<td>Construction Challenge</td>
<td>CAD – Architectural</td>
</tr>
<tr>
<td>Cybersecurity Foundations</td>
<td>CAD – Engineering</td>
</tr>
<tr>
<td>Data Science and Analytics</td>
<td>Cybersecurity</td>
</tr>
<tr>
<td>Digital Photography</td>
<td>Data Science and Analytics</td>
</tr>
<tr>
<td>Dragster</td>
<td>Debating Technological Issues</td>
</tr>
<tr>
<td>Electrical Applications</td>
<td>Digital Video Production</td>
</tr>
<tr>
<td>Essays on Technology</td>
<td>Dragster Design</td>
</tr>
<tr>
<td>Flight</td>
<td>Engineering Design</td>
</tr>
<tr>
<td>Forensic Technology</td>
<td>Essays on Technology</td>
</tr>
<tr>
<td>Foundations of Information Technology</td>
<td>Extemporaneous Speech</td>
</tr>
<tr>
<td>Geospatial Technology (VA only)</td>
<td>Fashion Design and Technology</td>
</tr>
<tr>
<td>Inventions and Innovations</td>
<td>Flight Endurance</td>
</tr>
<tr>
<td>Junior Solar Sprint</td>
<td>Forensic Science</td>
</tr>
<tr>
<td>Leadership Strategies</td>
<td>Future Technology Teacher</td>
</tr>
<tr>
<td>Mass Production</td>
<td>Geospatial Technology</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>IT Fundamentals</td>
</tr>
<tr>
<td>Medical Technology</td>
<td>Music Production</td>
</tr>
<tr>
<td>Microcontroller Design</td>
<td>On Demand Video</td>
</tr>
<tr>
<td>Off the Grid</td>
<td>Photographic Technology</td>
</tr>
<tr>
<td>Prepared Speech</td>
<td>Prepared Presentation</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>Principles of Technology (VA only)</td>
</tr>
<tr>
<td>Promotional Marketing</td>
<td>Promotional Design</td>
</tr>
<tr>
<td>STEM Animation</td>
<td>SCIVIS</td>
</tr>
<tr>
<td>Structural Engineering</td>
<td>Software Development</td>
</tr>
<tr>
<td>System Control Technology</td>
<td>STEM Careers (VA only)</td>
</tr>
<tr>
<td>Technology Bowl</td>
<td>Structural Design and Engineering</td>
</tr>
<tr>
<td>Technical Design</td>
<td>System Control Technology</td>
</tr>
<tr>
<td>Vex IQ Robotics</td>
<td>Technology Bowl</td>
</tr>
<tr>
<td>Video Game Design</td>
<td>Technology Problem Solving</td>
</tr>
<tr>
<td>Website Design</td>
<td>Transportation Modeling</td>
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<tr>
<td></td>
<td>Vex Robotics</td>
</tr>
<tr>
<td></td>
<td>Video Game Design</td>
</tr>
<tr>
<td></td>
<td>Webmaster</td>
</tr>
</tbody>
</table>

Virginia Special Awards and Recognition Programs

- Advisor of the Year - Middle and High School
- Community Service Award - Middle and High School
- Century Award - Middle and High School
- Member of the Year - Middle and High School
- Chapter Excellence - Middle and High School
- Commendation Award - School Division
GENERAL COMPETITIVE EVENT GUIDELINES

II. Levels of Competition

A. Chapter members and advisors shall enter competitive events according to chapter level.
B. The following breakdown of grades is used as categories for competitive event entry levels: Middle School - Grades 6 – 8; & High School - Grades 9 – 12.
C. Concerning team and individual entries, students in grades 6 through 8 who are members of a High School chapter must compete as High School Level members in team events, but may compete as Middle School Level members in individual events. Students in grade 9 must compete as High School Level participants.
D. The term “team” is defined as two or more students. Therefore, if a competitive event does not specify the number of students that comprise the team, the minimum number of students shall be two (2).
E. A combined school (i.e., grades 6-12) may elect to affiliate a Middle School Level chapter and High School Level chapter.

III. Participation in Competitive Events

A. In the event a question or a problem arises that has not been covered in the "General Rules" or the individual competitive event guidelines; the standards review committee will render a decision for the conference.
B. Should a conflict develop that prevents a member from participating in more than one event, the participant will decide which event entry will be eliminated, with consideration to team events first.
C. It will be the individual responsibility of all participants to obtain all rules and guidelines for his/her events. Lack of knowledge or understanding about a particular event will not be the reason or excuse for individual change or adjustment consideration.
D. Check the state and national websites for updates and changes often.
E. Competitive event concerns or requests to review the results of a competition during Regional Fairs or Technosphere must be submitted in writing to the Regional Fair Chair or Technosphere Chair prior to the end of the Regional Fair or Technosphere.
F. TSA members, advisors, and chapters must be affiliated with national TSA by January 31, 2021 in order to enter any competitive event at Regionals and Technosphere.
G. Students and advisors must be registered and in attendance in order to enter and become finalists in competitive events.
H. TSA membership rights extend through the year of graduation.
I. Advisors will be entered in the same level as their chapter is entered.
J. Participants may enter a maximum of five (5) competitive events at the regional fairs and six (6) at Technosphere unless noted otherwise in this document. For Technosphere this shall include Special awards known as C-events.
K. If a contestant violates the competitive event rules, the decision to deduct 20 percent of the total possible points or disqualify the entry will be made based on competitive event rules and signed off by the State Advisor.
L. Participants in Technosphere competitive events that were offered at the Regional Fairs must have been among the top three winners at their respective Regional Fair in order to enter the same event at Technosphere. If a regional fair winner cannot attend Technosphere, substitutions shall not be permitted in individual events; however, if a member of a team event is unable to attend Technosphere, substitutions are allowed as long as at least one of the original team members is still a participant on the team.
M. Participants in Virginia TSA Regional Fairs and Technosphere must be members of the same local chapter in order to compete in competitive events.

IV. Restrictions on Individual, Group, and Team Entries

A. Chapters may have five (5) entries per competitive event at the Regional Fair in each event unless specified differently on pages 14-17.

B. Events which must be emailed by the April 14, 2021 deadline are: Advisor of the Year, Member of the Year, Century Award, Chapter Excellence, Centurion Award, Community Service Award. Plaques will not be presented at Technosphere if the correct forms are not mailed to Virginia TSA by the registration deadline, in addition to online registration submission.

C. Chapters will register teams for team competitions.

V. Awards

A. Awards will be presented to the winning entries in each competitive event at the awards presentation ceremony. First, second, and third place awards will be presented for each competitive event as listed under Section I of the General Competitive Events Guidelines.

B. The top 10 finalists in each event at Technosphere will receive a finalist pin. Also, the top 10 finalists at Technosphere in each event will be posted on the Virginia TSA website.

C. First, second, and third place awards are included in the number of finalists.

VI. Pre-conference mail-in events

A. Each entry must be postmarked or emailed by entry deadlines as posted in Regional Fair and/or Technosphere Registration packet.

B. Online registration must also be completed.

VII. Recording devices: No recording devices will be allowed in events which are closed to public viewing during competition.
# GENERAL COMPETITIVE EVENT GUIDELINES

## VIII. Regional Fairs and Technosphere Attire

*During all general sessions, students and advisors shall wear official TSA attire or Competition attire. Refer to the national competitive events guide for required competition attire.*

### A. Official Virginia TSA attire:
- **Blazer:** Navy blue with official Virginia TSA patch
- **Tie or Scarf:** Scarlet red imprinted with TSA logo (male only)
- **Shirt or Blouse:** White, button-up with turn down collar or Men’s or Women’s Official TSA Shirt sold in the TSA Store at www.tsaweb.org. Pants or Skirt: light gray (skirt length even with tips of one's fingers)
- **Shoes:** Black dress shoes (athletic shoes, work boots, or combat boots are not acceptable)
- **Sandals:** Females only may wear black open-toed dress shoes or sandals
- **Socks/Hosiery:** Black socks (male)

**Note:** All TEAM members competing in Chapter Team Must be dressed alike. Either White Shirts or Official TSA Shirts, they cannot be mixed.

### B. Competition attire:
- **Tie or Scarf:** Scarlet red imprinted with TSA logo (Optional)
- **Shirt or Blouse:** Button-up shirt/blouse with turn down collar, either white or Official TSA shirts (no t-shirts or polo/golf shirts)
- **Pants or Skirt:** Gray or khaki. Skirts (Even with the tips of fingers)
- **Socks:** Dark socks, black or blue
- **Shoes:** Dress shoes or Boots (no athletic shoes, work boots, or combat boots)
- **Sandals:** Females only may wear open-toed dress shoes or sandals

### C. Casual attire:
Casual attire must comply with the participants’ local school division dress code policy. Casual attire shall not be worn during general sessions or competition.

### D. Conference identification badges must be worn at all times in a visible location.
GENERAL COMPETITIVE EVENT GUIDELINES

IX. Event Items

A. Projects/products/displays must be entered in the same year in which the work on the item started. Unless otherwise specified, no identifying information—other than ID #—should be included on an entry.

B. Students and advisors are solely responsible for picking-up their event items during the event pick-up time. Virginia TSA will not pick-up or store any items after a Regional Fair or Technosphere.

C. Must provide—and bring to the test site—two (2) pencils (sharpened standard #2/HB grade with an eraser, or #2 mechanical with an eraser) for any competition that involves a written test.

D. For all events that require portfolios, the following applies: the cover page is NO LONGER on the outside of the notebook/album, the cover page is the first page inside the portfolio/album.

High School and Middle School competitive events will require “Portfolios” rather than 3 ring binder “Notebooks.” Documentation materials (comprising “a portfolio”) are required and should be secured in a clear front report cover. Examples can be found at the following link: https://www.staples.com/Clear-Report-Covers/cat_CL130501/5yduo

E. For all applicable competitive events, written work—including citations or references—must follow MLA (Modern Language Association) style.

F. All entries must be the original work of the student participant or student team. All ideas, text, images, and sound from other sources must be cited, including anything that is from the public domain. References and resources should be cited using MLA (Modern Language Association) style, the most current edition. If copyrighted material is used, proper written permission must be included. Failure to follow this procedure results in disqualification. Copyright includes graphics.

G. All competitive events with a semifinalist component will have a minimum of twelve (12) semifinalists. Semifinalists (individuals or teams, as applicable) will compete against one another to determine the top ten (10) finalists in an event.

H. Hazardous materials, chemicals, lighted or open flames, combustibles, wet cell batteries, and other similar substances are not allowed at the Virginia TSA Regional Fairs or Technosphere.

I. No electronic communication devices of any kind are permitted during competition. Cell phones, walkie-talkies, pagers, etc. must be turned off.

J. Everyone who wishes to attend the conference must complete conference registration. This includes student delegates and parents who will only be present at the Awards Ceremony.

K. Rules violations and disqualifications: A rules violation that gives a contestant an unfair advantage will result in a twenty percent (20%) deduction of the total possible points. The event coordinator must sign off on a 20% deduction and The State Advisor must sign off on all disqualifications.

X. Virginia TSA will not be responsible for any personal property, equipment or materials brought to a Regional Fair or Technosphere for use by participants.

XI. All competitive events will be judged in accordance with the stated criteria for each event as shown in the 2020-2021 Total Guide with the exception of any state requirements outlined in the Virginia TSA Competitive Events Addendum. All judges’ rating sheets are the property of Virginia TSA. The information on the rating sheets is confidential and will not be disseminated without a written request.

XII. Advisors should carefully review their registration selection(s) for each competitive event prior to online submission. Registration errors are the responsibility of the chapter advisor to correct and ensure accuracy in accordance with the procedures and deadlines established by Virginia TSA. On-site changes and/or additions shall not be permitted.
<table>
<thead>
<tr>
<th>CODE</th>
<th>EVENT</th>
<th>NOTES</th>
</tr>
</thead>
</table>
| A-2  | CAD Foundations                  | Three individual entries per chapter, one entry per individual  
Using the middle school virtual guide, participants have the opportunity to demonstrate their understanding of CAD fundamentals as they create a two-dimensional graphic representation of an engineering part or object. Students must provide all equipment, software and supplies. **Students will login to the judges system at the scheduled time of this event for their regional fair. The scenario and submission button will be present for the student in the system.** |
| A-3  | Career Prep                      | Five individual entries per chapter, one entry per individual  
Using the middle school virtual guide, design and produce a cover letter and a chronological or skills resume based on research. See National Themes and Problems ([http://tsaweb.org/Themes-and-Problems](http://tsaweb.org/Themes-and-Problems)) for Career Clusters. No semifinalist interview portion at Regional Fair. Students will be able to upload their work to the judges system beginning at noon the Tuesday before their Regional Fair through 5 PM on the Thursday before their Regional Fair date. |
| A-4  | Challenging Technology Issues    | Three teams of 2 members per chapter, one entry per team  
Using the middle school virtual guide, prepare and deliver an extemporaneous, debate style presentation with team members. See National Themes and Problems ([http://tsaweb.org/Themes-and-Problems](http://tsaweb.org/Themes-and-Problems)). Students will be given a time to go online and deliver their debate to the judges on the day of their Regional Fair. |
| A-8  | Community Service Video          | One team per chapter, 2-6 members per team, one entry per team  
Using the middle school virtual guide, create and submit a finished video that depicts a community need or issue. **No semifinalist interview portion at Regional Fair. Students will be able to upload their work to the judges system beginning at noon the Tuesday before their Regional Fair through 5 PM on the Thursday before their Regional Fair date.** |
| A-12 | Digital Photography              | Five individual entries per chapter, one entry per individual  
Using the middle school virtual guide, participants produce an album consisting of color or black and white digital photographs that represent or relate to a chosen theme. The theme for 2021 is Nature. (No semifinalist portion at Regional Fair.) **Students will be able to upload their work to the judges system beginning at noon the Tuesday before their Regional Fair through 5 PM on the Thursday before their Regional Fair date.** |
| A-13 | Dragster                         | Five individual entries per chapter, one entry per individual  
Using the middle school traditional guide, design and produce a fast CO$^2$ powered dragster according to stated specifications and using certain specific materials. See National Themes and Problems ([http://tsaweb.org/Themes-and-Problems](http://tsaweb.org/Themes-and-Problems)). Dragsters not meeting building tolerances specified in the 2020-2021 Total TSA shall be disqualified and will NOT be raced. No semifinalist interview at Regional Fair. Cars and drawings will be mailed or dropped off to a specific location that will be announced for each Region. |
| A-15 | Essays on Technology             | Five individual entries per chapter, one entry per individual  
Using the middle school virtual guide, participants conduct research in specified subtopics of a broader technological area. Participant turns in a comprehensive outline. **The topic for the 2021 conference is located at: [http://tsaweb.org/Themes-and-Problems](http://tsaweb.org/Themes-and-Problems). Event time is one (1) hour. There will be no Semi-Finalist Portion at Regional Fair. Students will login to the judges system at the scheduled time of this event for their regional fair. The scenario and submission button will be present in the system.** |
It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA competitive events. This information is found on the website under Competitions/Updates and Clarification, and themes and problems. When students participate in any TSA competitive event, they are responsible for knowing of updates, changes, or clarification related to that event.

*Check the Virginia TSA Website for updated versions of the Addendum*
<table>
<thead>
<tr>
<th>CODE</th>
<th>EVENT</th>
<th>NOTES</th>
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</thead>
<tbody>
<tr>
<td>B-4</td>
<td>Board Game Design</td>
<td>Using the high school virtual guide, develop, build and package a board game that focuses on the subject of your choice. The game should be interesting, exciting, visually appealing and intellectually challenging. No semifinals at Regional Fair. Students will be able to upload their PDF to the judges system at the scheduled time of this event for their Regional Fair. The scenario and submission button will be present for the student in the system.</td>
</tr>
<tr>
<td>B-8</td>
<td>CAD Architecture</td>
<td>Using the high school virtual guide, students must provide all equipment, software and supplies. The event time limit will be two (2) hours. Students will login into the judges system at the scheduled time of this event for their regional fair. The scenario and submission button will be present for the student in the system.</td>
</tr>
<tr>
<td>B-9</td>
<td>CAD Engineering</td>
<td>Using the high school virtual guide, students must provide all equipment, software and supplies. The event time limit will be two (2) hours. Students will login into the judges system at the scheduled time of this event for their regional fair. The scenario and submission button will be present for the student in the system.</td>
</tr>
<tr>
<td>B-10</td>
<td>Computer Integrated Manufacturing (CIM)</td>
<td>Using the high school traditional guide, participants design, fabricate and use Computer Integrated Manufacturing (CIM) to create an original design and build a birdhouse. No Semifinalist portion will be held at Regional Fair. Students will be able to upload their PDF portfolio to the judges system beginning at noon the Tuesday before their Regional Fair through 5 PM on the Thursday before their Regional Fair date.</td>
</tr>
<tr>
<td>B-13</td>
<td>Debating Technological Issues</td>
<td>Using the high school virtual guide, teams will be instructed to take the Pro or Con side of the selected subtopic. The theme for 2021 is: Internet as a necessity, not a luxury. See National Themes and Problems (<a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>). Students will be given a time to go online and deliver their debate to the judges on the day of their Regional Fair. They will also have access to the judges system to upload their PDF.</td>
</tr>
<tr>
<td>B-14</td>
<td>Digital Video Production</td>
<td>Using the high school virtual guide, participants develop a digital video/film that focuses on the given year’s theme. The theme for 2021 is an Interview with your future self. No Semifinalist portion will be held at Regional Fair. Students will be able to upload their work to the judges system beginning at noon the Tuesday before their Regional Fair through 5 PM on the Thursday before their Regional Fair date.</td>
</tr>
<tr>
<td>B-15</td>
<td>Dragster Design</td>
<td>Using the high school traditional guide, participants design, produce working drawings for, and build a CO2- powered dragster. Dragsters not meeting building tolerances specified in the 2020-2021 Total TSA guide shall be disqualified and will NOT be raced. No semifinalist portion at Regional Fair. Cars and drawings will be mailed or dropped off to a specific location that will be announced for each Region.</td>
</tr>
<tr>
<td>B-17</td>
<td>Essays on Technology</td>
<td>Using the high school virtual guide, participants will write a synthesis essay to make insightful connections based on a current technological topic. Participants will be provided with a prompt and a series of two (2) or more articles on a current technological topic. There will be a 90 minute Time Limit. Students will login into the judges system at the scheduled time of this event for their regional fair. The scenario and submission button will be present in the system.</td>
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<tr>
<td>B-18</td>
<td>Extemporaneous Speech</td>
<td>Using the high school virtual guide, participants give a three to five (3-5) minute speech on a topic provided. <strong>Students will login to the judges system at the scheduled time of this event for their regional fair.</strong> The scenario and submission button will be present in the system.</td>
</tr>
<tr>
<td>B-20</td>
<td>Flight Endurance</td>
<td>Using the high school traditional guide, participants analyze flight principles with a rubber band powered model aircraft. Student’s models must be built and test flown before the Regional Fair. Students must provide documentation portfolio and model. Refer to 2020-2021 Total TSA Guide. <strong>Students bring documentation portfolio with all components, and assembled aircraft for testing to a Regional Fair location on the date and time given to them. This will vary in each region and may be before the specific regional fair date. More information will be coming to schools that register for this event. No semifinal portion at Regional Fair.</strong></td>
</tr>
<tr>
<td>B-25</td>
<td>Music Production</td>
<td>Using the high school virtual guide, participants produce an original musical piece that is designed to be played during the national TSA conference opening or closing general session. No semifinalist interview portion at Regional Fair. <strong>Students will be able to upload their work to the judges system beginning at noon the Tuesday before their Regional Fair through 5 PM on the Thursday before their Regional Fair date.</strong></td>
</tr>
<tr>
<td>B-27</td>
<td>Photographic Technology</td>
<td>Using the high school virtual guide, participants capture images and process photographic and digital prints that depict the current year’s theme. See National Themes and Problems (<a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>) for 2021 theme. <strong>No semifinalist portion at Regional Fair. Students will be able to upload their work to the judges system beginning at noon the Tuesday before their Regional Fair through 5 PM on the Thursday before their Regional Fair date.</strong></td>
</tr>
<tr>
<td>B-28</td>
<td>Prepared Presentation</td>
<td>Using the high school virtual guide, participants deliver an oral presentation, using a digital slide deck, on a topic that will be posted in the judges system 24 hours prior to the event. <strong>Students will login into the judges system at the scheduled time of this event for their regional fair. The scenario and submission button will be present in the system.</strong></td>
</tr>
<tr>
<td>B-30</td>
<td>Promotional Design</td>
<td>Using the high school virtual guide, participants use computerized graphic communication layout and design skills in the production of a promotional resource for TSA. See National Themes and Problems (<a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>). <strong>No Semifinalist portion at the Regional Fair. Students will be able to upload their work to the judges system beginning at noon the Tuesday before their Regional Fair through 5 PM on the Thursday before their Regional Fair date.</strong></td>
</tr>
<tr>
<td>B-34</td>
<td>Structural Design and Engineering</td>
<td>Using the high school traditional guide, participants apply the principles of structural design and engineering through basic research, design, construction and destructive testing to determine the design efficiency of the structure. <strong>Students will drop off or mail a Pre-Built structure to a location that will be set for each Regional Fair for testing. See national Problems and Themes for problem statement. There will be NO Semifinalists portion at Regional Fair.</strong></td>
</tr>
<tr>
<td>B-35</td>
<td>System Control</td>
<td>Using the high school traditional guide, participants work as part of</td>
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<tr>
<td>B-38</td>
<td>Transportation Modeling</td>
<td>Using the high school virtual guide, participants use engineering skills to design and fabricate a scale model of a vehicle. See National Themes and Problems (<a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>). Students will be able to upload their work to the judges system beginning at noon the Tuesday before their Regional Fair through 5 PM on the Thursday before their Regional Fair date.</td>
</tr>
<tr>
<td>B-40</td>
<td>Video Game Design</td>
<td>Using the high school virtual guide, participants develop a game that focuses on the idea of their choice based on the posted theme. The game should be interesting, exciting, visually appealing, and intellectually challenging, with high artistic, educational, and social value. The game must be appropriate for the TSA community, and in good taste. See National Themes and Problems (<a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>). No semifinalist interview/game demonstration portion at Regional Fair. Students will be able to upload their work to the judges system beginning at noon the Tuesday before their Regional Fair through 5 PM on the Thursday before their Regional Fair date.</td>
</tr>
</tbody>
</table>

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA competitive events. This information is found on the website under Competitions/Updates and Clarification, and themes and problems. When students participate in any TSA competitive event, they are responsible for knowing of updates, changes, or clarification related to that event.

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<tbody>
<tr>
<td>A-1</td>
<td>Biotechnology</td>
<td>Using the middle school virtual guide, participants conduct research on a contemporary biotechnology issue of their choosing, documenting their research and creating a display. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021. Semifinal interviews will take place on Friday evening or Saturday morning of Technosphere via zoom. Time to be announced.</strong></td>
</tr>
<tr>
<td>A-2*</td>
<td>CAD Foundations</td>
<td>Using the middle school virtual guide, participants have the opportunity to demonstrate their understanding of CAD fundamentals as they create a two-dimensional graphic representation of an engineering part or object. Students must provide all equipment, software and supplies. <strong>Students will compete in this event through the judges system on 4/30/21 at 5 PM.</strong> The event time limit will be two (2) hours.</td>
</tr>
<tr>
<td>A-3*</td>
<td>CareerPrep</td>
<td>Using the middle school virtual guide, design and produce a cover letter and a chronological or skills resume based on research. See National Themes and Problems (<a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>) for Career Clusters. <strong>Students will upload their work to the judges system by 11:59 PM on 4/23/21. Semifinal interviews will be on the Friday of Technosphere via zoom.</strong></td>
</tr>
<tr>
<td>A-4*</td>
<td>Challenging Technology Issues</td>
<td>Using the middle school virtual guide, prepare and deliver an extemporaneous debate style presentation with team members. See National Themes and Problems (<a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>). Students will receive the topic through the judges system on 4/28/21 and will have until 11:59 PM on 4/29/21 to upload a URL video of their debate.</td>
</tr>
<tr>
<td>A-5</td>
<td>Chapter Team</td>
<td>Using the middle school virtual guide, participants demonstrate an understanding of parliamentary procedures relative to business meeting. <strong>Testing will take place on 4/29/21 at 6 PM. Semifinalist will upload their meeting video, as an URL, to the judges system, time to be announced.</strong></td>
</tr>
<tr>
<td>A-6</td>
<td>Children’s Stories</td>
<td>Using the middle school virtual guide, participants design an interactive book for an elementary school aged student in grades 3-5 on the role of thermal energy in weather related phenomena including thunderstorms and hurricanes. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/21. Semi-final reading/ interview will take place on Friday evening or Saturday morning of Technosphere via zoom. Time to be announced.</strong></td>
</tr>
<tr>
<td>A-7</td>
<td>Coding</td>
<td>Using the middle school virtual guide, participants will demonstrate their knowledge of computer science and coding by taking a written test. Semi-finalists will further demonstrate their programming knowledge by participating in a virtual programming challenge. <strong>Testing will take place on 4/29/21 at 6 PM. Semi-final challenge will be on Saturday morning 5/1/21 at 9 AM through the judges system.</strong></td>
</tr>
<tr>
<td>A-8*</td>
<td>Community Service Video</td>
<td>Using the middle school virtual guide, create and submit a video that depicts an issue or need within your community. <strong>Students will upload their work to the judges system by 11:59 PM on 4/23/21. Semi-final interview will take place on Friday evening of Technosphere via zoom. Time to be announced.</strong></td>
</tr>
<tr>
<td>A-9</td>
<td>Construction Challenge</td>
<td>Using the middle school virtual guide, participants submit a display that documents the use of their leadership and technical skills to fulfill a community need related to construction. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021. Semi-final interviews will take place on Friday evening or Saturday of Technosphere via zoom. Time to be announced.</strong></td>
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<tr>
<td>A-10</td>
<td>Cybersecurity Foundations</td>
<td>Using the middle school virtual guide, students completes a Cybersecurity exam covering general cybersecurity vocabulary and knowledge needed to execute tasks performed by cybersecurity professionals. Semifinalist use a digital presentation to address a cybersecurity issue to a group of hypothetical corporate board members (judges). <strong>Testing will take place on 4/29/21 at 6 PM.</strong> Semifinalists will submit their presentations to the judges system by Saturday morning. Time to be announced.</td>
</tr>
<tr>
<td>A-11</td>
<td>Data Science and Analytics</td>
<td>Using the middle school virtual guide, conduct research on an annual theme or topic, collect data and document the research in a supporting portfolio and a display. Using analytics, participants assess collected data to make predictions and informed decisions. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021. There will not be a semifinals.</strong></td>
</tr>
<tr>
<td>A-12 *</td>
<td>Digital Photography</td>
<td>Using the middle school virtual guide, participants produce an album consisting of color or black and white digital photographs that represent or relate to a chosen theme. The theme for 2021 is Nature. <strong>Students will upload into the judges system by 11:59 on 4/23/21. Semifinalist problem will take place on Saturday of Technosphere. Time to be announced.</strong></td>
</tr>
<tr>
<td>A-13 *</td>
<td>Dragster</td>
<td>Using the middle school traditional guide, Fall and Regional qualifiers design and produce a fast CO\textsuperscript{2} powered dragster according to stated specifications and using only certain specific materials. <strong>Dragsters not meeting building tolerances specified in the Total TSA guide shall be disqualified and will NOT be raced. Cars will be dropped off or mailed to a location to be determined.</strong></td>
</tr>
<tr>
<td>A-14</td>
<td>Electrical Applications</td>
<td>Using the middle school traditional guide, participants demonstrate knowledge of basic electrical and electronic theory, as well as the use of a multi-meter by taking a test. <strong>Testing will take place on 4/29/21 at 6 PM. There will not be a semifinals.</strong></td>
</tr>
<tr>
<td>A-15*</td>
<td>Essays on Technology</td>
<td>Using the middle school virtual guide, fall and regional qualifiers will write an essay based on a specified subtopics of a broader technological area, using the knowledge and resources gained through their research. Each participant turns in a comprehensive essay. <strong>The topic for the 2021 conference is located at:</strong> <a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>. <strong>Students will upload into the judges system their outline by 11:59 on 4/23/21. Semifinalist essay will take place on Saturday morning of Technosphere.</strong></td>
</tr>
<tr>
<td>A-16*</td>
<td>Flight</td>
<td>Using the middle school traditional guide, participants create a glider that stays in flight for the greatest elapsed time. Students must provide own MATERIALS, tools, and drawings for their plane. More information will be coming to advisors who had students qualify from regionals in this event.</td>
</tr>
<tr>
<td>A-17</td>
<td>Forensic Technology</td>
<td>Using the middle school virtual guide, participants take a written test of basic forensic science theory to qualify as semifinalists. Semifinalists demonstrate their ability to use forensic technology and skills by doing a challenge. <strong>Testing will take place on 4/29/21 at 6 PM. Semifinalist will upload their skill challenge to the judges system at a time to be announced.</strong></td>
</tr>
<tr>
<td>A-18</td>
<td>Foundations of Information</td>
<td>Using the middle school virtual guide, participants complete an examination covering essential IT skills and knowledge needed to</td>
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<tr>
<td>A-19</td>
<td>Geospatial Technology</td>
<td>Three teams of 1-5 members per chapter. Participants develop a pre-conference electronic portfolio, addressing a problem. <strong>Rules and problem begin on page 29.</strong> Students will upload their PDF files of their work to the judges system by 11:59 PM on 4/28/21.</td>
</tr>
<tr>
<td>A-20</td>
<td>Inventions &amp; Innovations</td>
<td>One Team per chapter, One entry per team 3-8 members per team Using the middle school virtual guide, participants investigate and determine the need for an invention or innovation of a device, system, or process. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong> Semester “sales pitch” video will be due on Saturday morning of Technosphere via zoom at 11:00 AM.</td>
</tr>
<tr>
<td>A-21</td>
<td>Junior Solar Sprint</td>
<td>One team per chapter, one entry per team 2-6 members per team Using the middle school virtual guide, participants explore an alternative energy source and experience the automotive design process when they research and conceptualize a design, make drawings, build a model from the design and race solar powered car models. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong></td>
</tr>
<tr>
<td>A-22</td>
<td>Leadership Strategies</td>
<td>One team of 3 members per chapter Using the middle school virtual guide, participants work in teams to develop a plan of action that addresses a specific challenging situation provided. <strong>Students will upload their URL of their video of them speaking into the judges system by 11:59 PM on 4/28/2021.</strong></td>
</tr>
<tr>
<td>A-23</td>
<td>Mass Production</td>
<td>One team of 2-8 members per chapter Using the middle school virtual guide, participants manufacture a marketable product related to the current year’s theme posted on the National website. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong> Semester “presentation/interview” will take place on Saturday of Technosphere via zoom, time to be announced.</td>
</tr>
<tr>
<td>A-24</td>
<td>Mechanical Engineering</td>
<td>Two teams of 3-6 members per chapter Using the middle school virtual guide, participants will demonstrate knowledge of mechanical engineering. See National themes and problems for the theme for this year. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong> Semester “presentation/interview” will take place on Saturday of Technosphere via zoom, time to be announced.</td>
</tr>
<tr>
<td>A-25</td>
<td>Medical Technology</td>
<td>One team per chapter 2-8 members per team Using the middle school virtual guide, participants choose a challenging contemporary issue related to medical technology and demonstrate understanding through research from reliable sources and effective presentation. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong> Semester “presentation/interview” will take place on Saturday of Technosphere via zoom, time to be announced.</td>
</tr>
<tr>
<td>A-26</td>
<td>Micro Controller Design</td>
<td>One team of 3-5 members per chapter Using the middle school virtual guide, participants develop a working digital device with real-world applications. Through a multimedia presentation, product demonstration and documentation, the team demonstrates in detail its knowledge of microcontroller programming, simple circuitry, product design and marketing. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong> Semester “presentation/interview” will take place on Saturday of Technosphere via zoom, time to be announced.</td>
</tr>
<tr>
<td>A-27</td>
<td>Off the Grid</td>
<td>Three teams of 4-6 members per chapter Using the middle school virtual guide, design a home for a family of five (5) in an economically developing country of your choice.</td>
</tr>
</tbody>
</table>
The house must be designed in an area that has no access to the power grid. The house must solve one other problem that is specific to that area that the house is being built other than no power grid access. See National rules for details. Students will upload their work into the judges system by 11:59 PM on 4/28/2021. Semifinal “presentation/interview” will take place on Saturday of Technosphere via zoom, time to be announced.

Using the middle school virtual guide, participants must develop a finite problem solution that includes a problem statement and specific criteria and constraints. Participants will utilize the technical design process to provide their solution to the problem given into the judges system. More information to come on this event.

Using the middle school virtual guide, participants create/design a three-part TSA Marketing Toolkit that must include items specified in the national Themes and Problems. Students will upload their work to the judges system by 11:59 PM on 4/23/21. Semifinal design challenge will take place on Friday evening of Technosphere at 7 PM.

Using the middle school virtual guide, participants use computer graphic tools and design processes to communicate, inform, analyze and/or illustrate a topic, idea, subject or concept. Students will upload an URL of their animation and all supporting documents into the judges system by 11:59 on 4/23/21. Semifinal presentation/interviews will take place on Friday or Saturday of Technosphere via zoom, time to be announced.

Using the middle school virtual guide, participants that qualified from fall and regionals will deliver an oral presentation that reflects the theme of the current conference. The theme for the 2021 conference is Together Towards Tomorrow. Students will upload an URL of their speech into the judges system by 11:59 on 4/21.

Using the middle school virtual guide, participants demonstrate their knowledge of TSA leadership skills and the systems of power grid access. The house must solve one other problem that is specific to that area that the house is being built other than no power grid. Students will be able to upload their work by 11:59 PM on 4/28/21.

Using the middle school virtual guide, participants will be given a design brief that includes a problem statement and specific criteria and constraints. Participants will utilize the technical design process to solve the problem. Students will upload their work into the judges system by 11:59 PM on 4/28/2021.

The 2021 competition will be VEX IQ Rise Above. See Page 33 below for full details. http://www.tsaweb.org/Vex-Robotics-
### Virginia TSA 2020 - 2021 Technosphere Events and Codes

#### MIDDLE SCHOOL PROGRAM

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<tr>
<td>A-37</td>
<td>Video Game Design</td>
<td>Using the middle school virtual guide, participants develop a game that focuses on the subject of their choice. The game should be interesting, exciting, visually appealing and intellectually challenging. Students will upload an URL of their animation and all supporting documents into the judges system by 11:59 on 4/23/21. Semifinal presentation/interviews will take place on Friday or Saturday of Technosphere via zoom, time to be announced.</td>
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</table>

| A-38 | Website Design         | Using the middle school virtual guide, participants design, build and launch a website that features the design problem found at the following link: [http://tsaweb.org/Themes-and-Problems](http://tsaweb.org/Themes-and-Problems). Students will upload an URL of their animation and all supporting documents into the judges system by 11:59 on 4/23/21. Semifinal interviews will take place on Friday or Saturday of Technosphere via zoom, time to be announced. |

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**NOTE (*)**: Only those students and/or teams finishing in the top three places at each Regional Fair may enter the same specific events at Technosphere, unless already qualified during the fall virtual events.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA competitive events. This information is found on the website under Competitions/Updates and Clarification. When students participate in any TSA competitive event, they are responsible for knowing of updates, changes, or clarification related to that event.

*Check the Virginia TSA Website for updated versions of the Addendum.*

#### Special Awards and Recognition Programs

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<thead>
<tr>
<th>Code</th>
<th>Award Name</th>
<th>Notes</th>
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<tbody>
<tr>
<td>C-1</td>
<td>Chapter Excellence (Middle)</td>
<td>Chapters may not receive this award two years in a row.</td>
</tr>
<tr>
<td>C-3</td>
<td>Community Service Award (Middle)</td>
<td>Virginia Only. One entry per chapter.</td>
</tr>
<tr>
<td>C-5</td>
<td>Member of the Year (Middle)</td>
<td>Virginia Only: One individual per chapter. State Officers are not eligible for this award.</td>
</tr>
<tr>
<td>C-7</td>
<td>Advisor of the Year (Middle)</td>
<td>Advisors may not receive this award two years in a row.</td>
</tr>
<tr>
<td>C-9</td>
<td>Century Award Virginia Only.</td>
<td>Chapters affiliating CAP, or 100+ members.</td>
</tr>
<tr>
<td>C-11</td>
<td>Commendation Award Virginia Only</td>
<td>All schools in division affiliated.</td>
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</tbody>
</table>

Note: Individuals, chapters and/or school divisions applying for recognition awards must submit the required paperwork on or before the postmark deadline for Technosphere registration. They must also register the award within the online registration system.
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<th>CODE</th>
<th>EVENT</th>
<th>TEAMS</th>
<th>NOTES</th>
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<tbody>
<tr>
<td>B-1</td>
<td>Animatronics</td>
<td>One team per chapter, 2-8 members per team</td>
<td>Using the high school virtual guide, participants will produce an animatronics device and display. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong> Semifinal interviews will take place on Friday evening or Saturday of Technosphere via zoom. <strong>Time to be announced.</strong></td>
</tr>
<tr>
<td>B-2</td>
<td>Architectural Design</td>
<td>One team per chapter 1-8 members per team</td>
<td>Using the high school virtual guide, participants develop a set of architectural plans and related materials. <strong>Design problem will be provided at</strong> <a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong> Semifinal interviews will take place on Friday evening or Saturday of Technosphere via zoom. <strong>Time to be announced.</strong></td>
</tr>
<tr>
<td>B-3</td>
<td>Biotechnology Design</td>
<td>One team per chapter 2-8 members per team</td>
<td>Using the high school virtual guide, participants select a contemporary biotechnology problem that relates to the current year's published area of focus. In 2021 the focus is <strong>Biotechnology in Medicine. Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong> Semifinal interviews will take place on Friday evening or Saturday of Technosphere via zoom. <strong>Time to be announced.</strong></td>
</tr>
<tr>
<td>B-4</td>
<td>Board Game Design</td>
<td></td>
<td>Using the high school virtual guide, Participants develop, build and package a board game that focuses on the subject of their choice that is intellectually challenging. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong> Semifinal demonstration/interviews will take place on Friday evening or Saturday of Technosphere via zoom. <strong>Time to be announced.</strong></td>
</tr>
<tr>
<td>B-5</td>
<td>Chapter Team</td>
<td>One team of 6 per chapter</td>
<td>Using the high school virtual guide, participants demonstrate an understanding of parliamentary procedure relative to business meetings. <strong>Testing will take place on 4/29/21 at 6 PM.</strong> <strong>Semifinalist will upload their meeting video, as an URL, to the judges system, time to be announced.</strong></td>
</tr>
<tr>
<td>B-6</td>
<td>Children’s Stories</td>
<td>One team per chapter 1-6 members per team</td>
<td>Using the high school virtual guide, a team creates a pop-up book that illustrates the story. The story should include the use of non-renewable energy resources. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong> Semifinal reading/interview will take place on Friday evening or Saturday morning of Technosphere via zoom. <strong>Time to be announced.</strong></td>
</tr>
<tr>
<td>B-7</td>
<td>Coding</td>
<td>Two teams of 2 individuals per chapter</td>
<td>Using the high school virtual guide, participants respond to an annual coding-related design challenge by developing a software program that will accurately address an onsite problem in a specified, limited amount of time. <strong>Students will compete in this event through the judges system on 4/30/21 at 7 PM.</strong></td>
</tr>
<tr>
<td>B-8</td>
<td>CAD- Architecture</td>
<td></td>
<td>Using the high school virtual guide, students must provide all equipment, software and supplies. The event time limit will be four (4) hours. <strong>Students will compete in this event through the judges system on 4/30/21 at 5 PM.</strong></td>
</tr>
<tr>
<td>B-9</td>
<td>CAD- Engineering</td>
<td></td>
<td>Using the high school virtual guide, students must provide all equipment, software and supplies. The event time limit will be four (4) hours. <strong>Students will compete in this event through the judges system on 4/30/21 at 5 PM.</strong></td>
</tr>
<tr>
<td>B-10 *</td>
<td>Computer Integrated Manufacturing (CIM)</td>
<td>Using the high school traditional guide, participants design, fabricate and use Computer Integrated Manufacturing (CIM) to create an original design and build a birdhouse. <strong>This event will go straight to semifinals due to the number of qualifiers from regionals. Students will upload their work from the Regional Fair and a video of 3 to 5 minutes doing the sales pitch/demonstration by 11:59 PM on 4/28/21.</strong></td>
<td></td>
</tr>
<tr>
<td>B-11</td>
<td>Cybersecurity</td>
<td>One team of 2-6 per chapter</td>
<td>Using the high school virtual guide, respond to a cybersecurity challenge by identifying a breach in computer security via “Capture the Flag” games. Participants will have a specific amount of time for the task. How this event is run will depend on the number of team entries.</td>
</tr>
<tr>
<td>B-12</td>
<td>Data Science and Analytics</td>
<td>One team of two members per chapter</td>
<td>Using the high school virtual guide, participants collect data, conduct an analysis of the data, and make a prediction about the outcome. <strong>Students will upload their multipage documentation portfolio and the scientific poster to the judges system by 11:59 PM on 4/28/21. Semifinals will take place on Friday evening or Saturday via zoom.</strong></td>
</tr>
<tr>
<td>B-13 *</td>
<td>Debating Technological Issues</td>
<td></td>
<td>Using the high school virtual guide, teams will be instructed to take the Pro or Con side of the selected subtopic. The theme for 2021 is posted at <a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>. Teams will compete in this event via zoom on Saturday of Technosphere. More information will go out to advisors closer to that date.</td>
</tr>
<tr>
<td>B-14 *</td>
<td>Digital Video Production</td>
<td></td>
<td>Using the high school virtual guide, participants develop a digital video/film that focuses on the given year’s theme. The theme for 2021 is <strong>An interview with your future self.</strong>. <strong>Students will upload their work to the judges system by 11:59 PM on 4/23/21. Semifinal interviews will take place on Friday evening of Technosphere via zoom. Time to be announced.</strong></td>
</tr>
<tr>
<td>B-15 *</td>
<td>DragsterDesign</td>
<td></td>
<td>Using the high school traditional guide, judging will not include an interview of semi-finalists. <strong>Dragsters not meeting building tolerances specified in the Total TSA Guide shall be disqualified and will NOT be raced. Cars will be dropped off or mailed to a location to be determined.</strong></td>
</tr>
<tr>
<td>B-16</td>
<td>Engineering Design</td>
<td>One team of 3 to 5 students per chapter</td>
<td>Using the high school traditional guide, participants work as part of a team to develop a solution to the design challenge which is to identify a need in a developing country, and design a project that will enable that community to fulfill that need (for ideas, check out: Engineers Without Borders and other similar organizations that are helping people build better, safer communities). <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021. Semifinal interviews will take place on Friday evening or Saturday of Technosphere via zoom. Time to be announced.</strong></td>
</tr>
<tr>
<td>B-17 *</td>
<td>Essays on Technology</td>
<td></td>
<td>Using the high school virtual guide, participants will write a synthesis essay to make insightful connections based on a current technological topic. Participants will be provided with a prompt and a series of two (2) or more articles on a current technological topic. <strong>Students will compete in this event through the judges system on 4/30/21 at 5 PM.</strong></td>
</tr>
<tr>
<td>B-18 *</td>
<td>Extemporaneous Speech</td>
<td></td>
<td>Using the high school virtual guide, participants give a three to five-minute speech. See national guidelines. <strong>Students will compete in this event through the judges system on 5/1/21 at 10 AM. Prompt will be there and they will upload an URL of their speech in the time allowed.</strong></td>
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<tr>
<td>Code</td>
<td>Program</td>
<td>Qualifications</td>
<td>Description</td>
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<tr>
<td>B-19</td>
<td>Fashion Design</td>
<td>One team of 2 to 4 members per chapter</td>
<td>Using the high school virtual guide, participants research, design and create a portfolio and wearable prototypes based on the theme for the year. The theme for 2021 is posted at <a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>. Students will upload their work into the judges system by 11:59 PM on 4/28/2021. Semifinal interviews will take place on Friday evening or Saturday of Technosphere via zoom. Time to be announced.</td>
</tr>
<tr>
<td>B-20 *</td>
<td>Flight Endurance</td>
<td></td>
<td>Using the high school traditional guide, participants analyze flight principles with a rubber band powered model aircraft. Students build and test their aircraft before the event date. More information will be coming to advisors who had students qualify from regionals in this event.</td>
</tr>
<tr>
<td>B-21</td>
<td>Forensic Science</td>
<td>One team of 2 members from each chapter</td>
<td>Using the high school virtual guide, participants will take a written test. Semifinalists will examine a mock crime scene and demonstrate their knowledge of forensic science. Testing will take place on 4/29/21 at 6 PM. Semifinalist will upload their forensic evidence challenge to the judges system at a time to be announced on Saturday of Technosphere.</td>
</tr>
<tr>
<td>B-22</td>
<td>Future Technology Teacher</td>
<td>Three individuals per chapter</td>
<td>Using the high school virtual guide, participants create a screencast webinar that teachers can reference to learn a new technology that can be used in a lesson. Semifinalists demonstrate mastery of the technological app in a mock lesson and presentation. Students will upload their work into the judges system by 11:59 PM on 4/28/2021. Semifinalist lesson plan videos will be due on Friday evening of Technosphere via zoom. Time to be announced.</td>
</tr>
<tr>
<td>B-23</td>
<td>Geospatial Technology</td>
<td>Two teams per chapter. Maximum of 5 members per team.</td>
<td>Using the high school virtual guide, participants interpret geospatial data in multiple formats and formulate projections about the area of interest in response to the annual theme. The theme for 2021 is posted at <a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>. Students will upload their work into the judges system by 11:59 PM on 4/28/2021. Semifinal interviews will take place on Friday evening or Saturday of Technosphere via zoom. Time to be announced.</td>
</tr>
<tr>
<td>B-24</td>
<td>IT Fundamentals</td>
<td>Two individuals per chapter</td>
<td>Using the high school virtual guide, demonstrate understanding of and expertise in basic informational technology concepts by taking an online exam. Testing will take place on 4/29/21 at 6 PM.</td>
</tr>
<tr>
<td>B-25 *</td>
<td>Music Production</td>
<td></td>
<td>Using the high school virtual guide, participants produce an original musical piece that is designed to be played during the national TSA conference opening or closing general session. Students will upload their work to the judges system by 11:59 PM on 4/23/21. Semifinal interview will take place on Friday evening of Technosphere via zoom. Time to be announced.</td>
</tr>
<tr>
<td>B-26</td>
<td>On Demand Video</td>
<td>One team of 2-12 members per chapter</td>
<td>Using the high school virtual guide, participants write, shoot, and edit a sixty (60) second video during the conference. Participants have 36 hours to complete the entire video. Students will be able to go into the judges system on 4/30/21 at 6 AM to see the prompt. The team video, as an URL, will be then need to be uploaded into the judges system by 6 PM on 5/1/21.</td>
</tr>
<tr>
<td>B-27*</td>
<td>Photographic Technology</td>
<td></td>
<td>Using the high school virtual guide, participants capture images and process photographic and digital prints that depict the current year’s theme. The theme for 2021 is posted at <a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>. Students will upload into the judges system by 11:59 on 4/23/21. Semifinalist problem will take place on Saturday of Technosphere. Time to be announced.</td>
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<tr>
<td>Code</td>
<td>Event Description</td>
<td>Details</td>
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<tr>
<td>B-28*</td>
<td>Prepared Presentation</td>
<td>Using the high school virtual guide, participants deliver an oral</td>
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<td>presentation, using a digital slide deck, on a topic that will be</td>
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<td>posted on the judges system 24 hours before it is due. <strong>Students will upload their presentation to the judges system at 3 PM on Saturday 5/1/21.</strong></td>
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<tr>
<td>B-29</td>
<td>Principles of Technology (Virginia Only)</td>
<td>Teams that register by the Technosphere deadline will receive</td>
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<td>detailed information about how this event will happen.</td>
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<tr>
<td>B-30*</td>
<td>Promotional Design</td>
<td>Using the high school virtual guide, participants use computerized</td>
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<td>graphic communication layout and design skills in the production of</td>
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<td>a promotional resource for TSA. The theme for 2021 is posted at</td>
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<td><a href="http://tsaweb.org/Themes-and-Problems">http://tsaweb.org/Themes-and-Problems</a>. <strong>Students will upload into the judges system by 11:59 on 4/23/21. Semifinalist design challenge will take place on Friday evening of Technosphere. Time to be announced.</strong></td>
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<tr>
<td>B-31</td>
<td>SciVis</td>
<td>Using the high school virtual guide, participants use 2D or 3D</td>
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<td>computer graphic tools and design processes to communicate, inform,</td>
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<td>analyze and/or illustrate a STEM topic, idea subject or concept.</td>
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<td><strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021. Semifinalist interviews will take place on Friday evening or Saturday of Technosphere via zoom. Time to be announced.</strong></td>
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</tr>
<tr>
<td>B-32</td>
<td>Software Development</td>
<td>Using the high school virtual guide, participants use knowledge of</td>
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<td>cutting-edge technologies, algorithm design, problem-solving</td>
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<td>principles, effective communication and collaborative teamwork to</td>
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<td>design, implement, test, and document a software development project</td>
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<td>of educational or social value. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong></td>
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</tr>
<tr>
<td>B-33</td>
<td>STEM Careers (Virginia Only)</td>
<td>See Page 37. <strong>Students will upload their work into the judges system by 11:59 PM on 4/28/2021.</strong></td>
<td></td>
</tr>
<tr>
<td>B-34*</td>
<td>Structural Engineering and Design</td>
<td>Using the high school traditional guide, those teams that qualified</td>
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<td>at fall and regionals will build their structure and mail or drop off</td>
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<td>to an address that will be emailed to advisors having members in this</td>
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<td>event. <strong>Due date will be April 27, 2021.</strong></td>
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</tr>
<tr>
<td>B-35*</td>
<td>SystemControl Technology</td>
<td>Using the high school traditional guide, participants work as part of</td>
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<td>a team on site to develop a computer-controlled model solution to a</td>
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<td>problem. <strong>Students will be able to upload their work by 11:59 PM on 4/28/21.</strong></td>
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</tr>
<tr>
<td>B-36</td>
<td>TechnologyBowl</td>
<td>Using the high school virtual guide, each team member must take the</td>
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<td>test. Finalists will compete in an oral question round of 16 teams.</td>
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<td><strong>Testing will take place on 4/29/21 at 6 PM. Semifinals will be a Kahoot Team event.</strong></td>
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</tr>
<tr>
<td>B-37</td>
<td>Technology Problem Solving</td>
<td>Using the high school traditional guide, participants work together</td>
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<td>to develop and create a solution to a problem using limited materials.</td>
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<td>Teams must provide their own tools as specified. There is not a</td>
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<td>semifinalist interview portion of this event. Students will upload a</td>
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<td>video of their solution to the problem given into the judges system.</td>
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<td>More information to come on this event.</td>
<td></td>
</tr>
</tbody>
</table>

27
**Transportation Modeling**

Using the high school virtual guide, participants use engineering skills to design and fabricate a scale model. The theme for 2021 is posted at [http://tsaweb.org/Themes-and-Problems](http://tsaweb.org/Themes-and-Problems). **Students will upload their work into the judges system by 11:59 PM on 4/28/2021.** Semi-final interviews will take place on Friday evening or Saturday of Technosphere via zoom. Time to be announced.

**VEX Robotics**

Four teams per chapter, 2-6 members per team. VEX competition format on Page 35 [http://www.roboticseducation.org/vex-robotics-competition/](http://www.roboticseducation.org/vex-robotics-competition/)

**Video Game Design**

Using the high school virtual guide, participants develop a game that focuses on the posted theme posted on the National website. The game should be interesting, exciting, visually appealing, and intellectually challenging, with high artistic, educational, and social value. **Students will upload their work to the judges system by 11:59 PM on 4/23/21.** Semi-final interview will take place on Friday evening of Technosphere via zoom. Time to be announced.

**Webmaster**

One entry per chapter, 3-5 members per team. Using the high school virtual guide, participants design a website that follows the design brief found at the following Link: [http://tsaweb.org/Themes-and-Problems](http://tsaweb.org/Themes-and-Problems) **Students will upload their work to the judges system by 11:59 PM on 4/23/21.** Semi-final interview will take place on Friday evening of Technosphere via zoom. Time to be announced.

**NOTE (*): Only those students and/or teams finishing in the top three places at each Regional Fair may enter the same specific events at Technosphere, unless already qualified during the fall virtual events.**

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA competitive events. This information is found on the website under Competitions/Updates and Clarification. When students participate in any TSA competitive event, they are responsible for knowing of updates, changes, or clarification related to that event.

*Check the Virginia TSA Website for updated versions of the Addendum.*

**Special Awards and Recognition Programs**

<table>
<thead>
<tr>
<th>Code</th>
<th>Award Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-2</td>
<td>Chapter Excellence (High)</td>
<td>Chapters may not receive this award two years in a row.</td>
</tr>
<tr>
<td>C-4</td>
<td>Community Service Award (High)</td>
<td>Virginia Only: One entry per chapter</td>
</tr>
<tr>
<td>C-6</td>
<td>Member of the Year (High)</td>
<td>Virginia Only. One individual per chapter. State Officers are not eligible for this award.</td>
</tr>
<tr>
<td>C-8</td>
<td>Advisor of the Year (High)</td>
<td>Advisors may not receive this award two years in a row.</td>
</tr>
<tr>
<td>C-10</td>
<td>Century Award Virginia Only.</td>
<td>Chapters affiliating CAP, or 100+ members.</td>
</tr>
<tr>
<td>C-12</td>
<td>Commendation Award Virginia Only</td>
<td>All schools in division affiliated.</td>
</tr>
</tbody>
</table>

**Note:** Individuals, chapters and/or school divisions applying for recognition awards must submit the required paperwork on or before the postmark deadline for Technosphere registration. They must also register the award within the online registration system.
Geospatial Technology
(Virginia Middle Schools ONLY Special Event)

OVERVIEW
Participants develop a portfolio containing maps, data, and appropriate documentation, then work to solve an on-site problem that demonstrates their abilities to use geospatial data to develop solutions to environmental and social issues, and present the solutions.

PURPOSE
Participants are encouraged to explore and gain an understanding of how geospatial data and related technology are used to prepare a profile of a geographic area of interest and solve a problem in a spatial context. They demonstrate an understanding of geospatial technology software, data acquisition and its use in developing solutions.

ELIGIBILITY
Participants are limited to one team of 2-5 members per chapter.

TIME LIMITS
A. Entries must be started and completed during the current school year.
B. Participants have a thirty (30) minute set-up time before the event.
C. Participants have two and one-half (2) hours to complete the on-site problem.
D. Teams will sign up to present their solutions to the judges.

ATTIRE
Business Casual dress as described in Competitive Events Attire is the minimum requirement.

PROCEDURE
A. Participants check in their entries at the time and place stated in the conference program.
B. Entries are reviewed by evaluators.
C. Participants report to the event area at the time and place stated in the conference program for the on-site component.
D. Participants are allowed thirty (30) minutes to set up before the event.
E. Participants are provided with the problem and are allowed two hours to complete their entry.
F. A presentation file of the solution is saved as a PDF.
G. All winning entries, digital and hard copy, become the property of TSA, Inc.
H. Participants pick up their entries from the display area at the time and place stated in the conference program.

REGULATIONS
A. Participants supply their own computer work station with USB drive, power strip/surge protector, and software. A laptop computer is recommended. Anyone who does not provide these items will not be allowed to compete in the on-site event.
B. The portfolio items [Maps, data and documents] must follow these guidelines:
   1. The portfolio items are developed in color on white 8½” x 11” paper.
   2. All items should be put in clear sheet protectors and placed in the portfolio. Items may be removed and examined by evaluators. Additional items may not be included.
   3. The notebook items must incorporate the selected theme. The content of the notebook items must be appropriate for viewing at the Virginia TSA conference. The title page with the event title, the title of the project and, the conference city, state, and the year; one (1) page. The Table of contents, provides location of documents and maps.
   4. Maps, data and documents need to be collected abiding by the parameters listed below. All material must be written to a flash drive and included in the notebook. The name of the software used must be included,
1. Documents – Printed and files on flash drive.
   a. Data dictionary for the below GIS files is required. The data dictionary should be an excel spreadsheet that includes, data, provider, and availability of metadata (yes or no). See example below.

   b. Map Analysis – A document should accompany each map with an explanation of the map and methods used to create the map.
   c. Explanation of the solution and how it was developed.

2. Files on flash drive
   a. Maps can either be exported as jpeg from the GIS software or the file structure can be setup so that the judges can open the project. Maps must be student generated with all appropriate map parts.
   b. Documents that explain the project and maps.
   c. CD File Structure.
      A folder for each category.
      Subfolders for data, imagery and documents.

3. Data types
   • Location map of your project in relationship to state
   • Elevations
   • Watershed identification (regional to local)
   • Demographics and its effect on land use within the area
   • Location factors that impact the issue presented
   • Any local unusual geographic attributes, i.e. karsts, caves, lakes
   • Slope and aspect

4. The portfolio is identified using only the participant’s conference identification number.

D. All on-site work is developed, saved as a PDF file on an external drive (USB flash drive) and submitted using only the team’s conference identification number.
E. On-site solutions will be presented as a PowerPoint presentation and on-site teams will be interviewed by evaluators for approximately five (5) minutes.
F. Participants leave the event room only with permission from the event coordinator.
G. The on-site project should be saved and submitted when a team completes work and/or when time elapses. Teams that finish before the time limit must leave their computer(s) in place if leaving the room. Participants remove their equipment only when all semi-finalists have completed their interviews.

H. All entries become the property of TSA, Inc. and will not be returned after judging.

EVALUATION
Evaluation is based on interpretation of the pre-conference design brief, the execution of a thorough, relevant, and understandable solution/presentation, submission of requested materials, solution for the on-site problem, and on-site interview.

STEM INTEGRATION
This event has connections to the STEM standards noted below. Please refer to the STEM integration section of this guide.
Science, Technology, Engineering, Mathematics
PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

• COMMUNICATION — Students will organize and produce a well-written notebook
• CREATIVE THINKING — Students visualize an issue to develop problem solutions
• PROBLEM SOLVING – Students identify and acquire data needed to develop solutions.
• EVALUATION — Students review and critique work throughout the development of the project.

Suggested leadership lessons: Evaluation Imagination and Seven Components Of Effective Evaluation

Additional leadership skills promoted in this event: DECISION MAKING, EVALUATION, organization, teamwork

TSA AND CAREERS

This competition has connections to one or more of the career areas featured in the TSA AND CAREERS section of this guide. Use The 16 Career Clusters chart and the TSA Competitions and Career Clusters grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Programming and Software Development
Logistics Planning and Management Services
Transportation Systems/Infrastructure Planning, Management

Geospatial Technology Design Brief 2020-21

Scenario: Lower elevation areas of Virginia are at high risk from storms such as Hurricane Dorian. There is potential for wind damage to infrastructure and buildings, as well as flooding and storm surge. There is interruption of transportation systems as well as evacuation or shelter issues.

Problem: Choose a low elevation area of Virginia, gather information about infrastructure such as utilities, transportation, elevation, water sources, flood zones, buildings, and potential shelters. Analyze data through layers and make recommendations for those who evacuate and those who choose not to. Describe what actions should be taken by both groups in preparation for the storm. Give explanations for your recommendations.
Principles of Technology Challenge
(Virginia ONLY Special Event)

Overview: The Principles of Technology Challenge is a team event in which students demonstrate their knowledge of physics, technology, and mathematics. The problems used in the competition stem from the principles and concepts embedded in Principles of Technology I and II (9811 and 9812). Each team of students will work as a group to solve a series of problems.

Purpose: The purpose of the contest is to recognize high school students who have studied the Principles of Technology courses and are able to apply their knowledge to real world mechanical, electrical, thermal, and fluidics problems.

Eligibility: Entries are limited to one (1) team per TSA chapter. The team must consist of two (2) to five (5) chapter members.

Time Limits: Each team will have two (2) hours to complete the event.

Procedure: A) Participants must register for the event in accordance with procedures established for Technosphere. B) Participants must check in at the time specified in the conference program. C) The team members take the written test together and provide one answer sheet. D) After completing the written test, each team will be given a series of problems to solve.

Equipment: Each team must provide the following items of equipment for the onsite problem:

a. Hand held calculator with no programs installed (may be 4 function scientific or graphing) 
b. Spring scales 
c. Protractors 
d. Principles of Technology student resource guide or any locally approved high school physics textbook 
e. Weight sets 
f. Lead sets 
g. Power supplies 
h. Digital multimeter 
i. Specific heat unknown samples 
j. Thermometers 
k. Graduated cylinders

Regulations: Each team will work independently without assistance from evaluators, teachers, or observers.

A) Each team will be assigned a work station prior to the event. B) Participants will not be permitted to leave the event room during the event.

Evaluation: Each team’s written test score and score for the solution of the problem will be averaged to determine the final score.
Middle School VEX IQ Challenge – Rise Above

Challenge Availability

- Challenge Opens: 12:01 AM Saturday, April 24
- Challenge Closes: 11:59 PM Tuesday, April 27

Team Requirements

- Maximum teams per Chapter: 4
- Students per team: 2 to 6
- One and only one student per Team must be designated as Team Captain
- Each Team must be registered with the REC Foundation on RobotEvents.com as a TSA VEX VIQC team and must register for the event on Robot Events as well as through the TSA Technosphere registration portal.
- LEAP resumes and Engineering Notebooks are not required and will not be accepted/reviewed (note that National TSA may have different guidelines/requirements)

Challenge Format

The 2021 TSA Technosphere VEX Challenge will be a pre-recorded, remote, skills-only event. In addition to the robot itself, the Teams will also need access to a full VEX IQ field with the Rise Above game elements on which to perform their skills runs (note that the field is now 6’ x 8’ in size this year). No judged awards will be presented. Teams will be ranked solely according to their Robot Skills scores submitted during the event.

Please consult the official RECF/VEX Rise Above Game Manual for all robot requirements and game rules. The Virginia TSA Challenge will be run virtually according to the “Skills-Only Event: Remote, Pre-Recorded” rules/guidelines found in the official game manual. Note that there are differences between skills events (especially with regards to field setup and allowed student interactions with the robot), so make sure to follow the “Robot Skills Challenge Rules” in the official game manual. Videos must be recorded, uploaded and submitted within the open period of the event.

The team will create/show a single video without any “cuts” or edits, in the following order:

1. Robot Inspection is done by the Team, showing on video, the inspection sheet signed and completed. Measurements must be done using a measuring device such as a Robot Sizing Tool or tape measure.
2. The Team says the random code or passphrase that they were provided on the TSA Student Submission Portal out loud on video while displaying the code visibly on a paper or whiteboard. The code/passphrase will be available in the TSA Student Submission Portal to students registered on the Team during the event’s open period.
3. Teams pair the Controller to the Robot. Video must show both the remote front and robot brain clearly in the frame being turned on and linking to each other.
4. The Team shows on video a closeup view of the Starting Position to provide video evidence that the Robot is in a legal starting position.
5. The Team says out loud and displays on paper or whiteboard if they are attempting a Programming Skills Match or Driving Skills Match.
6. The Team starts a Match when the clock begins.
7. After the Match, the Team must move the camera to each of the Goals saying out loud what counts as scored and records that onto a paper official referee scoresheet. The scoresheet should include the team number and whether the run is a “Driver” or “Programming” run.
8. The scoresheet is then shown clearly on video for a minimum of 10 seconds. While the scoresheet is being recorded, Teams can reset the field for the next Match.
9. The Team can then repeat steps 3-8 for their remaining allotment of Matches (maximum of 3 Programming Skills Matches and 3 Driving Skills Matches), one after another on the same video recording without stopping, cutting or editing the video.
10. After the scoresheet for the last run is shown for 10 seconds, the video recording can now be stopped.

After recording, the Team Captain will post the video (without any cuts or edits) to a publicly accessible platform such as YouTube. The video must be completely accessible by the public without need to login to any site or provide a password of any type. Once the video has been created and posted/uploaded, the team captain will submit the URL through the TSA Student Submission Portal. The upload of the video and the URL submission must be completed prior to the event closing time, so Teams should make sure to leave enough time to upload the video and submit the URL. No late entries will be accepted.

**TSA National Conference Qualification**

The top three Teams will qualify for the TSA National Conference. However, no more than two teams from a single chapter may qualify for the National Conference, so in the event that all three top ranked teams are from one chapter, the next highest ranked team from a different chapter will qualify for the National Conference. Advancement to the National TSA Conference is subject to all National TSA rules and advancement guidelines.

**Resources**

- RobotEvents Event Signup Link  

- Official RECF/VEX Rise Above Game Manual  

- RECF/VEX VEX IQ Robot Inspection Checklist  

- RECF/VEX VEX IQ Rise Above Official Referee Score Sheets  
High School VEX VRC Challenge – Change Up

Challenge Availability

- Challenge Opens: 12:01 AM Saturday, April 24
- Challenge Closes: 11:59 PM Tuesday, April 27

Team Requirements

- Maximum teams per Chapter: 4
- Students per team: 2 to 6
- One and only one student per Team must be designated as Team Captain
- Each Team must be registered with the REC Foundation on RobotEvents.com as a TSA VEX VRC team and must register for the event on Robot Events as well as through the TSA Technosphere registration portal.
- LEAP resumes and Engineering Notebooks are not required and will not be accepted/reviewed (note that National TSA may have different guidelines/requirements)

Challenge Format

The 2021 TSA Technosphere VEX Challenge will be a pre-recorded, remote, skills-only event. In addition to the robot itself, the Teams will also need access to a full VEX VRC field with the Change Up game elements on which to perform their skills runs. No judged awards will be presented. Teams will be ranked solely according to their Robot Skills scores submitted during the event.

Please consult the official RECF/VEX Change Up Game Manual (including Appendix B) for all robot requirements and game rules. The Virginia TSA Challenge will be run virtually according to the “Skills-Only Event: Remote, Pre-Recorded” rules/guidelines found in Appendix B of the official game manual. Note that there are differences between skills events (especially with regards to field setup), so make sure to follow the “Robot Skills Challenge Rules” in the official game manual. Videos must be recorded, uploaded and submitted within the open period of the event.

The team will create/show a single video without any “cuts” or edits, in the following order:

11. Robot Inspection is done by the Team, showing on video, the inspection sheet signed and completed. Measurements must be done using a measuring device such as a Robot Sizing Tool or tape measure.
12. The Team says the random code or passphrase that they were provided on the TSA Student Submission Portal out loud on video while displaying the code visibly on a paper or whiteboard. The code/passphrase will be available in the TSA Student Submission Portal to students registered on the Team during the event’s open period.
13. Teams pair the Controller to the Robot. Video must show both the remote front and robot brain clearly in the frame being turned on and linking to each other.
14. The Team shows on video a closeup view of the Starting Position to provide video evidence that the Robot is in a legal starting position.
15. The Team says out loud and displays on paper or whiteboard if they are attempting a Programming Skills Match or Driving Skills Match.
16. The Team starts a Match when the clock begins.
17. After the Match, the Team must move the camera to each of the Goals saying out loud what counts as scored and records that onto a paper official referee scoresheet. The scoresheet should include the team number and whether the run is a “Driver” or “Programming” run.
18. The scoresheet is then shown clearly on video for a minimum of 10 seconds. While the scoresheet is being recorded, Teams can reset the field for the next Match.
19. The Team can then repeat steps 3-8 for their remaining allotment of Matches (maximum of 3 Programming Skills Matches and 3 Driving Skills Matches), one after another on the same video recording without stopping, cutting or editing the video.
20. After the scoresheet for the last run is shown for 10 seconds, the video recording can now be stopped.

After recording, the Team Captain will post the video (without any cuts or edits) to a publicly accessible platform such as YouTube. The video must be completely accessible by the public without need to login to any site or provide a password of any type. Once the video has been created and posted/uploaded, the Team Captain will submit the URL through the TSA Student Submission Portal. The upload of the video and the URL submission must be completed prior to the event closing time, so Teams should make sure to leave enough time to upload the video and submit the URL. No late entries will be accepted.

**TSA National Conference Qualification**

The top three Teams will qualify for the TSA National Conference. However, no more than two teams from a single chapter may qualify for the National Conference, so in the event that all three top ranked teams are from one chapter, the next highest ranked team from a different chapter will qualify for the National Conference. Advancement to the National TSA Conference is subject to all National TSA rules and advancement guidelines.

**Resources**

- RobotEvents Event Signup Link

- Official RECF/VEX Change Up Game Manual

- Appendix B (Robot Skills Challenge) of the Official RECF/VEX Change Up Game Manual
  [https://content.vexrobotics.com/docs/vrc-change-up/Appendix-B-Print-12012020.pdf](https://content.vexrobotics.com/docs/vrc-change-up/Appendix-B-Print-12012020.pdf)

- RECF/VEX VRC Robot Inspection Checklist

- RECF/VEX VEX VRC Change Up Official Referee Score Sheets
  [https://www.roboticseducation.org/documents/2019/05/vrc-scoresheet.pdf](https://www.roboticseducation.org/documents/2019/05/vrc-scoresheet.pdf)
**STEM Careers High School:**

In this event, a student will complete a thorough investigation of the many types of engineering and what an internship would look like in that particular career. The student will then take that particular career in a specific field of engineering, and research and document that. They will then make a video describing their documentation, making reference to STEM skills that they would need for this career.

**Regulations**

1. Title Page with career and what part of engineering in falls under.
2. Table of contents
3. Description of a STEM-related job shadow/internship experience and what the outcome of the experience would look like, including STEM skills; three (3) single-sided pages
4. Description of research about the STEM skills selected and developed, and the related STEM career pathway; two (2) single-sided pages
5. Skill demonstration video. The video will be no more than 3 minutes in length.

**Evaluation**

Evaluation will be based on the participant’s documentation and video.

The Engineering fields in which careers can be chosen are:

1. Aerospace Engineering
2. Biomedical Engineering
3. Chemical Engineering
4. Civil Engineering
5. Electrical Engineering
6. Mechanical Engineering

The event will be due by **April 28, 2021** to the judges system.
Special Awards and Recognition

Virginia TSA provides recognition for Middle and High School competition in the following events. Applications for these awards can be found on the Virginia TSA website under Forms & Publications.

C - 1 and C - 2
Chapter Excellence: Virginia TSA uses the national criteria and recognizes three outstanding Middle School Level TSA Chapters and three outstanding High School Level TSA Chapters at Technosphere each year. Chapters may not receive this award two (2) years in a row.

C - 3 and C - 4
Community Service: Virginia TSA recognizes three Middle School Level TSA Chapters and three High School Level TSA Chapters at Technosphere each year.

C - 5 and C - 6
Member of the Year: Virginia TSA recognizes three outstanding Middle School Level TSA students and three outstanding High School Level TSA students at Technosphere each year. State officers are not eligible for this award.

C - 7 and C - 8
Advisor of the Year: Virginia TSA uses the national criteria and recognizes three advisors from Middle School Level and High School Level TSA Chapters at Technosphere each year. Advisors may not receive this award two (2) years in a row.

C - 9 and C - 10
Century Award: Virginia TSA recognizes outstanding Middle School Level TSA Chapters and High School Level TSA Chapters that affiliate 100 or more students.

C - 11 and C - 12
Commendation Award: Virginia TSA recognizes outstanding school divisions that affiliate all secondary school technology education programs with the Technology Student Association at Technosphere each year.
Virginia TSA Chapter Excellence Award Application

(All Applications Must be Postmarked by the Technosphere Registration Deadline and Registered online in the Registration System)

School Name: ________________________________

School Address: ________________________________

School Phone Number: ________________________________

TSA Advisor: ________________________________

TSA Advisor’s E-mail Address: ________________________________

General Information

Number of members in chapter: __________

Number of students in technology education courses: __________

Number of years the chapter has been affiliated with TSA: __________

Please type all answers to the following questions on a separate sheet and attach to application.

Chapter Involvement

1. How often does your chapter meet?
2. How are your chapters scholastic and educational activities incorporated into daily technology education curriculum?
3. Please list the number of students that attended the National TSA Conference the last 3 years, including the competitive events entered and awards and recognition earned.
4. List your chapter’s activities that deal with inter-chapter participation.

Chapter Fund Raising Projects

1. List your chapters fund raising projects and note the purpose for raising the money. If chapter is not allowed to participate in fund raising, please list how monies are raised.

Leadership Activities

1. If your chapter has been involved in leadership activities not previously mentioned, discuss each activity.
2. What is your chapters’ involvement with TSA alumni?

________________________________________  ____________________________________
Chapter President’s Signature               Chapter Advisor’s Signature
<table>
<thead>
<tr>
<th>ENTRANT'S ID</th>
<th></th>
</tr>
</thead>
</table>

### JUDGING CRITERIA

<table>
<thead>
<tr>
<th>Category</th>
<th>Points Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvements</td>
<td>40</td>
</tr>
<tr>
<td>Fund-Raising</td>
<td>10</td>
</tr>
<tr>
<td>Leadership Activities</td>
<td>20</td>
</tr>
<tr>
<td>Resume</td>
<td>30</td>
</tr>
</tbody>
</table>

- **Resume**
  - Organization of facts in an orderly manner (16 points)
  - Neatness (8 points)
  - Appropriate information (6 points)

| Total                              | 100         |

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

_Judge's Signature_
Virginia TSA Community Service Award Application

(All Applications Must be Postmarked by the Technosphere Registration Deadline and Registered online in the Registration System)

School Name: ________________________________

School Address: ________________________________

School Phone Number: __________________________

TSA Advisor: ________________________________

TSA Advisor’s E-mail Address: __________________________

List all Community Service Activities that your chapter has participated in during the current school year. Include the specific date of each event.

Event: Date:

1) ________________________________ ____________

2) ________________________________ ____________

3) ________________________________ ____________

4) ________________________________ ____________

5) ________________________________ ____________

6) ________________________________ ____________

7) ________________________________ ____________

8) ________________________________ ____________

9) ________________________________ ____________

Total hours spent working on Community Service activities: ____________

On a separate sheet (maximum 3 pages), provide a typed description of each Community Service activity that is listed above.

Chapter President’s Signature ____________________________ Chapter Advisor’s Signature ____________________________
Virginia TSA Member of the Year Application

Applicants must be enrolled in a Technology Education course and/or have completed a middle or high school Technology Education course plus be a Virginia TSA member.

(All Applications Must be Postmarked by the Technosphere Registration Deadline and Registered online in the Registration System)

(State officers are not eligible for this award.)

Member’s Name: ________________________________

Member’s School Name: ________________________________

School’s Address: ________________________________

School’s Phone: ________________________________

Current Year in School and GPA: ________________________________

List the name of each Technology Education course & state course code number that you have been enrolled in at the middle and/or high school level:

1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________

Number of years in TSA: ________________________________

Awards won, offices held, and other accomplishments within TSA:

1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________

Awards won, offices held, extracurricular activities, and other accomplishments outside of TSA:

1. __________________________________________
2. __________________________________________
3. __________________________________________
4. __________________________________________
5. __________________________________________
Virginia TSA Member of the Year Application

Applicants must be enrolled in a Technology Education course and/or have completed a middle or high school Technology Education course plus be a Virginia TSA member.

(All Applications Must be Postmarked by the Technosphere Registration Deadline and Registered online in the Registration System)

(State officers are not eligible for this award.)

In a brief type written essay (maximum 2 pages), please explain why this student deserves the award.

........................................................................................................................................................................

Nominator Information:
Member must be nominated by a Virginia TSA chapter advisor. State officers are not eligible for this award.

Nominated by: ____________________________________________________________

School Name: ____________________________________________________________

School Address: __________________________________________________________

Nominator’s Email Address: _______________________________________________

Nominator’s Phone number: _______________________________________________

Signature of Nominator: _________________________________________________
C-7 or C-8

**Advisor of the Year**

1. Cover sheets and additional materials are not accepted.
2. The Nominated Advisor must be nominated by two (2) chapter Advisors.
3. Only one (1) application is needed but it must be signed by the two (2) nominating chapter Advisors.
4. Include information from the last three (3) years only.
5. Advisors may not receive this award two (2) years in a row.

**Nominating Advisors Information**

Name: ____________________________

School: __________________________

Principal’s Name:

School Address:

City/State/Zip: ____________________

Phone: ____________________________ Numbers of years teaching: __________

Name: ____________________________

School: __________________________

Principal’s Name:

School Address: ____________________

City/State/Zip: ____________________

Phone: ____________________________

Numbers of years teaching: __________

**Nominated Advisor Information**

Name: ____________________________

School: __________________________

Principal’s Name:

School Address:

City/State/Zip: ____________________

Phone: ____________________________ Numbers of years teaching: __________

Technology Education courses currently teaching:

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
Promoting TSA

1. When does the TSA Chapter meet?

2. Fill in the table showing the number of students the advisor has taught and advised during the past three years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of students enrolled in classes</th>
<th>Number of TSA Members</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

3. Indicate the number of officer candidates that the advisor has sponsored for positions beyond the chapter level.

   Regional  State  National

4. List the calendar years in which the advisor has attended any state or nationally sponsored conferences during the last three years.

   State
   
   National

5. List any publicity, such as radio, television, and newspaper coverage, that the chapter has received.

   __________________________________________
   __________________________________________
   __________________________________________

Chapter Accomplishments

1. List any major chapter projects that the chapter has completed over the last three years.

   __________________________________________
   __________________________________________
   __________________________________________
Facilitation Skills

1. Describe how students are introduced to the Technology Student Association in the technology program.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. List forms of recognition offered to chapter members.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Leadership Skills

1. Describe the advisors participation in TSA at the regional level.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. Describe the advisors participation in TSA at the state level.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3. Describe the advisors participation in TSA at the national level.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
4. List other organizations and activities in which the advisor is involved.

I certify that the claim and information reported on behalf of the advisor are true and accurate.

Nominating Advisor: ____________________________ Date: ________________ 2nd

Nominating Advisor: ____________________________ Date: __________
# ADVISOR OF THE YEAR

JUDGE'S OFFICIAL RATING SHEET  
Middle School/LEVEL I or High School/Level II (Circle one)

<table>
<thead>
<tr>
<th>ENTRANT'S ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>JUDGING CRITERIA</td>
</tr>
<tr>
<td><strong>Promoting TSA</strong>………………. 15 point max.</td>
</tr>
<tr>
<td>Number of officer candidates advisor has sponsored (5 point)</td>
</tr>
<tr>
<td>Number of years advisor has attended state/national conference (5 point)</td>
</tr>
<tr>
<td>Publicity that the chapter has received (5 point)</td>
</tr>
<tr>
<td><strong>Chapter Accomplishments</strong>........20 point max.</td>
</tr>
<tr>
<td>Major chapter projects completed (20 points)</td>
</tr>
<tr>
<td><strong>Facilitation Skills</strong>………………. 10 point max.</td>
</tr>
<tr>
<td>How is TSA introduced to your class (5 points)</td>
</tr>
<tr>
<td>How do TSA members receive recognition (5 points)</td>
</tr>
<tr>
<td><strong>Leadership Skills</strong>………………. 30 point max.</td>
</tr>
<tr>
<td>Participation in TSA at local/regional level (15 points)</td>
</tr>
<tr>
<td>Participation in TSA at state/national level (15 points)</td>
</tr>
<tr>
<td><strong>Professional &amp; Civic Organizations</strong>..10 point max.</td>
</tr>
<tr>
<td><strong>Neatness</strong> ….5 point max.</td>
</tr>
<tr>
<td><strong>Spelling &amp; Grammar</strong> ………. 10 point max.</td>
</tr>
<tr>
<td><strong>Total</strong>…………………….. 100 points max.</td>
</tr>
</tbody>
</table>

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

Judge's Signature
C-9 or C-10

VIRGINIATSA

CEN TURY

AWARD APPLICATION

(All Applications Must be Postmarked by the Technosphere Registration Deadline and Registered online in the Registration System)

Those schools that affiliate under the Chapter Affiliation Plan, affiliate 100 or more students individually or the total technology education program enrollment are eligible to apply for and receive recognition. Applicants must apply by the deadline listed in the Technosphere registration packet.

Name of School: __________________________________________________________
Address:  ___________________________________________________________________
________________________________________________________________________
School Division: __________________________________________________________
Advisor Name:  __________________________________________________________________
School Phone: ____-____-_____
Level: (Circle one)
Middle - High Date: __________

This is to certify that ________________________school has affiliated _____________students with the Technology Student Association. We believe that we are eligible to receive the Century Award for affiliating 100% (or 100 members) with the Technology Student Association.

_________________________ Date_______  ___________________________ Date _________
Chapter President          Chapter Vice President

_________________________ Date_____  ___________________________ Date _________
Chapter Advisor            School Principal
VIRGINIATSA

COMMENDATION AWARD

(All Applications Must be Postmarked by the Technosphere Registration Deadline and Registered online in the Registration System)

School divisions that affiliate all secondary school technology education programs with the Technology Student Association are eligible to apply for the Commendation Award. The Commendation Award provides recognition to those school divisions that actively support the establishment and maintaining of TSA chapters.

School Division Name: ________________________________

Mailing Address: _______________________________________

________________________________________________________________________

CTE Director: __________________________ Technology Supervisor: __________________________

________________________________________________________________________ Telephone Number: - - __________

Number of High Schools in Division: __________________________

Number of Middle Schools in Division: __________________________

This is to verify that all schools in the __________________________ school division have organized and affiliated with the Technology Student Association for the current school year. This represents all of the middle and high school schools within the division. A list of the schools and chapter advisors names are attached for your review. A school division representative will attend the Technosphere awards program to receive the school division award.

________________________________________________________________________

Local Technology Education Coordinator

________________________________________________________________________

Local Career and Technical Education Director