



PA-TSA ONLY
Competitive Events
2011 – 2012

PA-TSA ONLY Competitive Events

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BIOMEDICAL RESEARCH

Middle School & High School

Revised: September 2010



I. OVERVIEW

The Biomedical Research event is designed to encourage members' exploration in biomedical careers through research and expression in the form of an essay. This event and its prizes are sponsored by the *Pennsylvania Society for Biomedical Research*, (www.psbr.org). This event shall **NOT** count as one of the six events for which a student may compete at the Regional and State level.

II. PURPOSE

- A. The purpose of the Biomedical Research competition is to provide students the opportunity to learn about a major technological career pathway in our society related to biological technologies.

III. ELIGIBILITY FOR ENTRY

- A. One entry per individual with a maximum of five (5) entries per chapter. A chapter may need a run-off event at their school.
- B. The winning Regional entries will be judged prior to the PA-TSA State Conference with the top ten (10) middle and high school finalists being recognized. The top three (3) finalist monetary awards will be \$50.00 for first place, \$35.00 for second place and \$25.00 for third place: a total of \$110.00 per level per middle and high school winners. This equals \$1,760.00 in total Regional awards and also advancement to the PA-TSA State Conference.
- C. The winning Regional winners will be judged against each other prior to the PA-TSA State Conference at which the top ten (10) middle and high school State finalists shall be recognized. The top three State winners will be awarded an additional \$100.00 for first place, \$75.00 for second place and \$50.00 for third place for each level. A total of \$2,210.00 will be awarded to the various winners.

IV. TIME LIMITATIONS

- A. All contest entries must be submitted at a time and place indicated by the appropriate Regional Conference Coordinator or their representative. Suggested minimum time for submission is two (2) weeks before the Regional Conference. Three (3) copies may be needed by the judges. (*There should be at least one (1) digital copy.*)
- B. It is the ultimate responsibility of the chapter advisor to submit entries by their appropriate Regional Conference deadline.
- C. All entries must have been produced within the current school year.

V. SPECIFIC REGULATIONS

- A. Students are only to write about the careers listed in the booklet, "Careers in Biomedical Research". They are:

Animal Behaviorist	Animal Care/Laboratory Animal Technicians
Animal Facility Supervisors	Animal Health Technician
Biomedical Engineers	Cage Washers and Facility Maintenance
Clinical Trials Associates	Computer Scientist and Programmers
Engineers	Laboratory Assistants
Laboratory Veterinarians	Medical Doctors
Medical Technologists	Nutritionists
Pharmaceutical Technicians	Pre-Clinical Trials Associates
Regulatory Affairs Specialists	Research Associates/Technicians
Researchers/Scientists	Statisticians
Technical Writers	U.S. Department of Agriculture Inspectors
Veterinary Technicians	

- B. The essays are to be a MAXIMUM of three (3) computer-typed pages, double-spaced, using a font size of 12 points and "Arial" font, using only one side per page.
- C. Students should use approved writing standards that would be appropriate for any research paper. *Example:* Sources should be documented.
- D. Student's name, school name and PA-TSA Region number must be typed in the header of each page.
- E. Pennsylvania Society for Biomedical Research's and your PA-TSA Regional Coordinator's decisions are final.
- F. There will be a Pennsylvania Society for Biomedical Research dinner in May. The state winners, students' teacher(s) and parent(s) will be requested to attend this dinner. The expected location for this dinner is Villanova, PA.

VI. PROCEDURE

- A. Advisor
1. Register for the event in accordance with procedures established for your PA-TSA Regional Conference.
 2. Limit participants to five (5) individuals per chapter. You may need to organize a chapter run-off to get down to the required number of entries. A copy of all entries should be sent digitally to Mr. Dennis Gold (dgold@pa.gov) for the Pennsylvania Society for Biomedical Research.
- B. Individual Participant
1. Review acceptable careers from the provided list.

2. Choose one (1) career that you would like to explore and write about.
 3. Read the event rating sheet to see how your essay will be judged.
 4. Write an essay of a maximum of three (3) pages. Be sure to follow all Regulations.
 5. Submit your essay before the regional conference deadline.
- C. Regional Judges / PA-TSA State Advisor
1. Receive entries two (2) to four (4) weeks before the Regional Conference.
 2. Use the event Rating Form to choose one (1) winner for middle school and one (1) winner for high school.
 3. Regional Coordinators must forward winning entries on to the PA-TSA State Conference for judging.
 4. The PA-TSA State Advisor will coordinate all judging from this point in order to determine the six (6) Grand Champions. Collect winners from all PA-TSA Regions before judging begins.
- D. Winners
1. PA-TSA shall recognize the top ten (10) Regional winners. The PA-TSA Regional awards will be \$50.00 for first place, \$35.00 for second place and \$25.00 for third place; for a total of \$110.00 per level per Regional middle and high school winners. This equals \$1,760.00 and also advancement to the PA-TSA State Conference. Awards will not be received until the PA-TSA State Conference.
 2. PA-TSA shall recognize the top ten (10) State winners. The top three (3) PA-TSA State winners will be awarded an additional \$100.00 for first place, \$75.00 for second place and \$50.00 for third place totalling \$225.00 for each level.
 3. All PA-TSA Regional and State winners **MUST** be in attendance at the PA-TSA State Conference in order to receive their awards.
 4. Each State champion, their parents and their advisor are invited to attend the Pennsylvania Society for Biomedical Research dinner during May in Villanova, PA.

VII. CRITERIA FOR JUDGING

- A. Individuals shall be ranked in numerical order in both middle and high school levels on the basis of a final score to be determined by each judge without consultation with the other judges. The event Rating Form must be used when judging. First place shall be awarded to the participant whose total score is the highest in each level. Other places shall be determined in the same manner. No ties are permitted. In case of a tie, judges shall consult with each other to ascertain the winner.
- B. The contest coordinator will provide a sealed packet to the competitive events coordinator containing the results.
- C. All judges' rating sheets are to remain confidential.

VIII. REQUIRED CONTEST PERSONNEL AND EQUIPMENT

A. Regional Conference

1. Contest Coordinator - one (1)
2. Judges - three (3)
3. Regional Coordinator – one (1)

B. State Conference

1. State Advisor – one (1)
2. Awards in the form of checks totaling a maximum of \$2,210.00 will be awarded at the PA-TSA State Conference.

Biomedical Essay Competition

Sponsored by The Pennsylvania Society for Biomedical Research

Rating Form

Middle & High School

ENTRANT ID #																			
EVALUATIVE CRITERIA																			
Understanding of Topic (50 points) Degree of complexity of understanding essential issues related to the topic; quality of concepts, evidence and arguments made																			
Artisanship of Writing (35 points) Interesting, clear, thorough, concise and skillful																			
Quality of Research (10 points) Research depth and breadth, as evidenced in report and references																			
Mechanics (5 points) Punctuation 1 point Spelling 2 points Neatness 2 points																			
Sub Total.....100 points																			
Rules Violation (must be initiated by coordinator and manager) minus 20% of the total points																			
Total100 points																			

Comments:

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

Evaluator:

Printed Name: _____ Signature: _____



PA-TSA CALCULATOR ROBOTS

Middle School

NEW: September 2010

I. OVERVIEW / PURPOSE

- A. Students shall utilize the 84-page NASA manual entitled **Calculator-Controlled Robots: Hands-On Mathematics and Science Discovery** as reference material.
- B. This manual may be downloaded at http://www.nasa.gov/pdf/239512main_Calculator_Controlled_Robots.pdf.
- C. Students will develop their expertise in creating programs to control a **Norland** Calculator Robot.
- D. The contest is designed for **INDIVIDUAL** students to create programs to run a calculator robot.
- E. **It is recommended that each competing student uses a different robot and calculator. However, competing students may share a robot as long as they use different calculators for programming.**
- F. Programs must be the sole design of each individual contestant. Shared programs or duplicating of programs will result in immediate disqualification of the contestants.
- G. Judges will use a contest rubric based on the contest year to determine results.

The following basic problems will be used as starting points for each year of the event:

- 2010-2011 / Mission 3 – Turns and Mazes, page 20 of the NASA manual
- 2011-2012 / EXPLORATION EXTENSION 2 – Crawler-Transporter, page 26 of the NASA manual
- 2012-2013 / Mission 6 – Game Day!: 1. King of the Ring, page 41 of the NASA manual
- 2013-2014 / Mission 6 – Game Day!: 3. Robot Bowling, page 41 of the NASA manual
- 2014-2015 / Mission 6 – Game Day!: 4. Robot Jousting, page 41 of the NASA manual
- Evaluate and revamp the contest for additional years or eliminate contest for 2015-2016

II. ELIGIBILITY

Three (3) **INDIVIDUALS** per chapter

III. TIME LIMITS

- A. Entries must be started and completed during the current school year.
- B. Each team selects a demonstration time during check-in. Teams should try to avoid conflicts with other events when selecting their demonstration time.
- C. Each team is allowed three (3) minutes of preparation time.
- D. Each team has three (3) minutes to demonstrate its solution to the problem.

IV. ATTIRE

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

V. PROCEDURE

- A. Only registered team members are permitted to check in, prepare and demonstrate the entry.
- B. REGIONAL CONFERENCE – Specifications of course will be determined by the conference coordinator and specifications will be provided to contestants at least two weeks prior to the Regional Conference.
- C. STATE CONFERENCE – Specifications of course will be determined by the conference coordinator and specifications will be provided to contestants at a time and place indicated in the conference program. Participants will be given at least 24 hours to prepare their solution to the problem.
- D. All calculators will be collected at a time and place indicated in the conference program.
- E. When demonstration begins, the testing area is accessible only to judges and the individual currently competing. All other contestants must be outside the testing area.
- F. Preparation time (maximum of 3 minutes) is used to install batteries and perform a system check, **NOT** for practice or modifications.
- G. Each individual is allowed three (3) minutes to demonstrate his/her robot. The clock starts at the judge's signal.
- H. Individuals whose robot fails to begin at the signal may be given a second chance to start again at the discretion of the event coordinator. The individual has one minute to correct the problem. At that point, the time will start again.
 - I. Each individual is given two (2) opportunities to demonstrate his/her robot. The two times will be averaged to determine the time score.

VI. REGULATIONS

- A. Course – Specifications for the Course/Challenge for each year will be made available on the PA-TSA website.
- B. Robot – The entry may only consist of the robot, the calculator and the necessary connection cable.

VII. EVALUATION

See Evaluative Criteria for demonstration scoring. As the Course/Challenge will change from year to year, the demonstration scoring will also need to change. Check the PA-TSA website for the current scoring rubric.

Deductions of twenty percent (20%) of the total possible points can be made for the following (only once for any or all infractions):

- A. Damaging the conference course
- B. Arriving late to demonstration
- C. Any conduct unbecoming a TSA participant
- D. Failure to follow the regulations provided in the guide

Disqualification can result for the following:

- A. Failing to appear at the selected demonstration time
- B. Sharing or duplicating of programs

VIII. HELPFUL HINTS FOR STUDENTS:

Use the NASA manual entitled ***Calculator-Controlled Robots: Hands-On Mathematics and Science Discovery*** (http://www.nasa.gov/pdf/239512main_Calculator_Controlled_Robots.pdf) to learn programming techniques, experiment with programming for the robot, review various programming methods and prepare for Regional competition.

Norland Calculator Robots may be purchased at: <http://www.smallrobot.com/scimath.html>.



PA-TSA COMPUTER-AIDED DRAFTING/DESIGN

Middle School

Revised: April 2008

I. OVERVIEW

To provide students with an opportunity to compete in the emerging area of CADD technology.

II. PURPOSE

- A. The purpose of the TSA CADD competition is to provide students the opportunity to demonstrate their abilities with Computer-Aided Design/Drafting (CADD). The event is designed to test, in a live setting, the CADD skills as they apply to mechanical/architectural design and drafting.

III. ELIGIBILITY FOR ENTRY

- A. It is the responsibility of the chapter advisor to submit entries by the deadline.
- B. Entries are limited to two representatives in each of the following categories:
 - 1. General CADD Design I
- C. See "General Rules" for additional information.

IV. TIME LIMITATIONS

- A. Middle School CADD competition will be a maximum of three (3) hours.

V. SPECIFIC REGULATIONS

- A. Prior to the event, a workstation space will be assigned to each participant.
- B. The Participants will provide their own systems including: hardware, software, sketch paper, two (2) blank diskettes, a power strip and a grounded 50' extension cord.
- C. All CADD participants must check in during the designated time at the event area.
- D. Each participant will work independently, without assistance from Event Evaluators, teachers, fellow students or observers.
- E. Participants will be provided with the drawing problem.
- F. All participants will power up systems when the signal to begin is given.
- G. Participants may use only their conference identification number as the means of drawing identification. Participants must place their ID number on the event "drawing disk" and in the title block of the drawing, and save their drawing using ID number as a file name. See attachment for title block and border

specifications.

- H. When the participant completes the event drawing, or event time elapses, the drawing must be stored on the workstation's hard disk, if applicable. The solution to the problem shall remain visible on the monitor and all solutions will be judged from the screen image. All materials must be placed inside participant packet and returned to Event Coordinator.
- I. Participants will not be permitted to leave the event room without permission from the Event Coordinator.
- J. During the event, the participant should save drawing to disk and/or hard drive every 15 minutes.

COMPUTER-AIDED DRAFTING/DESIGN

EVENT COORDINATOR INSTRUCTION SHEET

Middle School

I. CONTENTS

- A. Official Rating Form
- B. Event guidelines for the coordinator and the Event Evaluators
- C. Curricular Events Personnel and Participant/Team Entry List
- D. Results envelope

II. REQUIRED MATERIALS AND SUPPLIES

- A. Personnel
 - 1. Event Coordinator
 - 2. Event Evaluators: three (3) for middle school
 - 3. Assistants: three (3)
- B. Equipment/Supplies
 - 1. Event Guidelines: ten (10)
 - 2. Problem: fifty (50) copies
 - 3. Pens for Event Evaluators
 - 4. Official Rating Form
 - 5. Tables and chairs for participants
 - 6. Tables and chairs for Event Evaluators
 - 7. List of entries

III. PROCEDURES

- A. Check the contents of the coordinator's envelope.
- B. Review the event limitations, regulations and procedures.
- C. Distribute the Event Evaluators' materials.
- D. Review the limitations, regulations, and procedures with the Event Evaluators. Clear up any questions or misunderstandings.
- E. Collect diskettes and drawings for viewing by Event Evaluators and assist during evaluation.
- F. Secure the Event Evaluators' signature on their rating sheets.
- G. Select one evaluator to assist in completing the summary sheet.
- H. Secure the initials of all event Evaluators on the curricular event summary sheet after they have all reviewed it. Through the discussion process, the Event Evaluators shall break any ties that affect the top three (3) placements.
 - I. Designate helpers to escort participants to restroom.
- J. Using the results envelope provided, submit to the Curricular Resource Committee Manager's Area:
 - 1. Curricular Events Personnel and Participant/Team Entry List.

2. Official Rating Form

- K. The Event Coordinator will manage the security and removal of materials from event area.

**Please Identify the Event and the Level
on the Front of the Results Envelope
and Seal It Before Returning It.**

PA-TSA COMPUTER-AIDED DRAFTING/DESIGN

General Design – Middle School

OFFICIAL RATING FORM

ENTRANT'S ID																				
EVALUATION CRITERIA																				
Accuracy of Solution..... 25 points maximum																				
Placement of Views 5 points maximum																				
Dimensioning..... 10 points maximum																				
Utilizing CADD Functions 15 points maximum																				
Completeness..... 10 points maximum																				
Design,Originality and Creativity..... 25 points maximum																				
Linetype and Pens..... 5 points maximum																				
Drawings Set-up 5 points maximum																				
Rules Violation..... MINUS 20 points																				
Total 100 points maximum																				

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

Evaluator's Signature _____



PA-TSA COMPUTER SYSTEMS TROUBLESHOOTING

High School

Revised: March 2008

I. Overview

Participants complete a written examination covering personal computer technology for the entry-level computer service technician. The teams with top ten average scores on the written test qualify for a hands-on component in which teams perform some PC system assembly, isolate hardware and software faults, and deal with customer service issues.

II. Purpose

- A. Demonstrate the ability in solving technical challenges related to PC operating systems, customer service, and troubleshooting faults in a “real-world” environment.

III. Eligibility

- A. Entries are limited to two teams of two members per chapter.

IV. Time Limits

- A. Forty-five (45) minutes are allowed for the written test.
- B. Two (2) hours are allowed for completing the computer construction tasks, for identifying the PC component faults, and for solving issues related to a customer service call.

V. Attire

- A. Casual dress as described in Competitive Events Attire is the minimum requirement.

VI. Procedure

- A. Participants report to the test area at the time and place stated in the conference program.
- B. All team members individually take the written test.
- C. The average test score for each participating team is used to determine the ten (10) finalist teams that advance to the hands-on troubleshooting portion of the event. A finalist list is posted in random order.
- D. Finalist teams report to the event area at the time and place stated in the

conference program.

- E. Each team is assigned one of the work stations.
- F. A logbook with numbered sections that coincide with the hands-on tasks is provided to each team. Logbooks are identified by each team's conference identification number only.
- G. At the signal to begin, teams open and read the instruction folder. With guidance from event personnel, teams have two (2) hours to detect the problems and to briefly describe them in the log.
- H. Each team selects one member to undergo a customer support and service evaluation.
- I. When time is called, the instruction folders are collected and evaluated.

VII. Regulations

- A. The on-site portion of this event is accomplished on PC-based computers. A variety of manufacturers, components, and software may be represented.
- B. Each team works independently without assistance.
- C. Participants are not permitted to leave the event area without permissions from the event coordinator.
- D. Scores for each task range from zero (0) for not having identified the problem to ten (10) for having accurately found and briefly described the appropriate solution in the log.

VIII. Evaluation

- A. The team's average test score is used to determine the top ten (10) finalists and as a tie-breaker in determining rank.
- B. Results of the troubleshooting portion are based on the log completed by each team.

PA-COMPUTER SYSTEMS TROUBLESHOOTING

OFFICIAL RATING FORM

TEAM ID										
Written Test Total										
Finalists										
Construction										
Task 1 10 points										
Task 2 10 points										
Task 3 10 points										
Task 4 10 points										
Task 5 10 points										
Troubleshooting										
Fault 1..... 10 points										
Fault 2..... 10 points										
Fault 3..... 10 points										
Fault 4..... 10 points										
Fault 5..... 10 points										
SUBTOTAL 100 points										
<i>RULES VIOLATION -20 points</i>										
TOTAL 100 points										
<i>RANK</i>										

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

Evaluator's Signature _____



PA-TSA DELTA DART GLIDER

Middle School
Revised: July 2009

I. PURPOSE

- A. This event shall be open to five (5) entries per Middle School chapter. This event requires analytical thinking, experimentation, and interpretation of instructions in the solution of a design problem. The problem is to construct a glider in accordance with specifications and materials provided on site.

II. TIME LIMITATIONS

- A. All contest entrants will have one hour to interpret instructions and construct a glider.

III. SPECIFIC REGULATIONS

- A. Contestants must provide a 11" x 17" sheet of cardboard to be used as a pin board and cutting board during construction.
- B. With the exception of the above mentioned cardboard, contestants may not take any notes, tools or materials into the contest area. All other tools and materials will be provided on site.

IV. PROCEDURE

- A. Registration — Contest participants must register for the event in accordance with procedures established for the conference.
- B. Competition
 - 1. Enter contest area at appropriate time.
 - 2. Listen to instructions from Contest Coordinator.
 - 3. All contestants will be provided instructions, materials, and tools necessary to complete glider.
 - 4. Contestants will have one hour to assemble glider.
- C. Contestants may have two flight attempts to fly the glider for a timed glide. The longest timed flight will be the winner, with all other flights ranked.

V. REQUIRED CONTEST PERSONNEL AND EQUIPMENT

- A. Contest Coordinator — one (1)
- B. Judges — three (3)

PA-TSA DELTA DART GLIDER

OFFICIAL RATING FORM

ENTRANT'S ID																			
EVALUATION CRITERIA																			
Adherence to Specification..... 10 pts. max.																			
Design5 points maximum																			
Quality of Construction 10 points max.																			
Flight Time 75 points maximum																			
Total 100 points maximum																			

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

Evaluator's Signature _____

FLIGHT TIME PLACEMENT SCORING

- 1st 75 points
- 2nd 71 points
- 3rd 67 points
- 4th 63 points
- 5th & 6th 60 points
- 7th & 8th 55 points
- 9th thru 12th 50 points
- 13th thru 16th 44 points
- 17th thru 25th 36 points
- All Others 25 points



PA-TSA DIGITAL PHOTOGRAPHY

Middle School

Revised: November 2010

I. THEME

- A. The theme for this event will match the theme for High School Photographic Technology. See the current National TSA Competitive Events Guide or visit www.tsaweb.org for the theme.

II. PURPOSE

- A. The PA-TSA Digital Photography Contest is designed to afford TSA members an opportunity to demonstrate their skills in the field of Photography.

III. TIME LIMITATIONS

- A. All contest entries must be submitted when the student registers for the TSA Conference. No entries will be received after registration is completed.
- B. All entries must have been taken within the current TSA year.

IV. SPECIFIC REGULATIONS

- A. Each contestant **MUST** submit two (2) photographs of the same image for judging. All photographs must be taken and digitized by the contestant.
 - 1. One photograph **MUST** be original, unaltered by any digital photo application. It may be no larger than 5 x 7 inches and no smaller than 3.5 x 5 inches.
 - 2. One photograph may be altered/edited using a digital photo application. This photo **MUST** be a minimum of 5" x 7" and a maximum of 8" x 10". Prints should be borderless. The altered/edited photograph should be mounted on an 11" x 14" plain white board.
- B. All documentation (including original photograph, entry forms/data sheets, photo consent forms if applicable, CD) should be placed in page protectors and affixed to the back of the plain white board (i.e. mat board, photo mount board). This documentation must be affixed in such a way that judges can view all pages.
- C. All winning entries and digital documentation become the property of TSA for one (1) year.
- D. All CD's with original Image data (in .jpeg/.jpg format) **MUST** be affixed to the back of the mat board.

V. PROCEDURE

- A. All contestants for this event MUST register with Contest Coordinator at the time and location indicated in the Conference Program.
- B. Entry number and level MUST be taped or glued to the back of the mat board.

VI. REQUIRED CONTEST PERSONNEL AND EQUIPMENT

- A. Contest Coordinator
- B. One person to register and collect entries
- C. Three judges
- D. Secure room with facilities for displaying photographs

VII. CRITERIA FOR JUDGING

- A. Contestants shall be ranked in numerical order on the basis of final score to be determined by each judge without consultation with each other. The winner will be that contestant whose total score is the highest. Other placing shall be determined in the same manner. In case of a tie, judges shall consult each other to ascertain the winner.
- B. Ratings shall be based upon the following:
 - 1. 45 points - Composition
 - a. Originality
 - b. Theme Interpretation
 - c. Composition rules evident
 - 2. 45 points - Technical Quality
 - a. Contrast and Lighting
 - b. Sharpness
 - c. Print Quality
 - 3. 10 points - Finishing
 - a. Mounting
 - b. Data (CD, original Image, data sheet)
- C. Contest Coordinator will provide a sealed packet to the Competitive Coordinator containing the results.
- D. All judges' rating and results are to remain confidential.
- E. Preliminary Qualification of Photographs:

QUALIFICATIONS: **YES** or **NO**

- 1. Does the photograph meet the size requirements?
- 2. Is the mount board white?
- 3. Is the mount board 11" x 14"?
- 4. Is the data sheet and original image properly completed and taped/glued to the back?
- 5. Are the consent forms included and taped/glued to the back?
- 6. Is the digital data (on a CD) affixed to the back of the mat board?

NOTE: IF THERE ARE ANY "NO" ITEMS, THE PHOTO IS DISQUALIFIED.

PA-TSA DIGITAL PHOTOGRAPHY SPECIFICATION SHEET

ENTRY NUMBER: _____

TITLE of Entry: _____

Digital Camera Specifications: _____

Digital Photo Editing Program: _____

Photo Paper Type: _____

Photo Printer Type: _____

NAME: _____

SCHOOL: _____

I _____ certify that this is my original work.

Date: _____

I understand that unless all requirements are met the entry will be disqualified.

CUT HERE AND FOLD UP TO COVER THE NAME



PA-TSA DIGITAL PHOTOGRAPHY CONSENT AND RELEASE

TITLE OF THE PHOTOGRAPH: _____

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

PA-TSA DIGITAL PHOTOGRAPHY

Middle School

OFFICIAL RATING FORM

ENTRANT'S ID																				
EVALUATION CRITERIA (Y _{es} N _o NA)																				
Does the photo meet size requirements?																				
Is the mount board white?																				
Is the mount board 11" x 14"?																				
Is the data sheet complete and attached?																				
Are the consent forms complete and attached?																				
Is the original on the back of the mount board?																				
Any "NO" Items: Photo Is DISQUALIFIED!																				
Composition..... 45 points maximum Originality Theme Interpretation Composition Rules																				
Technical Quality 45 points maximum Contrast / Lighting Sharpness Print Quality (<i>dust, scratches</i>)																				
Finishing 10 points maximum Mounting Trimming																				
Total 100 points max.																				

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

Evaluator's Signature _____



PA-TSA DIGITAL VIDEO CHALLENGE

Middle School

Revised: July 2010

I. PURPOSE

- A. The PA-TSA Digital Video Challenge is designed to afford TSA members an opportunity to demonstrate their skills in the field of impromptu digital videography.

II. TIME LIMITATIONS

- A. All contest entries must be submitted at a time and place indicated in the conference program.
- B. Teams will be given a problem on site. They will have twenty-four (24) hours to plan, collect footage, edit and produce their final video solution.

III. SPECIFIC REGULATIONS

- A. The event is limited to one team of two (2) participants from the same chapter at the state conference.

IV. PROCEDURE

- A. Participants will meet at a time and place indicated in the conference program.
- B. Finalists will be given twenty-four (24) hours to develop a storyboard and script, as well as collect video footage from the current state conference for use in the final solution.
- C. Finalists may not use stock footage, clips prepared prior to the conference, or footage of any kind for the final solution.
- D. Finalists may only use royalty free music for their final solution. Identification of this music must be included in the script and storyboard. In some cases, music may be provided by TSA as part of the problem.
- E. Finalists may solicit other chapter or conference participants to assist in collecting footage for their final solution, but only the two registered participants are permitted to edit the final solution.
- G. Finalists must submit the following at the time and place indicated in the conference program:
 - 1. the final solution (burned as either a "Quick Time" or .mpeg file to a standard CD or DVD),
 - 2. a copy of the script and
 - 3. a copy of the storyboard

V. REQUIRED CONTEST PERSONNEL AND EQUIPMENT

- A. Contest Coordinator
- B. One (1) person to register participants.
- C. Three (3) judges for the final videos.
- D. A secure room for viewing the final solutions.
- E. Participants are responsible for supplying all necessary equipment and materials.

VI. CRITERIA FOR JUDGING

- A. Teams shall be ranked in numerical order on the basis of a final score to be determined by each judge without consultation with each other. First place shall be the participant whose total score is the highest. Other places shall be determined in the same manner. No ties are permitted. In case of a tie, judges shall consult with each other to ascertain the winner.
- B. Ratings on the final videos shall be based upon the Final Project Evaluation sheet. Ranking of the final ten shall be based upon these ratings.
- C. The contest coordinator will provide a sealed packet to the competitive events coordinator containing the results.
- D. All judges' rating sheets are to remain confidential.

**PA-TSA DIGITAL VIDEO CHALLENGE
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

PA-TSA DIGITAL VIDEO CHALLENGE

Final Project Evaluation

OFFICIAL RATING FORM

				ENTRANT'S ID															
AREAS OF EVALUATION	EVALUATION CRITERIA	EXAMPLES FOR CAUSES OF POINT LOSS	MAX. POINTS																
CAMERA TECHNIQUES	All shots are steady and in focus; zooms and camera movements are smooth and at the appropriate speed.	Shots that indicate an unsteady camera; shots with subject(s) out of focus; zooms and camera movements are too fast, too slow or erratic in movement; zooms and/or movements used excessively.	10																
CAMERA PLACEMENT & USE	Varied camera shots, angles and placement are used and add interest to the video.	Using camera primarily for only one or two types of shots; camera placement for angles and distance is not varied.	10																
FRAMING	All subjects are appropriately framed; head room, nose room/ lead room appropriately used.	Too much or not enough head room for subjects; not enough nose room or lead room.	5																
LIGHTING	Shots are appropriately lit; evidence that potential lighting problems have been considered; camera is properly white balanced.	Shots contain images from unintentional backlighting; dark subjects, and/or excessive brightness; improper white balance.	5																
SOUND	Sound is well coordinated with the video; blends in and out evenly; speakers are very easy to understand.	Uneven volume with overall soundtrack; speakers are hard to understand because of low volume or competing sound; video contains distracting sound.	5																
TRANSITIONS, EDITS & PACE	Edits are smooth and clean; transitions are appropriate and add to the flow of the video; cuts advance at a comfortable pace; good continuity; cuts show variety and appropriateness in length.	Overuse of transitions; jump cuts; uneven flow of action between cuts; cuts too long or too short.	20																
CONTENT & THEME	Content is clearly relevant to the theme of assignment or topic; message is clear; video makes an excellent connection to the audience.	Theme or message is unclear or irrelevant; audience connection is in question (video appeals mostly to only those involved in the video).	20																
ORIGINALITY & CREATIVITY	Video shows excellent originality in composition and delivery; has creative framing; music selection or added imported sound enhances the video; text is used appropriately.	Video lacks evidence that creativity was considered; lack of creative composition in shots; music selection detracts from the video.	20																
STORYBOARD & SCRIPT	Storyboard and script match final video.		5																
SUBTOTAL: 100 POINTS MAXIMUM																			
THE FOLLOWING PENALTY POINTS WILL BE SUBTRACTED FROM THE SUBTOTAL AS FOLLOWS: • 2 POINTS FOR EACH SECOND THE FINAL VIDEO IS OVER OR UNDER THE SPECIFIED LENGTH OF TIME • 5 POINTS FOR EACH REQUIRED ELEMENT MISSING FROM THE FINAL VIDEO			LESS PENALTY POINTS																
FINAL TOTAL																			
<p><i>I certify these results to be true and accurate to the best of my knowledge and ability.</i></p> <p>Evaluator's Signature _____</p>																			



PA-TSA ELECTRONIC RESEARCH AND EXPERIMENTATION

High School
NEW: July 2010

I. OVERVIEW

Participants research, plan, design, and construct an electronic device. Entries are evaluated on quality of research, ingenuity and complexity of the device, and effectiveness of the exhibit display.

II. PURPOSE

Work as part of a team to research, plan, design, and construct an electronic device.

III. ELIGIBILITY

- A. Participants are limited to one (1) team per chapter, one (1) entry per team.
- B. The team must consist of two (2) or more students.

IV. TIME LIMITS

- A. Entries must be started and completed during the current school year.
- B. Semifinalist interviews are limited to ten (10) minutes.

V. ATTIRE

Professional dress as described in Competitive Events Attire is the minimum requirement.

VI. PROCEDURE

- A. The team works together throughout the year to research, plan, design, and construct an electronic device.
- 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. Semifinalists report to the event area at the time and place stated in the conference program.
- E. There is a limit of two (2) representatives per team for the semifinalist presentation/interview. Other team members may be present, but they

participate only if questioned by the 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.

VII. REGULATIONS

- A. Each entry is allotted an area 48" wide x 30" deep x 48" high. The electronic device, the notebook, and the display must fit within that area.
- B. The major emphasis of the research is electronics. However, pneumatic, mechanical and computer interface components also may be used.
- C. Commercially prepared kits are NOT acceptable entries.
- D. Electronic device guidelines are as follows:
 - 1. The device must fit in the display space
 - 2. Only DC power may be used. No wet cells are allowed. Participants must supply the power source.
- E. A standard three (3)-ring binder, with a clear front sleeve for a cover page, is required. The cover page must include the event title, the conference city and state, and the year. The inside of the binder must include the following single-sided, 8 1/2" x 11" pages:
 - 1. Title page with the event title, the conference city and state, and the year; one (1) page
 - 2. Table of contents
 - 3. Brief description of device; one (1) page
 - 4. Description of possible real-life applications; one (1) page
 - 5. Schematic diagrams (or block diagrams as appropriate) using engineering symbols as applicable; 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. A list of references and resources; pages as needed. References and resources should be cited using APA, the most current edition.
- F. Evidence of experimentation:
 - 1. A description of the components in the circuit and how they interact to accomplish the device's intended purpose
 - 2. An explanation of the different ideas, components or options tested
 - 3. An analysis of the testing results
- G. The display should contain charts and diagrams that explain the operation of the device. These may be exhibited on a background screen or display board within the space requirements specified above.
- H. Any necessary equipment is provided by the participant.

VIII. EVALUATION

Please refer to the OFFICIAL RATING FORM for more information.

PENNSYLVANIA TECHNOLOGY STUDENT ASSOCIATION PLAN OF WORK

Date	Task	Time Involved	Team Member Responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor's Signature _____

ELECTRONIC RESEARCH AND EXPERIMENTATION EVENT COORDINATOR INSTRUCTIONS

I. PERSONNEL

- A. Event coordinator
- B. Assistants for check-in, two (2)
- C. Evaluators for displays, three (3)
- D. Evaluators for semifinalists interviews, three (3)
- E. Person assigned for security

II. MATERIALS

- A. Coordinator's notebook, containing:
 - 1. Event guidelines, one (1) copy for each coordinator and evaluators
 - 2. Official rating forms
 - 3. List of entries with finalist report
 - 4. List of evaluators/assistants
 - 5. ID tags or stick-on tabs to number entries
 - 6. Marking pens for evaluators
 - 7. Semifinalist list for posting
 - 8. Results envelope
- B. Display tables for electronic products

III. 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, AC 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 display, notebook, and device. Position entries 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 twenty

percent (20%) of the total points possible or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager. Secure the initials of the coordinator and manager on the rating form.

- H. Evaluator's average their three (3) scores to determine the ten (10) semifinalists.
- I. Prepare a list of the ten (10) semifinalists in random order and submit it to the CRC chairperson for posting.
- J. 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.
- K. Semifinalists are questioned by the three (3) evaluators, each of whom completes a separate rating form. Those scores are averaged and then added to the initial evaluation score for a final total. (Be sure the time allowed and the questions used are similar for each interview.)
- L. Evaluators average their three (3) scores to determine the ranking of the ten (10) finalists. 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. If necessary, manage security and the removal of materials from the event area.

ELECTRONIC RESEARCH AND EXPERIMENTATION

PA-TSA OFFICIAL RATING FORM

HIGH SCHOOL

PARTICIPANT / TEAM ID #																				
EVALUATIVE CRITERIA																				
Device (30 pts.) Creativity and Innovation..... 10 pts. Complexity 10 pts. Appearance and Construction..... 10 pts.																				
Experimentation (15 pts.) Description of Circuit/Function 5 pts. Testing 5 pts. Analysis of Test Results 5 pts.																				
Documentation (25 pts.) Title Page 2 pts. Cover Page 2 pts. Plan of Work (log reflects coordinated and sustained effort)..... 7 pts. Schematic Diagrams (relevant and well done) 6 pts. Overall Quality of Research 8 pts.																				
Display (10 pts.) Appearance 5 pts. Quality 5 pts.																				
Rules Violation (must be initialed by coordinator and manager).....minus 20% of the total possible pts.																				
SUBTOTAL 80 pts.																				
Interview (semifinalists only) (20 pts.) Presentation is well-organized, clear and articulate, with participation from both team members)... 10 pts. Responses to questions are thoughtful and knowledgeable 10 pts.																				
TOTAL 100 pts.																				

Comments:

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

Evaluator:

Printed Name: _____ Signature: _____



PA-TSA LOGO DESIGN

Middle School & High School

Revised: September 2011

I. OVERVIEW

A stencil is when an area of the screen is blocked off with a non-permeable material to form a stencil, which is a negative of the image to be printed; that is, the open spaces are where the ink will appear when printed, including but not limited to screen process printing. This contest requires the student to create promotional logo designs to be utilized for the next year's PA-TSA t-shirt, PA-TSA State Conference program and the PA-TSA website banner. The Middle School or High School winner will be chosen to have the designs appear on all PA-TSA State Conference publications (website, mailings, programs, etc.).

II. PURPOSE

- A. The State Conference PA-TSA Logo Design contest is designed to demonstrate design, layout, production and presentation skills of Visual Communications with a primary focus on the screen printing process.

III. LIMITATIONS

- A. All contest entries must be submitted at the display event check-in. No late entries will be accepted.
- B. All entries must have been completed during the current TSA year, (after July 1st).

IV. SPECIFIC REGULATIONS

Each contestant must submit only one (1) entry for the contest. The design should include, but is not be limited to, next year's National TSA theme (found under National Conference <http://www.tsaweb.org/National-Conference>), the TSA logo, the year (example: 2011) and the words Pennsylvania Technology Student Association or Pennsylvania TSA. (Please do not include the PA-TSA State Conference date nor the words Seven Springs Mountain Resort. This design will be used as a PA-TSA State Conference shirt.)

The contestant's registration number must be clearly identified on the display board and the Digital Portfolio.

- A. T-Shirt Design:
 - 1. Only the back of the shirt should be screen-printed. The design should be

a maximum size of 11 inches x 17 inches.

2. The entry should be a multi-color product with a maximum of 3 color inks. (The contestants are not required to use, but may use, spot color printing to create more than 3 colors, if desired); for example: two ink colors printed over top of each other with a dot pattern to create the visual effect of a third color - blue ink dots printed over top of yellow ink to create the appearance of a green shade.
3. The color separations should be included in two formats: a hard copy and a digital copy (see D.b and E.1.).
4. The entry may be produced on paper or other materials used in screen-printing.

B. Website Design:

1. The design should be a re-layout of the T-shirt design to fit the PA-TSA website and should be no larger than 1 inch tall by 7-1/2 inches wide, or a ration of 1:7.5.
2. The website design doesn't need to be printed via the screen method. The proofs required may be printed via a color inkjet or color laser printer. The "clean copy" color separations may be printed via a B/W laser printer.

C. Conference Program Design:

1. The design should be a re-layout of the T-shirt design to fit the PA-TSA conference programs and should be no larger than 3-1/2 inches wide by 7-1/2 inches tall.
2. The Conference Program Design doesn't need to be printed via the screen method. The proofs required may be printed via a color inkjet or color laser printer. The "clean copy" color separations may be printed via a B/W laser printer.

D. Digital Portfolio:

1. A digital portfolio must be submitted on a CD or USB with each entry. All media (CD / thumb drive) becomes the property of PA-TSA and will not be returned. All required files must be in one PDF file. The Digital Portfolio should include the following:
 - a. An accompanying technical paper. The paper should outline the processes used and the procedural steps followed in the completion of the project. Include all steps from design to completion. Proof of permission to use copyrighted image(s) must be included. A release form must be present if photographs of individuals are used. Clipart must be documented.
 - b. PA Logo Designs:
 - T-Shirt Design with B&W color separations in .pdf formatting
 - Website Design with B&W color separations in .pdf formatting
 - Conference Design with B&W color separations in .pdf formatting
 - c. A Specification Sheet must be completed for the designs.

E. Folder / Binder:

1. Since this is a test of the student's ability to produce a message in quantity, no less than 25 screen-printed proofs shall be included, as well as one black and white final design copy (see A.3.).

F. Display Guidelines:

1. A comprehensive layout must be submitted and displayed with each entry. One color copy proof of the Website Design and the Conference Program Design shall be printed and included with the display.
2. Entries must be mounted on illustration board or in an attractive manner. T-shirts not lending themselves to mounting must still conform to the display area limits with maximums of 1 foot deep x 3 feet wide x 3 feet tall.
3. Displays shall demonstrate artisanship, creativity and overall quality (sharp clean edges of graphics and fonts; entry is clear of smudges, smears, pencil or other extraneous marks).
4. A Specification Sheet must be completed for the designs and displayed with each entry.

IV. PROCEDURE

- A. Contestants will register with the Contest Coordinator at the time and place specified.
- B. Once the entry is placed at the designated area, it will not be available until pick-up time.
- C. Location for entries will be secure and kept free of contestants until after judging.

V. REQUIRED CONTEST PERSONNEL AND EQUIPMENT

- A. Contest Coordinator
- B. Three (3) judges per level
- C. Tape Measure
- D. Laptop computer with Adobe Reader to check digital formats and digital portfolios.
- E. Room with facilities for display of two and/or three-dimensional entries.

VI. CRITERIA FOR JUDGING

- A. Contestants shall be ranked in numerical order on the basis of final score to be determined by each judge without the consultation of each other. The winner is the contestant with the highest total score. Other placing shall be determined in the same manner. In case of a tie, the judges shall consult with each other to break the tie.

PA-TSA Logo Design Specification Sheet

Web Page Header

Document Size		
Font Type(s)		
Font Size(s)		
Software		

Conference Program Cover

Document Size		
Font Type(s)		
Font Size(s)		
Software		

T-Shirt Design

Document Size		
Font Type(s)		
Font Size(s)		
Software		

Materials Used

Item	Quantity

PA-TSA LOGO DESIGN

OFFICIAL RATING FORM

LEVEL: MS or HS (circle one)

<p style="text-align: center;">ENTRANT'S ID</p> <p>EVALUATION CRITERIA</p>																				
<p>Elements of Design25 points maximum Originality of Design 5 points Design Effectively Communicates the Message 5 points Fonts are Readable, Attractive and 3 points Have Appropriate Dimension and Placement Color Scheme (appropriate color selection) 3 points Eye Appeal (eyes are drawn to main message) 3 points Balance (visual weight of design elements) 2 points Proportion (size relationships within the design) 2 points Unity (design elements flow together) 2 points</p>																				
<p>Prepress5 points maximum Screening Matches Layout 3 points Screen / Film Preparation 2 points</p>																				
<p>Presswork25 points maximum Registration & Positioning 8 points Ink Density & Blemish Control 7 points Accurate Reproduction of the 25 Screen Copies 10 points (25 prints in folder / binder)</p>																				
<p>Technical Paper 10 points maximum Explanation of Process 5 points Explanation of Inspiration / How Graphic 2 points Relates to Competition Option Grammar / Spelling 2 points Cited Work in MLA Format 1 point</p>																				
<p>Digital Portfolio 15 points maximum (CD or USB in .pdf Format) Technical Paper 1 point T-Shirt Design with B&W Color Separations 2 points Website Design with B&W Color Separations 2 points Conference Program Design with B&W Color Separations ... 2 points Specifications Sheet 1 point Overall Quality and Effectiveness 7 points</p>																				
<p>Display20 points maximum Completed Specification Sheet 5 points Single Screen Printed Shirt or Other Material 5 points Relates to Competition Option Overall Quality of Display 5 points Display Meets Size Requirements 5 points</p>																				
<p>Total 100 points maximum</p>																				

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

Evaluator's Signature _____



PA-TSA

MATERIALS PROCESSES

Middle School & High School
Revised: July 2009

I. OVERVIEW

TSA contestants entering the Materials Processes contest are required to submit drawings and photographs of a project that they have constructed during the school year.

II. PURPOSE

- A. The purpose of the Materials Processes contest is to provide a means for TSA members to demonstrate their ability to fabricate a project or product.

III. ELIGIBILITY FOR ENTRY

- A. No chapter may submit more than two entries
- B. See "General Rules" for additional information.

IV. TIME LIMITATIONS

- A. Interviews with the "TOP 10" contestants will be limited to 15 minutes.
- B. Project/product must have been started and completed during the current school year.
- C. One copy of the word processed written development procedure, photographs, and working drawings must be submitted with the entry upon check-in for this event (See Conference Information Book)

V. SPECIFIC REGULATIONS

- A. The contestants' project/product drawings and written development procedures with photographs will be setup in the display area.
- B. Students entering this contest are required to:
 - 1. Submit working drawings. The working drawings must provide all needed illustrations and identify all necessary dimensions on maximum paper size E (36" x 48").
 - 2. Commercially produced plans/drawings are permitted. Detailed drawings of the product are highly suggested.
 - 3. Working drawings will contain no more than (5) sheets. The parts lists should be included in the (5) sheet count for the drawings.
 - 4. Submit the written developmental procedures, word-processed on 8-1/2" x 11" paper. Maximum: 5 pages, printed on only one side.

5. This documentation should include the following: materials list, the finish used, construction processes (how the product was completed) and its function. The written development procedure shall be no more than (5) pages (photographs are not to be included in the 5 page count). All papers are to be placed in a standard 3 ring binder for 8-1/2" x 11" paper.
- C. The product /project may be fabricated from one or more of the following materials: wood, metal, plastics, composite, or earth material.
- D. Commercially produced product kits are not acceptable entries; for example: clock kits with pre-cut parts.
- E. The project/product must be the work of one student.
- F. Any special set-up and /or equipment required for the project entry will be the responsibility of the contestant.
- G. The contestants will have the responsibility of transporting their project/product to the State Conference for final judging and display.
- H. The project/product must fit within 16 square feet of floor space provided at the State Conference.
- I. Photographs shall be used as part as of the written development procedure and reflect all stages of production. Maximum individual photo size 4" x 6", and a maximum number of photo pages limited to (5).

Documentation Page Details:

Drawing Maximum 5 sheets and includes parts list
 Developmental Document..... Maximum (5) 8-1/2" x 11" pages
 Photo Journal Maximum (5) 8-1/2" x 11" pages

- J. 1 side of paper = 1 page.

VI. PROCEDURE

- A. Registration for contestants
 1. Contestants register and set up for the event in accordance with the procedures established for the conference.
 2. Top ten finalists must be available for event interviews at times established at the conference.

VII. REQUIRED CONTEST PERSONNEL AND EQUIPMENT

- A. Contest Coordinator
- B. Judges – three per level
- C. Personnel assigned to check in and receive entries.
- D. Personnel assigned for security.
- E. Display area (16 sq. ft.) for entries; 4 ft. table space.

VIII. CRITERIA FOR JUDGING

- A. The product, written development procedures, photographs and drawings will be used to determine the finalists.

B. The following rating scale will be used to determine the finalists.

- 1. Workmanship / Complexity of Product 30 points
- 2. Written Procedures 15 points
- 3. Photographic Journal..... 5 points
- 4. Proper use of Materials / Design Features 10 points
- 5. Working Drawings 10 points
- 6. Oral Interview of Finalists 30 points
- 7. One or More Rules Violations DEDUCTION – 20 points

PA-TSA MATERIALS PROCESSES

OFFICIAL RATING FORM

LEVEL: MS or HS (*circle one*)

ENTRANT'S ID																			
Workmanship.....30 points maximum																			
Written Procedures..... 15 points maximum																			
Photo Journal5 points maximum																			
Materials / Design..... 10 points maximum																			
Working drawings 10 points maximum																			
Subtotal70 points maximum																			
Oral Interview (<i>finalists only</i>) 30 pts. max.																			
Rules Violation..... MINUS 20 points																			
Total 100 points maximum																			

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

Evaluator's Signature

Printed Name



PA-TSA RC VEHICLE

1:10 Scale Electrical Vehicles

Middle School & High School

Revised: July 2009

I. PURPOSE

- A. The R/C racing competition is designed to promote teamwork and problem solving among students as they acquire the technical skills to build, modify, operate, race, and maintain a radio-controlled vehicle. At the conference, each team will be required to install a motor provided by PA-TSA into their vehicle. This motor is to be used for all races. Additionally, prior to the conference, high school teams will be required to make their own chassis frame. Each team's evaluation will be determined by points earned for their notebook contents, craftsmanship of their chassis frame (high school only), and racing results.

II. TIME LIMITATIONS

- A. Each chapter must have their vehicle assembled and ready to run (except for the motor installation) prior to the start of the conference.
- B. Each chapter must register its radio channels at a time specified in the conference program. A team that incorrectly declares its radio channels, which causes a conflict during a race, will be disqualified from the race.
- C. Each team is responsible for having its race vehicle and/or race team at the orientation sessions or track at the scheduled time as specified in the conference program.
- D. Each team will have up to 30 minutes to install a PA-TSA provided motor into their vehicle.
- E. The team must have its vehicle ready to run and on the track at the specified time of each heat and race. The race will begin with or without the scheduled driver at the time designated by the race director.

III. SPECIFIC REGULATIONS

- A. Each chapter may enter one racing team, comprised of three (3) chapter members, two (2) of which are drivers.
- B. High school teams must enter a vehicle that contains a chassis frame that they have designed and/or manufactured. The chassis frame is the part of the vehicle to which all other parts are attached. This chassis frame submitted for competition must have been made during the current school year and may not be submitted in subsequent years. The team must provide a standard 3-ring notebook complete with an appropriately produced 8.5 inches by 11 inches technical drawing of their chassis frame, a typed or electronically produced technical report (a hand written report will not be accepted), pictures on 8.5

inches by 11 inches sheets of paper thoroughly documenting the making of the chassis frame and assembly of the vehicle, and a signed statement from the advisor verifying that the chassis frame and the notebook, with its contents, were created during the current school year.

NOTE: A team that does not submit a notebook, or submits a notebook that does not have all of the required previously mentioned content, will be disqualified from the race. The written report should be a thorough explanation of the vehicle, its parts, the manufacturing process of the chassis body, testing procedures, problems encountered, and solutions to the problems.

- C. Middle school teams must have assembled their vehicle during the current school year. If the vehicle was used in previous years and/or had been assembled in a previous year, the team must totally disassemble the vehicle and reassemble it again. The team must provide a standard 3-ring notebook complete with a typed or electronically produced report (a hand written report will not be accepted), pictures on 8.5 inches by 11 inches sheets of paper thoroughly documenting the disassembled parts and the team assembling the vehicle, as well as a signed statement from the advisor verifying that the team assembled the vehicle and completed the report and picture documentation during the current school year. NOTE: A team that does not submit a notebook, or submits a notebook that does not have all of the required previously mentioned content, will be disqualified from the race. The written report should be a thorough explanation of the vehicle, its parts, testing procedures, problems encountered, and solutions to the problems.
- D. Two of the team members must race in a qualifier heat. The best score of the two will be sorted for the mains race, and the final round will be determined. In the final round, the student who achieved the highest score must race to represent his/her team. Only one member from each team may qualify for the mains race. Note: Even though only the best score is used to determine the mains race, the score of both drivers is used to determine team points as indicated in section VII, C.
- E. Each team must have a minimum of two changeable radio channels, available for immediate change as needed. Only radio systems on 27 MHz bands (channels 1 through 6) or 75 MHz bands (channels 61 through 90) will be allowed for competition. Spektrum and DSM systems are permitted as well. In the event of radio conflicts in the mains, the lower qualifying racer must change his or her channel.
- F. Each team must supply the appropriate safety equipment and tools to install the motor. Participants must have been instructed in safety precautions (soldering, using flammable materials around soldering guns or pencils, etc.) by their advisor or teacher prior to the conference. Safety glasses must be worn during soldering operations. Participants observed soldering without safety glasses will be disqualified.
- G. The track configuration will be set up as determined by the race director and

may vary from year to year. The base of the track may be bare floor, carpet or other material as determined by the race director. The track may also be set up to include off-road type obstacles such as ramps or jumps, etc. If the track is set up with such obstacles, alternative routes will also be provided for teams without off-road type vehicles. However, these alternative routes may not necessarily be the same distance in length as the off-road route.

IV. PROCEDURES

- A. At a designated time, team members will report with their car, radio, and notebook to a place designated in the conference program to register and to declare their radio channels. The notebooks and chassis frames (High School only) will be judged and all vehicles will be checked to verify that they meet specifications and regulations. At a time specified in the conference booklet, team members will return to receive their motors. Any team that has not met the requirements of the vehicle and/or the notebook, will not be given motors. After a team member receives their motor, they must remain in the designated area until all members have received their motors. At that time all team members will be dismissed to their work areas and will have up to 30 minutes to install the motor in their vehicle.

NOTE: Only the three registered team members are permitted in the work areas – no advisors or other chapter members are permitted. When the time ends, all work on installing the motors must cease, and all vehicles must be taken immediately to an inspection and impound area. Vehicles will be inspected to determine if they are in running condition. Teams that have vehicles that are not in running condition at the inspection, will be disqualified from the race. Following their inspection, teams may sign up for a practice time if they have met all requirements.

- B. Practice will begin after the track has been set up and readied for competition. Radios will not be impounded at practice, but they may not leave the event hall area. Practice will be in controlled sessions, with teams signing up for five (5) minute time blocks based on frequency availability. Vehicles on the track will be limited to ten (10) or less for each time block based on the number of entries and the time the event hall is available. The purpose of the practice time is for each team to check out its car with the installed motor to be able to determine if adjustments in gearing, suspension, etc. needs to be made. The purpose of the practice time is not for racing. All radios will be impounded following the practice time. Each radio must be clearly marked with team identification and channel before impounding
- C. Teams will report at a time specified in the program for the race. Heats for the race will be set up by the race director, and the time and teams for each heat will be posted. At the start of the race, radios will be returned to assigned racers prior to the race in which they are competing. Just prior to each race, transponders will be issued to each driver in that race. Radios and

transponders must be returned to the impound area immediately following the end of their race.

NOTE: RADIOS MAY NOT BE TURNED ON BEFORE A RACE UNTIL THE RACE DIRECTOR HAS INDICATED TO DO SO. Members in violation of this rule, or who fail to return their radios to the impound area immediately after their race, subject themselves to disqualification.

- D. All team members must be present at the orientation prior to the start of the first qualifying heat. The race director may make revisions in certain procedures as he/she may deem necessary for certain conditions. Any revisions will be announced at the drivers' briefing and/or posted at a specified place at the conference site.
- E. Each of the two (2) designated drivers of each team will drive in one qualifying heat of four minutes duration. After the qualifying heats, lap sorting of each team's best qualifier/driver will take place and the top ten drivers in each level will be qualified for the mains. The qualifying driver must drive in the mains event. If, for some reason, a qualifying team or driver is unable to compete in the mains, the next qualifying team (11th place, etc.) will fill their place. The mains for each level will be two races with five drivers in each race. The mains event will be six (6) to eight (8) minutes in length and will require at least one task to be executed within the allotted time of their respective mains. At the conference, the race director will determine the length of the mains based on the assigned task(s) and the race director's inclinations. Examples of tasks may include, but not be limited to, a battery change, wheel changes, etc. The task(s) anticipated for the conference will be posted on the PA-TSA website by January of the current school year. The driver may not leave the driver area to assist the other members during the designated task(s). Teams that do not complete the task assigned in the mains will not have their laps counted and will not receive any of the mains points. A designated pull-off area (pit area) will be provided on the race course for pit stops. A vehicle may be repaired at any time during the qualifier or mains if it is necessary. The assigned task and repairs must be made in the designated "pit area" and the vehicle may not leave this area except to be replaced back on the track. Once the vehicle is repaired, it must be returned to the track in front of the "pit area". Only the other team members of the driver are permitted in the "pit area". Officials will be observing the "pit area". During the mains, an official will raise their hand indicating to the race director or score keeper that the team has completed the assigned task.
- F. Each team will be responsible for proper care and maintenance of their vehicle, including charging of batteries.
- G. Drivers from both levels may be mixed together in the preliminary heats, but each driver's results are recorded into their specific level. Each main will then be sorted by level so that drivers from the same level compete against each other in mains race.
- H. Following the last race of the mains, all teams shall immediately remove and return the motors supplied to them from PA-TSA in the same operating

condition as they received it. Failure to do so subjects themselves and/or their chapter to a reimbursement cost of \$40 payable to PA-TSA. Chapters that do not pay their reimbursement fee will not be permitted to register for the next conference until the fee is paid.

- I. Decisions of the event coordinator are final.

V. OTHER SPECIFIC RULES

A. General Rules

1. If a team member is disqualified, the team is disqualified.
2. Unruly or unsportsmanlike conduct will not be tolerated. Any team member in violation of this will be disqualified. Spectators judged to be in violation of this will be requested to leave the area.
3. Unsportsmanlike driving (intentional hitting of other vehicles, short coursing, etc.) is not permitted. Horseplay with a vehicle before, during or after a race also applies. Anyone doing so may be disqualified at the judgment of the race director.
4. Abusive, inappropriate language by any team member will result in disqualification.

B. Inspections

1. Inspections will be held prior to each race.
2. Vehicles will be inspected after each race. Vehicles may not be removed from the track until the inspection is over and/or directed to do so by the race director.
3. A driver who fails to submit the vehicle to inspection, anytime, will be disqualified.

C. Driving Rules

1. No vehicle is to be driven in the reverse direction of the track traffic at any time. A one lap penalty will be assessed to the driver doing so.
2. A driver must be careful not to hit the throttle when a turn marshal is handling the vehicle. (Remember, they are helping the driver who caused the need for the turn marshal to help).
3. A vehicle must finish the race under its own power. It may not be pushed across the finish line.
4. Vehicles may not be repaired on the track. They must be repaired in the "pit area".
5. The driver may not leave the driver's platform at any time during the race.

D. Turn Marshals

1. Drivers must be turn marshals for the race immediately following their own race. Failure to do so will result in the loss of one lap in their heat. Another chapter member may substitute, if necessary, but the original driver is responsible for the actions of the substitute. Drivers scheduled for the last heat must be turn marshals for the first heat.
2. Overturned or lodged vehicles are to be set back on the track at the spot of the mishap. Vehicles that accidentally exit the track are to be returned

to the track at the spot of the exit.

3. Vehicles in need of repair are to be set outside of the track nearest the spot of the trouble. The pit crew member must pick up the vehicle at that point and return it to the "pit area" for repairs. Pit crew members must go around the track, not across it, to pick up their vehicle. Once repaired, the vehicle must be returned to the track in front of the "pit area".
4. A vehicle on the track has the right of way over a vehicle that has gone off the track, overturned, or otherwise has problems.
5. Turn marshals must treat all vehicles equally.
6. Drivers, or their substitutes, are responsible for knowing the requirements of a turn marshal and to follow them appropriately.

E. General Technical Rules

1. Drive motors for the vehicles will be owned and distributed by PA-TSA. All vehicles must be able to accept these motors. Motors will be Trinity Snowbirds Handout 27 turn Stock Motor (or a comparable 27 turn handout motor), marked and easily identified. These motors may not be modified or changed in any manner except to be re-brushed and/or re-sprung to the student's desired specifications. Any other tampering with the motor will result in disqualification and the offender(s) will be charged a \$40 fee for replacement of the damaged product. For those teams wishing to practice work with a motor prior to the conference, the handout motor, which is not available for purchase, is similar to any standard 27 turn ROAR (Radio Operated Auto Racing) stock motor.
2. The vehicle must be a standard commercial model, built from a kit available through distributors and hobby dealers or a vehicle built from cannibalized parts from other vehicles. Suggested, but not limited to, manufacturers of vehicles are Team Associated, Team Losi, Traxxis, and Tamiya. The vehicle may not be a factory-assembled vehicle.
NOTE: High School teams must manufacture their own chassis frame, whether the vehicle is built from a kit, or from cannibalized parts.
3. All parts (except as otherwise noted) may come from a kit or parts vehicles.
4. All vehicles must race with a body. Bodies must be either of the commercially available type used for RC racing or constructed by the team. The body must be of Lexan or similar material and may have multiple pieces bonded or fastened together. Bodies must be removable, but properly secured. Rubber bands and wire-ties are not permitted to hold the body in place. Velcro securing is permitted.
5. If the body falls off during the race, the vehicle must be taken off the track to the "pit area" and refastened to resume the race. Bodies constructed of multiple pieces that come apart during the race, must be reconnected to resume the race.
6. The front most and the rear most part of the vehicle must contain a shock-absorbing bumper. Non-existent or non shock-absorbing bumpers are not permitted.
7. No sharp, protruding objects are permitted on vehicles, including wires

protruding from sway bar mounts.

8. Only commercially available tires and wheels may be used. Total tire diameter may not exceed 5.5 inches. Tires must be either rubber based or foam rubber compound. Tire traction compound is permitted, but only of the orange variety. Racer's Choice #7011 (TQ) and #7019 (TQ Plus) are currently the only ones allowed.
9. Overall width of the vehicle may not exceed 15 inches. Overall length of the vehicle may not exceed 24 inches. Overall height of the vehicle cannot exceed 8 inches at the topmost measurement (excludes antenna straw).
10. Minimum vehicle weight is 50 ounces without the transponder/scoring device.
11. The vehicle may be either two-wheel or four-wheel drive.
12. Only sub-C size batteries, either NiCad or NiMH composition, are approved for propulsion. The battery pack must be rated 7.2 volts, with any mah rating, and consisting of no more than 6 cells soldered in series. In addition to the propulsion pack, a receiver pack of AA batteries with no more than 5 cells in construction, will be permitted to power the radio system only.
13. Any resistor type or electronic speed control may be used in conjunction with the radio. Vehicles must have proportional control of the throttle and the steering in order to compete.
14. Any part of the vehicle, except the motor, may be customized as long as it does not violate any of the rules previously mentioned.

VI. REQUIRED EVENT PERSONNEL AND EQUIPMENT

A. Personnel

1. Event coordinator/chief judge (race director)
2. Appointed race officials (3) to assist with distribution of motors, to monitor their installation, perform inspections, and to assist in the race coordination. An additional 2 officials are needed for preliminary heats. A total of eight officials are need for the mains.

B. Materials and Equipment

1. Motors
2. Brushes and springs
3. Check-in, evaluation, and racing forms
4. Race scoring system – automatic AMB scoring using transponders
5. Scale for weighing vehicles
6. Template box with inside dimensions of 15 inches by 24 inches by 8 inches deep for determining vehicle size
7. Track and track partitioning accessories.

VII. EVALUATION

- A. Up to 20 points will be awarded for quality and thoroughness of the submitted work in the notebook. Note: The notebook contents become the property of

PA-TSA and will not be returned.

- B. Up to 15 points will be awarded for the craftsmanship and design of the chassis frame (high school only).
- C. After the preliminary heats, the number of laps recorded for each team member will be added together. Each team's number of laps will be divided by the highest number of laps scored in the preliminary heats, then multiplied by 30 to determine their points earned. Maximum points possible in the preliminary heats are 30.
- D. After the mains, the number of laps recorded for each team will be divided by the highest number of laps scored in the mains, then multiplied by 35. Maximum points possible in the mains is 35.
- E. Any ties in final points will be broken by the teams' place in the final or preliminary race, whichever needs to be used.
- F. Disqualification will result from the following:
 - 1. Any previously mentioned reason for disqualification
 - 2. Failure to meet time limitations, procedures, regulations or rules.
 - 3. Having a vehicle deemed to be unsafe by the race director.

PA-TSA RC VEHICLE

ADVISOR VERIFICATION STATEMENT

Middle School

(THIS FORM MUST BE INCLUDED IN THE NOTEBOOK)

By my signature, I am verifying the PA-TSA RC VEHICLE team of our school's TSA chapter:

(a) has totally assembled our vehicle and completed the report and picture documentation during the current school year;

and

(b) has been instructed in safety precautions, especially in the use of soldering guns/pencils, when working on this vehicle.

Advisor's Signature

PA-TSA RC VEHICLE

ADVISOR VERIFICATION STATEMENT High School

(THIS FORM MUST BE INCLUDED IN THE NOTEBOOK)

By my signature, I am verifying the PA-TSA RC VEHICLE team of our school's TSA chapter:

(a) has manufactured the chassis frame of our vehicle during the current school year;

and

(b) has completed the technical drawing, report, and picture documentation during the current school year;

and

(c) has been instructed in safety precautions, especially in the use of soldering guns/pencils, when working on this vehicle.

Advisor's Signature

PA-TSA RADIO CONTROL TRANSPORTATION

OFFICIAL RATING FORM

LEVEL: MS or HS *(circle one)*

<p>ENTRANT'S ID</p> <p>EVALUATION CRITERIA</p>									
<p>NOTEBOOK 20 points maximum Written Report..... 10 points Explanation of Vehicle and Parts.....3 points Assembly (MS and HS) and Manufacturing Process of Chassis (HS only).....3 points Testing Procedures.....2 points Problems Encountered, Solutions to Problems and Overall Review.....2 points Picture Documentation..... 10 points</p>									
<p>CHASSIS FRAME 25 points maximum <i>(high school only)</i> Technical Drawing 10 points Craftsmanship 15 points</p>									
<p>PRELIMINARY HEATS..... 25 points maximum Add the number of laps in the preliminary heats of each of the drivers together, then divide by the highest number of laps recorded by two drivers, then multiply by 25.</p>									
<p>MAINS 30 points maximum Divide the number of laps the driver achieved in the mains by the highest number of laps recorded in the mains, then multiply by 30.</p>									
<p>Total 100 points maximum</p>									

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

Evaluator's Signature _____



PA-TSA SAFETY ILLUSTRATION

COMPUTER GENERATED

Middle School and High School

Revised: July 2009

I. OVERVIEW

The Safety Illustration event is designed to encourage members' attention to the promotion of safety and safety practices when using any form of technology.

II. PURPOSE

- A. The purpose of the Safety Illustration event is to provide a means for TSA members to demonstrate their ability to recognize safety needs and safety practices when using all forms of technology, traditional or high tech.

III. ELIGIBILITY FOR ENTRY

- A. Entries are limited to one individual entry per chapter.

IV. SPECIFIC REGULATIONS

- A. The poster is to be an original work, not using copyrighted computer graphics.
- B. The illustration will depict a safety procedure/concept that relates to the theme "Safety First when using Technology". The theme does not need to appear on the illustration, but should be used as a guide in selecting an appropriate idea for the entry.
- C. The illustration must be on 8.5" x 14" paper, mounted to illustration board, or foam board. Any poster not following this rule will be disqualified.
- D. Mounting board **MUST** be 8.5" x 14".
- E. Any use of copyrighted or registered artwork in the design is prohibited.
- F. A one page word processed report documenting the design should be attached to the back of the poster. The documentation shall include an explanation of the design process used to create the poster. It should also include how the theme influenced the poster's design.
- G. The illustration must be a flat, two dimensional design. Attaching of a second party original graphic or text is acceptable as long as it remains flat and two dimensional, with the second party work sited in the documentation.

V. PROCEDURE

- A. Registration must be done for the event in accordance with the procedures established for the conference.

- B. The illustration must be entered during the assigned event entry time. Late entries will not be accepted.

VI. REQUIRED EVENT PERSONNEL AND EQUIPMENT

- A. Event coordinator to check in and position entries.
- B. Three judges per level.
- C. Display area for viewing and judging entries.

PA-TSA SAFETY ILLUSTRATION: Computer Generated

OFFICIAL RATING FORM

LEVEL: MS or HS *(circle one)*

ENTRANT'S ID																			
Eye Appeal 20 points maximum																			
Content..... 20 points maximum																			
Creativity..... 20 points maximum																			
Neatness 10 points maximum																			
Layout / Organization 10 points maximum																			
Documentation 20 points maximum																			
Subtotal																			
Rules Violation..... MINUS 20 points																			
Total 100 points maximum																			

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

Evaluator's Signature

Printed Name