

# PA-TSA Competitive Events

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## 2026



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## OVERVIEW

Students will design and build remote-controlled robots (Bots) to face off in a gladiator-style competition. Through the manufacturing process of Bot building, students' imaginations are captured as they design, build, and compete with their robotic creations. Through this hands-on effort, students gain practical knowledge of Science, Technology, Engineering, and Math (STEM) – all essential skills for manufacturing careers.

## ELIGIBILITY

Students will compete as a team in this event. Please reference the [Event Matrix](#) for maximum entries.

## ATTIRE

TSA competition attire is required.

## PREPARATION

- A. Teams are required to submit their documentation by the published due date.
- B. Judges will use contest rubrics to determine final results.

## TIME LIMITS

- A. Entries must be started and completed during the current school year.
- B. Teams will need to schedule a safety inspection time during the Bot check-in and pit table setup. Teams should try to avoid other event conflicts since the fight bracket will determine when teams will need to be available to perform and repair their Bots.
- C. Teams will have up to 20 minutes to make repairs between bouts.

## REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21st-century skills in the process of preparing for and participating in this Pennsylvania TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication about the entry. Competitors in this event cannot move on to the National TSA conference in this event, as it is state-only.

## PROCEDURE

- A. Only registered team members are permitted to check in, prepare, and demonstrate their Bot.
- B. All Bots, controllers, batteries, accessories, and engineering documents on a USB flash drive will be collected at a time and place indicated in the conference program.
- C. When the tournament begins, the pit area is accessible only to judges and the registered team members.
- D. Bot matches will be 2 minutes in length unless they end early due to a knockout or tap-out.
- E. A spectator area will be set up for viewing.

## REGULATIONS

### 1.0 General Information

#### 1.1 Teams

A team is defined by its name and its affiliated TSA Chapter. A team of 2-6 students is required.

## 1.2 Competition

Only the following winners will be recognized at the annual competition: First, Second, Third place, and finalists. Additional awards such as Best Engineered, Best Documentation, and Coolest Bot *may be* presented at the PA-TSA State Conference.

## 1.3 Resolving Problems

If any issues need to be resolved, they should be brought to the attention of Kirk Marshall – [kmarshall@bloomsd.k12.pa.us](mailto:kmarshall@bloomsd.k12.pa.us)

## 2.0 Registration Requirements

### 2.1 Eligibility

To be eligible to compete, teams must be registered for the PA-TSA Conference.

### 2.2 Documentation

Documentation is used to explain the Bot design and manufacturing processes used to create the Bot. The documentation should include all items listed in the PA-TSA Documentation Details available on the PA-TSA Resource Page. Documentation must be submitted by the deadline. A team that fails to provide documentation for its bot is not eligible to compete in the Bot Tournament.

## 3.0 Bot Modifications

### 3.1 Weight

The Bot must weigh 3 lbs or less to compete in the Battling Bots Competition.

### 3.2 Robot Name, Modifications & Personalization

Teams may personalize the Bot by way of surface decoration. Paint and flat sticker type décor is permitted. Function and safety must not be affected. Team/robot logos are encouraged, but not mandatory. **The Bot name must appear on the robot in at least .5” high letters (48 pt font). All designs must be school- appropriate.**

### 3.3 Mobility

All robots must have easily visible and controlled mobility to compete. Methods of mobility include:

- Rolling (wheels, tracks, or the whole robot)
- Non-wheeled: non-wheeled robots have no rolling elements in contact with the floor and no continuous rolling or cam-operated motion in contact with the floor, either directly or via a linkage. Motion is “continuous” if continuous operation of the drive motor(s) produces continuous motion of the robot. Linear-actuated legs and novel non-wheeled drive systems may qualify for this bonus. **There is a 100% weight bonus for non-wheeled robots.**
- Shuffling (rotational cam operated legs) **50% weight bonus**
- Ground effect air cushions (hovercrafts) **50% weight bonus**

### 3.4 MiniBot Control Requirements:

- The primary control and fail-safe communications to a Bot have to be via a remote radio link. *Tethered control is specifically not allowed.*
- A Bot may be controlled by a **maximum** of two Operators/Drivers **per Bot.**
- A Bot must have a robust **radio fail-safe** that shuts off all motion-system and weapons power within one second after the remote-control transmitter is switched off, or

otherwise stops transmitting. This fail-safe is required in addition to the Master Switch requirements.

- Binary (on/off) movement speed control is not allowed. Any control of the Bot speed along the ground has to be continuously variable in both forward and reverse directions.
- Any capacitors or electrical storage devices used in the system must be capable of being safely discharged without putting the students at risk after each match as part of the deactivation procedure.

### 3.5 Autonomous/Semi-Autonomous Robots:

Any robot that moves seeks a target, or activates weapons without human control is considered autonomous. If your robot has autonomous features, contact the event organizer.

Autonomous robots must have a visible light for each autonomous subsystem that indicates whether or not it is in autonomous mode, e.g. if your robot has two autonomous weapons it should have two “autonomous mode” lights (*this is separate from any power or radio indicator lights used*).

The autonomous functionality of a robot must have the capability of being remotely armed and disarmed. (This does not include internal sensors, drive gyros, or closed-loop motor controls.) While disarmed, all autonomous functions must also be disabled.

When activated the robot must have no autonomous functions enabled, and all autonomous functions must fail-safe to off if there is a loss of power or radio signal.

In case of damage to components that remotely disarm the robot, the robot’s autonomous functions are required to automatically disarm within one minute of the match length time after being armed.

### 3.6 Batteries and Power

The only permitted batteries cannot spill or spray any of their contents when damaged or inverted. **Examples of batteries that are permitted:** are gel cells, NiCads, NiMh, dry cells (9V), LiFe, AGM, Lilon, LiFe, and LiPoly. If your design uses a new type of battery or one you are not sure about, please contact event organizers. ***Any team using LiPoly batteries is required to use Fire Retardant Lipo Charging Bags.***

All electrical power to weapons and drive systems must have a manual disconnect that can be activated within 15 seconds without endangering the person turning it off. (E.g. No body parts in the way of weapons or pinch points.) Shut down must include a manually operated mechanical method of disconnecting the main battery power, such as a switch (Whyachi, FingerTech, etc.) or removable link.

All efforts must be made to protect battery terminals from a direct short and causing a battery fire.

**Batteries must be available for inspection and must have markings from the manufacturer that identify the type of battery.** If such markings are not possible, be prepared to show another form of proof that your battery is allowed. I.E. vendor receipt, etc.

### 3.7 Pneumatics

Robots in this competition are **NOT** allowed to use pneumatics.

### 3.8 Hydraulics

Robots in this competition are **NOT** allowed to use hydraulics.

### 3.9. Internal Combustion Engines (ICE) and liquid fuels

Robots in this competition are **NOT** allowed to use ICE.

### 3.10 Rotational weapons or full-body spinning

Spinning weapons must come to a full stop within **30 seconds** of the power being removed.

### 3.11 Springs and Flywheels

Springs used in Bots will use the remaining rules in this section. Safe operation, good engineering, and best practices must be used in all systems. Any springs used for drive or weapon power must have a way of loading and actuating the spring remotely under the robot's power.

Springs used for active weapons must not be loaded when the robot is out of the arena or testing area.

***Springs used within switches or other internal operations are exempt from this rule.***

Any flywheel or similar kinetic energy-storing device must not be spinning or storing energy in any way unless inside the arena or testing area.

All springs, flywheels, and similar kinetic energy-storing devices must fail to a safe position on loss of radio contact or power.

### 3.12 Forbidden Weapons and Materials

The following weapons and materials are forbidden from use:

- Weapons designed to cause invisible damage to the other robot. This includes but is not limited to:
  - Electrical weapons
  - RF jamming equipment, etc.
  - EMF fields from permanent or electro-magnets that affect another robot's electronics.
- Weapons or defenses that stop combat completely of both (or more) Bots. This includes nets, tapes, strings, and other entanglement devices.
- Weapons or defenses that require significant cleanup, or in some way damage the arena to require repair for further matches. This includes but is not limited to:
  - Liquid weapons. Additionally, a bot may not have a liquid that can spill out when the robot is superficially damaged.
  - Foams and liquefied gasses.
  - Powders, sand, ball bearings, and other dry chaff weapons.
  - Un-tethered Projectiles (see tethered projectile description in Special Weapons section)
  - Foam or other "sheading" ablative armor.
- Heat and fire are forbidden as weapons.
- Light and smoke-based weapons that impair the viewing of Bots by an Entrant, Judge, Official, or Viewer. This includes, but is not limited to the following:
  - Smoke weapons are not specifically allowed in the Special Weapons section.

o Lights such as external lasers above 'class I' and bright strobe lights may blind the opponent.

- Hazardous or dangerous materials are forbidden from use anywhere on a robot where they may contact humans, or by way of the Bot being damaged.

### **3.13 Special Weapons allowed:**

Tethered Projectiles are allowed, but must be no longer than 3 feet and may not cause entanglement.

## **4.0 Safety Rules**

### **4.1 Safety Glasses**

Safety glasses must be worn at all times when in the arena area when your bot is competing. Standard prescription glasses do not count as safety glasses. Prescription safety glasses or safety glasses designed to fit over prescription lenses are acceptable. This rule also applies to coaches and advisors. Safety is the responsibility of everyone. Noncompliance could result in disqualification.

#### **All safety offenses will be handled as follows:**

- (1) The first safety offense from any member of a team will result in a warning.
- (2) The second offense from any member of that same team will result in a 10-second controller impoundment at the beginning of your next match. This means your opponent will be able to attack your immobile Bot in the next match.
- (3) Violations stack so if a team has 3 infractions between matches the impoundment period would be 20 seconds.
- (4) After the penalty is assessed, the team starts over meaning the next offense results in a 10-second impoundment during the next match. No additional warnings will be given.

### **4.2 Bot on Blocks**

All Bots not in an arena or official testing area must be raised or blocked up in a manner so that their wheels or legs cannot cause movement if the Bot is accidentally turned on. Bots and weapons can only be operated in an approved safety arena.

### **4.3 Pit Area Restrictions**

Only team members are allowed in the pit area.

### **4.4 Clothing**

Everyone in the pit area is required to wear appropriate clothing, including long pants and closed-toed shoes. Long hair must be tied back and dangling jewelry is not permitted. Students, teachers, or advisors without appropriate clothing will be escorted from the pit area.

### **4.5 Advisor Supervision**

When any team member is working on a Bot, a supervising advisor or event coordinator needs to be present.

### **4.6 Bot Testing**

All Bot drive and weapon tests need to be performed in a test box, or arena, and NOT the pit area. Bots and controllers must **NOT** be turned on in the pit area. When placing a bot in the competition arena, the controller and Bot (with safety equipment engaged) are to be placed within the arena until direction is given by the event official.

#### **4.7 Bot Transportation**

Any Bot being transported outside the pit area must have weapon restraints in place, they must be completely deactivated and transported with all sharp edges covered.

#### **4.8 Weapons**

Under no circumstance may any body part be placed in the path of a weapon or other moveable bot part, including during installation, activation, deactivation, or removal of any safety device. A bot may never be picked up or carried by its weapon.

#### **4.9 Weapon Restraints**

Weapons must always be restrained unless the Bot is in the test box or in the arena. The restraints will only be removed once the Bot has powered up successfully. Weapon restraints must be able to prevent the motion of the weapon.

#### **4.10 Safety Inspector**

Each competition will have a Lead Safety Inspector. This person will be responsible for the inspection of each bot. This person will be the main contact for any safety-related questions or comments.

#### **4.11 Inspection**

Each Bot must pass a visual and functional inspection before competing. Inspection sheets outline this safety inspection procedure.

#### **4.13 Right to Inspect/Disqualify**

Event organizers reserve the right to inspect/disqualify your bot at any time during the competition. Any additions or changes to the bot must be re-inspected before competing, as well as after any significant damage during a match. If an event official feels a Bot is unsafe for any reason and it cannot be made safe, it will be disqualified and not allowed to compete.

#### **4.14 Match Weigh-In**

All bots will be weighed at the beginning of the competition and must meet the required weight parameters throughout the tournament. **Multi-Bots do NOT receive a weight bonus.**

#### **4.15 Building Cautions**

Combat Bot systems can be dangerous if not designed, constructed, and tested properly. Damage during matches can render the bot unsafe. It is ultimately the responsibility of the bot supervisor to ensure the safety of their systems.

### **5.0 Matches**

#### **5.1 Match Length**

Each match will be 2 minutes long unless a Bot is knocked out or a team taps out.

#### **5.2 Tournament Placement**

The placement of your Bot in the tournament brackets will be random. Minor adjustments may be made to ensure teams from the same school do not compete against each other in the first round.

### **5.3 Judging**

Matches are judged on two criteria: aggression and control. If the match lasts for the entire 2 minutes, the judges will decide the winner. The winner will be the Bot with the judges' majority votes. There are three judges, each judge is entitled to one vote. Judges will be using a scoring card to track the match. All judges must attend training before participating in a competition or have previously served as a participant or Judge.

### **5.4 Bot Unstuck Rule**

Each Bot is allowed one release during the match; this means if your Bot is stuck on the floor or under an arena rail or otherwise immobilized, the referee will stop the match, release the Bot without changing its position, and then restart the match. If both competing teams' Bots are stuck on each other, they will be released as often as needed without changing the Bot's position.

### **5.5 Bot Pinning**

If a Bot pins or traps the other Bot, they must release it after the referee counts 10 seconds.

### **5.6. Bot Unable to Move**

If a Bot is unable to move during the match, the referee will start a 10-second countdown. If that Bot cannot move by the end of the countdown, it will be considered a loss, and the other Bot will be the winner of the match. The referee will decide whether the Bot shows sufficient movement. In the case of Multi-Bots, this is true if it is the "primary" MiniBot. If it is not the "primary" Bot, the match continues, and there is not a countdown. If both Bots are unable to move after the 10-second countdown, the judges will determine the winner of the match.

### **5.7 Tap Out**

If a team wishes to stop the match at any time, they may loudly declare "Tap Out." This will be an automatic loss for that Bot. The other team will not be allowed to attack them after they have declared a "Tap Out."

### **5.8 Double Elimination**

The standard competition will be a double-elimination tournament. Tournament variations might occur depending on the number of robots registered.

## **6.0 Radio Control**

### **6.1 Controller**

The PA-TSA recommends using a 2.4GHz type transmitter such as the Spektrum DSMX, due to the corresponding receivers having SmartFail Technology. If a team is utilizing a different transmitter system for the competition, the system must meet the fail-safe protection requirements.

## **7.0 Rules Enforcement**

### **7.1 Rules Compliance**

In all matters of compliance with the Rules, and any applicable civil or criminal laws, the event organizers and their officials reserve the right to penalize, or disqualify a Bot, or to warn or, expel any team or individual from the competition.

### **7.2 Expelled Individual**

If an individual is expelled, they must leave the event room location.



### 7.3 Expelled Team

If an entire team is expelled, they will be asked to leave the event room location. They will also need to clear their pit table.

### 7.4 Disqualification/Rules Enforcement

The Judge's decision on a match is final. Disqualification due to an intentional safety violation is final. Disqualification due to failure to obey an event official's instruction is final.

## EVALUATION

### PA-TSA Battling Bots - Engineering Documentation requirements

- A. Check the PA-TSA website for the current scoring rubric.
- B. Engineering Documentation must be submitted in a PDF format at the time of event drop-off.
- C. Engineering Documentation MUST include:
  1. Cover Sheet that includes: Robot Name, Team ID #, Conference Information, and Date. (1 page)
  2. Design Research – provide information on similar robots and what important features you are including in your Bot design. (3 page max)
  3. Material Management – Bill of Materials showing all parts used, what parts were purchased, what parts were manufactured, and what parts were machined by outside vendors. (3 page max)
  4. Machining Processes – Explain the machining methods used to manufacture your Bot. **Bonus points are awarded for a variety of machining methods.** (ie: CNC, Manual Milling, 3D printing) (3 page max)
  5. Material Selection – List what materials were used and why those materials were selected. (2 page max)
  6. Wiring Schematic – Drawing or CAD drawing of the electrical wiring for the Bot. (2 page max)
  7. CAD Models – Include dimensioned CAD drawing of all manufactured parts and assembly drawings of the full robot; optional – additional assembly drawings of robot sub-systems. i.e. Drive system, Weapon system, Electrical system (unlimited pages)
  8. Robot Revisions – List any issues or modifications that were made during the design and manufacture of your Bot. (2 page max)

### PA-TSA Battling Bots - Robot Function Test – Tournament Results

1. Robots will compete in a double-elimination bracket. Points will be awarded for wins (1pt), KO's (3pts), and opponent Tap Outs (2pts).
2. Additional points will be awarded for 1<sup>st</sup> place (10pts), 2<sup>nd</sup> place (5pts) and 3<sup>rd</sup> place (3pts).

## STEM INTEGRATION

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

## SCORING

Scoring and placement will be based on the sum of the scores of the official scoring rubric. The Tournament points will be worth 75% of the total points awarded and that total will be added to the Engineering Documentation which will account for 25% of the total points awarded. *Any rule violation that results in a Point deduction will be subtracted from the total points.*

## OFFICIAL RATING FORM

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned (Example: an “adequate” score of 7 for an X1 criterion = 7 points; an “adequate” score of 7 for an X2 criterion = 14 points). A score of zero (0) points is acceptable if the minimal performance for any criterion is not met.

## REQUIREMENTS NEEDED FOR PARTICIPATION

- Engineering Document submitted
- Bot PASSED Safety Inspection
- Weapon Restraint is present if the Bot has a weapon
- Safety Glasses for all team members
- 2.4GHz type Radio system
- Bot weighs UNDER 3lbs
- Battery Type - Approved
- 2 – 6 Team members present for the tournament.
- The robot's name is on the Bot.

ENGINEERING DOCUMENT (25% of Total Score) Criteria	Minimal Performance 1 – 4 points	Adequate Performance 5 – 8 points	Exemplary performance 9 – 10 points	Score
Cover Sheet (X1)				
Design Research (X1)				
Material Management (X1)				
Machining Processes (X2) Bonus if 4 or more processes are used (1 – 5 bonus pts)				
Material Selection (X1)				
Wiring Schematic (X1)				
CAD Models (X2)				
Robot Revisions (X1)				
DOCUMENT SUBTOTAL (100pts) + 5pts bonus				25% of Total Score
<b>ROBOT FUNCTION TEST – TOURNAMENT RESULTS (75% of Total Score)</b>				
Win – Judges Decision _____ x 1pts =	Opponent Tap Out _____ x 2pts =	Knock Out _____ x 3pts =	<b>Bout Points</b>	
First Place Finish +10 Pts	Second Place Finish +5 Pts.	Third Place Finish +3 Pts.	<b>Place Winner Points</b>	
			75% of the Total Score	
		Rule Deduction -20pts		



## **OVERVIEW**

Applying leadership and 21st-century skills, participants respond to a cybersecurity challenge by identifying a breach in computer security via "Capture the Flag" games. Areas of challenge might include exploit development, digital puzzles, cryptography, reverse engineering, binary analysis, mobile security, etc. Participants must accurately address a series of on-site problems within a specified, limited amount of time.

## **ELIGIBILITY**

Students will compete as a team in this event. Please reference the [Event Matrix](#) for maximum entries.

## **TIME LIMITS**

- A. Participants are required to attend the orientation meeting before receiving access to the challenges.
- B. Forty-eight (48) hours, beginning at the event orientation meeting, are allowed to complete the online preliminary challenge.

## **PROCEDURE**

### **ON-SITE CHALLENGE**

- A. Participants report to the event area at the time and place stated in the conference program to attend the mandatory orientation session.
- B. Participants receive information about the event specifics.
- C. Participants provide their computer hardware, including applicable software to solve challenges (e.g. NetCat or Putty).
- D. Teams have forty-eight (48) hours from the designated start time announced during the informational session to complete the online challenge.
- E. Teams that do not attend the informational session will not receive additional time and will need to meet with the Event Coordinator of the event to participate.
- F. For website support, teams shall contact the Event Coordinator or manager.
- G. Solutions are scored in real-time and results are posted on an online scoreboard. The URL is provided on-site.
- H. The top ten (10) finalists are announced at the awards ceremony.

## **REGULATIONS AND REQUIREMENTS**

Students will work to develop their leadership and 21st-century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication about the entry.

- A. Participants should concentrate their efforts before the competition on researching, understanding, and practicing all aspects of cybersecurity. Please refer to the sample challenge topics listed below and the resources on the TSA website.
- B. Materials:
  - 1. Teams are responsible for providing:
    - a. Computer(s), including applicable software to solve challenges
    - b. One (1) or two (2) auxiliary monitors, optional
    - c. One (1) Power strip, optional

- C. Teams may receive online hints on the platform throughout the competition but are not given the solution by organizers.
- D. Teams are not to share solutions between teams, but they may communicate with their team members. The sharing of information between teams will result in automatic disqualification.

### **SAMPLE CHALLENGE TOPICS**

This list serves only as an example of challenge categories.

#### **A. Web Security**

1. The Web Security category often features custom-developed web applications which include some web security flaws that must be identified and exploited. Very often SQL injection, command injection, directory traversal, and XSS vulnerabilities are introduced and exploited in these categories.
2. Examples:
  - a. Exploiting poor security controls in a website as a regular user to gain higher-level access.
  - b. Exploiting poor security practices in a website to read arbitrary data from the vulnerable server.
  - c. Exploiting a SQL injection vulnerability to extract the content of an intentionally vulnerable server.

#### **B. Forensics**

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

#### **C. Cryptography**

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

#### **D. Reverse Engineering**

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

## **ADVANCED SAMPLE TOPICS**

This list serves only as an example of challenge categories.

### **A. Binary Exploitation**

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

## **EVALUATION**

- A. The successful completion of the problems, including the time in which it takes teams to complete each challenge.

Refer to the official rating form for more information.

## **STEM INTEGRATION**

Depending upon the subject of the problem, this event may align with the STEM (Science, Technology, Engineering, and Mathematics) educational standards.

## **LEADERSHIP AND 21ST CENTURY SKILLS DEVELOPMENT**

This event provides an opportunity for students to build and develop leadership and 21st-century skills including but not limited to:

- Communication
- Collaboration/Social Skills
- Initiative
- Problem Solving/Risk Taking
- Critical Thinking
- Perseverance/Grit
- Creativity
- Relationship Building/Teamwork
- Dependability/Integrity
- Flexibility/Adaptability

## **CAREERS RELATED TO THIS EVENT**

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

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

## OFFICIAL RATING FORM

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

### Go/No Go Specifications

- Before judging the entry, ensure that the items below are present, indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

☐ Computer hardware is present

☐ ENTRY NOT EVALUATED

### Cybersecurity Challenge (100 points)

Record the completed score & time for the online preliminary problems.

Team A Score:		Team B Score:		
Time (Needed for tie-breakers):		Time (Needed for tie-breakers):		

**Subtotal (100 points)**

Rules violations (deductions of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, & manager of the event. Record the deduction in the space to the right.

Indicate the rule violated:

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

**Total (100 points)**

Comments:

## **Cybersecurity Event Coordinator Instruction**

### **PERSONNEL**

- A. Event coordinator
- B. Assistants for set-up and clean-up, two (2) or more

### **MATERIALS**

- A. Coordinator's packet, containing:
  - 1. Event guidelines, one (1) copy for the coordinator
  - 2. TSA Event Coordinator Report
  - 3. List of assistants
- B. Tables and chairs for participant orientation session
- C. A copy protocol for the online management materials/ on-site equipment as needed
- D. Adequate conditions, tools, materials, monitoring, and testing devices for the problem

### **RESPONSIBILITIES**

#### **AT THE CONFERENCE**

- A. Attend the mandatory coordinator's meeting at the designated time and location.
- B. Report to the CRC room and check the contents of the coordinator's packet.
- C. Review the event guidelines and check to see that enough evaluators and assistants have been scheduled.
- 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 to begin, meet with evaluators to review time limits, procedures, regulations, evaluation, and any other details about the event. If questions arise that cannot be answered, speak to the event manager before the event begins.

#### **ON-SITE CHALLENGE**

- A. Begin the event at the scheduled time by closing the doors and checking the entry list.
- B. All participants and evaluators should be in the room at this time
- C. Participants not present for the orientation must have the approval of the CRC to participate.
- D. Once teams are seated and general announcements have been given, distribute and review the procedure.
- E. Check and post the online progress throughout the preliminary event via the scoreboard.
- F. After the designated time of forty-eight (48) hours has elapsed, the challenge site becomes unavailable.
- G. Submit the finalist results and all related forms in the results envelope to the CRC room.

### **SUPPORT**

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

# PA-TSA DIGITAL VIDEO CHALLENGE

Middle School



## OVERVIEW

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

## ELIGIBILITY

Students will compete as a team in this event. Please reference the [Event Matrix](#) for maximum entries.

## ATTIRE

Business Casual TSA attire (category C) as described in the PA-TSA dress code is the minimum requirement for the event.

## REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21<sup>st</sup>-century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication about the entry.

### A. The Video Design Challenge

1. On the challenge date and time, the design problem will be made available to participants.
2. Time starts when the challenge is released on-site.
3. Participants are permitted twenty-four (24) hours from the start time to complete and submit the entire sixty (60) second production.
4. A deduction of five (5) points will be incurred for exceeding the time limit.
5. All video footage must be an original creation of the participants and must be completed during the event timeline. Where applicable, all ideas, images, and sounds from other sources must be cited. Copyrighted materials may not be used.

NOTE: Failure to follow this procedure results in disqualification.

6. Photo Consent forms are not required for this event as all work will be done on-site and participants are covered by conference participation forms.
7. Participants must complete the Student Copyright Checklist (see Forms Appendix on the TSA website) and save it as a multi-page PDF to be submitted electronically with the entry online.
  - a. Failure to include the Student Copyright Checklist will result in disqualification.

### B. The Documentation Portfolio

1. The portfolio must include the following pages in a single, multi-page PDF document in this order:
  - a. Title page with the event title, the conference city, and state, the year, and the team/individual chapter ID number(s); one (1) page
  - b. Table of contents; pages as needed
  - c. Video script; pages as needed
  - d. Storyboard; pages as needed
  - e. Student Copyright Checklist; pages as needed

### C. Submission

1. Participants submit a multi-page PDF of the documentation portfolio.
2. Participants submit a URL link to the video. Participants may choose any video hosting site, such as an UNLISTED YouTube URL of the video, as long as the video is located online and accessible for evaluation.
3. Submission information will be provided on the PA-TSA website.



- 4. Entries received, or changes made to submitted entries, after the deadline, will not be judged.
- D. Judges score the entries.
- E. The top ten (10) finalists will be announced at the awards ceremony, as well as via the PA-TSA website.

## **EVALUATION**

- A. The video production
- B. The documentation portfolio

Refer to the official rating form for more information.

## OFFICIAL RATING FORM

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned (Example: an “adequate” score of 7 for an X1 criterion = 7 points; an “adequate” score of 7 for an X2 criterion = 14 points). A score of zero (0) points is acceptable if the minimal performance for any criterion is not met.

### Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a checkmark in the box.
- If an item is missing, leave the box next to the item blank and place a checkmark in the box labeled ENTRY NOT EVALUATED.
- If a checkmark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

- ☐ Video production was submitted
- ☐ PDF of the documentation portfolio was submitted
- ☐ ENTRY NOT EVALUATED

VIDEO PRODUCTION (90 points)				Record scores in the column
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
<b>Camera Handling</b> (X1)	Serious problems with focus, steadiness, and framing are evident	Most shots are focused and framed, with adequate close-ups included	Steady and creative shots that enhance the video are utilized, and excellent close-ups are included	
<b>Lighting</b> (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.	
<b>Audio</b> (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 a good signal-to-noise ratio, displaying skillful microphone choice, placement, and technique.	
<b>Continuity and Pacing</b> (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	Shots logically pace the story along in an interesting way, with excellent and	

		moderate use of transitions.	purposeful use of transitions.	
<b>Aesthetics and Artisanship (X1)</b>	The work is unorganized and sloppy	The work provides an organized and logical presentation of essential issues.	The work provides an exemplary use of layout and design principles to logically communicate important data.	
<b>Video Effectiveness (X2)</b>	The video does not meet project goals/theme, presents an unclear message, and/or is sloppy overall; leadership and/or 21 <sup>st</sup> -century skills are not evident.	The video topic is presented with insights; the video adequately meets the objective/theme; leadership and/or 21 <sup>st</sup> -century skills are somewhat evident.	The video is focused on the objective/theme, with a rich variety of supporting material; leadership and/or 21 <sup>st</sup> -century skills are evident.	
<b>Portfolio (X1)</b>	The portfolio is unorganized and/or missing three (3) or more components	The portfolio has most components and it is somewhat organized	All components are included in the portfolio; content and organization are evident	
<b>VIDEO PRODUCTION SUBTOTAL (90 points)</b>				
Rules violation (a deduction of 20% of the total possible points for the above sections must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated _____)				
A 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.				
<b>To arrive at the TOTAL score, add any subtotals and subtract rule violation points, as necessary.</b>			<b>TOTAL (90 points)</b>	

## PA-TSA LOGO DESIGN

Middle and High School



### OVERVIEW

PA Logo Design is a **screen-printing event** that utilizes an area of screen mesh blocked off with a non-permeable material to form a stencil creating a negative of the image to be printed; that is, the open spaces are where the ink will appear when printed. Transfers and Direct to Garment (DTG) printing IS NOT PERMITTED, ***nor is purchasing a screen print from a third-party vendor***. This contest requires the student to create promotional logo designs to be utilized for 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.).

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

### ELIGIBILITY

Students will compete as individuals in this event. Please reference the [Event Matrix](#) for maximum entries.

### ATTIRE

Business Casual TSA attire (category C) as described in the PA-TSA dress code is the minimum requirement for the event.

### REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21<sup>st</sup>-century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication about the entry.

#### A. The Designs

##### 1. Design should include but are not limited to:

- The next year's TSA theme. The theme is typically released in November of the previous school year. Example: 2027 Theme is released in November 2025.
- The TSA logo
- The year (example: 2023)
- The words "Pennsylvania Technology Student Association" or "Pennsylvania TSA" or "PA-TSA".

##### 2. Designs must NOT include the PA-TSA State Conference date(s) or the words Seven Springs Mountain Resort.

##### 3. T-shirt Design

- Only the back of the shirt should be screen-printed. The design should be a maximum size of 11" x 17".
- The entry should be a multi-colored product with 2-3 colors of ink.
- The entry must include 25 test prints on paper or other screenprinting substrate.

##### 4. Webpage Header Design

- The design should be a re-layout of the t-shirt design to fit the PA-TSA webpage header and should be no larger than 1" tall by 7 ½" wide, or a ratio of 1:7.5.
- The webpage header design does not need to be printed via screen-print methods.

## 5. Conference Program Cover Design

- a. The design should be a re-layout of the t-shirt design to fit the PA-TSA conference program cover and should be no larger than 3 ½” wide by 7 ½” tall.
- b. The conference program cover design does not need to be printed via screen-print methods.

## 6. Copyright

- a. Citation of all ideas, fonts, and images from sources other than the designer and/or that are copyrighted (most fonts and images found on the web are copyrighted material unless purchased or offered as free domain) MUST be included in the documentation portfolio. Clip art must be documented; failure to include necessary citations results in disqualification.
- b. Written permission for all copyrighted material must be included in the documentation portfolio (See Student Copyright Checklist in the Forms Appendix on the TSA website).
- c. AI-generated work will not be accepted.

## B. The Documentation Portfolio

1. The portfolio must include the following pages in a single, multi-page PDF document in this order:
  - a. Title page with the event title, the conference city, and state, the year, and the team/individual chapter ID number(s); one (1) page
  - b. Table of contents; pages as needed
  - c. Technical paper – should outline the processes used and the procedural steps followed in the completion of the project, including all steps from design to completion; pages as needed.
  - d. PA Logo Designs; pages as needed
    - i. T-shirt design with B&W color separations
    - ii. Webpage header design with B&W color separations
    - iii. Conference program cover design with B&W color separations
  - e. Specification Sheet
  - f. In addition to the documentation portfolio in PDF format, .png files must be included for the t-shirt design, webpage header, and conference program.
  - g. Photographs showing the student screen printing the project (one page only).

## C. The Physical Display

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 copy of the color separations. These proofs and separations should be included in a folder or binder.
2. A comprehensive layout must be submitted and displayed with each entry. One color copy proof of the Webpage Header Design and the Conference Program Cover Design shall be printed and included in the display.
3. Entries must be mounted on an illustration board or in an attractive manner. T-shirts not lending themselves to mounting must still conform to display area limits of 1’ deep x 3’ wide x 3’ tall.

4. Display shall demonstrate artisanship, creativity, and overall quality (sharp, clean edges of graphics and fonts; entry is clear of smudges, smears, pencils, or other extraneous marks).
5. A Specification Sheet must be completed for the designs and displayed with each entry.

D. Submission

1. Participants submit a multi-page PDF of the documentation portfolio and .png files for the t-shirt design, webpage header, and conference program..
2. Submission information will be provided on the PA-TSA website.
3. If a URL is provided, the URL must point directly to the participant's entry. Entries that require a software download or request that access be granted, will not be judged.
4. Entries received, or changes made to submitted entries (including the model/prototype) after the deadline will not be judged.

E. Email verification of each entry will be made by the state conference planning team.

F. Upon arrival at the state conference, participants will set up physical displays & portfolio at the time and place designated in the conference program.

G. Judges evaluate the entries.

H. The top ten (10) finalists will be announced via the PA-TSA website.

## **EVALUATION**

- A. The designs
- B. The documentation portfolio
- C. The physical display

Refer to the official rating form for more information.

## SPECIFICATION SHEET

T-shirt Design		
Document Size		
Font Type(s)		
Font Size(s)		
Software		

Webpage Header Design		
Document Size		
Font Type(s)		
Font Size(s)		
Software		

Conference Program Design		
Document Size		
Font Type(s)		
Font Size(s)		
Software		

Materials Used	
Item	Quantity

## OFFICIAL RATING FORM

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned (Example: an “adequate” score of 7 for an X1 criterion = 7 points; an “adequate” score of 7 for an X2 criterion = 14 points). A score of zero (0) points is acceptable if the minimal performance for any criterion is not met.

### Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a checkmark in the box.
- If an item is missing, leave the box next to the item blank and place a checkmark in the box labeled ENTRY NOT EVALUATED.
- If a checkmark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

- ☐ Designs and Displays were submitted
- ☐ PDF of the documentation portfolio was submitted
- ☐ ENTRY NOT EVALUATED

DESIGNS and DISPLAY (80 points)				Record scores in the column
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
<b>Elements of Design</b> (X2)	Choices of font, color, and images appear haphazard; eye appeal, proportion, balance, and unity are lacking. Missing major elements including TSA Logo, year, and correct theme.	Choices of font, color, and images are somewhat indicative of an understanding of design principles; eye appeal, proportion, balance, and unity are somewhat evident.	Choices of font, color, and images are indicative of a solid understanding of design principles; and include all needed aspects including Logo, year, and correct theme.	
<b>Technical Aspects</b> (X2)	Designs demonstrate little understanding of technical knowledge in terms of screen-printing	Designs demonstrate some understanding of technical knowledge in terms of screen-printing	Designs demonstrate a depth of technical knowledge in terms of screen-printing	
<b>Creativity and Innovation</b> (X1)	Lacks creativity and/or originality; no, or very few, design principles evident	Some elements of creativity and originality exist, and essential design principles are generally evident.	Exudes creativity and originality; essential design principles and elements are well-integrated	
<b>Complexity</b> (X1)	The solution is simplistic and lacks complexity	The solution is somewhat complex; elements of higher-level thinking are evident.	The solution is complex and indicative of higher-level thinking.	



Appearance and Construction (X2)	Unorganized and sloppy; seems to be thrown together	Somewhat organized and aesthetically pleasing	Logical, organized, cohesive, and aesthetically pleasing	
DEVICE and DISPLAYS SUBTOTAL (80 points)				
DOCUMENTATION PORTFOLIO (50 points)				Record scores in this column
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Portfolio (X1)	The portfolio is unorganized and/or missing three (3) or more components	The portfolio has most components and it is somewhat organized	Only one (1) or none of the components are missing in the portfolio; content and organization are evident	
Definition and Explanation of Process (X1)	The definition and explanation of the process are unclear, the student did not screen print or no proof was presented.	The process is defined and explained appropriately, and some proof of student screen printing is presented.	A clear and concise definition and explanation of the process are evident. Shows evidence that students screen-printed the submission.	
Technical Aspects (X1)	Demonstration of technical knowledge is lacking, and/or very few credible sources are referenced.	Demonstration of technical knowledge is somewhat evident, and/or some credible sources are referenced.	Demonstration of technical knowledge is evident; credible sources are referenced.	
Support Materials (X1)	Support materials do not help clarify the documentation or are of little significance to the issue.	Support materials are appropriate and help supplement documentation by providing clarity to the issue.	Support materials are of excellent quality; if not original, they are cited; support materials clarify the issue.	
Quality and Effectiveness (X1)	The portfolio appears to have been thrown together; distracting errors in punctuation, grammar, and spelling are evident in the documentation.	The portfolio is generally organized; punctuation, grammar, and spelling are generally correct, with few errors.	Work is of exceptional quality and well organized; punctuation, grammar, and spelling are correct with no errors.	

<b>DOCUMENTATION PORTFOLIO SUBTOTAL (50 points)</b>		
Rules violation (a deduction of 20% of the total possible points for the above sections must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated _____		
<b>To arrive at the TOTAL score, add any subtotals and subtract rule violation points, as necessary.</b>		<b>TOTAL (130 points)</b>

## PA-TSA MATERIALS PROCESS

Middle and High School



### 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.

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.

### ELIGIBILITY

Students will compete as individuals in this event. Please reference the [Event Matrix](#) for maximum entries.

### ATTIRE

Professional TSA attire (category B) as described in the PA-TSA dress code is the minimum requirement for the semifinal portion of this event.

### REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21<sup>st</sup>-century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication about the entry.

### PRELIMINARY ROUND

#### A. The Project Display

1. Commercially prepared kits are NOT acceptable entries and will not be evaluated by judges (i.e. clock kits with pre-cut parts). Commercially produced plans/drawings are permitted. Detailed drawings of the project are highly suggested.
2. The project may be fabricated from one or more of the following materials: wood, metal, plastics, composite, or earth material. Please refer to the General Rules of the TSA National Rulebook for acceptable projects.
3. The project must be the work of one student.
4. The project cannot exceed a footprint of 4'x4'.

#### B. The Documentation Portfolio

1. The portfolio must include the following single-sided 8 ½" x 11" pages in this order:
  - a. Title page with the event title, the conference city, and state, the year, and the team/individual chapter ID number(s); one (1) page
  - b. Table of contents; pages as needed
  - c. Description of the developmental procedures used to create the project, including materials list, the finish used, construction process, and project function; five (5) pages maximum
  - d. Working drawings, including parts list and all necessary dimensions; five (5) pages maximum
  - e. Photographic verification of the project; pages as needed
    1. A variety of images are recommended to allow the judges to accurately evaluate workmanship and project complexity

#### C. Submission

1. Participants submit a printed multi-page documentation portfolio with the project upon check-in. Upon arrival at the state conference, participants will set up physical displays at the time and place designated in the conference program. Judges evaluate the entries.

D. The top twelve (12) semifinalists will be announced via the PA-TSA website.

#### **SEMIFINAL ROUND**

A. The Presentation/Interview

1. Participants sign up for a presentation/interview time via a procedure to be established and published on the PA-TSA website.
2. Teams will demonstrate the project to the judges.
3. Teams are allotted a maximum of ten (10) minutes to explain their entry and respond to questions.
4. Participants may refer to the documentation and the display during the presentation/interview.

B. Judges score the presentations/interviews.

C. The top ten (10) finalists will be announced at the awards ceremony, as well as via the PA-TSA website.

#### **EVALUATION**

##### **PRELIMINARY ROUND**

- A. The project display
- B. The documentation portfolio

##### **SEMIFINAL ROUND**

- A. The presentation/interview

Refer to the official rating form for more information.

## OFFICIAL RATING FORM

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned (Example: an “adequate” score of 7 for an X1 criterion = 7 points; an “adequate” score of 7 for an X2 criterion = 14 points). A score of zero (0) points is acceptable if the minimal performance for any criterion is not met.

### Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a checkmark in the box.
- If an item is missing, leave the box next to the item blank and place a checkmark in the box labeled ENTRY NOT EVALUATED.
- If a checkmark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

- ☐ A physical project was submitted
- ☐ PDF of the documentation portfolio was submitted
- ☐ ENTRY NOT EVALUATED

PROJECT (80 points)				Record scores in the column
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
<b>Workmanship</b> (X2)	Difficult to understand the solution being communicated; an illogical explanation is presented.	The solution is communicated and thoughts are organized somewhat concisely.	The solution is communicated in an organized, clear, and concise manner.	
<b>Technical Aspects</b> (X2)	Designs demonstrate little understanding of technical knowledge in terms of materials, finish, and construction processes.	Designs demonstrate some understanding of technical knowledge in terms of materials, finish, and construction processes.	Designs demonstrate a depth of technical knowledge in terms of materials, finish, and construction processes.	
<b>Creativity and Innovation</b> (X1)	Lacks creativity and/or originality; no, or very few, design principles evident.	Some elements of creativity and originality exist, and essential design principles are generally evident.	Exudes creativity and originality; essential design principles and elements are well-integrated.	
<b>Complexity</b> (X1)	The solution is simplistic and lacks complexity	The solution is somewhat complex; elements of higher-level thinking are evident.	The solution is complex and indicative of higher-level thinking.	
<b>Appearance and Construction</b> (X2)	Unorganized and sloppy; seems to be thrown together.	Somewhat organized and aesthetically pleasing.	Logical, organized, cohesive, and aesthetically pleasing.	

<b>PROJECT DISPLAY SUBTOTAL (80 points)</b>	
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<b>DOCUMENTATION PORTFOLIO (50 points)</b>				Record scores in the column
<b>CRITERIA</b>	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
<b>Portfolio (X1)</b>	The portfolio is unorganized and/or missing three (3) or more components.	The portfolio has most components and it is somewhat organized.	Only one (1) or none of the components are missing in the portfolio; content and organization are evident.	
<b>Written Developmental Procedures (X2)</b>	The written description of the developmental procedure(s) used to create the project is unclear and is missing information on materials, finish, processes, or function.	The written description of the developmental procedure(s) used to create the project is mostly clear and includes some information on materials, finish, processes, and function.	A clear and concise written description of the developmental procedure(s) used to create the project, including detailed information on materials, finish, processes, and function.	
<b>Working Drawings (X1)</b>	Working drawings are included but lack clarity and may be missing a parts list and/or all necessary dimensions.	Working drawings are mostly clear, and include a parts list and nearly all necessary dimensions.	Working drawings are high quality, easy to understand, and include a parts list and all necessary dimensions.	
<b>Quality and Effectiveness (X1)</b>	The portfolio appears to have been thrown together; distracting errors in punctuation, grammar, and spelling are evident in the documentation.	The portfolio is generally organized; punctuation, grammar, and spelling are generally correct, with few errors.	Work is of exceptional quality and well organized; punctuation, grammar, and spelling are correct with no errors.	
<b>DOCUMENTATION PORTFOLIO SUBTOTAL (50 points)</b>				
Rules violation (a deduction of 20% of the total possible points for the above sections must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated _____)				
<b>PRELIMINARY SUBTOTAL (130 points)</b>				

SEMIFINALIST PRESENTATION/INTERVIEW (50 points)				Record scores in this column
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
<b>Organization</b> (X1)	The participant seems unorganized and unprepared for the presentation/interview, with an illogical explanation of the problem and solution.	The participant is generally prepared for the presentation/interview; the explanation of the problem and solution are communicated and generally organized.	The presentation/interview is logical, well-organized, and easy to follow; the problem and solution are communicated in an organized and concise manner.	
<b>Articulation</b> (X1)	Communication of the solution is unclear, unorganized, and/or illogical; leadership and/or 21 <sup>st</sup> -century skills are not evident.	Communication of the solution is somewhat logical and clear; leadership and/or 21 <sup>st</sup> -century skills are somewhat evident.	Communication of the solution is clear, concise, and logical; leadership and/or 21 <sup>st</sup> -century skills are evident.	
<b>Delivery</b> (X1)	The participant is verbose and/or uncertain in their presentation/interview; the participant's posture, gestures, and lack of eye contact diminish the delivery.	The participant is somewhat well-spoken and clear in their presentation/interview; the participant's posture, gestures, and eye contact result in an acceptable delivery.	The participant is well-spoken and distinct in their presentation/interview; the participant's posture, gestures, and eye contact result in a polished, natural, and effective delivery.	
<b>Knowledge</b> (X2)	Participant seems to have little understanding of the concepts in their project; answers to questions may be vague.	Participant exhibits an understanding of the concepts in their project	The participant shows clear evidence of a thorough understanding of the project	
<b>SEMIFINALIST PRESENTATION/INTERVIEW SUBTOTAL (50 points)</b>				
Rules violation (a deduction of 20% of the total possible points for the above sections must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated _____)				
<b>SEMIFINAL SUBTOTAL (50 points)</b>				
<b>To arrive at the TOTAL score, add any subtotals and subtract rule violation points, as necessary.</b>			<b>TOTAL (180 points)</b>	

## **OVERVIEW**

Participants conduct research on a contemporary medical technology issue of their choosing, document their research and solution, and create a digital scientific poster. The entry may include student research or a re-creation or simulation of research performed by the scientific community. There is no semifinal portion to this event, all entries (consisting of a documentation portfolio and 8.5" x 11" digital scientific poster) will be early-submission only.

## **ELIGIBILITY**

Students will compete as a team in this event. Please reference the [Event Matrix](#) for maximum entries.

## **ATTIRE**

The event is a pre-conference event without an on-site activity.

## **Regulations and Requirements:**

All work must be completed during the current school year. Team members must understand the fundamental concepts and principles of the contemporary medical technology issue they select. Research should focus on significant impacts (opportunities and risks) on the environment, economy, and society, as well as any important ethical considerations.

### **A. The Documentation Portfolio**

1. The documentation portfolio is to be a single multi-page PDF.
2. The portfolio must include the following 8 ½" x 11" pages, in this order:
  - a. Title page with the event title, conference city and state, the year, and the team/chapter ID number; one (1) page
  - b. Table of contents; pages as needed
  - c. The Digital Scientific Poster- Participants must create a digital scientific poster presenting their research and solution. Participants shall incorporate visuals into the digital scientific poster. The scientific poster can have a maximum size of 8.5" x 11".
  - d. Definition and explanation of the issue and solution; two (2) pages
  - e. An explanation of the impacts of the issue, such as relevance to environmental, economic, social, and/or ethical considerations; a maximum of three (3) pages
  - f. Supporting information such as logs, graphs, sketches, drawings, illustrations, photographs, etc.; maximum of four (4) pages
  - g. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible, and comments; pages as needed
  - h. A list of references and credible resources; a minimum of three (3) different types of resources must be used; examples may include but are not limited to books, interviews, websites, magazines, and professional journals; pages as needed
  - i. Work must be original or cited, using a professional citation style of the competitors choosing. Failure to use a professional citation style will result in a rules violation of 20% (twenty percent). Some examples of professional citation styles include MLA, APA, Chicago, and IEEE; pages as needed.
  - j. Photo/Film/Video Consent and Release Forms. If the entry contains images of people (minors require parental consent), proof of consent must be included for each person (see forms Appendix; pages as needed



**B. Submission**

1. Participants submit a multi-page PDF of the documentation portfolio.
  2. Submission information will be provided on the PA-TSA website.
    - a. Entries received, or changes made to submitted entries, after the deadline, will not be judged.
  3. Email verification of each entry will be made by the state conference planning team.
- C. Email verification of each entry will be made by the state conference planning team.
- D. Judges evaluate the entries.
- E. The top ten (10) finalists will be announced at the awards ceremony, as well as via the PA-TSA website.

**Evaluation**

- A. The Documentation Portfolio
- B. The Digital Scientific Poster
- C. Refer to the official rating form for more information.

## OFFICIAL RATING FORM

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned (Example: an “adequate” score of 7 for an X1 criterion = 7 points; an “adequate” score of 7 for an X2 criterion = 14 points). A score of zero (0) points is acceptable if the minimal performance for any criterion is not met.

### Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a checkmark in the box.
- If an item is missing, leave the box next to the item blank and place a checkmark in the box labeled ENTRY NOT EVALUATED.
- If a checkmark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

- 
- ☐ Documentation Portfolio is present
  - ☐ Digital Scientific Poster is present
  - ☐ ENTRY NOT EVALUATED

DIGITAL SCIENTIFIC POSTER				Record scores in the column
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
<b>Explanation of Impacts (x2)</b>	Explanation is missing a discussion of the issue’s relevance to environmental, economic, social, and/or ethical considerations.	Explanation addresses some of the issue’s relevance to the environment, economic, social, and/or ethical considerations.	Explanation includes a full discussion of the issue’s relevance to environmental, economic, social, and/or ethical considerations.	
<b>Supporting Information</b>	Supporting information does not help to clarify the issue and/or it is of little significance to the issue.	Supporting information is somewhat Appropriate and helps provide some clarity to the issue.	Supporting information is highly effective and of excellent quality.	
<b>Research, References, and Resources</b>	Research is inadequate, and/or very few credible sources are referenced.	Research is conducted appropriately, with some adequate credible sources.	A comprehensive research base that includes credible sources is evident.	
<b>Communication of Solution</b>	It is difficult to understand the solution being communicated; an illogical explanation is presented.	The solution is communicated and thoughts are somewhat organized.	The solution is communicated in an organized, clear, and concise manner.	
<b>Creativity</b>	The display lacks creativity; no, or very few, design principles	Some elements of creativity exist in the display, and essential	The display exudes creativity; essential design principles and	

	are integrated into the display.	design principles are generally evident.	elements are well integrated.	
<b>Aesthetics and Artisanship</b>	Work is unorganized and sloppy; display seems to be an afterthought or thrown together.	Display generally depicts the issue.	The display is exemplary in logically communicating the issue.	
<b>DIGITAL SCIENTIFIC POSTER SUBTOTAL (70 PTS)</b>				

<b>DOCUMENTATION PORTFOLIO</b>				Record scores in the column
<b>CRITERIA</b>	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
<b>Portfolio</b>	The portfolio is unorganized and/ or missing three (3) or more components.	The portfolio has most components and it is somewhat organized.	The portfolio is missing no components and is well organized.	
<b>Definition and Explanation of Issue</b>	The definition and explanation of the issue is unclear.	The issue is defined and generally explained.	Clear and concise definitions and explanations of the issue are evident.	
<b>Scenario and Research Base</b>	Research is inadequate, and/or very few credible sources are referenced.	Research has been conducted appropriately, with some credible sources included.	Research indicates evidence of a comprehensive assortment of materials that are credible sources.	
<b>Support Materials</b>	Support materials do not help clarify the documentation or are of little significance to the issue.	Support materials are appropriate and somewhat supplement documentation by lending some clarity.	Support materials are of excellent quality; if not original, they are cited; support materials clarify the issue.	
<b>Aesthetics and Artisanship</b>	Work is unorganized and sloppy; display seems to be an afterthought or thrown together.	Display generally depicts the issue.	The display is exemplary in logically communicating the issue.	
<b>DOCUMENTATION PORTFOLIO SUBTOTAL (50 PTS)</b>				
<b>TOTAL (120 PTS)</b>				

# PA-TSA PIN DESIGN CONTEST

Middle and High School



## OVERVIEW

The PA-TSA Pin Design contest is intended for competitors to design a visually captivating and communicative pin that embodies the spirit and values of PA-TSA. Participants will have the chance to explore the world of visual communication, where symbols, colors, and design play a pivotal role in conveying a message. The purpose of the PA-TSA pin is to raise funds for the National Service Project, promote PA-TSA at Pin Trading at the National Conference, and boost PA-TSA pride.

## ELIGIBILITY

Students will compete as individuals in this event. Please reference the [Event Matrix](#) for maximum entries.

## ATTIRE

The event is a pre-conference event without an on-site activity.

## REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21<sup>st</sup>-century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication about the entry.

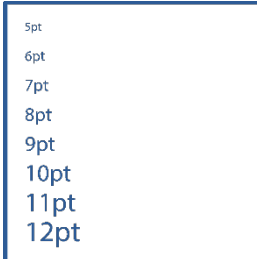
### A. The Design

1. The design must include:
  - a. The TSA logo
  - b. A theme that relates to Pennsylvania
  - c. The words "Pennsylvania TSA" or "PA-TSA" Do not include a specific year/date, a location, or a theme as this changes from year to year.
2. Colors are not to exceed 5 in total. Participants must include hex color codes.
3. Size and Scale:
  - a. For this project, you will need to create two versions of your design:
    1. Scaled Design (Enlarged for Clarity):
      - i. One version of your design should be drawn to an identified scale. This scaled design will serve as a representation of your pin's appearance when reduced to its actual size. You have the option to create an enlarged scaled version to better showcase intricate details.
    2. Actual Size Design:
      - i. The second version should be your pin's actual size, which must not exceed 1.5 inches by 1.5 inches. This design should be a precise representation of how your pin will look in reality.
  3. Both designs can be created digitally or by hand, but both must be included in your submission portfolio to demonstrate your ability to design at scale and provide a clear vision of the final pin.
    - i. Example of Identifying a Scale with an Enlarged Scaled Version:
      1. Identify the Scale: 1:2
      2. Actual Size: 1.5 inches x 1.5 inches
      3. Scaled Size (Enlarged): (1.5 inches x 2) x (1.5 inches x 2) = 3 inches x 3 inches

4. The PA-TSA pin design can be of any shape. Please make sure the shape is not too complex. For example, the left shape would be preferred over the right shape.



5. The design submitted can use any lettering technique. If the sketched or digital design uses one or more fonts, please indicate their font names and sizes in the specification sheet. For all designs, the minimum font size is 5pt (Below is a visual representation of the font sizes in a 1.5” by 1.5” square. The font used in the square is Myriad Pro.)



6. Contestants are allowed to use royalty-free clipart, as long as they are cited.

#### B. The Documentation Portfolio

1. The documentation portfolio must include the following information in a single, multi-page PDF document:
  - a. Title page with the event title, the conference city, and state, the year, and the team/individual chapter ID number(s); one (1) page
  - b. Table of contents; pages as needed
  - c. Design Explanation
  - d. Pin Design; one (1) page. One scale drawing and one enlarged
  - e. SPECIFICATION SHEET- See end of rules
  - f. Student Copyright Checklist (if applicable); pages as needed
2. Clipart Citations

#### C. Submission

1. Participants submit a multi-page PDF of the documentation portfolio.
2. Submission information will be provided on the PA-TSA website.
  - a. Entries received, or changes made to submitted entries, after the deadline, will not be judged.
3. Email verification of each entry will be made by the state conference planning team.
4. Judges evaluate the entries.
5. The top ten (10) finalists will be announced at the awards ceremony and via the PA-TSA website.

### EVALUATION

- A. The Pin Design
- B. The documentation portfolio

Refer to the official rating form for more information.

## SPECIFICATION SHEET

Pin Design Design			
Pin Size		Drawing Scale	
Color #1		Color #2	
Color #3		Color #4	
Color #5			
Font Type(s)			
Font Size(s)			
Font Type(s)			
Font Size(s)			

PA- TSA Pin Design										
Official Rating Form							Level- MS or HS (Circle One)			
Student ID Numbers										
<b>Specification Sheet- 30 points max.</b> <b>Title page-3 points</b> Event title, the conference city, and state, the year, and the team/individual chapter ID number(s); <b>Design Explanation- 10 points</b> 250 words or less (1pt) Explains use of color (3pts) Explains use of elements (3pts) Explains layout/unity of design (3pts) <b>Design To-scale Image- 3points</b> Design is to scale (1 pt) Includes size in inches (2 pts) <b>Design Enlarged Image- 3 points</b> Enlarged (1 pt) Easy to see all elements of design (2pts) <b>Design Specifications- 10 points</b> Includes colors and hex numbers, if applicable (5pts) Includes font names and sizes, If applicable (5pts) <b>Clipart Documentation (if applicable) 1 point</b> An appropriate citation format is utilized (if no clipart is used, award full points) (1pt)										
<b>Pin Design Evaluation- 60 points max.</b> <b>Includes Necessary Components points- 5 points</b> "Pennsylvania TSA" or "PA-TSA" TSA Logo <b>Fonts/Words- 10 points</b> Font types are easy to read Font sizes are at least 5pt GrammarSpelling <b>Shape/Sizing 10 points</b> The shape is not too complex and relates to the overall design Size is appropriate (within 1.5*X1.5* recommended) <b>Color/Eye Appeal- 10 points</b>										

<b>Consistent with the design theme</b> <b>At most 5 color inks used</b> <b>Easy to read/differentiate, neat &amp; organized</b> <b>Overall Design Theme &amp; Originality- 25 points</b> <b>Related to Pennsylvania and/or Pennsylvania TSA</b> <b>Proportion, Balance, and Unity (elements fit together)</b>										
<b>Overall Neatness- 5 point max</b>										
<b>Rules Violations</b>										
<b>Total Points</b>										
<b>Evaluator's Signature</b>										



## PA-TSA R/C OFF-ROAD RACING

Middle and High School



### OVERVIEW

The R/C Off-Road Racing competition is designed to promote teamwork and problem-solving among students as they acquire the technical skills to adapt, operate, race, and maintain a radio-controlled off-road racing vehicle that will also perform a task while racing around the track. Points earned for the portfolio contents, the appearance of the vehicle body and piece for the task, drawing(s) for the task, and racing results will determine each team's evaluation. The task will change from year to year.

### ELIGIBILITY

Students will compete as a team in this event. Please reference the [Event Matrix](#) for maximum entries.

### ATTIRE

Business Casual TSA attire (category C) as described in the PA-TSA dress code is the minimum requirement for the event.

### REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21<sup>st</sup>-century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication about the entry.

### ENTRY – VEHICLE AND PORTFOLIO

#### A. The Vehicle

1. Teams must enter a vehicle that is a purpose-built 1/10th scale off-road racing vehicle that has been assembled from a kit or is purchased Ready-To-Run.
2. The maximum length of the wheelbase is 16 inches from the center of the axle to the center of the axle. The maximum width is 14 inches from tire outside to tire outside, not including the body.
3. Motors may be any 1/10th scale motor of the students' choosing. If a motor is NOT 1/10th sized (540-550 size), then it is not allowed. Only "inrunners" (motors with standard armature/rotor internally spinning) are allowed. The outer must not spin.
4. The batteries will be a maximum of 2s Lipo (7.4V nominal- Lipo Bags MUST BE USED). NiMH or NiCd cells will be a maximum of 6 cells (7.2V nominal).
5. Any tires and hubs can be used, including student-made products.
6. The vehicle must have a crash-resistant, polycarbonate body, and it must run the entire event. All vehicles must have closed (full) bodies. The body may be factory-made or made by the team. However, the body may not be factory-painted and must be painted by the Team and documented in their portfolio. Bodies from previous years' competitions are not permitted. The body must be finished with paint – no clear bodies will be permitted for competition. The body must have windows. Windows may be clear or painted, but if painted, they must be a different color from the main body. Bonus points will be considered for bodies that are painted and decorated to show the current year's TSA theme. Additionally, bonus points will be considered for student-made bodies that are formed from scratch; 3-D printed body pieces are permitted as long as they are mounted/ fastened securely.
7. Bodies must be removable but properly secured. Rubber bands, tape, and wire ties are not permitted to hold the body in place. Velcro securing is permissible. If the body falls off

during the race, the vehicle must be taken 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.

8. The front-most and the rear-most part of the vehicle must contain bumpers or cushions/pads to absorb shock. Sharp, protruding objects are not permitted on the vehicle.
9. The vehicle must be off-road and capable of maneuvering over obstacles. The vehicle may be either two-wheel or four-wheel drive.
10. Any part of the vehicle may be customized as long as it does not violate any of the rules previously mentioned.
11. The vehicle is required to have one open servo plug available for the transponder to plug into. Transponders will be supplied by the race coordinator prior to the first race. Vehicles without a place to plug in a transponder will not be allowed to race. The transponder provided will be MyLaps RC4 Pro Transponder (3-wire).

#### B. The Documentation Portfolio

1. The portfolio must include the following single-sided, 8 ½” x 11” pages in this order:
  - a. Title page with the event title, the conference city, and state, the year, and the team/individual chapter ID number(s); one (1) page
  - b. Table of contents; pages as needed
  - c. The typed descriptive report, including pictorial documentation with multi-sentence captions that detail the assembly and disassembly of the vehicle, the painting of the body, and the making and testing of the part(s) necessary to carry out the task; pages as needed
  - d. Pictorial Documentation with multi-sentence captions, detailing the painting of the body.
  - e. Pictorial Documentation with multi-sentence captions, of making and testing the part(s) necessary to carry out the task for this current year. Drawing(s) of the student-made parts; pages as needed
  - f. Signed “Advisor Verification Statement” affirming that the painting of the vehicle body, making of the part(s) necessary to carry out the task, and the portfolio, with all its contents, were created during the current school year; one (1) page

#### C. Submission

1. Participants submit a printed multi-page documentation portfolio with the car upon check-in.

#### D. Consult the conference program for the time and place to submit the vehicle upon arrival at the conference.

#### E. Judges score the entries.

### THE RACE

#### A. Race Set-up

##### 1. The Track

- a. The track surface may be asphalt, concrete, carpet, wood, or any combination thereof.
- b. The track will be a continuous loop that may contain throw rugs, slippery and rough surfaces, and other obstacles that produce an off-road experience. The configuration of the track will be determined by the racedirector.

- c. No part of the vehicle may extend ahead of the starting line when staged.
- d. 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 race if it is necessary. Vehicles may not be repaired on the track. The repairs must be made in the designated “pit area”, and the vehicle may not leave this area except to be replaced 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”.

## 2. Driving Rules

- a. Unruly or unsportsmanlike conduct will not be tolerated. Any team member in violation of this will be disqualified. If a team member is disqualified, the team is disqualified.
- b. 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.
- c. The driver may not leave the driver’s platform at any time during the race. All repairs are to be done by the “pit crew”.
- d. A vehicle must finish the race under its power. It may not be pushed across the finish line.

## 3. Turn Marshalls

- a. Drivers must be turning marshals for the race immediately following their race. Failure to do so will result in the loss of two laps in their race. Another chapter member may substitute, if necessary, but the original driver is responsible for the actions of the substitute. Drivers scheduled for the last race in each level must be turn marshals for the first race in the next level.
- b. A vehicle on the track has the right of way over a vehicle that has gone off the track, overturned, or otherwise has problems.
- c. Turn marshals must treat all vehicles equally.
- d. Drivers, or their substitutes, are responsible for knowing the requirements of a turn marshal and follow them appropriately.

## B. The Races

- 1. The race director will generate and post a list of teams and the sequence of the races
- 2. Two members of the team must serve as drivers.
- 3. Each of the two (2) designated drivers of each team will drive in the preliminaries. The driver with the most laps will be the driver in the main race.
- 4. All team members must be present at an orientation meeting held before the start of the first race. The race director may make revisions to certain procedures he/she may deem necessary for certain conditions. Any revisions will be announced at the orientation meeting.
- 5. Middle school races will happen first, followed by high school. Transponders will be handed out to each team before the start of each level. Failure to obtain a transponder will result in a 10-lap deduction.

## EVALUATION

### ENTRY – VEHICLE AND PORTFOLIO

- A. The documentation portfolio
- B. The vehicle

#### RACE

- A. The race

Refer to the official rating form for more information.

## 2025-2026 High School RC VEHICLE TASK

A. Students must create subsystem components for their vehicle. The components being created are the front upper and lower control arms for the left and right sides of the vehicle. These components are meant to replace factory-made parts and must be mounted in the factory locations. The components must be installed at check-in.

B. The subsystem components may be created out of any material that the team desires. Components purchased from an outside source will result in a disqualification for that team. Teams may bring spare student-made parts with them to replace on the car if one breaks during a race. Broken parts will need to be replaced before the car can re-enter the race.

C. The components must be installed at check-in and remain on the car for the remainder of the conference.

D. A mechanical or computer-made drawing, with dimensions of the sub-system components, must be included in the portfolio. The drawing may be scaled and must be on standard 8½ by 11 paper. It also may be orthographic or pictorial. A drawing from Inventor or other programs is acceptable as long as dimensions are included.

G. The following procedures will be followed for the racing portion of the event, which will consist of two preliminary heats and a main heat..

### 1. Preliminary Heats/ Main Heats

a. The preliminary heats will each be 4 minutes long and must be driven with the subsystem components attached to the vehicle. Each team must supply a different driver per heat.

b. The main heats will be 5 minutes long and must be driven with the subsystem components attached to the vehicle. The driver with the most laps from the heat races will drive in the main race.

c. The main heats will be broken down into four (4) races. Teams will be paired by lap count.

d. Overturned or lodged vehicles, or those that leave the track, may be repositioned back on the track at the spot of the mishap.

e. If a vehicle's components break during a race, the vehicle will be removed from the race, and repairs can be made. Cars can re-enter once repairs are made.

h. If there is a situation requiring the action of a turn marshal, other drivers must slow down (like a caution flag in a real race) so as not to hit the person(s) attending to the situation on the track. If a vehicle hits a person in this situation, 5 laps will be deducted from the driver's score.

## 2025-2026 Middle School RC VEHICLE TASK

A. Students must create sub-system components for their vehicle. The components that are being created are the front and rear bumpers and their mounts for the vehicle. These components are meant to replace factory-made parts and must be mounted in the factory locations. Parts must be smoothed or rounded and have no sharp edges. The components must be installed at check-in.

B. The subsystem components may be created out of any material that the team desires. Components purchased from an outside source will result in a disqualification for that team. Teams may bring spare student-made parts with them to replace on the car if one breaks during a race. Broken parts will need to be replaced before the car can re-enter the race.

C. The components must be installed at check-in and remain on the car for the remainder of the conference.

D. A mechanical or computer-made drawing, with dimensions of the sub-system components, must be included in the portfolio. The drawing may be scaled and must be on standard 8½ by 11 paper. It also may be orthographic or pictorial. A drawing from Inventor or other programs is acceptable as long as dimensions are included.

G. The following procedures will be followed for the racing portion of the event, which will consist of two preliminary heats and a main heat..

### 1. Preliminary Heats/ Main Heats

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c. The main heats will be broken down into four (4) races. Teams will be paired by lap count.

d. Overturned or lodged vehicles, or those that leave the track, may be repositioned back on the track at the spot of the mishap.

e. If a vehicle's components break during a race, the vehicle will be removed from the race and repairs can be made. Cars can re-enter once repairs are made.

h. If there is a situation requiring the action of a turn marshal, other drivers must slow down (like a caution flag in a real race) so as not to hit the person(s) attending to the situation on the track. If a vehicle hits a person in this situation, 5 laps will be deducted from the driver's score.

### ADVISOR VERIFICATION STATEMENT

*(this form must be included in the documentation portfolio)*

**Advisor: Please circle the letter before each item to indicate that you verify each of those items has been completed, then sign on the line provided.**

By my signature, I am verifying the PA-TSA R/C Off-Road Racing team of our school's chapter:

- a) has disassembled the vehicle, prepared a vehicle body, and made the part(s) for the task during the current school year;
- b) has completed the documentation portfolio, including drawing(s) and pictorial documentation, during the current school year;
- c) has been instructed in safety precautions, especially in the use of soldering guns/pencils and safety glasses, when working on this vehicle.

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Advisor Signature

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Chapter ID#

## OFFICIAL RATING FORM

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned (Example: an “adequate” score of 7 for an X1 criterion = 7 points; an “adequate” score of 7 for an X2 criterion = 14 points). A score of zero (0) points is acceptable if the minimal performance for any criterion is not met.

### Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a checkmark in the box
- If an item is missing, leave the box next to the item blank and place a checkmark in the box labeled ENTRY NOT EVALUATED
- If a checkmark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

- ☐ PDF of the documentation portfolio was submitted
- ☐ Advisor verification statement is present
- ☐ The vehicle is a 1/10<sup>th</sup> scale model and is not a factory-assembled model unable to be disassembled
- ☐ Wheelbase and width of vehicle meet requirements
- ☐ Student-made part(s) meet requirements
- ☐ The vehicle and student-made parts are safe to operate
- ☐ Correct motor and/or battery are used
- ☐ The vehicle has the correct body and has not previously been submitted
- ☐ ENTRY NOT EVALUATED

DOCUMENTATION PORTFOLIO (50 points)				Record scores in the column
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
<b>Portfolio (X1)</b>	The portfolio is unorganized and/or missing two (2) or more components	The portfolio is generally well-organized is missing only one (1) component	Content and organization are evident; all sections are included	
<b>Descriptive Report (X1)</b>	The report has few details of construction, bodywork, and testing of the vehicle; includes more than three (3) spelling or grammatical errors	The report lacks some detail in terms of construction, bodywork, and testing of the vehicle; includes no more than three (3) spelling or grammatical errors	The report fully details the construction, bodywork, and testing of the vehicle; includes no spelling or grammatical errors	
<b>Pictorial Documentation (X2)</b>	The work of the team is poorly documented or; includes fewer than two (2) pictures; or includes more than one (1) caption that is not multi-sentence or; more than	The work of the team is somewhat documented or; includes fewer than five (5) organized pictures; or includes one (1) caption that is	The work of the team is documented or; includes five (5) or more neatly organized pictures with multi-sentence captions; no	



	three spelling or grammatical errors	not multi-sentence or; no more than three spelling or grammatical errors	spelling or grammatical errors	
<b>Drawing (X1)</b>	The drawing is missing more than two (2) dimensions or its execution is poorly done	The drawing is missing one (1) or two (2) dimensions or its execution needs improvement	The drawing is complete with all dimensions and is well done.	
<b>DOCUMENTATION PORTFOLIO SUBTOTAL (50 points)</b>				
<b>VEHICLE (30 points)</b>				Record scores in this column
<b>CRITERIA</b>	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
<b>Body Appearance (X1)</b>	The paint job does not meet regulations or is poorly done; the overall appearance of the vehicle shows little appeal to the viewer	The paint job meets regulations, but it and/or creativity show room for improvement; the vehicle's appearance is average with no outstanding features that the grab the eye of the viewer	The paint job is well done and shows evidence of creativity; the total vehicle appearance is neat and clean shows evidence of attention to detail in its overall construction	
<b>Piece for the Task (X2)</b>	The construction of the piece does not match the drawing at all or it and/or its attachment to the vehicle are poorly done	The construction of the pieces does not completely match the drawing or it and/or its attachment to the vehicle could use improvement	The construction of the piece matches the drawing, and it and its attachment to the vehicle is well done	
<b>VEHICLE SUBTOTAL (30 points)</b>				
<b>RACE (75 points)</b>				
Laps for Driver #1				
Laps for Driver #2				
Laps for Main Race				
Minus Lap Penalties				
Total Laps (used to determine race points)				

Race Points	1 <sup>st</sup> = 75 points 2 <sup>nd</sup> = 74 points 3 <sup>rd</sup> = 73 points 4 <sup>th</sup> = 72 points 5 <sup>th</sup> = 71 points	6th- all others = 70 - 0 points (minus 1 point per standing)		
DOCUMENTATION PORTFOLIO, VEHICLE, AND RACE SUBTOTAL (155 points)				
BONUS (20 points)			Record scores in the column	
CRITERIA	Minimal performance	Adequate performance		Exemplary performance
	1-4 points	5-8 points		9-10 points
Student-made Body (X1)	Creativity and/or craftsmanship needs significant improvement, or clear/thorough documentation is inadequate or missing	Creativity and/or craftsmanship has some room for improvement, and/or needs additional documentation in the portfolio	The student-made body is creative, shows excellent craftsmanship, and is thoroughly and documented in the portfolio	
Body's Showcase of TSA's Current Year's Theme (X2)	Showcasing of the theme needs significant improvement and creativity, and/or lacks appeal	Showcasing of the themes has room for improvement and creativity, and/or has an average appeal	Showcasing of the theme is outstanding, is creatively done, and has excellent appeal	
BONUS SUBTOTAL (30 points)				
Rules violation (a deduction of 20% of the total possible points for the above sections must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated _____)				
To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.			TOTAL (185 points)	

## PA-TSA SAFETY ILLUSTRATION

Middle and High School

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### 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.

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.

### ELIGIBILITY

Students will compete as individuals in this event. Please reference the [Event Matrix](#) for maximum entries.

### ATTIRE

The event is a pre-conference event without an on-site activity.

### REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21<sup>st</sup>-century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication about the entry.

#### A. The Illustration

1. 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.
2. The illustration must be a flat, two-dimensional design.
3. The illustration size is 8 ½" x 11".
4. The illustration is to be an original work; Any use of copyrighted or registered artwork is prohibited.
  - a. Copyright
    1. Citation of all ideas, fonts, and images from sources other than the designer and/or that are copyrighted (most fonts and images found on the web are copyrighted material unless purchased or offered as free-domain) MUST be included in the documentation. Clip art must be documented; failure to include necessary citations results in disqualification.
    2. Written permission for all copyrighted material must be included in the documentation portfolio (See Student Copyright Checklist in the Forms Appendix on the TSA website).
  - b. If the entry contains images of people, proof of consent must be provided for each person in the video.
  - c. Minors require parental consent. Use the Photo/Film/Video Consent and Release see Forms Appendix on the TSA website) for any individuals included in the video footage.

#### B. The Documentation Portfolio

1. The documentation portfolio must include the following information in a single, multi-page PDF document:
  - a. Title page with the event title, the conference city, and state, the year, and the team/individual chapter ID number(s); one (1) page

- b. Table of contents; pages as needed
- c. Illustration; one (1) page
- d. Technical paper - explanation of the design process used to create the illustration as well as an explanation as to how the theme influenced the illustration's design; one (1) page
- e. Student Copyright Checklist (if applicable); pages as needed
- f. Photo/Film/Video Consent and Release (if applicable); pages as needed

**C. Submission**

- 1. Participants submit a multi-page PDF of the documentation portfolio.
- 2. Submission information will be provided on the PA-TSA website.
- 3. Entries received, or changes made to submitted entries, after the deadline will not be judged.

D. Email verification of each entry will be made by the state conference planning team.

E. Judges evaluate the entries.

F. The top ten (10) finalists will be announced at the awards ceremony, as well as via the PA-TSA website.

**EVALUATION**

A. The illustration

B. The documentation portfolio

Refer to the official rating form for more information.

## OFFICIAL RATING FORM

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned (Example: an “adequate” score of 7 for an X1 criterion = 7 points; an “adequate” score of 7 for an X2 criterion = 14 points). A score of zero (0) points is acceptable if the minimal performance for any criterion is not met.

### Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a checkmark in the box
- If an item is missing, leave the box next to the item blank and place a checkmark in the box labeled ENTRY NOT EVALUATED
- If a checkmark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

- ☐ Illustration was submitted
- ☐ PDF of the documentation report was submitted
- ☐ ENTRY NOT EVALUATED

ENTRY (70 points)				Record scores in the column
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
<b>Elements of Design</b> (X2)	Choices of font, color, and images appear haphazard; eye appeal, proportion, balance, and unity are lacking	Choices of font, color, and images are somewhat indicative of an understanding of design principles; eye appeal, proportion, balance, and unity are somewhat evident	Choices of font, color, and images are indicative of a solid understanding of design principles; eye appeal, proportion, balance, and unity are high level	
<b>Creativity and Innovation</b> (X2)	Lacks creativity and/or originality; no, or very few, design principles evident	Some elements of creativity and originality exist, and essential design principles are generally evident	Exudes creativity and originality; essential design principles and elements are well integrated	
<b>Appearance and Construction</b> (X1)	Unorganized and sloppy; seems to be thrown together	Somewhat organized and aesthetically pleasing	Logical, organized, cohesive, and aesthetically pleasing	
<b>Documentation report</b> (X2)	Lacking depth; missing description of the design process used to create the poster and/or an explanation as to how the theme influenced the design	Explanation addresses some of the design processes used to create the poster as well as how the theme influenced the design	The explanation includes a full, detailed discussion of the design process used to create the poster as well as how the theme influenced the design	

<b>ENTRY SUBTOTAL (70 points)</b>	
<p>Rules violation (a deduction of 20% of the total possible points for the above sections must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.</p> <p>Indicate the rule violated _____</p>	
<p><b>To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.</b></p>	<b>TOTAL (70 points)</b>



## OVERVIEW

The Sky Eagle event requires analytical thinking, experimentation, and interpretation of instructions in the solution of a designed problem. The problem is to construct a glider following specifications.

## ELIGIBILITY

Students will compete as individuals in this event. Please reference the [Event Matrix](#) for maximum entries.

## ATTIRE

Business Casual TSA attire (category C) as described in the PA-TSA dress code is the minimum requirement for the event.

## REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21<sup>st</sup>-century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication about the entry.

### A. The Glider

1. Contestants must provide an 11"x17" sheet of cardboard to be used as a pinboard and cutting board during construction.
2. Contestants must provide personal safety eyewear to be worn during the construction phase of the competition.
3. **Students will need to bring their kits. Kits should be unopened until they check in at the contest. The [Sky Eagle Kit](#) can be purchased [here](#).** All tools necessary to build will be provided.
4. Contestants will have one (1) hour to assemble the glider. Consult the conference schedule for the event start time.
5. Contestants may have two attempts to fly the glider for a timed glide. The longest-time flight will be the winner, with all other times ranked.

B. The top ten (10) finalists will be announced at the awards ceremony, as well as via the PA-TSA website.

## EVALUATION

- A. Glider construction
- B. Flight time

Refer to the official rating form for more information.

## OFFICIAL RATING FORM

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned (Example: an “adequate” score of 7 for an X1 criterion = 7 points; an “adequate” score of 7 for an X2 criterion = 14 points). A score of zero (0) points is acceptable if the minimal performance for any criterion is not met.

### Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a checkmark in the box.
- If an item is missing, leave the box next to the item blank and place a checkmark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

- ☐ Glider was constructed
- ☐ The glider was flown by the contestant
- ☐ ENTRY NOT EVALUATED

### ENTRY (105 points)

CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column
	1-4 points	5-8 points	9-10 points	
<b>Adherence to specification</b> (X1)	Glider only loosely follows specifications provided in the instructions	The glider follows most specifications provided in the instructions	Glider adheres to all specifications provided in the instructions	
<b>Design</b> (X1)	No alterations to the glider design have been made	Where possible, the glider design shows some alterations that may or may not improve performance and/or appearance	Where possible, the glider design has been altered in a way that definitively improves performance and/or appearance	
<b>Appearance and Construction</b> (X1)	Glider construction is sloppy; seems to be thrown together	Glider construction appearance indicates some attention has been paid to craftsmanship	Glider construction demonstrates a high level of craftsmanship	
<b>Flight Time</b> (X1)	1 <sup>st</sup> = 75 points 2 <sup>nd</sup> = 71 points 3 <sup>rd</sup> = 67 points 4 <sup>th</sup> = 63 points 5 <sup>th</sup> and 6 <sup>th</sup> = 60 points	7 <sup>th</sup> and 8 <sup>th</sup> = 55 points 9 <sup>th</sup> – 12 <sup>th</sup> = 50 points 13 <sup>th</sup> – 16 <sup>th</sup> = 44 points 17 <sup>th</sup> – 25 <sup>th</sup> = 36 points all others = 25 points		
<b>ENTRY SUBTOTAL (105 points)</b>				
Rules violation (a deduction of 20% of the total possible points for the above sections must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right. Indicate the rule violated _____)				
<b>To arrive at the TOTAL score, add any subtotals and subtract rule violation points, as necessary.</b>			<b>TOTAL (105 points)</b>	



**OVERVIEW**

The PA-TSA Snapshot Contest is designed to allow TSA members to demonstrate their skills in the field of Photography.

**Theme**

Please use the High School- Photographic Technology Theme located on the National Website. Students will only submit **ONE PHOTO** to address the theme.

**ELIGIBILITY**

The event is a pre-conference event without an on-site activity.

**ATTIRE**

Business Casual TSA attire (category C) as described in the PA-TSA dress code is the minimum requirement for the event.

**REGULATIONS AND REQUIREMENTS**

Students will work to develop their leadership and 21<sup>st</sup>-century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication about the entry.

**A. The Photograph**

1. Participants take an original photograph and then alter/edit that photograph using applications or programs of the participant's choosing.
2. The photograph should be reflective of the theme for the current year.
3. The photograph size is no larger than 5" x 7" and no smaller than 3 ½" x 5".
4. If the entry contains images of people, proof of consent must be provided for each person in the photograph.
  - a. Minors require parental consent. Use the Photo/Film/Video Consent and Release (see Forms Appendix on the TSA website) for any individuals included in the photograph.

**B. The Documentation Portfolio**

1. The portfolio must include the following pages in a single, multi-page PDF document in this order:
  - a. Title page with the event title, the conference city, and state, the year, and the team/individual chapter ID number(s); one (1) page
  - b. Table of contents; pages as needed
  - c. Altered/edited photograph, one (1) page
  - d. Original photograph; one (1) pages
  - e. Technical paper – explanation of the design process used to create the illustration as well as an explanation as to how the theme influenced the illustration's design; one (1) page
  - f. Specification Sheet; one (1) page
  - g. Photo/Film/Video Consent and Release (if applicable); pages as needed

**C. Submission**

1. Participants submit a multi-page PDF of the documentation portfolio.
2. Submission information will be provided on the PA-TSA website.

- a. Entries received, or changes made to submitted entries, after the deadline will not be judged.
- 3. Email verification of each entry will be made by the state conference planning team. .
- D. Email verification of each entry will be made by the state conference planning team.
- E. Judges evaluate the entries.
- F. The top ten (10) finalists will be announced at the awards ceremony, as well as via the PA-TSA website.

## **EVALUATION**

- A. The photograph
- B. The documentation portfolio

Refer to the official rating form for more information.

## SPECIFICATION SHEET

Title of Entry	
Camera Specifications (make, model, etc)	
Editing Program/Application	

## OFFICIAL RATING FORM

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned (Example: an “adequate” score of 7 for an X1 criterion = 7 points; an “adequate” score of 7 for an X2 criterion = 14 points). A score of zero (0) points is acceptable if the minimal performance for any criterion is not met.

### Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a checkmark in the box
- If an item is missing, leave the box next to the item blank and place a checkmark in the box labeled ENTRY NOT EVALUATED
- If a checkmark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

- ☐ PDF of the documentation portfolio, including photographs, was submitted
- ☐ ENTRY NOT EVALUATED

### ENTRY (70 points)

CRITERIA	Minimal performance	Adequate performance	Exemplary performance	Record scores in the column
	1-4 points	5-8 points	9-10 points	
<b>Composition of Photograph (X2)</b>	Composition lacks originality, a connection to the theme, and/or a demonstrated understanding of photography composition rules	The composition is somewhat original, connects to the theme, and demonstrates an understanding of photography composition rules	The composition demonstrates originality, interpretation of the theme, and a clear understanding of photography composition rules	
<b>Technical Quality of Photograph (X2)</b>	The photograph lacks technical quality in terms of contrast, lighting, and sharpness	The photograph demonstrates some technical quality in terms of contrast, lighting, and sharpness	The photograph demonstrates high technical quality in terms of contrast, lighting, and sharpness	
<b>Technical Paper (X2)</b>	Lacking depth; missing description of the design process used to alter/edit the photo and/or an explanation as to how the theme influenced the design	Explanation addresses some of the design processes used to alter/edit the photo as well as how the theme influenced the design	The explanation includes a full, detailed discussion of the design process used to alter/edit the photo as well as how the theme influenced the design	
<b>Portfolio (X1)</b>	The portfolio is unorganized and/or missing three (3) or more components	The portfolio has most components and it is somewhat organized	Only one (1) or none of the components are missing in the portfolio; content and organization are evident	

<b>ENTRY SUBTOTAL (70 points)</b>	
<p>Rules violation (a deduction of 20% of the total possible points for the above sections must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.</p> <p>Indicate the rule violated _____</p>	
<p><b>To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.</b></p>	<b>TOTAL (70 points)</b>