2015 & 2016

HIGH SCHOOL TECHNOLOGY ACTIVITIES

National TSA Conference Competitive Events Guide

With Correlations to Science, Technology, Engineering and Mathematics (STEM) Standards and Common Core State Standards (CCSS)

TECHNOLOGY STUDENT ASSOCIATION®

Tenth edition
June 2014

For more information, please contact the
Technology Student Association
1914 Association Drive
Reston, VA 20191-1540
phone 703.860.9000
toll free 888.860.9010
fax 703.758.4852
general@tsaweb.org
www.tsaweb.org

CONTENTS

ACKNOWLEDGMENTS

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

Bob Behnke, Texas
Frank D. Calfee, Tennessee
Leigh Davis, Tennessee
Bob Hanson, Tennessee
Hal Harrison, South Carolina
Amanda Hodges, Tennessee
Laura Hummell, Pennsylvania
Jeff Lathom, Virginia
Emily McAdams, North Carolina
Steve Price, Georgia
Sid Rader, Virginia
Tom Shown, North Carolina
Andy Stephenson, Virginia
Kathleen Squibb, North Carolina
Tonya Childress Vandergriff, Tennessee
Matt Walton, Virginia
Bud Worley, Texas

TSA, THE ORGANIZATION

The Technology Student Association (TSA) is devoted exclusively to the needs of students engaged in science, technology, engineering, and mathematics (STEM). Open to those who are enrolled in or who have completed technology and engineering courses, TSA has over 200,000 middle and high school student members in 2,000 schools spanning 49 states. TSA is supported by educators, parents, and business leaders who believe in the need for a technologically literate society. Our members learn through exciting competitive events, leadership opportunities, and membership activities.

You can explore what TSA has to offer by using this guide and by visiting www.tsaweb.org for information. With competitive events that range from video game design to software development and much more, you will find something to capture the imagination of and bring out the best in each of your students. We hope that, with your guidance, your students will enjoy the challenge of TSA's competitive events at local, state, regional, and national TSA conferences.

The competitions in this guide not only support a broad spectrum of goals related to science, technology, engineering and mathematics (STEM) curriculum, and the Common Core State Standards, they also promote leadership skills and a focus on future career choices.

☑ For more information about becoming a TSA member, visit www.tsaweb.org and click on Join TSA.

Of course, you also can request information by calling TSA's toll free number, 888/860-9010.

TSA, INC. MISSION

The mission of the Technology Student Association, Inc. is to provide leadership and support to TSA through educational programs and services.

TSA MISSION

The Technology Student Association fosters personal growth, leadership, and opportunities in Science, Technology, Engineering, and Mathematics (STEM); members apply and integrate these concepts through co-curricular activities, competitions, and related programs.

THE ROLE OF COMPETITIVE EVENTS

In order to achieve the goals noted in its mission statement, TSA offers stimulating competitive events and recognition in both technology and leadership arenas. We believe that by participating in carefully designed competitions, students learn to do their best, thereby becoming "winners" whether or not they place in competition. Many teachers find that TSA competitive events provide an excellent motivational tool in the academic environment.

Every two years TSA's competitive events are reviewed and revised by the Competition Regulations Committee (CRC) managers, a standing group of technology educators with hands-on classroom experience. The *2015 & 2016 High School Technology Activities, National TSA Conference Competitive Events Guide* is the result of the work of the CRC managers, competitive event coordinators, teachers, and the proposals of numerous TSA state and chapter advisors and students whose suggestions make TSA competitive events current and dynamic. The guide presents rules and regulations for all national TSA conference competitive events, as well as a comprehensive view of each event's connection to science, technology, engineering, and mathematics (STEM) standards, and Common Core State Standards. Additionally, leadership skills, career choices (including connections to career clusters), and suggested careers are featured for each event. Relevant for all levels of competition (state delegations may choose to adopt the national guidelines for state-level competitions), the guide provides an excellent motivational tool for curricular activities in the classroom.

Thank you for your interest and support.

Tonya V. Childress, Ed.D
CRC Chairperson

Rosanne T. White, Ed.D
TSA Executive Director

☑ Each competitive event has an event coordinator who is responsible for answering questions about the event's guidelines. For your convenience, names and contact information can be found under Directory /Competition Regulations Committee on the TSA website at www.tsaweb.org.

HIGH SCHOOL PROGRAM

EVENTS

The officially approved high school competitive events for the 2015 and 2016 national TSA conferences are as follows:

Animatronics
Architectural Renovation
Biotechnology Design
Career Preparation
Chapter Team
Children's Stories
Computer-Aided Design (CAD) 2D, Architecture
Computer-Aided Design (CAD) 3D, Engineering
Computer Numerical Control (CNC) Production
Debating Technological Issues
Desktop Publishing
Digital Video Production
Dragster Design
Engineering Design
Essays on Technology
Extemporaneous Speech
Fashion Design
Flight Endurance
Future Technology Teacher
Manufacturing Prototype
Music Production
On Demand Video
Photographic Technology
Prepared Presentation
Promotional Graphics
SciVis
Software Development
Structural Design and Engineering
System Control Technology
Technical Sketching and Application
Technology Bowl
Technology Problem Solving
Transportation Modeling
Video Game Design
Webmaster

LEVELS OF COMPETITION

A. The following breakdown of grades is used to designate categories for curricular event entries. Each level has its own unique competitive events guide.

   Middle School/Junior High School—Grades 6, 7, 8, and 9

   High School—Grades 9, 10, 11, and 12

   Ninth graders must compete at the level in which the chapter affiliates. For example, if the ninth grade is housed in a 9-12 high school, the student must compete in high school events. If the ninth grade is housed at a 6-9 or 7-9 school, ninth grade students must compete in middle school events.

B. If the school has a K-12 configuration, or a configuration other than the examples above, contact the CRC chairperson or national TSA for clarification and approval regarding the appropriate school designation.

☑ Don't miss these General Rules! They apply to all the events and are in addition to each event's specific guidelines.

GENERAL RULES AND REGULATIONS

A. It is the intent of TSA, Inc. to involve as many different TSA members as possible in competitive events and provide recognition in a setting of fair play practices using TSA event guidelines.

B. Other than for the VEX event, TSA members, advisors, and chapters must be currently affiliated with TSA in order to enter any competitive event.

C. TSA membership rights extend through the school year of graduation. It is permissible for students who graduate midyear to compete at the national conference that immediately follows their end-of-year graduation.

D. Students must be registered and be in attendance with an adult chaperone at the national conference in order to enter and become a finalist in any event.

E. It is the individual responsibility of each participant to obtain all rules and guidelines for the events. Lack of knowledge or understanding about a particular event is neither reason nor excuse for an individual to request an accommodating adjustment or change.

F. 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.

G. The TSA competitive event limit is six (6) per conference participant, individual and team events combined.

H. Team members must be affiliated with the same chapter. To enter a team event, the chapter designates only that it is participating; names of the individual team members are not necessary. Unless otherwise designated in a competition's eligibility guideline, the maximum size of a team is six (6) members.

I. Entries (projects and/or products) may be submitted for one (1) year, and one (1) competition, only. An infraction of this rule results in disqualification.

J. Entries must be started and completed during the current school year. All entries must be in English. Unless otherwise specified, no identifying information—other than an ID#—should be included on an entry.

K. Unless otherwise noted, for all events that require a display, the size of the display may not exceed 15" deep x 3' wide x 4' high.

L. Participants must provide—and bring to the event site—two (2) pencils (sharpened standard #2/HB grade with an eraser, or #2 mechanical with an eraser) for any competition that involves the use of a pencil (e.g., for taking a written-test, for producing required sketches).

M. For all applicable competitive events, written work—including research analysis and reference pages—must follow Modern Language Associaiton (MLA) style.

N. 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 are to be cited using Modern Language Associaiton (MLA) style, the most current edition. If copyrighted material is used, proper written permission must be included. Failure to follow this procedure results in disqualification.

O. 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.

☑ An Internet search about copyrighted materials and copyright fair use is recommended if ideas, text, images, or sound from other sources may be incorporated into an event entry.

For information about the use of TSA's logo, go to the TSA website at www.tsaweb.org/Trademark-Policies.

☑ Visit this site (http://mlaformat.org.) - just one of many - to learn about MLA style.

☑ Buying TSA apparel is a mouse click away on the TSA website at www.tsaweb.org. Just click on SHOP to purchase TSA official attire, as well as TSA hoodies, polo shirts and much more!

P. Students must check in and pick up their event entries at the time and place stated in the conference program or announced at the national TSA conference.

Q. TSA is not responsible or liable for any personal property, equipment, or materials brought to a national TSA conference for use by a participant or attendee.

R. In case of a scheduling conflict that prevents a member from participating in an event, the participant has the right to decide which event is eliminated.

S. In the case of a documented emergency in team events that involve written and semifinalist segments, team member substitution may be allowed if approved by the event manager and coordinator.

T. All events are judged in accordance with the stated criteria for each event as written in this competitive events guide. Completed official rating forms are the property of TSA, and the information they contain may or may not be disclosed, as determined by TSA. Concern about any event during the national TSA conference should be submitted in writing to the Rules Interpretation Panel (RIP) as soon as possible and preferably during the conference. Whenever possible, the Rules Interpretation Panel renders a decision at the conference. The decisions of the RIP at the national conference are final. (For more information, please refer to Rules Interpretation Panel.)

U. Hazardous materials, chemicals, lighted or open flames, combustibles, wet cell batteries, and other similar substances are not allowed at the national TSA conference. Competition entries or presentations by participants must not include racial or ethnic slurs/symbols; reference to gang affiliation; vulgar, violent, subversive, or sexually suggestive language or images. In addition, entries or presentations should not promote products that students may not legally buy, such as tobacco, alcohol, or illegal drugs. Images of guns, knives, or other weapons are discouraged and may be cause for disqualification.

V. Recording devices are not allowed in certain competitive events. CRC manager and event coordinator approval is required before any event may be recorded.

W. Out of courtesy to other competitors and to avoid any perception of impropriety, no electronic communication devices of any kind are permitted during competition. Cell phones, walkie-talkies, pagers, etc. must be turned off.

X. Anyone who wishes to attend the conference must complete conference registration. All student participants, adult advisors,

☑ Rule (X) highlights what has always been true – student participants must be in attendance for the duration of the conference.

and chaperones must be in attendance for the duration of the conference.

Y. Because of the possibility of the controversial nature of topics from which students may select, national TSA bears no responsibility for the content of entries. Topics are selected at the local level and entries are evaluated on the basis of the event's official rating form.

Z. 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 manager of an event has the right to disqualify a contestant when such contestant violates the spirit or intent of a competition. The event manager must sign off on both a 20% deduction and a disqualification.

AA. TSA may choose to keep national TSA conference student entries. Such entries become the property of TSA and ultimately may be used by TSA for promotional purposes. Should that occur, credit for any such entry would be noted by TSA.

NATIONAL TSA DRESS CODE

Chapter and state advisors, and parents and chaperones, are responsible for seeing that all TSA student members wear TSA competition, general session, or casual attire as occasions may require. TSA attire may be purchased online via the SHOP tab on the TSA website at www.tsaweb.org. TSA competition, general session, and casual attire are considered appropriate dress for conference activities and public appearances. Since adults (advisors, parents, and guests) serve as role models at TSA conferences and activities, they are expected to dress appropriately for all related occasions they attend. Students must adhere to the TSA dress code requirements as listed below.

- During general sessions at the national conference, student members must wear competition or general session TSA attire. Adults must dress appropriately. No flip flops, halter tops, tank tops, or shorts are permitted for anyone at the general sessions.
- When students compete in any competitive event they must wear competition attire. For the Chapter Team event only, at both the middle school and high school levels, competitors also must wear a navy blue blazer with an official TSA patch; males (only) must wear the official TSA logo neck tie.
- Students not in appropriate competition attire when they compete may be allowed to participate in an event, but they will lose twenty percent (20%) of the total competition points.

COMPETITION ATTIRE

Shirt or blouse: official TSA shirt (royal blue)
Pants or skirt: gray
Socks: black or dark blue (males only)
Shoes: black dress shoes (unacceptable: athletic shoes, army boots, combat, or work boots)
Sandals: females only may wear black open-toe shoes or sandals
Required for the middle school or high school level Chapter Team event only, but may be worn for other competitions if preferred by contestant:
Blazer: navy blue with official TSA patch
Tie: scarlet red imprinted with official TSA logo (males only)

GENERAL SESSION ATTIRE

Shirt or blouse: button-up shirt with a turned down collar or a polo/golf shirt; however, the official TSA shirt (royal blue) is preferred
Dress skirt or pants: (unacceptable: jeans, baggy pants, exterior pocket pants, shorts)
Socks: black or dark blue (males only)

Shoes: dress shoes or dress boots (unacceptable: athletic shoes, combat, or work boots); females only may wear open-toe shoes or sandals

CASUAL ATTIRE

Same as general session attire, OR appropriate t-shirts, shorts, or jeans.

Registrants must wear conference identification badges at all times.

COMPETITION REGULATIONS COMMITTEE

The Competition Regulations Committee (CRC) is charged with reviewing TSA's competitive events, updating them as necessary, and presiding over the competitive events at the annual national TSA conference. Questions about a specific event can be addressed to an event coordinator, to the event manager, or if necessary to the CRC chairperson. *Please refer to the TSA website at www.tsaweb.org for complete contact information.*

Ideas and feedback to the CRC regarding events are always welcome. There are guidelines and forms at the end of this guide for proposing a new event or to suggest revisions in existing events.

RULES INTERPRETATION PANEL

The Rules Interpretation Panel (RIP), a group made up of at least three (3) CRC managers, monitors and oversees the competitive events during a national TSA conference. The panel provides a means by which advisors may express grievances and concerns about on-site situations that pertain to events, and it maintains continuity from year to year in conducting the competitive events. It is the responsibility of the CRC chairperson to designate RIP members and to maintain the panel throughout national TSA conferences.

Immediately following the initial contact by an advisor with a concern about a rule, the panel meets to discuss and analyze the situation. Depending upon the severity of the problem, the advisor may be asked to submit his/her grievance in writing using the Rules Interpretation Panel grievance form (see Forms Appendix). It is the intent of the panel to resolve all grievances as soon as possible with a response in writing to the advisor.

EVENT COORDINATOR REMINDERS

TSA is very grateful for the support of its event coordinators, many of whom are teachers attending the conference with students from

☑ The CRC is composed of dedicated technology teachers and education professionals from across the country who make major commitments to create and maintain the high quality of TSA's competitive events. They ensure that these competitions run smoothly at the national TSA conference. See who they are by clicking on TSA Directory on the national TSA website (www.tsaweb.org).

☑ Following the annual national TSA conference, the top ten (10) finalists in middle and high school competitions will be posted on the TSA website. Visit www.tsaweb.org shortly after the conference for this information.

their chapters. The busy schedules of these individuals prompt the reminders that follow.

A. Competitive event coordinators must be present for event check-in and check-out if they are coordinating an event in which these activities take place. Generally speaking, "check-in" is on the evening of registration day, and "check-out" is on the day before the awards ceremony. Tentative schedule information is available before the conference on the TSA website.

B. The evaluators' totals on the official rating forms are averaged for each participant's final score.

C. For rules violations that result in a point deduction or disqualification, evaluators must record the specific rule letter and number that represent the violation. In such cases, the rating form must be initialed by the evaluator, coordinator, and event manager.

D. The Competition Regulations Committee managers are available throughout the conference to support coordinators as they supervise events.

AWARDS

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

B. From those ten (10) finalists, first, second, and third place awards are presented to the individual or to the team representative, as determined by each event.

C. Rankings beyond third place are not announced at the awards ceremony.

D. A list of the ten (10) finalists only for each event is available on the national TSA website shortly after the conference.

COMPETITIVE EVENTS ELIGIBILITY

2015 & 2016 HIGH SCHOOL COMPETITIONS	ELIGIBILITY
Animatronics	one (1) team per chapter
Architectural Renovation	one (1) team per chapter
Biotechnology Design	three (3) teams per state, two (2) to six (6) members per team
Career Preparation	six (6) individuals per state
Chapter Team	one (1) team of six (6) individuals per chapter
Children's Stories	one (1) team per chapter
CAD 2D, Architecture	two (2) individuals per state
CAD 3D, Engineering	two (2) individuals per state
CNC Production	one (1) team of two (2) individuals per chapter
Debating Technological Issues	three (3) teams of two (2) individuals per state
Desktop Publishing	one (1) individual per state, one (1) entry per individual
Digital Video Production	three (3) teams per state, one (1) entry per team
Dragster Design	two (2) individuals per chapter, one (1) entry each
Engineering Design	one (1) team of three to five (3-5) individuals per chapter
Essays on Technology	three (3) individuals per state
Extemporaneous Speech	three (3) individuals per state
Fashion Design	three (3) teams of two to four (2-4) members per state
Flight Endurance	two (2) individuals per chapter, one (1) entry each
Future Technology Teacher	three (3) individuals per chapter
Manufacturing Prototype	one (1) team per chapter
Music Production	three (3) teams per state
On Demand Video	one (1) team of two (2) or more individuals per chapter
Photographic Technology	one (1) individual per chapter
Prepared Presentation	three (3) individuals per state
Promotional Graphics	two (2) individuals per chapter, one (1) entry each
SciVis	three (3) teams per state, one (1) entry per team
Software Development	one (1) team per chapter
Structural Design and Engineering	one (1) team of two (2) individuals per chapter
System Control Technology	one (1) team of three (3) individuals per state, one (1) entry per team
Technical Sketching and Application	two (2) individuals per chapter
Technology Bowl	one (1) team of three (3) individuals per chapter
Technology Problem Solving	one (1) team of two (2) individuals per chapter
Transportation Modeling	one (1) individual per chapter
Video Game Design	three teams per state, with a minimum of two (2) individuals per team
Webmaster	one (1) team of three to five (3-5) individuals per chapter

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

In recent years, not only educators, but also political, civic, and industry leaders have pushed for a greater emphasis on science, technology, engineering, and mathematics (STEM) education in our schools. These groups feel that in order for our nation to be competitive, healthy, and vibrant, our young people must have competency in the 21st century skills afforded through the STEM fields. TSA promotes a vision of students literate in these fields, as well, and believes that the competitions within this guide help make that vision a reality.

STEM education is not just the isolated and discreet acquisition of knowledge and skills related to science, technology, engineering, and mathematics. Rather, STEM education demands the interweaving and application of these academic fields for the purpose of comprehending, communicating, and solving problems. Indeed, it is now commonly accepted that to understand (and apply) any one of these STEM areas, one must, at the same time, have a grasp of and apply the others. For example, to design and engineer with any degree of complexity, one also must be familiar with technology, mathematics, and science; or to practice science, one must have a firm knowledge of mathematics and technology.

Beyond necessity, there is another reason for STEM education in our schools — and why the TSA program of activities inherently aligns with STEM goals. This reason revolves around teaching and learning, and what motivates students. STEM education is intrinsically exciting, rewarding, and meaningful for instructors and students alike. It is our belief that, as with STEM education, TSA's activities provide the same kind of stimulation, challenge, and relevancy for all involved.

Deserving of mention are two other essential areas imbedded in most of TSA's competitive events – those of art and ethics. It is difficult to design without considering aesthetics, and it is irresponsible to create without contemplating ethical consequences. When students participate in TSA competitions, they find they must not only embrace the value of design when they compete, they also must envision and assess the effects of what they develop.

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

This section of the guide includes commonly accepted national standards for the areas of science, technology, and mathematics, as well as the Accreditation Board for Engineering and Technology (ABET, Inc.) criteria for accrediting higher education engineering programs. As you make use of these materials, keep in mind that their power and beauty lie in their synergistic nature.

SCIENCE CONTENT STANDARDS (GRADES 9-12)

A. Unifying concepts and processes
   1. Systems, order, and organization
   2. Evidence, models, and explanation
   3. Change, constancy, and measurement
   4. Evolution and equilibrium
   5. Form and function

B. Science as inquiry
   1. Abilities necessary to do scientific inquiry
   2. Understandings about scientific inquiry

C. Physical science
   1. Structure of atoms
   2. Structure and properties of matter
   3. Chemical reactions
   4. Motions and forces
   5. Conservation of energy and the increase in disorder
   6. Interactions of energy and matter

D. Life science
   1. The cell
   2. Molecular basis of heredity
   3. Biological evolution
   4. Independence of organisms
   5. Matter, energy, and organization in living systems
   6. Behavior of organisms

E. Earth and space science
   1. Energy in the earth system
   2. Geochemical cycles
   3. Origin and evolution of the earth system
   4. Origin and evolution of the universe

F. Science and technology
   1. Abilities of technological design
   2. Understanding about science and technology

G. Science in personal and social perspectives
   1. Personal and community health
   2. Population growth
   3. Natural resources
   4. Environmental quality
   5. Natural and human-induced hazards
   6. Science and technology in local, national and global challenges

H. History and nature of science

1. Science as a human endeavor
2. Nature of scientific knowledge
3. Historical perspectives

The standards listed above are reprinted with permission from *National Science Education Standards, 1996,* by the National Academy of Sciences, courtesy of the National Academies Press, Washington, D.C.

SCIENCE CONTENT STANDARDS																																				
Event	Standard Number	A1	A2	A3	A4	A5	B1	B2	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6	E1	E2	E3	E4	F1	F2	G1	G2	G3	G4	G5	G6	H1	H2	H3
1. Animatronics		X	X			X						X													X	X									
2. Architectural Renovation			X	X		X			X	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X	X	X	X	X
3. Biotechnology Design		X	X		X		X	X							X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X			
4. Career Preparation		X	X				X	X																	X	X									
5. Chapter Team		X	X	X																															
6. Children's Stories																									X		X								
7. Computer-Aided Design (CAD) 2D, Architecture				X		X	X	X																	X							X			
8. Computer-Aided Design (CAD) 3D, Engineering				X		X	X	X																	X							X			
9. Computer Numeric Control (CNC) Production		X		X		X	X	X																	X	X									
10. Debating Technological Issues		X	X		X																				X	X	X	X	X	X	X	X	X	X	X
11. Desktop Publishing			X			X																			X										
12. Digital Video Production				X		X																			X	X									
13. Dragster Design			X	X	X	X	X	X				X	X	X											X	X									
14. Engineering Design			X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
15. Essays on Technology		X		X	X		X	X																		X						X			
16. Extemporaneous Speech		X	X	X	X																						X	X	X	X	X	X		X	X
17. Fashion Design			X	X	X	X																			X	X							X	X	X
18. Flight Endurance			X	X	X	X	X	X				X		X											X	X							X	X	X
19. Future Technology Teacher		X		X	X																				X	X									
20. Manufacturing Prototype			X	X	X	X	X	X																	X	X									
21. Music Production		X	X			X																			X	X									
22. On Demand Video		X	X			X																			X							X			
23. Photographic Technology		X		X	X																				X	X									X
24. Prepared Presentation		X	X		X																					X						X			
25. Promotional Graphics			X	X		X																			X	X									
26. SciVis		X	X		X	X	X	X																	X	X									
27. Software Development		X		X	X																				X	X	X								
28. Structural Design and Engineering			X		X	X	X	X		X		X													X	X					X	X			
29. System Control Technology		X	X			X	X	X				X		X											X	X							X	X	X
30. Technical Sketching and Application			X	X		X																			X	X									
31. Technology Bowl			X		X																					X						X			
32. Technology Problem Solving			X		X	X	X	X																	X	X									
33. Transportation Modeling			X	X	X	X	X	X				X	X	X											X	X									
34. Video Game Design		X			X	X																			X						X				
35. Webmaster		X			X																				X	X						X			

TECHNOLOGY CONTENT STANDARDS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TECHNOLOGY CONTENT STANDARDS																					
Event	Standard Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Animatronics				X	X				X	X	X	X	X				X			X	
2. Architectural Renovation		X	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X
3. Biotechnology Design					X	X	X			X	X	X			X	X					
4. Career Preparation															X	X	X	X	X	X	X
5. Chapter Team												X									
6. Children's Stories									X			X						X			
7. Computer-Aided Design (CAD) 2D, Architecture						X			X	X	X	X	X	X						X	X
8. Computer-Aided Design (CAD) 3D, Engineering						X			X	X	X	X	X	X						X	
9. Computer Numeric Control (CNC) Production		X	X	X			X	X	X	X	X	X	X								
10. Debating Technological Issues				X	X	X								X	X	X					
11. Desktop Publishing									X			X						X			
12. Digital Video Production				X					X		X	X	X	X				X			
13. Dragster Design		X	X	X					X	X	X	X	X					X		X	
14. Engineering Design		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
15. Essays on Technology		X	X	X	X	X	X	X						X							
16. Extemporaneous Speech		X	X	X	X				X		X			X				X			
17. Fashion Design									X								X				
18. Flight Endurance				X					X	X	X	X							X		
19. Future Technology Teacher		X	X	X	X	X	X	X	X	X	X	X									
20. Manufacturing Prototype						X			X	X	X	X	X	X						X	
21. Music Production									X				X					X			
22. On Demand Video											X	X		X				X			
23. Photographic Technology		X	X		X		X	X	X			X	X					X			
24. Prepared Presentation		X	X		X													X			
25. Promotional Graphics		X	X	X	X		X		X			X						X		X	
26. SciVis		X		X					X			X						X			
27. Software Development		X	X	X	X	X	X	X	X	X	X	X	X					X			
28. Structural Design and Engineering		X	X						X	X	X	X	X	X					X		X
29. System Control Technology				X					X	X	X	X	X					X	X	X	X
30. Technical Sketching and Application									X	X		X									
31. Technology Bowl														X	X	X	X	X	X	X	X
32. Technology Problem Solving									X		X	X									
33. Transportation Modeling		X	X	X					X	X	X	X	X					X		X	
34. Video Game Design									X	X	X	X	X					X			
35. Webmaster									X	X	X	X	X	X				X			

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

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

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

The outcomes listed above are found in *2008-2009 Criteria for Accrediting Engineering Programs* and used with permission from the Engineering Accreditation Commission of ABET, Inc.

(The outcomes were designed for higher education engineering programs but, they are relevant for middle school and high school level engineering-related courses.)

CRITERIA FOR ACCREDITING ENGINEERING PROGRAMS (ABET, INC.)													
Standard	Event / Standard Letter	A	B	C	D	E	F	G	H	I	J	K
A. An ability to apply knowledge of mathematics, science and engineering B. An ability to design and conduct experiments, as well as to interpret data C. An ability to design a system, component, or process to meet desired needs D. An ability to function on multi-disciplinary teams E. An ability to identify, formulate and solve engineering problems F. An understanding of professional and ethical responsibility G. An ability to communicate effectively H. The broad education necessary to understand the impact of engineering in global and social contexts I. A recognition of the need for and an ability to engage in life-long learning J. A knowledge of contemporary issues K. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.	1. Animatronics	X			X	X						X
	2. Architectural Renovation	X		X	X	X	X	X	X	X	X	X
	3. Biotechnology Design	X	X	X	X	X	X	X	X	X	X	X
	4. Career Preparation	X					X	X	X			
	5. Chapter Team								X	X		
	6. Children's Stories			X	X		X	X		X		
	7. Computer-Aided Design (CAD) 2D, Architecture	X				X		X	X	X	X	X
	8. Computer-Aided Design (CAD) 3D, Engineering	X				X		X	X	X	X	X
	9. Computer Numeric Control (CNC) Production	X	X	X	X	X	X	X	X	X	X	X
	10. Debating Technological Issues						X	X	X			
	11. Desktop Publishing		X					X				
	12. Digital Video Production						X	X		X		
	13. Dragster Design	X	X	X		X	X	X				X
	14. Engineering Design	X	X	X	X	X	X	X	X	X	X	X
	15. Essays on Technology	X	X				X				X	
	16. Extemporaneous Speech						X	X	X			
	17. Fashion Design				X	X			X			
	18. Flight Endurance	X	X	X		X	X	X		X		X
	19. Future Technology Teacher	X		X			X	X			X	
	20. Manufacturing Prototype	X	X	X	X	X	X	X				
	21. Music Production							X				
	22. On Demand Video				X		X	X				
	23. Photographic Technology	X					X	X		X	X	X
	24. Prepared Presentation							X	X	X		
	25. Promotional Graphics	X					X	X				
	26. SciVis		X		X							X
	27. Software Development	X	X	X	X	X	X	X	X	X	X	X
	28. Structural Design and Engineering	X	X	X	X	X	X	X	X	X	X	X
	29. System Control Technology	X	X	X	X	X	X	X	X	X	X	X
	30. Technical Sketching and Application					X	X	X				
	31. Technology Bowl	X	X	X		X			X		X	X
	32. Technology Problem Solving	X		X								
	33. Transportation Modeling	X	X	X		X	X	X				X
	34. Video Game Design			X	X		X	X		X		
	35. Webmaster			X	X			X				

PRINCIPLES AND STANDARDS FOR SCHOOL MATHEMATICS

1. Numbers and operations
   A. Understand numbers, ways of representing numbers, relationships among numbers and number systems
   B. Understand meanings of operations and how they relate to one another
   C. Compute fluently and make reasonable estimates
2. Algebra
   A. Understand patterns, relations, and functions
   B. Represent and analyze mathematical situations and structures using algebraic symbols
   C. Use mathematical models to represent and understand quantitative relationships
   D. Analyze change in various contexts
3. Geometry
   A. Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships
   B. Specify locations and describe spatial relationships using coordinate geometry and other representational systems
   C. Apply transformations and use symmetry to analyze mathematical situations
   D. Use visualization, spatial reasoning and geometric modeling to solve problems
4. Measurement
   A. Understand measurable attributes of objects and the units, systems and processes of measurement
   B. Apply appropriate techniques, tools and formulas to determine measurements
5. Data analysis and probability
   A. Formulate questions that can be addressed with data and collect, organize and display relevant data to answer them
   B. Select and use appropriate statistical methods to analyze data
   C. Develop and evaluate inferences and predictions that are based on data
   D. Understand and apply basic concepts of probability
6. Problem solving
   A. Build new mathematical knowledge through problem solving
   B. Solve problems that arise in mathematics and in other contexts
   C. Apply and adapt a variety of appropriate strategies to solve problems
   D. Monitor and reflect on the process of mathematical problem solving
7. Reasoning and proof
   A. Recognize reasoning and proof as fundamental aspects of mathematics
   B. Make and investigate mathematical conjectures
   C. Develop and evaluate mathematical arguments and proofs
   D. Select and use various types of reasoning and methods of proof
8. Communication
   A. Organize and consolidate mathematical thinking through communication
   B. Communicate mathematical thinking coherently and clearly to peers, teachers and others
   C. Analyze and evaluate the mathematical thinking and strategies of others
   D. Use the language of mathematics to express mathematical ideas precisely

9. Connections
   A. Recognize and use connections among mathematical ideas
   B. Understand how mathematical ideas interconnect and build on one another to produce a coherent whole
   C. Recognize and apply mathematics in contexts outside of mathematics
10. Representation
   A. Create and use representations to organize, record, and communicate mathematical ideas
   B. Select, apply, and translate among mathematical representations to solve problems
   C. Use representations to model and interpret physical, social and mathematical phenomena

PRINCIPLES AND STANDARDS FOR SCHOOL MATHEMATICS

Event	Standard Number	1A	1B	1C	2A	2B	2C	2D	3A	3B	3C	3D	4A	4B	5A	5B	5C	5D	6A	6B	6C	6D	7A	7B	7C	7D	8A	8B	8C	8D	9A	9B	9C	10A	10B	10C
1. Animatronics													X	X							X	X											X			
2. Architectural Renovation		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X	X	X						
3. Biotechnology Design		X	X	X	X	X	X	X					X	X	X	X	X	X	X	X	X	X					X	X	X	X						
4. Career Preparation																															X	X	X			X
5. Chapter Team																																				
6. Children's Stories																																				
7. Computer-Aided Design (CAD) 2D, Architecture									X	X		X	X	X											X									X		
8. Computer-Aided Design (CAD) 3D, Engineering									X	X		X	X	X																				X		
9. Computer Numeric Control (CNC) Production									X	X	X	X	X	X					X	X	X	X										X				
10. Debating Technological Issues				X																													X	X	X	
11. Desktop Publishing													X	X																						
12. Digital Video Production				X									X	X																			X			
13. Dragster Design				X				X	X	X		X	X								X												X	X	X	
14. Engineering Design		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X				X	X	X
15. Essays on Technology				X											X	X	X	X																		
16. Extemporaneous Speech																																				
17. Fashion Design													X	X																						
18. Flight Endurance			X	X	X				X			X	X	X			X	X	X	X	X	X				X	X	X	X	X	X			X		
19. Future Technology Teacher				X																X	X					X						X	X		
20. Manufacturing Prototype													X	X						X	X															
21. Music Production													X	X																						
22. On Demand Video													X	X																			X			
23. Photographic Technology																					X						X									
24. Prepared Presentation																														X			X			
25. Promotional Graphics												X									X															
26. SciVis		X	X	X	X	X	X	X				X								X	X	X				X			X	X				X		
27. Software Development																			X	X	X	X	X	X	X	X	X	X	X	X						
28. Structural Design and Engineering			X	X	X	X	X		X	X	X	X	X	X				X			X	X					X	X	X	X		X		X		
29. System Control Technology		X	X	X	X	X	X		X	X	X	X	X				X	X	X	X	X	X		X	X	X	X	X	X		X	X	X	X		
30. Technical Sketching and Application									X	X	X	X	X	X					X								X			X						
31. Technology Bowl									X	X		X	X	X							X	X												X		
32. Technology Problem Solving													X	X							X	X														
33. Transportation Modeling								X		X			X	X							X	X														
34. Video Game Design			X									X	X	X																						
35. Webmaster																					X	X														

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

One of the most influential set of national standards today is the *Common Core State Standards* (CCSS). These standards are designed to help guide teachers, administrators, and state and local education agencies determine what all elementary, middle, and high school students should know and be able to do in English Language Arts (ELA) and Mathematics. The CCSS are written in the form of performance statements and may be found at http://www.corestandards.org/. Developed by the National Governors Association Center for Best Practices (NGA – Center) and the Council of Chief State School Officers (CCSSO), the CCSS have been adopted by most states and the District of Columbia.

The successful implementation of the standards will only succeed through the strategy of curriculum integration. TSA believes that the application of many of the understandings and skills identified in the CCSS are found in technology and engineering programs, such as the competitive events and activities of the Technology Student Association. TSA's competitive events and activities provide an excellent context for students to apply the CCSS Standards. Our events and activities tend to be reflective of today's workplace, are authentic, complex, and interesting to most students, and often give meaning to concepts and skills that might otherwise seem meaningless and solely academic.

On the following pages are matrixes of the CCSS with correlations to TSA high school competitive events. The matrixes are designed to assist teachers and administrators in identifying which events best incorporate the understandings and skills identified within the CCSS. It is our hope that the matrixes, along with the events in this guide, will help teachers and administrators as they strive for excellence.

For more information, a brief description of the CCSS ELA Literacy and Mathematics standards may be found on the TSA website (www.tsaweb.org).

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS, SCIENCES, AND TECHNICAL SUBJECTS

GRADES 9 - 12

	Reading Standards for Science and Technical Subjects										Writing Standards for Science and Technical Subjects										Speaking and Listening Standards						Language Standards					
	Key Ideas			Craft and Structure			Integration of Ideas			Level	Text Types and Purposes			Writing Production			Research			Range	Comprehension Collaboration			Presentation of Ideas			Conventions		Apply Knowledge	Vocabulary		
EVENT STANDARD	R.1	R.2	R.3	R.4	R.5	R.6	R.7	R.8	R.9	R.10	W.1	W.2	W.3	W.4	W.5	W.6	W.7	W.8	W.9	W.10	SL.1	SL.2	SL.3	SL.4	SL.5	SL.6	L.1	L.2	L.3	L.4	L.5	L.6
Animatronics			X	X						X		X		X		X			X		X			X			X	X				
Architectural Renovation			X	X						X	X	X		X		X	X	X	X		X	X		X		X	X	X				X
Biotechnology Design	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X		X	X	X	X	X	X
Career Preparation		X	X						X	X		X	X	X		X		X			X	X		X		X	X	X				X
Chapter Team										X				X							X	X	X	X	X	X	X	X	X	X	X	
Children's Stories	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CAD 2D, Architecture			X	X				X	X	X							X		X		X	X			X		X					X
CAD 3D, Engineering			X	X				X	X	X							X		X		X	X			X		X					X
CNC Production			X	X				X	X	X							X		X		X	X					X	X				
Debating Technological Issues	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X		X	X	X	X		X	X		X	X	X	X
Desktop Publishing			X	X		X	X			X		X		X	X	X				X	X	X	X	X	X	X	X	X	X	X	X	X
Digital Video Production			X	X			X					X		X							X				X			X	X			X
Dragster Design			X	X			X		X	X							X															
Engineering Design	X		X	X			X	X	X	X		X		X			X	X	X	X	X	X		X	X	X	X	X				X
Essays on Technology	X	X		X	X		X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X			X	X	X	X	X	X
Extemporaneous Speech		X		X			X	X		X	X	X					X	X	X		X			X		X	X		X			X
Fashion Design			X	X									X	X			X				X	X		X	X	X	X	X		X		X
Flight Endurance			X	X			X			X		X															X					X
Future Technology Teacher	X	X	X	X	X		X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Manufacturing Prototype			X	X				X	X	X		X	X	X			X		X		X	X					X	X				
Music Production			X	X			X					X		X							X			X		X	X	X				X
On Demand Video			X	X								X	X	X	X	X					X	X	X	X	X	X	X	X	X		X	X
Photographic Technology		X	X	X								X	X									X			X		X					X
Prepared Presentation													X	X	X						X	X	X	X	X	X	X		X		X	X
Promotional Graphics			X	X			X	X					X	X								X					X	X	X		X	X
SciVis	X	X	X	X	X	X	X	X	X	X		X	X	X			X	X	X		X	X		X	X	X	X	X	X			X
Software Development	X	X	X	X			X	X	X	X		X	X	X		X	X	X	X		X	X		X	X	X	X	X				X
Structural Design and Engineering			X	X			X														X						X		X			X
System Control Technology			X	X			X			X	X	X		X	X						X			X		X	X	X	X			X
Technical Sketching and Application			X	X			X																									
Technology Bowl	X	X	X	X	X	X	X	X	X	X	X	X						X	X			X	X				X		X	X	X	X
Technology Problem Solving			X																		X											
Transportation Modeling			X	X						X		X					X								X		X	X				X
Video Game Design			X	X			X	X	X	X		X	X	X	X	X					X			X	X	X	X	X	X			X
Webmaster	X	X	X	X		X	X	X	X	X		X	X	X	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	X

COMMON CORE STATE STANDARDS FOR MATHEMATICS

GRADES 9 - 12

CONCEPTUAL CATEGORY	Number and Quantity				Algebra				Functions				Modeling	Geometry						Statistics and Probability				Conceptual Categories and Domain
EVENT **STANDARD**	RN	Q	CN	VM	SSE	APR	CED	REI	IF	BF	LE	TF	M	CO	SRT	C	GPE	GMD	MG	ID	IC	CP	MD	Key
Animatronics		X					X	X				X	X	X				X	X					**Number and Quantity**
Architectural Renovation		X					X	X				X	X	X	X	X	X	X	X					RN = The Real Number System
Biotechnology Design		X			X		X	X	X	X	X		X	X				X	X	X	X	X	X	Q = Quantities
Career Preparation																								CN = The Complex Number System
Chapter Team																								VM = Vector and Matrix Quantities
Children's Stories																								
CAD 2D, Architecture		X					X	X				X	X	X	X	X	X	X	X					**Algebra**
CAD 3D, Engineering		X					X	X				X	X	X	X	X	X	X	X					SSE = Seeing Structure in Expressions
CNC Production		X					X	X					X	X				X	X					APR = Arithmetic with Polynomials and Rational Expressions
Debating Technological Issues																				X	X	X	X	CED = Creating Equations
Desktop Publishing														X										REI = Reasoning with Equations and Inequalities
Digital Video Production																								
Dragster Design		X		X			X	X		X			X	X				X	X					**Functions**
Engineering Design		X		X			X	X					X	X				X	X					IF = Interpreting Functions
Essays on Technology																				X	X	X	X	BF = Building Functions
Extemporaneous Speech																								LE = Linear, Quadratic, and Exponential Models
Fashion Design													X	X				X	X					TF = Trigonometric Functions
Flight Endurance		X		X			X	X		X			X	X				X	X					
Future Technology Teacher																								**Modeling = M**
Manufacturing Prototype		X					X	X					X	X				X	X					
Music Production																								**Geometry**
On Demand Video																								CO = Congruence
Photographic Technology																								SRT = Similarity, Right Triangles, and Trigonometry
Prepared Presentation																								C = Circles
Promotional Graphics																								GPE = Expressing Geometric Properties with Equations
SciVis		X											X	X						X	X	X	X	GMD = Geometric Measurement and Dimension
Software Development													X							X	X	X	X	MG = Modeling with Geometry
Structural Design and Engineering		X					X	X					X	X				X	X					
System Control Technology		X		X									X											**Statistics and Probability**
Technical Sketching and Application		X											X	X	X	X	X	X	X					ID = Interpreting Categorical and Quantitative Data
Technology Bowl	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	IC = Making Inferences and Justifying Conclusions
Technology Problem Solving													X	X				X	X					CP = Conditional Probability and the Rules of Probability
Transportation Modeling		X		X			X	X					X	X				X	X					MD = Using Probability to Make Decisions
Video Game Design													X											
Webmaster													X											

TSA AND THE LEADERSHIP COMPONENT

At one time, the art of learning and practicing leadership skills, such as good communication, teamwork, and problem solving, was typically designated only for those students interested in campaigning for and/or holding a TSA chapter, state, or national officer position.

However, national TSA recognizes the importance of all TSA members acquiring leadership skills. By learning and absorbing core leadership skills, young people are empowered to succeed not only in school, but in their careers and in life. (See the *Core Leadership Skills* listed in the side bar.)

TSA identified core leadership skills, based on *Standards for Technological Literacy*—a publication of the International Technology and Engineering Educators Association (ITEEA/ITEA), that students learn by participating in TSA's competitive events program. This effort resulted in the identification of ten leadership skills underlying in TSA high school events. In the *2015 & 2016 High School TSA Competitive Events Guide*, three primary leadership skills (and a number of secondary skills) promoted in each competition are identified following the evaluation section of each event's regulations.

To bring these skills to the classroom and chapter, TSA created leadership lessons based on the core leadership skills as they relate to TSA competitions. In this guide, two lessons are suggested for each of the primary skills learned in individual competitions. These lessons can be used during the school day or when chapter meetings occur. To realize the maximum benefit, use the leadership lessons in conjunction with TSA competitions.

Leadership lessons are available for each core leadership skill noted in the guidelines for an event. These lessons enhance chapter dynamics, introduce new concepts, engage students in activities and, of course, promote leadership. Advisors may modify lessons to adapt to personal teaching style. A glossary of leadership skills and a sample leadership lesson follow.

TSA believes that acquiring leadership skills is critical to the success of young people in technology. High school leadership lessons present TSA advisors and students with a venue for teaching and learning these all-important skills.

☑ Core leadership skills learned through TSA competitive events:

- communication
- creative thinking
- critical thinking
- decision making
- ethics
- evaluation
- organization
- problem solving
- self-esteem
- teamwork

GLOSSARY OF LEADERSHIP SKILLS

PRIMARY LEADERSHIP SKILLS LEARNED THROUGH PARTICIPATION IN THE TSA COMPETITIVE EVENTS PROGRAM

The following leadership skills are derived from the Technology Content Standards of the International Technology and Engineering Educators Association (ITEEA/ITEA) publication: ***Standards for Technological Literacy, Content for the Study of Technology.***

Communication – the successful transmission of information through a common system of symbols, signs, behavior, speech, writing, or signals

Creative thinking – the ability or power used to produce original thoughts and ideas based upon reasoning and judgment

Critical thinking – the ability to acquire information, analyze. and evaluate it, and reach a conclusion or answer by using logic and reasoning skills

Decision making – the act of examining several possible behaviors and selecting from them the one most likely to accomplish the individual's or group's intention; cognitive processes such as reasoning, planning, and judgment are involved

Ethics – the adherence to an established set of principles or accepted professional standards of conduct

Evaluation – the collection and processing of information and data in order to determine how well a design meets the requirements and to provide direction for improvements; a process used to analyze, evaluate, and appraise a student's achievement, growth and performance through the use of formal and informal techniques

Organization – the act or process of organizing or being organized; good organization will not only ensure success of a program, but without it, the success can be limited or fail to materialize at all

Problem solving – the process of understanding a problem, devising a plan, carrying out the plan, and evaluating the plan in order to solve a problem or meet a need or want

Self-esteem – confidence and satisfaction in oneself; trusting one's ability and instincts

Teamwork – the process that allows individuals to pool their strengths in order to arrive at better solutions to problems with all subordinating personal prominence to the efficiency of the whole

DECISIONS, DECISIONS, DECISIONS

OBJECTIVE

Students will learn about four types of group decision-making processes and determine when to use each process appropriately.

TIME

45 minutes (10 minutes to discuss the four group decision-making processes and provide instruction for the activity, 20 minutes for the activity, 15 minutes to review/discuss results)

MATERIALS

16 sheets of large easel paper, divided among four stations

4 markers for each station

masking tape or clear tape

ACTIVITY

Before students enter the room, prepare the easel paper with the four decision-making processes listed (i.e., write "Autocratic" at the top of four sheets of paper, "Democratic" at the top of four sheets, and so forth, for a total of 16 sheets). Hang one of the respective topic sheets in each corner of the room, with the three other of four titled sheets at a nearby table/desk.

When students enter the room, explain that the purpose of this activity is to align each of the four decision-making processes with various situations. Describe each decision-making process and have students take notes in their leadership portfolios.

Decision-Making Processes

1. **Autocratic**—one person makes the decision on behalf of the group

2. **Democratic**—the group participates in the decision-making process by voting on the process to use in a given situation

3. **Consensual**—after thorough discussion, the group arrives at a resolution that each member can endorse

4. **Laissez-faire**—decision making is left to the initiative of the group; if the group chooses to make a decision, it will; if not, a decision will not be made

Divide students into four teams of equal size and have each team stand and move to a decision-making process corner. Provide these instructions:

At the word "go," your team must think of example situations and/or occupations for which a given decision-making process is best suited. (For example, a doctor may need to make an autocratic decision during surgery).

Your team will have five minutes to record brief notes on the easel paper.

After five minutes, remove your completed sheet of easel paper and replace it with a new sheet from the remaining pile. Then move clockwise to the next station. Once your team is in place, go through

the same process as before with the new sheet, describing the next decision-making process.

Repeat this process at each station.

When the activity is complete, each team will be responsible for presenting the notes (from all four sheets) for one of the group decision-making processes. Encourage students to offer thoughts and examples related to their daily lives as students and leaders, and as participants in TSA's competitive events.

Have students share and record their thoughts and examples in their leadership portfolios.

DISCUSSION POINTS

How did the process you used in a given situation gain or not gain the desired result?

Did the process cause friction among your group members? Explain your answer.

Was the process you used the obvious choice, or was there a better choice? Elaborate.

Would your use of a different group decision-making process have resulted in a better competition outcome? Explain your answer.

Knowing what you now know about group decision making, which process would you have chosen in a given circumstance?

How did working in groups help you reach a specific course of action?

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

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

The Career Clusters icons and definitions are being used with permission of the States' Career Clusters Initiative, 2009, www.careerclusters.org

The 16 Career Clusters

	The production, processing, marketing, distribution, financing, and development of agricultural commodities and resources including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources. **(A)**
	Careers in designing, planning, managing, building and maintaining the built environment. **(B)**
	Designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services. **(C)**
	Business Management and Administration careers encompass planning, organizing, directing and evaluating business functions essential to efficient and productive business operations. Business Management and Administration career opportunities are available in every sector of the economy. **(D)**
	Planning, managing and providing education and training services, and related learning support services. **(E)**
	Planning, services for financial and investment planning, banking, insurance, and business financial management. **(F)**
	Executing governmental functions to include Governance; National Security; Foreign Service; Planning; Revenue and Taxation; Regulation; and Management and Administration at the local, state, and federal levels. **(G)**
	Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development. **(H)**
	Hospitality & Tourism encompasses the management, marketing and operations of restaurants and other food services, lodging, attractions, recreation events and travel related services. **(I)**
	Preparing individuals for employment in career pathways that relate to families and human needs. **(J)**
	Building linkages in IT occupations framework: for entry level, technical, and professional careers related to the design, development, support and management of hardware, software, multimedia, and systems integration services. **(K)**
	Planning, managing, and providing legal, public safety, protective services and homeland security, including professional and technical support services. **(L)**

	Planning, managing and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance and manufacturing/process engineering. **(M)**
	Planning, managing, and performing marketing activities to reach organizational objectives. **(N)**
	Planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering) including laboratory and testing services, and research and development services. **(O)**
	Planning, management, and movement of people, materials, and goods by road, pipeline, air, rail and water and related professional and technical support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance. **(P)**

TSA COMPETITIONS AND THE 16 CAREER CLUSTERS

Event / Cluster letter	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Animatronics			X						X				X			
Architectural Renovation	X	X		X		X	X	X	X	X	X		X		X	
Biotechnology Design	X	X						X					X		X	X
Career Preparation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Chapter Team				X			X					X				
Children's Stories			X		X					X					X	
Computer-Aided Design (CAD) 2D, Architecture		X	X								X	X				
Computer-Aided Design (CAD) 3D, Engineering		X	X								X	X				
Computer Numeric Control (CNC) Production					X			X			X		X		X	X
Debating Technological Issues								X						X	X	
Desktop Publishing			X								X					
Digital Video Production			X						X		X				X	
Dragster Design										X						
Engineering Design	X	X	X	X	X	X	X	X	X			X	X	X	X	X
Essays on Technology			X	X												
Extemporaneous Speech			X	X	X		X							X		
Fashion Design			X										X			
Flight Endurance															X	
Future Technology Teacher					X						X					
Manufacturing Prototype	X	X		X	X				X				X		X	
Music Production			X								X			X		
On Demand Video			X								X			X		
Photographic Technology	X		X		X			X	X		X		X	X	X	
Prepared Presentation			X	X			X									
Promotional Graphics			X							X						
SciVis			X								X				X	
Software Development			X								X	X	X		X	X
Structural Design and Engineering		X					X		X			X	X		X	X
System Control Technology													X		X	
Technical Sketching and Application		X											X			
Technology Bowl	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Technology Problem Solving	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Transportation Modeling										X						
Video Game Design			X								X					
Webmaster			X								X					

HIGH SCHOOL

National TSA Conference Competitive Events

☑ New and revised events:

Children's Stories

CNC Production

Software Development

Structural Design and Engineering

Every two years the specifics of many events are changed, keeping the competitions dynamic!

Animatronics
Architectural Renovation
Biotechnology Design
Career Preparation
Chapter Team
Children's Stories
Computer-Aided Design (CAD) 2D, Architecture
Computer-Aided Design (CAD) 3D, Engineering
Computer Numerical Control (CNC) Production
Debating Technological Issues
Desktop Publishing
Digital Video Production
Dragster Design
Engineering Design
Essays on Technology
Extemporaneous Speech
Fashion Design
Flight Endurance
Future Technology Teacher
Manufacturing Prototype
Music Production
On Demand Video
Photographic Technology
Prepared Presentation
Promotional Graphics
SciVis
Software Development
Structural Design and Engineering
System Control Technology
Technical Sketching and Application
Technology Bowl
Technology Problem Solving
Transportation Modeling
Video Game Design
Webmaster

THE OFFICIAL TSA COMPETITIVE EVENT RATING FORM/RUBRIC

The *2015 & 2016 High School Technology Activities, National TSA Conference Competitive Events Guide* contains a rating form/rubric for each competition. Rubrics have been embraced by STEM educators because they provide a clear way to evaluate subjective assessments. The use of descriptors for each criterion being measured in rubrics allows them to impart consistency and greater understanding to the evaluation process.

The TSA rating form/rubric is the initiative of the TSA Competition Regulations Committee (CRC) management team to 1) add universal rigor and relevance to TSA's competitive events, and 2) address the desire of students to have quality feedback about their performance in these events. Included for each competition in the guide, the new rating form/rubric provides a way for TSA members to better prepare for competitions, for advisors to carefully assist them in the process, and for judges to effectively evaluate participants and their entries with consistency.

The rating forms/rubrics in the guide are comprised of clear and concise descriptors for three levels of performance (minimal, adequate, and exemplary) for the evaluative criteria for each competitive event. It is the hope of national TSA that the rating forms/rubrics will ensure an enhanced educational experience for our greatest asset – TSA student members.

OVERVIEW

Animatronics refers to a robotic device that emulates a human or an animal, or brings an inanimate object "to life." Disney and Six Flags theme parks use animatronics in some of their attractions. Participants will produce an animatronics device complete with an appropriate display. The animatronics device must use control technology in its performance. The device must not suggest anything that is inappropriate by language, sound, or movements. Evaluation is based on performance, device artisanship, and documentation of design efforts.

PURPOSE

Students must work as part of a team to demonstrate knowledge of mechanical and control systems by designing, fabricating, and controlling an animatronics device that will communicate, entertain, inform, demonstrate and/or illustrate a topic, idea, subject, or concept. Sound, lights, and surrounding environment are to accompany the device.

ELIGIBILITY

A. One (1) team entry per chapter is permitted.

B. There is a limit of three (3) representatives per team for the presentation/interview.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. Participants are given five (5) minutes to set up their presentation equipment prior to their presentation.

C. The presentation must last no longer than five (5) minutes.

D. The presentation time begins when students give background information about the project from their portfolio and must conclude on or before the five (5) minute time limit. Five (5) points will be deducted for exceeding the time limit. The judges' interview is not considered part of the presentation time.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants will check in their entry (portfolio and animatronics device) at the time and place stated in the conference program.

B. At check-in, each team will select a presentation/interview time from the available times posted. When selecting a demonstration time, teams should avoid conflicts with other events for which team members are registered.

C. Participants report for the presentation/interview at the selected demonstration time with the animatronics device, display, and portfolio. Only participants are allowed to set up equipment and present the project.

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

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. The display may not exceed 15" deep x 3' wide x 4' high. The device may extend beyond the dimensions of the display during the demonstration.

B. The animatronics device must have three (3) or more separate movements. A skin is required. The skin must be removable in order to show the judges the skeleton and mechanics of the project. Fluid power, gearing systems, linkages, and/or cabling systems, etc. should be incorporated to aid in the movement of the device.

C. Sound, lights, and sensors must be incorporated in the project model.

D. Control technology must be used during the performance.

E. The use of fluid power must be incorporated to aid in the movement of the animatronics device. If no fluid power is used, the animatronics device will lose ten (10) points. To be awarded points, the model must demonstrate movement provided by fluid power.

F. Documentation materials (comprising "a portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the event title, the conference city and state, the year, and the team/chapter ID number (identification numbers are issued on site and therefore may be handwritten); one (1) page
2. Table of contents; pages as needed
3. Purpose of the animatronics device; one (1) page
4. Design and test log, including date, test duration, problems, redesigns, and other comments; maximum five (5) pages
5. List of resources that includes materials, parts, software, hardware, and sources of information used in the development of the project; one (1) page
6. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible, and comments (see Plan of Work log); one (1) page
7. Permission letters for copyrighted material, if incorporated; pages as needed

G. The animatronics device may not contain a wet cell battery.

H. The animatronics device may use AC power, but the participant will only have access to an AC outlet during the demonstration/ presentation.

I. Should the device suggest anything that is inappropriate by language, sound, or movement, immediate disqualification will result.

J. A team that fails to appear for its demonstration forfeits judging.

EVALUATION

Teams are evaluated on their written work, model function, programming structure, and efficiency. Refer to the official rating form for detailed information.

NOTES

You can learn more about animatronics by visiting the following:

www.animatronica.co.uk/default.asp
www.animalmakers.com
www.garnerholt.com
www.dreamation.com/Animatronics.htm

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- CRITICAL THINKING — Students use prior knowledge to accomplish a task. Suggested leadership lessons: *And the Answer Is* and *Figure it Out*
- PROBLEM SOLVING — Students work out any animation design flaws. Suggested leadership lessons: *Finding the Right Way* and *Problem Solving Steps*
- TEAMWORK — Students delegate tasks based on individual skills. Suggested leadership lessons: *Effective Meetings* and *Restaurant Business Plan*

Additional leadership skills promoted in this event: communication, creative thinking, organization, self-esteem

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Amusement park robotics maintenance engineer
Electronics technician
Film industry special effects engineer
Industrial designer
Toy developer

TECHNOLOGY STUDENT ASSOCIATION
PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

ANIMATRONICS
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Assistant for check-in and portfolio collection, one (1)

C. Evaluators, two (2) or more for the portfolio evaluation and two (2) or more for the presentation/interview (preferably same two [2])

MATERIALS

A. Coordinator's notebook, containing:

1. Event guidelines, one (1) copy for the coordinator and for each evaluator
2. Official rating forms, one (1) set for each event evaluator
3. List of entries, with finalist report
4. List of evaluators/assistants
5. Extension cord (25' minimum length)
6. One (1) stopwatch
7. Pens for evaluators
8. Notepads for evaluators
9. Calculators, one (1) for each event evaluator
10. Results envelope

B. Tables for presentation

C. Table and chairs for evaluators

☑ Be sure to seal the results in the envelope provided and return them to the CRC room.

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. At least one (1) hour before the event is to begin, meet with your evaluators and check-in personnel to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the CRC event manager before the event begins.

D. Check in all entries at the time stated in the conference program. The coordinator should have each team sign up for a specific time for its presentation/interview (within the time frame designated for the event). Once each team has scheduled a presentation/interview time, make sure that the participants understand that they are to return fifteen (15) minutes before their scheduled presentation time.

E. At a designated time, evaluators individually evaluate and score entry portfolios prior to presentations.

F. Notify the event manager immediately of any team reporting for the presentation portion of the event that is not on the entry list. A team not on the entry list is permitted to participate, but the coordinator MUST confirm the team's eligibility. If it is found that the team is not registered for the event, the team is disqualified.

G. Evaluators independently assess a team's presentation/interview. Evaluators may take notes, but evaluation occurs only after all team members have left the event room.

H. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

I. Complete and submit the finalist report and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

ANIMATRONICS

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Documentation (30 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation F (X1)	Portfolio is unorganized and/or is missing three or more components.	Portfolio is missing two components, and/or it is loosely organized.	Only one or no components are missing in the portfolio, and content and organization are clearly evident.	
Purpose and description (X1)	Purpose and description of the animatronics design idea are unclear, and/or major grammatical errors are evident.	Purpose and description are explained appropriately, but some grammatical errors are evident, and/or the writing is not concise.	Purpose and description of the animatronics design are clear and concisely written; presentation interests the reader; few grammar mistakes are evident.	
Design and test log (X1)	Design and test log is illogical and/or shows no evidence of growth from the initial design to the final solution; log is unorganized and/or missing two or more of the following components: date of test(s), test duration, and/or problems/redesigns.	All or most components of the design and test log are incorporated; however, only some evidence is shown that the log was used to shape the design of the animatronics device, and/or the log is not completely neat, organized, and concise.	The log is neat, organized, and concise; it includes all components and shows evidence that it was used to shape the animatronics design from conception through redesign(s) and then to completion.	
			SUBTOTAL (30 points)	

Presentation/interview (50 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Organization (X1)	Team seems unprepared for the interview and is unorganized; team's presentation is full of illogical thoughts that lack understanding and clarity.	Team is prepared for the interview and is somewhat organized in its presentation to judges; team's presentation thesis is, for the most part, logical and/or clear.	Team's presentation and interview with judges are well organized; the interview is concise and logical, with a clear explanation of the thesis and pertinent issues.	
Knowledge (X1)	Team members seem to have little understanding of the concepts in their project; vague interview answers are provided.	Team members have a generalized understanding of the concepts discussed and answer questions well.	Evidence is clear that team members have a thorough understanding of the concepts discussed; they answer questions thoroughly.	
Articulation (X1)	The presentation and interview provide an unclear, unorganized, and or illogical description of the project.	The presentation and interview offer a somewhat logical and easy-to-understand project description.	The presentation provide a clear, concise, and easy-to-follow description of the project.	

ANIMATRONICS (continued)				
Presentation/interview (50 points) (continued)				
Delivery (X1)	Participants are verbose, illogical in presenting, and use many "uhs, ums, hmms," etc.	Participants are logical and fairly well spoken, with little use of "uhs, ums, hmms," etc.	Participants are well spoken, distinct, and clear throughout the presentation/interview.	
Team participation (X1)	Only one person in the group communicates with judges; there is little or no participation from other team members.	Team members participate to some extent and seem to understand the concepts.	Team members seem to fully understand the concepts and share an equal role in the interview.	
			SUBTOTAL (50 points)	
Model Appearance (30 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Creativity (X1)	Model lacks creativity; very few or no design principles are integrated in the model.	Some elements of creativity are evident, but essential design principles are missing or are not used effectively.	Model exudes creativity; essential design principles and elements are integrated.	
Aesthetics and artisanship (X1)	Work is unorganized and/ or sloppy; model seems to be an afterthought and/or thrown together.	Some layout and design principles are integrated into the model, and aesthetics are adequate.	There is exemplary use of layout and design principles; artistic and aesthetic values are incorporated.	
Originality (X1)	Model lacks imagination, originality, and artistic detail.	Model is somewhat innovative.	Model is inspiring, inventive, resourceful, and very motivating.	
			SUBTOTAL (30 points)	
Model Function (70 points possible)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Skin and skeletal function	There is no point value for the skin and skeletal function of the animatronics model. The model's skin must be removable in order to reveal skeletal function and mechanics located beneath the skin. If the skin is not removable then a rules violation will occur.			
Movements (X1)	The model has no movements or only one separate movement.	The model has some movements, but not all are separate, and/or the mechanics of the movements may limit range of motion.	All movements are included; an exemplary use of movement mechanics permits a different range of motion for each movement.	
Sound inclusion (X1)	There is no sound included, or the design suggests that the inclusion of sound was an afterthought to the model.	Sound is included, but it does not contribute fully to the overall function of the model.	The inclusion of sound is creative and effectively contributes to the design and performance of the model.	
Light inclusion (X1)	No light is included, or the design suggests that the inclusion of lights was an afterthought to the model.	Light is included, but it does not fully contribute to the overall function of the model.	The inclusion of light is creative and effectively contributes to the design and performance of the animatronics model.	
Sensor inclusion (X1)	No sensors are included, or the design suggests that the inclusion of sensors was an afterthought to the model.	Sensors are included, but they do not fully contribute to the overall function of the model.	The inclusion of sensors (and the interactivity that sensors allow for) in the model is creative and effectively contributes to its design and performance.	
Control technology (X1)	Little or no control technology is used during the performance.	Some basic control technology is used during the performance.	Advanced control technology is used during the performance; the model is fully autonomous.	

ANIMATRONICS (continued)				
Model Function (70 points possible) (continued)				
Fluid power system inclusion (X1)	A fluid power system is included, but it doesn't function.	A fluid power system is included, but it does not contribute greatly to the overall function of the model.	The inclusion of fluid power system(s) and the fluidity of movement that these systems provide in an animatronics model are creative and effectively contribute to its design and performance.	
Use of gears, linkages, cabling, etc. (X1)	The use of gears, linkages, cabling, etc. is not apparent or is improperly incorporated into the model; the team shows little understanding of how to properly use these systems in the model.	Most gears, linkages, cabling systems, etc. are incorporated and used properly in the model; some systems should be redesigned for more efficient use of materials.	Efficient and varied use of gears, linkages, cabling systems, etc. is apparent and properly used in the model; there is evidence of a complete understanding of these systems.	
			SUBTOTAL (70 points)	

Rules violations (a deduction of 20% of the total possible points) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the far right. Indicate the rule violated: _____	
Time violation (a deduction of five points total will be incurred for exceeding the five-minute presentation time limit). Record the deduction in the space to the right.	
(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (180 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

ARCHITECTURAL RENOVATION

OVERVIEW

Participants develop a set of architectural plans and related materials for an annual architectural renovation design challenge and construct a physical, as well as a computer-generated model, to accurately depict their design. The design problem for the current school year will be posted on the TSA website under Competitions/ Themes and Problems.

PURPOSE

Students must demonstrate an understanding of and aptitude for architectural design, the development of plans, Leadership in Energy and Environmental Design (LEED) applications through construction and renovation, and modeling techniques and practices.

ELIGIBILITY

Participants are limited to one (1) individual or team per chapter, one (1) entry per individual or team.

TIME LIMITS

Entries must be started and completed during the current school year.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants access the design problem for the specific year's national conference on the TSA website. They then work to complete their entry according to the event regulations.

B. Participants check in their entries at the time and place stated in the conference program. No more than two (2) team members submit and place the model and documentation.

☑ Participants in this event should concentrate their efforts on understanding all aspects of the design challenge prior to beginning the planning and design process.

Visit the U.S. Green Building Council website (www.usgbc.org) to become familiar with the council and its LEED green building programs.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

C. Entries are reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

D. The individual semifinalist or two (2) representatives from each semifinalist team report to the event area at the time and place stated in the conference program. Semifinalists will sign up for a presentation/interview time and arrive at their specified time.

E. Semifinalists will use their models and documentation for reference during the presentation/interview process.

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

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. The architectural model must be placed on a site board, the size of which will be posted, along with the annual problem each year, on the TSA website.

☑ A model is neither a "miniature building," nor a mere illustration of a design concept. It serves as an assessment tool for the design. Too much detail can obscure important qualities, and not enough detail may generate an overly vague impression.

B. Documentation materials (comprising "a portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the event title, the conference city and state, and the year; one (1) page
2. Table of contents; pages as needed
3. A description of how the individual/team interpreted the design challenge and an explanation of the style and merits of the design concepts; one (1) page
4. Demolition plan for the existing structure, succinctly listed: maximum of two (2) pages
5. List and description of how each of the construction systems (any and all that apply) were incorporated and applied to the solution: building codes, building permits, construction methods and materials, electrical wiring, plumbing, HVAC, and site requirements; maximum of six (6) pages.
6. A LEED assessment for the project, according to the USGBC standards for green building; one (1) or more pages

7. A schedule of finish materials for all exterior and interior surfaces of the architectural design (this is not a list of the model construction materials); one (1) page
8. A reproduction copy of original hand drawings and printer/plotter-generated copies of CAD drawings for the required drawings (each drawing to be submitted on maximum drawing sheet cut size B [11" x 17"] with appropriate scale size noted on the drawing); pages as needed
   a. original floor plan/s
   b. sectional detail drawing
   c. foundation plan
   d. roof plan
   e. landscape plan
9. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible, and comments (see Plan of Work log); pages as needed
10. Mentorship Verification form; students are required to seek the mentorship of an architect or other professional involved with construction and renovation (see Mentorship Verification form); one (1) page
11. A 3-D modeling/rendering drawing of the individual/team's final design with appropriate details included; drawing sheet size B, 11" x 17"; one (1) page
12. List of resources/references; pages as needed

C. Nothing that identifies a participant's name, school, chapter, or state can be included on the model or portfolio.

D. Model construction concepts, materials, techniques, and applications:

1. Balsa wood, illustration board, or similar materials are suggested for (but not limited to) use as interior walls, exterior walls, and roof construction.
2. Foam core board that is ½" thick or greater is recommended for use as the site board for the model.
3. Dowels may be used to represent columns or circular components.
4. Participants should pay close attention to the scale of all materials as they relate to the scale of the model.
5. The model may not include any electrical or battery-powered enhancements.

No glass or liquid may be used as part of any model.

☑ Model construction – Participants in this event are encouraged to contact a local architect or an architectural design school to research and observe actual models in order to gain a greater perspective on how to approach the construction and assembly of an architectural model.

EVALUATION

Evaluation is based on points earned for the portfolio, the design process, the architectural model, and the semifinalist interview. For more specific information, please refer to the official rating form.

☑ Participants are encouraged to review all aspects of the official rating form to more clearly understand how their entry will be evaluated and judged.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students communicate ideas in order to develop a plan. Suggested leadership lessons: *Personality Types* and *Put It Together*
- CREATIVE THINKING — Students create original ideas based on specifications. Suggested leadership lessons: *HAT To Be Creative* and *The Leadership Chronicles*
- CRITICAL THINKING — Students research ideas and develop a plan. Suggested leadership lessons: *Critical Thinking Tips* and *The Hidden Message*

Additional leadership skills promoted in this event: evaluation, organization, problem solving, self-esteem, teamwork

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Appraiser
Architect
Construction manager
Interior designer
Urban and regional planner

TECHNOLOGY STUDENT ASSOCIATION
PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

HIGH SCHOOL ARCHITECTURAL RENOVATION MENTORSHIP VERIFICATION

I certify that I have served as a mentor to the student(s) named below. (This completed and signed form is a requirement of individual/team participation in the TSA competition, Architectural Renovation.)

_____

Student(s) involved (please print)

_____

Signature of student(s)

_____

Date

_____

TSA chapter advisor (printed name and signature)

_____

Date

_____

Name of mentor (please print)

_____

Occupation (please print)

_____

Employer (please print)

_____

Signature of mentor

_____

Date

ARCHITECTURAL RENOVATION
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

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

C. Evaluators for displays, two (2) or more

D. Evaluators for semifinalist interviews, two (2) or more

MATERIALS

A. Coordinator's notebook, containing
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries, with finalist report
   4. List of evaluators/assistants
   5. Pens for evaluators
   6. Notepads
   7. Semifinalist list for posting
   8. Results envelope

B. Tables for entries

C. Tables and chairs for evaluators

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

D. Place an entry number in the lower right-hand corner of each display and portfolio. Position displays for evaluation and viewing. Secure the entries in the designated area.

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

F. Evaluators independently assess the entries.

G. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

H. Evaluators average their scores to determine the twelve (12) semifinalists.

I. Prepare a list of the twelve (12) semifinalists in random order and submit it to the CRC chairperson for posting.

J. Inspect the area in which the interviews are to take place. There should be tables and chairs for the evaluators.

K. Meet with your semifinalist evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the interviews begin.

L. Conduct semifinalist interviews.

M. Evaluators average their scores to determine the ranking of the ten (10) finalists. Evaluators discuss and break any ties.

N. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

ARCHITECTURAL RENOVATION

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Documentation (120 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1, X2 or X3 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14points; and "adequate" score of 7 for an X3 criterion = 21 points.)				
Portfolio components See Regulation B (X1)	Portfolio is unorganized and/ or is missing three or more components.	Portfolio is missing one or two components, and/or it is loosely organized, and/or it lacks sufficient content.	All components are included in the portfolio; content and organization are excellent.	
Description of design interpretation (X1)	The description of the design and style is unclear or vague, and/or major grammatical/spelling errors are evident.	The description of the design and explanation of the style are included, but they are unclear and/or contain some grammatical/ spelling errors.	The description and merits of the design and explanation of the style are clear, effective and convincing, and without grammatical/spelling errors.	
Demolition plan (X1)	The demolition plan lacks key elements and a clear explanation.	The demolition plan is included, but lacks detail, and/or clarity, and/ or effectiveness.	The demolition plan is completely detailed, clear, and effective.	
Construction systems See Regulation B5 (X1)	There is little or no evidence of attention to the various applicable construction systems.	Most, but not all, construction systems are addressed, but they are not well presented.	All applicable construction systems are addressed, clearly documented and well presented.	
Schedule of finish materials (X1)	Many elements of the interior and exterior finish schedules are missing or incomplete.	Most, but not all, elements of the interior and exterior finish schedules are included.	All interior and exterior finish schedules/materials are detailed and explained in an exemplary manner.	
LEED Assessment (X1)	A minor attempt has been made to incorporate a LEED assessment of the design.	Many, but not all, aspects of a LEED assessment of the design are provided and documented.	A complete and accurate LEED assessment of the design is included.	
Drawings See Regulation B.8 (X2)	A few of the required drawings are present, but they are lacking in quality.	Most, but not all, of the required drawings are included and are in the proper format.	All required drawings are included and are exemplary in format.	
3D modeling or rendering (X2)	The drawing is missing or poorly executed and does not use appropriate/necessary details of the design challenge.	The drawing is included, but it is missing some key elements and necessary details of the design challenge.	The drawing completely and effectively represents all aspects of the design challenge, including necessary details.	
Resources/references (X1)	There is little or no effort to provide resources and references.	Resources and references included are generally presented appropriately.	There is clear evidence of the appropriate use of applicable resources and references.	
Plan of Work log (X1)	The Plan of Work log lacks major elements of the plan documentation.	The Plan of Work log is somewhat complete, and generally reflects the time and work necessary for the project.	The Plan of Work log completely and accurately reflects the time and work necessary for the project.	
			SUBTOTAL (120 points)	

ARCHITECTURAL RENOVATION (continued)				
Design Challenge (50 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Effectiveness of design (X2)	The design is ineffective in meeting the needs of the challenge.	The design is somewhat effective in meeting the needs of the challenge.	The design is exemplary and clearly effective in meeting the needs of the challenge.	
Access and flow (X1)	The design reflects an ineffective traffic flow pattern and use of space to gain access to the original structure and addition.	The design reflects a somewhat effective traffic flow pattern and use of space to access the structure and addition.	The design presents a clear, effective traffic flow pattern and full consideration of the use of space.	
Aesthetic appeal (X1)	There is little evidence of consideration of aesthetics and curb appeal in the design.	There is some evidence that aesthetics and curb appeal have been considered in the design.	There is clear evidence that aesthetics and curb appeal are fully and effectively integrated into the design.	
Creativity and innovation (X1)	The design lacks originality and exhibits few, if any, creative and/or innovative applications.	Some unique, innovative, and creative concepts are incorporated in the overall design.	Unique, creative and innovative approaches have met the challenges of, and have been incorporated into, the design.	
			SUBTOTAL (50 points)	
Model (70 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Quality of construction (X2)	Construction is of poor quality and appearance, with little or no attention to neatness.	Construction is somewhat neat and has appropriate quality and appearance.	Construction is of excellent quality and exemplary appearance.	
Use of materials (X1)	The choice of materials is ineffective and inadequate for the type and scale needed.	There is effective choice of materials and some attention to scale.	There is effective and excellent use of materials and accurate choice of scale.	
Design representation (X2)	The model is ineffective in depicting the requirements of the design challenge.	The model is somewhat effective in depicting the requirements of the design challenge.	The model clearly and effectively incorporates and depicts all aspects of the design challenge.	
Landscape plan/site board (X2)	The site board is ineffective in portraying the elements of the landscape plan.	The site board is somewhat effective in representing most aspects of the landscape plan.	The site board effectively depicts all elements of the landscape plan.	
			SUBTOTAL (70 points)	

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

Indicate the rule violated: _____

ARCHITECTURAL RENOVATION (continued)				
Semifinalist Presentation/Interview (60 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the presentation/interview.	Participants are generally prepared for the interview and somewhat organized in their overall presentation/interview.	Participants' presentation/ interview are logical, well organized, and easy to follow.	
Knowledge (X2)	Participants seem to have little understanding of the concepts of their design challenge and offer vague answers to interview questions.	Participants have a general understanding of the concepts of the design challenge and answer questions relatively well.	Participants show clear evidence of a thorough understanding of the design challenge and effectively communicate their responses to all questions.	
Articulation (X1)	The presentation and interview are full of illogical thoughts that lack understanding and clarity.	The presentation and interview are somewhat logical and easy to understand and follow.	The presentation and interview provide a clear, concise, and easy-to-follow description of the project.	
Delivery (X1)	Participants are verbose, and/ or illogical in their presentation/ interview, and/or use many "uhs, ums, hmms,'" etc.	Participants are logical and fairly well spoken, with little use of "uhs, ums, hmms," etc.	Participants are logical, well-spoken, and distinct throughout the presentation/interview..	
Team participation (X1)	Only one person on the team communicates and responds to questions.	Most members of the team participate and generally seem to understand the event.	All team members participate with mutual understanding of the event and respond effectively to questions.	
			SUBTOTAL (60 points)	

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

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (300 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

BIOTECHNOLOGY DESIGN

OVERVIEW

Participants select a contemporary biotechnology problem that relates to the current year's published area of focus and demonstrate understanding of it through documented research, the development of a solution, a display, and an effective multimedia presentation. A model or prototype of the solution must be included in the display. Participants may choose to recreate or simulate research that previously has been performed within the scientific community.

The topic for the current school year will be posted on the TSA website under Competitions/Themes and Problems.

☑ Biotechnology is defined as "any technique that uses living organisms, or parts of organisms, to make or modify products, improve plants or animals, or to develop microorganisms for specific purposes." from *Standards for Technological Literacy*, ITEEA/ITEA, p.149.

PURPOSE

Participants are encouraged to explore and gain an understanding of an area of biotechnology—a field of biology that involves the use of living things in engineering, technology, medicine, etc.

ELIGIBILITY

A. Participants are limited to three (3) teams per state, two to six (2-6) members per team.

B. The semifinalist presentation is given by two (2) members of the team.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. Semifinalists are given up to ten (10) minutes to give a presentation, which is followed with a few minutes for questions from evaluators.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Team members select and research a contemporary biotechnology issue related to the current year's designated area of focus. Resources may include, but are not limited to, books, interviews, websites, magazines, professional journals, etc. Team members then prepare their documentation, display, and multimedia presentation according to the regulations below.

B. Participants check in their entries at the time and place stated in the conference program. No more than two (2) team members set up the display.

C. Entries are reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

D. Two (2) representatives from each semifinalist team, with their multimedia presentation, report to the event area at the time and place stated in the conference program.

E. Semifinalist team representatives give a brief presentation and answer questions from evaluators. Up to ten (10) minutes will be provided for the presentation, with a few minutes more for questions from evaluators.

F. No more than two (2) team members pick up their entry from the display area at the time and place stated in the conference program.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. All work must be completed during the current school year.

B. Students must understand the fundamental concepts and principles of the contemporary biotechnology issue the team has selected. Research should focus on significant impacts (opportunities *and* risks) on the environment, economy, and society, as well as any important ethical considerations.

C. Documentation materials (comprising "a portfolio") are required and should be placed and secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the title of the project/problem, event title, the conference city and state, and the year; one (1) page
2. Table of contents; pages as needed
3. Definition and explanation of the problem; one (1) page
4. An explanation of the chosen solution, and other possible solutions and why they were rejected; maximum three (3) pages
5. A scenario of possible real-life applications; one (1) page
6. Supplementary information such as logs, graphs, sketches, drawings, illustrations, photographs, etc.; maximum four (4) pages
7. A print-out of the accompanying multimedia presentation (printed with three [3] slides per page, recommended); pages as needed
8. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible, and comments (see Plan of Work log); one (1) page
9. References and resources (a minimum of three [3], e.g., books, interviews, professional journals, websites, magazines); all MUST be cited using Modern Language Association (MLA) style; pages as needed
10. A CD or DVD of the team's multimedia presentation. The CD/DVD and the multimedia presentation become the property of TSA.

☑ Don't forget! Your documentation must not include any identifying information beyond your conference ID number.

D. Display guidelines are as follows:

1. The size of the display may not exceed 15" deep x 3' wide x 4' high.
2. A model or prototype is required.
3. AC electricity may not be used. Dry cell or photo-voltaic cells may be used for power, if desired. Any power source used must fit within the maximum display area.
4. If operating instructions are necessary, they must be clearly displayed.
5. **No harmful or illegal substances, viruses, live plants, or animals may be used as a part of the display. No potentially dangerous processes may be demonstrated or included as part of the display.**

E. Each team must be prepared to send two (2) representatives to a semifinalist interview in which the representatives give a brief multimedia presentation. The presentation explains the team's

selection of the problem and its solution and is not to exceed ten (10) minutes. Evaluators then ask questions.

F. The two (2) semifinalist team representatives MUST bring a laptop computer to show their multimedia presentation. Projection equipment will not be permitted. Only power will be provided.

EVALUATION

Evaluation is based on the documentation, the display, and the presentation/interview (semifinalists only). For more specific information, please refer to the official rating form.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- CRITICAL THINKING — Students analyze biotechnology problems. Suggested leadership lessons: *Critical Thinking Tips* and *Put Yourself in Their Shoes*
- PROBLEM SOLVING — Students will choose a problem and develop a solution. Suggested leadership lessons: *Debate It* and *Lend a Hand*
- COMMUNICATION — Students communicate within a group and to an audience. Suggested leadership lessons: *Listening Skills* and *Promote It.*

Additional leadership skills promoted in this event: creative thinking, decision making, evaluation, ethics, organization, teamwork

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Bioinformatics processor
Food scientist
Microbiologist
Radiographer
Quality control analyst

TECHNOLOGY STUDENT ASSOCIATION PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

BIOTECHNOLOGY DESIGN
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

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

C. Evaluators for displays, two (2) or more

D. Evaluators for semifinalist interviews, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Stick-on labels for numbering entries
   6. Marking pens for evaluators
   7. Semifinalist list for posting
   8. Results envelope

B. Tape measure for evaluators

C. One (1) calculator for each evaluator

D. Stopwatch

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

F. Table and chairs for evaluators and two (2) semifinalist team representatives

G. A 50' extension cord AND a power strip (for semifinalist interviews)

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

B. Inspect the area in which the displays are being placed for appropriate set-up, including appropriate number and size of tables.

C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

D. Place an entry number in the lower right-hand corner of each portfolio and display. Position entries for evaluation and viewing. Secure the entries in the designated area.

E. Meet with your evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

F. Evaluators independently assess the entries.

G. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

H. Evaluators average their scores to determine the twelve (12) semifinalists.

I. Prepare a list of the twelve (12) semifinalists in random order and submit it to the CRC chairperson for posting.

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

K. Meet with your semifinalist evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

L. Conduct semifinalist presentations/interviews using the same official rating forms used by the first set of evaluators. Evaluators should be sure to ask questions.

M. Evaluators average their scores to determine the ranking of the ten (10) finalists. Evaluators discuss and break any ties.

N. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

BIOTECHNOLOGY DESIGN

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Documentation (50 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation C (X1)	The portfolio is unorganized and/or is missing three or more components.	The portfolio is missing two components, and/or it is loosely organized.	The portfolio has one or no components missing and is clearly well organized.	
Definition and explanation of problem and solution (X1)	The definition and explanation of the problem and/or the solutions to the problem are unclear; major grammatical errors are evident.	The definition and explanation of the problem, and/or the solutions to the problem are overgeneralized and/or not concise; some grammatical errors are present.	The definition and explanation of solutions to the problem are clear and concise, with few or no grammatical errors.	
Research base (X1)	The research is inadequate and/or very few credible sources are cited.	The research is conducted appropriately, with some credible sources cited.	There is a comprehensive research base with fully credible sources cited.	
Supporting graphics and materials (X1)	The graphics and supporting materials do not clarify the documentation, and/or they do not relate to the problem, and/or they may not be properly cited (MLA format).	The graphics and supporting materials are appropriate, properly cited (if needed), and supplement the documentation by providing clarity to the problem.	The graphics and supporting materials are of excellent quality; graphics clearly clarify abstract concepts and, if not original, are properly cited.	
Quality and effectiveness (X1)	The work is sloppy and disorganized, as if thrown together.	The work is mostly organized and of sufficient quality.	The work is well organized and of exceptional quality.	
			SUBTOTAL (50 points)	

Display (40 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Communication of problem (X1)	The problem is difficult to understand as communicated and is presented in an illogical manner.	The problem is communicated, and thoughts are somewhat organized and/or concise.	The problem is communicated in an organized, clear, and concise manner.	
Communication of solution (X1)	The solution is difficult to understand as communicated and is presented in an illogical manner.	The solution is communicated, and thoughts are somewhat organized and/or concise.	The solution is communicated in an organized, clear, and concise manner.	
Creativity (X1)	The work lacks creativity, with little or no integration of design principles.	Some creative elements are included, and essential design principles and elements are used somewhat effectively.	The work exudes creativity, and essential design principles and elements are integrated.	
Aesthetics and artisanship (X1)	The work is unorganized and sloppy, and the display seems to be an afterthought.	The work is organized, with essential design principles given in a logical format.	The work reflects an exemplary use of layout and design principles to logically communicate important data.	
			SUBTOTAL (40 points)	

BIOTECHNOLOGY DESIGN (continued)

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

Indicate the rule violated: _____

Semifinalist Presentation/Interview (60 points)			
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Organization (X1)	The team is unorganized in its presentation and seems unprepared for the interview.	The team is prepared for the interview, and the presentation is somewhat organized.	The team's presentation and interview are logical and well organized.
Knowledge (X2)	Team members seem to have little understanding of the concepts in their project and provide vague answers to the interview questions.	Team members have a generalized understanding of the concepts discussed and answer most questions well.	It is clear that team members have an equally thorough understanding of the concepts discussed; they answer questions expertly.
Articulation (of the project) (X1)	The presentation/interview is full of illogical thoughts that lack understanding and clarity.	For the most part, the presentation/interview is logical and/or easy to understand and follow.	There is a clear, logical explanation of the topic, and pertinent issues are provided.
Delivery (X1)	The team provides verbose and illogical interview responses that include many "uhs, ums, hmms," etc.	The team provides logical and well-spoken interview responses with few "uhs, ums, hmms," etc.	The team is well spoken and gives clear, logical interview responses, with no or very few "uhs, ums, hmms," etc.
Team participation (X1)	Only one team member communicates with the evaluators.	Team members participate somewhat equally and generally seem to understand the concepts.	Team members seem to fully understand the concepts and share an equal role in the presentation/interview.
			SUBTOTAL (60 points)

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (150 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

OVERVIEW

During the school year, participants research technology-related careers designated by the U.S. Bureau of Labor Statistics as falling in the top ten employment growth areas. Participants research and prepare a resume and cover letter for each of the careers noted. Semifinalists participate in an on-site job interview related to one of the careers.

Participants research each of the careers noted in the specified year.

2015: Aeronautical engineer
Computer information security specialist professional (CISSP)
Geographic Information System (GIS) analyst

2016: Manufacturing engineer
Web developer
Data communication analyst

PURPOSE

The purpose of this event is to provide participants the opportunity to practice preparation for a career. Participants research three (3) technology-related careers, prepare a resume and cover letter for each of the three (3) careers, and prepare to participate in a mock interview about any of the three (3) careers as a semifinalist.

ELIGIBILITY

Participants are limited to six (6) individuals per state.

TIME LIMITS

A. Participants report to the event area at the time and place stated in the conference program to submit three (3) sets of a resume and cover letter in separate and appropriately marked envelopes.

B. Semifinalist interviews are limited to ten (10) minutes.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. In preparation for this event, participants thoroughly research the three (3) given careers and gain enough understanding to answer job-specific questions, as well as complete a resume and cover letter for each career. Students enter this event with the scenario below in mind.
   1. You have graduated from high school and have the appropriate level of education and training (four [4]-year college, technical school, certification and training, etc.) that is required for successful employment in the given career.
   2. Your training, education, and other qualifications are realistic for successful employment in the given career and are reflected in your resume and cover letter.

B. Participants report to the event area at the time and place stated in the conference program to turn in three (3) sets of a resume and cover letter in individual 9" x 12" envelopes. The envelopes must display a single computer address label (1" x 2⅝") with the career name and a place for inserting the student's identification number. Example below:

Aeronautical engineer Student ID#

C. Entries are reviewed by evaluators to determine the twelve (12) semifinalists. Neither students nor advisors are present at this time.

D. A semifinalist list in random order is posted. At this time the career position for which each semifinalist will be interviewed will be posted. All semifinalists will interview for the same position.

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

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. All resumes and cover letters must be completed before entering the event area.

B. Resumes must be typed and are limited to two (2) single-side 8½" x 11" pages.

C. Cover letters must be typed and are limited to one (1) single-sided 8½" x 11" page.

D. Only participants are allowed in the event area.

E. Participants should be prepared to interview for any of the three (3) careers designated in a given year. Semifinalists will be informed of the designated career prior to the interview portion of the event.

EVALUATION

Evaluation is based on the participant's cover letter and resume. Semifinalists are evaluated on their interview. All scores carry over to the final score.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students communicate ideas to judges in an interview. Suggested leadership lessons: *Fact or Fiction* and *Listening Skills*
- CRITICAL THINKING — Students research and evaluate careers. Suggested leadership lessons: *And The Answer Is* and *Critical Thinking Tips*
- ORGANIZATION — Students prepare an organized resume and cover letter. Suggested leadership lessons: *New Club In Town* and *Parliamentary Procedure*

Additional leadership skills promoted in this event: ethics, evaluation, self-esteem

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Careers will vary, based on the student's area of interest.

CAREER PREPARATION
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Assistants, two (2)

C. Event evaluators, two (2) or more for written entries

D. Assistants, two (2)

E. Event evaluators, two (2) or more for mock interviews

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating form, thirty (30) copies
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Marking pens for evaluators
   6. Semifinalist list for posting
   7. Results envelope

B. Interview questions appropriate for each of the three (3) given careers

C. Stapler and staples

D. Tables and chairs for participants

E. Tables and chairs for evaluators

RESPONSIBILITIES

Submission of resume and cover letter

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Meet with your evaluators/assistants to review time limits, procedures, regulations, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

D. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

E. At entry check-in time, designate three (3) locations—one for each career area—where students submit their envelopes. (Keep entries separated based on the career area.)

F. Designate one (1) career area the judges should use for evaluation. Only move to a second or third career area if a tie-breaker situation occurs.

G. Evaluators independently assess the entries and then tally their rating forms.

H. Prepare a list of the twelve (12) semifinalists and submit it to the CRC chairperson for posting. Be sure to include instructions about where and when semifinalists can sign up for interview times. Post the job position for which the semifinalists will interview.

Mock interview

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

B. Meet with your evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

C. Each student is interviewed by the evaluators.

D. Evaluators review and determine the ranking of the semifinalists, discussing and breaking any ties.

E. Complete and submit the finalist report, including a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

CAREER PREPARATION

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Cover Letter (40 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Introduction (X1)	The introduction fails to describe the participant, and/or does not clearly identify the position or reason for contact, and/or does not indicate how the position was discovered, and/or it does not indicate interest, and/or it does not grab the employer's attention.	The introduction describes many of the elements (e.g., participant description, how the position was identified, reason for applying, etc.) and briefly addresses others (e.g., how the position was discovered, interest level, etc.), resulting in an adequate introduction.	The introduction incorporates all elements—the participant, the position or reason for contact, how the opening was discovered, and genuine interest in the position—and ultimately grabs the employer's attention.	
Body (identification of skills) (X1)	Participant fails to identify any skills or qualifications, does not explain interest, and does not indicate how his/her skills would provide benefit to the company.	Participant indicates his/her skills, with a general explanation of how the skills relate to the position at hand; participant conveys interest, and briefly connects the skills to benefits for the company.	Participant provides one or two strong qualifications and clearly relates these skills to the job at hand; participant clearly explains how his/her interest and skills can benefit the company.	
Conclusion (X1)	The conclusion does not include a thank-you to the employer an/or, does not note contact information, is not assertive, and/or lacks mention of follow-up after a given period of time.	The conclusion may or may not include a thank-you and follow-up to the employer with contact information; overall, it is adequate.	The conclusion includes a thank-you to the employer for his/her time and contact information; it is assertive and mentions a method of follow-up within a given period of time.	
Overall writing quality and grammar (X1)	The writing does not make sense; participant has written too much or too little (the employer could be turned off); there are multiple spelling and grammatical errors.	The writing is average, and includes relevant information and content; it is somewhat convincing to an employer; there are minor spelling or grammatical errors.	The writing flows well, is clear, concise, and gets right to the point; it is convincing and contains no spelling or grammatical errors.	
			SUBTOTAL (40 points)	

Resume (40 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Audience and purpose (X1)	The resume does not address a particular audience; purpose is not clearly stated; revision is needed.	The audience and purpose are generally implied; the resume is somewhat tailored to the employer	The audience is clearly addressed and the resume is tailored to the employer; the purpose is clearly stated.	
Presentation and format (X1)	The resume does not have a clear design format; headers are not used or are used incorrectly or inappropriately; the resume does not use reverse chronological format.	The resume attempts (and partially succeeds) to use a reverse chronological format; headers are used for a somewhat professional and concise presentation.	The resume follows a reverse chronological format; it uses clear and appropriate headers to organize information; it has a professional appearance.	

CAREER PREPARATION (continued)				
Resume (40 points) (continued)				
Appropriate Information (X1)	Information is not relevant to the position, and/or it does not convey the necessary skills needed to fulfill job requirements; it is obvious that no research on the position has been done.	Information is somewhat relevant to the position, skills are addressed, job requirements are somewhat taken into consideration when preparing the resume, and some research is evident.	Information is relevant to the position being applied for, it is obvious that research has been done on skills needed and requirements for the position, and all information is appropriate for the position being sought.	
Language and style (X1)	Participant fails to use action words; phrasing is wordy and lacks focus, and/or phrases need revision to make them concise and clear.	Participant uses some action words and some concise and clear words in parts of the resume.	Participant consistently uses strong, clear and concise words throughout the resume; clarity of expression is consistent.	
			SUBTOTAL (40 points)	

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

Semifinalist Interview (50 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Organization (X1)	Participant seems unorganized for the interview.	Participant is generally organized for the interview.	The interview with evaluators is well organized and logically completed.	
Knowledge (X2)	Participant seems to have very little understanding of the concepts in the presentation and provides vague responses to interview questions.	Participant presents a generalized understanding of the concepts discussed and answers questions fairly well.	Participant shows clear evidence of a thorough understanding of the job discussed and understands issues of the job in the future.	
Articulation (X1)	The interview is full of illogical thoughts that indicate lack of understanding.	The interview is somewhat logical and easy to understand and follow.	The interview provides a clear, concise, and easy-to-follow description of the project.	
Delivery (X1)	Delivery detracts from the message; eye contact is limited and participant may look at the floor, mumble, speak inaudibly, fidget or read most of the presentation; gestures and movements may be jerky or excessive; participant is verbose, illogical, and uses many “uhs, ums, hmms,” etc.	Delivery is generally good, with some effective use of volume, eye contact, vocal control, etc.; some hesitancy may be observed, however, vocal tone, facial expressions, and/or other nonverbal expressions do not detract from the message; participant is logical, well-spoken, and uses only a few “uhs, ums, hmms,” etc.	Delivery is seemingly extemporaneous, natural, and confident and enhances the message; posture, eye contact, smooth gestures, facial expressions, volume and pace also enhance the interview; commitment to the career and a willingness to communicate are evident; participant is well-spoken, distinct, and responds clearly, with little or no use of “uhs, ums, hmms,” etc.	
			SUBTOTAL (50 points)	

CAREER PREPARATION (continued)

Semifinalist Interview (50 points) (continued)

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

Comments:

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

Evaluator

Printed name: _____ Signature: _____

OVERVIEW

Participants take a written parliamentary procedures test in order to qualify for the semifinals, where they perform an opening ceremony, dispose of three (3) items of business, and perform a closing ceremony within a specified time period.

PURPOSE

Students have the opportunity to demonstrate an understanding of parliamentary procedures relative to business meetings.

ELIGIBILITY

Participants are limited to one (1) team of six (6) members per chapter. Team members do not have to be elected officers of the local chapter. Teams that take the written test and advance to the semifinalist portion of the event must be composed of the same six (6) members.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

TIME LIMITS

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

B. Semifinalist teams have fifteen (15) minutes with no penalty and up to seventeen (17) minutes with penalty (see below) to complete required parliamentary actions, items of business, set-up time, and a presentation. The time begins when the team is handed the prompt; the time ends when the gavel is rapped to close the meeting, or at seventeen (17) minutes. (At that point all other team members must leave the room.) The secretary will then have five (5) additional minutes to complete the minutes of the meeting. Teams are penalized five (5) points per thirty (30) seconds on each evaluator's score sheet for going over the allotted time, based on the following scale:

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

No team may go beyond seventeen (17) minutes.

ATTIRE

TSA Competition attire, with additional requirements that apply for the Chapter Team event, as described in the National TSA Dress Code (www.tsaweb.org/Dress-Code) section of this guide, is required.

☑ For a complete description of TSA Competition attire, including specifics for the Chapter Team event, be sure to read the section in the front of this book called National TSA Dress Code.

PROCEDURE

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

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

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

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

E. Each team follows the procedure for opening and closing a local chapter meeting. Each team follows an order of business to dispose of three (3) given parliamentary items or actions provided by the event coordinator and then closes the meeting according to the prescribed procedure. Concerning the reading of the creed by the secretary during the closing ceremony, a chapter has the option to recite the creed using one (1) or more of its team's members.

REGULATIONS

☑ Participants 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 this competition.

A. Team members take the written test individually. These same six (6) team members will compete in the oral portion of the event, should the team qualify.

B. Teams consist of a president, vice president, secretary, treasurer, reporter, and sergeant-at-arms.

C. The event includes the call to order, pledge to the flag, roll call, order of business, and closing ceremony.

D. Written materials, other than those provided, may not be taken into the event room.

E. A set of secretary's minutes, a treasurer's report, and a list of parliamentary actions are provided by the event coordinator when the team members enter the performance room. The event coordinator also will supply each team with paper, six (6) blank index cards, and a calculator.

F. Any team that fails to appear at the designated time is placed at the end of the list and allowed to participate at the discretion of the evaluators and event coordinator if time permits.

G. Officer paraphernalia (officer symbols and a gavel only) is placed on a long table with the United States flag standing to the right of the president's rostrum and the host state flag to the left. The president's rostrum should be centered between the two (2) flags. The symbols of the officers should be placed in front of the respective officers. The host state banners are optional and do not add to or subtract from the evaluators' point totals.

H. A timepiece may be used by the team if desired.

I. Semifinalist teams have a time limit of fifteen (15) minutes to complete required parliamentary actions, items of business, set-up time, and a presentation. (These are all part of the Business Meeting Demonstration.) Official timing will stop at the team's final gavel to end the meeting. Five (5) points will be deducted for every thirty (30)-second interval over the allotted time (see TIME LIMITS).

J. Bonus points will be awarded for additional motions and parliamentary actions by the officers, other than the president.

K. At the conclusion of the oral presentation, each team secretary has five (5) minutes to write a copy of chapter minutes that will be submitted to an evaluator.

L. All materials given to team members, including the chapter minutes recorded during the presentation, must be given to the evaluators before the team leaves the room.

M. No reference should be made to a team's school, chapter name, city, or state. However, the state name on a TSA patch is acceptable.

☑ Teams are asked not to reveal their school, chapter name, or city, but the state name on an official TSA patch is acceptable.

EVALUATION

Each team's average written test scores are used to determine the twelve (12) semifinalist teams. A team's average test score is included in the results. Semifinalist teams are evaluated according to the criteria on the official rating form.

NOTE

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

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

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Technology, Engineering

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students perform an opening and closing ceremony. Suggested leadership lessons: *Listening Skills* and *Put It Together*
- SELF-ESTEEM — Students exhibit confidence during debate. Suggested leadership lessons: *Define U!* and *Paper Plate Awards*
- TEAMWORK — Students effectively work together as a team. Suggested leadership lessons: *Effective Meetings* and *Stepping Stones*

Additional leadership skills promoted in this event: decision making, organization, problem solving

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Careers will vary, based on the student's area of interest.

TSA CREED:

I believe that Technology Education holds an important place in my life in the technical world. I believe there is a need for the development of good attitudes concerning work, tools, materials, experimentation, and processes of industry. Guided by my teachers, artisans from industry, and my own initiative, I will strive to do my best in making my school, community, state, and nation better places in which to live. I will accept the responsibilities that are mine. I will accept the theories that are supported by proper evidence. I will explore on my own for safer, more effective methods of working and living. I will strive to develop a cooperative attitude and will exercise tact and respect for other individuals. Through the work of my hands and mind, I will express my ideas to the best of my ability. I will make it my goal to do better each day the task before me, and to be steadfast in my belief in my God, and my fellow Americans.

The TSA Creed also may be found on the TSA website (http://www.tsaweb.org/Our-Mission).

CHAPTER TEAM
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators, two (2) or more

C. Assistants, two (2) or more for the written test and two (2) or more for the oral presentations

D. Timekeeper

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Copies of parliamentary procedures test
   6. Opening and closing ceremonies script
   7. List of parliamentary actions
   8. Copies of secretary's minutes
   9. Copies of treasurer's report
   10. Paper, pens, one (1) calculator
   11. Six (6) 3" x 5" note cards per team
   12. Semifinalist list for posting
   13. Results envelope

B. Officer symbols and gavel

C. United States flag

D. State flag (optional)

E. Stop watches

F. One (1) table and three (3) chairs for evaluators

G. One (1) long table or two (2) tables and six (6) chairs for chapter team members

H. Table rostrum, if available

☑ Scoring on this test of fifty (50) questions is as follows: All six (6) team members take the written test. An average of their scores is calculated. That average is divided by five (5), and the resulting number is the score the team will receive out of ten (10) points.

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. Begin the event at the scheduled time by closing the doors and checking the entry list. All participants and evaluators should be in the room at this time. Participants not present may be disqualified. In order to compete, participants must be on the entry list or must have approval of the CRC chairperson.

E. Administer the written test.

F. Average the scores for each team.

G. Prepare a list of the twelve (12) semifinalists and submit it to the CRC chairperson for posting.

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

I. When each team enters the performance room, pass out the three (3) items of business. At this point the team's allotted time begins.

J. The event coordinator or an assistant is responsible for introducing each team by entry number only when the evaluators have finished with the previous team.

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

L. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

M. Evaluators average their scores to determine rankings. Any ties that affect these semifinalists should be broken by using the team average score on the written exam.

N. Complete and submit the finalist report and all related forms in the results envelope to the CRC room.

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

CHAPTER OPENING AND CLOSING CEREMONIES

OPENING CEREMONY

(At the prescribed time for meetings, the president assumes his/her position behind the rostrum in the front center of the room. Other officers are seated to the left and right of the president. They are seated in the following order from stage left to right: vice president, treasurer, secretary, president, reporter, and sergeant-at-arms.)

Host State Banner (Optional)

U.S. Flag Sgt.-at-Arms Reporter President Secretary Treasurer Vice Pres. State Flag

(Officers facing audience)

Audience

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

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

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

CLOSING CEREMONY

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

SUGGESTED ORDER OF BUSINESS FOR CHAPTER MEETINGS

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

CHAPTER TEAM OFFICIAL MINUTES

Team number _____

Date _____

Location of conference _____

Use the back of this page, if necessary.

Secretary's signature _____ Date _____

Participant ID#1 _____ ID#2 _____ ID#3 _____ ID#4 _____ ID#5 _____ ID#6 _____

Team ID#1 _____

CHAPTER TEAM

2015 & 2016 OFFICIAL RATING FORM — HIGH SCHOOL

Record scores in the column spaces below.

Team Written Test (10 points)

Record the scores of the six (6) team members in the boxes below. Calculate the average of their scores. Divide the average by five (5) for the score that the team will receive out of ten (10) points. Record the score in the column space to the far right.

#1	#2	#3	#4	#5	#6	
					SUBTOTAL (10 points)	

Business Meeting Demonstration (170 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1, X2 or X3 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points; an "exemplary" score of 7 for an X3 criterion = 21 points)				
Preparation for Meeting (30 points)				
Official attire/poise (X2)	Appearance is untidy; grooming is lacking; clothing is not consistent in coloration and visual appearance; shoes are the wrong color; poise and confidence are missing.	Overall appearance is neat and consistent; grooming is good, but confidence could be improved.	Overall appearance is cohesive and polished (official, professional, confident and business like).	
Placement of flags and officer symbols; officer seating (X1)	Flags are not placed in the correct order; and/or officer symbols are not in the correct order and/or are not aligned properly on the table; and/or not all officers are seated in the proper arrangement, resulting in a sloppy and haphazard appearance.	Placements and seating are generally businesslike and professional, with some inconsistencies (e.g., flags are in correct order but not aligned with other aspects of officer gear; and/or officer symbols are in proper order, but some are misaligned; and/or officers are seated properly, but some chairs are misaligned, etc.).	Flags are completely aligned and in proper order and placement; officer gear is placed in the correct order and in proper alignment on the table; the seating arrangement is precise, business like and professional.	
Knowledge of TSA (30 points)				
Opening ceremony (X1)	Many items of sequence and order are incorrect and officers make several mistakes.	Officers make few, if any, sequence and order mistakes, resulting in a fairly smooth opening ceremony.	The opening is smooth and efficient and everything progresses as it should.	
Treasurer's report (X1)	The format of the report is incorrect or not complete; math and spelling errors are evident.	The format of the report generally is correct and complete, with few math and/or spelling errors.	The report is formatted correctly; it is complete, with no math or spelling errors.	
Closing ceremony (X1)	Officers make several mistakes; creed recitation is sloppy and the overall effort is unpolished.	Appropriate procedures are followed, with some mistakes made (e.g., creed recitation).	The closing is outstanding, with no mistakes; the presentation is highly polished.	

CHAPTER TEAM (continued)				
Knowledge of Parliamentary Procedure (120 points)				
Order of business (X1)	Order of business is incorrect; officers appear confused and unprepared.	Officers generally follow correct order of business, while some appear distracted or unprepared.	Officers consistently follow efficient, orderly, and correct order of business.	
Voting procedures (X1)	Several obvious mistakes are made in voting procedures.	Few mistakes are made in voting procedures.	All voting procedures are correct, smooth, and efficient.	
Debate (exclude president) (X3)	Only a few officers participate effectively in the debate, which is loosely presented.	Most officers participate in the debate process and are somewhat convincing.	All officers participate in and present a highly cohesive debate.	
Parliamentary actions (X3)	Only one of the required actions is completed correctly.	Two or more of the actions are completed correctly, with adequate effort.	All three actions are completed correctly, with notable and inspiring effort.	
Communication (X2)	Communication is unclear; some mumbling occurs and/or voices are too loud or too soft; and/or problems occur with verbal expression (e.g., grammar, sentence structure).	Communication is generally clear, with appropriate volume of voices and only minor problems with articulation or verbal expression.	Communication is clear, concise, and easy to understand; voices are well modulated, and speakers are articulate.	
Chapter minutes (X2)	The format of the minutes is incorrect or not complete; grammar and spelling errors are evident.	The format of the minutes is generally correct and complete, with few grammar and/or spelling errors.	The minutes are formatted correctly, are complete, and have no grammar or spelling errors.	
			SUBTOTAL (120 points)	

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

TIME DEDUCTIONS (NO TEAM MAY GO BEYOND 17 MINUTES.)				
15:01 to 15:30 five (5)	15:31 to 16:00 ten (10)	16:01 to 16:30 fifteen (15)	16:31 to 17:00 twenty (20)	
	Oral presentation time	Intervals over	Total point deduction	
	Secretary's minutes	Intervals over	Total point deduction	

BONUS **For additional motions and parliamentary actions (by officers other than the president)** (X2)	Only one or two of the additional actions is/are completed correctly; the effort is uninspiring.	Three or four of the actions are completed in an acceptable manner.	All five of the supplementary actions are completed in a highly efficient and effective manner.	
			SUBTOTAL (20 points)	

CHAPTER TEAM (continued)

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (210 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

CHILDREN'S STORIES

OVERVIEW

A team creates an illustrated children's story of high artistic, instructional, and social value. The story may be written in prose or poetry and take the form of a fable, adventure story, or other structure. The narrative, along with the accompanying illustrations, is to result in an experience that delights, enlightens, and helps in the wholesome development of a child.

The story must have a Science, Technology, Engineering, and Mathematics (STEM) focus. There are many, many themes to consider. For example, from the sciences one could create a story about dinosaurs, the oceans or their extraordinary sea life, a single cell animal, or our solar system and beyond. From technology and engineering one could concentrate on the impacts of technology in our lives, or the environment, the building of ancient and contemporary monuments, or how something works. And, from mathematics one could write about numbers and shapes and the many mathematical designs found in nature and the industrial world.

☑ What is a story?

For the purposes of this event, the term "story" refers to all types of literature structures - fables, tales, poems, or instructional literature - and the included illustrations.

PURPOSE

The purpose of this event is to provide participants the opportunity to create an illustrated children's story of high worth that may be read in the home or school. Participants apply research skills to build deeper understanding in childhood development and the creation of children's literature; they also develop heightened artisanship in writing and graphic arts. Children's stories can play a key role in the development of a child. Stories help in the development of a child's literacy, social and psychological maturity, and understanding of the world we live in. Stories that are designed to be read by adults to children provide the added value of intimacy and caring.

ELIGIBILITY

Participants are limited to one (1) team per chapter. A team of one is permitted.

☑ Who is a child?

For the purposes of this event, we define children as those twelve years or younger.

TIME LIMITS

Each semifinalist team will be given up to twelve (12) minutes to read its story and share its illustrations with judges, and an additional five (5) minutes to answer judges' questions.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. In preparation for the event (and throughout project development), participants research literature about the writing and illustrating of children's books and literature. Participants must cite their research sources in their documentation.

B. Participants develop a children's story with accompanying illustrations. The illustrations must be positioned in the text in a way that best enhances the effectiveness of the story's narrative and illustrations. Participants prepare their stories and required documentation for submission. All work is submitted in a portfolio.

C. For purposes of evaluation - as the story nears final draft stages - the team will read to, or give the story to children to read, in order for the team to assess the story's quality and impact. The children's responses will be recorded in the team's Plan of Work log.

D. Participants check in their portfolios at the time and place stated in the conference program. No more than two (2) team members drop off the team's entry.

E. Portfolios are reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

F. Semifinalist teams report to the event area at the time and place stated in the conference program. Semifinalists will sign up for a reading and interview time. Teams must arrive punctually for the reading and interview time.

G. Semifinalist teams will be composed of no more than two (2) members. One member will be the team's reader, who will read the story to the judges. The reader will be given up to twelve (12) minutes to read the story. The other team member should be prepared to discuss illustrations included in the story. Both members will participate in the interview process following the

☑ As you begin your research, check out these websites:

http://www.ala.org/alsc/awardsgrants/bookmedia/newberymedal/newberymedal

http://www.ala.org/alsc/awardsgrants/bookmedia/caldecottmedal/caldecottmedal

☑ The Children's Stories competition hopes to combine the best of children's literature by reflecting criteria found in the selection of Newbery and Caldecott awards.

reading of the story. The interview process will last up to five minutes (5) minutes.

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

I. Ten (10) finalists will be announced during the conference award ceremony.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Story entries must not exceed 1500 words. Use your word processing software to count the number of words in your story to make sure your entry adheres to this regulation.

REGULATIONS

A. Participants write and illustrate an age-appropriate children's story.

B. The story (narrative with accompanying illustrations) should take between five (5) and ten (10) minutes to read and view (as would be needed in an actual quality reading to or by a child). The maximum reading time is twelve (12) minutes. There is no minimum length reading time.

C. The story must be no more than fifteen hundred (1500) words. There will be a five (5)-point deduction for every hundred (100) words more than 1500 words. **Stories of two thousand (2,000) or more words will be disqualified.** There is no minimum number of words required.

D. The narrative and illustrations will be organized in a "book" format of 8½" X 11". There will be a minimum of seven (7) unique illustrations. These illustrations will enhance the story and deepen the child's understanding and enjoyment of the reading experience. One illustration will serve as the "book's" cover. The team may use the cover illustration within the story as well.

☑ NOTE:
If your illustrations are hand drawn, do NOT put them in your portfolio. Make copies of them and leave the originals at home in a safe place.

E. Both narrative and illustrations must be the original work of the team members. NO copyrighted material is permitted. If narrative or illustrations appear in the story that are not authored by one of the team members, the team will be disqualified.

F. All illustrations MUST be original, freehand, and/or computer-generated drawings by the team member(s). All computer-generated work MUST be developed from primitive lines and

shapes and be the sole work of the team member(s). Physical or computer templates, previously existing drawings, characters, backgrounds, etc., are NOT PERMITTED. All work must have been developed during the current school year.

G. The team's work will be submitted—as hard copies AND on a CD or DVD included in the team's portfolio—at the appropriate time and place designated.

H. Documentation materials (comprising "a portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the title of the story, the event title, the conference city and state, and the year; one (1) page
2. Table of contents; pages as needed
3. Purpose of story (one [1] page) to include:
   a. Story's intent
   b. Summary of storyline, and theme
   c. Intended audience (age, gender, demographics, special disabilities if any)
   d. Word count—number of words comprising the story's narrative
4. Two (2) hard copies of the story separately stapled (one for the team's reader, one for the judges)
5. Each copy of the story will include the following 8½" X 11" pages:
   a. Cover with story title, an illustration, and the names of the author(s) and illustrator(s)
   b. Inside pages as needed (may be one-sided or two-sided). The team will determine which format best presents the team's narrative and illustrations.
6. Plan of Work log that describes the development of the story and illustrations and the story's assessment (periodic readings to or by children), as noted by date, task, time involved, team member responsible, and comments (see Plan of Work log); pages as needed
7. Professional and technical information (one (1) page) containing:
   a. A brief narrative of the research, writing strategies, and problems encountered in the writing and illustration of the story
   b. A list of artist tools, software used (if any), and techniques in the creation of the illustrations
8. References; one (1) page
9. A CD or DVD containing all the above documents saved as PDF files. The story with its incorporated illustrations must be saved as a separate PDF file. Note, the CD/DVD and

☑ Design your story so that it can be read at the same pace you would read it to a child, finishing within twelve (12) minutes.

its contents become the property of TSA for communication purposes only. Publishing rights remain with the authors and illustrators.

I. Semifinalist teams (up to two [2] team members) report to the event area at the time and place stated in the conference program to sign up for the reading and interview time.

J. The team's reader will be given up to twelve (12) minutes to read the story to the judges. Both team members will participate in the interview process (lasting up to five [5] minutes) following the reading of the story.

EVALUATION

Evaluation is based on the portfolio, the story (narrative and illustrations), the reading of the story, and the interview (for semifinalists only). For more specific information, please refer to the official rating form.

STEM INTEGRATION

Depending upon the subject written about, this event may align to one or more STEM areas. Please refer to the STEM Integration section of this guide for more information.

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- Communication – Students communicate through written language. Suggested leadership lessons: *Fact or Fiction* and *Listening Skills*
- Creative Thinking – Students create an original children's story. Suggested leadership lessons: *HAT to be Creative* and *Invention Mishap*
- Teamwork – Students work together to create a narrative and illustrations for a children's story. Suggested leadership lessons: *Stepping Stones* and *The Gift*

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Writer
Illustrator
Educator
Editor
Publisher
Graphic artist

TECHNOLOGY STUDENT ASSOCIATION
PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

CHILDREN'S STORIES EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

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

C. Evaluators for portfolios, two (2) or more

D. Evaluators for semifinalist readings/interviews, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Stick-on labels for numbering entries
   6. Marking pens for evaluators
   7. Semifinalist list for posting
   8. Results envelope

B. Stopwatch

C. One (1) calculator for each evaluator

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

E. Table and chairs for evaluators and two (2) semifinalist team representatives

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators and assistants have been scheduled.

B. Inspect the area in which the portfolios are being placed for appropriate set-up including sufficient number and size of tables.

C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only

after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

D. Place an entry number in the lower right-hand corner of each portfolio. Position the entries for evaluation and viewing. Secure the entries in the designated area.

E. Meet with your evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

F. Evaluators independently assess the entries.

G. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and the CRC manager; all must initial either of these actions on the rating form.

H. Evaluators average their scores to determine the twelve (12) semifinalists.

I. Prepare a list of the twelve (12) semifinalists in random order and submit it to the CRC chairperson for posting.

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

K. Meet with your semifinalist evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

L. Conduct semifinalist readings/interviews using the same official rating forms used by the first set of evaluators. Evaluators should be sure to ask questions.

M. Evaluators average their scores to determine the ranking of the ten (10) finalists. Evaluators discuss and break any ties.

N. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

CHILDREN'S STORIES

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Documentation (50 POINTS)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components (X1)	The portfolio is unorganized and/or is missing three or more components.	The portfolio is missing one or two components and/or is loosely organized.	The portfolio has all required components and is well organized.	
Purpose of story (X1)	The story's intent, story-line, and theme are poorly explained and/or the intended audience is not identified.	The story's intent, story-line, theme, and intended audience are adequately explained.	The story's intent, storyline, theme, and intended audience are complete and well explained.	
Plan of Work log (X1)	The log is poorly organized and/or incomplete.	The log is adequately detailed and organized and contains all the required components, including recording the periodic readings to children.	The log is well documented and contains all the required components, with special attention given to periodic readings to children.	
Professional and technical information (X1)	The summary of the research, design, and writing process is poorly done and/or is incomplete.	The summary of the research, design, and writing process is clear and complete.	The summary of the research, design, and writing process is extremely well written, detailed, clear, and complete.	
Research base (X1)	There are few references listed, and/or the references listed show little relevance to the project's goal.	There are a sufficient number of references listed; the quality is good.	Many quality references are listed reflecting research in writing and illustrating for children and child development.	
			SUBTOTAL (50 points)	

The Story (100 points)

CRITERIA	Minimal performance Research base	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Story narrative (X3)	The narrative is poorly written; there is little apparent purpose; it is lacking a coherent theme and storyline.	The narrative's purpose is clear, with a focused theme and storyline; the narrative has good pacing and development of characters and/or events.	The narrative is extremely well written with a clear purpose; the storyline is fast paced and exciting; the details are rich and enchanting.	
Illustrations (X3)	Artisanship of the illustrations reflects little technical skill and/or adds little value to the story's narrative, storyline, and/or theme.	Artisanship of most illustrations reflects good technical skill; illustrations add to the story's narrative, story-line, and theme.	Artisanship of illustrations is excellent, reflecting sophisticated technical skills; illustrations enhance the story's narrative, story-line, and theme, and they are of high esthetic quality.	

CHILDREN'S STORIES (continued)				
The Story (100 points) (continued)				
Impact (X4)	The story (narrative, with the illustrations) is lacking in purpose and coherence; it is not very interesting; the story lacks artistic, and/or instructional, and/or social value.	The story (narrative, with the illustrations) reflects a purpose and coherence throughout most of the work; the story reflects artistic, instructional, and social value; it is compelling and entertaining.	The story (narrative, with the illustrations) is beautifully told; It is compelling, entertaining, purposeful, and it reflects high artistic, instructional, and social value.	
			SUBTOTAL (100 points)	

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

Indicate the rule violated: _____

Reading and Interview (30 points)				
Story length violation: For stories exceeding 1,500 words, a deduction of 5 points will be incurred for every 100 words more than 1,500 up to 2,000. Stories of 2000 words or greater will be disqualified. Example: 1600 – 1699 words - 5 points; 1700 – 1799 words - 10 points; 1800 – 1899 words - 15 points; 1900 – 1999 words - 20 points; 2000 words and above, disqualified.				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Story's reading (X1)	The story's reading was lackluster. The reader showed little enthusiasm; the delivery was halting and difficult to understand; the story was read too quickly to permit viewing of the illustrations.	The story's reading was generally good; the reader's speech was clear and usually well paced and enthusiastic; sufficient time was given for reflection on the illustrations.	The story's reading was exemplary; the reader's speech was clear, well paced, and enthusiastic; sufficient time was given to reflect upon and appreciate the illustrations.	
Interview (X2)	The team's responses to the judges' questions were incomplete and/or poorly articulated; responses showed little understanding of the research or development of the project.	The team answered most of the judges' questions; the team's answers were articulate and showed some understanding of most of the concepts addressed.	The team's responses to the judges' questions were detailed and articulate; their answers reflected a high degree of understanding of the development of children's literature, including the artistic and technical concepts in both writing and illustrating for children.	
			SUBTOTAL (30 points)	

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (180 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

COMPUTER-AIDED DESIGN (CAD) 2D, ARCHITECTURE

OVERVIEW

Participants create representations, such as foundation and/or floor plans, and/or elevation drawings, and/or details of architectural ornamentation or cabinetry.

PURPOSE

Participants have the opportunity to use complex computer graphic skills, tools, and processes to develop representations of architectural subjects.

☑ CAD involves two (2) separate events:

CAD 2D, Architecture

CAD 3D, Engineering

ELIGIBILITY

Participants may compete in CAD 2D, Architecture or CAD 3D, Engineering, but not both. Participants are limited to two (2) individuals per state.

TIME LIMITS

A. Thirty (30) minutes set up time

B. Four (4) hours to develop the drawing(s)

C. One (1) hour for final evaluation

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

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

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

☑ CAD 2D, Architecture problems begin with a sketch and instructions to complete floor plans, foundation plans, elevations, and/or detail sections of a small, simple residential structure.

C. Participants are given a design problem to solve during a four (4)-hour work session.

D. Participants work independently, without assistance from evaluators, teachers, fellow participants, other students, or observers.

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

F. At the end of the session, participants save their work on their hard drives and on a CD or DVD.

G. One (1) additional hour is spent interviewing the participants and evaluating the entries from each participant's computer monitor.

H. Participants break down and remove their equipment.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. Participants provide their own systems, including hardware (only one [1] CPU and one [1] monitor), software, two (2) blank CDs or DVDs, power strip/surge protector, and reference materials. It is not necessary to bring a printer for this event. Laptop computers are recommended; computers must be equipped with a CD or DVD.

B. Event coordinators supply a table, chair, sketching paper, and electricity for each participant. Students are required to provide their own pencils.

☑ Participants must provide—and bring to the event site—two (2) pencils (sharpened standard #2/HB grade with an eraser, or #2 mechanical with an eraser) for this competition.

C. Participants are not permitted to leave the event room without permission from the event coordinator. If a participant must use the rest room, s/he is accompanied by an escort.

D. Participants are not permitted to share solutions to problems, reference materials, hardware, or software.

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

F. CDs/DVDs and the work they contain become the property of TSA, Inc.

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

EVALUATION

Entries are evaluated on screen according to the criteria on the official rating form.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students use CAD to communicate a design. Suggested leadership lessons: *Promote It* and *Put It Together*
- CREATIVE THINKING — Students create representations of ideas. Suggested leadership lessons: *Color Hunt* and *Creative Techniques*
- EVALUATION — Students evaluate a design according to requirements. Suggested leadership lessons: *Evaluation Methods* and *Seven Components of Effective Evaluation*

Additional leadership skills promoted in this event: organization, problem solving, teamwork

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Architect
Automobile designer
CAD professional
Machine designer

COMPUTER-AIDED DESIGN (CAD) 2D, ARCHITECTURE EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators, two (2) or more

C. Assistants, one (1)

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Four (4) pens and three (3) calculators
   6. Results envelope

B. Tables and chairs for participants and evaluators

C. One (1) ream of 8½" x 11" white copier paper

D. Statement of problem as a hard-copy sketch, fifty (50) copies.

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. As participants arrive, check the entry list and assign participants to work stations.

E. Begin the event at the scheduled time. All participants and evaluators should be in the room at this time. Participants not present may be disqualified. In order to compete, participants must be on the entry list or must have approval of the CRC chairperson.

F. Allow thirty (30) minutes for participants and their assistants (no more than one [1] per participant) to set up equipment. At the end of the thirty (30)-minute set-up time, non-participants are required to leave the event area. Review with the participants the time limits, procedures, regulations, and protocol of the event.

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

H. Distribute copies of the CAD problem. Answer any appropriate questions concerning the problem. Begin the event and announce the ending time.

I. During the event, the evaluators and assistants monitor and evaluate participant progress and work.

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

K. When time is called, participants stop and save their work on their hard drives and on their CDs or DVDs.

L. Collect the entries, checking to be sure each one is labeled with the student's conference identification number.

M. Participants remain at their computers for up to one (1) hour as evaluation of the entries is completed.

N. The evaluators review the entries independently and submit their signed official rating forms to the event coordinator.

O. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

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

Q. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

CAD 2D, ARCHITECTURE

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Solution to problem (40 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Design (X1)	The drawing as presented does not create an effective model for the problem assigned.	The layout and design of the drawing as presented create a somewhat effective model for the problem assigned.	The layout and design of the drawing completely and effectively model the problem assigned.	
Functionality (X1)	The design as drawn is impractical, disorganized, and lacks directional flow.	The design is somewhat practical in directional flow and organization.	The design is clearly effective, practical, and functional.	
Originality (X1)	The design drawing provides few, if any, attempts at originality or deviation from the traditional.	The design drawing attempts to be somewhat creative and shows some evidence of being non-traditional.	The design drawing provides a unique and creative quality of newness that departs from tradition.	
Aesthetics (X1)	The design is unappealing and fails to "capture the eye" of the observer.	The design is somewhat pleasing and appealing and attempts to capture the observer's attention.	The overall design is pleasing and appealing and effectively draws attention to its appearance/beauty.	
			SUBTOTAL (40 points)	

Layout (60 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Views (X2)	The correct views have not been selected and/or used throughout the drawing process and final layout.	Most of the views that have been selected and used are correct and in the proper layout format.	All of the views that have been selected and used are correct and in the proper layout.	
Detailing (X1)	Many of the details are missing or incorrectly placed.	Most of the details are included and correctly placed.	All the necessary details are included and placed correctly.	
Lettering (X1)	The choice of font style, size, color and application is inappropriate for the drawing assignment.	The choice of font style, size, color and application is appropriate, with few inconsistencies/ variations.	The choice of appropriate font style, size, color, and application is clearly evident and applied consistently.	
Dimensioning (X1)	Many of the necessary dimensions are missing and/or are incorrectly placed.	Most of the necessary dimensions are included and/or are correctly placed.	All necessary dimensions are included and correctly placed.	
Scale (X1)	The scale selected for the drawings is incorrect and improperly noted.	The scale selected for some or most aspects of the drawings is correct and properly noted.	The scale selected for all aspects of the drawings is correct and properly noted.	
			SUBTOTAL (60 points)	

CAD 2D, ARCHITECTURE (continued)				
Architectural Application (20 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Use of symbols (X1)	Many, if not most, of the symbols selected and used are incorrect.	Most of the symbols selected and used are correct and/or appropriately placed.	All of the symbols selected and used are correct and appropriately placed.	
Appropriate standards (X1)	There is little or no evidence of an appropriate application of architectural standards in the completed design and drawings.	There is some evidence of an appropriate application of architectural standards in the completed design and drawings.	There is clear evidence of an effective and appropriate application of architectural standards in the completed design and drawings.	
			SUBTOTAL (20 points)	
Software Utilization (20 points)				
CAD functions (X1)	There is little evidence of an understanding and application of CAD functions.	There is evidence of a general understanding and effective application of CAD functions.	A complete and effective understanding and application of CAD functions is evident.	
CAD features (X1)	There is little evidence of an understanding and application of CAD special features.	There appears to be a general understanding and application of CAD special features.	There is a complete understanding and application of the various special features of CAD.	
			SUBTOTAL (20 points)	

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

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (140 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

COMPUTER-AIDED DESIGN (CAD) 3D, ENGINEERING

OVERVIEW

Participants create a 3D computer model(s) of an engineering or machine object, such as a machine part, tool, device, or manufactured product.

PURPOSE

Participants have the opportunity to use complex computer graphic skills, tools, and processes to develop three (3)-dimensional representations of engineering subjects.

ELIGIBILITY

Participants may compete in CAD 2D, Architecture or CAD 3D, Engineering, but not both. Participants are limited to two (2) individuals per state.

☑ CAD involves two (2) separate events:

CAD 2D, Architecture

CAD 3D, Engineering

TIME LIMITS

A. Thirty (30) minutes set up time

B. Four (4) hours to develop the drawing(s)

C. One (1) hour for final evaluation

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

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

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

☑ CAD 3D, Engineering problems typically begin with single mechanical objects, such as a gear index, tool box, shaft support, retaining cap, etc.

C. Participants are given a design problem to solve during a four (4)-hour work session.

D. Participants work independently, without assistance from evaluators, teachers, fellow participants, other students or observers.

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

F. At the end of the session, participants save their work on their hard drives and on a CD or DVD.

G. One (1) additional hour is spent interviewing the participants and evaluating the entries from each participant's computer monitor.

H. Participants break down and remove their equipment.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. Participants provide their own systems, including hardware (only one [1] CPU and one [1] monitor are allowed per student), software, two blank CDs or DVDs, power strip/surge protector, and reference materials. It is not necessary to bring a printer for this event. Laptop computers are recommended; computers must be equipped with a CD or DVD drive.

B. Event coordinators supply a table, chair, sketching paper, and electricity for each participant. Students are required to provide their own pencils.

☑ Participants must provide—and bring to the event site—two (2) pencils (sharpened standard #2/HB grade with an eraser, or #2 mechanical with an eraser) for this competition.

C. Participants are not permitted to leave the event room without permission from the event coordinator. If a participant must use the rest room, s/he is accompanied by an escort.

D. Participants are not permitted to share solutions to problems, reference materials, hardware, or software.

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

F. All CDs/DVDs and the work they contain become the property of TSA, Inc., and will not be returned.

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

EVALUATION

Entries are evaluated on screen according to the criteria on the official rating form.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students use CAD to communicate a design. Suggested leadership lessons: *Promote It* and *Put It Together*
- CREATIVE THINKING — Students create representations of ideas. Suggested leadership lessons: *Color Hunt* and *Creative Techniques*
- EVALUATION — Students evaluate a design according to requirements. Suggested leadership lessons: *Evaluation Methods* and *Seven Components of Effective Evaluation*

Additional leadership skills promoted in this event: organization, problem solving, teamwork

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Engineer
Automobile designer
CAD professional
Machine designer

COMPUTER-AIDED DESIGN (CAD) 3D, ENGINEERING EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators, two (2) or more

C. Assistants, one (1)

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Four (4) pens and three (3) calculators
   6. Results envelope

B. Tables and chairs for competitors and evaluators

C. One (1) ream of 8½" x 11" white copier paper

D. Statement of problem as a hard-copy sketch, fifty (50) copies.

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. As participants arrive, check the entry list and assign them to work stations.

E. Begin the event at the scheduled time. All participants and evaluators should be in the room at this time. Participants not present may be disqualified. In order to compete, participants must be on the entry list or must have approval of the CRC chairperson.

F. Allow thirty (30) minutes for participants and their assistants (no more than one [1] per participant) to set up equipment. At the end of the thirty (30)-minute set-up time, non-participants are required to leave the event area. Review with the participants the time limits, procedures, regulations, and protocol of the event.

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

H. Distribute copies of the CAD problem. Answer any appropriate questions concerning the problem. Begin the event and announce the ending time.

I. During the event, the evaluators and assistants monitor and evaluate participant progress and work.

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

K. When time is called, participants stop and save their work on their hard drives and on their CDs or DVDs.

L. Collect the entries, checking to be sure each one is labeled with the student's conference identification number.

M. Participants remain at their computers for up to one (1) hour as evaluation of the entries is completed.

N. The evaluators review the entries independently and submit their signed official rating forms to the event coordinator.

O. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

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

Q. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

CAD 3D, ENGINEERING

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Solution to problem (40 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Design (X1)	The drawing as presented does not create an effective model for the problem assigned.	The layout and design of the drawing as presented are somewhat effective in modeling the problem assigned.	The layout and design of the drawing completely and effectively model the problem assigned.	
Functionality (X1)	The design as drawn lacks order of direction and is impractical.	The design is somewhat practical in directional flow and overall organization.	The design is completely effective, practical, and functional.	
Originality (X1)	The design drawing provides no quality of newness or deviation from tradition.	The design drawing shows some attempt to be creative and less non-traditional.	The design drawing provides a unique and creative quality of newness that departs from tradition.	
Aesthetics (X1)	The design is unappealing and fails to "capture the eye" of the observer.	The design is somewhat pleasing and appealing and attempts to capture the observer's attention.	The design as drawn is pleasing and appealing and effectively draws attention to its appearance/ beauty.	
			SUBTOTAL (40 points)	

Layout (60 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Correct geometry (X2)	The correct views and orientation have not been selected or used throughout the drawing process and final layout.	Most of the views and orientation selected and used are correct and in the proper layout format.	All of the views and orientation that have been selected and used are correct and in the proper layout.	
Detailing (X1)	Many of the details are missing or placed incorrectly.	Most of the details are included and are correctly placed.	All necessary details are included and are placed correctly.	
Lettering (X1)	The choice of font style, size, color and application is inappropriate for the drawing assignment.	The choice of font style, size, color, and application is appropriate, with few inconsistencies/variations.	The choice of appropriate font style, size, color and application is clearly evident and applied consistently.	
Dimensioning (X1)	Many of the necessary dimensions are missing and/or placed incorrectly.	Most of the required dimensions are included and placed correctly.	All of the necessary dimensions are included and correctly placed.	
Scale (X1)	The scale selected for the drawings is incorrect and not properly noted.	The scale for some or most aspects of the drawings is correct and properly noted.	The scale selected for all aspects of the drawings is correct and properly noted.	
			SUBTOTAL (60 points)	

CAD 3D, ENGINEERING (continued)				
Engineering Application (20 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Application of practices (X1)	Many, if not most, of the engineering practices selected and used are incorrectly applied.	Most of the engineering practices selected and used are correctly applied.	All of the engineering practices selected and used are correctly and appropriately applied.	
Appropriate use of conventions (X1)	There is little or no evidence of appropriate application of engineering conventions in the completed design and drawings.	There is some evidence of effective application of engineering conventions in the completed design and drawings.	There is clear evidence of an effective and knowledgeable application of engineering conventions in the completed design and drawings.	
			SUBTOTAL (20 points)	
Software Utilization (20 points)				
CAD functions (X1)	There is little evidence of an understanding and application of CAD functions.	There is evidence of a general understanding and effective application of CAD functions.	A complete and effective understanding and application of CAD functions is evident.	
CAD features (X1)	There is little evidence of understanding and application of CAD special features.	There appears to be a general understanding and application of CAD special features.	There is complete understanding and application of the various special features of CAD.	
			SUBTOTAL (20 points)	

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

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (140 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

COMPUTER NUMERICAL CONTROL (CNC) PRODUCTION

OVERVIEW

Participants design, fabricate, and demonstrate their ability to use a CNC (computer numerical control) machine to produce a device based on an annual problem posted on the TSA website under Competitions/Themes and Problems. Documentation and two (2) machined samples are checked in and evaluated. Teams return for an assembly session of their entry, using the tools in their tool box, and immediately demonstrate their device.

☑ CNC is composed of the function and motions of a machine or tool controlled by means of a prepared program. The program contains coded alphanumeric data, which may include, but is not limited, to mills, routers, lathes, and lasers.

PURPOSE

Participants demonstrate the use of critical thinking skills to 1) select appropriate applications of CNC programing, 2) select appropriate materials and fabrication techniques for their solution, and 3) demonstrate the application of their solution.

ELIGIBILITY

Participants are limited to one (1) team of two (2) members per chapter, one (1) entry per team.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. Teams will be allowed one (1) hour to assemble their entry/device.

C. The demonstration will occur immediately after assembly.

D. The demonstration will be completed in a two (2)-minute time frame.

E. Check-out occurs as directed in the conference program or as designated by the coordinator.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

☑ How to produce a winning entry:

This competition is about CNC machining. Students should feel free to use a mill, a lathe, a laser, or all three. Also, other equipment and tools may be desirable for secondary operations. (Since this competition is meant to emulate the real world, using other tools is acceptable.) Remember, the more work accomplished on the CNC machine, the better!

PROCEDURE

Participants submit the documentation and sample work pieces of their entry for evaluation during check-in, as directed in the conference program.

Assembly and Demonstration

A. Teams report to the assembly session at the time and place noted in the conference program.

B. Participants are required to provide their own tool box (with identification [school name, address, and advisor cell phone number]), which should not exceed twenty (20) inches (508 mm) length x ten (10) inches (254 mm) width x ten (10) inches (254 mm) height. The box must contain all items needed to fabricate the solution/entry. The following is a suggested list:

1. Cutting devices; NONE may be electric
2. Adhesives
   a. aerosol and electric applicators are not allowed
   b. a bottle of Uncure or Debonder is recommended
3. Temporary fastening devices
   a. straight pins
   b. clamps
   c. tape
4. A cutting surface that prevents table top marring
5. Rulers, straightedges, and/or measuring scales
6. Abrasives sheets, sponges, boards
7. Marking devices (pens, pencils, etc.) and sharpener
8. Sheet of wax paper, as large as is needed for the competition
9. Pliers, wrenches, nut drivers, as needed
10. Safety glasses and side shields, as required

C. Participants are required to provide and wear safety-approved eyewear for this event. Prescription eyewear will need to have side shields to be considered safety eyewear. Should a team member remove his/her eyewear, he/she will be reminded once to replace it. If there is a second infraction, the team will be asked to leave the competition. Sunglasses are not suitable eyewear.

D. Upon completion of assembly, the entry/device will be submitted for evaluation.

E. After the evaluation, each team member will individually demonstrate the operation of the device.

F. The demonstration starts on the judge's signal.

G. Participants: The first participant will use one (1) hand to set the device. The second participant will load the device with one (1) hand. At the judge's signal, the first participant will release the device to activate it. No preloaded devices are allowed; the device may only be loaded in solo fashion, using the same procedure each time.

H. The operation of the device will be scored, and the score recorded.

I. Evaluation during the demonstration will be based on the success of the entry to respond to the posted problem.

J. Should a device fail during one (1) of the two (2) demonstrations, repairs are allowed at the discretion of the event coordinator, with approval from the event manager.

K. Only team members are allowed to repair or check the operation of the device after it has been checked in. Team members may not leave the contest area to collect tools or parts for repair.

L. The device may be placed on static display after the demonstration and should not be operated during its display. If it is not placed on static display, it will be released to the participants immediately after the demonstration.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. Documentation materials (comprising "a portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the event title, the conference city and state, and the year; one (1) page
2. Table of contents; one (1) page
3. An entry layout drawing (single top view) of the device components in the posted problem, including dimensions used to detail all parts of the device, with an identifying leader and a label; drawing to scale on one (1) 11" x 17" page for each two (2) components; pages should be folded to fit in the portfolio

4. Isometric assembly drawing; one (1) page
5. Photographic images of designs tested and a three (3)-sentence descriptive caption per image of what was improved or proved by the testing of the design; two (2) pages, maximum
6. A G-code list for all parts manufactured; one (1) page
7. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible and comments (see Plan of Work log); pages as needed

B. Materials

1. The major and minor raw parts of the entry must fit into a 11" x 17" x 1" frame, with no stacking of parts. Parts do not need to be connected. Two (2) sets of parts are recommended (both the raw parts and the finished parts, which may be illustrated, painted, and sanded).
2. Each work piece will be fabricated from wood, plastic, and/or non-ferrous metal; this does not include fasteners.
3. A spring of some type must be used for the mechanism.
4. Bearings may be used to reduce friction.
   a. Pockets to accommodate the bearings must be part of the CNC machining; exterior plates may be used to secure the bearings; plates will be attached using screws or bolts, not glue.
   b. Bearings must be press fitted into the device during the assembly session, using hand pressure and/or tools in the toolkit; bearings may not be glued into the device.
5. Stock fasteners maybe used, provided they can be installed with the tools in the tool box; they may include, but are not limited to:
   a. Nuts
   b. Washers
   c. Screws
   d. Wing nuts
   e. Other fasteners that can be attached with the tools from the toolkit

C. Failure to meet the guidelines

1. If the device fails to meet one (1) qualification regulation, a 20% deduction of the total possible points will be made.
2. If the entry fails to meet two (2) qualification regulations, it will be removed from competition.
3. The coordinator may stop a demonstration if a safety issue becomes evident.

EVALUATION

Evaluation is based on the documentation, the component analysis, and the demonstration.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- CRITICAL THINKING — Students analyze and reach conclusions. Suggested leadership lessons: *And the Answer Is* and *Figure It Out*
- EVALUATION — Students test and revise the entry at each stage of the design process. Suggested leadership lessons: *Evaluation Methods* and *Your Dream Car*
- PROBLEM SOLVING — Students select appropriate applications to use in an event. Suggested leadership lessons: *Effective Brainstorming* and *Finding the Right* Way

Additional leadership skills promoted in this event: teamwork, organization, creative thinking, ethics

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Commercial and industrial designer
Engineer
Mechanical engineer
CNC programmer or operator

TECHNOLOGY STUDENT ASSOCIATION
PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

COMPUTER NUMERICAL CONTROL (CNC) PRODUCTION
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Assistants at check-in, two (2) or more, who
   1. Determine that teams are registered
   2. Place registration stickers on each entry and documentation

C. Evaluators, two (2) or more

D. Timers, one (1) for demonstrations

MATERIALS

A. Coordinator's notebook, containing
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries, with finalist report
   4. List of evaluators/assistants
   5. ID stickers for entries
   6. Results envelope

B. Computer with spreadsheet or calculator for determining results

C. Tables for teams to assemble their entry

D. Chairs for participants

E. Tables and chairs for check-in assistants, the timer, evaluators, and event coordinator

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

B. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chair and table set-up, electrical outlets, etc. Notify the event manager of any concerns.

C. One (1) hour before the event is scheduled to begin, meet with the evaluators/assistants to review procedures, time limits, and regulations. If questions arise, check with the event manager for clarification.

D. Check in the entries at the time and place stated in the conference program. Any participant who is not on the entry list must report to the event manager for verification of entry.

E. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

F. In the case of a rules violation, document the guideline that has not been followed and record it on the rating form.

G. Ensure that all rating forms have been completed before the evaluators leave.

H. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

Participant/Team ID# _____

COMPUTER NUMERICAL CONTROL (CNC) PRODUCTION

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Qualification Regulations

Place an x in the noncompliant or compliant box, as appropriate for each regulation. If one regulation is noncompliant, a deduction of 20% of the total possible points will apply (see rules violations box). If more than one regulation is noncompliant, the device will be removed from competition.

REGULATION	NONCOMPLIANT		COMPLIANT	
Team of two	Only one team member is present.		Both team members are present.	
Attire	Attire does not meet requirements.		Attire is appropriate.	
Safety eyewear	Warnings about eyewear were issued.		No warnings about eyewear were issued.	
Tools and fabrication supplies	Inappropriate tools or supplies are brought to the event.		Appropriate tools and supplies are brought to the event.	
Device release	Device release is inappropriate.		Device release is appropriate.	

Documentation (90 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation A (X1)	The portfolio is unorganized and three or more components or sections are missing.	The portfolio is generally well organized and may be missing only one or two components or sections.	The portfolio is exceptionally well organized and contains all required components or sections.	
Design photographs (X1)	Only one photograph of designs tested is included.	Two photographs of designs tested are included.	More than two photographs of designs tested are included.	
Descriptions/analysis (X2)	There is little description of the design testing process and analysis.	One description of design testing and analysis is included.	Several descriptions of design testing and analysis are included.	
Entry layout drawing (X2)	The entry layout drawing is poorly executed, with key elements missing.	The entry layout drawing is adequate.	The entry layout drawing is complete and correctly executed, with all elements included.	
G-code analysis (X1)	The G-code list is inadequate for the entry.	The G-code list includes most of the manufactured parts of the entry.	The G-code list includes all of the manufactured parts of the entry.	
Isometric assembly drawing (X1)	The isometric assembly drawing is not complete, with many of the required elements missing.	The isometric assembly drawing is adequate.	The isometric assembly drawing is complete and correct, with all required elements included.	
Plan of Work log (X1)	The Plan of Work log is not in the proper format, and/or does not adequately document project work.	The Plan of Work log is included, but it does not fully document all project work.	The Plan of Work log is complete and fully documents all project work.	
			SUBTOTAL (90 points)	

COMPUTER NUMERICAL CONTROL (CNC) PRODUCTION (continued)

Component Analysis (60 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Theme (X1)	The effort is basic, with only a loose association to the problem/ theme.	The effort adequately addresses the theme of the problem.	The effort to address the theme of the problem exceeds expectations.	
Throwing mechanism (or arm) (X1)	The mechanism locks up and/or is sticky.	The mechanism works adequately.	The mechanism operates quickly and smoothly, and repeats as expected.	
Coin reservoir (X1)	The coin reservoir is .25 inches greater or less than the size specified on the layout drawing.	The coin reservoir is .125 inches greater or less than the size specified on the layout drawing.	The coin reservoir is the correct size, as specified on the layout drawing.	
Coin slot size (X1)	The coin slot size is 30% greater than the coin.	The coin slot size is 20-29% greater than the coin.	The coin slot size is 10-19% greater than the coin.	
Thrower object (X1)	The thrower object is .25 inches greater or less than the size specified on the layout drawing.	The thrower object is .125 inches greater or less than the size specified on the layout drawing.	The thrower object is the correct size, as specified on the layout drawing.	
Catcher object (X1)	The catcher object is .25 inches greater or less than the size specified on the layout drawing	The catcher object is .125 inches greater or less than the size specified on the layout drawing.	The catcher object is the correct size, as specified on the layout drawing.	
			SUBTOTAL (60 points)	

Demonstration (140 points)

Demonstration #1		
Demonstration #2		
Average		

Demonstration

1st	2nd	3rd	4th	5th	6th	7th	8th	
140 points	130 points	120 points	110 points	100 points	90 points	80 points	70 points	
9th	**10th**	**11th**		**12th**		**13th and below**		
60 points	50 points	40 points		30 points		20 points		
						SUBTOTAL (140 POINTS)		

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (290 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

DEBATING TECHNOLOGICAL ISSUES

OVERVIEW

Team members work together to prepare for a debate against a team from another chapter. The teams will be instructed to take either the Pro or Con side of the selected subtopic.

The theme for 2015 is: One-to-one laptops/devices for students in public education

Subtopic 1: Should schools purchase devices (laptops/other) for all students in K-12 education?

Subtopic 2: Is the cost of devices for all K-12 students worth the investment?

Subtopic 3: If one-to-one devices are purchased for K-12 students, how can faculty/staff ensure they will only be used for educational purposes?

The theme for 2016 is: Required Science, Technology, Engineering, and Mathematics (STEM) courses for high school students

Subtopic 1: What are the pros and cons of requiring STEM classes for high school students across the nation?

Subtopic 2: Are STEM classes more important than other disciplines/classes (e.g, language arts, history, fine arts) for high school students?

Subtopic 3: Should the successful completion of STEM classes be mandatory for high school graduation?

PURPOSE

The skill of debating is essential for government, business, and technology leaders as our society faces new challenges in areas such as medicine, space exploration, pollution, global warming, economics, manufacturing, and agriculture. Tied to these challenges is the necessity for proficiency in science, technology, engineering, and mathematics. Developing debate and communication skills in students, in conjunction with a focus on topics related to STEM, is an effective way to increase technological literacy.

ELIGIBILITY

Entries are limited to three (3) teams of two (2) members per state.

TIME LIMITS

A. Each speaker is allowed a maximum of three (3) minutes.

B. Each team will be given a two (2)-minute conference break.

C. All research and preparation must be started and completed during the current school year.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants research all subtopics as listed in the overview and should be prepared to debate any of the subtopics from both Pro and Con views. All participants will be assigned the same subtopic. A new subtopic may be assigned for the semifinals, and all participants will debate that new subtopic.

B. Pre-debate meeting: Participants report to the event area at the time and place stated in the conference program to receive an assigned debate time, a subtopic, and general directions and information from the judging team. Failure of participants to attend this meeting will result in disqualification. This meeting will be held for both preliminary heats and the semifinals portion of the event. Students should be reminded in this meeting that they may not state their individual or school name in the presence of judges.

C. Each team reports to the preparation room fifteen (15) minutes before the scheduled debate time.

D. One (1) minute before opposing teams are instructed to report to the presentation room, each team will be informed of the view (Pro or Con) it will be presenting.

E. Once the teams are informed of the view they are to take, they will be escorted to the presentation room.

F. Order of debate format.

   1. Pro speaker, maximum of three (3) minutes
   2. Con speaker, maximum of three (3) minutes
   3. Conference break, two (2) minutes
   4. Pro rebuttal, maximum of three (3) minutes

5. Con rebuttal, maximum of three (3) minutes

G. The escort will introduce the Pro team by ID number and the team will be instructed to sit to the left side of the podium. The first speaker should sit next to the podium. At this time, participants will present their schedule card and reference summary to the judges.

H. The Con team will be introduced by ID number and will be instructed to sit to the right side of the podium. The first speaker is to sit next to the podium. At this time, participants will present their schedule card and reference summary.

I. When the judges and teams are ready, the Pro speaker will be instructed to move to the podium and begin. Timing starts when the speaker begins. After 2 minutes and 45 seconds, the timer will hold up a 4" x 6" card on which is written “15 seconds.” Penalty points will be deducted when a speaker exceeds the allotted time.

J. When the Pro speaker is finished and has been seated, the Con speaker will move to the podium and begin, according to the same procedure noted above.

K. When the Con speaker is finished and has been seated, the timer will announce a two (2)-minute conference period in which both teams may prepare their rebuttal.

L. At the conclusion of the two (2)-minute conference period, the timer will announce that the conference period is over and the Pro rebuttal speaker will approach the podium. Timing starts when the speaker begins. After 2 minutes and 45 seconds, the timer will hold up a 4" x 6" card on which is written “15 seconds.” Penalty points will be deducted if a speaker exceeds the allotted time.

M. When the Con rebuttal speaker (as in L. above for the Pro rebuttal speaker) is finished and has been seated, the timer will announce to both teams that they may leave the presentation room.

N. Participants will give the judges a one (1)-page list of reference materials used to research the debate subtopics. This reference list must be a word-processed document that can be printed on both sides of a sheet of paper. MLA format must be used in citing resources. A copy of the reference summary is to be made and turned in to the judges each time a team competes.

O. Should there be an odd number of teams entered in this event, one team will debate twice, based on a random drawing. If a team debates twice, that team must again provide to the judges the

page that lists reference materials used. The team that debates twice may or may not have to debate both sides of this issue. If the team does debate twice, both debates will be scored and the highest score will be used for placement.

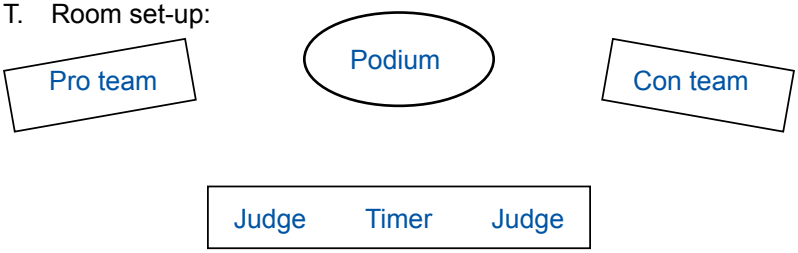
P. If a preliminary heat format is being used, twelve (12) semifinalists will be posted in random order.

Q. Semifinalists will report to the event area at the time and place stated in the conference program to receive an assigned debate time, as well as general directions and information from the judging team.

R. Each team reports to the preparation room at its assigned time.

S. Procedures D — O will be followed to determine the ten (10) finalists.

T. Room set-up:



It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. Participants must debate the current year's selected subtopic, as assigned at the conference.

B. Pre-written notes may be used. Notes must be written on 3" x 5" notecards.

C. Notes may be taken during the debate.

D. A three (3)-ring binder of reference material, as noted on the reference list provided to the judges, may be used during the debate.

E. No audio-visual materials of any form may be used.

F. Participants are not allowed to hear the debates of other teams.

G. No observers or assistants are allowed in the preparation room.

H. No observers are allowed to view the preliminary heats.

I. Observers are allowed in the debate room during the semifinalist debates. No audio or visual recording devices are allowed. No talking or gesturing is permitted. Observers are not allowed to enter or leave during a presentation. There is no applause until the debate is completed.

J. Teams are penalized five (5) points for speaking any amount of time over the allotted time. See the official rating form for time deductions.

K. Each team is required to submit a summary of references (used to prepare for the event) on an 8½" x 11" sheet of paper; both sides of the paper may be used. The event title, the event topic, and a line for the entry number must be printed at the top of the front side of the paper. The reference summary must be word-processed (handwritten is not acceptable). MLA format must be used to cite sources. References for subtopics is to be submitted on one (1) sheet of paper, not a separate sheet for each subtopic. The summary of references must be given to the judges at both preliminary heats and semifinalist rounds. Not having a summary of references will be grounds for a rules violations or disqualification.

EVALUATION

Evaluation will be based upon a team's knowledge of the topic and communication ability (i.e., the use of debate and presentation skills).

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students will effectively communicate a position related to an argument. Suggested leadership lessons: *Fact or Fiction* and *Put It Together*
- CRITICAL THINKING — Students will gather research in order to develop an argument. Suggested leadership lessons: *Critical Thinking Tips* and *Put Yourselves In Their Shoes*
- TEAMWORK — Students will work together to compete and share knowledge. Suggested leadership lessons: *Teams* and *Stepping Stones*

Additional leadership skills promoted in this event: evaluation, organization, self-esteem

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Lobbyist
Management executive
Motivational speaker
Politician
Public policy specialist

DEBATING TECHNOLOGICAL ISSUES EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators for preliminary round of debates, two (2) or more and one (1) timekeeper/announcer per heat room; timekeepers may serve as judges

C. Escorts for moving teams from preparation room to presentation/debate room, one (1) per heat room; escorts may not serve as judges

D. Evaluators for semifinal round of debates, two (2) or more and one (1) timekeeper/announcer; if possible, these evaluators should not judge the preliminary round of debates

E. One (1) escort for semifinal round of debates

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of personnel
   5. Pens or pencils for personnel
   6. Signs that read "DEBATE in PROGRESS" for all rooms as needed
   7. One (1) stopwatch for each presentation/debate room
   8. One (1) 4" x 6" card with the message "15 seconds" written on the card, one (1) card for each presentation/debate room
   9. Two (2) 3" x 5" cards with Pro written on the card and two (2) 3" x 5" cards with Con written on the card for each presentation room
   10. Copies of schedule cards
   11. Semifinalist list for posting, if necessary
   12. Results envelope

B. Podium for each presentation/debate room

C. One (1) table and two (2) chairs for the Pro side and one (1) table and two (2) chairs for the Con side for each presentation/debate room

D. One (1) table and three (3) chairs for evaluators and timekeeper/announcer for each presentation/debate room; one (1) chair in the back of the room for the escort

E. Chairs for observers during the semifinal round of presentations/debates

F. Three (3) tables and three (3) chairs in the preparation room for event personnel and participants

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

B. Inspect the areas(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, screens, outlets, etc. Notify the event manager of any potential problems.

C. Develop a heat schedule, taking into consideration the number of presentation rooms, number of entries and time allotted for the event. Twenty (20) minutes should be allowed for each debate.

D. Develop a semifinalist schedule, taking into account the number of semifinalists and the time allotted for the event. Twenty (20) minutes should be allowed for each semifinalist debate.

E. From the list of subtopics, choose one subtopic that will be used for each round. The subtopic chosen must apply for all teams in the preliminary heats and the semifinalist round. One subtopic may be chosen for the preliminary heats and a different subtopic for the semifinalist round.

F. Gather with the participants at the scheduled time and place noted in the conference program for a pre-debate meeting. At this meeting, take attendance, review rules and procedures, provide directions and information, and announce the assigned subtopic that all participants will debate for the first round. Only one (1) team member needs to attend the meeting when the subtopic is announced. Failure of a team representative to attend this meeting will result in disqualification. The coordinator may:

   1. allow participants to select a presentation/debate time, or
   2. pre-assign times and inform the participants of the schedule

G. One (1) hour before the event is scheduled to begin, meet with your evaluators/assistants to review time limits, procedures, and

regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

H. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

I. Begin the event by checking in the participants when they arrive at the preparation room at their scheduled time.

J. When two (2) teams and a presentation room are available, have one (1) team draw one (1) or two (2) schedule cards (one [1] card will have Pro written on it and the other card will have Con written on it). The view a team selects will apply for the entire event. Each team, with the coordinator's assistance, will complete the remaining information on the card. This card, along with a team's reference list, will be given to the judges once a team has entered the debate room.

K. Record the view each team is to present on the scheduling sheet.

L. Have the escort take the teams to the presentation room.

M. The escort will announce to the judges the ID number of the Pro team first and then the Con team. Each team will then sit on a designated side of the podium. The judges will need to record each team's ID number on the judge's evaluation sheet.

N. The escort should remain in the presentation room until the end of the debate, when s/he will escort each team from the presentation room. This process of escorting teams into and then out of the presentation room for competition will take place until all teams have participated.

O. Should there be an odd number of teams entered in this event (see Procedure O), teams will be randomly selected to determine which team will debate twice. If a team debates twice, its highest score will be used to determine placement.

P. When the timekeeper/announcer has confirmed that the teams and judges are ready to begin, s/he will instruct the Pro speaker to approach the podium and begin.

Q. The timing of each presentation will start when the speaker begins; however, if there are any unreasonable delays, the speaker will be warned by the timer and timing will begin.

R. Timing of the conference break will start once the Con speaker has completed the presentation. The timekeeper will inform the

teams that they are in the conference break and will also inform the teams when the period is over.

S. Once the conference break is over, the Pro rebuttal speaker will approach the podium and begin, followed by the Con rebuttal speaker.

T. When the Con rebuttal speaker is finished, s/he should return to his/her seat. The timekeeper will collect the summary of references from both teams. When the evaluators are ready, the timekeeper will announce to the teams that they are to leave the room and they will be escorted out by the escort.

U. The evaluators will inform the escort when they are ready for a new set of teams so that the escort may return to the preparation room.

V. Following the last team's presentation, the evaluators will total their scores, making adjustments for time penalties.

W. Secure the evaluators' signatures on their score sheets.

X. Following the preliminary heats, the judges determine the semifinalists from their particular heats and forward these to the coordinator. The coordinator lists the semifinalists from each heat on a semifinalist list in random order that is submitted to the CRC chairperson for posting. Twelve (12) semifinalists will be posted.

Y. At the time and place stated in the conference program, meet with the semifinalists to review scheduling and procedures.

Z. Follow procedures as above for the semifinalist round of debates.

AA. All communication related to evaluators and participants during the presentation/debate should be handled by the timekeeper.

AB. Evaluators average their scores to determine the ranking of the ten (10) finalists. **All ratings by the evaluators should be done independently.** Evaluators discuss and break any ties.

AC. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

DEBATING TECHNOLOGICAL ISSUES

SCHEDULE CARD

Assigned view: **Pro**

Entry number _____

Debate time _____

Heat number and room _____

Comments:

DEBATING TECHNOLOGICAL ISSUES

SCHEDULE CARD

Assigned view: **Con**

Entry number _____

Debate time _____

Heat number and room _____

Comments:

Participant/Team ID# _____

DEBATING TECHNOLOGICAL ISSUES

2015 & 2016 OFFICIAL RATING FORM — HIGH SCHOOL

Debate (90 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Points of argument (X1)	Team does not get the attention of the audience, and/or does not outline points clearly and distinctly.	Team makes an effort to grab the attention of the audience; previewing points are somewhat organized in a logical manner; the speaking is adequate.	Introduction uses an attention getter, clearly states the thesis, and previews main points of the argument; the team is cognizant of the audience; the speaking is fluid, with good enunciation.	
Organization (X1)	Ideas may not be focused or developed; the main purpose is not clear; the introduction is undeveloped; main points are difficult to identify; transitions may be needed.	The main idea is evident, but the organizational structure may need to be strengthened; ideas may not be clearly developed or always flow smoothly, and the purpose is not clearly stated; main points are somewhat clear.	Ideas are clearly organized, developed, and supported; the purpose is clear; main points are clear and organized effectively.	
Topic knowledge (X2)	The team does not have a grasp of the information; inaccurate, generalized, or inappropriate supporting material is used; there is an over-dependence on notes.	The team has a partial grasp of the information; supporting material is adequate and the team is at ease.	The team has a clear grasp of information; citations are introduced and attributed accurately; the team demonstrates full knowledge, with explanations and elaboration, of the subject area.	
Delivery (X2)	Delivery detracts from the message; eye contact may be very limited; presenter may tend to look at the floor, mumble, speak inaudibly, fidget, or read most of the speech; gestures and movements may be jerky or excessive.	Delivery generally seems effective, however, good use of volume, eye contact, vocal control, etc. may not be consistent; some hesitancy may be observed; vocal tone, facial expressions, and/or other nonverbal expressions do not detract from the message.	Delivery is extemporaneous, natural, confident, and enhances the message; posture, eye contact, smooth gestures, facial expressions, volume, pace, etc. indicate confidence, a commitment to the topic, and a willingness to communicate.	
Rebuttal (X1)	Rebuttal is unorganized, unclear, and/or incoherent; rebuttal includes no counter to points made from the opposing team.	Rebuttal is somewhat organized, and it creates a mostly logical counter to the opposing team's points.	Rebuttal is logical, concise, and creative; counter arguments from the opposing team are each incorporated in the rebuttal in a unique and interesting way.	
Voice and language (X1)	Language choices may be limited, peppered with slang or jargon, too complex, or too dull; language is questionable or inappropriate for the audience.	Language used is mostly appropriate, respectful or inoffensive, but word choices are not particularly vivid or precise.	Language is familiar to the audience, appropriate for the setting, and free of bias; word choices are vivid and precise.	

DEBATING TECHNOLOGICAL ISSUES (continued)				
Debate (90 points) (continued)				
Group member participation (X1)	One team member does the majority of the speaking and/or debating on the topic; the other student seems disengaged from the presentation.	Both team members are engaged in the debate, but one student clearly takes the lead while the other student only replies or refutes statements.	Both team members are actively involved in the debate and rebuttals of the topic, sharing responsibility throughout.	
			SUBTOTAL (90 points)	

Time violation (a deduction of five points total will be incurred for exceeding the debate time limit). Record the deduction in the space to the right.	
Rules violations (a deduction of 20% of the total possible points) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the far right. Indicate the rule violated: _____	
(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (90 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

DESKTOP PUBLISHING

OVERVIEW

Participants produce a portfolio containing a news release, a three (3)-column newsletter, and a poster. Each of these publications is designed to stimulate interest in, create awareness of, and encourage participation in a national charity, community service organization, or local fundraising initiative. The news release and poster should foster curiosity that leads to learning more details about the selected initiative. The three (3)-column newsletter (8½" x 11" trifold) should inform readers of the cause, explain activities that reflect involvement, and provide details about how individuals can become involved.

Semifinalists work to solve an on-site problem that demonstrates their ability to use the computer to design and edit materials for in-house publication.

☑ In this event, students have the opportunity to compete using the computer and software of their choice.

PURPOSE

Participants are provided with the opportunity to demonstrate an understanding of desktop publishing software and the technology used to prepare three (3) common publication formats.

ELIGIBILITY

Participants are limited to three (3) individuals per state, one (1) entry per individual.

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 (2½) hours to complete the on-site problem.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

☑ Students should not use templates for this event, but instead create publications "from scratch" that incorporate the basic principles of design.

PROCEDURE

A. Participants check in their entries at the time and place stated in the conference program.

B. Entries are reviewed by evaluators.

C. Semifinalists report to the event area at the time and place stated in the conference program for the on-site component.

D. Semifinalists are allowed thirty (30) minutes to set up before the event.

E. Semifinalists are provided with the publishing problem and are allowed two and one-half (2½) hours to complete their entry.

F. A final color output of each semifinalist is saved as a PDF file, turned in on a USB flash drive, and judged.

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.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. The printed publication items (a news release, a three (3)-column newsletter, and a poster) must follow these guidelines:
   1. The printed items should be developed in color on white 8½" x 11" paper. Color, preprinted, or designed paper may not be used.
   2. Clip art may be used. No templates may be used.
   3. The printed items must have applicable headings. The content of the items must be appropriate for viewing at the national TSA conference. Any entry that includes images depicting sex, drugs, tobacco, gangs, cults, etc. will be disqualified.
   4. The news release and poster should be printed only on one (1) side of a white 8½" x 11" sheet of paper.
   5. The newsletter must be printed on both sides of a white 8½" x 11" sheet of paper.

6. All items (comprising a "portfolio") should be put in clear sheet protectors and placed in a clear front report cover. Additional items may not be included.
7. The portfolio is identified using only the participant's identification number. Participants are to create a fictitious or real national charity, community service organization, or local fundraising initiative. Participants are not to identify themselves or other members of their chapter in their publications.

B. Semifinalists supply their own computer work station with USB port, power strip/surge protector, extension cord, and software for the on-site portion of the event. A laptop computer is recommended. Any semifinalist who does not provide these items will not be allowed to compete in the on-site event.

1. The on-site entry is identified using only the participant's conference identification number. The purpose of the entry is to create a printable product, using a real or fictitious entry.
2. Clip art may be used. No templates may be used.
3. All on-site work is developed, saved as a PDF file on a USB flash drive and submitted using only the participant's identification number.
4. Semifinalists leave the event room only with permission from the event coordinator.
5. The on-site entry should be saved and submitted when the work is completed and/or when time elapses.
6. All entries become the property of TSA, Inc. and will not be returned after judging.

EVALUATION

Evaluation is based on points earned for portfolio development, pre-press abilities, the solution to the on-site problem, and the final printed product. Please refer to the official rating form/rubric for more information.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students ensure that the entry is complete and presentable. Suggested leadership lessons: *Promote It* and *Put It Together*
- CREATIVE THINKING — Students create original ideas based on specifications. Suggested leadership lessons: *HAT To Be Creative* and *Invention Mishap*
- PROBLEM SOLVING — Students devise a plan for how to solve a problem. Suggested leadership lessons: *Effective Brainstorming* and *Problem Solving Steps*

Additional leadership skills promoted in this event: decision making, evaluation, organization

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Advertising or marketing executive
Editor or copy editor
Corporate communications manager
Writer

DESKTOP PUBLISHING
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators for portfolios, two (2) or more

C. Evaluators for on-site activity, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Pens for evaluators
   6. Results envelope

B. Tables for computer systems (2' x 4' minimum, each), one (1) per participant

C. Chairs, one (1) per participant

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

D. Place an entry number in the lower right-hand corner of the portfolio. Secure the entries in the designated area.

E. Meet with your evaluators/assistants to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

F. Evaluators independently review each entry and complete the official rating form.

G. Identify and post the twelve (12) semifinalists

H. Inspect the area(s) in which the on-site activity is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

I. Meet with your evaluators for the on-site activity to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

J. Semifinalists report for the on-site problem.

K. Begin the event at the scheduled time by closing the doors and checking the entry list. All semifinalists and evaluators should be in the room at this time. Semifinalists not present may be disqualified. In order to compete, semifinalists must be on the posted entry list or must have approval of the CRC chairperson.

L. Evaluators monitor the participants during the on-site activity, independently review each entry, and complete the official rating form.

M. Each participant (noting his/her individual ID number) will save the final product in a PDF file on a USB flash drive. The coordinator will download the files from the USB drive to a designated computer, which will be used by judges for viewing and evaluating.

N. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

O. Evaluators total the scores from the display and the on-site problem for each semifinalist and then calculate the average of their scores to determine the ten (10) finalists. Evaluators discuss and break any ties for the top ten (10) placements.

P. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

DESKTOP PUBLISHING

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

News Release (30 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Layout and design (X1)	The layout does not resemble a standard news release and/or is missing essential design elements to attract the reader's attention.	The layout resembles a standard news release, includes most design elements, has few mistakes, and grabs the reader's attention.	The news release is concise, encompasses all standard layout elements, attracts the reader's attention, and has creativity at the forefront of the design.	
Content (X1)	The news release lacks the necessary elements to promote a cause, purpose, or need.	The news release contains the elements necessary to promote initial involvement, and it is somewhat creative, which results in a release that may attract attention; the news release conveys the intended message adequately.	The release contains all elements necessary to promote involvement; it is written in a creative and entertaining style that would appeal to and attract potential responders.	
Effectiveness (X1)	The news release does not convey the intended message appropriately and/or contains unrelated text.	The news release conveys the intended message adequately, with some use of related graphics and text.	The news release can be easily understood and interpreted, with exceptional use of related text.	
			SUBTOTAL (30 points)	

Newsletter (40 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Creative layout and graphics (X1)	The layout does not reflect the standard three-column newsletter and/or is missing essential design elements; graphics are either non-existent or are poorly placed and/or of poor quality.	The layout is adequate for a standard three-column newsletter and may draw the reader to key information; the graphics are adequate but may appear as an afterthought of the design.	The layout is exceptional and draws the reader to key information conveyed; the graphics are well placed, exceptional, and enhance the overall design.	
Content (X1)	The newsletter does not provide details about the need and purpose, and/or it does not include information about ongoing activities.	The newsletter provides some basic details about current events and activities, and it offers news of past or upcoming events.	The newsletter provides clear details about current activities; it includes concise, accurate information about past and future initiatives.	
Effectiveness (X1)	The newsletter does not effectively convey the intended message and/or contains unrelated text and/or graphics that detract from the design and theme.	The newsletter conveys the intended message adequately; it is somewhat organized, with average text related to the theme.	The newsletter's message is concise and organized in a way that is easily understood and interpreted, with exceptional use of related graphics and text that promote the theme.	

DESKTOP PUBLISHING (continued)				
Newsletter (40 points) (continued)				
Incorporation of graphic design principles (X1)	The graphic design incorporates or embodies few, if any of the following design principles: alignment, consistency, contrast, unity, white space, balance, proportion.	The graphic design is somewhat pleasing but may be missing one or two design principles; it provides a layout that is generally aesthetically pleasing.	The graphic design is clearly aesthetically pleasing, with all design principles incorporated into the overall design and layout.	
			SUBTOTAL (40 points)	
Poster (30 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Layout and design (X1)	The poster's layout does not resemble a standard poster and/or is missing essential poster design elements.	Most elements of poster design are followed, few mistakes are made in the layout, and the design grabs the reader's attention.	The poster is concise and encompasses all standard layout elements, with creativity at the forefront of the design.	
Content (X1)	The poster does not contain the elements necessary to promote a cause, purpose, or social need.	The poster contains some elements and facts necessary to promote a social cause, purpose, or need, but the design may lack creativity.	The poster contains all the elements necessary to promote the fulfillment of a social need; the display is creative and entertaining and would likely attract potential interest.	
Effectiveness (X1)	The work does not convey the intended message appropriately and/or contains unrelated text or graphics.	The work conveys the overall intended message, with average or adequate use of related graphics and text.	The message is easily understood and interpreted, with exceptional use of related graphics and text.	
			SUBTOTAL (30 points)	

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

Solution of On-site Problem (50 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Layout and design (X1)	The design does not incorporate or embody the design principles of alignment, consistency, contrast, unity, or white space.	The design may be missing one or two design principles, but the overall layout is generally aesthetically pleasing.	An aesthetically pleasing design is provided, with all design principles incorporated into the layout and design.	
Solution to project (X2)	Three or more attributes of the solution's criteria are missing.	Two or fewer attributes of the solution's criteria are missing.	All of the attributes of the solution's criteria is/are evident.	
Effectiveness (X1)	The solution does not convey the intended message appropriately and/or contains unrelated text/ graphics.	The solution conveys the intended message appropriately, but it contains some unrelated text and/ or graphics.	The message is easily understood and interpreted, with exceptional use of related graphics and text.	

DESKTOP PUBLISHING (continued)				
Solution of On-site Problem (50 points) (continued)				
Originality (X1)	The design does not incorporate or embody the principles of creativity: freshness, idea cultivation, realness, bravery, momentum, and/or visual signaling.	The design is adequate, but it may be missing a few applicable principles of creativity.	The design is truly unique and includes almost all applicable principles of creativity.	
			SUBTOTAL (50 points)	

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

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (150 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

DIGITAL VIDEO PRODUCTION

☑ There is no denying the widespread influence of film in modern society. With this event you can demonstate your mastery of this powerful tool in any way you choose.

Note: The video production may be animated.

OVERVIEW

Participants develop a digital video that focuses on the given year's theme. Sound should accompany the video.

The theme for 2015 is Cyber Spying.
The theme for 2016 is Stopping Social Media Bullying.

PURPOSE

Participants have the opportunity to use digital video skills, tools, and processes to communicate, entertain, inform, analyze, or illustrate the given year's theme. An extremely powerful and ubiquitous medium, video technology has great potential, strengths, and limitations that should be understood by all.

ELIGIBILITY

Participants are limited to three (3) teams per state, one (1) entry per team.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. The video should not exceed five (5) minutes in length. If it is over five (5) minutes, a rules violation will be assessed.

C. The time starts with the first image or sound and continues until the last sound or image ends.

D. The video should be able to be played from a stand-alone DVD player.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants check in their entries at the time and place stated in the conference program.

B. Entries are reviewed by evaluators. Neither students nor advisors are present at this time.

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

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. Videos must be submitted on a DVD, playable from a stand-alone DVD player.

B. The video should not exceed five (5) minutes in length. If it exceeds five (5) minutes, a rules violation will be assessed.

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

D. Entries may be an individual or team project.

E. All video footage must be the original work of the team and must have been completed within the current school year.

F. All ideas, text, images, and sound from other sources must be properly cited. If copyrighted material is used, proper written permission must be included. NOTE: The video production product will not be judged if copyright procedures are not followed.

G. The DVD and documentation are turned in to the event coordinator. Documentation materials (comprising "a portfolio") are required and should be placed and secured in a clear front report cover. The report cover must include the following single-sided, 8 ½" x 11" pages, in this order:

   1. Title page with the event title, the title of the video, the conference city and state, and the year; one (1) page
   2. Table of contents; pages as needed
   3. Purpose and description of the video; one (1) page
   4. Team's self-evaluation of the video using criteria from the official rating form; one (1) page

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events. For this event, especially note the rule about original work and the use of materials from other sources.

5. Hand sketched storyboard; pages as needed
6. Script; pages as needed
7. List of hardware and software used in the development of the video; one (1) page
8. List of references that includes sources for materials (copyrighted and non-copyrighted); pages as needed
9. Permission letters for copyrighted material, including clips and images; pages as needed
10. Completed and signed Student Copyright Checklist
11. Signed consent forms for all video participants
12. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible and comments (see Plan of Work log); one (1) page
13. The DVD should be submitted in a DVD sheet protector and secured in the clear front report cover.

EVALUATION

Evaluation is based on the video footage and on the accompanying documentation. Depending on the stated purpose, videos are judged on story concept, artistic and/or social value, audio and camera techniques, transitions and pace, as well as technical attributes, creativity and organization, and the overall effect. Portfolios should be complete, well-written, and professional in organization and appearance. They should include the storyboard and a narrative of the project planning and organization process. Please refer to the official rating form for more information.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students will organize and produce a well-written portfolio. Suggested leadership lessons: *Fact or Fiction* and *Listening Skills*
- CREATIVE THINKING — Students conceptualize original ideas in their video. Suggested leadership lessons: *Color Hunt* and *The Leadership Chronicles*
- EVALUATION — Students review and critique work throughout the development of their video. Suggested leadership lessons: *Evaluation Imagination* and *Seven Components of Effective Evaluation*

Additional leadership skills promoted in this event: organization, teamwork

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Audio/video operator or technician
Cinematographer
Film/video editor
Screen editor

TECHNOLOGY STUDENT ASSOCIATION
PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

PHOTO/FILM/VIDEO CONSENT AND RELEASE

I hereby give permission for images of my child or myself (as applicable), captured during Technology Student Association (TSA) activities through video/film, photo or digital camera, to be used solely for the purposes of TSA promotional materials and publications, and I waive any rights of compensation or ownership thereto.

Name of minor in images (please print)

Name of minor's parent/guardian (please print)

Name of adult in images (please print)

Parent/guardian or adult's signature (as applicable)

Date

STUDENT COPYRIGHT CHECKLIST

(for students to complete and advisors to verify)

1) Does your solution to the competitive event integrate any music? YES _____ NO _____

If NO, go to question 2.

If YES, is the music copyrighted? **YES _____ NO _____**

If YES, move to question 1A. If NO, move to question 1B.

1A) Have you asked for author permission to use the music in your solution and included that permission (letter/form) in your documentation? If YES, move to question 2. If NO, ask for permission (OR use royalty free/your own original music) and if permission is granted, include the permission in your documentation.

1B) Is the music royalty free, or did you create the music yourself? If YES, cite the royalty free music OR your original music properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any music into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of music is done so with proper permission and is cited correctly in the student's documentation.

2) Does your solution to the competitive event integrate any graphics? YES _____ NO _____

If NO, go to question 3.

If YES, is the graphic copyrighted, registered and/or trademarked? **YES _____ NO _____**

If YES, move to question 2A. If NO, move to question 2B.

2A) Have you asked for author permission to use the graphic in your solution and included that permission (letter/form) in your documentation? If YES, move to question 3. If NO, ask for permission (OR use royalty free/your own original graphic) and if permission is granted, include the permission in your documentation.

2B) Is the graphic royalty free, or did you create your own graphic? If YES, cite the royalty free graphic OR your own original graphic properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any graphics into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of graphics is done so with proper permission and is cited correctly in the student's documentation.

3) Does your solution to the competitive event use another's thoughts or research? YES _____ NO _____

If NO, this is the end of the checklist.

If YES, have you properly cited other's thoughts or research in your documentation? If YES, this is the end of the checklist.

If NO, properly cite the thoughts/research of others in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any thoughts/research of others into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of the thoughts/research of others is done so with proper permission and is cited correctly in the student's documentation.

DIGITAL VIDEO PRODUCTION
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators, two (2) for every twenty (20) entries or fraction thereof

C. Evaluators for semifinalists, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Pens and notepads for evaluators
   6. One (1) stopwatch per team of evaluators
   7. Calculators, one (1) for each evaluator
   8. Results envelope

B. Tables and chairs for evaluators

C. Stand-alone DVD player or a computer capable of reading a DVD, one (1) each per evaluation team

D. Extension cords, one per evaluation team (25' minimum length)

E. Power bar with surge protection, one (1) per evaluation team

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only

when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

D. Place an entry number on each DVD and portfolio. Secure the entries in the designated area.

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

F. Evaluators independently assess the entries.

G. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

H. Each group of evaluators averages its scores to determine the top five (5) entries from that group. (The number of evaluator groups depends on the number of entries. In this case, there are two [2] evaluators for every twenty [20] participants.) The top five (5) entries from each group are forwarded to the event coordinator.

I. The coordinator lists the semifinalists (there may be more than twelve [12]) in random order on new rating forms that are given to the semifinalist evaluators. The semifinalist list is NOT posted.

J. Semifinalist evaluators independently assess the semifinalists.

K. Semifinalist evaluators average their scores. The average score of the semifinalist evaluators determines the top ten (10) finalists and their ranking. Evaluators discuss and break any ties.

L. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

M. Bring all DVDs, portfolios, extension cords, and supplies to the CRC room at this time. Return DVD players or computers to appropriate personnel.

Participant/Team ID# _____

DIGITAL VIDEO PRODUCTION

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Preproduction Documentation (30 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation G (X1)	The portfolio is completely unorganized and/or is missing three or more components.	The portfolio is missing two components and/or is loosely organized.	The portfolio is clearly organized and has either one or no missing components.	
Purpose and description (X1)	The purpose and description of the video are unclear and hard to visualize; major grammatical errors are evident.	The purpose and description of the video are clear, but they are not concisely written and/or contain some grammatical errors.	The documentation provides a clear and concisely written purpose and description that interest the reader, with few or no grammatical errors.	
Storyboard (X1)	The hand-sketched storyboard and script are sloppy, appear to be thrown together as an after-thought, and/or do not correlate with the video.	The storyboard and script are drawn appropriately and generally correlate with the completed video.	The storyboard and script are of exceptional aesthetic and artistic quality, and they clearly correlate with the video.	
			SUBTOTAL (30 points)	

Video Production (70 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Video (X1)	The video shots have obvious problems with focus, steadiness, and framing.	The video shots are clearly focused and framed, but there is limited use of close-ups.	The video is enhanced by steady, creative shots and incorporates excellent use of close-ups.	
Audio (X1)	The audio quality is poor, a result of primary use of the on-camera microphone for recording.	The audio is clear, with good levels and reflects the correct use of microphones and audio techniques.	The audio quality is excellent, with use of additional audio clips/cues that enhance the video production.	
Lighting (X1)	The video reflects poor ambient lighting choices and/or the use of heavy back-lighting.	The video reflects adequate lighting on subjects and the proper use of lighting techniques.	The video reflects the excellent and creative use of lighting, which propels the story emotionally.	
Continuity and pacing (X1)	The sequencing is confusing or incomprehensible; shots are left on too long, and edit points/ transitions are "glitchy."	The pace and timing are well structured; the shots move along, helping to tell the story, and there is moderate use of transitions.	The shots are logically paced and move the story along in an interesting way, with excellent and purposeful use of transitions.	
Creativity and originality (X1)	There is little original thought or creativity in the design and production, resulting in what appears to be a "regurgitation" of events pieced together.	The video reflects original thought and creative elements that are effectively expressed and highlighted.	Originality and creativity are at the forefront of the video, with thematic elements incorporated in a highly authentic way.	

DIGITAL VIDEO PRODUCTION (continued)				
Video Production (70 points) (continued)				
Video effectiveness (X2)	The work does not meet the project goals, has an unclear message, and reflects sloppy work.	The topic is presented with some insight, and the video meets most project goals.	The video is focused, with a clear message and a rich variety of supporting material.	
			SUBTOTAL (70 points)	

Time violation (a deduction of five points total will be incurred for exceeding the five-minute limit for the length of the video). Record the deduction in the space to the right.	
Rules violations (a deduction of 20% of the total possible points) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the far right. Indicate the rule violated: _____	
(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (100 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

DRAGSTER DESIGN

OVERVIEW

Participants design, produce working drawings for, and build a CO2-powered dragster.

PURPOSE

Participants have the opportunity to design and produce a fast CO2-powered dragster according to stated specifications and using only certain materials.

ELIGIBILITY

Participants are limited to two (2) individuals per chapter, one (1) entry per individual.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. Each dragster and drawing must be submitted at the time and place stated in the conference program.

C. The top sixteen (16)-qualifying dragster builders will participate in a five (5)-minute interview.

D. Drawings and dragsters must be picked up at the specified time upon the conclusion of the event.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants check in their entries at the time and place stated in the conference program.

B. Entries are reviewed by evaluators to determine, among other things, safety on the track.

☑ Be sure to review the specifications each year, even if you're a regular participant. This event is modified with each new edition of this guide.

C. Safe dragsters race for qualifying time on the same lane of the raceway.

D. The top sixteen (16) qualifying entries, based on the time trials, are evaluated against the criteria for this event.

E. Dragsters that do not meet event regulations are disqualified and lower qualifying cars are moved up until sixteen (16) dragsters that meet specifications are determined.

F. The top sixteen (16) dragster builders will report to the track at the posted time for a five (5)-minute interview.

G. The top sixteen (16) entries race in a double-elimination format to earn points for the race portion of the event.

H. Drawing, design, and body finish points are combined with race points to determine the final standings.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. Each entry must be submitted at check-in with a full-size metric drawing of the completed vehicle. The two (2)-view (top and side) drawing with metric dimensions is made on drawing paper no larger than 11" x 17" in size. Drawings are developed using standard engineering practices and procedures. The drawing may be produced using traditional drafting methods or CAD. The title block includes only the participant's "entry number," which is assigned at registration time and is placed on the entry and drawing during check-in.

B. The official distance between the start line and the finish line on the race track is twenty (20) meters.

C. ***Dragsters that do not meet the following specifications/ tolerances are disqualified from the race.***

Dragster body

1. One (1)-piece, all-wood construction. Any type of lamination results in disqualification. No add-ons such as body strengtheners, fenders, plastic canopy, exhausts, or air foils may be attached to or enclosed within the vehicle. Fiberglass and shrink wrap are considered body strengtheners and cannot be used on the car body for any reason. Decals may be used for decoration only; they may not be used to gain an aerodynamic advantage, i.e., decals cannot cover the exterior axle holes or be used to cover open areas of the body. Two (2) or more like or unlike pieces of wood glued together are not considered one-piece, all-wood construction.

ALERT: Read the regulations closely as there are significant changes to this event from prior years.

		MINIMUM	MAXIMUM
2.	Body length	(2015) 200mm	210mm
		(2016) 275mm	285mm
3.	Body height with wheels		75mm
4.	Body mass (completed car without CO2)	(2015) 50g	N/A
		(2016) 40g	N/A
5	Body width at axles, front and back	35mm	42mm
6.	Vehicle total width (including wheels)		90mm

Axles/axle holes/wheelbase

1. Dragsters must have two (2) axles per car, no more.
2. Bottom of axle hole or bearing above bottom of car body. (NOTE: This will be measured at the sides of the wood car body, from the bottom of the car directly beneath the axle to the bottom of the axle hole or bearing hole.)

   5mm 10mm
3. Axle hole from front and rear of car ..... 9mm 100mm
4. Wheelbase (axle distance apart at farthest points) 105mm 270mm
5. Bearings, bushings and lubricants may be used.
6. Glue may be used to secure bearings to body.

Spacer washers/clips

1. Spacer washers.....8
2. Axle clips 8
3. Silicone or any other type of glue/adhesive may not be used in place of wheel clips to hold wheels or axles in place.

Power plant (CO2 cartridge hole)

1. The power plant hole must be at the farthest point at the rear of the car and must be drilled parallel to the racing surface to assure proper puncture of the CO2 cartridge. A minimum of 3mm thickness around the entire power plant hole must be maintained on the dragster for safety. The inside of the power plant hole must not be intentionally painted.

	MINIMUM	MAXIMUM
2. Hole depth	45mm	55mm
3. Safety zone thickness	3mm	
4. Chamber diameter	19mm	20mm
5. Lowest point of chamber diameter to race surface (with wheels)	26mm	40mm

Screw eyes

1. Dragsters must have two (2) screw eyes (no more) per car that meet tolerances. Screw eyes must not make contact with the racing surface. The track string must pass through both screw eyelets, which are located on the center line of the bottom of the car. Glue may be used to reinforce the screw eyes. It is the responsibility of the car designer/engineer to see that the screw eye holes are tightly closed to prevent the track string from slipping out. As with all adjustments, this must be done prior to event check-in.

2. Inside diameter	3mm	5mm
3. Distance apart (at farthest points)	150mm	270mm

Wheels

1. A dragster must have four (4) wheels, no more. Two (2) wheels must meet the requirements in #2 and #3 below. The other two (2) must meet the requirements in #4 and #5 below. All four (4) wheels must touch the racing surface at the same time. All wheels must roll. Wheels must be made entirely from plastic. Dimensions must be consistent for the full circumference of the wheel.

	MINIMUM	MAXIMUM
2. Front diameter	30mm	37mm
3. Front width (at surface contact point)	1.5mm	5mm
4. Rear diameter	30mm	40mm
5. Rear width (at surface contact point)	12mm	18mm

D. No repair or maintenance is allowed after the entries have been registered. Any entry damaged during the race is evaluated by the event coordinator to determine whether or not the vehicle is allowed to race again. In the event that the vehicle is damaged by the conference personnel, the event coordinator rules as to whether the vehicle may be repaired by the student entering the vehicle. This is the only reason a student is allowed to touch his/her vehicle after registration. Undamaged wheels that come off during the event may be replaced as determined by the event coordinator. Damaged wheels may not be replaced.

E. All CO2 cartridges for the race are provided by national TSA.

EVALUATION

Evaluation is based on points earned through car design and appearance, accuracy, and quality of the drawing, as well as points earned through the wind tunnel test and placement in the double elimination on-site race.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- CREATIVE THINKING — Students produce creative ideas based on specifications. Suggested leadership lessons: *Creative Techniques* and *HAT To Be Creative*
- EVALUATION — Students evaluate their entry using time trials, testing and rebuilding. Suggested leadership lessons: *Silence Is Golden* and *Your Dream Car*
- PROBLEM SOLVING — Students fix/adjust their entry after evaluation. Suggested leadership lessons: *Effective Brainstorming* and *Problem Solving Steps*

Additional leadership skills promoted in this event: decision making, organization

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Automotive designer
Automotive modeler
Industrial designer
Industrial engineer
Race car engineer

DRAGSTER DESIGN
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators, two (2) or more

C. Recorder for double elimination chart, (one) 1

D. Assistants, two (2)

MATERIALS

A. Coordinators box, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Time trial record sheet
   6. Qualifier interview time slot sheet
   7. Double elimination bracket chart
   8. Results envelope

B. CO2 cartridges

C. Go/No-go gauges for all evaluators

D. Metric scientific scales (triple beam balance or digital)

E. Mono-filament fishing line (suggested between 30 and 50 lb.) for track (four [4] pre-tied: two [2] on track and two [2] reserve)

F. Race track set, including a starting gate and finish gate with digital timer and winning lane indicator

G. Padding for the finish gate

H. One (1) or more test cars

I. Race brackets for placement of the semifinalists

J. Tables for the display of cars and for evaluation

K. Table at the starting line, for arranging and holding cars prior to the races

L. Table at the finish gate for the placement of cars after the races and to hold eliminated cars

M. Table for the official timekeeper

N. When using a computer controlled track, provide the proper computer for the software being used, all necessary connections, and a printer. This equipment is placed on the official timekeeper's table.

O. Provide for a display of time trial and race brackets.

P. Ultraviolet ink and light to mark cars and check for cars that have been previously entered.

RESPONSIBLITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

D. Place an entry number on each entry. Position entries for evaluation and viewing. Secure the entries in a designated area.

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

F. Assist the evaluators during the evaluation of the design, drawing, and construction categories. Participants do NOT have to be present at this time.

G. After testing all race-worthy cars in the time trial, evaluators verify that the top sixteen (16) semifinalists meet all specifications. Only raceable cars, as determined by the evaluators, are allowed to compete in the semifinalist category. Cars that are damaged or broken during the qualifying round are deemed non-raceable and are not allowed to run in a semifinalist position. Eliminated entries not meeting specifications are removed. Lower qualifying cars are moved up until sixteen (16) legal cars are determined.

H. Each car is timed in the same lane. Cars are timed only once. It is important that each car be positioned as well as possible in the starting gate. If, in the opinion of the evaluators, a car misfires or a timing error occurs, the race may be rerun.

I. The operator's preliminary times are recorded on the time trial record sheet. Each vehicle is ranked according to fastest time first, second fastest time second, and so on. The top sixteen (16) cars that meet specifications are run in the semifinals. A sample double-elimination bracket appears after this section.

J. Position one evaluator at the starting gate to check to see that all cars are positioned as well as possible in the starting gate. If the evaluator feels there is any sort of a misfire, a rerun can be ordered. Position one (1) evaluator at the finish gate to rule on the finish of a race in case of failure of the finish lights or a very close finish. If the evaluator feels there is any sort of timing error, a rerun may be ordered.

K. Post the top sixteen (16) cars with interviews times; car builders will report to the track at the posted time for a five (5)-minute interview.

L. Conduct five (5)-minute interviews with the qualifying top sixteen (16) car builders.

M. Mark cars that have been raced with ultraviolet ink.

N. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

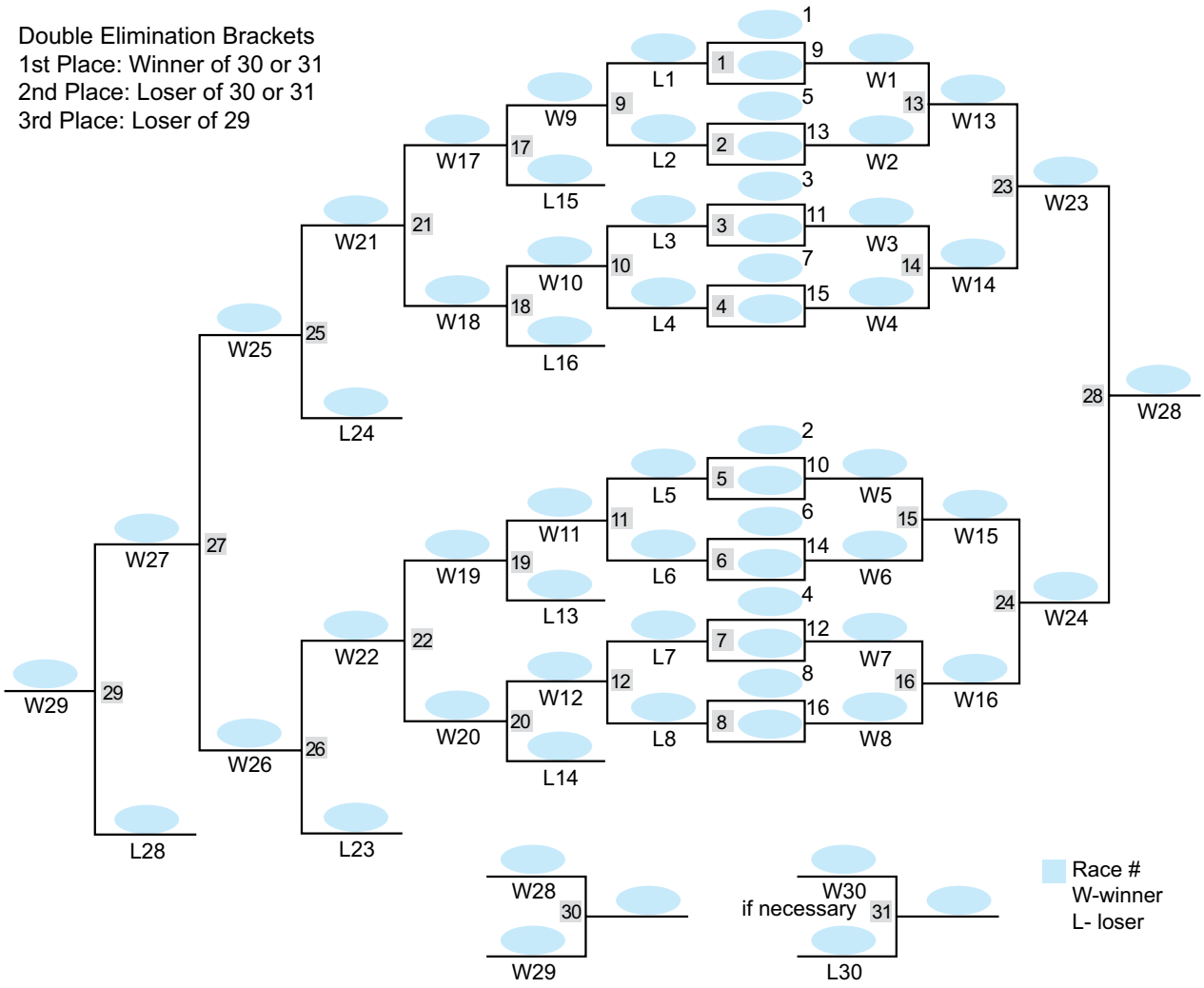
O. Secure the evaluators' signatures on their rating forms. Evaluators discuss and break any ties.

P. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

RACE BRACKET FOR 16-CAR DOUBLE ELIMINATION

Double Elimination Brackets
1st Place: Winner of 30 or 31
2nd Place: Loser of 30 or 31
3rd Place: Loser of 29



Participant/Team ID# _____

DRAGSTER DESIGN

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Dragster Construction (50 points)

Tolerance violation/disqualification from race (Note rule number in the box.)			**Rule #:**
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)			
Dragster body production quality (X1)	Dragster exhibits poor production quality, with a crude and rough surface and little or no attention to detail.	Dragster shows evidence of proper production techniques; it is adequate but may need improvement.	Dragster displays excellent production techniques, with obvious attention to detail and quality.
Body paint/finish (X1)	Surface preparation is inadequate; the body is unprimed, with poorly applied final finish.	Dragster body is painted and finished adequately.	Dragster body finish is exemplary; body is smooth, shiny and exhibits quality.
Vehicle assembly (X1)	Dragster exhibits poor or sloppy assembly of parts (wheels are loose, screw eyes are loose and/or not level, etc.).	Dragster is well assembled, with adequate or some attention to detail.	Dragster is properly assembled, with obvious evidence of attention to detail.
Drawing scale and dimensioning (X1)	The drawing is present but is not to scale; dimensions are missing, or dimensioning is poorly done.	The drawing is acceptable and to scale; it is a close representation of the vehicle, but some dimensions may be missing.	The drawing is exemplary, exact, and includes all pertinent dimensions.
Drawing completion and quality (X1)	Drawing work is sloppy, missing parts and lacking quality.	The drawing is complete, and the quality is average.	The drawing is complete and precise, and of exceptional quality.
			SUBTOTAL (50 points)

Interview (20 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Car builder interview (X2)	The student shows very limited knowledge of and has difficulty articulating how the car was produced or decisions made during the production. There are signs of the student not being involved in the dragster production.	The student demonstrates some knowledge of the dragster production and has adequate knowledge of some processes or reasoning behind the vehicle design.	The student shows competence and knowledge related to the design and production of the vehicle. The student is able to articulate "reasoning" behind the decisions made.
			SUBTOTAL (20 points)

Record scores in the column spaces below.

DRAGSTER DESIGN (continued)							
Race (55 points)							
1st	**2nd**	**3rd**	**4th**	**5th & 6th**	**7th & 8th**	**9th - 12th**	**13th – 16th**
55 points	50 points	45 points	40 points	35 points	30 points	25 points	15 points
							SUBTOTAL (55 points)

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (125 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

ENGINEERING DESIGN

OVERVIEW

Participants work as part of a team to design and fabricate a device that will meet the specific needs of a person with a disability. The focus will be on the design process; participants should incorporate innovation into their entry/solution. Through use of a model/prototype, display, and portfolio, participants document and justify their approach and reasoning in identifying a problem and their solution's direct impact on a member of their community and on society. Semifinalists justify and demonstrate their solution to their identified problem in a timed presentation.

☑ The ultimate goal for this event is the creation of an effective assistive device to meet the needs of a person with a specific disability. Read the regulations carefully, secure a mentor, identify a disability, conduct research, and choose a new or improved design for your team.

PURPOSE

Participants apply the principles and practices of engineering and universal design to develop an effective and practical solution to a specific design problem that they have identified. The solution incorporates the application of scientific and mathematical principles and concepts; demonstrates the application of technology; and assesses the impact of the solution on an individual with a specific disability, and on society.

ELIGIBILITY

Participants are limited to one (1) team of three to five (3-5) students per chapter; one (1) entry per team.

☑ Teams that participate in this event will quickly recognize the need to explore and research disabilities and how they can affect an individual's mobility (including transportation challenges), success in the workplace, and comfort at home.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. Semifinalists are allowed up to ten (10) minutes to present their solution.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

☑ ***"thinking outside the box"***

Each design team should utilize this process or concept when selecting its disability design problem. Many examples of devices already exist that may serve as the basis for designing and creating newer and more effective products and solutions. The integration of electronics and robotics into design solutions is encouraged.

PROCEDURE

A. Participants check in their entries at the time and place stated in the conference program. No more than two (2) team members set up the display.

B. Entries are reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

C. Semifinalist teams report to the event area at the time and place stated in the conference program.

D. Semifinalist teams explain their solution, its marketplace potential, its impact on people with a specific disability, and its impact on society. Evaluators are free to ask questions of each team of presenters.

E. No more than two (2) team members pick up their entry from the display area at the time and place stated in the conference program.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. Each team is required to secure the assistance and support of a team mentor—someone other than the TSA advisor. The name, address, and occupation of this individual is to be documented and included in the specified place in the team's documentation portfolio.

B. The entire solution (including model/prototype, design portfolio, display and any equipment needed for the presentation) must not exceed 15" deep x 3' wide x 4' high.

C. Documentation materials (comprising "a portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8 ½" x 11" pages, in this order:

1. Title page with the event title, the conference city and state, and the year; one (1) page
2. Table of contents; pages as needed
3. Mentor verification that includes the name, address, and occupation of the mentor; one (1) page.
4. A design brief (format that follows) that describes the design and its constraints; one (1) or more pages

DESIGN BRIEF

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

5. A description of the problem solving steps; pages as needed
6. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible and comments (see Plan of Work log); one (1) page
7. Evidence of research conducted by the design team; pages as needed
8. Documentation of brainstorming; pages as needed
9. Descriptions and illustrations of a minimum of three (3) possible solutions with a brief, but concise, evaluation of the merits of each; three (3) or more pages
10. A detailed description of the final solution, including an explanation of the steps of operation; pages as needed
11. A three (3)-dimensional technical or CAD drawing and/or rendering of the final solution; the maximum sheet size is drawing sheet cut size B—11" x 17"; when this sheet size is used, the sheet must be hole-punched and folded or placed in a sheet protector for insertion in the portfolio; pages as needed
12. Math and science concepts and applications involved in the final design solution; one (1) page

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

13. Explanation of the areas of technology that are an integral part of the solution, including as many as apply; pages as needed
    a. Medical technology
    b. Agriculture and biotechnology
    c. Energy and power
    d. Information and communication
    e. Transportation
    f. Manufacturing
    g. Construction
14. A list of references and resources; MLA style must be used in citing all references and resources; pages as needed
15. An evaluation of how well the final solution addresses the identified problem/disability and an explanation of the impact of the solution on society and on the identified disability; pages as needed

D. Any special set-up and/or equipment required for the display or semifinalist presentation is the responsibility of the participants. Power will not be provided for the presentation.

E. The static display must not require the use of electricity for review and evaluation by the judges.

EVALUATION

Evaluation is based on the documentation of the team's work on the challenge, the display, and the model/prototype. Semifinalists are evaluated on their presentation, including their knowledge of the concepts related to their solution. See the official rating form for more information.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students choose an existing design problem and develop and explain their solution. Suggested leadership lessons: *Personality Types* and *Promote It*
- CRITICAL THINKING — Students analyze and evaluate a problem in order to develop an acceptable solution. Suggested leadership lessons: *And The Answer Is* and *Critical Thinking Tips*
- PROBLEM SOLVING — Students devise a plan that will yield an acceptable solution. Suggested leadership lessons: *Debate It* and *Effective Brainstorming*

Additional leadership skills promoted in this event: creative thinking, decision making, ethics, evaluation, organization, teamwork

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Civil engineer
Environmental scientist
Health and safety specialist
Manufacturing consultant
Prosthestic designer

TECHNOLOGY STUDENT ASSOCIATION
PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

ENGINEERING DESIGN
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators for displays, two (2) or more

C. Evaluators for semifinalist presentations, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Pens for evaluators
   6. Semifinalist list for posting
   7. Results envelope

B. Table and chairs for semifinalist presentation

C. Stopwatch for timing semifinalist presentation

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

D. Place an entry number on each model/prototype, display, and portfolio. Position entries for evaluation and viewing. Secure the entries in the designated area.

E. Meet with evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

F. Evaluators independently review each entry and complete the official rating form.

G. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

H. Evaluators average their scores to determine the twelve (12) semifinalists.

I. Prepare a list of the twelve (12) semifinalists in random order and submit it to the CRC chairperson for posting.

J. Inspect the area in which the presentations are to take place. There must be seating for at least five (5) people at a table.

K. Meet with your semifinalist evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

L. Conduct semifinalist presentations. Evaluators should be sure to ask questions.

M. Evaluators average their scores to determine the ranking of the ten (10) finalists. Evaluators discuss and break any ties.

N. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

ENGINEERING DESIGN

2015 & 2016 OFFICIAL RATING FORM — HIGH SCHOOL

Documentation (160 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1, X2 or X3 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points; an "adequate" score of 7 for an X3 criterion = 21 points.)				
Portfolio components See Regulation C (X1)	The portfolio is unorganized and missing many of the required sections and necessary materials.	The portfolio is somewhat organized and missing only a few required sections and materials.	The portfolio is completely organized and has all of the designated sections and materials included.	
Mentor verification (X1)	Verification does not provide the specified information.	Verification is adequate, but not entirely complete.	Verification is included and complete.	
Design brief (X2)	The proper design brief format is not used, and key elements of the process are missing.	The design brief format is followed, and most elements are of process are included.	The design brief format is followed, and all elements of the process are stated completely and effectively.	
Problem solving steps (X1)	There is little attempt to describe and document the problem-solving steps.	The problem-solving steps are listed, with adequate descriptions of the process.	Problem-solving steps are listed, with complete and effective descriptions for each.	
Plan of Work log (X1)	The Plan of Work log is missing key elements.	The Plan of Work log includes most key elements.	The Plan of Work log effectively documents all key elements.	
Research (X1)	There is little evidence of documentation of the necessary research.	There is some evidence of documentation of the necessary research.	There is exemplary evidence of documentation of the necessary research.	
Brainstorming (X1)	There is little documentation of brainstorming.	There are somewhat adequate examples of brainstorming efforts.	There are detailed and effective examples of brainstorming activities.	
Possible solutions (X1)	Only one possible solution is presented, with a weak description.	Two or more possible solutions are presented, with adequate descriptions.	Three or more possible solutions are presented, with detailed and effective descriptions.	
Final solution (X1)	Only a very brief explanation of the final solution is presented, and it does not include an explanation of the steps of operation.	A clear explanation of the final solution is presented, with an adequate explanation of the steps of operation.	A clear and concise explanation of the solution is offered, and it includes an explanation of the necessary steps of operation.	
Technical drawing (X1)	Drawings are not presented in the proper technical format, and/or they are of poor quality and missing key elements and notations.	Drawings are and adequately represent the final solution.	Drawings are presented in the proper format, and they effectively represent the final solution.	
Math and science concepts (X1)	There is little evidence of the use of math and science concepts and/or applications, and/or they are poorly described.	Some math and science concepts and applications are included, but they are only adequately described.	There are clear and concise descriptions of the math and science concepts and applications that were used.	

ENGINEERING DESIGN (continued)				
Documentation (160 points) (continued)				
Technology areas (X1)	There is little explanation of the areas of technology that are applied to the solution, and/or they are poorly described.	An adequate explanation of at least two areas of technology are included.	There is a complete and detailed explanation of three or more areas of technology used and applied in the solution.	
References/resources (X1)	There is little evidence of documentation of references and resources in the format required.	Several resources and references are documented in the format required.	Many notable examples of resources and references are documented; the required format is used.	
Evaluation/impact (X2)	There is little attempt to evaluate the final design and its impact.	There is a some attempt to document the final design and its impact.	There is a clear and effective evaluation of the final design and its impact.	
				SUBTOTAL (160 points)
Display (40 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Presentation of design (X2)	The design presentation is weak and ineffective.	The design presentation is somewhat effective.	The design presentation is clear, concise, and effective.	
Appearance and impact (X2)	The appearance of the display is poor and has very little or no visual impact.	The display is somewhat neat in appearance, with some visual impact.	The display is exemplary in appearance and provides a strong and effective visual impact.	
				SUBTOTAL (40 points)
Model/prototype (80 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Marketability and usefulness (X2)	There is little evidence of the design's marketability and usefulness.	There is some evidence of the marketability and/or usefulness of the design.	There is strong evidence of both the marketability and the usefulness of the design.	
Effectiveness of design (X3)	There is little evidence of an effective design.	There is some evidence of an effective design.	There is clear evidence of an effective and exemplary design.	
Creativity and innovation (X2)	The design lacks creativity and innovation.	There is some evidence of a creative and innovative design.	The design clearly reflects exemplary creativity and innovation.	
Appearance and quality (X1)	The appearance and quality of the construction of the device are poor.	The appearance of the device and the quality of construction are adequate.	The device exemplifies excellence in appearance and quality of design.	
				SUBTOTAL (80 points)

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

Indicate the rule violated: _____

ENGINEERING DESIGN (continued)				
Semifinalist Presentation/Interview (60 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the presentation and interview.	Participants are generally prepared for the interview, and they are somewhat organized in their presentation.	The presentation and interview with the evaluators are logical, well organized, and easy to follow.	
Knowledge (X2)	Participants seem to have little understanding of the concepts of their project; their responses to questions are vague.	Participants have a generalized understanding of the concepts discussed, and they answer questions fairly clearly.	Participants show clear evidence of a thorough understanding of the project and appear to be sensitive to the challenges of a disability.	
Articulation (X1)	The presentation provides an unclear, unorganized and/or illogical description of the project.	The presentation offers a somewhat logical and easy-to-understand project description.	The presentation provides a clear, concise, and easy-to-follow description of the project.	
Delivery (X1)	Participants are verbose, illogical in presenting, and use many "uhs, ums, hmms," etc.	Participants are logical and fairly well spoken, with little use of "uhs, ums, hmms," etc.	Participants are well-spoken, distinct, and clear throughout the presentation.	
Team participation (X1)	Only one person on the team communicates and responds to questions.	Most members of the team participate and seem to understand the event.	All team members participate, with mutual understanding of the event, and respond effectively to questions.	
			SUBTOTAL (60 points)	

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

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (340 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

ESSAYS ON TECHNOLOGY

OVERVIEW

Participants will write a synthesis essay to make insightful connections based on a current technological topic.

PURPOSE

Participants have the opportunity to show the relationship(s) between two (2) or more sources provided on site to compose a research-based argument.

☑ The ability to communicate complex ideas to one's peers is an important skill in all facets of life, especially as technology's role increases.

ELIGIBILITY

Participants are limited to three (3) individuals per state.

TIME LIMITS

The allotted time to complete the essay is ninety (90) minutes

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

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

B. Each participant will be provided with lined paper. **Participants are responsible for bringing a blue or black ink pen to the event site. The pen may be "erasable." The participant may also bring correcting fluid or correction tape to the site**.

C. Participants will be provided with a prompt and a series of two (2) or more articles on a current technological topic.

D. Time begins after participants have received all materials.

E. After ninety (90) minutes, participants stop writing. Each participant turns in an essay not exceeding five (5) pages, and one (1) works-cited page.

F. Entries are reviewed by evaluators. Neither students nor advisors are present at this time.

G. Ten (10) finalists are announced at the awards ceremony.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ This event requires synthesis of information to produce a coherent and well-developed essay utilizing sources provided on site.

REGULATIONS

A. Each participant is allowed to bring a dictionary and a thesaurus to the event. The dictionary and thesaurus must be in print format, not electronic format; this includes translators.

B. Only participants are allowed in the event area. Should a participant finish before the allotted time expires, the participant is allowed to leave quietly but may not reenter the event room.

C. Participants are responsible for bringing a blue or black ink pen to the event site. The pen may be "erasable." The participant may also bring correcting fluid or correction tape to the site.

D. Each essay must have the participant entry number only placed in the upper right-hand corner of the first page, just above the title of the report.

E. The length of the essay is limited to five (5) handwritten pages, one (1) side of the paper only, and double-spaced. The list of references is not included in the five (5) pages.

F. With the essay, participants must turn in a one (1)-page bibliography written on one (1) side of the the paper only, using proper MLA bibliography format.

G. All essays become the property of TSA, Inc. and will not be returned.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

EVALUATION

Entries are evaluated according to the criteria listed on the official rating form.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students communicate through written language. Suggested leadership lessons: *Fact or Fiction* and *Listening Skills*
- CRITICAL THINKING — Students conduct research to write a well-developed essay. Suggested leadership lessons: *Figure It Out* and *The Hidden Message*
- SELF-ESTEEM — Students gain confidence in understanding a topic by synthesizing information and formulating an argument. Suggested leadership lessons: *Define U* and *The Little Engine That Could*

Additional leadership skills promoted in this event: decision making, evaluation

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Economist
Engineer
Research technician
Scientist
Technical writer

ESSAYS ON TECHNOLOGY
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Two (2) or more evaluators for the first reading, and two (2) or more semifinalist evaluators for the reading of the top-rated twenty (20) essays

C. Timekeeper

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Marking pens for evaluators
   6. Stopwatch
   7. Calculators, one (1) for each evaluator
   8. Results envelope

B. Tables and chairs for evaluators

C. Tables and chairs for participants

D. Securable room (preferable) during time of the event

E. Lined paper, ten (10) sheets per participant

F. Series of articles on a current technological topic; one (1) set per participant and one (1) set per judge

G. Paper clips and/or staplers for securing essays

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

E. Begin the event at the scheduled time by closing the doors and checking the entry list. All participants should be in the room at this time. Participants not present may be disqualified. In order to compete, participants must be on the entry list or must have approval of the CRC chairperson. An individual who is not on the entry list is permitted to participate, but the coordinator MUST confirm the individual's eligibility. If it is found that the individual is not registered for the event, the individual is disqualified. Late entries are considered on a case-by-case basis and only when the lateness is caused by circumstances beyond the participant's control.

F. Distribute ten (10) sheets of ruled portfolio paper to each participant. Provide additional paper as needed.

G. Instruct participants to identify their essay with only their entry number in the upper right-hand corner of the essay. Advise participants to write their entry number on each page submitted. No other identifying information can be included.

H. Remind participants to double space their written work and submit only five (5) essay pages (each with their entry number in the upper right hand corner), plus a single page for references.

I. Distribute both the prompt and the articles on a current technological topic to all participants. The prompt will list the topic and instructions for composing an essay related to the articles.

J. Instruct participants who finish before time is called that they may submit their work and leave quietly.

K. Five (5) minutes before the ninety (90) minutes up, make an announcement that the participants have five (5) minutes to complete their essays. Exactly ninety (90) minutes after beginning, call time and collect the essays, including the works-cited page, and unused paper.

L. Supervise and assist the evaluators during the reading of the essays. Each entry must be read and evaluated independently

by two (2) evaluators. Evaluators keep working until each entry has been assessed twice.

M. The two (2) scores for each entry are averaged and the top twenty (20) entries are turned in to the coordinator. These twenty (20) are then reviewed by a NEW group of two (2) evaluators (semifinalist).

N. The two (2) semifinalist evaluators read and assess each of the top twenty (20) entries. The average of the two (2) semifinalist evaluators determines the final ranking. Evaluators discuss and break any ties.

O. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

ESSAYS ON TECHNOLOGY

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Essay (100 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Thesis (X1)	The thesis is not a complete thought and/or is inappropriate for the essay; the title and thesis do not correlate with one another, or the thesis lacks creativity.	The thesis is evident and the idea behind it is somewhat concise and fairly creative; the essay title correlates with the thesis.	The thesis is well structured, concise, positioned appropriately, and creative; the essay title is authentic and correlates well with the thesis.	
Introduction paragraph (X1)	The introduction explains the background but may lack detail; introduction does not help to establish the writer's position.	The introduction creates interest and clearly states the position.	A well-developed introduction engages the reader and creates interest; the introduction states a significant and compelling position.	
Supporting paragraphs (X2)	Paragraphs lack main points to support the thesis, and/or there is a poor development of ideas.	Paragraphs include main points that are related to the thesis, with adequate supporting details and a fairly well developed narrative that presents the story.	Paragraphs provide well-developed main points directly related to the thesis; supporting examples are concrete and detailed; the narrative is developed with a consistent and effective point of view that presents the story in detail.	
Concluding paragraph (X1)	The conclusion is recognizable but it does not effectively summarize the topic.	The conclusion effectively summarizes the topic and restates the thesis.	The conclusion wraps up the point of the essay and creatively restates the thesis.	
Organization (X1)	There is no discernible organization; transitions are not present.	A logical progression of ideas is evident; transitions are present throughout the essay.	The essay conveys a logical progression of ideas, with a clear structure that enhances the thesis; transitions are mature and graceful.	
Style (X1)	The style is confusing and hard to follow; it contains fragments and/or run-on sentences; word choice is simple, ordinary, and/or uncompelling.	The style is clear, sentences are somewhat expressive, and word choice is appropriate.	The style is smooth, skillful and coherent; sentences are strong and expressive, with varied structure; word choice is appropriate and mature.	
Mechanics (X1)	The essays contains distracting errors in punctuation, grammar, and spelling.	Punctuation, spelling and grammar are generally correct, with few errors.	Punctuation, spelling, and grammar are correct with no errors evident.	
Research base (X1)	The essay lacks an adequate research base and/or uses minimal support from articles.	The research is conducted appropriately and uses adequate support from articles.	The essay conveys a detailed research base that includes comprehensive support from articles.	

ESSAYS ON TECHNOLOGY (continued)				
Essay (100 points) (continued)				
Works cited (X1)	References are not used effectively, and/or they do not pertain to the topic; limited quality sources are cited.	Most sources used are credible and of good quality; most references help to support the essay topic.	The essay incorporates multiple and varied sources all of which are credible, appropriate and support the topic.	
			SUBTOTAL (100 points)	

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (100 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

EXTEMPORANEOUS SPEECH

OVERVIEW

Participants give a three-to-five (3-5) minute speech fifteen (15) minutes after having drawn a card on which a technology or TSA topic for their speech is written.

PURPOSE

Participants have the opportunity to verbally communicate knowledge of technology or TSA subjects.

ELIGIBILITY

Participants are limited to three (3) individuals per state.

☑ Prepare for this event by being calm, cool, and relaxed, and knowing that you have a solid knowledge of TSA and of current issues in technology.

TIME LIMITS

A. Each speech must be between three (3) minutes and five (5) minutes. Participants will be penalized on each evaluator's score sheet one (1) point per ten (10) seconds for speaking over five (5) minutes or under three (3) minutes.

B. Time commences when the speaker begins talking and concludes at the end of the speech.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants report to the event area at the time and place stated in the conference program to sign up for a time.

B. At his/her assigned time, each participant draws three (3) cards, each containing one (1) topic, from a box and selects one (1) topic from the three (3) on which to speak. The cards with the unused topics are returned to the box.

C. Preparation

1. After having selected a topic, the first participant enters a preparation room separate from the speech delivery room and is given fifteen (15) minutes to prepare a speech.
2. Seven (7) minutes after the first participant enters the preparation room, the second participant enters the preparation room, goes to a different section, and begins his/her speech preparation, again with fifteen (15) minutes to prepare a speech.
3. Each participant, in turn, is allowed to enter the preparation room at seven (7)-minute intervals, thus enabling a consistent flow of participants to speak before the evaluators in a timely fashion. (This allows for one [1] minute to enter the room and announce the entry number, up to five [5] minutes for the presentation, and one [1] minute to exit the room.)

D. The event coordinator introduces each participant by registration number in the order of the sign-up time.

E. The timekeeper visually notifies the speaker of the time remaining by using six (6) separate cards. Each of the six (6) 5" x 7" notecards has a "time remaining in minutes" number on it (4, 3, 2, 1, ½, and 0), and each is shown in descending order to the participant by the timekeeper during the speech.

F. After speaking, the participant returns the topic card to the evaluators so that it can be returned to the topic box.

G. Evaluators independently rate each speech according to the criteria on the official rating form.

H. A semifinalist list in random order is posted.

I. Semifinalists report to the event area at the time and place stated in the conference program to sign up for a time.

J. Semifinalist preparation and speaking follow the same guidelines as above, using a different set of topics.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. No reference is to be made concerning the name of the participant or his/her school.

B. Each speech must be the result of the participant's own effort. No reference materials or devices may be used or brought to the preparation room.

C. Any notes for speaking must be written during the fifteen (15)-minute preparation period. Each participant will be provided a maximum of three (3) 3" x 5" blank notecards.

D. While participants are permitted to use notes when speaking, it should be noted that deductions in scoring could be made for this practice if the use of notes detracts from the effectiveness of the presentation.

E. No observers are allowed in the event or preparation rooms during heats, although they are allowed to sit in the audience of the performance during the semifinals. No talking or gesturing is permitted. Observers are NOT allowed to enter or leave during a presentation. THERE IS NO APPLAUSE UNTIL THE PRESENTATION HAS CONCLUDED.

F. Participants are penalized on each evaluator's score sheet: one (1) point per ten (10) seconds for speaking over five (5) minutes or under three (3) minutes.

EVALUATION

Evaluation is based upon the quality of the presentation, the degree to which the content matches the selected topic, and adherence to the time limits. Please refer to the official rating form for more information.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students acquire poise and confidence through the presentation. Suggested leadership lessons: *Promote It* and *Put It Together*
- EVALUATION — Students rehearse (for improvement purposes) presentations on potential event topics. Suggested leadership lessons: *Evaluation Methods* and *Seven Components of Effective Evaluation*
- ORGANIZATION — Students organize their thoughts to create a thoughtful, logical speech. Suggested leadership lessons: *Impromtu* and *New Club In Town*

Additional leadership skills promoted in this event: creative thinking, self-esteem

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Advertising executive
Public speaker
Politician
Sales and marketing executive
Teacher

EXTEMPORANEOUS SPEECH
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators for first round of speeches, two (2) or more

C. Evaluators for semifinalist speeches, two (2) or more

D. Timekeepers for recording speech start/stop times, one (1) per event room

E. Monitors, one (1) per event room

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Pencils for evaluators
   6. Note pads
   7. Semifinalist list for posting
   8. Results envelope

B. Speaker's stand/podium

C. Stopwatches for timekeepers, one (1) per heat and two (2) per preparation room

D. Six (6) 5" x 7" notecards for "time remaining in minutes" numbers (See Procedure E)

E. Table and chairs for three (3) evaluators and the timekeeper

F. Chairs for the audience, for semifinals only

G. 3" x 5" blank notecards, for participants to use to outline their presentation

H. Pencils

I. 3" x 5" topic cards—a minimum of fifteen (15) different topics from which to select

J. Tables and chairs in the preparation room

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

E. Manage the smooth flow of participants according to these procedures:

   1. After having selected a topic, the first participant enters a preparation room separate from the speech delivery room and is given fifteen (15) minutes to prepare a speech.
   2. Seven (7) minutes after the first participant enters the preparation room, the second participant enters the preparation room, goes to a different section, and begins his/her speech preparation, again with fifteen (15) minutes to prepare a speech.
   3. Each participant, in turn, is allowed to enter the preparation room at seven (7)-minute intervals, thus enabling a consistent flow of participants to speak before the evaluators in a timely fashion. (This allows for one [1] minute to enter the room and announce the entry number, up to five [5] minutes for the presentation, and one [1] minute to exit the room.)

F. When the participants have finished, each evaluator computes the final scores, consulting the timekeeper's record. The timekeepers notify evaluators of any time under three (3) minutes or over five (5) minutes for which deductions should be made.

G. Evaluators average their scores and discuss and break any ties when all presenters have spoken.

H. If heats are used, determine twelve (12) semifinalists and post a semifinalist list. Repeat the process in E. (above) to determine the finalists.

I. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

EXTEMPORANEOUS SPEECH

2015 & 2016 OFFICIAL RATING FORM — HIGH SCHOOL

Speech (80 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Organization (X1)	The speech is unorganized and difficult to follow or understand.	The speech is somewhat organized and generally can be followed and understood.	The speech is well organized and easy to follow; the delivery is exceptional.	
Knowledge (X2)	Minimal knowledge of the subject is evidenced in the speech; the participant does not convey an understanding of the theme.	Adequate knowledge of the subject is evident, and the speaker relates and conveys a general understanding of the theme.	Complete knowledge and understanding of the subject and relationship to the theme are conveyed through the content of the speech.	
Voice and articulation (X1)	The presenter conveys an inconsistent use of proper grammar, word pronunciation, and acceptable pitch and tone.	The presenter generally uses proper grammar and pronunciation, and varies the use of tone and pitch.	Smooth and effective articulation, proper grammar, correct pronunciation, and varied tone and pitch are evident throughout the speech.	
Stage presence (X1)	The presenter's appearance is unprofessional, sloppy, and inappropriate.	The presenter's appearance is adequate, appropriate, and somewhat professional.	The presenter's appearance is appropriate, professional, and polished.	
Impact (X3)	The speech is unconvincing, uninteresting, and lacks compelling and attention-holding details.	The speech is somewhat convincing and emphasizes several details; it adequately holds the attention of the audience and remain interesting.	The speech is completely convincing, full of emphasis, and holds the attention and interest of the audience.	
			SUBTOTAL (80 points)	

One point per ten-second interval is to be deducted for speaking under the three minutes or over the five minutes allotted for the presentation. Presentation time commences when the presenter begins speaking

PRESENTATION DELIVERY TIME	
TOTAL TIME DEDUCTION POINTS	

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (80 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

OVERVIEW

Students have the opportunity to research, develop, and create garment designs, garment mock-ups, and portfolios that reflect the current year's published theme. Twelve (12) qualifying semifinalist teams participate in an on-site event in which they present their garment designs to the judges.

The theme for the current year will be published on the TSA website, under Competitions/Themes and Problems.

PURPOSE

Humans need protection from weather, environmental factors, occupational hazards, and other adversarial conditions. Clothing is designed and worn for utilitarian purposes, decoration, identification, status, and modesty. TSA members will demonstrate an understanding of and expertise in using design and technology processes to convey a fashion concept.

ELIGIBILITY

Entries are limited to to three (3) teams of two to four (2-4) members per state.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. Semifinalists will be allowed ten minutes (10) for a presentation. A deduction of five (5) points will be incurred for exceeding the presentation time limit.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants check in their entry at the time and place stated in the conference program.

B. Entries are reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

C. The semifinalists report to the event area at the time and place stated in the conference program.

D. Each semifinalist team must have access to student TSA member models and the team-created garments to compete in the semifinals.

E. The event coordinator will allow students to sign up for times for the presentation. These sessions are closed and will take place with judges only.

F. Semifinalists use the assigned time to present their designs. Models must be present and wearing the garments designed by the team. Models must be members of the team's TSA chapter.

G. Any type of garment design that is typical of responsible clothing design and creation is considered appropriate.

H. During the semifinals, participants will be allowed ten (10) minutes to complete the presentation (two [2] minutes for set-up, six [6] minutes for the actual presentation, and two [2] minutes for removal). Points will be deducted from a team's score for exceeding the ten (10)-minute time frame allowed for the presentation.

I. Final evaluation from judges takes place immediately following the completion of the presentation.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. All work must be completed during the current school year. Participants will use a 32-quart plastic storage box to submit their portfolio, patterns, and any garments that cannot be placed on hangers or on mannequins.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

B. Portfolio

1. Documentation materials (comprising “a portfolio”) are required and should be placed and secured in a clear front report cover. (The portfolio must be submitted with the garments.) The report cover must include the following single-sided, 8½" x 11" pages, in this order:
   a. Title page with the event title, the conference city and state, and the year; one (1) page
   b. Table of contents; one (1) page
   c. Literature research summary; two (2) pages
   d. Interpretation of theme; two (2) pages
   e. Explanation of the garment types, textiles used, notions needed, sewing techniques used, etc.; two (2) pages
   f. Design process sketches (hand-drawn); five (5) pages
   g. Computer-drawn final design print-outs; five (5) pages
   h. References /resources; two (2) pages

C. Patterns/mock-ups

Full-sized student-made pattern(s) and paper/cloth mock-ups (three to four [3-4] patterns and mock-ups on appropriate lightweight velum paper or inexpensive cloth must be included.)

D. Garments

1. Garments for initial judging must be put on hangers, or on dressmaker mannequins; the portfolio should accompany the garments.
2. The garments must be presentation quality.
3. All designs and garments should be appropriate for viewing at the national TSA conference.
4. Any portfolio or garment that depicts inappropriate or unacceptable designs will be disqualified.
5. All patterns, mock-ups, and garments must be designed, sketched, computer-drawn, developed, and sewn by students. All garments must be the original work of the students.
6. Only the required number of garments are submitted for evaluation. Additional items, garments, and accessories may be used only in the semifinalist presentation and are not submitted for preliminary judging.

E. The semifinalist portion of the event evaluates the quality of the team’s presentation, as well as the team’s knowledge and expertise pertaining to the entry in the following areas: overall garment design and originality, theme interpretation, sewing techniques, and fabrics used.

EVALUATION

Evaluation is based on points earned for the portfolio, patterns and garments, and a presentation. Scores on the portfolio, pattern and garments will determine the twelve (12) semifinalists. Points earned for the presentation will be added to the portfolio score to determine the final ranking of the top ten (10) finalists.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students display a visual understanding of a fashion idea. Suggested leadership lessons: *Personality Types* and *Promote It*
- CREATIVE THINKING — Students create designs that appeal to a broad audience. Suggested leadership lessons: *Color Hunt* and *HAT To Be Creative*
- TEAMWORK — Students divide responsibilities among team members. Suggested leadership lessons: *Teams* and *Restaurant Business Plan*

Additional leadership skills promoted in this event: decision making, organization

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Fashion designer
Fashion layout editor
Fashion magazine editor
Fashion Merchandiser
Model
Tailor

FASHION DESIGN
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators, two (2) or more

C. Timekeeper

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Marking pens or pencils for each evaluator
   6. Semifinalist list for posting
   7. One (1) stopwatch
   8. Results envelope

B. Tables and chairs for evaluators

C. Chairs for audience

D. One (1) table, approximately six feet (6') long, for judges

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event

coordinator, and a CRC manager; all must initial either of these actions on the rating form.

E. Evaluators individually review and score each entry, and determine twelve (12) semifinalists.

F. Prepare a list of the twelve (12) semifinalists and submit it to the CRC room for posting. Also prepare and post a sign-up sheet for semifinalist presentations.

G. Conduct semifinalist presentations.

H. Allow the first team to enter the event room, and provide two (2) minutes for set-up of materials. The event coordinator or assistant introduces the team by entry number only. No nametags or clothing that give any indication of the hometown, school, or chapter are allowed. Each team will be allowed six (6) minutes for the presentation.

I. Each team is allowed two (2) minutes to remove all materials.

J. Following the last presentation, evaluators total their scores, making adjustments for time penalties.

K. Secure the evaluators' signatures on participants' score sheets.

L. Complete and submit the finalist report, which includes a ranking of the top ten (10) finalist teams, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

FASHION DESIGN

2015 & 2016 OFFICIAL RATING FORM — HIGH SCHOOL

Portfolio (70 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation B (X1)	Some parts of the portfolio are missing; the portfolio is unorganized, messy, and lacks quality.	Most components of the portfolio are present, adequately organized, and average in quality.	All components of the portfolio are included; strong effort and quality of work are evident.	
Summary of research (X1)	The summary is too brief and lacks the appropriate details expected for the event.	The summary of the research is sufficient; most of the key details are included.	The summary is organized, clear, and concise, with appropriate and necessary details included.	
Interpretation of theme (X1)	The interpretation of the theme is very weak and unconvincing.	The interpretation of the theme is clear, with some appropriate justification.	The interpretation of the theme is clear, concise, and thorough, with convincing justification.	
Explanation of garment types (X1)	The explanation is unclear, poorly organized, and does not accurately describe the garment types.	The explanation is loosely organized, with adequate attempts to describe the garment types and their production.	The explanation is clear, and concise and demonstrates extensive knowledge of garment types and production.	
Design process sketches (X1)	Sketches are poorly executed and lack necessary details in the design process.	Sketches are complete as drawn and include most notations and references to the design process.	Sketches are well executed, organized, and clearly represent the design process.	
Computer drawings for final design (X1)	Computer drawings fail to accurately portray the final design; there are major omissions of important details.	Computer drawings somewhat accurately illustrate the final design, with many important details included.	Computer drawings of the final design are clear, accurate, and effectively portray the final product.	
Resources/references (X1)	Research is inadequate, with very few credible resources and references provided and/or documented.	Research appears adequate, with most important resources and references adequately documented.	Research is comprehensive, and all resources and references are properly documented.	
			SUBTOTAL (70 points)	

Patterns/Mock Ups (30 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Two or more hand-made garment patterns (X1)	Patterns are poorly constructed, and/or are missing key components.	Patterns are generally well constructed; some key attributes and designs are included.	Patterns are designed to detailed standards and are of a production quality.	
Creativity, originality, and difficulty (X1)	Patterns/mocks-ups clearly lack creativity, originality, or difficulty in execution.	Patterns/mock-ups are of good quality and demonstrate some degree of difficulty and originality.	Patterns/mock-ups are of industry standard; they clearly demonstrate originality, creativity and skill.	

FASHION DESIGN (continued)				
Patterns/Mock Ups (30 points) (continued)				
Interpretation of theme (X1)	Patterns fail to adequately and appropriately demonstrate the theme.	Patterns reveal a somewhat successful attempt to demonstrate the theme.	The patterns clearly and appropriately demonstrate the theme.	
			SUBTOTAL (30 points)	
Quality of Garments (40 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Proper sewing techniques used/evident (X1)	Garment construction fails to meet accepted standards and techniques of construction in relation to the fabric selected.	Garment construction meets acceptable standards and construction techniques.	Garments show that a variety of appropriate techniques were used in the construction.	
Quality fabric and lining (X1)	The quality of the fabric and lining are not appropriate for the garments and style representing the interpretation of the theme.	The quality of the fabric and lining are acceptable in presenting the interpretation of the theme.	The quality of the fabric and lining exemplifies the interpretation of the theme and the appearance of the final garments.	
Use of notions (buttons, zippers, snaps, embroidery, embellishments, etc.) (X1)	Little or no use of notions is evident in the garments.	An adequate choice and variety of notions are appropriately used in the garments.	An excellent choice and variety of notions are used that enhance the overall appearance and quality of the garments.	
Garments are pressed, ironed, hanging on hangers in a dressmaker bag, or placed on a dressmaker mannequin (X1)	Garments are not pressed or arranged in an appropriate manner.	Garments are pressed and arranged somewhat appropriately.	Garments are pressed and arranged for display in a garment bag or on a dressmaker mannequin in a professional manner.	
			SUBTOTAL (40 points)	
			STATIC DISPLAY TOTAL (140 points)	

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

Semifinalist Presentation (60 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the presentation.	Participants are generally prepared for the presentation.	The presentation with the evaluators is logical, well organized, and easy to follow.	
Knowledge (X2)	Participants seem to have little understanding of the concepts in their project; answers to questions may be vague.	Participants exhibit an understanding of the concepts in their project.	Participants show clear evidence of a thorough understanding of the project.	
Articulation (X1)	The presentation is full of illogical thoughts that lack clarity.	The presentation is somewhat logical and easy-to-understand and follow.	The presentation provides a clear, concise, and easy-to-follow description of the project.	

FASHION DESIGN (continued)				
Semifinalist On-site Presentation (60 points) (continued)				
Delivery (X1)	Participants are verbose, illogical in presenting, and use many "uhs, ums, hmms, etc."	Participants are logical and fairly well spoken, with little use of "uhs, ums, hmms, etc."	Participants are well-spoken, distinct, and clear throughout the presentation.	
Quality of garments on models (X1)	The garments do not appear to fit and/or are inappropriate for the person modeling (color, style, textures, etc).	The garments fit neatly and generally are well made for the person modeling.	Garments clearly are made and designed for the model--fitting nicely, with appropriate style, colors, textures, etc.	
			SUBTOTAL (60 points)	

Time violation (a deduction of five points total will be incurred for exceeding the semifinalist presentation time limit). Record the deduction in the space to the right.	
Rules violations (a deduction of 20% of the total possible points) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the far right. Indicate the rule violated: _____	
(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (200 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

FLIGHT ENDURANCE

OVERVIEW

Participants analyze flight principles with a rubber band powered model aircraft.

PURPOSE

Participants have the opportunity to build, fly, and adjust (trim) a model to make long endurance flights inside a contained airspace. Models must be of fixed-wing design and comply with all event specifications. Rotary-wing aircraft and aerostats (lighter than air) aircraft are NOT permitted. All models are to be built and test flown during the current school year.

☑ Each year it is amazing when students demonstrate their mastery of this event by flying planes in graceful arcs around an indoor space. Flights do not always go that way, but when they do, they are beautiful.

ELIGIBILITY

Participants are limited to two (2) individuals per chapter, one (1) entry per individual.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. Participants are provided a minimum of thirty (30) minutes for trim flights at the event site.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants report to the event coordinator at the time and place stated in the conference program to sign up for flight heats.

B. Participants proceed to the flying site for trim flying during the time designated for their heat. Time allotted for the trim portion may be extended according to the number of participants and site scheduling.

C. Participants have two (2) opportunities to fly their models for official times.

D. Participants attend a pilot's meeting to review the sequence for making the official flights.

E. In an orderly fashion, participants wind their models and proceed to a group timer for permission to fly.

F. Participants place their models on the floor and wait for the signal to release from the timer. Timing begins when the model rises off the ground. A poster board launching platform will be provided.

G. Flight time ends when models hit the floor/ground or when they come to rest on an obstruction.

H. Only minor repairs are allowed during trim and time trials.

I. Each participant has the times of two (2) official flights recorded by the timer.

J. Immediately following the second flight, the participant will hand his/her motor to the judge for weighing.

K. Portfolios and planes will be placed on flight boxes for judging. Judges will begin with the top flight times and will evaluate planes, portfolios, and flight boxes until the top ten finalists have been determined. Planes that violate any part of Regulation C will be disqualified.

L. Ties are broken by determining the longest single flight time.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

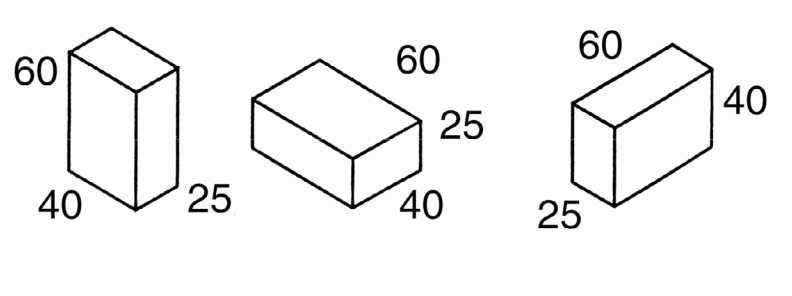
A. Documentation materials (comprising "a portfolio") are required and must be secured in a clear front report cover. The portfolio must include a flight log (see official sample that follows), with the previous ten (10) flights signed off by the participant's advisor. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. The technical attributes of the design and a description and identification of parts
2. The modifications and an explanation of why each was developed
3. A technical review of the flight log that explains the trim adjustments and modifications required to improve endurance. Experts from the Academy of Model Aeronautics (AMA) and the National Free Flight Society (NFFS) may scrutinize this information for validity.

Flight Log

Participant ID#:			Dates:		
Flight #	# of winds	Time aloft	Flight pattern	Trim adjustment	Advisor sign off
#1					
#2					
#3					
#4					
#5					
#6					
#7					
#8					
#9					
#10					

B. The aircraft and its parts *must* be contained in a flight box that does not exceed 25cm x 40cm x 60cm. Flight box hardware, such as hinges, handles, and wheels, are not to be measured.



☑ The flight box is required and is intended to protect the plane in transit.

C. Materials include the following:

1. Models are to be made of wood, tissue paper, condenser paper, and plastic film, such as Mylar, for fuselage and flying surfaces (wings, fin, and stabilizer). No plastic foams are allowed.
2. Models MUST use commercially available "fix-pitch" propeller or "fixed-pitch" propeller assembly: minimum of 140mm to a maximum of 170mm in diameter. Propellers may be trimmed, shaped, balanced, or re-pitched, but must remain fixed in pitch. Variable-pitch propellers and/or mechanisms are NOT permitted.
3. Fuselage dimension: minimum of 300mm in length measured with prop assembly attached.
4. Wingspan: maximum of 50cm horizontally projected, wing chord 12cm projected.
5. Rubber motor: maximum weight of motor is 1.50 grams, including the O-rings. No length measurement is made. Spare motors are allowed during the official flights. Two (2) rubber O-rings may be used on the rubber motor loop for easier handling of wound motors.
6. Model weight: minimum of 7.0 grams, maximum of 21.0 grams. Models are weighed without motors attached. Clay is permitted for trim ballast. Model is weighed with clay ballast.
7. Steel wire may be used only for the propeller shaft, motor hook, landing gear, and the connection between fuselage and tail. Small plastic tubes such as coffee stirrers may be used.
8. The two wheels must be a minimum of 15mm in diameter, made of plastic or wood, and they must roll freely by the weight of the plane on a smooth surface.

D. Acceptable flight support equipment includes the following:
   1. Mechanical rubber motor winders or battery-powered motor winders may be used. No AC-powered winders are allowed.
   2. A winding stooge may be used to anchor the model while its motor is being wound. A person may not serve as a winding stooge.
   3. Flight Endurance is an individual event. No one may assist the participant in any way during either trim or official flights. Violation of this regulation may result in disqualification.

E. When at rest, the landing gear must support the airplane without the fuselage and/or propeller touching the floor or launching pad.

EVALUATION

Evaluation is based on the duration of flight, written report, flight log, and flight box. A bonus of ten (10) seconds is added to the flight time per flight if the airplane successfully lands on its wheels and comes to a rest on its wheels.

NOTES

Two organizations—the Academy of Model Aeronautics (AMA) and the National Free Flight Society (NFFS)—welcome your inquiries and offer suggestions, help, and technical information concerning model aircraft and flight technology.

Contact the AMA: www.modelaircraft.org.
Contact NFFS: www.freeflight.org.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- CREATIVE THINKING — Students develop unique ideas for their entry to increase their competitive edge. Suggested leadership lessons: *Creative Technologies* and *The Leadership Chronicles*
- EVALUATION — Students improve their entry though testing and time trials. Suggested leadership lessons: *Evaluation Imagination* and *Evaluation Methods*
- PROBLEM SOLVING — Students make adjustments to their entry to fix any problems. Suggested leadership lessons: *Finding the Right Way* and *Problem Solving Steps*

Additional leadership skills promoted in this event: communication, critical thinking, organization

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Aeronautical engineer
Aircraft systems engineer
Physics teacher

FLIGHT ENDURANCE
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Assistants, two (2) or more

C. Evaluators, two (2) or more

D. Timekeepers, two (2)

MATERIALS

Coordinator's notebook, containing:

A. Event guidelines, one (1) copy for the coordinator and for each evaluator

B. Official rating forms

C. List of entries with finalist report

D. List of evaluators/assistants

E. Flight score sheets

F. Marking pens (felt tip, fine point)

G. Two (2) metric tape measures

H. Two (2) rolls of caution tape

I. 125 zip lock bags

J. Three (3) launch pads (poster board, 30" x 40")

K. Signs for door(s) reading Do Not Open, Flight in Progress, Knock for Entry

L. Three (3) helium balloons

M. One (1) fishing reel with line

N. Stop watches, three (3)

O. Electronic gram scale (to .01 gram)

P. Results envelope

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. For participants who violate the rules, the decision either to deduct 20% of the total points earned or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

E. Check in participants and evaluate models for special compliance during the scheduled trim session (completed flight log is inspected).

F. Secure models in the holding area so that models remain safe until the scheduled time for the official flights.

G. Distribute a list of entrants assigned to each designated evaluator/timer.

H. Each flight is recorded to the nearest one-tenth (.1) of a second. After the second flight, the times are added together. Up to three (3) groups may fly simultaneously in the assigned area for the event, with consideration for the safety of the models and participants.

I. Models and flight boxes of all contestants are checked again. Models showing deviations may be disqualified.

J. Secure the signatures of the evaluators on the official rating form after they have reviewed it.

K. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

FLIGHT ENDURANCE

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Documentation (60 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation A (X1)	Portfolio is unorganized and/ or is missing three or more components.	Portfolio is organized adequately, with most, if not all, components present.	No components are missing in the portfolio, and content and organization are clearly evident.	
Technical attributes (X1)	Attributes of the design are very sketchy in nature.	Attributes of the design are included and adequately reflect basic knowledge of flight design.	Clear and precise attributes of the design are given; an in-depth knowledge of flight design is exhibited.	
Description and identification of parts (X1)	Two or more parts are not described or identified accurately.	Most parts are accurately described.	All parts are completely and accurately described and identified.	
Modifications and technical review of flight log (X1)	Only one modification is noted, and/or an explanation of why the modification was made is missing.	Modifications are given with adequate explanations for how they improved flight endurance.	Modifications and an explanation of why they were made are provided; a clear and precise explanation for how they improved the flight endurance is provided.	
Flight log (X1)	The flight log is incomplete; the advisor signature is not included.	The flight log is generally complete; the advisor's signature may be missing.	The flight log is complete, with advisor's signature; a thorough understanding of the flight log's purpose is evident.	
Flight box (X1)	The flight box exceeds dimensions by more than 1%.	The flight box exceeds dimensions by less than 1%.	The flight box adheres to the maximum size restrictions.	
			SUBTOTAL (60 points)	

Flight Times Flight times recorded to the nearest tenth (.1) of a second.		
Duration of flight #1	**Seconds**	
Duration of flight #2	**Seconds**	
Landing bonus – add 10 seconds for each successful landing	**Seconds**	
Total flight scores (combine flight #1, flight #2, and bonus for landing/s)	**Seconds**	
	SUBTOTAL FLIGHT SCORE	

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

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

Comments:

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

Evaluator

Printed name: _____ Signature: _____

FUTURE TECHNOLOGY TEACHER

☑ Technology education is the study of technology, in which students "learn about the processes and knowledge related to technology." As a field of study, it covers the human ability to shape and change the physical world to meet needs, by manipulating materials and tools with techniques.

http://en.wikipedia.org/wiki/Technology_education

OVERVIEW

Participants research and select three (3) accredited colleges or universities that offer technology education teacher preparation as a major. Each participant will write no more than one (1) page (simulated college essay) explaining why s/he would like to become a technology educator and what would constitute success in the field. In addition, each participant will develop and present to judges a ten (10)-minute lesson plan, using the International Technology and Engineering Educators Association (ITEEA) standards for technological literacy.

PURPOSE

While the need for student proficiency in technology (as one area of STEM) is increasing, the number of qualified technology education teachers is decreasing. To help address this imbalance, this event will encourage participants to 1) investigate technology education preparation programs in higher education, and 2) test their potential as a future technology educator.

ELIGIBILITY

Entries are limited to three (3) individuals per chapter.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. Participants submit a portfolio containing three (3) college research summaries, a college essay, a lesson plan with technology standards correlation, relevant handouts, and materials and resources.

C. Semifinalists will make a presentation of no more than ten (10) minutes in length.

D. A maximum of four (4) minutes will be allowed for set-up.

E. At the conclusion of the presentation, the participant must remove all materials within three (3) minutes.

F. One (1) point will be deducted for each ten (10)-second interval over the allotted time for the presentation, set up, and/or clean-up.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. In preparation for this event, participants thoroughly research and select three (3) accredited colleges or universities that offer technology teacher preparation programs. Participants should take into consideration geographic location and environment, academic requirements, cost, campus life, setting, and the size and housing facilities of each school. Advice from parents, family members, guidance counselors, and technology teachers is recommended, as is a search on the Internet of colleges and universities that offer technology education degree programs. Using no more than three (3) pages, one (1) side only, participants should summarize the information derived from the research about each of the colleges or universities and their respective programs.

B. Each participant should complete an essay, one (1) page (single-sided), explaining why s/he is a good candidate to become a technology teacher. Personality traits, goals, and interests should be included in the essay. The essay should be word processed and free of spelling and grammatical errors.

C. Each participant will provide one (1) letter of recommendation from a counselor, school official, or other individual (not a relative) on official letterhead. Any identifying information (school or participant) should be concealed.

D. A lesson plan describing the rationale, goals and objectives, standards correlation, and a description of an activity, including assessment, must be submitted. The lesson plan should be clearly labeled with the grade level for which the lesson plan/activity is appropriate.

E. Copies of the lesson plan, all handouts, and a list of resources and references used for the entry and in the presentation should be included in the documentation portfolio.

F. Participants report to the event area at the time and place stated in the conference program. Each participant will turn in his/her portfolio to the coordinator to be judged.

☑ STEM education is an approach to teaching and learning that integrates the content and skills of science, technology, engineering, and mathematics. The goal of STEM education is to prepare students for post-secondary study and the 21st century workforce. (Maryland State Department of Education - STEM education description)

G. Entries will be reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

H. Each semifinalist will sign up for a scheduled time to present his/her lesson plan/activity.

I. The event coordinator will introduce each participant by number and in order of scheduled times. Each time slot includes four (4) minutes for set up and three (3) minutes to pack up materials and audio-visual equipment (if used).

J. Participants are encouraged to interact with the judges, who will act as students in the classroom.

K. Portfolios should be picked up at the time and location listed in the conference program.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. The research summaries, essay, and lesson plan/activity must be the result of the participant's own efforts and not purchased or open source material. General content from either may be used, but it must be cited.

B. All parts of the entry are contained in the documentation materials. Documentation materials (comprising "a portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the event title, the conference city and state, the year, and the participant's ID number (identification numbers are issued on site and therefore may be handwritten); one (1) page
2. Table of contents; pages as needed
3. College research summaries; one (1) page maximum for each college
4. College essay; one (1) page
5. Letter of recommendation, with identifying information (school or participant) concealed; one (1) page

6. Lesson plan/activity; three (3) sets for the judges and coordinator
7. Copies of handouts; three (3) sets for the judges and coordinator
8. References and resources; pages as needed

C. Activities that typically would follow the teaching lesson will be described by the presenter near the conclusion of the ten (10)-minute lesson.

D. Topics for the activity should correlate to the standards for technological literacy. (Use the International Technology and Engineering Educators Association ITEEA website at www.iteea.org for more information about the technology standards.) Topics should reflect Science, Technology, Engineering, and Mathematics (STEM) initiatives and integration. Activities that explore knowledge, creativity, and skills in the following areas are suggested:

1. Medical technology
2. Agricultural and biotechnology
3. Power and energy technology
4. Information and communication technology
5. Transportation technology
6. Manufacturing technology
7. Construction technology

E. Hazardous materials, chemicals, wet cell batteries, lighted flames, combustibles, and other substances are not allowed at the conference and cannot be part of the presentation.

F. Copies of the lesson plan and of all handouts, materials, and resources should be prepared and distributed to the judges, who will act as students in the classroom.

G. Audio-visual materials such as charts, graphs, posters, displays, flip charts, transparencies, and models may be included. Any audio visual equipment required for the presentation must be provided by the participant; this includes a power strip with surge protector, and extension cord, if needed.

H. Participants are not allowed to watch or hear the presentations of other participants.

I. One (1) point will be deducted for each ten (10)-second interval over the allotted time for the presentation, set up, and/or clean-up.

J. No school or individual names may be labeled on the entry; only participant identification numbers will be used.

EVALUATION

Evaluation is based on the portfolio, the developed lesson plan/ activity, and the presentation of the lesson. The appropriateness of the activity for the designated grade level, the poise of the participant during the presentation, the interaction of the participant with the students (judges acting as students), and the enthusiasm and motivation of the participant will be used in the final evaluation.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students convey aspects of a lesson effectively. Suggested leadership lessons: *Listening Skills* and *Put It Together*
- CREATIVE THINKING — Students use creativity to present a compelling lesson. Suggested leadership lessons: C*reative Techniques* and *Invention Mishap*
- DECISION MAKING — Students will make informed college selections, based on thorough research. Suggested leadership lessons: *History In The Making* and *Informed Decisions*

Additional leadership skills promoted in this event: ethics, organization

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Technology (and other STEM areas) teacher

FUTURE TECHNOLOGY TEACHER EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators, two (2) or more

C. Assistants, two (2)

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms, thirty (30) copies
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Marking pens for evaluators
   6. Semifinalist list for posting
   7. Stopwatch
   8. Tables and chairs for participants and evaluators
   9. Copy of ITEEA publication *Standards for Technological Literacy*
   10. Storage box to carry entries for judging
   11. Results envelope

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. Participants check in portfolios. The entry number should be written on a sticker in the lower right corner of the portfolio's cover. Evaluators read and individually evaluate entries.

E. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

F. Prepare a list of twelve (12) semifinalists and submit it to the CRC chairperson to be posted.

G. Set a time for semifinalists to sign up for an interview.

H. Make sure the presentation room is set up correctly.

I. Distribute the evaluators' materials.

J. Evaluators calculate their scores. Any tie that affects the top three (3) places should be broken by using the highest average score for evaluative criteria.

K. Evaluators submit their signed score sheets to the coordinator.

L. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

FUTURE TECHNOLOGY TEACHER

2015 & 2016 OFFICIAL RATING FORM — HIGH SCHOOL

Documentation (70 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation B (X1)	The portfolio is unorganized and/or is missing major components.	The portfolio is adequate, with most components included.	The portfolio is completely organized and contains all components.	
College search summaries (X1)	Only one (1) college technology education program is identified, with a summary included.	Two or more programs are included, with adequate summaries included.	Three programs are documented, with excellent summaries included.	
College essay (X1)	The essay is too short, an/or not typed, and/or poorly written, and and/or there are many spelling and grammatical errors.	The essay is generally well written, typed and of correct length, but it contains several spelling and grammatical errors.	The essay is well written, typed, the correct length and contains no spelling or grammatical errors.	
Lesson plan components See Procedure D (X2)	The lesson plan is missing several of the stated components, including the standards correlation.	The lesson plan includes all of the stated components, and it is adequately organized.	The lesson plan includes all of the stated components; it is well organized.	
Handouts (X1)	Handouts are poorly developed and do not have an impact on the lesson and activity.	Handouts are relatively well developed and have some impact on the lesson and activity.	The handouts are effective and greatly impact the lesson and activity.	
Resources and references (X1)	A minor attempt was made to document resources and references.	Several resources and references are documented.	There is clear evidence of many applicable resources and references.	
			SUBTOTAL (70 points)	

Presentation (70 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Organization (X1)	The presentation lacks organization, and it is difficult to follow or understand.	The presentation is somewhat organized.	The presentation is clearly organized and easy to follow; it flows smoothly to the conclusion.	
Introduction (X1)	The introduction is weak, with little effort made to emphasize the topic and/or to generate interest and enthusiasm for the topic.	Sufficient effort is evident in the introduction, which somewhat creates a level of interest.	The introduction is effective, stimulating, and inspires observers to "want more."	
Instructional competence (X2)	The presenter's delivery of content lacks confidence.	The presenter's delivery of content is professional and enthusiastic; it may lack in confidence.	The presenter's delivery of content is professional, enthusiastic, confident, and full of personality.	

FUTURE TECHNOLOGY TEACHER (continued)				
Presentation (70 points) (continued)				
Voice/language (X1)	The participant conveys an inconsistent use of proper grammar, word pronunciation, and acceptable pitch and tone.	The participant generally uses proper grammar and pronunciation, and varies the use of tone and pitch.	The participant uses smooth and effective articulation, proper grammar, correct pronunciation, and varied tone and pitch throughout the presentation.	
Innovation/creativity (X1)	The presentation fails to convey innovation or originality.	The presentation is somewhat original and innovative in its delivery and topic development.	The presentation is imaginative and innovative in its delivery and topic development.	
Knowledge (X1)	Minimal knowledge of the subject is evident in the presentation; the content does not relate to the topic; and/or the participant does not convey an understanding of the topic.	Knowledge of the subject is evident, and the presenter relates and conveys a somewhat clear understanding of the topic.	A complete knowledge and understanding of the subject and relationship to the topic are conveyed throughout the introduction.	
			SUBTOTAL (70 points)	
Time Deductions				
			Total time for presentation	
			Total time for set-up	
			Total time for take down	
			Presentation deduction	
			Set-up deduction	
			Take down deduction	
			TOTAL TIME DEDUCTIONS	

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

BONUS For the inclusion of audio materials in the presentation (X1)	Audio visuals are included, but they only slightly enhance the presentation.	Audio visual materials are varied and moderately enhance the presentation.	Appropriate materials and audio visuals are used and effectively enhance the presentation.	

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (150 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

MANUFACTURING PROTOTYPE

☑ A prototype is a full-sized working model of the product, not a mock-up or scale model. In this event, your entry is removed from its packaging and examined by the judges.

OVERVIEW

Participants design and manufacture a prototype of a product and provide a description of how the product could be manufactured in a state-of-the-art American manufacturing facility.

The product for 2015 is a child's pull toy.

The product for 2016 is a device to hold supplies for a person who uses a wheelchair.

An appropriate marketing package should accompany each product. The product marketing package should not include the use of any copyrighted characters or images.

PURPOSE

Participants have the opportunity to create a quality product, using different materials with innovative features, that has relevant application for consumers.

ELIGIBILITY

Participants are limited to one (1) team per chapter.

TIME LIMITS

Entries must be started and completed during the current school year.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants check in their entries at the time and place stated in the conference program. No more than two (2) team members set up the display.

B. Entries are reviewed by evaluators. Neither students nor advisors are present at this time.

C. No more than two (2) team members pick up their entry from the display area at the time and place stated in the conference program.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. Each entry consists of the prototype itself and accompanying documentation.

B. Prototype

1. Each entry includes a single "shelf-ready" product contained and submitted in its packaging. Evaluators open the package and handle the product.
2. Only original products designed by the participant may be entered. A product made from a kit is not considered a prototype. However, standard hardware, pre-manufactured parts, and specialty items such as LED clocks, pens, bearings, gears, batteries, etc. may be purchased and used in the manufacture of the prototype.
3. A prototype is a full-size working model.
4. The product is limited to 15" deep x 24" wide x 24" high. A product with an antenna or similar parts must be contained within the stated maximum space displacement.
5. The product should display good workmanship and craftmanship (effective use of the selected materials).
6. The product should function in a manner that solves the problem identified at the beginning of the challenge, creating an appropriate solution.
7. The product must not include combustible engines or flammable fuels.
8. The product must not require external AC power. Batteries may be used.

C. Documentation

1. The documentation must be turned in with the prototype at check-in.
2. Documentation materials (comprising "a portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

a. Title page with the event title, the conference city and state, and the year; one (1) page
b. Table of contents; pages as needed
c. Description of product—a written description of the product, instructions for its use, its need or intent, and related safety considerations; one (1) page
d. Design efforts—sketches, pictures, magazine clippings, and other graphic design elements used in the development of the final design; up to three (3) pages
e. Working drawings—an orthographic-dimensioned drawing, assembly, or pictorial may be presented, with orthographic drawing(s) shown first in this section. Drawings may be on paper no larger than B size (11" x 17") and folded to fit in the clear front report cover; up to two (2) pages
f. Materials list—a bill of materials (including costs, size and market value) used to fabricate the product; each item or sub-assembly should be identified as a student-produced standard stock item or purchased sub-assembly; one (1) page
g. Tool and machine list—a list of hand, power, and stationary tools used to fabricate the product; one (1) page
h. Production plans—a production outline, flow chart, or spreadsheet of the product; up to six (6) pages
i. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible and comments (see Plan of Work log); one (1) page

EVALUATION

Entries are evaluated on the documentation provided in the portfolio and on the quality of the product. Please refer to the official rating form for more information.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- CREATIVE THINKING — Students will develop an original concept for their entry. Suggested leadership lessons: *Creative Techniques* and *HAT To Be Creative*
- CRITICAL THINKING — Students will determine the best way to manufacture a product. Suggested leadership lessons: *And The Answer Is* and *Figure It Out*
- TEAMWORK — Students will work together as a team to develop and manufacture a product. Suggested leadership lessons: *Effective Meetings* and *The Gift*

Additional leadership skills promoted in this event: communication, organization, problem solving

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

CNC programmer
Design engineer
Industrial engineer
Information technology manager
Plant process improvement engineer

TECHNOLOGY STUDENT ASSOCIATION
PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

MANUFACTURING PROTOTYPE
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

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

C. Evaluators for displays, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Marking pens for evaluators, three (3)
   6. Results envelope

B. Tape measure to evaluate size of prototype

C. Display tables for entries

D. Chairs for evaluators

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

D. Place an entry number on each model and portfolio. Position displays for evaluation and viewing. Secure the entries in the designated area.

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

F. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

G. Evaluators independently assess the entries.

H. Evaluators average their scores to determine the ranking of the ten (10) finalists. Evaluators discuss and break any ties.

I. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

MANUFACTURING PROTOTYPE

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Documentation (60 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation C (X1)	The portfolio is unorganized and/or missing three or more components.	The portfolio is adequately organized; it may be missing some components.	One or no components are missing; the content and organization are clearly evident.	
Description of product (X1)	A description of the product is missing essential components (e.g., overall design problem, criteria, constraints, overall goals developed to complete the product).	The product description is adequate and clear enough to allow for a basic understanding of the design's goals, criteria, and constraints.	A logical, organized, clear, and concise product description is provided; it exhibits creativity.	
Design effort (X1)	Little evidence of design is included in the documentation to verify that the product is authentic and/or unique.	The materials included are adequate to build a case for an authentic product design and production.	Substantial and organized materials document the design effort and clearly portray the design process of the product from conception to completion.	
Working drawings (X1)	Drawings are sloppy sketches of the final product that may or may not correlate with actual product design presented.	Drawings are mostly correct and use universal drafting procedures; some techniques such as line weight, dimensions and line type may or may not communicate the design.	The drawings include both orthographic and pictorial/ assembly views to aid in communicating design; all drafting procedures and techniques are correct.	
Materials list (X1)	The bill of materials list is completed incorrectly, and/or many materials/sub-assemblies are missing; the materials list seems to be an afterthought of the product.	The bill of materials includes most primary materials and sub-assemblies, along with appropriate pricing information; most materials are identified as standard stock or specialty parts/ assemblies.	An organized and clear bill of materials list, which includes all parts/assemblies for the production of the product, is included, along with pricing information from multiple suppliers.	
Production plan (X1)	Few charts/diagrams are included that illustrate each part of the product, and/or items are unorganized and seem to be an afterthought of the product's design; few dates highlight the chapter's involvement in the manufacturing process.	The plan incorporates some logical and clear charts/diagrams that help to demonstrate how the chapter participated in the manufacturing process of the product.	The plan includes the incorporation of logical and clear charts/diagrams, each of which includes dates with captions that depict the chapter's involvement with the manufacturing process.	
			SUBTOTAL (60 points)	

MANUFACTURING PROTOTYPE (continued)				
Product (40 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Product function (X1)	The criteria and constraints presented in the description of the product are not met in the final product design and development.	Most criteria and constraints are met; the design is adequately simple and concise.	A logical and unique design that meets all criteria and constraints is provided; the design is elegantly simple and concise.	
Complexity (X1)	The product encompasses very little original thought; it includes three or fewer parts and/or is too easily manufactured.	Five or more parts are used in the product's development, most of which are made of materials that add to the product's design.	The product incorporates an innovative and creative use of five or more parts that are made of various materials that add to the product's design.	
Appropriate materials and aesthetics (X1)	The product exhibits extremely limited use of a variety of materials, and/or different materials should have been included to make the product's design better.	Various materials are used in the product's design and production; adequate evidence exists regarding how materials fulfill a specific purpose in the product.	Various materials are incorporated into the product's design and production; they fulfill a specific purpose in the product.	
Creativity and originality (X1)	There is little or no evidence of creativity and uniqueness; the product is simply a regurgitation of another product commercially available.	The product exhibits some creative aspects in its design and/or packaging, with a basic understanding of the creative aspects of design.	A truly authentic design of a new product, or a new idea for an old problem, is provided; the packaging is creative and appealing.	
			SUBTOTAL (40 points)	

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (100 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

MUSIC PRODUCTION

OVERVIEW

Participants produce an original musical piece that is designed to be played during the national TSA conference opening or closing general sessions. The musical piece should be energizing, interesting, and of a spirit consistent with the Technology Student Association.

PURPOSE

Modern music production has become integrated with technology in such a way as to demand a synthesis of technical, artistic, and creative skills. Exploring the link between original, creative ideas and the tools used to implement them is an essential activity for the development of a person's technical and expressive abilities.

ELIGIBILITY

Entries are limited to three (3) teams per state. Teamwork is strongly encouraged, but a team of one (1) member is permitted.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. The musical piece should be more than one (1) minute and less than three (3) minutes in length. There will be a five (5)-point deduction for each five (5) seconds under the one (1)-minute minimum and a five (5)-point deduction for each 15 seconds over the three (3)-minute maximum length.

C. The time starts with the first sound and continues until the last sound ends.

D. Semifinalists are interviewed for up to ten (10) minutes to explain the technical aspects and creative process of their work.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

☑ In recent years, developments in communication technology have dramatically changed the way we experience music. During the past century, recorded music went from nonexistent to the primary way people listen to music. With this event, TSA members can demonstrate their mastery of this medium.

PROCEDURE

A. Participants check in their entries (portfolio and CD) at the time and place stated in the conference program.

B. Entries are reviewed by evaluators. Neither students nor advisors are present at this time.

C. No more than two (2) representatives from each semifinalist team may report to the event area for the interview at the time and place stated in the conference program.

D. Each semifinalist team explains its portfolio and musical piece to the evaluators and discusses the purpose, value, and creative process of its work. Semifinalist teams will not be allowed to obtain their portfolios until their scheduled interview time.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events. For Music Production, especially note the rule about original work and the use of materials from other sources.

REGULATIONS

A. All musical pieces must be submitted on audio CD.

B. Lyrics may accompany the musical piece but are not required.

C. The musical piece should be greater than one (1) minute and less than three (3) minutes in length. There will be a five (5)-point deduction for each five (5) seconds under the one (1)-minute minimum and a five (5)-point deduction for each 15 seconds over the three (3)-minute maximum length.

D. Musical pieces thirty (30) seconds or less will be disqualified.

E. All entries become the property of TSA for non-profit promotional purposes and will not be returned after judging.

F. All musical pieces must be the original work of the team and must have been completed within the current school year.

G. Free, non-copyrighted sounds, loops, or other musical elements may be incorporated into musical pieces. The sources of these elements and the way in which they are used in the musical piece must be described in the portfolio, and the track list must illustrate these elements.

H. Each actual instrument, voice, and/or synthesized instrument track used in the final music piece must be illustrated in a timeline format in the portfolio.

I. Where applicable, all ideas, sounds, and loops from other sources must be cited. If copyrighted material is used, proper written permission must be included. NOTE: Failure to follow this procedure results in disqualification.

J. The CD and documentation materials are turned in to the event coordinator at the time and place stated in the conference program. Documentation materials (comprising a “portfolio”) are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the title of the musical piece, the event title, the conference city and state, and the year; one (1) page
2. Table of contents; pages as needed
3. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible, and comments (see Plan of Work log); one (1) page
4. Purpose and description of the musical piece; one (1) page
5. Self-evaluation of the piece using criteria from the official rating form; one (1) page
6. Lyrics; pages as needed
7. Audio CD(s) track list: Each actual instrument, voice, and/or synthesized instrument track used in the final music piece must be illustrated graphically using a timeline format similar to that shown below in Figure 1.

Figure 1

8. When musical elements are used that were NOT created by the team, the source, effects applied, the way each element was incorporated into the song, and how each

element corresponds to the musical piece's track list must be included; pages as needed. FAILURE TO INCLUDE THIS SECTION RESULTS IN DISQUALIFICATION.

9. List of hardware, software, and instruments used in the development of the musical piece; one (1) page
10. List of references that includes sources for materials (non-copyrighted); pages as needed

EVALUATION

Evaluation is based on the musical piece and on the accompanying documentation. Depending upon the stated purpose, musical pieces are judged on coherence, style, creativity, and artisanship, as well as technical attributes, creativity, organization, and their overall effect. Additionally, the musical piece and portfolio should reflect familiarity with the technologies used in musical production. Portfolios should be complete, well written, and professional in organization and appearance. For more information, please refer to the official rating form.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Through music, students will convey an array of ideas and emotions. Suggested leadership lessons: *Personality Types* and *Promote It*
- CREATIVE THINKING — Students will explore the links between creative ideas and how to produce them. Suggested leadership lessons: *Color Hunt* and *HAT To Be Creative*
- ETHICS — Students will create an entirely original product. Suggested leadership lessons: *Ethics In Everyday Life* and *It's Nothing. Everyone Does It...*

Additional leadership skills promoted in this event: evaluation, organization, teamwork

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Artist
Audio designer or engineer
Audio operator or technician
Broadcast technician
Music composer

TECHNOLOGY STUDENT ASSOCIATION
PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

MUSIC PRODUCTION
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators for first round, two (2) or more

C. Evaluators for second round, two (2) or more

D. Semifinalist evaluators, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Pens and notepads for evaluators
   6. One (1) stopwatch per group of evaluators
   7. Calculators, one (1) for each event evaluator
   8. Semifinalist list for posting
   9. Results envelope

B. Tables and chairs for evaluators

C. CD player capable of playing an audio CD, one (1) each per evaluation team

D. Extension cords (25' minimum length), one (1) per evaluation team

E. Power bar with surge protection, one (1) per evaluation team

PROCEDURE

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

D. Place an entry number on each CD and portfolio. Secure the entries in the designated area.

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

F. Evaluators independently assess the entries.

G. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

H. The number of evaluator teams depends on the number of entries. There are two (2) evaluators for every twenty (20) participants for the first evaluation round. The top five (5) entries from each group are forwarded to the event coordinator.

I. The groups of top five (5) entries are then assessed by two (2) new evaluators for a second evaluation round. The average of the second round of evaluations determines the top twelve (12) semifinalists. The semifinalist list is posted.

J. The semifinalists report at the time and location stated in the conference program to be interviewed.

K. Semifinalists are interviewed for up to ten (10) minutes to explain the technical aspects and creative process of their work.

L. During the interview process, semifinalist evaluators independently assess the semifinalists. Evaluators discuss and break any ties.

M. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

N. Take all CDs, portfolios, extension cords, and supplies to the CRC room. Return all equipment to the appropriate personnel.

Participant/Team ID# _____

MUSIC PRODUCTION

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Documentation (40 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation J (x1)	The portfolio is unorganized and/or missing three or more components.	The portfolio is adequately organized and includes most, if not all, components.	All components of the portfolio are included and the organization of the content is clearly evident.	
Purpose and description (X1)	An unclear purpose and description of the music production idea and generation are provided; there are many grammatical errors.	The purpose and description are explained appropriately; the grammar and/or writing are adequate.	A clear and concisely written purpose and description of the music production are included; no or few grammatical mistakes are evident.	
Plan of Work log and self-evaluation (X1)	The Plan of Work log and/or self-evaluation are incomplete, and/or missing key components.	The Plan of Work log and/or self-evaluation are somewhat complete and incorporate reflections and efforts of the team.	A complete and concisely written Plan of Work log and self-evaluation are provided; these incorporate the efforts and reflections of the team.	
Track timeline (X1)	The track timeline is incomplete and/or not created correctly; the timeline does not correlate with the actual music production.	The track timeline is more or less complete and attempts to correlate with the actual music production.	The track timeline is of exemplary quality; it correlates completely with the music production and is easy to follow.	
			SUBTOTAL (40 points)	

Musical Piece (60 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Creativity and uniqueness (X1)	The musical idea is overly familiar or is a cliché; no variety or exploration of musical elements (range, timbre, dynamics, tempo, rhythm, and melody) is evident.	The work involves some original aspects or manipulations of musical ideas; it explores and varies at least one or more musical elements.	The piece includes highly original, unusual, or imaginative musical ideas; it explores and varies at least two or more musical elements.	
Artisanship (X1)	The piece gives no sense of a completed musical idea; there is no clear beginning, middle, or end section; the form appears random, rather than organized.	One musical element has been used to organize the musical ideas and overall form, which are somewhat coherent.	The piece presents at least one complete musical idea; the piece has a coherent and organized form with a clear beginning, middle, and end; musical elements are used to organize the musical ideas and form.	
Energy and style (X1)	The piece lacks liveliness, vitality, and vigor; there is no flair, elegance, or grace to the form.	The piece generates an initial level of energy that appeals to the listener; the style is somewhat distinctive.	The liveliness and forcefulness of the piece excite the listener; the style is truly unique and electrifying.	

MUSIC PRODUCTION (continued)				
Musical Piece (continued)				
Appropriateness (X1)	The musical idea or concept is not appropriate and acceptable for use in the event.	The musical idea or concept is acceptable and somewhat fitting.	The musical idea or concept presented is fitting and serves as an excellent example of the type of work expected.	
Overall appeal (X2)	The work does not present an effective general impression; the musical ideas do not hold the listener's interest.	The work includes some interesting musical ideas; the general impression is pleasant and moderately effective.	There is strong, interesting, and effective audio appeal; the work is designed to be enjoyed by the listeners.	
			SUBTOTAL (60 points)	
Time Deductions				
Five (5) points off for each five (5) seconds under one (1) minute, five (5) points off for each fifteen (15) seconds over three (3) minutes.				
Total time under		Five (5) second intervals under		Under time deduction
Total time over		Fifteen (15) second intervals over		Over time deduction
				SUBTOTAL (100 points)

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

Indicate the rule violated: _____

Semifinalist Interview (40 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Organization (X1)	The team seems unprepared and unorganized for the interview.	The team is adequately prepared and organized for the interview.	The team's interview with judges is logically organized and impressive.	
Knowledge (X1)	The team seems to have very little understanding of the concepts and gives vague interview answers.	The team has a generalized understanding of the concepts discussed and answer questions well.	There is clear evidence that the team has a thorough understanding of the concepts discussed.	
Articulation (X1)	The team's interview is full of illogical thoughts that lack understanding and clarity.	The team's interview is somewhat logical, clear, and concise.	A concise, logical and clear explanation of the entry is given by the team.	
Delivery (X1)	The team is verbose, illogical and include many "uhs, ums, hmms," etc. in its responses.	Logical and well-spoken interview responses are given with few "uhs, ums, hmms," etc.; the interview reflects an adequate effort.	Well spoken, distinct, and clear interview responses are given by the team, with no or very few "uhs, ums, hmms," etc.; the interview is a quality effort.	
				SUBTOTAL (40 points)

MUSIC PRODUCTION (continued)

Rules violations (a deduction of 20% of the total possible points) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the far right. Indicate the rule violated: _____	
(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (140 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

ON DEMAND VIDEO

OVERVIEW

Participants write, shoot, and edit a sixty (60)-second video during the conference in this on-site event. Required criteria, such as props and a line of dialogue, make the competition more challenging and will be revealed at the event orientation meeting.

PURPOSE

Participants have the opportunity to use video skills, tools, and processes to communicate, entertain, inform, analyze and/or illustrate a topic, idea, subject, or concept. An extremely powerful and ubiquitous medium, video production has great potential, strengths, and limitations that should be understood by all.

ELIGIBILITY

Participants are limited to one (1) team of two (2) or more students per chapter. One (1) entry per team is permitted.

TIME LIMITS

A. Entries must be started and completed during the conference.

B. The video must be no longer than sixty (60) seconds in length.

C. Participants have forty-eight (48) hours, beginning at the event orientation meeting, to complete the entire production.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

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

B. The event coordinator distributes the materials, information, directions, and deadlines to each team.

C. Each team supplies its own video production and editing equipment that it wishes to use to complete its production. Entries will be submitted on a 12cm DVD suitable for viewing on a stand-alone DVD player.

D. Entries are reviewed by evaluators. Neither students nor advisors are present at this time.

E. Participants shoot their footage, which must be appropriate for the TSA community, only at officially sanctioned conference locations, as described by the event coordinator. Teams are not allowed to shoot in sleeping rooms, restrooms, restaurants, or elevators/escalators. Participants may not disturb any event in progress, enter a restricted evaluation area, interrupt a conference function, or participate in behavior unbecoming to a conference participant. At the event meeting, the event coordinator will explain any further shooting restrictions on the specific property. Failure to follow these instructions will result in disqualification.

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

☑ Entries may be submitted to the TSA video library after the conference.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. Videos must be submitted on a 12cm DVD suitable for viewing on a stand-alone DVD player.

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

C. Teams must include two (2) or more members.

D. Teams may use no more than one (1) video camera for the video production.

E. Teams must edit their projects on a nonlinear editing system or their camera. Teams are responsible for providing their own editing equipment.

F. All video footage must be the original work of the team and must have been completed during the event timeline.

G. Where applicable, all ideas, test images and sound from other sources must be cited. Copyrighted materials may NOT be used. NOTE: Failure to follow this procedure results in disqualification.

H. The video documentation materials are turned in to the event coordinator. Documentation materials (comprising “a portfolio”) are required and should be placed and secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the event title, the conference city and state, and the year; one (1) page
2. Table of contents; pages as needed
3. Purpose and description of video; one (1) page
4. A shot log used in production planning to aid with shot selection and shot type for each scene; one (1) page
5. Two (2)-column script detailing specific audio and video cues that must correlate with the video; pages as needed
6. List of video equipment and software used in the development of the video; one (1) page
7. List of references that includes sources for materials; pages as needed
8. If all images and audio used in the entry are original, a statement to verify that is required.

EVALUATION

Evaluation is based on the completed video production and the accompanying documentation. Depending on the stated purpose, videos are judged on story concept, artistic and/or social value, camera technique, transition and video pace, as well as technical attributes, creativity and organization, and the overall effect of the solution. The video should also incorporate the specified prop(s) and dialogue presented during the event meeting. Portfolios should be complete, well written, and professional in organization and appearance. Please refer to the official rating form for more information.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students will organize and produce an effective entry. Suggested leadership lessons: *Fact Or Fiction* and *Listening Skills*
- CREATIVE THINKING — Students will use original ideas to develop their entry. Suggested leadership lessons: *Color Hunt* and *HAT To Be Creative*
- EVALUATION — Students will review and critique their work throughout the development of their video. Suggested leadership lessons: *Evaluation Imagination* and *Seven Components of Effective Evaluation*

Additional leadership skills promoted in this event: organization, teamwork

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Actor
Audio/video operator or technician
Cinematographer
Film/video editor
Screen editor
Script writer

ON DEMAND VIDEO
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators, two (2) or more for every twenty (20) entries

C. Evaluators, two (2) or more for the semifinalists from each group

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Pens and notepads for evaluators
   6. One (1) stopwatch per group of evaluators
   7. Calculators, one (1) for each event evaluator
   8. Marking pens, three (3)
   9. Results envelope

B. Tables and chairs for evaluators

C. Computer capable of reading a DVD, and a monitor — one (1) each per evaluation group

D. Extension cords (25' minimum length), one (1) per evaluation group

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Meet with all participants at the scheduled time and location to deliver the event-specific criteria, including required props and dialogue. Ensure that all participants understand regulations regarding equipment allowed, behavior, deadlines,

and submission requirements. Prior to the event meeting, the coordinator should tour the conference facilities and develop a list of restricted areas and/or specific restrictions for the event. This list should be shared with the event manager prior to the event meeting. The coordinator should mention at the event meeting that teams must be courteous to all guests in common areas or designated filming areas.

D. Check in the completed entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

E. Place an entry/ID# number on each DVD and portfolio. Do not use a sticker (with the ID#) on the DVD; use a marking pen to record the ID number on the DVD. Secure the entries in the designated area.

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

G. Evaluators independently assess the entries.

H. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

I. Each group of evaluators averages its scores to determine the top five (5) entries from that group. The number of evaluator groups depends on the number of entries. In this case, there are two (2) or more evaluators for every twenty (20) participants. The top five (5) entries from each group are forwarded to the event coordinator.

J. The coordinator lists the semifinalists in random order on new rating forms that are given to the semifinalist evaluators. The semifinalist list is NOT posted.

K. Semifinalist evaluators independently assess the semifinalists.

L. Semifinalist evaluators average their scores to determine the top ten (10) finalists and their ranking. Evaluators discuss and break any ties.

M. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

Participant/Team ID# _____

ON DEMAND VIDEO

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Portfolio (30 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation H (X1)	The portfolio is unorganized and/or is missing three or more components.	The portfolio is adequately organized, with most, if not all, components included.	All components are included and the quality of the content and organization are clearly evident.	
Purpose and description (X1)	The purpose and description are poorly written, unclear and/or contain many grammatical errors.	The purpose and description are explained appropriately; some grammatical errors may be evident; the writing is adequately effective.	Clearly and concisely written, the purpose and description are completely effective and compelling.	
Script (X1)	The script is not in the correct two-column format, and/or it is missing key attributes, such as character dialogue, nonverbal cues, etc.; the script is unorganized, and there is inconsistent spacing.	The script contains most key attributes and is correctly formatted; overall the script follows the video production.	The script is concise, fluid, and all of its attributes correlate clearly with the video production.	
			SUBTOTAL (30 points)	

Production (100 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Camera handling (X1)	Serious problems with focus, steadiness, and framing are evident.	Most shots are clearly focused and framed, with adequate close-ups included.	Steady and creative shots that enhance the video are utilized, and excellent close-ups are included.	
Lighting (X1)	Numerous shots are improperly lit; bleaching, shadows, or unbalanced conditions may be evident in some shots; there is no evidence of an attempt to correct problems.	Most shots are properly lit, either through ambient lighting or the use of techniques to correct poor lighting conditions.	All shots are well lit, either through ambient lighting or the use of techniques to correct poor lighting conditions.	
Audio (X1)	Audio may be unclear, distorted, or washed out from poor signal-to-noise ratio; there is evidence of the use of a built-in camera microphone that detracts from the message.	The audio is clear, with consideration given to a good signal-to-noise ratio; background or ambient noise may occasionally be a distraction.	The audio is clear and recorded with good signal-to-noise ratio, displaying skillful microphone choice, placement, and technique.	
Continuity and pacing (X2)	The story sequencing is confusing; shots are too long or "clipped," with edit points appearing "glitchy."	The pace and timing are well structured; clips move along and tell the story, with moderate use of transitions.	Shots logically pace the story along in an interesting way, with an excellent and purposeful use of transitions.	
Video effectiveness (X2)	The video does not meet project goals, presents an unclear message, and is sloppy overall.	The video topic is presented with insights; the video adequately meets the objective.	The video is clearly focused, with a rich variety of supporting material.	

ON DEMAND VIDEO (continued)				
Production (100 points) (continued)				
Aesthetics and artisanship (X1)	The work is unorganized and sloppy; the display seems to be an afterthought, as if it were thrown together.	The work provides an organized presentation of essential issues in a logical format.	The work provides an exemplary use of layout and design principles to logically communicate important data.	
Use of required props (X1)	Props incorporated in the video appear as an afterthought.	Props incorporated in the video add some artistic value and tend to further the plot.	Props are integral to the production's plot and artistic value.	
Use of required dialogue (X1)	The line of dialogue is not incorporated in the production, and/or the dialogue is incorrect.	The line of dialogue is incorporated and somewhat essential to the production's plot.	The line of dialogue is communicated effectively and is integral to the production's plot.	
			SUBTOTAL (100 points)	

Time violation (a deduction of five (5) points will be incurred for exceeding the sixty (60)-second time limit for the length of the video). Record the deduction in the space to the right.	

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

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (130 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

PHOTOGRAPHIC TECHNOLOGY

OVERVIEW

Students capture images and process photographic and digital prints that depict the current year's published theme. Twelve (12) qualifying semifinalists participate in an on-site event in which they capture digital images and utilize multimedia software to prepare and develop a media presentation during the annual conference.

PURPOSE

Participants have the opportunity to demonstrate understanding of and expertise in using photographic and imaging technology processes to convey a message. Semifinalists record images and develop a media presentation of TSA conference activities as assigned. The current year's theme will be posted on the TSA website under Competitions/Themes and Problems.

ELIGIBILITY

Participants are limited to one (1) individual per chapter; one (1) entry per individual.

TIME LIMITS

Entries must be started and completed during the current school year.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants check in their entry at the time and place stated in the conference program.

B. Entries are reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

C. Semifinalists report to the event area at the time and place stated in the conference program.

☑ Participants are reminded that the major emphasis for this event is the quality and processing of the images captured, processed, and documented. Participants create a digital display and graphic of their work that is included in their documentation portfolio.

D. Each semifinalist must have a digital camera, access to a computer with multimedia software, and a standard 15 pin VGA cable port. Semifinalists must bring two (2) blank CDs/DVDs to compete in the semifinals round of the event.

E. The event coordinator distributes to each semifinalist the description of the semifinalist assignment, specific directions, and timelines for the three (3) stages of the semifinals.

F. Semifinalists use the assigned time for the first stage in which they capture images of newsworthy conference events and activities that depict the semifinalist assignment. Any type of image typical of responsible news reporting and publication is considered appropriate.

G. Participants shoot their images, which must be appropriate for the TSA community, only at officially sanctioned conference locations, as described by the event coordinator. Teams are not allowed to shoot in sleeping rooms, restrooms, restaurants, or elevators/escalators. When the coordinator distributes the semifinalist assignment, further explanation about any addtional shooting restrictions at the property will be addressed. Failure to follow shooting instructions from the event coordinator will result in disqualification.

H. Semifinalists may not disturb any event in progress, enter a restricted evaluation area, interrupt a conference function, or participate in behavior unbecoming to a national participant in any event.

I. During the second stage of the semifinals, utilizing multimedia presentation software (Microsoft PowerPoint, Keynote, Corel Presentation, Flash, etc.), each semifinalist will select images, develop a storyboard, create captions, and prepare a Photographic Technology newsworthy presentation. Participants may not use or add music or sound to their presentation. The background color for all presentations must be either black, white, or gray (50%). Semifinalists will be allowed two and one half (2½) hours to complete the second stage of the event. Each semifinalist presentation should be stored on the participant's memory stick and turned in to the event coordinator.

J. Semifinalist presentations in the third stage take place as noted in the conference program.

K. Upon completion of the second stage, each semifinalist will submit a CD or DVD copy of his/her finalized presentation to the event coordinator. The participant will then be assigned a presentation time.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. Participants submit their photographic prints and documentation materials for judging in an entry portfolio.

B. Each entry must include fifteen separate prints, with each image size no larger than 8½" x 10" or no smaller than 3" x 5".

C. Each entry must include five (5) black and white prints, five (5) color prints, and five (5) prints of the student's choice. Sepia tones, blue tones, or coloring of any type other than black and white will count as color prints.

D. Each entry should include a variety of prints, such as action, still life, product, portrait, special effects, groups, wildlife, landscape, etc. All special effects images submitted for judging must be the sole work of the individual participant. Examples of this type of photography include, but are not limited to, combination printing, successive printing, ghost images, sandwiching, silhouettes, etc. Each print must be labeled as to its type and special effects. Any print submitted that combines images must have the unaltered prints included in the entrant's documentation portfolio.

E. Each print (none larger than 8" x 10") must be processed and printed on 8½" x 11" photographic paper. All prints (regardless of portrait or landscape orientation) are to be placed allowing a 1/4" border on the two sides and across the top, leaving a 3/4" border across the bottom of the page (width) where captions will be centered and placed. Participants may choose to leave this border white, or they may use a gray or black shaded printed border, which will require an adjustment in the text coloring.

F. Prints smaller than 8" x 10" should maintain and use the same size gray or black shaded borders around the print, as specified above. If a white border/background is desired, the only concern will be the placement of the caption centered below the print. (Some pictures/prints show better with a black or grey border/background, as opposed to white.)

G. Each finished print must be be submitted in a separate page protector.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

H. A description of the post-processing procedure completed for each individual print is to be placed on the back side of the print.

I. Submitted prints must be the work of one (1) student.

J. Recognizable individuals selected and pictured in prints/images must give their written consent before the prints can be used in this event. (See Photo/Film Consent and Release form below.)

K. All prints and documentation materials must be submitted at check-in. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover. The first page (report cover page) must include a graphic representation of the student's prints that have been submitted for judging. The arrangement of the prints on this graphic should mimic a full-scale display that can be viewed by the judges. All captions and descriptions should be included on this graphic. This graphic must be identified as the ***Cover Page Graphic File*** on the CD or DVD that is submitted as part of the documentation for the event. The report cover also must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the event title, the conference city and state, and the year; one (1) page
2. Table of contents; pages as needed
3. A description of the entrant's interpretation of the theme and justification for the selection of the various shots/images that are included in the entry; no more than two (2) pages
4. All fifteen (15) prints submitted for judging must be properly labeled with captions and placed in separate sheet protectors.
5. Each original and unaltered print must be placed in a separate sheet protector directly behind the corresponding finished print. Original prints for altered prints and multiple imaging must be placed in separate sheet protectors in the same manner, with a description of special processing attached to the back of the print.
6. All consent forms; when deemed unnecessary, include a page with a statement to verify that no consent forms are included.
7. CD or DVD, with copies of all original and finished images, as well as the Cover Page Graphic File (placed in a CD/DVD sleeve attached to a single sheet of paper)
8. List of resources and references used; pages as needed.

All prints used in Photographic Technology should be appropriate for viewing at the national TSA conference. Any entry that includes images depicting inappropriate or unacceptable behavior results in disqualification.

EVALUATION

Evaluation is based on points earned for the required images and documentation portfolio, and the three (3) stages of the semifinals during the on-site portion of the event. Scores on required images and the documentation portfolio determine the twelve (12) semifinalists. Points earned through the on-site event determine the final ranking.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Using technology, students convey a theme effectively. Suggested leadership lessons: *Fact Or Fiction* and *Promote It*
- CREATIVE THINKING — Students incorporate original ideas to depict the event theme and meet the event requirements. Suggested leadership lessons: *Color Hunt* and *Creative Techniques*
- EVALUATION — Through evaluation, students ensure that the entry is captivating. Suggested leadership lessons: *Seven Components Of Effective Evaluation* and *Silence Is Golden*

Additional leadership skills promoted in this event: decision making, ethics, organization, problem solving

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Advertising or public relations executive
Graphic designer
Photographer
Publisher
Sales manager

PHOTO/FILM/VIDEO CONSENT AND RELEASE

I hereby give permission for images of my child or myself (as applicable), captured during Technology Student Association (TSA) activities through film, photo or digital camera, to be used solely for the purposes of TSA promotional materials and publications, and I waive any rights of compensation or ownership thereto.

Name of minor in images (please print)

Name of minor's parent/guardian (please print)

Name of adult in images (please print)

Parent/guardian or adult's signature (as applicable)

Date

PHOTOGRAPHIC TECHNOLOGY
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

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

C. Evaluators for displays, two (2) or more

D. Evaluators for semifinalist entries, two (2) or more

MATERIALS

A. Coordinator's notebook, containing
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Pencils/pens for evaluators
   6. Notepads
   7. Semifinalist list for posting
   8. Results envelope

B. Tables for entries

C. Tables and chairs for evaluators

D. Semifinalist event information sheet

E. Event time line and presentation schedule

F. LED projector and laptop with appropriate software for semifinalist presentations

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

D. Place an entry number in the lower right-hand corner of the cover of the documentation portfolio, the CD/DVD sleeve, and the labeling area of the CD/DVD. Collect entries for evaluation and secure them in the designated area.

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

F. Evaluators independently assess the entries.

G. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

H. Evaluators tally and submit their signed official rating forms.

I. Prepare a list of the twelve (12) semifinalists and submit it to the CRC chairperson for posting.

J. Manage the first stage of the semifinals and distribute the description of the Photographic Technology semifinalist assignment, specific instructions, and timeline to each semifinalist.

K. Manage the second stage of the semifinals, during which time the students will prepare their presentations.

L. Collect CDs/DVDs of finished presentations, assign presentation times, and manage the third stage of the semifinals, during which time each semifinalist presents his/her media presentation to the judges.

M. Following completion of the third stage, evaluators review and determine the final rank order for the semifinalist portion of the event.

N. Evaluators discuss and break any ties.

O. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

PHOTOGRAPHIC TECHNOLOGY

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Documentation (150 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation K (X1)	The portfolio is unorganized, and/or three or more components or sections are missing.	The portfolio is generally well organized and may be missing only two components or sections.	The portfolio is exceptionally well organized and contains all required components.	
Description of theme interpretation and justification (X1)	The description is illogical and difficult to understand; the explanation of the theme is unclear.	The description is communicated, defined, and explained appropriately; the writing is adequate.	The description is well written, clear and concise; the interpretation and justification are engaging.	
Required prints See Regulations B and C (X2)	Many prints are missing and not all categories are complete and identified.	Most prints are included, with most in each category properly identified.	All prints for all categories are included and correctly identified.	
Captions and descriptions (X1)	Many captions and descriptions are missing and/or placed incorrectly.	Most captions and descriptions are appropriate and placed correctly.	All captions and descriptions are appropriate and placed correctly.	
Lighting and special effects (X1)	Very few images exhibit any consideration given to lighting and special effects.	Most images exhibit attention given to lighting and the use of special effects.	All images are enhanced by attention given to lighting and the use of special effects.	
Composition of images (X1)	Very few prints indicate attention to the composition of the images.	Most prints exhibit some consideration of composition.	All prints evidence great attention to the composition of the images.	
Processing and finishing (X1)	Very poor finishing and processing qualities are exhibited.	Most prints exhibit appropriate processing and finishing techniques.	All prints exhibit excellent quality in processing and finishing.	
Creativity (X1)	There is little or no evidence of creativity in the images.	Most images exhibit a somewhat successful attempt at creativity.	All images exhibit creativity.	
Depiction of theme (X1)	The images poorly depict the theme.	Most of the images included relate to and depict the theme.	All images do an excellent job of presenting a clear and concise theme.	
Visual impact (X1)	The images do very little to provide any meaningful visual impact of the theme.	The images provide a somewhat successful attempt at visual impact of the theme.	All images provide an exemplary visual impact of the theme.	
Consent forms (X1)	Many forms are missing and/or are not organized.	Most forms are included and are somewhat organized.	All necessary forms are included and appropriately organized.	
Printed originals (X1)	Very few original prints are included, and/or they are not properly placed and identified.	Most original prints are included and are placed as specified, with limited identification.	All original prints are included and placed appropriately, with proper identification.	
CD/DVD – cover page layout (X1)	The CD/DVD does not have the necessary files or cover page.	The CD/DVD has a cover page and most, if not all, files are included.	The CD/DVD and cover page, with all of the necessary files, are included.	

PHOTOGRAPHIC TECHNOLOGY (continued)				
Documentation (150 points) (continued)				
Resources/references (X1)	Few references and resources are cited.	Some references and resources are cited.	All references and resources are cited.	
			SUBTOTAL (150 points)	

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

Indicate the rule violated: _____

Semifinalist Challenge (80 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Effectiveness in depicting theme (X2)	The images poorly depict the theme.	Most of the images included relate to and effectively depict the theme.	All images included do an excellent job of presenting a clear and concise depiction of the theme.	
Composition of images (X1)	Very few prints indicate any attention to the composition of the images.	Most prints exhibit some consideration of the composition of the images.	All prints evidence a great deal of attention to the composition of the images.	
Creativity in imaging (X1)	There is little evidence of creativity in the images.	Most images exhibit a somewhat successful attempt at creativity.	All images clearly exhibit creativity.	
Captions and descriptions (X1)	Many captions and descriptions are incorrect or missing, and/or all are not centered, and/or the 1" border has not been maintained.	Most captions and descriptions are correct, centered properly, and placed in the appropriate 1" border.	All captions and descriptions are correct and appropriate, properly centered and placed in the 1" border.	
Lighting and special effects (X1)	Very few images exhibit any consideration given to lighting and special effects.	Most images exhibit attention given to lighting and the use of special effects.	All images are enhanced by attention given to lighting and the use of special effects.	
Presentation (X2)	The media presentation is unorganized and ineffective in meeting the semifinalist challenge.	The media presentation is somewhat effective in its attempt to represent the semifinalist challenge.	The media presentation does an excellent job of meeting and representing the requirements of the semifinalist challenge.	
			SUBTOTAL (80 points)	

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

Indicate the rule violated: _____

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

Comments:

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

Evaluator

Printed name: _____ Signature: _____

PREPARED PRESENTATION

☑ A slide is a single page of a presentation. Collectively, a group of slides may be known as a slide deck or a slide show. In today's digital age, a slide most commonly refers to a single page developed using a presentation program, such as Microsoft PowerPoint or Apple Keynote. A slide deck would be multiple slides created for a presentation.

OVERVIEW

Participants deliver an oral presentation that includes a visual enhancement based on the theme for the current year's conference.

The theme for Prepared Presentation will reflect the current national TSA conference theme. See the national TSA website at www.tsaweb.org.

PURPOSE

Participants have the opportunity to develop and deliver a presentation using a slide deck on an assigned topic.

ELIGIBILITY

Participants are limited to three (3) individuals per state.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. Each presentation must be no less than three (3) minutes and no more than five (5) minutes.

C. A maximum of five (5) minutes is allowed for set-up.

D. At the conclusion of the presentation, the participant must have all devices ready to exit the room within three (3) minutes.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants report to the event area at the time and place stated in the conference program to sign up for a presentation time.

B. Participants will report to the holding area, as stated in the conference program, fifteen (15) minutes prior to the assigned presentation time.

C. The event coordinator introduces each participant by number and in order of scheduled times. The schedule allows time for set-up and removal of equipment.

D. No observers are allowed in the event or preparation rooms during heats, although they are allowed to sit in the audience of the performance during the finals. No talking or gesturing is permitted. Observers are NOT allowed to enter or leave during a presentation. THERE IS NO APPLAUSE UNTIL THE PRESENTATION HAS CONCLUDED. No form of visual recording (such as photographic or video) or audio recording by any observer (including family, friends, or advisors of the participants) is permitted.

E. A semifinalist list in random order is posted.

F. Semifinalists report to the event area at the time and place stated in the conference program. Each semifinalist will sign up for a speaking time.

G. Semifinalist presentations follow the same guidelines as above.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Tips for success from past top placers include these:

• Sell yourself using eye contact, gestures, and a comfortable and clear speaking style.

• Be creative with fresh, unique ideas.

REGULATIONS

A. Each presentation must be the result of the participant's own efforts.

B. The topic for the Prepared Presentation event is the published theme of the current year's conference. Information about technology and TSA is appropriate as long as it relates to the published theme.

C. The presentation must include the use of a slide deck.

D. The slide deck must include a minimum of five (5) slides.

E. Participants are not allowed to hear other participants' presentations.

F. It is the participant's responsibility to provide any audio/visual equipment needed for the presentation, including a computer/laptop and projector. If a participant is using equipment that requires electricity, s/he must bring a 25' extension cord.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

G. A table (approximately six feet [6'] long) and a projection screen, will be provided by national TSA for participant use, as needed.

H. Participant scores are penalized one (1) point per ten (10)-second interval for speaking over or under the allotted time. The same penalty is used for set-up and takedown. Set-up time begins when the participant is called into the room and ends when the participant is ready to deliver the presentation; takedown time begins when the presentation is concluded and ends when the participant has all devices ready to exit the room. The presentation time begins when the presentation begins and ends when the presentation is concluded.

EVALUATION

Evaluation is based upon the quality of the presentation and the appropriate use of a slide deck.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students will use audio/visual materials to enhance the effectiveness of their presentation. Suggested leadership lessons: *Listening Skills* and *Put It Together*
- CREATIVE THINKING — Students will use creativity to present original thoughts. Suggested leadership lessons: *Invention Mishap* and *The Leadership Chronicles*
- EVALUATION — Students will practice and revise both their presentation and their presentation techniques. Suggested leadership lessons: *Evaluation Imagination* and *Your Dream Car*

Additional leadership skills promoted in this event: critical thinking organization, problem solving, self-esteem

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Broadcast media specialist
Lawyer
Management consultant
Motivational speaker
Public relations executive

PREPARED PRESENTATION
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators for the initial round of presentations, two (2) or more per event room

C. Evaluators for the semifinalist round of presentations, preferably some who did NOT judge the initial round, two (2) or more

D. Timekeeper, one (1) per event room and one (1) for the semifinalist round

MATERIALS

A. Coordinator's notebook, containing:

1. Event guidelines, one (1) copy for the coordinator and for each evaluator
2. Official rating forms
3. List of entries with finalist report
4. List of evaluators/assistants
5. Marking pens or pencils for each evaluator
6. Semifinalist list for posting
7. One (1) stopwatch for each event room
8. Results envelope

B. Tables and chairs for three (3) evaluators

C. Chairs for audience

D. One (1) table, approximately 6' long, for participant use

E. Projection screen

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

B. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, screens, outlets, etc. Notify the event manager of any potential problems. Set up the projection screen.

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

D. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

E. Begin the event at the scheduled time and check the entry list. In order to compete, participants must be on the entry list or must have approval of the CRC chairperson.

F. Participants will sign up for heats according to time provided in the conference schedule. Participants who do not report to sign up for heats may be disqualified. Any exceptions must be approved by the CRC chairperson.

G. At the scheduled time, take the first participant to the event room and provide five (5) minutes for set-up of equipment. The event coordinator or assistant introduces the participants by entry number only. No nametags that give any indication of the hometown, school, or chapter are allowed.

H. Approximately every fifteen (15) minutes, the coordinator or designated assistant sends a participant to the event coordinator or assistant in the event room.

I. The participant is allowed three (3) minutes to remove all equipment.

J. Following the last participant's presentation, the evaluators total their scores, making adjustments for time penalties.

K. Secure the evaluators' signatures on their score sheets.

L. Following the preliminary heats, evaluators determine the semifinalists from their particular heats and forward these to the coordinator. The coordinator lists the semifinalists from each heat on a semifinalist list in random order that is submitted to the CRC chairperson for posting; twelve (12) semifinalists will be posted. Repeat the presentation process above for the semifinalists.

M. Evaluators average their scores to determine the ranking of the ten (10) finalists. Evaluators discuss and break any ties.

N. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

PREPARED PRESENTATION

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Content (30 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Introduction (X1)	The introduction is weak, with little effort made to highlight the theme and/or to generate interest and enthusiasm for the topic.	The introduction is adequate and creates a general level of interest.	The introduction is effective, stimulating, and inspires observers to "want more."	
Body (X1)	The body of the presentation speech is poorly organized; the content does not properly cover or represent the concepts being presented.	The body of the presentation speech is presented somewhat clearly or effectively and creates an interesting presentation.	The body of the presentation speech is clearly and effectively presented in an exceptionally interesting manner; the presentation is memorable.	
Conclusion (X1)	The conclusion fails to summarize or clearly clarify the information provided in the presentation.	The conclusion does not fully summarize the content and theme of the presentation.	The conclusion is effective, interesting, and memorable; it fully brings finality to the presentation.	
			SUBTOTAL (30 points)	

Stage Presence (30 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Appearance (X1)	Participant's appearance is unprofessional, sloppy, and inappropriate.	Participant's appearance is adequate, appropriate, and somewhat professional.	Participant's appearance is exceptional, appropriate, and professional.	
Confidence (X1)	Participant appears nervous during presentation; poor posture, poor eye contact, and lack of confidence are evident.	Participant is generally poised, displays eye contact, and is confident, with little sign of nervousness.	Participant "commands" the room, and is exceptionally poised, confident, and positive.	
Articulation (X1)	Participant conveys an inconsistent use of proper grammar, word pronunciation, and acceptable pitch and tone.	Participant generally uses proper grammar and pronunciation, and varies the use of tone and pitch.	Smooth and effective articulation, proper grammar, correct pronunciation, and varied tone and pitch are used throughout the speech.	
			SUBTOTAL (30 points)	

Organization (40 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Effectiveness and quality of presentation (X1)	The presentation is poorly prepared, not interesting, and not representative of the stated theme.	The presentation is adequate in most areas, and the observer can generally understand the theme.	The presentation is exceptional and memorable; the observer can easily understand and relate to the theme.	

PREPARED PRESENTATION (continued)				
Organization (40 points) (continued)				
Organization (X1)	The presentation is difficult to follow or understand.	The presentation is adequately organized and delivered.	The presentation is organized and easy to follow; the delivery is exceptional.	
Quality of the slide deck (X1)	The presentation slide deck is of minimal quality; slides are unprofessional and/or inappropriate and do not enhance the content of the presentation; the participant does not have the minimum number of slides required.	The presentation slide deck is adequate; the slides generally relate to the theme of the presentation; the participant has used the minimum number of slides required.	The slide deck is exceptional and enhances the theme and content of the presentation without distracting the observers from the overall content of the presentation; the participant exceeds the minimum number of slides required.	
Use of the slide deck (X1)	The participant reads from the slide deck; the use of the slide deck detracts from the overall presentation; the participant struggles with transitions between slides while delivering the presentation.	The participant tends to rely on the slide deck for much of the presentation; the participant adequately handles transitions between slides while delivering the presentation.	The participant effectively uses the slide deck to enhance the overall presentation; transitions between slides are smooth, effective, and well-timed.	
			SUBTOTAL (40 points)	

Time Deductions			
One point per ten-second interval is to be deducted for speaking under the three minutes or over the five minutes allotted for the presentation. The same one point per ten-second interval penalty applies to more than five minutes for set up and three minutes for take down. Presentation time commences when the presenter begins speaking.			
Total time for presentation		**Presentation deduction**	
Total time for set-up		**Set-up deduction**	
Total time for take down		**Take down deduction**	
		TOTAL TIME DEDUCTIONS	

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (100 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

PROMOTIONAL GRAPHICS

OVERVIEW

Participants will act as freelance designers to develop and present a graphic design that can be used to promote participation in TSA-related interests.

For 2015 the challenge is to create a promotional design to inform and encourage participation in TSA's official community service project – the American Cancer Society (ACS).

For 2016 the challenge is to create a design that promotes teaching technology and engineering as a career, recruiting high school students or undeclared college students.

PURPOSE

Participants have the opportunity to use computerized graphic communications layout and design skills in the production of a promotional resource for TSA.

ELIGIBILITY

Participants are limited to two (2) individuals per chapter, one (1) entry each. Individuals must be registered for the conference to submit their entry for judging.

TIME LIMITS

Entries must be started and completed during the current school year.

ATTIRE

Pre-conference electronic submission; the dress code does not apply.

PROCEDURE

A. Participants submit their entries electronically, according to the instructions posted on the national TSA website under Competitions/Themes and Problems.

B. Entries are reviewed by evaluators prior to the conference.

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

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. The Promotional Graphics event is an individual event. No recognition is given for a group effort.

B. The entry must be submitted as a .pdf file, following the directions found on the national TSA website under Competitions/Themes and Problems.

C. The design must meet the following criteria:

1. The design (graphic) may not exceed 20cm x 25 cm (8" x 10"). The design must be created either in portrait or landscape layout and must be set up as letter size (8½" x 11").
2. The design must be produced using a desktop publishing system, e.g. Photoshop, Corel Draw, PageMaker, Quark Xpress, Harvard Graphics, etc. Scanned original art may be included.
3. The design must include a minimum of three (3) colors.
4. The design must be original and reflect, interpret, or in some other way communicate the essence of the challenge provided for the given conference year.
5. The design must include the following text that may or may not be incorporated as an integral part of the illustration (type face[s] may be original or traditional in design):
   a. Technology Student Association
   b. For 2015 only – American Cancer Society
6. The words "Technology Student Association" are part of the emblem design. Use of the emblem, therefore, can meet the requirement above (5a.) but entries also may include "Technology Student Association" separately.
7. The design also must incorporate at least one (1) complete, unaltered full color (red, white and blue) version of the official TSA emblem. (As long as the unaltered color copy of the official TSA emblem is present, other TSA emblems or portions of the emblem that have been altered in some way may be integrated into the design.) The unaltered TSA emblem can be used only in accordance with trademark policies that appear on the national TSA website (www.tsaweb.org). Failure to follow the information provided in the policies results in disqualification. The TSA emblem may be

☑ Read the regulations carefully to avoid these common rules violations:

- theme not included
- incorrect theme used
- design exceeds 8" x 10"
- unaltered TSA logo not included
- copyrighted art permission not included
- proof of public domain art not included
- school, student, or state name included
- signed consent form for photos of individuals not included

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

☑ According to TSA's trademark policy, "when an emblem of the organization is reproduced, it should be an exact replica of the emblem as registered through the collective trademark."

used with or without the registered trademark symbol (the circle R).

For 2015 only, the design must incorporate at least one (1) complete, unaltered full color version of the official American Cancer Society logo, following the stated requirements for use found on the TSA website at http://www.tsaweb.org/National-Service-Project.

D. A maximum one (1) page word processed technical explanation of the design process, (including software programs and artwork/ graphic/photo sources used in the production of the graphic), the designer's inspiration, and how the graphic relays the theme must be included. This information must be in .pdf format and submitted electronically with the promotional graphic, the Student Copyright Checklist, and any consent forms or permissions to use copyrighted art. These files must be part of a single file entry .pdf with the graphic as the first page of the .pdf.

E. All entries must be the original work of the entrant. Computer generated type fonts and public domain computer clip-art may be used. All ideas, text or images from sources other than the designer must be cited **(copyrighted or not).** Cited works should be in MLA format and appear on one (1) page following the one (1)-page technical explanation of the design process If copyrighted material is used, separate written permission must be included as well. Failure to follow this procedure results in disqualification. If the artwork is completely original, this must be stated in the technical explanation. These files must be part of the single file entry .pdf with the graphic as the first page of the .pdf.

F. If the design entry contains images of people, proof of consent must be turned in with the entry. Minors require parental consent. (See Photo/ Film/ Video Consent and Release form.) These files must be part of the. single file entry .pdf with the graphic as the first page of the .pdf.

G. The files noted in D, E, and F must be merged to create a single file entry .pdf, with the graphic as the first page of the .pdf.

H. The winning designs for Promotional Graphics may be used on promotional posters, or in publications.

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

EVALUATION

Evaluation is based on the criteria outlined in the official rating rubric.

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

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students will communicate the event theme effectively. Suggested leadership lessons: *Promote It* and *Put It Together*
- ETHICS — Students will follow copyright procedures. Suggested leadership lessons: *Ethics Articles* and *Ethics Scenario*
- EVALUATION — Students will conduct ongoing evaluation of their entry. Suggested leadership lessons: *Seven Components of Effective Evaluation* and *Your Dream Car*

Additional leadership skills promoted in this event: decision making, organization, problem solving, 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

Advertising executive
Graphic designer
Marketing manager
Printer
Public relations manager

STUDENT COPYRIGHT CHECKLIST

(for students to complete and advisors to verify)

1) Does your solution to the competitive event integrate any music? YES _____ NO _____

If NO, go to question 2.

If YES, is the music copyrighted? **YES _____ NO _____**

If YES, move to question 1A. If NO, move to question 1B.

1A) Have you asked for author permission to use the music in your solution and included that permission (letter/form) in your documentation? If YES, move to question 2. If NO, ask for permission (OR use royalty free/your own original music) and if permission is granted, include the permission in your documentation.

1B) Is the music royalty free, or did you create the music yourself? If YES, cite the royalty free music OR your original music properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any music into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of music is done so with proper permission and is cited correctly in the student's documentation.

2) Does your solution to the competitive event integrate any graphics? YES _____ NO _____

If NO, go to question 3.

If YES, is the graphic copyrighted, registered and/or trademarked? **YES _____ NO _____**

If YES, move to question 2A. If NO, move to question 2B.

2A) Have you asked for author permission to use the graphic in your solution and included that permission (letter/form) in your documentation? If YES, move to question 3. If NO, ask for permission (OR use royalty free/your own original graphic) and if permission is granted, include the permission in your documentation.

2B) Is the graphic royalty free, or did you create your own graphic? If YES, cite the royalty free graphic OR your own original graphic properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any graphics into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of graphics is done so with proper permission and is cited correctly in the student's documentation.

3) Does your solution to the competitive event use another's thoughts or research? YES _____ NO _____

If NO, this is the end of the checklist.

If YES, have you properly cited other's thoughts or research in your documentation? If YES, this is the end of the checklist.

If NO, properly cite the thoughts/research of others in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any thoughts/research of others into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of the thoughts/research of others is done so with proper permission and is cited correctly in the student's documentation.

PROMOTIONAL GRAPHICS
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators for entries, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, four (4) copies
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Results envelope

RESPONSIBILITIES

A. Before the registration deadline, review all of the event rules.

B. Decide and post instructions related to project submission procedure. Set up and publish the dedicated email address where students will send their entry, such as a Gmail account. A dedicated email address provides a secure and date-stamped location. Having entries submitted directly to a "Dropbox" account would allow for submitted entries to be viewed or affected by individuals other than the coordinator or judges. Use a Dropbox account only to store submitted entries.

C. Set up a Google Docs or a Dropbox account to store entries submitted by students.

D. As emails are submitted, save each file to a computer with the student's name and school or ID number. This will act as a backup in case of problems later.

E. Upload all student entries to the Google Docs or Dropbox documents folder in the account.

F. Send judges the Google Docs or Dropbox account login information and judges sheets for judging. All results should be emailed back to the coordinator.

G. The coordinator will total the evaluator scores for each qualified entry to determine the ranking of the ten (10) finalists. Evaluators discuss and break any ties.

H. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms to the CRC room.

Participant/Team ID# _____

PROMOTIONAL GRAPHICS

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Technical Explanation (40 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Programs and processes (X1)	The explanation lists, but does not describe, the programs or processes used in the creation of design.	The explanation adequately lists and describes most of the programs and processes used in the design creation.	All programs and processes used for the design creations are listed and fully explained.	
Inspiration of design theme (X1)	There is little attempt to describe the inspiration for the design or how it reflects the theme.	The explanation provides an adequate description of the design inspiration and attempts to show how it reflects the theme.	The origins of the inspiration for the design are fully described and the graphic clearly reflects the theme.	
Grammar and spelling (X1)	Many misspelled words and grammatical errors appear throughout the work.	A few misspelled words and/ or some instances of improper grammar are evident.	Proper grammar and spelling are evident throughout the work.	
Resources and references (X1)	Items are not cited in MLA format, or they are cited erratically.	Most items are cited in MLA format.	All items are cited in MLA format	
			SUBTOTAL (40 points)	

Design Concept (40 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Graphic design (X1)	The design has no connection to or does a poor job of conveying the essence of the challenge; the logo(s) is/are poorly placed and/or the quality is poor.	The design exhibits some connection to the challenge; the placement and/or quality of the logo(s) are adequate.	The design is appropriate and effectively portrays the theme of the challenge; the placement and quality of the logo(s) are excellent.	
First impressions (X1)	The design is messy and projects an unfavorable impression.	The design is neat, with adequate attention to detail.	The design is eye catching and makes the viewer want to continue looking; attention to detail is obvious.	
Use of color (X1)	Fewer than three colors, which clash or distract from the graphic, are used.	The minimum three colors are used, resulting in an adequate appearance.	The effective choice of color creates an appealing graphic.	
Fonts (X1)	Font choice, text size, and placement are ineffective in creating an aesthetically pleasing design.	Font choice is appropriate and incorporated somewhat effectively into the design.	Font choice and size are appropriate, and the location of text is effectively incorporated in to the aesthetics of the design.	
			SUBTOTAL (40 points)	

PROMOTIONAL GRAPHICS (continued)				
Design Elements (40 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Balance (X1)	There is little or no evidence of balance in the design.	Balance in the design is evident and adequate.	The creative and effective use of balance is evident in the design.	
Dominance (X1)	Eyes are drawn away from what should have been the focal point by one or more components of the design.	The design is somewhat effective in drawing attention to a key area of the design.	The design is completely effective in drawing the viewer's eyes to the focal point of the design.	
Proportion (X1)	Elements of the design are not in appropriate proportion and scale.	Most of the elements of the design are set in appropriate proportion and scale.	The final design exhibits excellent attention to proportion and scale.	
Unity (X1)	The design is not well unified.	Most of the elements selected work together to create unity in the design.	All of the elements selected work effectively together to unify the design.	
			SUBTOTAL (40 points)	

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

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (120 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

OVERVIEW

Scientific and Technical Visualization, otherwise known as SciVis, uses the computer to display and animate three-dimensional (3-D) real world objects that cannot normally be seen, such as the shapes of molecules, weather patterns, or fluid dynamics. SciVis is the 3-D animated graphical representation of complex scientific concepts. Participants develop a Scientific and Technical Visualization focusing on a topic from one (1) or more of the following subject areas: science, technology, engineering, or mathematics.

PURPOSE

Participants have the opportunity to use computer graphic tools and design processes to communicate, inform, analyze, and/or illustrate a topic, idea, subject, or concept. Sound may accompany the graphic images.

ELIGIBILITY

Participants are limited to three (3) teams per state, one (1) entry per team. Collaborative work is strongly encouraged, but a team of one (1) member is permitted.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. The visualization is to be between two (2) and four (4) minutes in length. There will be a five (5)-point deduction for each fifteen (15) seconds under two (2) minutes or over four (4) minutes.

C. The visualization time length is calculated from the start of the first image or sound to the end of the last image or sound.

D. Semifinalists are given ten (10) minutes to present their visualization to the judges.

☑ Scientific visualization has come a long way in recent years. With this event TSA members can demonstrate their skills in using sophisticated, advanced technology to illustrate ideas of their choice.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants check in their entries at the time and place stated in the conference program.

B. Entries are reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

C. No more than two (2) representatives from each semifinalist team may report to the event area for the presentation at the time and place stated in the conference program.

D. Each semifinalist team explains its portfolio to the evaluators, discussing the purpose, value, research and design, and development process of its work.

E. Each visualization must advance automatically once it has been opened and started by evaluators.

F. Visualizations must be turned in on a CD, DVD, or USB drive in either an MPEG or Quick Time file format. No high-definition DVD, CD, or Blu-ray disc formatted media will be allowed.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. The visualization may be an animation, such as a biological cell dividing. No posters or models will be accepted. All work must be included in the portfolio and on a DVD, CD, or USB drive.

B. The visualization is not to be under two (2) or over four (4) minutes in length. There will be a five (5)-point deduction for each fifteen (15) seconds under the minimum or for each fifteen (15) seconds over the maximum.

C. Sound may accompany the visualization.

D. All entries must be the original work of the participant or team. Where applicable, all ideas, text, images, and sound from other sources must be cited. If copyrighted material is used, proper written permission must be included. Failure to follow this procedure results in disqualification. Absolutely no purchased content may be used in any part of the visualization. (Purchased content includes, but is not limited to, texture, models, and royalty free music.)

E. The presentation team may not exceed two (2) members.

F. A CD, DVD, or USB drive must be submitted with the documentation materials at check-in. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the event title, the conference city and state, and the year; one (1) page
2. Table of contents; pages as needed
3. Purpose of visualization; one (1) page
4. Hand-sketched storyboard that documents the flow and progression of the visualization with written notes; special effects, audio cues, dialogue, transitions, and scene duration should be incorporated into the storyboard; pages as needed
5. Written description of what the visualization illustrates or demonstrates; one (1) page
6. List of references that includes sources for materials, copyrighted and otherwise; pages as needed. The term "Fair Use" and similar terms are not acceptable citations when creating the list of references.
7. Permission letters for copyrighted material; pages as needed
8. List of software and hardware used in the development of the visualization; one (1) page
9. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible, and comments (See Plan of Work log); one (1) page
10. Completed and signed Student Copyright Checklist; one (1) page
11. CD, DVD, or USB drive in a secure holder or sealed sleeve.

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

EVALUATION

Please refer to the official rating form for more information.

NOTES

You can learn more about SciVis by visiting this web site:

www.ncsu.edu/scivis

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students will convey scientific concepts through aesthetically effective illustrations. Suggested leadership lessons: *Promote It* and *Put It Together*
- CREATIVE THINKING — Students will think creatively to develop a unique entry. Suggested leadership lessons: *Color Hunt* and *Creative Techniques*
- CRITICAL THINKING — Students will analyze their entry in order to make improvements. Suggested leadership lessons: *Critical Thinking Techniques* and *Put Yourself In Their Shoes*

Additional leadership skills promoted in this event: evaluation, organization, problem solving, self-esteem, teamwork

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Computer animator
Game designer
Instructional technologist
Software engineer

TECHNOLOGY STUDENT ASSOCIATION
PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

STUDENT COPYRIGHT CHECKLIST

(for students to complete and advisors to verify)

1) Does your solution to the competitive event integrate any music? YES _____ NO _____

If NO, go to question 2.

If YES, is the music copyrighted? **YES _____ NO _____**

If YES, move to question 1A. If NO, move to question 1B.

1A) Have you asked for author permission to use the music in your solution and included that permission (letter/form) in your documentation? If YES, move to question 2. If NO, ask for permission (OR use royalty free/your own original music) and if permission is granted, include the permission in your documentation.

1B) Is the music royalty free, or did you create the music yourself? If YES, cite the royalty free music OR your original music properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any music into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of music is done so with proper permission and is cited correctly in the student's documentation.

2) Does your solution to the competitive event integrate any graphics? YES _____ NO _____

If NO, go to question 3.

If YES, is the graphic copyrighted, registered and/or trademarked? **YES _____ NO _____**

If YES, move to question 2A. If NO, move to question 2B.

2A) Have you asked for author permission to use the graphic in your solution and included that permission (letter/form) in your documentation? If YES, move to question 3. If NO, ask for permission (OR use royalty free/your own original graphic) and if permission is granted, include the permission in your documentation.

2B) Is the graphic royalty free, or did you create your own graphic? If YES, cite the royalty free graphic OR your own original graphic properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any graphics into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of graphics is done so with proper permission and is cited correctly in the student's documentation.

3) Does your solution to the competitive event use another's thoughts or research? YES _____ NO _____

If NO, this is the end of the checklist.

If YES, have you properly cited other's thoughts or research in your documentation? If YES, this is the end of the checklist.

If NO, properly cite the thoughts/research of others in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any thoughts/research of others into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of the thoughts/research of others is done so with proper permission and is cited correctly in the student's documentation.

SCIVIS
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Assistant for check-in, one (1)

C. Evaluators, two (2) for every twenty (20) entries or fraction thereof for initial review of entries; two (2) or more for semifinalist interviews

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms, one (1) set for each event evaluator
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Pens for evaluators
   6. Notepads for evaluators
   7. Calculators, one (1) for each event evaluator
   8. Semifinalist list for posting
   9. Results envelope

B. Tables for entries

C. Tables and chairs for initial evaluators

D. Tables and chairs for semifinalist evaluators and participants

E. One (1) extension cord and one (1) power-bar with surge protection per evaluation team

F. One (1) computer with monitor and CD/DVD/USB drive for each evaluation team for initial evaluation

G. One (1) computer with monitor and CD/DVD/USB drive for semifinalist evaluations

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. At least one (1) hour before the evaluation of entries is to begin, meet with your evaluators and check-in personnel to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the CRC event manager before the evaluation begins.

D. Notify the event manager immediately of any team handing in a portfolio and CD/DVD/USB drive that is not on the entry list. Determine if the team in question is properly registered.

E. Evaluators independently assess the entries.

F. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

G. The number of evaluators depends upon the number of entries. Each group of evaluators averages its scores to determine the top four (4) entries from the initial group of twenty (20) entries. The top four (4) entries from each evaluator group are then reviewed by a different group of evaluators. These four (4) scores are then averaged to determine the twelve (12) semifinalist teams to be interviewed.

H. The coordinator posts a list of the twelve (12) semifinalist teams in the appropriate location.

I. The coordinator lists the semifinalist teams in random order on new rating forms that are given to the semifinalist evaluators.

J. Semifinalists report to the event area at the time and place stated in the conference program. Each semifinalist team signs up for a time to present its visualization. During the presentation, the semifinalist team representatives will explain their work and answer any questions the evaluators may ask.

K. Semifinalist evaluators independently assess the twelve (12) semifinalist teams.

L. Evaluators average their scores to determine the ten (10) finalists and their ranking. Evaluators discuss and break any ties.

M. Complete and submit the finalist report and all related forms in the results envelope to the CRC room.

N. Collect all CD/DVD/USB drives and portfolios and give them to the event manager.

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

Participant/Team ID# _____

SciVis

2015 & 2016 OFFICIAL RATING FORM — HIGH SCHOOL

Portfolio (30 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation F (X1)	Portfolio is unorganized and/ or missing three or more components.	Portfolio is missing two or fewer components and is adequately organized.	One or no components are missing, and content and organization are clearly evident.	
Purpose and description (X1)	The purpose and description of the visualization idea generation are unclear, and/or many grammatical errors are present.	The purpose and description are explained appropriately, with few or no grammatical errors; the viewer is somewhat interested.	The purpose and description of the visualization are clear and concisely written, with no or few grammar mistakes; the viewer is interested.	
Storyboard (X1)	The storyboard is sloppy, seems to have been thrown together after the creation of the visualization, and/or it does not correlate with the visualization.	The storyboard is drawn appropriately and largely correlates with the completed visualization.	The storyboard is of exceptional aesthetic and artistic value and clearly correlates with the visualization.	
			SUBTOTAL (30 points)	

Visualization (50 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Communication of visualization (X1)	It is difficult to understand the solution being communicated; an illogical explanation is presented.	The solution is communicated somewhat adequately.	The solution is communicated in an organized, clear, and concise manner.	
Creativity (X1)	The visualization lacks creativity; no, or very few, design principles are integrated in the visualization.	Some elements of creativity are expressed, with most design principles integrated.	The visualization exudes creativity; essential design principles and elements are integrated.	
Aesthetics and artisanship (X1)	Unorganized, sloppy work is evident; the visualization seems to be an afterthought and/or thrown together.	An organized presentation of essential issues in a logical format is evident.	An exemplary use of layout and design principles to logically communicate important data is evident.	
Graphical representations (X1)	Graphical representations do not help to clarify documentation, or they are of little significance to the issues.	Graphical representations are appropriate and help supplement the documentation by providing clarity to issues.	Graphical representations are of excellent quality; graphics are cited if they are not original; graphics clarify abstract concepts.	
Originality (X1)	The visualization lacks imagination, originality, and artistic detail.	The visualization is somewhat effective, inventive, and inspiring.	The visualization is inspiring, inventive, resourceful and totally motivating.	
			SUBTOTAL (50 points)	

SciVis (continued)

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

Indicate the rule violated: _____

Semifinalist Presentation (40 points)			
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Organization (X1)	The team seems unprepared and unorganized for the presentation.	The team is somewhat prepared and organized in its presentation.	The team's presentation is well organized and any questions asked by judges are answered concisely.
Knowledge (X1)	The team seems to have little understanding of its chosen topic.	The team has a generalized understanding of its chosen topic.	There is clear evidence that the team has a thorough understanding of its chosen topic.
Articulation (X1)	The team's presentation is full of illogical thoughts that lack clarity.	The team's presentation is somewhat logical, and/or clear, and concise.	A concise, logical, clear explanation of the entry is given by the team.
Delivery (X1)	The team is verbose and illogical in its presentation, with use of many "uhs, ums, hmms," etc.	The team is generally logical and well-spoken in its presentation (and in responses to judges' questions), with few "uhs, ums, hmms," etc.	The team is well spoken, distinct, and clear in its presentation (and in responses to judges' questions), with no, or very few, "uhs, ums, hmms," etc.
			SUBTOTAL (40 points)

Time Deductions	
There will be a five (5) point deduction for each fifteen (15) seconds under the minimum or for each fifteen (15) seconds over the maximum.	
Total time for visualization	
Total visualization time deduction	
TOTAL TIME DEDUCTIONS	

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (120 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

SOFTWARE DEVELOPMENT

OVERVIEW

Participants work as part of a team to participate in the development, debugging, and documentation of a software design project using freely available software development toolkits. Through a multimedia presentation and entrant documentation, the team demonstrates its knowledge of the software development process. The project should have educational or social value. Semifinalists demonstrate and promote their work in a timed presentation.

PURPOSE

Participants have the opportunity to use knowledge of cutting edge technologies, algorithm design, problem-solving principles, effective communication, and collaborative teamwork to design, implement, test, and document a software development project.

ELIGIBILITY

Participants are limited to one (1) team per chapter.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. Semifinalists are allowed up to ten (10) minutes for their presentation. Judges may ask questions after the presentation.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Teams submit their entries at the time and place stated in the conference program.

B. Entries are reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

C. Semifinalist teams report to the event area at the time and place stated in the conference program.

D. No more than three (3) team members will be allowed to be present during the presentation. Semifinalist teams give a presentation that showcases their team's work on their project and promotes the project to potential users. Teams also give a demonstration of their project. Evaluators are free to ask questions.

E. No more than two (2) team members of the team pick up the entry from the display area at the time and place stated in the conference program.

REGULATIONS

A. A presentation CD/DVD and documentation materials are submitted at check-in. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the event title, the conference city and state, and the year; one (1) page
2. Table of contents; pages as needed
3. Research about the problem; one (1) page
4. Description of the team's project, including the problem and the solution for the problem, and an explanation of the project's social or educational value; up to two (2) pages
5. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member(s) responsible, and comments (See Plan of Work log); one (1) page
6. Documentation of the use of a software development process, including the following:
   a. Project requirements; one (1) page
   b. High-level software design; one (1) page
   c. Testing, including code output and desired results; pages as needed
   d. End-user product documentation; pages as needed
7. Team's evaluation of its work and the project's future prospects; one (1) page
8. List of references used for the project

9. The CD/DVD (in a CD/DVD sleeve) attached to a sheet of paper in the portfolio. The team ID# must be indicated on the CD/DVD.

B. The CD/DVD should include the following:
   1. A copy of the multimedia presentation
   2. Project source code
   3. Runnable, compiled program

C. All portfolios and presentations become the property of TSA, Inc., and will not be returned after the event.

EVALUATION

Evaluation is based on the quality of work and overall benefit showcased in the participant portfolio. Semifinalists will be judged on their multimedia presentation and their ability to promote their software project, both to expand end-user usage and attract future developers. See the official rating form for more information.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students communicate with team members and other project developers, debuggers, and documenters. Suggested leadership lessons: *Fact Or Fiction* and *Promote It*
- CRITICAL THINKING — Students analyze and evaluate a problem in order to arrive at an acceptable solution. Suggested leadership lessons: *And the Answer Is* and *Figure It Out*
- PROBLEM SOLVING — Students design solutions to problems within open source software. Suggested leadership lessons: *Debate It* and *Effective Brainstorming*

Additional leadership skills promoted in this event: self-esteem, teamwork, organization, decision making, ethics, creative thinking, evaluation

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Graphic designer
Software engineer

TECHNOLOGY STUDENT ASSOCIATION
PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

SOFTWARE DEVELOPMENT
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators for portfolios, two (2) or more

C. Evaluators for semifinalist presentations, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Pens for evaluators
   6. Semifinalist list for posting
   7. Results envelope

B. Chairs, as needed for judging

C. Stopwatch for timing semifinalist presentations

D. Laptop computer for the semifinalist presentation

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only

when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

E. Place an entry number on each presentation CD/DVD and portfolio. Position entries for evaluation and viewing by judges. Secure the entries in the designated area.

F. Evaluators independently review each entry and complete the official rating form.

G. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

H. Evaluators average their scores to determine the twelve (12) semifinalists.

I. Prepare a list of the twelve (12) semifinalists in random order and submit it to the CRC chairperson for posting.

J. Inspect the area in which the semifinalist presentations are to be held. There must be seating for at least five (5) people at a table that has been set up with a computer and display.

K. Meet with your semifinalist evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

L. Conduct semifinalist presentations/interviews. Evaluators should be sure to ask questions.

M. Evaluators average their scores to determine the ranking of the ten (10) finalists. Evaluators discuss and break any ties.

N. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

SOFTWARE DEVELOPMENT

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Record scores in the column spaces below.

Documentation (50 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation A (X1)	The portfolio is unorganized and/or is missing three or more components.	The portfolio is somewhat organized; it may be missing one or two components.	The portfolio is organized and complete and includes all required components.	
Research (X1)	The research is inadequate, and/or very few credible sources are referenced.	The research is adequate, with credible sources included.	The research is comprehensive, and credible resources are included.	
Description of project (X1)	A description of the project, including an explanation of the problem and the solution for the problem, is poorly presented; many grammatical errors are present.	A description of the project adequately addresses the problem and its solution; some grammatical errors may be present.	The description of the project is clear and concise and fully addresses the problem and solution; there are no or few grammatical errors present.	
Plan of Work log and self-evaluation (X1)	The Plan of Work log and the self-evaluation are incomplete and/or missing key components; there are a number of grammatical errors.	The Plan of Work log and self-evaluation are mostly complete and adequately written.	The Plan of Work log and the self-evaluation are complete and concisely written; they include the reflections of all team members.	
Multimedia presentation (X1)	The multimedia presentation adds little understanding to the project.	The multimedia presentation somewhat enhances the understanding of the project.	The multimedia presentation is effective and significantly enhances understanding of the project.	
			SUBTOTAL (50 points)	

Software Design (60 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Software coding practices (X2)	The project developed does not follow general software coding practices (requirements, design, implementation, and testing).	The project developed follows most general software coding practices (requirements, design, implementation, and testing).	The excellent projected developed follows all general software coding practices (requirements, design, implementation, and testing).	
Complexity (X1)	The software design exhibits little complexity; it appears as a "bare bones" effort.	The software design exhibits some degree of complexity.	The software design is complex, resulting in a highly functional product.	
Creativity (X1)	The work lacks creativity; very little original thought in developing the project is evident.	Some elements of creativity are expressed; the solution is somewhat original.	The work exudes creativity; the product is highly original.	
Technical skill (X1)	Little technical skill is exhibited in the software; levels of software design and development do not flow and/or are illogical.	A beyond-basic degree of technical skill is exhibited in the software's design and construction; the software flows somewhat effectively from level to level.	A significant level of mastery of software design skill is exhibited; the software flow is constant and logical.	

SOFTWARE DEVELOPMENT (continued)				
Software Design (60 points) (continued)				
Effectiveness (X1)	The software design does not appropriately provide a solution to the intended problem.	The design loosely provides a solution to the intended problem and somewhat addresses the problem presented.	The solution to the problem is clear in the software design; the solution is at the forefront of software creation.	
			SUBTOTAL (60 points)	

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

Presentation (60 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Organization (X1)	The team seems unprepared and unorganized for the presentation and interview.	The team is prepared and adequately organized in its presentation to judges.	The team's presentation is logically organized and effectively presented.	
Knowledge (X1)	Team members seem to have very little understanding of the concepts in their project; they provide vague interview answers.	All team members have a general understanding of the concepts discussed and answer questions adequately.	There is clear evidence that all team members have a thorough understanding of the concepts presented in their project.	
Articulation (X1)	The team's presentation is full of illogical thoughts that lack understanding and clarity.	The team's presentation is logical, with most points clearly explained.	The team provides a concise, logical and clear explanation of the thesis and pertinent issues.	
Delivery (X1)	The presenters are verbose and illogical in the presentation; many "uhs, ums, hmms," etc., are used.	Logical and well-spoken interview responses are evident, with few "uhs, ums, hmms," etc.	Team members are well spoken and distinct; clear interview responses are given, with very few, if any, "uhs, ums, hmms," etc.	
Team participation (X1)	Only one team member communicates with judges; there is no participation from other team members.	Team members participate equally, and most seem to fully understand the concepts.	All team members seem to fully understand the concepts and share an equal role in the presentation.	
Software demonstration (X1)	Team members are unable to successfully demonstrate their software product.	Team members are able to adequately demonstrate the functionality of their software product.	Team members are highly successful and effective in their project demonstration.	
			SUBTOTAL (60 points)	

SOFTWARE DEVELOPMENT (continued)

Rules violations (a deduction of 20% of the total possible points) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the far right. Indicate the rule violated: _____	
(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (170 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

STRUCTURAL DESIGN AND ENGINEERING

OVERVIEW

Participants work as a team to build a designated structure. The team applies the principles of structural design and engineering through research, design, construction, destructive testing, and assessment, to determine the design efficiency of the structure.

Details about the designated structure and any necessary information related to the structure will be posted on the TSA website under Competitions/Themes and Problems. The on-site semifinalist construction problem will be a variation of the posted design.

☑ Teams are encouraged to seek the mentorship of a structural engineer as they plan and prepare for this competition.

PURPOSE

Working as a team, participants will construct the designated structure as it is noted on the TSA website. The structure should reflect and demonstrate a comprehensive knowledge of engineering design, construction, and efficiency assessment concepts. Semifinalists, with time and material constraints, will compete in an on-site problem.

ELIGIBILITY

Participants are limited to one (1) team of two (2) members per chapter, one (1) entry per team.

TIME LIMITS

A. Pre-built structures must be started and completed during the current school year. All work must be verified by the chapter advisor using the *Team Verification* form.

B. On-site structures (semifinalist teams only) must be completed and checked in during the three (3) hours allowed for design and construction.

C. Participants with time conflicts must present to the event coordinator a written explanation of the conflict at least one (1) hour before the construction time printed in the conference schedule. Work must start during the time scheduled for the event.

ATTIRE AND SAFETY EYEWEAR

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

Students are required to wear safety-approved eyewear during the on-site fabrication phase of this event. Prescription eyewear will need to have side shields to be considered safety eyewear. Should a team member remove the eyewear and fail to replace it, s/he will be reminded once. If there is a second infraction, the team will be asked to leave the competition. Sunglasses are not suitable.

PRE-BUILT STRUCTURE REQUIREMENTS

A. All work must be completed by the team members only, and then verified by the team's chapter advisor using the *Team Verification* form.

B. Students must complete and provide a copy of the *Structural Design and Engineering Assessment* form for their submitted structural design. This form is available with the annual problem statement posted on the TSA website.

C. Students must provide a full-size, three (3)-view (front, top, and right end) drawing (hand or computer-generated) of the structural design.

D. Students will submit for testing their model structure of the designated structural design.

E. The structure and any related required materials must be submitted at the designated time and place noted in the conference program.

PROCEDURE FOR ON-SITE DESTRUCTIVE TESTING OF PRE-BUILT STRUCTURES

A. Open viewing of the on-site destructive testing of pre-built structures is allowed.

B. All structures will be assessed (using the evaluation rubric) prior to the on-site destructive testing.

C. On-site destructive testing will be completed using structural testing equipment, as designated by TSA.

D. When the on-site destructive testing has been completed, data has been recorded, and the evaluation process has been completed, a list of the top twenty (20) semifinalist teams will be posted.

E. The top twenty (20) semifinalist teams will take part in the on-site construction and destructive testing of a designated structure to determine the top ten (10) finalist teams.

PROCEDURE FOR SEMIFINALIST ON-SITE CONSTRUCTION AND DESTRUCTIVE TESTING

A. Twenty (20) semifinalist teams report to the event area at the time and place stated in the conference program.

B. Participants are required to provide and wear safety glasses during this event.

C. Participants are required to provide their own tool box [with identification (school name, address, and advisor cell phone number), which should not exceed twenty (20) inches (508 mm) length x ten (10) inches (254 mm) width x ten (10) inches (254 mm) height. The box must contain all items needed to fabricate the solution/entry. The following is a suggested list:

1. Cutting devices; NONE may be electric
2. Adhesives
   a. aerosol and electric applicators are not allowed
   b. a bottle of Uncure or Debonder is recommended
3. Temporary fastening devices
   a. straight pins
   b. clamps
   c. tape
4. A cutting surface that prevents table top marring
5. Rulers, straightedges, and/or measuring scales
6. Abrasives sheets, sponges, boards
7. Marking devices (pens, pencils, etc.) and sharpener
8. Sheet of wax paper, as large as is needed for the competition
9. Pliers, wrenches, nut drivers, as needed
10. Safety glasses and side shields, as required

☑ Participants should practice with various types of adhesives to determine the one they prefer.

D. Semifinalist teams will be issued a packet of construction materials to use for fabrication of the designated structure.

1. These materials will be withheld until the team's design drawing is complete.
2. Planning and fabrication supplies: The following materials may **not** be part of the structure submitted for testing:
   a. 11" x 17" paper with ¼" grids for sketching the structure
   b. Pin board
   c. A sheet of wax paper
   d. Structure label

E. Students are seated in teams of two (2) by a monitor.

F. The design problem is explained and a list of specific directions for the construction problem is provided.

G. Teams will be allowed thirty (30) minutes to review the construction problem and create a sketch/drawing of their solution.

H. During the building of the team's structure, construction regulations must be observed.

I. Participants may leave early, but they must complete check-out as directed.

J. All work stops at the coordinator's signal.

K. Teams return all supplied items as directed and clean and clear their work stations.

L. Team must identify their structure with only their team registration number on the label provided.

M. Structures are allowed to dry in a secure area until destructive testing time.

N. Structures are checked for rules violations, which are recorded on the evaluation rubric.

O. Structures are weighed before testing.

P. Destructive testing is completed by evaluators and is open for viewing by all conference participants.

Q. Once testing is completed, the failure weight is recorded on the evaluation rubric.

R. The efficiency rating of each structure is calculated and ranking is determined.

S. Each team's assessment form is evaluated, scored, and any bonus points are assigned.

T. Teams failing to comply with the coordinator or monitor's directions, having been warned of such, will be issued a penalty of 20% of the team's total score.

U. Videotaping of the testing of a participant's structure is permitted by the participant or his/her representative only.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

PROCEDURE FOR EVALUATION OF STRUCTURES

A. All structures are weighed before testing and the weight is recorded on the evaluation rubric.

B. A designated structural testing device will be used for the testing of each structure.

C. A specific testing block or attachment may be necessary, depending on the nature of the on-site problem. Any special or unusual configurations for the attachment will be posted with the design problem on the TSA website.

D. An increasing load is applied to the structure via the test block or attachment until the structure fails.

E. The failure weight is recorded on the evaluation form. The failure weight is the greatest weight recorded during testing before the failure of the structure.

F. The efficiency is determined by the failure weight x 4.54, divided by the weight of the structure in grams.

G. The efficiency is rounded off to three (3) decimal places and recorded on the evaluation rubric.

H. Each team's assessment form is evaluated and scored, and any bonus points are added to the rubric.

I. The highest numeric efficiency (calculated by adding the bonus points to the numeric efficiency) determines the winner. In case of an efficiency tie, the greatest weight held by the tied entries will determine the winner.

J. Failure to comply: If a structure fails to comply with any regulation, a penalty reduction of 20% of the greatest weight held in the competition is subtracted from the team's failure weight. (This penalty factor will not be determined until all structures have been tested.)

K. Structures will not be tested if:

1. Two (2) or more rules violations are determined before testing
2. The structure cannot be placed on the tester
3. The testing attachment cannot be properly placed within or on the structure
4. Straight pins are left in the structure
5. There is a failure to wear safety eyewear
6. The assessment form is not completed
7. Laminations contain more than two pieces or members face to face in the same direction

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- EVALUATION — Students will work to eliminate the failure of their entry. Suggested leadership lessons: *Evaluation Imagination* and *Evaluation Methods*
- PROBLEM SOLVING — Students will work under time and material constraints to build their entry. Suggested leadership lessons: *Effective Brainstorming* and *Finding The Right Way*
- TEAMWORK — Students will prepare in advance to work together effectively on site. Suggested leadership lessons: *Teams* and *Stepping Stones*

Additional leadership skills promoted in this event: creative thinking, critical thinking

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Architect
Civil engineer
Engineering technician
Mathematician
Structural iron and steel work technician

STRUCTURAL DESIGN AND ENGINEERING EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators to judge pre-built structures, two (2) or more

C. Construction monitor, one (1) per twenty teams

D. A timekeeper

E. Evaluators to qualify structures after construction, two (2) or more

F. Destructive test evaluators, two (2) or more

1. One (1) to weigh the structure, record structure weight, and record failure weight
2. One (1) to bring the structure to the testing location, position the structure on the testing device, operate the tester, and then remove and store the structure following testing

MATERIALS

The event coordinator will provide to each team of semifinalists a packet containing all necessary construction materials and directions. The event coordinator will address any needs before the event begins.

A. Coordinator's box, containing:

1. Event guidelines, one (1) copy each for the coordinator and evaluators
2. Official rating forms
3. Semifinalist list for posting
4. List of entries, with finalist report
5. List of evaluators/assistants
6. Semifinalist and finalist envelopes

B. Construction supplies:

1. A list of construction materials will be posted with the problem statement each year on the TSA website.
2. The same materials used for fabrication of the pre-built structures will be used by the semifinalists for the on-site problem.

C. Construction tools per team, to be used and returned after construction:

1. Pin board as supplied, but generally a one-foot by two-foot (1' x 2') piece of fiber or foam board
2. Grid paper ¼" x ¼" grid on 11" x 17" paper for the sketch of the structure
3. Wax paper to cover the pin board

D. The testing equipment, selected by the event coordinator, provides a downward pull or force, and records the peak force in pounds.

E. Evaluation and recording equipment:

1. Gram scale
2. Tape measure or 2' rule
3. Evaluation gauges
4. Calculator or computer to perform calculations
5. Evaluation rubrics as provided by the event coordinator, one (1) per entry

F. Site requirements:

1. Construction session:
   a. Tables and chairs suitable for cutting and gluing
   b A work area that is at least 2' x 3' for each team (suggested space is two [2] teams per 6' x 2' or 8' x 2' table)
   c. One (1) chair per registered participant
   d. Tables for equipment check-out and check-in
   e. Tables and chairs for evaluators
   f. Area securable for drying of entries and storage of supplies
2. Testing session:
   a. Tables for storage of structures
   b. Table for weighing
   c. Table for testing
   d. Table for recording
   e. Tables for storage of failed structures
   f. Chairs for spectators
   g. Barricade to separate testing area from spectators

RESPONSIBILITIES

A. Prepare the structure problem statement (and any other necessary related information) for the current year. The problem will be posted on the TSA website.

B. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's box. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

C. Check to see that all event equipment and materials have been secured.

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

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

F. Set up check-in for on-site testing of pre-built structures.

G. Coordinate and manage the on-site testing of pre-built structures, the recording and tabulation of results, and the determination of the twenty (20) semifinalist teams.

H. Submit the semifinalist list for posting.

I. Prepare semifinalist instructions and assemble the semifinalist team materials packets.

J. Establish the procedure for check-in and recording of finished structures, designate an area for storage, and allow for the return of construction materials.

K. Review the on-site construction guidelines and procedures with participants.

1. This portion of the event is not open to spectators. No individuals other than participants and event and conference personnel will be allowed in the designated construction area.
2. Check-in may begin before the time printed in the conference program and will continue until all teams arriving on time have been checked in and seated. Even if all teams are in place, the event does not start before the posted time.
3. Both members of a team must be present during check- in.
4. No team begins late unless its members have complied with the following: Participants with time conflicts must present to the event coordinator a written explanation of the conflict at least one (1) hour before the construction time printed in the conference program. Work must start during the time scheduled for the event.
5. Registration numbers will be checked and recorded on the entry list.
6. Team construction locations will be assigned.
7. When all teams are seated and instructions have been distributed, the event coordinator will review the details for the assigned structure and the related instructions.
8. Each team will be allowed a maximum of three (3) hours to complete its structure. Thirty (30) minutes of that time is allotted for completing the design drawing, and two (2)

hours thirty (30) minutes is allotted for actual construction. Efficient use of time for completion of the required drawings can provide teams with additional time for construction of their structure.

9. Construction time begins when each team notifies one of the monitors that s/he has completed the required sketch/ drawings.
10. Monitors confirm that the sketch/drawings are complete and give the team the materials packet so that construction may begin.
11. No additional supplies are provided during the event.
12. The event coordinator will call time at the end of the three (3)-hour time frame allotted for the event. All teams will be required to stop at the end of the allotted time for the event.

L. Participant check-out:

1. Participants are required to leave their work space clean. Failure to do so will result in a 20% penalty deduction.
2. Participants check in excess supplies as directed by the monitors.
3. Participants place the structure in the storage area with the evaluation rubric, sketch, and analysis sheet, as directed by the monitor. The structure must be marked with the team number only, using the label provided in the materials packet.
4. Once check-in is complete, all participants leave the competition area.
5. The structures are secured by the monitor and allowed to dry for a minimum of twelve (12) hours.

M. Evaluation

1. Evaluators will assist the event coordinator with checking all structures for specific regulations compliance.
2. Structures that are in compliance are tested without penalty.
3. Structures with one (1) construction regulation non-compliance mark will be tested, but a 20% penalty will be noted and assessed on the rubric.
4. A structure with two (2) or more noncompliance marks will not be tested.
5. Immediately following the compliant testing session, the event coordinator and evaluators will manage the destructive testing of all structures that were not officially tested due to non-compliance.
6. The decision either to deduct 20% of the total possible points or to disqualify an entry from testing must be discussed and verified with the evaluators, event coordinator, and a CRC

manager; all must initial either of these actions on the rating form.

N. Testing session procedure:

1. The testing session is a spectator event. The structure storage area and evaluation area are not open to spectators.
2. The testing device is set up and calibrated one (1) hour before the time to begin testing.
3. Monitors bring the structures to the testing area.
4. Each structure is weighed on a gram scale and the structure's weight is recorded on the evaluation form.
5. The structure is destructively tested using the TSA designated testing device.
6. The failure weight is recorded on the event rubric.
7. Each team's assessment form is evaluated and recorded on the event rubric.
8. The structure is removed from the testing area by a monitor and stored with the team's sketch/drawing.
9. The highest efficiency rating is determined and factored into all team rubrics.
10. Rules violations deductions are noted and recorded on each evaluation rubric.

O. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all other related forms in the results envelope to the CRC room.

P. Semifinalist teams may pick up their individual structures following the completion of the destructive testing and analysis session at a time determined by the event coordinator.

STRUCTURAL DESIGN AND ENGINEERING
TEAM VERIFICATION

As the advisor for the team of students representing the school noted below, I certify that the students used only the specified list and quantity of materials as designated by TSA in the construction of their structure for the Structural Design and Engineering event. I also certify that only the two (2) team members named below worked on the engineering design and construction of the structure they are presenting for testing and evaluation.

_____

Name of school (please print)

_____

Date

_____

_____

_____

Team member names (printed, with signatures):

_____

Advisor's name (printed, with signature):

Participant/Team ID# _____

STRUCTURAL DESIGN AND ENGINEERING

2015 & 2016 OFFICIAL RATING FORM — HIGH SCHOOL

Place an x in the noncompliant or compliant box, as appropriate for each regulation

Qualification Regulations

	Noncompliant		Compliant	
Team of two	Only one team member is present.		Both team members are present	
Attire	Attire does not meet requirements.		Attire meets requirements.	
Safety eyewear	Warnings about eyewear were issued.		No warnings about eyewear were issued.	
Tools and fabrication supplies	Inappropriate tools or supplies are brought to the event.		Appropriate tools and supplies are brought to the event.	
Verification form	Form is incomplete or missing.		Form is complete and submitted.	
Assessment and analysis form	Form is incomplete or missing.		Form is complete and submitted.	

All qualification regulations must be met in order for the team to compete.

Construction Regulations

	Noncompliant		Compliant	
Time limits	The structure is not completed during the specified time.		The structure is completed within the specified time.	
Structure identification	The identification sticker is not attached.		The identification sticker is attached.	
Sketch – 3 views	The required sketch is not submitted.		The required sketch is submitted.	
Length of structure	The length of the structure is greater or less than the designated tolerance of the assigned construction length.		The length of the structure is within the designated tolerance of the assigned construction length.	
Width of structure	The width of the structure is greater or less than the designated tolerance of the assigned construction width.		The width of the structure is within the designated tolerance of the assigned construction width.	
Height of structure	The height of the structure is greater or less than the designated tolerance of the assigned construction height.		The height of the structure is within the designated tolerance of the assigned construction height.	
Weight of structure	The weight of the structure is greater or less than the designated tolerance for the weight of the completed structure.		The weight of the structure is within the designated tolerance for the weight of the completed structure.	
A deduction of 20% of the failure weight will be given for one (1) noncompliant construction regulation. If two (2) or more construction regulations are marked noncompliant, then the structure will not be tested.			If all of the construction regulations are compliant, then the structure qualifies for testing without deductions.	

Any of the regulations below marked noncompliant will automatically eliminate the structure from final testing or consideration.

	Noncompliant		Compliant	
Plane of abutment (horizontal)	Part of the structure assembly does not meet the designated requirements for the plane of abutment for the assigned structure.		The structure assembly meets the designated requirements for the plane of abutment for the assigned structure.	
Placement on abutment	The structure length is not appropriate for testing.		The structure length is appropriate for testing.	

Internal clearance	The testing apparatus and rod cannot be placed and passed through the center of the structure to allow for testing.		The testing apparatus and rod pass freely through the center of the structure to allow for testing.	
STRUCTURAL ENGINEERING (continued)				
Any of the regulations below marked noncompliant will automatically eliminate the structure from final testing or consideration. (continued)				
Construction pins	Pins are still in place when the structure is submitted.		All pins have been removed from the structure.	
Laminations	Laminations contain more than two pieces or members face to face in the same direction.		Laminations are correct with no more than two pieces or members glued face to face running in the same direction.	
	TOTAL		**TOTAL**	
Structure approved for final testing				
Record the mass (weight) of the completed structure prior to testing.				
Record the testing failure weight in pounds.				
If only one construction regulation is non-compliant, record a deduction of 20% of the greatest failure weight..				
Determine the efficiency (shown to three decimal places) by multiplying the failure weight by 454 and then dividing by the mass weight (in grams) of the finished structure.				

TOTAL POINTS	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

SYSTEM CONTROL TECHNOLOGY

OVERVIEW

Participants work as part of a team on site to develop a computer-controlled model-solution to a problem, typically one from an industrial setting. Teams analyze the problem, build a computer-controlled mechanical model, program the model, explain the program and mechanical features of the model-solution, and leave instructions for evaluators to operate the device.

PURPOSE

Participants are provided with the opportunity to work as a team to develop a systematic solution to a problem and to build a computer-controlled model to represent and illustrate their solution.

☑ This challenging event attracts a special kind of student - a team player who is creative and who can perform under pressure.

ELIGIBILITY

Participants are limited to one (1) team of three (3) members per state, one (1) entry per team. Team members must be from the same chapter.

TIME LIMITS

A. The competition consists of three phases: Phase 1) one (1)-hour setup; Phase 2) fifteen (15)-minute analysis; and Phase 3) two and one half (2½) hours for problem solution.

B. The team's captain will be given one (1) hour to set up the team's equipment and reference materials.

C. Following the set up time, teams will be given fifteen (15) minutes for problem analysis.

D. Following the problem analysis time, teams are provided two and one-half (2½) hours for model development and programming. Programs must be written completely on site. Use or modification of any programs written prior to the competition will result in disqualification.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Each team selects a "team captain" prior to the orientation meeting.

B. The captain checks in for the team during the set-up phase by submitting his/her ID # for identification of the written and model portions of the event.

C. The problem and the inventor's log are presented to the teams at the beginning of the fifteen (15)-minute problem analysis phase prior to model building. Teams must complete their description or interpretation of the problem during this time.

D. Each team is given a maximum of two and one-half (2½) hours to construct a model simulating realistic industrial processes, to program the model, to test the solution, to describe the program and mechanical features of the model-solution, and to complete directions for evaluators to actuate the model.

E. When finished, teams save their programs and leave them on-screen in operable form, with the ability to be reset.
   1. Before leaving the event room, teams demonstrate the operation of the model with evaluators present. Evaluators may ask questions during the demonstration.
   2. After all the evaluators have observed the operation of a team's model, the team leaves the room. The coordinator determines the amount of time permitted for the team's demonstration based on the number of teams and the complexity of the problem.
   3. Evaluation of the solutions takes place without the teams present.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. Each team provides pencils and scrap paper along with its own materials kit, software, and laptop computer. No reference materials or building cards are allowed. Each team's material kit must be appropriate to build a system that can identify, secure, and move objects and has light and/or sound outputs. A problem will be developed based upon the assumption that every material kit will contain at least:

   1. Two (2) optical sensors
   2. Two (2) touch sensors
   3. Two (2) motors
   4. Two audio AND two light outputs
   5. Gears, wheels, and axles appropriate to build a motorized vehicle and/or conveyor belt
   6. Balls, blocks, and pegs that can be used as objects to be moved and manipulated
   7. Velcro, tape, clamps and other materials to secure or move the above objects (balls, blocks, and pegs)

B. Participants provide their own hardware and software systems.

C. The following definitions are an integral part of the event regulations:

   1. Repeatability—the device is programmed to reset automatically.
   2. Functional control—the device/model must accomplish the task in an efficient manner and be user friendly.
   3. Model-solution—the physical device must simulate the realistic processes used in industry.
   4. Conservation of materials—the model reflects the best use of materials to solve the problem, without being overbuilt.

D. The following example of a problem for this event is provided to help students understand and interpret a typical issue common to industry that might be used at a national conference.

A manufacturing company has asked your engineering firm to design an important component in its manufacturing process. The company specializes in the production of cylindrical items. Its manufacturing line is getting "jammed" because multiple cylindrical items are making their way to stations that can handle only one item at a time. Your design must include a "hopper" that will store items as they wait to make their way to a station. When a station is empty, a light should turn on; this will indicate to an operator to press a button that will send one cylinder into the station. After ten (10) seconds, the item will need to be moved to the next hopper, leaving the station empty and signaling the operator to send in another cylinder.

Requirements

- A minimum of three (3) cylindrical items of consistent size and shape must be included.
- A hopper must store these items until a button is pushed.
- Only one item can advance when the button is pushed.
- Ten (10) seconds must pass with the item at a station before it is moved to the next hopper.
- A light must signal the operator when the station is empty.
- No additional cylinder can be sent to a station when a cylinder already is in place.

EVALUATION

Teams are evaluated on their written work, model function, and programming structure and efficiency.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- CREATIVE THINKING — Students will emphasize original ideas in order to create a competitive edge. Suggested leadership lessons: *Creative Techniques* and *HAT To Be Creative*
- PROBLEM SOLVING — Students will analyze each step in the design process. Suggested leadership lessons: *Lend A Hand* and *Problem Solving Steps*
- TEAMWORK — Students will assign tasks based on specific individual skills. Suggested leadership lessons: *Effective Meetings* and *The Gift*

Additional leadership skills promoted in this event: communication, critical thinking, ethics, evaluation

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

CNC programmer
Computer programmer
Robotics engineer

SYSTEM CONTROL TECHNOLOGY
INVENTOR'S LOG

Team Captain ID #

Use only the space provided. The description/interpretation of the problem must be completed DURING the problem analysis session.

Description or interpretation of the given problem:

The two parts below are to be completed AFTER the problem analysis session.

Description of the team solution (explain the unique features of the program and model):

Directions to evaluators to start the system:

SYSTEM CONTROL TECHNOLOGY
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators, two (2) or more

C. Assistants, two (2)

D. Event sponsors, two (2) to write the problem and direct evaluators

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Stopwatches
   6. Calculator
   7. Copies of the problem written collaboratively by sponsors
   8. Copies of the inventor's log
   9. Results envelope
   10. Power strips with surge protectors, and extension cords

B. Large room to accommodate a first place team from every state and affiliated country

C. One (1) table and three (3) chairs per team

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. One (1) hour before the event is scheduled to begin, meet with your evaluators/assistants to distribute materials and to review time limits, procedures, and regulations. If questions arise that

cannot be answered, speak to the event manager before the event begins.

D. Begin the event at the scheduled time by closing the doors and checking the entry list. All participants and evaluators should be in the room at this time. Participants not present may be disqualified. In order to compete, participants must be on the entry list or must have approval of the CRC chairperson.

E. Secure participants' equipment in the area designated.

F. At the orientation meeting obtain the team/chapter identification numbers from team captains.
   1. Evaluators must be present at the orientation meeting.
   2. Review the time limits, procedure, and regulations with team captains.

G. Distribute the problem and *Inventor's Log* to teams at the beginning of the event. Teams have fifteen (15) minutes to complete their interpretation of the problem in the Inventor's Log.

H. Each team is given two and one-half (2½) hours to complete the remaining portions of the event.

I. Teams must demonstrate that their device/model is operable and has the ability to reset prior to leaving. Evaluators must observe this portion and may ask a few questions. Evaluators also may take notes, but evaluation occurs only after all teams have left the event room.

J. The evaluators judge the entries without consulting one another.

K. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

L. Ensure that all rating forms have been completed, tallied, and averaged before evaluators are dismissed.

M. Complete and submit the finalist report and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

SYSTEM CONTROL TECHNOLOGY

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Record scores in the column spaces below.

Inventor's Log (20 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Description of problem (X1)	The description is incomplete, and/or it is illogical and unorganized; the description is simply a restatement of the problem's guidelines.	The description includes a logical, but only general, understanding of the problem's guidelines; it restates the guidelines with an overall understanding of the problem.	An organized, logical, and concise description of the problem is provided; it includes all major aspects of the problem's guidelines, as well as original thoughts.	
Description of solution and activation instructions (X1)	The team's solution does not correlate with the final system creation; the solution is illogical, related to the problem's guidelines; the directions to activate the solution are included but incomplete.	The team's solution correlates generally with the final system creation; adequate directions to activate the solution are included.	A strong correlation between the team's written solution and final system creation is provided; it is written clearly and concisely; instructions for the solution are included and written concisely.	
			SUBTOTAL (20 points)	

Solution to Problem (60 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Realistic simulation (X1)	The solution is not realistic; it has an abstract design that would not work effectively in its intended environment.	The simulation is somewhat realistic and logically designed, but it may not work effectively in its intended environment.	The simulation is realistic and is similar to a system that would be effective in its intended environment.	
Dependability of solution (X1)	The solution is not constructed with dependability in mind; when the system is operated, construction pieces fall off, etc.	Most of the parts of the solution are well constructed and dependable, with only a few that are questionable.	Every component of the solution is well constructed and dependable; practical construction techniques have been used.	
Conservation of materials (X1)	An inefficient use of construction materials is obvious; too many unnecessary materials are incorporated into the design.	Most of the components of the solution are designed with conservation in mind; the construction is generally adequate.	All components of the solution are designed and assembled with conservation of materials in mind; the construction is elegant and not overbuilt.	
Solution to problem (X2)	The solution is missing three or more attributes/criteria and several do not function as intended.	The solution includes most attributes/criteria, and they function adequately.	The solution includes all attributes/criteria listed in the design details, and all attributes function appropriately and correctly.	
Ingenuity and creativity (X1)	The solution and design are unauthentic, complex, and do not function as a system.	The solution has some original ideas in its design, and its construction is adequate.	The solution is truly unique and authentic; its construction is concise and designed with simplicity.	
			SUBTOTAL (60 points)	

SYSTEM CONTROL TECHNOLOGY (continued)				
Programming Structure (20 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Programming efficiency (X1)	The software used to program the system is overly complex and inefficient; advanced programming techniques, which would have simplified programming specific tasks, are not included.	The programming software is efficient, with some advanced features that simplify the solution's criteria and/or attributes.	A concise and logical programming application was used that incorporates advanced features to simplify the solution's criteria and/or attributes.	
Program structure (X1)	The programming structure is illogical, unorganized, or overly complicated and/or complex; the program does not reset.	There is evidence of an organized programming structure and adequate use of sub-routines; the program resets.	The programming structure is concise and predictable; there is appropriate use of sub-routines where needed; the program resets.	
			SUBTOTAL (20 points)	

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

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (100 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

TECHNICAL SKETCHING AND APPLICATION

OVERVIEW

Participants complete a written test in order to qualify as semifinalists. Semifinalists then demonstrate their ability to solve on-site engineering graphics problems using standard drafting techniques.

PURPOSE

Participants have the opportunity to analyze and interpret engineering graphic specifications, use accurate drafting terminology, and use standard sketching, drafting, and problem solving techniques to solve engineering graphic problems.

ELIGIBILITY

Participants are limited to two (2) individuals per chapter.

TIME LIMITS

A. Participants are allowed sixty (60) minutes to complete the written test.

B. Semifinalists are allowed ninety (90) minutes to solve the on-site problems using appropriate sketching and practices.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants report to the event area at the time and place stated in the conference program for the written test.

B. Students take the written test.

C. The written test is evaluated. A list of semifinalists in random order is posted.

D. Semifinalists report to the event area at the time stated in the conference program for the on-site activity.

☑ Participants 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.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. Scannable answer forms for the written test are furnished at the test site.

B. Each semifinalist must provide a minimum of two (2) and a maximum of four (4) mechanical pencils (various leads, as desired) and one (1) additional eraser (as desired.)

C. Semifinalists are provided a drawing surface (e.g., manila folder, clipboard) and two (2) pieces of graph paper.

D. Semifinalists may not bring any notes or reference materials into the testing/drawing room.

E. No additional drawing instruments will be allowed in the semifinalist room. Materials provided to semifinalists (including the testing materials, on-site problem paper or item, solution paper or the drawing surface) may not be used to create a straight edge or other drafting edge.

EVALUATION

A. Semifinalists are those participants with the top twelve (12) scores on the written test.

B. The semifinalists' solutions to the on-site problems are scored and added to the written test score to determine the rankings of the ten (10) finalists.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students will use drafting techniques as a language. Suggested leadership lessons: *Promote It* and *Put It Together*
- CRITICAL THINKING — Student will analyze and interpret a design. Suggested leadership lessons: *And The Answer Is* and *Figure It Out*
- PROBLEM SOLVING — Student will analyze a problem and create a solution for it. Suggested leadership lessons: *Effective Brainstorming* and *Problem Solving Steps*

Additional leadership skills promoted in this event: decision making, evaluation

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Architect
Mechanical engineer
Product designer
Quality control engineer
Structural engineer

TECHNICAL SKETCHING AND APPLICATION EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Assistants for written test, two (2)

C. Evaluators for semifinalist activity, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Semifinalist list for posting
   6. Results envelope

B. Technical Sketching and Application test and answer key

C. Scan machine and scannable answer forms

D. Current Technical Sketching and Application problems for semifinalists

E. Graph paper—twelve (12) sets of two (2) for each semifinalist

F. One (1) drawing surface per semifinalist (e.g., manila folder, clipboard)

G. Tables and chairs for participants

H. Tables and chairs for evaluators

I. Marking pens for evaluators

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. Begin the event at the scheduled time by closing the doors and checking the entry list. All participants and assistants should be in the room at this time. Participants not present may be disqualified. In order to compete, participants must be on the entry list or must have approval of the CRC chairperson.

E. Administer the written test. Allow sixty (60) minutes.

F. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

G. Score the test. Prepare a list of the twelve (12) semifinalists and submit it to the CRC chairperson for posting.

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

I. Meet with your semifinalist evaluators to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.

J. Administer the on-site problems. Allow ninety (90) minutes.

K. Evaluators collect and review each semifinalist's solution to the problems.

L. Evaluators tally, sign, and submit rating forms to the event coordinator. Evaluators discuss and break any ties.

M. Ensure that all rating forms have been completed, reviewed, and signed before the evaluators are dismissed.

N. Complete and submit the finalist report and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

TECHNICAL SKETCHING AND APPLICATIONS

2015 & 2016 OFFICIAL RATING FORM **HIGH SCHOOL**

Record scores in the column spaces below.

Written Test (50 points)

SUBTOTAL (50 points)

Semifinalist Solution (50 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)			
Line quality (X1)	Line weight, thickness, and quality are poor, inaccurate, and not uniform.	Line weight, thickness and quality are somewhat adequate and uniform.	Line weight, thickness, and quality are consistently accurate and uniform.
Accuracy of solution (X2)	The solution is missing important information and details.	The solution is accurate, with most of the necessary information and details included.	The solution is accurate and complete, with all necessary information and details included.
Dimensioning accuracy (X1)	Dimensioning practices are inaccurate, with many necessary measurements and notes missing.	Most necessary dimensions and notations are included, accurate, and appropriately placed.	All necessary dimensions and notations are included and appropriately placed.
Neatness, letter uniformity, and general appearance (X1)	The solution displays minimal effort in neatness, letter uniformity, and general appearance; poor quality is evident.	The solution is adequate and exhibits good effort, with some attention to detail.	The solution is exemplary in neatness, letter uniformity, appearance, and attention to detail.

SUBTOTAL (50 points)

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (100 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

OVERVIEW

Participants complete a written, objective test in order to qualify for oral question/response, head-to-head team competition.

PURPOSE

Participants have the opportunity to demonstrate knowledge of TSA leadership skills and the systems of technology.

ELIGIBILITY

Participants are limited to one (1) team of three (3) members per chapter. Teams that take the written test and advance to the semifinalist portion of the event must be composed of the same three (3) members.

☑ If there were an event "popularity contest," Technology Bowl would be right up there with Chapter Team.

TIME LIMITS

A. The written test is administered at the same time to all students entering this event. One (1) hour is allowed for this test.

B. Teams selected as semifinalists must be available as scheduled for oral competition.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

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

B. Participants follow the specific regulations and adhere to the directions provided on site by the event coordinator.

C. Each team is assigned a number by the event coordinator. This number establishes the initial order of participation in the oral portion of the event.

D. All team members take the written exam. The twelve (12) top-scoring teams qualify as semifinalists. A semifinal list in random order is posted.

E. Semifinalist team members report to the oral event area holding room at the time and place stated in the conference program. After a short briefing, advisors leave and the teams remain in the holding room until they are called for competition. Teams that leave the holding room before being called for competition are eliminated. Teams may visit with other teams in the holding room; however, no advisors or visitors may enter.

F. Team members are not allowed in the oral event area as observers until after their team has been eliminated from competition.

G. When instructed to do so, two (2) teams enter the event area and are seated according to instructions.

H. Teams are paired using the semifinalist teams' flow chart.

I. Once a team is eliminated, it is out of the oral competition except for the semifinal round, in which the third and fourth positions are determined.

J. Questions are drawn as needed from a card file resource bank.

K. If equipment malfunctions, a question that is being considered at that time automatically is disqualified. If equipment malfunctions three (3) times, time is called by the event coordinator to set up the back-up equipment. After equipment has been set up and tested, the event continues from the point where it stopped.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Participants 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. Written exam

1. The event coordinator distributes scannable answer forms.
2. Participants must bring two (2) pencils to the event site to take the written test.
3. Late participants are disqualified and restricted from the test area.

4. Participant entry numbers are assigned during event registration and must be entered on the test paper in the space indicated.
5. Participants must stop work immediately when time is called.
6. Should a participant complete the test before the time allocated, the participant holds the test paper and remains seated quietly without distracting anyone else. Failure to do so results in disqualification of the participant.
7. All test papers must be turned in before leaving the test area.

B. Oral exam

1. The total test score of all three (3) team members determines team ranking.
2. Twelve (12) teams, based upon the written test results, are selected as semifinalists.
3. All three (3) team members of a semifinalist team must be available to participate at the scheduled time for the oral test phase of the event. If a team or member is late for participation, that team forfeits and is eliminated from competition.
4. No transmitting or recording devices are permitted in the event area. No prompting is permitted.
5. The team member who "buzzes in" for a question has five (5) seconds to answer the question without discussion.
6. The team that answers the bonus question correctly is allowed ten (10) seconds to discuss the extra question and to give an answer.
7. After a question is read, the competing teams have ten (10) seconds to "buzz in." If these teams are unable to answer the question, then another question is read.
8. If a team member "buzzes in" before the question is finished being read, that member must give the exact answer as printed on the answer card.

EVALUATION

A. Written exam: Scores on a test of fifty (50) multiple choice and completion questions determine the winners of the written exam and the semifinalist teams for the oral event.

B. Oral exam

1. A team's score is derived from the total number of correct answers to the questions asked. For each correct answer, the team receives ten (10) points.
2. When a question has been completely read and a team has been recognized to answer after pressing the button, should

the team not answer or answer incorrectly, five (5) points are deducted from the team's total score. In this instance, the other team does not have the opportunity to respond to this question and the next question is read for both teams.

3. If a question is being read and a team member presses the button before the question is finished, the member must answer completely, as stated on the answer card. If the answer is incorrect, the entire question is read for the other team.
4. Twelve (12) questions per round are asked. No questions are repeated in another round.
5. In case of a tie, five (5) additional questions are asked. If a tie exists after the first tiebreaker, then five (5) additional questions are asked. This procedure continues until the tie is broken. The questions are picked at random from the test bank.
6. One of the twelve (12) questions asked is a bonus question. The participants are told when the bonus question is asked, and the team that answers it correctly has the opportunity to answer one (1) additional question. This is the only time team members may consult with each other before giving an answer. The team has ten (10) seconds to give its answer. If a team gives an incorrect answer to the bonus question, then the question is read for the other team. Bonus point scoring: If a team answers the bonus question correctly, that team receives fifteen (15) points; if a team answers the bonus question incorrectly, that team loses five (5) points from its score. Additional question: If a team answers the additional question, that team receives five (5) points; if it does not answer the additional question correctly, then no points are lost. The other team has an opportunity to answer the additional question, although the additional question is not read again. The team has ten (10) seconds to discuss and give its answer. A correct answer is worth five (5) points, and an incorrect answer reduces the team score by five (5) points.

C. Awards: The top ten (10) participants with the highest scores on the written exam are finalists and are recognized at the awards ceremony. The top ten (10) teams with the highest total scores on the written test also are introduced. Trophies are awarded to the top three (3) individuals in the written competition and the top three (3) teams in the oral competition.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students will demonstrate their knowledge of technology-related topics. Suggested leadership lessons: *Listening Skills* and *Personality Types*
- CRITICAL THINKING — Students will use evidence, judgment and knowledge to answer questions. Suggested leadership lessons: *Critical Thinking Tips* and *The Hidden Message*
- TEAMWORK — Students will appreciate the contribution of team members. Suggested leadership lessons: *Teams* and *Stepping Stones*

Additional leadership skills promoted in this event: decision making, evaluation, problem solving, self-esteem

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Computer technician
Construction analyst
Engineer
Entrepreneur
Technology education instructor

TECHNOLOGY BOWL
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Timer for written exam, one (1)

C. Assistants for written exam, one (1) for every twenty (20) participants

D. Evaluator for grading, one (1)

E. Timekeeper for oral exam, one (1)

F. Scorekeeper for oral exam, one (1)

G. Moderator for oral exam, one (1)

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Sufficient copies of the written test (tests must be returned immediately following the event)
   6. Scannable answer forms
   7. Semifinalist list for posting
   8. Results envelope

B. Written exam
   1. Stopwatch for timekeeper
   2. Tables and chairs in sufficient quantity to accommodate all participants
   3. Official rating forms for evaluators
   4. Scan machine and forms

C. Oral exam
   1. Table and chairs for the evaluators
   2. Two (2) tables and six (6) chairs for the event team, facing the moderator and audience
   3. Technology Bowl winners' chart
   4. List of chapters for the event
   5. Buzzer system and controls

6. Stopwatch for timekeeper
7. Large, erasable audience score sheet (20" x 36")
8. 5" x 8" question cards selected from the technology bowl test bank with test questions and the acceptable answer(s) clearly typed

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. Begin the event at the scheduled time by closing the doors and checking the entry list. All participants and evaluators should be in the room at this time. Participants not present may be disqualified. In order to compete, participants must be on the entry list or must have approval of the CRC chairperson.

E. Distribute the scannable answer forms with the help of the evaluators. Direct the participants to fill in their entry number and test code letter in the appropriate spaces.

F. Pass out the written test with the help of the evaluators (tests are coded A or B). Participants seated next to each other should not have the same coded test; tests should be alternated A, B, A, B, and so on. Instruct the participants to keep the tests face down until they are directed to turn them over and begin.

G. With the event coordinator acting as the timer and the evaluators acting as proctors (by positioning themselves around the event room), direct the participants to turn their test papers over, place their code number and the code letter found on the test on their scantron forms, and begin.

H. Exactly one (1) hour from the time that the participants begin answering the questions, call time. Ask the participants to turn their answer sheets face down and then the test papers face down. Have participants pass their answer sheets to one of the evaluators. Collect all of the test papers. Make sure that all test papers are collected. When all have been turned in, the participants may be dismissed.

I. Determine the twelve (12) semifinalist teams by adding the scores of teammates on the written test.

J. Prepare a list of the twelve (12) semifinalists and submit it to the CRC chairperson for posting.

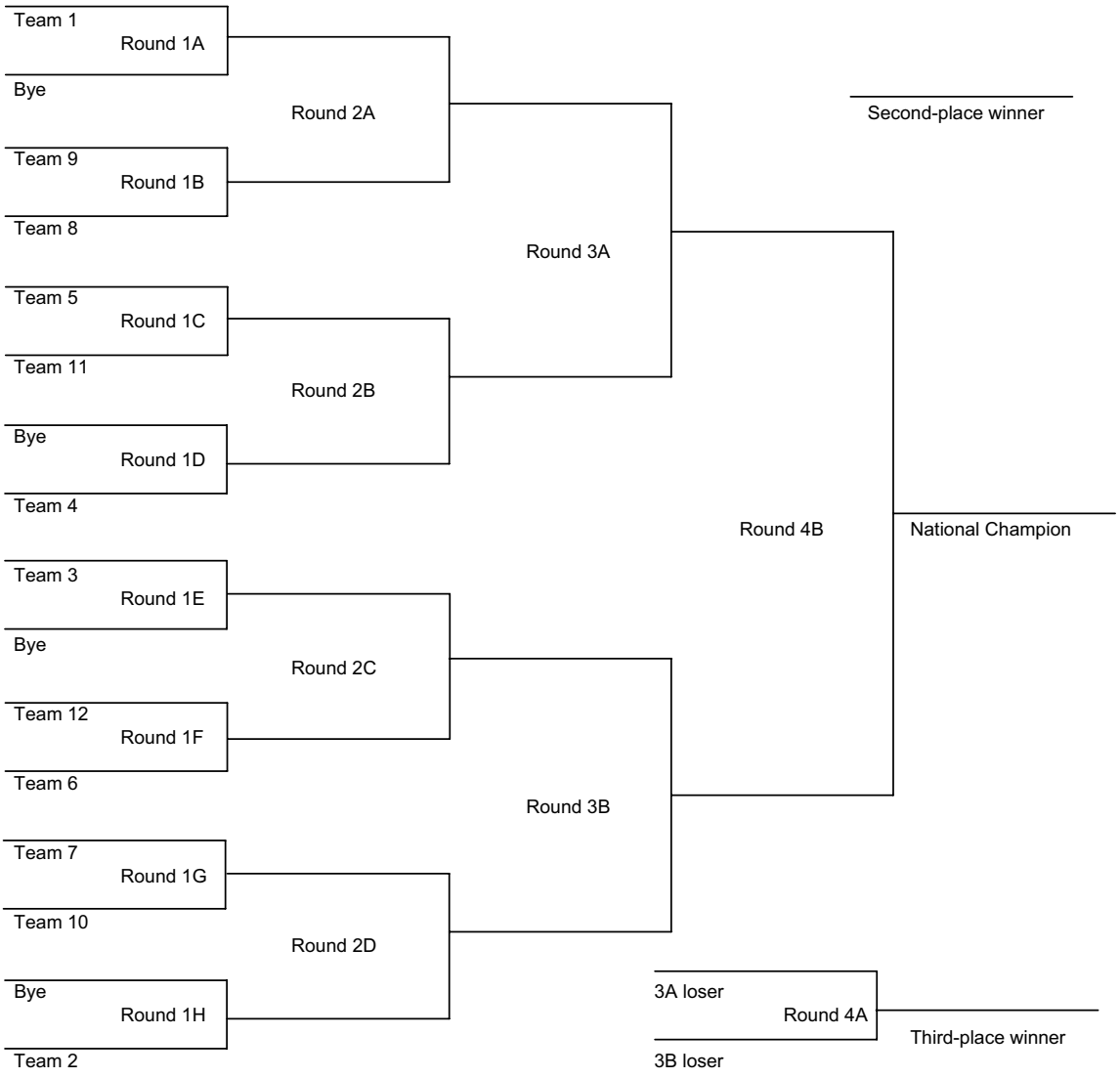
K. Run the oral component as described in the Procedure section.

L. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

M. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

TECHNOLOGY BOWL

SEMIFINALIST TEAMS FLOW CHART — HIGH SCHOOL



Note to evaluators: This is a single elimination format (semifinalist teams ONLY).

Team 1	Team 7
Team 2	Team 8
Team 3	Team 9
Team 4	Team 10
Team 5	Team 11
Team 6	Team 12

TECHNOLOGY BOWL

2015 & 2016 OFFICIAL RATING FORM — HIGH SCHOOL

Competition round # _____

Team # _____ (A) Team # _____ (B)

Scorekeeper's signature: _____

Record scores in the column spaces below.

Record the written test scores of each of the three (3) team members (for team A and B) in the boxes below and then calculate the team average. Record the team average in the column space to the far right.

Team member 1	(A)	(B)	Team member 2	(A)	(B)	Team member 3	(A)	(B)

Evaluator should place an X in the box beside the team that gives the correct response to the question and an O beside the team that gives an incorrect response. The points assigned for each response should be recorded in the blue column to the far right.

Question #	Points	Team # _____		Team # _____		Team A Average ____	Team B Average ____
1.	+10 for correct, -5 for incorrect response						
2.	+10 for correct, -5 for incorrect response						
3.	+10 for correct, -5 for incorrect response						
4.	+10 for correct, -5 for incorrect response						
5.	+10 for correct, -5 for incorrect response						
6.	+10 for correct, -5 for incorrect response						
7.	+10 for correct, -5 for incorrect response						
8.	+10 for correct, -5 for incorrect response						
9.	+10 for correct, -5 for incorrect response						
10.	+10 for correct, -5 for incorrect response						
11.	+10 for correct, -5 for incorrect response						
12.	+10 for correct, -5 for incorrect response						
Bonus and additional question	(+15 for answering the bonus question correctly and +5 points for answering the additional question correctly)						
			SUBTOTAL (140 points)				
Tie Breaker Questions							
1.							
2.							
3.							
4.							
5.							
			SUBTOTAL				

TECHNOLOGY BOWL (continued)

Rules violations (a deduction of 20% of the total possible points) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the far right. Indicate the rule violated: _____	
(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (140 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

TECHNOLOGY PROBLEM SOLVING

OVERVIEW

Participants work together to develop and create a solution to a problem using the limited materials provided and the tools allowed. Completed solutions will be objectively measured and judged to determine the best and most effective solution for the stated problem.

PURPOSE

Participants are provided with the opportunity to demonstrate their ability to effectively use problem solving skills in the development and creation of a solution to a specific problem.

ELIGIBILITY

Participants are limited to one (1) team of two (2) members per chapter.

TIME LIMITS

The allotted time for design and construction of the solution is two (2) hours.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

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

B. The problem, evaluation criteria, and materials are distributed.

C. Participants are required to provide their own tool box [with identification (school name, address, and advisor cell phone number), which should not exceed twenty (20) inches (508 mm) length x ten (10) inches (254 mm) width x ten (10) inches (254 mm) height. The box must contain all items needed to fabricate the solution/entry. The following is a suggested list:

☑ For this event, participants are required to provide their own tool box, with TSA-suggested supplies.

1. Cutting devices; NONE may be electric
2. Adhesives
   a. aerosol and electric applicators are not allowed
   b. a bottle of Uncure or Debonder is recommended
3. Temporary fastening devices
   a. straight pins
   b. clamps
   c. tape
4. A cutting surface that prevents table top marring
5. Rulers, straightedges, and/or measuring scales
6. Abrasives sheets, sponges, boards
7. Marking devices (pens, pencils, etc.) and sharpener
8. Sheet of wax paper, as large as is needed for the competition
9. Pliers, wrenches, nut drivers, as needed
10. Safety glasses and side shields, as required

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

D. **Participants are required to provide and wear safety-approved eyewear for this event.** Prescription eyewear will need to have side shields to be considered safety eyewear. Should a team member remove his/her eyewear, s/he will be reminded once to replace it. If there is a second infraction, the team will be asked to leave the competition. Sunglasses are not suitable eyewear.

E. Students also are required to bring the following items:
   1. one (1) roll ¾" masking tape
   2. twelve (12) each 3" x 5" index cards
   3. twelve (12) each Popsicle sticks or tongue depressors
   4. six (6) each 8½" x 11" sheets of printer paper (20-pound bond)
   5. fifteen (15) sheets of 8½" x 11" cardstock, 65-pount weight
   6. six (6) each drinking straws
   7. six (6) styrofoam trays; trays should be no larger than 7" x 10"

F. Teams have two (2) hours to design and construct a solution.

G. Each solution is tested as soon as possible after the construction phase is completed.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

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

B. Only the toolbox items in Procedure C, the materials in Procedure E, and any items supplied by the coordinator may be used in the development of the solution.

EVALUATION

Each team's solution is evaluated objectively. A finite measure - such as elapsed time, horizontal or vertical distance, and/or strength - will be defined in the problem and is used to determine the best solution. Second-best attempts or other objective criteria are used to break ties when possible. Only as a last resort does the event coordinator use subjective criteria, such as originality, to evaluate solutions.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- ORGANIZATION — Students organize their ideas and materials to produce an effective solution. Suggested leadership lessons: *Effective Gains* and *Whose Birthday Is It?*
- PROBLEM SOLVING — Students find the best solution to a problem, based on time and limited materials. Suggested leadership lessons: *Debate It* and *Effective Brainstorming*
- TEAMWORK — Students prepare in advance to work efficiently on site. Suggested leadership lessons: *Stepping Stones* and *The Gift*

Additional leadership skills promoted in this event: communication, critical thinking, evaluation, organization

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Computer software engineer
Mathematician
Criminal investigator
Air traffic controller

TECHNOLOGY PROBLEM SOLVING EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Assistants for set-up, monitoring, and clean-up of on-site activity; two (2) or more per 100 teams

   1. Depending upon the problem, one of the assistants may need to serve as timekeeper.
   2. Not all assistants are needed for set-up and clean-up, but all are needed while the on-site activity is taking place.

C. Evaluators, two (2) or more per 100 teams

MATERIALS

A. Coordinator's notebook, containing:

   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. ID tags or stick-on tabs to identify entries
   6. Results envelope

B. Tables and chairs for participants

C. Tables and chairs for evaluators, to be used for tools/materials distribution and evaluation

D. A copy of a well-written, technologically appropriate problem for each team that can be objectively measured

E. Adequate conditions (inside or outside), tools, materials, monitoring, and testing devices for the problem

F. Stopwatch or clock for timekeeper

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

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

D. Check tools, materials, and monitoring and testing devices.

E. Begin the event at the scheduled time by closing the doors and checking the entry list. All participants and evaluators should be in the room at this time. Participants not present may be disqualified. In order to compete, participants must be on the entry list or must have approval of the CRC chairperson.

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

G. Evaluators and monitors observe the entire construction phase, with evaluators measuring solutions as soon as appropriate.

H. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

I. Ensure that all solutions have been measured and all rating forms completed before evaluators are dismissed. Evaluators discuss and break any ties in order to determine the ranking of the ten (10) finalists.

J. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

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

Participant/Team ID# _____

TECHNOLOGY PROBLEM SOLVING

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Solution Development (30 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Materials See Procedure E (X1)	Three or more items are missing from the materials, and/or some of the items are not those specified.	Most of the specified items are included and are correct.	All of the specified items are included in the team's materials and are correct.	
Solution to problem (X2)	The solution developed is unable to fully meet or solve the defined problem.	The solution is somewhat developed and attempts to meet or solve the problem.	The solution is fully developed and clearly meets or solves the identified problem.	
			SUBTOTAL (30 points)	

Testing of Solutions (50 points)

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

1st - 50 Points	**2nd - 45 Points**	**3rd - 40 Points**	**4th - 35 Points**	**5th - 30 Points**
6th - 25 Points	**7th - 20 Points**	**8th - 15 Points**	**9th - 10 Points**	**10th - 5 Points**
				SUBTOTAL (50 points)

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (80 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

TRANSPORTATION MODELING

OVERVIEW

Using only designated materials and following required specifications, participants design and produce a scale model of a vehicle that fits the annual design problem and that takes appearance and realism into consideration.

The design problem for 2015 is helicopters.

The design problem for 2016 is riding lawnmowers.

PURPOSE

Participants experience the vehicle design process, from researching and conceptualizing a design, to making drawings, and building and testing a scaled model.

ELIGIBILITY

Participants are limited to one (1) individual per chapter, one (1) entry per individual.

TIME LIMITS

Entries must be started and completed during the current school year.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants check in their entries at the time and place stated in the conference program.

B. Evaluators review entries. Neither students nor advisors are present at this time.

C. Documentation (the portfolio), model, and display are combined to determine final standings.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. Chapter entries must include a scale model, a display, and documentation (a portfolio).

B. The model, display and documentation (a portfolio) must meet the following specifications:

Model and Display

1. The scale model must accurately reflect the annual design problem.
2. The model must be presented for evaluation on a display not to exceed 15" deep x 24" wide x 24" high (including the model). The portfolio is not considered part of the display but is placed with it. TSA will not provide electrical access for displays. The use of dry cell batteries is permissible, but they must be contained within the stated display space.
3. The model main body itself must be made from wood. ***Using pre-manufactured model vehicle bodies is prohibited (including hoods, fenders, wings, propellers, etc.).** It is permissible to use pre-manufactured parts such as body strengtheners, plastic canopy, exhausts, head and tail lights, windshields, and antennae. They may be attached to or enclosed within the vehicle and may be constructed from materials other than wood, excluding glass or liquids. These parts must be fastened securely.
4. The finished vehicle size must fit inside the display space noted above.
5. The designer must choose a scale for the vehicle so that it meets Regulation 4; the scale must be specified in the documentation.
6. When included, wheels must roll; their dimensions must be consistent with the scale of the vehicle body.

Documentation

1. Documentation for this event must not include the name of the chapter or state. All ideas, text or images from sources

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

other than the designer must be cited. Cited works must be in MLA format. Pages that are 11" x 17" in size are to be folded to fit in the portfolio, described below.

2. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover. In addition to the 11" x 17" pages noted below, the report cover must include the following single-sided, 8½" x 11" pages, in this order:
   a. Title page with the event title, the conference city and state, and the year; one (1) page
   b. Table of contents; pages as needed
   c. Description of designer's vehicle, making note of the scale used, inspiration for the choice and design of the vehicle, history and evolution of the original vehicle, as well as design elements that set the vehicle apart from others (e.g. fuel used, unique features); one (1) page
   d. Photos of current or past vehicles that are similar to this year's theme or that inspired this entry; one page.
   e. Concept drawings/detailed sketches or 3D CAD modeling; two (2) pages (11" x 17" size)
   f. Photos of the clay, foam, or wax mock-up; one (1) page
   g. Final technical illustrations (orthographic); two (2) pages (11" x 17" size)
   h. Photos of the production of the model; one page.

EVALUATION

Entries are evaluated by a combination of points earned from the documentation portfolio and the model.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students document their research and design process. Suggested leadership lessons: *Fact or Fiction* and *Promote It*
- CRITICAL THINKING — Students analyze research in order to create an appropriate and unique model. Suggested leadership lessons: *Critical Thinking Tips* and *Put Yourself In Their Shoes*
- PROBLEM SOLVING — Students determine the design of their entry based on research. Suggested leadership lessons: *Lend A Hand* and *Problem Solving Steps*

Additional leadership skills promoted in this event: ethics, evaluation, creative thinking

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Automotive designer
Automotive engineer
Digital modeling technician
Industrial designer
Industrial engineer

TRANSPORTATION MODELING
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Assistants, two (2)

C. Evaluators, two (2) or more

MATERIALS

A. Coordinator's notebook containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Summary sheets
   6. Results envelope

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.

D. Secure the entries in the designated area.

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

F. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

G. Collect and position the Transportation Modeling portfolios and models for viewing by the evaluators, and assist them as necessary during the event.

H. When it is necessary to move model vehicles, only evaluators and official personnel should handle the models. Extreme care should be taken to avoid damage to the entries.

I. Complete and submit the finalist report, which includes a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

J. At the designated time, return models, displays, and portfolios to student owners after verifying official conference identification.

Participant/Team ID# _____

TRANSPORTATION MODELING

2015 & 2016 OFFICIAL RATING FORM — HIGH SCHOOL

Model and Display (50 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Production quality (X1)	The body exhibits poor production quality; the surface is rough; there is little or no attention to detail.	There is some evidence of proper production techniques; the body is adequate.	The body demonstrates excellent production techniques with obvious effort and attention to detail.	
Paint and finish (X1)	Surface imperfections are evident; the model is sticky, and/or the painting quality is low.	The quality of the painted surface is acceptable, with some imperfections visible.	The painted surface is exceptional, with little or no visible imperfections.	
Appropriate to designated problem (X1)	The model does not relate to the stated annual design theme.	The model generally relates to the stated annual design theme.	The model effectively represents and portrays the stated annual design theme.	
Details (X1)	There is a very weak and limited attempt to include identifying characteristics and/or additional parts to help create a realistic appearance.	The model includes some identifying characteristics and/or additional parts that give it a sense of realism.	The model displays exemplary effort to include identifying characteristics and/or additional parts that give the final model a realistic appearance.	
Display (X1)	The quality of the display is extremely poor and/or exceeds size requirements.	The display is adequately created and meets the size specifications.	The display is exemplary, includes eye-catching details and meets the size specifications.	
			SUBTOTAL (50 points)	

Documentation (70 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Portfolio components See Regulation B.1., Documentation (X1)	The portfolio is missing several components, and/or it is unorganized; it is messy and lacks quality.	Most components are included in the portfolio; it is adequately organized.	All portfolio components are included and completely organized; effort and quality of work are evident.	
Vehicle description including history; research report; scale of model (X1)	The description is inadequate; research and reference to credible sources is lacking; the scale is incomplete.	The description is adequate; research is evident with some documentation; scale is stated and accurate.	An excellent description is included, with necessary research referenced and documented to support the model solution; the scale is stated and accurate.	
Concept drawings, detailed sketches or 3D CAD modeling (X1)	Drawings are not to scale; the quality is poor, there are missing parts and dimensions; the drawings are not on 11" x 17" paper.	Drawings are acceptable, true to scale, and representative of the vehicle, with some details/dimensions included; the drawings are produced on 11" x 17" paper.	Drawings are accurate and complete; they include all necessary details/dimensions; they are drawn on 11" x 17" paper.	

TRANSPORTATION MODELING (continued)				
Documentation (70 points) (continued)				
Photo examples of current/past similar vehicles (X1)	There is only one photo example of current or past similar vehicles.	There are two or three photo examples of current or past similar vehicles.	There are a number of photo examples of current or past similar vehicles, showing that in-depth research was done.	
Photos of clay/foam or wax model (X1)	There is only one photograph of the clay/foam or wax model included.	Two or three photographs of the clay/foam or wax model are included, but more are needed to adequately document the model.	A number of photographs are included that effectively document the preliminary clay/foam/wax model.	
Final technical illustrations (orthographic plans) (X1)	Orthographic plans are poorly executed; the plans are not on 11" x 17" paper.	Adequate orthographic plans are included; the plans are on 11" x 17" paper.	The complete orthographic plans are of excellent quality on 11" x 17" paper.	
Photos of production of the model (X1)	Only one photograph of the model production is included.	Two or three photographs of the model production are included, but they are not enough to provide proper documentation.	The photographs included fully and effectively document and describe the model production process.	
			SUBTOTAL (70 points)	

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (120 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

VIDEO GAME DESIGN

OVERVIEW

Participants develop an E+10 game that focuses on the subject of their choice. 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. A working, interactive game will be submitted on a DVD for evaluation.

PURPOSE

Participants will have the opportunity to create a video game design. Game design demands the use of complex intellectual, artistic, and technical skills. Once learned, these skills may be applied in many other high technology occupations within the sciences, technology, and the arts. A well-designed game not only entertains, but often requires the game player to use complex problem-solving skills. Game development is a major industry today, and its potential as an instructional tool is limitless.

ELIGIBILITY

Participants are limited to three (3) teams per state, with a minimum of two (2) individuals per team.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. The game MUST execute and be played directly from the DVD within sixty (60) seconds of inserting the DVD into a computer capable of reading a DVD.

C. The game submitted for evaluation must be greater than three (3) minutes in length of play and no more than fifteen (15)minutes (all levels). The game must be interactive. Judges must be able to play the game to the fourth (4th) level.

D. The timing of the game segments starts with the first image or sound presented.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants check in their entries (portfolios and DVDs) at the time and place stated in the conference program.

B. Entries are reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

C. Two (2) representatives from each semifinalist team report to the event area at the time and place stated in the conference program for their interview.

D. Each semifinalist team explains its portfolio and game to the evaluators, discussing the purpose, value, design, rules, and development process of its work; teams may also have to answer questions posed by the evaluators.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

REGULATIONS

A. The game segment must be turned in on a DVD.

B. The game must be rated E+10 using the Entertainment Software Rating Board (ESRB) rating system.

C. The game must execute and be played directly from the DVD. Entries will be evaluated using only a PC platform. Participants will not be permitted to install anything onto an evaluator's computer.

D. Instructions and text must be clear and understandable for the evaluation process.

E. Entries must be a team project.

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

G. The game must include original work of the team, but game architecture, game engines, graphics, and sounds may be used from other sources. Work that is not created by the team must have proper documentation, showing copyright permissions and/or license for usage in the game.

H. The DVD and documentation materials must be submitted at check-in. Documentation items (comprising a "portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

1. Title page with the event title, the conference city and state, and the year; one (1) page
2. Table of contents; pages as needed
3. Purpose and description of game, including target audience; one (1) page
4. A detailed explanation of how to play the game, including a list of all control functions; pages as needed.
5. Team's self-evaluation of the design process that includes use of event evaluation criteria; one (1) page
6. A hand-drawn storyboard; pages as needed
7. List of hardware and software used in development of the game, as well as the cost of development; pages as needed
8. DVD, with the team's ID#, inserted in a sheet protector.
9. List of references that includes sources for materials (copyrighted and otherwise); pages as needed
10. Permission letters for copyrighted material; pages as needed
11. A list of anything in the game not created by the team; pages as needed
12. Evidence that the team has tested the game (screen capture, or photos of the team testing the game)
13. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible and comments (see Plan of Work log); one (1) page.
14. Completed and signed Student Copyright Checklist; one (1) page

EVALUATION

Only the first four (4) levels of the game will be evaluated. Evaluation is based on the game's aesthetics, flow, story, content, sound (preferred but not required), and characters. The game should be entertaining, exciting, and challenging and have social and educational value. Fifteen (15) bonus points may be added by the judges for exceptional game features, or for content showing exemplary educational or social value.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students portray educational, artistic, and social concept graphic representations. Suggested leadership lessons: *Personality Types* and *Promote It*
- CREATIVE THINKING — Students develop new ideas that appeal to a wide audience. Suggested leadership lessons: *Color Hunt* and *Creative Techniques*
- ORGANIZATION — Students devise a plan and follow it. Suggested leadership lessons: *Impromtu* and *Whose Birthday Is It?*

Additional leadership skills promoted in this event: critical thinking, evaluation, teamwork

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Animator
Computer programmer
Electronic game designer
Electronic game technician
Writer

TECHNOLOGY STUDENT ASSOCIATION
PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____

STUDENT COPYRIGHT CHECKLIST

(for students to complete and advisors to verify)

1) Does your solution to the competitive event integrate any music? YES _____ NO _____

If NO, go to question 2.

If YES, is the music copyrighted? **YES _____ NO _____**

If YES, move to question 1A. If NO, move to question 1B.

1A) Have you asked for author permission to use the music in your solution and included that permission (letter/form) in your documentation? If YES, move to question 2. If NO, ask for permission (OR use royalty free/your own original music) and if permission is granted, include the permission in your documentation.

1B) Is the music royalty free, or did you create the music yourself? If YES, cite the royalty free music OR your original music properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any music into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of music is done so with proper permission and is cited correctly in the student's documentation.

2) Does your solution to the competitive event integrate any graphics? YES _____ NO _____

If NO, go to question 3.

If YES, is the graphic copyrighted, registered and/or trademarked? **YES _____ NO _____**

If YES, move to question 2A. If NO, move to question 2B.

2A) Have you asked for author permission to use the graphic in your solution and included that permission (letter/form) in your documentation? If YES, move to question 3. If NO, ask for permission (OR use royalty free/your own original graphic) and if permission is granted, include the permission in your documentation.

2B) Is the graphic royalty free, or did you create your own graphic? If YES, cite the royalty free graphic OR your own original graphic properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any graphics into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of graphics is done so with proper permission and is cited correctly in the student's documentation.

3) Does your solution to the competitive event use another's thoughts or research? YES _____ NO _____

If NO, this is the end of the checklist.

If YES, have you properly cited other's thoughts or research in your documentation? If YES, this is the end of the checklist.

If NO, properly cite the thoughts/research of others in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any thoughts/research of others into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of the thoughts/research of others is done so with proper permission and is cited correctly in the student's documentation.

VIDEO GAME DESIGN
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Event evaluators, two (2) or more

C. Evaluators for semifinalists, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms, one (1) set for each event evaluator
   3. List of entries with finalist report
   4. List of evaluators/assistants
   5. Pens for evaluators
   6. Notepads for evaluators
   7. Calculators, one (1) for each event evaluator
   8. At least two (2) devices capable of reading a DVD
   9. Semifinalist list for posting
   10. Results envelope

B. Tables for entries

C. Tables and chairs for initial evaluators

D. Tables and chairs for semifinalist evaluators and contestants

E. One (1) extension cord for each evaluation team and one (1) power strip with surge protection per evaluation team

RESPONSIBILITIES

A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.

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

C. Check in the entries at the time and place stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from

the CRC chairperson. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do not apply during check-in.

D. Place an entry number on each DVD and portfolio. Secure the entries in the designated area.

E. At least one (1) hour before the evaluation of the entries is to begin, meet with your evaluators and check in personnel to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the evaluation begins.

F. Evaluators independently assess the entries. Each entry must be viewed by at least two (2) evaluators.

G. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

H. Each group of evaluators totals its scores to determine the top five (5) entries from that group. The number of evaluator groups depends on the number of entries. There are two (2) evaluators for every fifteen (15) participants for the first evaluation round. The top five (5) entries from each group are forwarded to the event coordinator.

I. The scores for each entry are averaged, and the top twelve (12) entries are turned in to the coordinator. The coordinator posts the semifinalist list.

J. The coordinator lists the semifinalists in random order on new rating forms that are given to the evaluators judging the semifinalist teams.

K. Semifinalists report to the event area at the time and place stated in the conference program. Each semifinalist team signs up for a time to present its game. During the interview, the semifinalist team members will explain their work and answer any questions the evaluators may ask.

L. Evaluators independently assess the twelve (12) semifinalist teams.

M. Evaluators average their scores and add their result to the semifinalist's subtotal score for a maximum score of 165 points (150 base points and 15 bonus points). This final score determines the finalists and their ranking. Evaluators discuss and break any ties.

N. Complete and submit the finalist report and all related forms in the results envelope to the CRC room.

O. Collect all DVDs and portfolios and give them to the event manager.

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

Participant/Team ID# _____

VIDEO GAME DESIGN

2015 & 2016 OFFICIAL RATING FORM — **HIGH SCHOOL**

Documentation (50 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Portfolio components See Regulation H (X1)	Three or more components are missing and the work is very unorganized.	Two or fewer components are missing; the portfolio is adequately organized.	One or no components are missing from the portfolio, and it is well organized.	
Purpose and description (X1)	The purpose and description are unclear; they are illogical and appear to be developed as an afterthought.	The purpose and description are somewhat coherent and include most goals, criteria, and constraints of the video game design.	Logical, clear, and concise statements of both the purpose and description are provided; they outline all of the video game's design parameters.	
Game directions and control function (X1)	The game explanation is difficult to follow; the functions provided are illogical or incorrect and do not match the game functions.	The game explanation is generally clear; the control functions are adequate.	The game explanation is concise and easy to follow; control functions match the game functions.	
Storyboard (X1)	The storyboard is sloppy and disorganized, and/or it does not correlate with the actual game; it seems to have been created as an afterthought.	The storyboard correlates somewhat with the actual video game design; the storyboard may or may not have been created before the design of the video game.	The storyboard is of exceptional quality and correlates almost perfectly with the actual video game design; evidence suggests that the storyboard was created before the design of the video game.	
Plan of Work log and self-evaluation (X1)	The Plan of Work log and/or the self-evaluation are incomplete and/or missing key components.	The Plan of Work log and/or the self-evaluation are largely complete, though generalized.	A complete and concisely written Plan of Work log and self-evaluation are included; they interest the reader and incorporate the reflection of all team members.	
			SUBTOTAL (50 points)	

Game Design (50 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Creativity (X1)	The work lacks creativity; no, or very few, design principles are integrated into the game.	Some elements of creativity are expressed; adequate design principles are included.	The work exudes creativity; essential design principles and elements are integrated.	
Artisanship (X1)	The work is illogical, unorganized and sloppy; the video game seems to be thrown together.	A generally logical game has been created, with some design elements incorporated.	There is exemplary use of layout and design elements, allowing for easy game play.	
Technical skill (X1)	Little technical skill is exhibited in the game design; levels of game construction are not fluid, and/or they are illogical.	A general/average level of technical skill is exhibited in the game's design and construction.	The game exhibits a degree of mastery of video game design skills that few students at this level possess.	

VIDEO GAME DESIGN (continued)				
Game Design (50 points) (continued)				
Storyline and flow of the game (X1)	There is little evidence of an actual story or method of game play; the game's flow is illogical and hinders the ability to play.	The storyline of the game and method of game play are somewhat entertaining; the game's flow is adequate for playing or understanding the game.	The storyline and flow of the game directly contribute to the game's enjoyment and/or entertainment factors; the game is logical and interesting.	
Overall appeal (X1)	Playing the game is not enjoyable; interacting in game play is a struggle, due to the game's illogical sequencing.	The game is somewhat interesting, easy, and enjoyable to play; most design concepts are incorporated.	The game is innovative and entertaining; design principles are incorporated, which make playing the game easy and enjoyable.	
				SUBTOTAL (50 points)

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

Bonus (15 points)	
A bonus of fifteen (15) points is awarded for exceptional game features, or for content showing exemplary education or social value.	

Semifinalist Presentation/Interview (50 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Organization (X1)	The team seems unprepared and unorganized for the presentation/ interview.	The team is prepared for the interview and is somewhat organized in its presentation.	The team's presentation/interview with judges is well organized and logical.	
Knowledge (X1)	Team members seem to have very little understanding of the concepts in their project; vague interview answers are provided.	Team members have a general understanding of the concepts discussed and answer questions well.	There is clear evidence that team members have a thorough understanding of the concepts discussed; they answer all questions confidently.	
Articulation (X1)	The team's presentation is full of illogical thoughts that lack clarity.	The team's presentation thesis is, for the most part, logical and/ or clear.	A concise, logical, and clear explanation of the thesis and pertinent issues is provided.	
Delivery (X1)	Verbose, illogical interview responses are given, with many "uhs, ums, hmms," etc.	Logical and well-spoken interview responses are provided, with few "uhs, ums, hmms," etc.	Team members are well spoken, distinct and clear in their interview responses; no or very few "uhs, ums, hmms," etc. are evident.	
Team participation (X1)	Only one team member communicates with the judges.	Team members participate equally, with most members understanding the concepts.	Team members seem to fully understand the concepts and share an equal role in the interview.	
				SUBTOTAL (50 points)

VIDEO GAME DESIGN (continued)

Rules violations (a deduction of 20% of the total possible points) must be initialed by the evaluator, coordinator, and manager of the event. Record the deduction in the space to the far right. Indicate the rule violated: _____	
(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (165 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____

OVERVIEW

Participants are required to design, build, and launch a website that features the school's career and technology/engineering program, the TSA chapter, and the chapter's ability to research and present a given topic pertaining to technology (referred to as the "design brief"). Conference semifinalists participate in an on-site interview to demonstrate the knowledge and expertise gained during the development of the website - with an emphasis on web design methods and practices, as well as their research for the annual design topic.

☑ Webmaster has unique entry requirements. Entries must be posted to webentry@tsaweb.org by 11:59 pm Pacific Daylight Time (PDT) on May 15th.

PURPOSE

Participants are provided with an opportunity to develop and use the skills necessary to effectively design, build, and launch a website.

ELIGIBILITY

Participants are limited to one (1) team of three (3) to five (5) members per TSA chapter. One (1) entry per team is permitted. The team will be represented by up to five (5) chapter members in the set-up and semifinalist team interview.

TIME LIMITS

A. All components of the chapter's entry must be finished and accessible via the Internet by 11:59 pm Pacific Daylight Time (PDT) on May 15th. Note: After 11:59 pm on May 15th changes should not be made to the website. If the team makes changes or updates to the website after the evaluators begin the judging of the entry, those changes are not considered.

B. The Universal Resource Locator (URL) for the chapter's entry must be submitted to webentry@tsaweb.org by 11:59 pm Pacific Daylight Time (PDT) on May 15th. The URL must point to the main web page of the career and technology/ engineeringprogram or TSA chapter portion of the team entry. NOTE: This procedure applies to the national TSA competition only - entry procedures for state conferences are handled by each state. Email verification of each team's entry is made by

June 10th. Five (5) days prior to the national TSA conference, links from the national TSA website to all Webmaster entries become available.

C. Conference semifinalists participate in an on-site interview that lasts approximately five to ten (5-10) minutes.

ATTIRE

Competition attire, as described in National TSA Dress Code (www.tsaweb.org/Dress-Code), is required for this event.

PROCEDURE

A. Participants obtain the event design brief from the national TSA web site at www.tsaweb.org. (Criteria for the middle school and high school events are different.)

B. All questions pertaining to Webmaster must be emailed to the event coordinator, whose email address can be found in the Directory section of the TSA website (www.tsaweb.org)

C. Participants design a website that features the following components: the school's career and technology/engineering program, the TSA chapter, and the chapter's solution to the design brief. All portions of the website must be the original work of the team members.

D. The entries are evaluated prior to the national conference so that evaluators have ample opportunity to view the entries online.

E. A conference semifinalist list of twelve (12) entries in random order is posted at the conference on the first full day of competition, at least one (1) day prior to the interview.

F. Conference semifinalist teams must sign up for an interview time. The specific place and time for interview scheduling is posted on the semifinalist list. The team must report back to the event area at the appropriate time.

G. Up to all five (5) team members from each conference semifinalist team report to the event area for the interview at the designated time and place.

H. Each team is interviewed by the evaluators for approximately five to ten (5-10) minutes.

☑ Read the General Rules and Regulations in the front of this guide for information that applies to all of TSA's competitive events.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and 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.

REGULATIONS

A. Participants must launch their entry on a web server that can be accessed via the Internet 24 hours a day, 7 days a week, 52 weeks per year.

B. Each entry must consist of:
   1. Original web pages that promote the school's career and technology/engineering program (i.e., career and technology/engineering classes offered at the school, course summaries, digital images that showcase the school technology/engineering laboratory, teacher contact information, etc.)
   2. Original web pages that promote the school's TSA chapter (e.g., logo, motto, creed, officers, photos, chapter activities including school and community service projects)
   3. Original web pages that specifically display the chapter's solution to the design brief.

C. Career and technology/engineering courses and program pages
   1. This section has no minimum or maximum number of pages.
   2. The main page for this section must contain a link to the TSA chapter main page and the design brief main page.

D. TSA chapter pages
   1. This section has no minimum or maximum number of pages.
   2. The main page for this section must contain a link to the design brief main page.

E. Design brief pages
   1. This section has no minimum or maximum number of pages.
   2. A page within this section must contain a link to the TSA chapter's main page and the career and technology education program's main page.

F. All web pages must have been completed during the current school year.

G. Framework systems, such as Drupal, Joomla, Wordpress, Bootstrap, or other currrent technologies may be used; however, pre-built templates and themes for these sites are not permissible. If a framework system is used, a statement

affirming that the template or theme used on the framework was built by the team must be posted on an "About" section or page.

H. Template engine websites, such as, but not limited to, Webs, Wix, and Weebly are NOT permitted.

I. If copyrighted material, such as text, images, or sound from other sources is used, proper written permission must be included. See Student Copyright Checklist, which must be completed, signed, and included in a separate PDF file with the entry.

J. All entries are viewed with reasonably current versions of Internet Explorer, Google Chrome, Mozilla Firefox, and/or Safari. Each entry also may be viewed with various tablet and mobile devices. While a separate mobile site is NOT necessary nor expected, proper rendering on a mobile device is expected.

K. Each chapter selects up to five (5) team members to represent the chapter in the on-site interview.

EVALUATION

A. Evaluation of the chapter entry includes overall design and originality, career and technology/engineering content, local chapter information, and the scope and sequence of the design brief solution. Also evaluated are the website's compatibility with different browsers, screen resolutions, and the appropriate use of new Internet and web-based applications.

B. The interview provides an opportunity for judges to evaluate the team's knowledge and expertise pertaining to the entry in the following areas: overall website design and originality, career and technology/engineering program, TSA chapter information, design brief, website compatibility with different browsers, monitor resolution, plug-ins, etc.

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- COMMUNICATION — Students communicate ideas through an online venue. Suggested leadership lessons: *Personality Types* and *Put It Together*
- CRITICAL THINKING — Students analyze and evaluate information. Suggested leadership lessons: *Put Yourself In Their Shoes* and *The Hidden Message*
- TEAMWORK — As part of a team, students contribute to the event project design and interview. Suggested leadership lessons: *Restaurant Business Plan* and *Stepping Stones*

Additional leadership skills promoted in this event: creative thinking, decision making, evaluation, organization, problem solving

TSA AND CAREERS

This competition connects 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 The 16 Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

Computer engineer
Webmaster
Website designer
Web technician

STUDENT COPYRIGHT CHECKLIST

(for students to complete and advisors to verify)

1) Does your solution to the competitive event integrate any music? YES _____ NO _____

If NO, go to question 2.

If YES, is the music copyrighted? **YES _____ NO _____**

If YES, move to question 1A. If NO, move to question 1B.

1A) Have you asked for author permission to use the music in your solution and included that permission (letter/form) in your documentation? If YES, move to question 2. If NO, ask for permission (OR use royalty free/your own original music) and if permission is granted, include the permission in your documentation.

1B) Is the music royalty free, or did you create the music yourself? If YES, cite the royalty free music OR your original music properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any music into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of music is done so with proper permission and is cited correctly in the student's documentation.

2) Does your solution to the competitive event integrate any graphics? YES _____ NO _____

If NO, go to question 3.

If YES, is the graphic copyrighted, registered and/or trademarked? **YES _____ NO _____**

If YES, move to question 2A. If NO, move to question 2B.

2A) Have you asked for author permission to use the graphic in your solution and included that permission (letter/form) in your documentation? If YES, move to question 3. If NO, ask for permission (OR use royalty free/your own original graphic) and if permission is granted, include the permission in your documentation.

2B) Is the graphic royalty free, or did you create your own graphic? If YES, cite the royalty free graphic OR your own original graphic properly in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any graphics into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of graphics is done so with proper permission and is cited correctly in the student's documentation.

3) Does your solution to the competitive event use another's thoughts or research? YES _____ NO _____

If NO, this is the end of the checklist.

If YES, have you properly cited other's thoughts or research in your documentation? If YES, this is the end of the checklist.

If NO, properly cite the thoughts/research of others in your documentation.

CHAPTER ADVISOR: Sign below if your student has integrated any thoughts/research of others into his/her competitive event solution.

I, _____ (chapter advisor), have checked my student's solution and confirm that the use of the thoughts/research of others is done so with proper permission and is cited correctly in the student's documentation.

WEBMASTER
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Evaluators for pre-conference evaluation of websites, two (2) or more

C. Evaluators for the semifinalist interviews, two (2) or more

MATERIALS

A. Coordinator's notebook, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. Official rating forms (Entries are evaluated before the conference and only scores of the semifinalists are needed on site. These scores and any other materials required for judging are brought to the conference by the coordinator.)
   3. List of entries with the semifinalist report
   4. List of evaluators/assistants
   5. Pencils for evaluators
   6. Results envelope

B. List of questions for on-site interview

C. One to three (1-3) laptop computers, with high speed Internet access, and loaded with reasonably current versions of Internet Explorer, Google Chrome, Mozilla Firefox, and/or Safari. A mobile device, such as a smartphone or tablet, is also desirable.

D. Evaluation of Webmaster entries takes place before the conference so that evaluators can post the conference semifinalist list on the first full day of the national TSA conference and have plenty of time for the on-site interviews.

RESPONSIBILITIES

A. Review entries as they are received by webentry@tsaweb.org. Entries are allowed only until 11:59 pm Pacific Daylight Time (PDT) on May 15th. Send email verification to all entrants by June 10th.

B. Five (5) days prior to the national TSA conference, make links available from the national TSA website to all Webmaster entries.

C. Manage communication and pre-conference evaluation of entries (at least two [2] evaluators are recruited earlier in the year). Collect completed rating forms, signed by the evaluator, and bring them to the conference.

D. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. Review the event guidelines and check to see that enough evaluators/ assistants have been scheduled. Inspect the area or room in which the event is to be held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.

E. On the first full day of competition, at least one (1) day prior to the interview, post a list of the twelve (12)semifinalists in random order.

F. Review the time limits, procedures, and regulations with the evaluators. Clear up any questions or misunderstandings. Distribute guidelines for the interview.

G. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager; all must initial either of these actions on the rating form.

H. Semifinalist teams report to the event area and sign up for an interview time. Manage completion of the on-site interviews.

I. Evaluators turn in their signed rating forms and complete the finalist report. Evaluators discuss and break any ties that affect the top three (3) placements. NOTE: Determine the procedure for breaking ties before the on-site competition begins.

J. Submit the finalist report, including a ranking of the ten (10) finalists, and all related forms in the results envelope to the CRC room.

Participant/Team ID# _____

WEBMASTER

2015 & 2016 OFFICIAL RATING FORM — HIGH SCHOOL

Website (130 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
Evaluators: Using minimal (1-4 points), adequate (5-8 points) or exemplary (9-10 points) performance levels as a guideline, record the scores earned for the event criteria in the column spaces to the far right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.)				
Layout and navigation (X2)	The web pages are cluttered and confusing; it is often difficult to locate important elements; the navigation structure is unclear, unintuitive, and ineffective in getting users to relevant information	The web pages have a reasonably usable layouit, and all major elements can be found; the design is generally pleasing to view; the navigation structure is generally effective and intuitive, and provides reasonable ability to effectively navigate the website.	The layout is exceptionally user friendly and easy to use; the relationship of elements and content are effective and attractive to the viewer; the navigation structure is highly effective, intuitive, and provides efficient access to all pertinent information on the website.	
Graphics and color scheme (X2)	Graphic content is nonexistent or of low quality and questionable relation to the topic; colors are of poor contrast and detract from the user experience.	Graphic content effectively relates to the purpose of the site, provides enhancement to the user experience, and is of decent to good quality; the color scheme is effective and does not detract from the viewer's experience.	Graphics are well-used, of high quality, and clearly enhances the user experience. Interactive elements effectively engage the user; the color scheme is attractive, appropriate, and clearly enhances the viewing experience.	
Function and compatibility (X1)	There are several broken links and images, and/or the website does not render properly on multiple browsers.	There are no broken images, and/or few, if any, broken links; the website renders properly on most major browsers.	There are no broken images or links; the web site renders properly on most major browsers and is usable on mobile devices.	
Spelling and grammar (X1)	There are numerous spelling and grammatical errors.	There are only a few spelling and/or grammatical errors.	There are few, if any, spelling and grammatical errors.	
CTE program content (X2)	The existence of the CTE program is presented, but little detailed information is provided.	A listing of classes, modules, teachers, and student activities is generally present.	Classes and modules are described, teacher backgrounds are detailed, and student projects are well presented.	
TSA chapter content (X2)	The existence of the TSA Chapter is presented, but little detailed information is given.	Basic information, such as TSA motto, creed, chapter and history, competition, and activity information is generally present.	Information on TSA, competitions, activities, community service projects, awards, and other activities are presented in detail.	
Design brief solution (X3)	The design brief solution is addressed, but not in great detail; it is generally eneffective, and/or missing many parts of the required research and presentation.	The design brief solution is generally well presented; it addresses most major parts of the required research and presentation.	The design brief solution is well presented, well researched, and highly effective; all expected components are present, and additional, unrequired elements, that enhance the final product are effectively incorporated.	
			SUBTOTAL (130 points)	

WEBMASTER (continued)				
Semifinalist Interview (40 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Organization (X1)	Participants seem unorganized and unprepared for the interview.	Participants are generally prepared and are somewhat organized for the interview.	Participants' interview is organized, logical, and easy to follow.	
Knowledge (X1)	Team members seem to have little understanding of their project; answers are vague, short, and/or incomplete.	Team members have a general understanding of their project, and adequately discuss their process and solution.	There is clear evidence that the team members have a thorough understanding of their project and design procedure.	
Articulation (X1)	The interview provides an unclear, unorganized, and or illogical description of the project.	The interview offers a somewhat logical and easy-to-understand project description.	The interview provides a clear, concise, and easy-to-follow description of the project.	
Delivery (X1)	Participants are verbose, illogical in answering questions, and use many "uhs, ums, hmms," etc.	Participants are logical and fairly well spoken, with little use of "uhs, ums, hmms," etc.	Participants are well spoken, distinct, and clear throughout the interview.	
Engagement and participation (X1)	The team must be prompted to provide answers and information; a clear team leader dominates the interview, while other team members are unresponsive.	Team members generally answer questions with responses of acceptable length and depth; most team members participate adequately in the interview and engage the judges when answering questions.	All team members contribute in the interview; while there may be a clear team leader, all members provide appropriate substantive material to the conversation; the team engages the judges in an interview, which becomes less of a question and answer session and more of a conversation about the topic and solution.	
			SUBTOTAL (40 points)	

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

Indicate the rule violated: _____

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (170 points)**

Comments:

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

Evaluator

Printed name: _____ Signature: _____

EVENT PROPOSAL INFORMATION

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

The following topics reflect potential areas for development:

Lasers/satellites/radar	Manufacturing technology
Engineering	Communications technology
Conference on-site activities	Transportation technology
Economic development	Environmental technology
Future technologies	Innovative power sources
Biotechnology problem solving	21st century technology
Electronic publishing	Hands-on based activities
STEM	Curriculum based activities
At-risk students and technological literacy	Green technology

When submitting a proposal for consideration, include these elements:

- Overview
- Event purpose
- Eligibility for entry
- Time limits
- Specific regulations
- Required personnel
- Standards — integration with Science, Technology Engineering and Mathematics (STEM) standards and Common Core State Standards

Formative ideas are welcome, but the more complete the proposal the less likely it will be misinterpreted. The event development committee acknowledges all submissions, and presents each to the Competition Regulations Committee (CRC) managers for possible inclusion in a competitive events guide. Proposals must be submitted by June 1, 2016 to be considered for the next high school guide. Once submitted, ideas and events become the property of TSA, Inc.

Include your signature and complete address, and, if possible, the signature of your state advisor. Mail proposals to CRC Chairperson, c/o National TSA, 1914 Association Drive, Reston, VA 20191-1540.

EVENT REVISION SUGGESTION

As TSA expands in membership, and participation in competitive events increases, parts of various competitive events (e.g., length of time of interviews) need revision. Also, whenever guidelines are misinterpreted, they are revised for better clarity. TSA encourages input from concerned persons so that competitive events continue to improve. Please use this form for comments. (Use one form for each suggestion.)

Event title _____

Note the exact section and page number in *2015 & 2016 High School Technology Activities*, *National TSA Conference Competitive Events Guide* to which you are referring.

State your suggestion. Be very specific. List exactly what should be deleted, replaced, and/or added to the event rule or procedure.

Give your rationale. List the pros and cons from your point of view.

What are the STEM standards addressed by this change?

What are the Commom Core State Standards addressed by this change?

Obtain signatures.

_____

Your signature Date State advisor's signature Date

_____

Your address/city/state/zip

_____ _____

Signature* Date Signature* Date

* Include signatures of two people from different TSA chapters who support your suggestion.

Mail to: CRC Chairperson, c/o National TSA, 1914 Association Drive, Reston, VA 20191-1540

RULES INTERPRETATION PANEL GRIEVANCE

Site of national TSA conference _____

Advisor's name _____

Advisor's mobile phone number _____

Chapter name _____

School name _____

Competitive event (including level) _____

Student or team identification number _____

STATEMENT OF CONCERN (Please print or type.)

_____

Signature of advisor Date

_____

Signature of state advisor Date

The decisions of the Rules Interpretation Panel (RIP) at the national conference are final.

RULES INTERPRETATION PANEL
RESPONSE TO GRIEVANCE

Panel members:

_____

Signature Date

_____

Signature Date

_____

Signature Date

Site of national TSA conference _____

Date _____

Competitive event (including level) _____

Student or team identification number _____

Advisor's name _____

Advisor's mobile phone number _____

STATEMENT OF RESPONSE

The decisions of the Rules Interpretation Panel (RIP) at the national conference are final.