PA-TSA Competitive Events 2025

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

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 failsafe 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, LiIon, 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 are 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:
    o 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 1st place (10pts), 2nd place (5pts) and 3rd 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

OBOT FUNCTION TEST – TOURNAMENT RESULTS (75% of Total Score)

Win – Judges Decision _____ x 1pts =	Opponent Tap Out _____ x 2pts =	Knock Out _____ x 3pts =	**Bout Points**
First Place Finish +10 Pts	Second Place Finish +5 Pts.	Third Place Finish +3 Pts.	**Place Winner Points**
			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 prior to 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 pertaining to the event specifics.
C. Participants provide their own 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 in order 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 21st21st-centurylls 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 pertaining to the entry.

A. Participants should concentrate their efforts prior to the competition on researching, understanding, and practicing all aspects of cybersecurity. Please refer to the sample challenge topics listed below and the resources on the TSA website.
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 own 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 flaw that must be identified and exploited. Very often SQL injection, command injection, directory traversal, and XSS vulnerabilities are introduced and exploited in these categories.
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 in order 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 in order 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 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

CYBERSECURITY

2021 & 2022 OFFICIAL RATING FORM

HIGHSCHOOL

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 (a 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 duecution in the space to the right. Indicate the rule violated:				
To arrive at the TOTAL Score, add any subtotals and subtract rules voilations points, as necessary. Total (100 points)				
Comments:				

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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-siteequipmentasneeded
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 pertaining to 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 approval of the CRC in order 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 DELTA DART/ Sky Eagle
Middle School

OVERVIEW
The Delta Dart/ Sky Ealge 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. Note: The Delta Dart will be phased out in 2026 season.

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 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. 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 own kits. Kits should be unopened until they check in at the contest. Students may use either a Delta Dart Kit or a Sky Eagle Kit.**
   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
C. Students using a Delta Dart Kit will compete against other students using a Delta Dart Kit. Students using a Sky Eagle Kit will compete against other students using a Sky Eagle Kit.

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 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.

☐ Glider was constructed
☐ Glider was flown by contestant
☐ ENTRY NOT EVALUATED

ENTRY (105 points)				**Record scores in the column spaces below**
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Adherence to specification (X1)	Glider only loosely follows specifications provided in instructions	Glider follows most specifications provided in instructions	Glider adheres to all specifications provided in instructions	
Design (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	
Appearance and Construction (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	
Flight Time (X1)	1st = 75 points 2nd = 71 points 3rd = 67 points 4th = 63 points 5th and 6th = 60 points	7th and 8th = 55 points 9th – 12th = 50 points 13th – 16th = 44 points 17th – 25th = 36 points all others = 25 points		
			ENTRY SUBTOTAL (105 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 (105 points)**	

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 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. 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 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. 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 spaces below**
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Camera Handling (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	
Lighting (X1)	Numerous shots are improperly lit; bleaching, shadows, or unbalanced conditions may be evident in some shots; there is no evidence of an attempt to correct problems	Most shots are properly lit, either through ambient lighting or the use of techniques to correct poor lighting conditions	All shots are well lit, either through ambient lighting or the use of techniques to correct poor lighting conditions	
Audio (X1)	Audio may be unclear, distorted, or washed out from poor signal-to-noise ratio; there is evidence of the use of a built-in camera microphone that detracts from the message	The audio is clear, with consideration given to a good signal-to-noise ratio; background or ambient noise may occasionally be a distraction	The audio is clear and recorded with a good signal-to-noise ratio, displaying skillful microphone choice, placement, and technique	
Continuity and Pacing (X2)	The story sequencing is confusing; shots are too long or "clipped" with edit points appearing "glitchy"	The pace and timing are well structured; clips move along and tell the story, with moderate use of transitions	Shots logically pace the story along in an interesting way, with excellent and purposeful use of transitions	
Aesthetics and Artisanship (X1)	The work is unorganized and sloppy	The work provides an organized and logical	The work provides an exemplary use of layout and design principles to	

		presentation of essential issues	logically communicate important data	
Video Effectiveness (X2)	The video does not meet project goals/theme, presents an unclear message, and/or is sloppy overall; leadership and/or 21st-century skills are not evident	The video topic is presented with insights; the video adequately meets the objective/theme; leadership and/or 21st-century skills are somewhat evident	The video is focused on the objective/theme, with a rich variety of supporting material; leadership and/or 21st skills are evident	
Portfolio (X1)	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	
			VIDEO PRODUCTION SUBTOTAL (90 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 _____	
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.	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.	**TOTAL (90 points)**	

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 the next year's PA-TSA T-shirt, PA-TSA State Conference program, and the PA-TSA website banner. The Middle School or High School winner will be chosen to have the designs appear on all PA- TSA State Conference publications (website, mailings, programs, etc.).

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

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 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. The Designs
   1. Design should include but are not limited to:
      a. the next year's TSA theme
      b. the TSA logo
      c. the year (example: 2023)
      d. 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
      a. Only the back of the shirt should be screen-printed. The design should be a maximum size of 11" x 17".
      b. The entry should be a multi-colored product with 2-3 colors of ink.
      c. The entry must include 25 test prints on paper or other screenprinting substrate.
   4. Webpage Header Design
      a. 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.

b. 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 freedomain) 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 generate work will not be accepted.
    d.

B. The Documentation Portfolio
1. The portfolio must include the following pages in a single, multi-page PDF document in this order:
2. Title page with the event title, the conference city, and state, the year, and the team/individual chapter ID number(s); one (1) page
3. Table of contents; pages as needed
4. 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
5. PA Logo Designs; pages as needed
    a. T-shirt design with B&W color separations
    b. Webpage header design with B&W color separations
    c. Conference program cover design with B&W color separations
6. Specification Sheet
7. In addition to the documentation portfolio in PDF format, .png files must be included for the t-shirt design, webpage header, and conference program.
8. 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. Tshirts not lending themselves to mounting must still conform to display area limits of 1’ deep x 3’ wide x 3’ tall.
4. Displays shall demonstrate artisanship, creativity, and overall quality (sharp, clean edges of graphics and fonts; entry is clear of smudges, smears, pencil, or other extraneous marks).
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, image files (jpg, jpeg, or png) for banners, layed pdf (ai or eps) for the t-shirt layers, and hyperlink to the digital display to the designated submission file.
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.
5.

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 at the time and place designated in the conference program.

G. H. Judges evaluate the entries.

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

EVALUATION

A. The designs and digital display
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 DISPLAYS (80 points)				**Record scores in the column spaces below**
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Elements of Design (X2)	Choices of font, color, and images appear haphazard; eye appeal, proportion, balance, and unity are lacking. Missing major elements including TSA Logo, year, 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; includes all needed aspects including Logo, year, and correct theme.	
Technical Aspects (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	
Creativity and Innovation (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	
Complexity (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)	

Table of Contents

DOCUMENTATION PORTFOLIO (50 points)				Record scores in the column spaces below
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	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)	Definition and explanation of the process are unclear, student did not screen print or no proof was presented.	The process is defined and explained appropriately, 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.	
			DOCUMENTATION PORTFOLIO SUBTOTAL (50 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 (130 points)**	

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 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.

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 pages in a single, multi-page PDF document in this order:
    2. Title page with the event title, the conference city, and state, the year, and the team/individual chapter ID number(s); one (1) page
    3. Table of contents; pages as needed
    4. 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
    5. Working drawings, including parts list and all necessary dimensions; five (5) pages maximum
    6. Photographic verification of the project; pages as needed
        a. A variety of images are recommended to allow the judges to accurately evaluate workmanship and project complexity
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.
    b. Email verification of each entry will be made by the state conference planning team.

D. Upon arrival at the state conference, participants will set up physical displays at the time and place designated in the conference program.
E. Judges evaluate the entries.
F. 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 spaces below**
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Workmanship (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	
Technical Aspects (X2)	Designs demonstrate little understanding of technical knowledge in terms of materials, finish, construction processes	Designs demonstrate some understanding of technical knowledge in terms of materials, finish, construction processes	Designs demonstrate a depth of technical knowledge in terms of materials, finish, construction processes	
Creativity and Innovation (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	
Complexity (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	
			PROJECT DISPLAY SUBTOTAL (80 points)	

DOCUMENTATION PORTFOLIO (50 points)				Record scores in the column spaces below
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	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	
Written Developmental Procedures (X2)	The written description of the developmental procedure(s) used to create the project is unclear and is missing information on 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	
Working Drawings (X1)	Working drawings are included but lack clarity and maybe 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	
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	
			DOCUMENTATION PORTFOLIO SUBTOTAL (50 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 _____	

PRELIMINARY SUBTOTAL (130 points)	

SEMIFINALIST PRESENTATION/INTERVIEW (50 points)				Record scores in the column spaces below
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Organization (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	
Articulation (X1)	Communication of the solution is unclear, unorganized, and/or illogical; leadership and/or 21st-century skills are not evident	Communication of the solution is somewhat logical and clear; leadership and/or 21st-century skills are somewhat evident	Communication of the solution is clear, concise, and logical; leadership and/or 21st-century skills are evident	
Delivery (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	
Knowledge (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	
			SEMIFINALIST PRESENTATION/INTERVIEW SUBTOTAL (50 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 _____	

SEMIFINAL SUBTOTAL (50 points)	

To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary. **TOTAL (180 points)**	

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

Event is a pre-conference events 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. Documentation portfolio is to be a single multi-page PDF.
    2. The report cover must include the following single-sided, 8½" 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. Definition and explanation of the issue and solution; two (2) pages
        d. An explanation of the impacts of the issue, such as relevance to environmental, economic, social, and/or ethical considerations; maximum three (3) pages
        e. Supporting information such as logs, graphs, sketches, drawings, illustrations, photographs, etc.; maximum four (4) pages
        f. 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
        g. 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
        h. 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
        i. 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. The Digital Scientific Poster

1. Participants must create a digital scientific poster presenting their research and solution. An editable, downloadable template is available on the TSA website under Themes & Problems. Use of the provided template is optional; one (1) page.
2. Participants shall incorporate visuals into the digital scientific poster. The scientific poster can have a maximum size of 8.5” x 11”.

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 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				
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	**Record scores in the column**
	1-4 points	5-8 points	9-10 points	
Explanation of Impacts (x2)	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 environmental, economic, social, and/or ethical considerations.	Explanation includes a full discussion of the issue's relevance to environmental, economic, social, and/or ethical considerations.	
Supporting Information	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.	
Research, References, and Resources	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.	
Communication of Solution	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.	

Creativity	The display lacks creativity; no, or very few, design principles are integrated in the display.	Some elements of creativity exist in the display, and essential design principles are generally evident.	The display exudes creativity; essential design principles and elements are well integrated.	
Aesthetics and Artisanship	Work is unorganized and sloppy; display seems to be an afterthought or thrown together.	Display generally depicts the issue.	Display is exemplary in logically communicating the issue.	
			DIGITAL SCIENTIFIC POSTER SUBTOTAL (70 PTS)	

DOCUMENTATION PORTFOLIO				**Record scores in the column**
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio	Portfolio is unorganized and/ or missing three (3) or more components.	Portfolio has most components and it is somewhat organized.	Portfolio is missing no components and is clearly well organized.	
Definition and Explanation of Issue	Definition and explanation of the issue is unclear.	Issue is defined and generally explained.	Clear and concise definition and explanation of the issue are evident.	
Scenario and Research Base	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.	
Support Materials	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.	
Aesthetics and Artisanship	Work is unorganized and sloppy;	Display generally depicts the issue.	Display is exemplary in logically	

	display seems to be an afterthought or thrown together.		communicating the issue.	
DOCUMENTATION PORTFOLIO SUBTOTAL (50 PTS)				
TOTAL (120 PTS)				

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 American Cancer Society, 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

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

REGULATIONS AND REQUIREMENTS

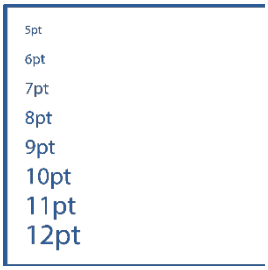
Students will work to develop their leadership and 21st-century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication about the entry.

A. 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:
                ii. Identify the Scale: 1:2
                iii. Actual Size: 1.5 inches x 1.5 inches

iv. 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.
   3. Entries received, or changes made to submitted entries, after the deadline, will not be judged.
   4. Email verification of each entry will be made by the state conference planning team.
   5. Judges evaluate the entries.
   6. 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										
Specification Sheet- 30 points max. Title page-3 points Event title, the conference city, and state, the year, and the team/individual chapter ID number(s); Design Explanation- 10 points 250 words or less (1pt) Explains use of color (3pts) Explains use of elements (3pts) Explains layout/unity of design (3pts) Design To-scale Image- 3points Design is to scale (1 pt) Includes size in inches (2 pts) Design Enlarged Image- 3 points Enlarged (1 pt) Easy to see all elements of design (2pts) Design Specifications- 10 points Includes colors and hex numbers, if applicable (5pts) Includes font names and sizes, If applicable (5pts) Clipart Documentation (if applicable) 1 point An appropriate citation format is utilized (if no clipart used, award full points) (1pt)										
Pin Design Evaluation- 60 points max. Includes Necessary Components points- 5 points "Pennsylvania TSA" or "PA-TSA" TSA Logo Fonts/Words- 10 points Fonts types are easy to read Font sizes are at least 5pt GrammarSpelling Shape/Sizing 10 points Shape is not too complex, relates to overall design Size is appropriate (within 1.5*X1.5* recommended)										

Table of Contents

Color/Eye Appeal- 10 points Consistent with design theme At most 5 color inks used Easy to read/differentiate, neat & organized Overall Design Theme & Originality- 25 points Relates to Pennsylvania and/or Pennsylvania TSA Proportion, Balance, and Unity (elements fit together)										
Overall Neatness- 5 point max										
Rules Violations										
Total Points										
Evaluator's Signature										

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. The task and the specifications will be included in a separate document each year.

ELIGIBILITY

Students will compete as a team of 2 to 3 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 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.

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 has been assembled from parts of other vehicles or that have been manufactured by the team during the current school year. Factory-assembled/built vehicles that cannot be disassembled are not allowed. If the vehicle was purchased as an RTR (ready-to-run) vehicle during the current school year or has been used in previous years, it also must have been unassembled and reassembled during the current school year. Proof of the disassembling process must be one of the pictures in the picture documentation of the portfolio. The picture should show the disassembled pieces on a piece of paper or newspaper that clearly shows the current school year date.
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 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. 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 than 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 (does not include purchased preformed bodies that are custom cut), and also contain clear and thorough documentation in the portfolio. 3D 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 rearmost part of the vehicle must contain a shock-absorbing bumper 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.

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. 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. Drawing(s) of the student-made parts; pages as needed
        e. 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 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. 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 anycombination 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 thevehicle 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 turn 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 forthe last race in each level must be turn marshals for the first race in each level.
   b. Instructions on handling upset or stuck vehicles are included in the"Vehicle Task" document.
   c. Vehicles in need of repair are to be set outside of the track nearest the spot of the trouble. The pit crewmember must pick up the vehicle at that point and return it to the "pit area" for repairs. Pit crewmembers must go around the track, not across it, to pick up their vehicle. Once repaired, thevehicle must be returned to the track in front of the "pit area".
   d. A vehicle on the track has the right of way over a vehicle that has gone offthe track, overturned, or otherwise has problems.
   e. Turn marshals must treat all vehicles equally.
   f. Drivers, or their substitutes, are responsible for knowing the requirements of a turn marshal and following them appropriately.

B. The Races
   1. The race director will generate and post a list of teams and a 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. Just before each race, transponders will be issued to each driver of the race. Transponders must be returned immediately following the end of their race.
6. The procedure for racing is detailed in the RC VEHICLE TASK document.

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.

2024-2025 Middle School RC VEHICLE TASK

A. Students must create a device with a container that will securely fasten on the vehicle. The container will carry a standard slow pitch soft ball while racing around the track. The device may be removable, but should be able to be attached quickly for the final race. The device must also allow the vehicle body to be removed so judges can check the internal aspects of the vehicle. The device (without a softball) must be in place at check-in.
B. The container of the device may be any shape (round, square, etc.), and must have a completely open top. The container must have sides with a bottom that has a maximum inside depth of one and one-half (1.5) inches. Inside dimensions of the container may not be less than four (4) inches across in any direction.
C. The device with the container may not attach to the vehicle body, but must attach securely on the chassis or bumpers. Attachment on both the chassis and the bumpers together is also permitted.
D. The ball must be able to move freely while being in the container. Nothing additional may be used to secure or keep the ball in the container.
E. The device and the container may be made from any material or product, including pre-made commercial products.
F. A mechanical or computer made drawing, with dimensions of the device and the container is to 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 be comprised of two preliminary heats and a main race.
    1. Preliminary Heats
        a. The preliminary heats will each be 3 to 4 minutes long (at the discretion of the race director), and may be driven without the device.
        b. Overturned or lodged vehicles, or those that leave the track may be repositioned back on the track at the spot of the mishap.
        c. The driver with the best score in the preliminary heats will be the driver in the main race.
    2. Main Race
        a. The main race will be 4 to 5 minutes long (at the discretion of the race director), and must have the device attached.
        b. The main race is also an exercise in defensive driving and should be in the mind of the driver at all times.
        c. At the start signal, the vehicle will travel around the track to the “pit area” where the pit crew will place the ball in the container, and the vehicle will continue racing again until the time elapses. The race director will provide the pit crew with the ball prior to the start of each race.
        d. During this race, a lodged vehicle, with the ball still in place, may be dislodged and carefully repositioned by one of the turn marshals.
        e. If a vehicle loses its ball, the vehicle will be removed from the race. All laps made up to that point will be counted.
        f. Any vehicle that is in front, has the right of way over a vehicle behind it.
        g. Any vehicle that hits another vehicle causing it to lose its ball, will have 3 laps deducted from the hitting driver’s score, and will be removed from the race. The other car, which was hit by the offending driver, will have its ball replaced at the area of impact, and may continue racing.

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. If the vehicle loses the ball as a result, the vehicle will also be removed from the race.

i. 2024-2025 High School R/C Vehicle Task

A. Students must design and fabricate a two (2) wheeled cart that is hitched to, and towed behind the RC vehicle. The cart body must carry six (6) ping pong balls.
B. The hitch, cart body, and cart framework must be student made. The wheels, axles, tires, and hardware to be used as a hitch pin may be commercially made.
C. The minimum area size (width times length) inside of the cart body that carries the ping pong balls is twenty-four (24) square inches. Maximum depth of the inside of the cart body is three-quarter (¾) inch. Maximum width of the entire cart, including the wheels and/or tires is eight (8) inches. There are no length restrictions for the cart.
D. The top of the cart body is to be completely open (no cover may be used to keep the ping pong balls inside). Nothing, including dividers, may be used to keep the ping pong balls from moving freely inside the cart body.
E. The hitch must be a single point connection that allows the cart to swivel freely from side to side. The hitch connection on the vehicle must be on the chassis or bumper (not on the vehicle body). A student-made extension for the vehicle chassis or bumper to make a hitch spot is permitted. The hitch should be designed to allow for an easy, secure mechanical hook-up and disconnect. Tape or Velcro are not permitted to connect the cart to the vehicle.
F. The tongue of the cart must be a minimum of six (6) inches long from the front of the tongue to the front of the cart body. The tongue may have braces to the rest of the cart frame.
G. A mechanical or computer made drawing, with complete dimensions of the cart is to be included in the portfolio. The drawing may be scaled and must be on standard 8½ by 11 paper. The drawing may be orthographic or pictorial. More than one drawing may be submitted if necessary. Drawings from Inventor or other programs are acceptable as long as dimensions are included.
H. At check-in, the vehicle must have the cart attached.
I. The following procedures will be followed for the racing portion of the event, which will be comprised of two preliminary heats and one main race.
    1. Preliminary Heats
        a. The preliminary heats will each be 3 to 4 minutes long (at the discretion of the race director), and may be driven without the cart.
        b. Vehicles that are overturned, lodged, or leave the track in these heats are set back on the track at the spot of the mishap.
        c. The driver with the best score in the preliminary heats will be the driver in the main race.
    2. Main Race
        a. The main race will be 4 to 5 minutes long (at the discretion of the race director). It will begin without the cart connected. At the start signal, the vehicle will travel to the “pit area” where the pit crew will connect the cart and place the ping pong balls inside, and continue racing until the time elapses, or the vehicle and cart are removed from the track.
        b. The main race is an exercise in defensive driving and should be in the mind of the driver at all times.
        c. At the end of the race, drivers will return their vehicle and cart to the pit area to have the ping pong balls counted. For each ping pong ball missing, one lap will be deducted from the drivers score.
        d. A vehicle may not cross the start/finish line if all ping pong balls are missing from its cart. If all ping pong balls are missing, the vehicle and the cart must be removed from the race. Laps made to that point, minus any penalties, will be counted.
        e. During this race, a lodged vehicle and/or cart that has not upset, may be dislodged and carefully repositioned by one of the turn marshals.

f. If a vehicle or cart upsets, leaves the track, or the vehicle loses its cart due to the driver's actions, it and the cart will be removed from the track immediately and have seven laps deducted from the driver's score.
g. Any vehicle that is in front, has the right of way over any vehicle behind it. Any vehicle hitting another vehicle with the right of way will have two (2) laps deducted from its score, unless it causes an upset, cart disconnect, or ball loss. If an upset, cart disconnect, or ball loss occurs, the offending driver's vehicle and cart will be removed from the track and have seven (7) laps scored deducted from that driver's lap score. The offended driver's vehicle, cart, and any ping pong balls lost at that point, will be repositioned at the spot of the offense, and may continue racing.
h. If there is a situation requiring the action of a marshal, other drivers must slow down (like a caution flag in a real race) so as not to hit the person(s) removing the items from the track. If a vehicle hits a person in this situation, 2 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.

_____

Advisor Signature

_____

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 1/10th 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 spaces below**
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Portfolio (X1)	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	
Descriptive Report (X1)	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	
Pictorial Documentation (X2)	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 three spelling or grammatical errors	The work of the team is somewhat documented or; includes fewer than five (5) organized pictures; or includes one (1) caption that is not multi-sentence or; no more than three spelling or grammatical errors	The work of the team is documented or; includes five (5) or more neatly organized pictures with multi-sentence captions; no spelling or grammatical errors	
Drawing (X1)	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.	

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DOCUMENTATION PORTFOLIO SUBTOTAL (50 points)	

VEHICLE (30 points)				Record scores in the column spaces below
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Body Appearance (X1)	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	
Piece for the Task (X2)	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	
			VEHICLE SUBTOTAL (30 points)	

RACE (75 points)			
Laps for Driver #1			
Laps for Driver #2			
Laps for Main Race			
Minus Lap Penalties			
Total Laps (used to determine race points)			
Race Points	1st = 75 points 2nd = 71 points 3rd = 67 points 4th = 63 points 5th and 6th = 60 points	7th and 8th = 55 points 9th – 12th = 50 points 13th – 16th = 44 points 17th – 25th = 36 points all others = 25 points	
DOCUMENTATION PORTFOLIO, VEHICLE, BONUS, AND RACE SUBTOTAL (175 points)			

BONUS (20 points)				Record scores in the column spaces below
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 (20 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 (175 points)**	

PA-TSA ROBOTICS
Middle and High School

OVERVIEW
Students will design, build, test, and demonstrate a remote-controlled robot and necessary accessories in order to carry out a specific challenge. This event is not platform-specific.

ELIGIBILITY
Students will compete as a team of 2 to 4 individuals in this event. Please reference the Event Matrix for maximum entries.

ATTIRE
TSA competition attire is required.

PREPARATION
A. Teams are required to turn in an Engineering Journal at the time of event drop-off.
B. Judges will use contest rubrics to determine results.

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

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 pertaining to the entry. Competitors in this event cannot move onto 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 the entry. Conference ID Badge is required.
B. All robots, controllers, batteries, accessories and engineering journals in a printed format will be collected at a time and place indicated in the conference program.
C. When the demonstration begins, the testing area is accessible only to judges and the team currently competing.
D. A spectator area will be set up for viewing.
E. Preparation time (maximum of 3 minutes) is used to install batteries and perform a system check, NOT for practice or modifications.
F. The clock starts at the judge's signal.

G. Each Team is given one (1) opportunity to demonstrate the robot. Elapsed time will be recorded to determine the place winners in event of a tie.
H. Teams whose robot fails to begin at the signal may be given a second chance to start again at the discretion of the event coordinator.

REGULATIONS

A. Course – Specifications for the Course/Challenge for each year will be made available on the PA-TSA website.
B. Robot – The entry may only consist of the robot, batteries, controllers and a printed Engineering Journal.
C. Robots may be constructed using recycled, salvaged and commercial parts. There is no specific platform or vendor required.
D. Any robot control system may be used. Commercial kits may be used, combined, adapted and re-engineered for the design challenge. Examples include, but are not limited to: VEX, LEGO, TETRIX, Fisher/Technic, Lynxmotion, HiTech and/or Arduino.
E. Size Limit for Robot – Size Limit is defined by the competition and field requirements.
F. The robot may be controlled by one or two remote control devices.
G. One or two operators may control the robot during the competition.

EVALUATION

TSA Robotics - Engineering Journal Evaluation

A. Check the TSA website for the current scoring rubric.
B. Must be submitted in a printed format – clearly labeled with team ID #
C. Engineering Journal MUST include:
    1. Plan of Work – may use worksheet or custom designed document: Date, Task, Time Involved, Team Member Responsible,
    2. Robot description: Paragraph describing how the robot meets the challenge. Clearly explain bonus features you expect to receive points for.
    3. Engineering Design Process: Problem definition, brainstorm, design, build, test, repeat.
    4. Technical Drawings – may include:
        a. Sketches, and/or Tool Drawings, and/or CADDrawings
    5. Bonus Points - teams may obtain bonus points for:
        a. Use of sensors in robot performance
        b. Use of programming to alter/assist robot control
        c. Use of multiple, interchangeable end effectors

TSA Robotics - Robot Evaluation

A. Check the PA- TSA website for the current scoring rubric

STEM INTEGRATION

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

Scoring

Scoring and placement will be based on the sum of the scores of the official scoring rubric. Scoring rubric can be found on the event task

Competition

Scenario: Missing F-35A Fighter Jet

In 2023, a F-35A fighter jet travelled travel 60 miles without a pilot after the pilot ejected in an emergency crash landing during a routine night training. The plane was worth 90 million dollars and is an advanced military aircraft that is undetectable. Your job is to recover the missing aircraft. Your robot will model the following competencies:

Task 1: Gain access to the crash area.
Task 2: Clear recovery road to gain access to crash site.
Task 3: Secure the recovery supplies without destroying the forest and deliver them to the recovery staging area.
Task 4: Place all four locating beacons around the jet in their designated areas.
Task 5: Recover the jet and move it to the designated secure location.

The tasks must be completed withing 3 minutes. Tasks must be completed in order as described in the scenario above. You may not advance to the next task until the previous task is completed. The attending judge may make a ruling allowing advancement without completion if deemed necessary. (Example: A course item is dropped outside the course perimeter and cannot be recovered by the robot due to reach or ability.)

Demonstration Process

1. The robot begins in the staging/start area located between the PVC outer perimeter. The robot must be touching the outer perimeter. (See Figure 6)
2. Competitors may confirm location of supplies or adjust slightly to match their program (within 1" of picture)
3. The robot must navigate all obstacles defined by the course layout.
4. The robot cannot cross over or touch any of the PVC pipe that defines the course parameters (penalty for touching PVC).
5. The clock will start on the signal by the event coordinator/judge.
6. The robot must open the gate to access the crash area. (See Figure 9,10,11)
7. The robot must clear all road debris to the designated road debris area. (See Figure 5,9)
8. The robot must avoid the "forest" that blocks the robot from getting to the recovery supplies. (See Figure 2)
9. The robot must pick up the recovery supplies and deliver them to the recovery staging area (yellow PVC tube). (See Figure 2,4)
10. The robot will need to navigate over the raised road ramp to gain access to the recovery staging area. (See Figure 7,8)
11. The robot must pick up each locating beacon (4) and place one in each of the four designated areas around the jet. (See Figure 4,1)
12. If competitors pick up all four beacons and deliver them in a single trip to the designated area and place them in the designated spots, they will receive bonus points. (See Figure 4,1)
13. Once all initial tasks are complete, competitors may remove the jet from the crash site and return it to the designed secure location. (See Figure 1,3)
14. The same robot base must be used for the entire demonstration.
15. The clock will stop when the robot is parked in the staging area after all tasks have been completed or the designated time (3 minutes) expires. (See Figure 3)
16. Tasks must be completed in order.

Scoring

Scoring and placement will be based on the sum of the scores of the official scoring rubric

Tie Breaker
In the event of a tie score, the team with the least elapsed time will receive the higher placement..

RESOURCES/RECOMMENDATIONS FOR FIELD SET-UP MATERIALS
Competition Area

1. The competition area will be defined by using 1" Schedule 40 PVC pipe and appropriate fittings. (Couplers, "T"'s, Elbows)
2. The inside dimensions of the boundary will measure: 64" L X 64" W. (+/- 1")
3. See diagram and bill of materials for detailed field layout.

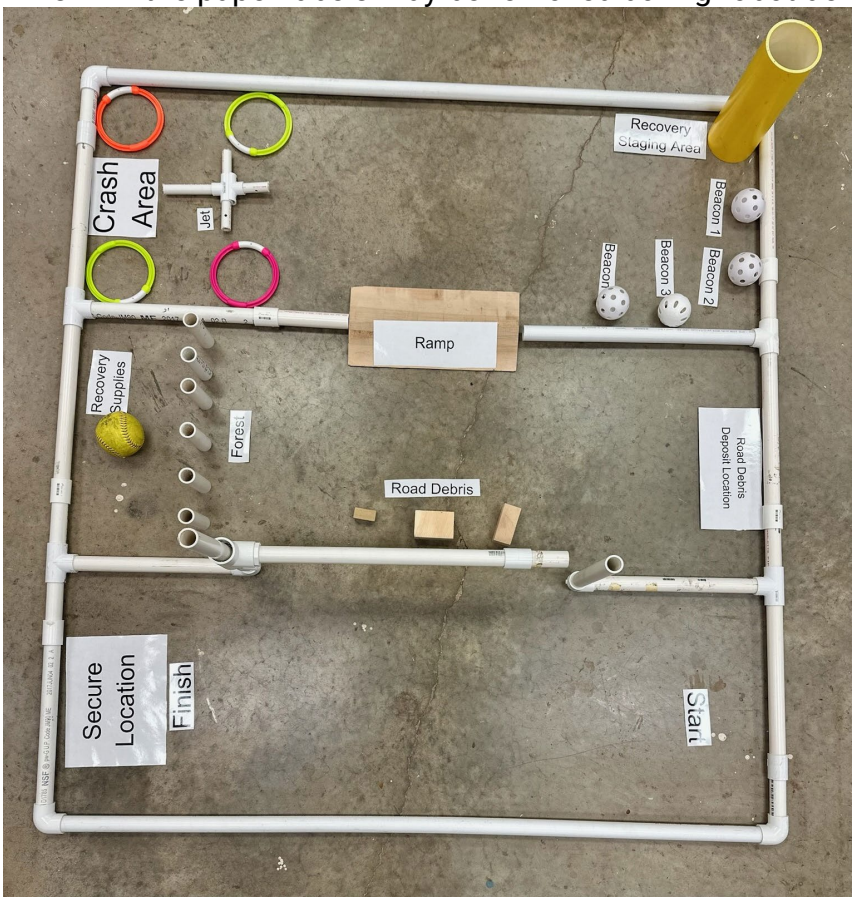
Bill of Materials

Quantity	Size	Material	Description
6	1" X 19"L	Schedule 40 PVC Pipe	Short sides
2	1" X 60"L	Schedule 40 PVC Pipe	Long sides
6	1" X 1" X 5"	Schedule 40 PVC Pipe	trees
2	1" X 1"x 16"	Schedule 40 PVC Pipe	Start and finish t-section
2	1"x1"x23"	Schedule 40 PVC Pipe	Jet/recovery t-section
2	1"x1"x15"	Schedule 40 PVC Pipe	Start upright
1	1"x1"x4"	Schedule 40 PVC Pipe	Bottom of gate
1	1"x1"x7"	Schedule 40 PVC	Top of gate
1	1"x1"x25"	Schedule 40 PVC Pipe	gate
1	1 ¼" Tee	Schedule 40 PVC "T"	Tee gate
1	1 ¼" to 1" reducer	Schedule 40 PVC 1 ¼" to 1" reducer	Tee gate
6	1" elbow	Schedule 40 PVC Pipe 1" elbow	Corners/uprights
5	1" tee	Schedule 40 PVC Pipe 1"tee	Sections and gate
1	Softball 3 ½"	Dudley cork center leather softball	Recovery supplies
4	Dive Rings	Dive rings 6"	Beacon locations
1	4"x4"x12"	Schedule 40 PVC 4"	Recovery Staging Area

4	Wiffleball	2 ¾” wiffleball	Beacons
1	Ramp	15”L X7 ¼”W 1 ¼” T	Road ramp
3	Wood Blocks	1 ¾”x1”x1” 3 ¼” x1 ½”x1 ½” 3 ½” x1 ½” x 2 ¼” Standard Pine	Road Debris
1	½” PVC	½” PVC 1-5” 3-3” 1-1/2”X1/2”X1/2”X1/2” Crossfitting	Jet

Field Boundaries:

1. The field boundaries will be defined by 1” PVC pipe and fittings as demonstrated in the diagram below.
2. The field surface will be 9 standard VEX field tiles.
3. All the paper labels may be removed during robot demonstration.



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1


Crash Area
Jet

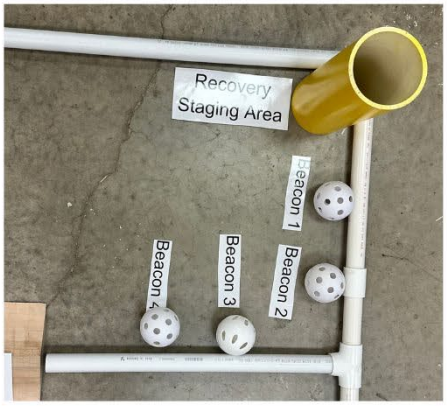
2


Recovery Supplies
Forest

3


Secure Location
Finish

4


Recovery Staging Area
Beacon 1
Beacon 2
Beacon 3

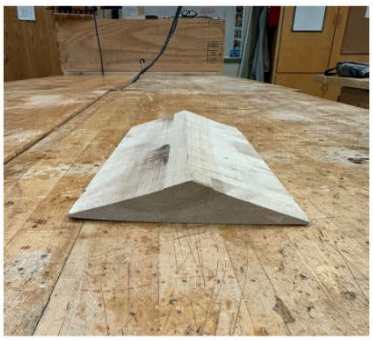
5


Road Debris Deposit Location

6


Start

7



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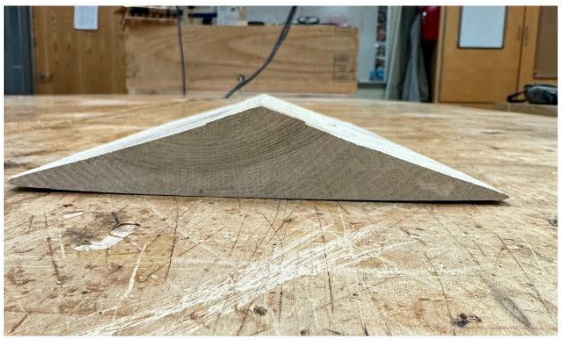

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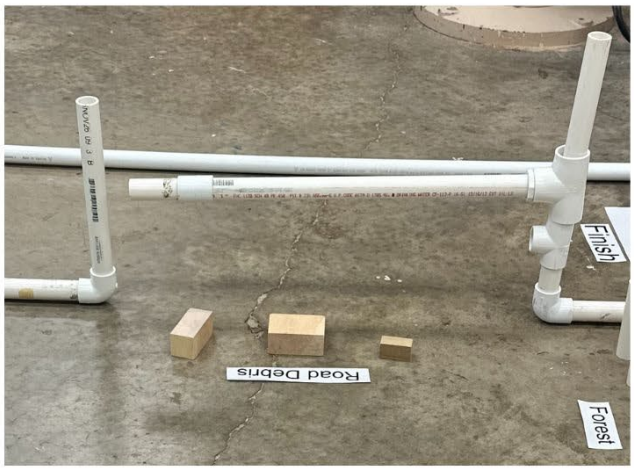

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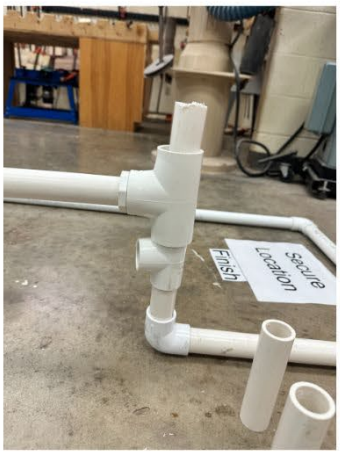

11

DEMONSTRATION SCORING

Criteria	Points Possible	Points Earned	Notes
Missions			
Open gate	10		
Clear debris to designated area	10 each		
Deliver recovery supplies	25		
Deliver beacons to designated area	5 each		
Return fighter jet to designated area	15		
Bonus Points			
Delivered 4 beacons in one trip	10		
Autonomous / programmed mission (3 max)	5 ea		
Use of sensors in performance.	5		
Use of multiple, interchangeable end effectors.	5		
Deductions			
Knock over trees (6)	-2 each		
Break course apart	-5		
Total Score:			
Elapsed Time			

PA-TSA ROBOTICS: OFFICIAL SCORING RUBRIC

Entrants ID: **Engineering Journal – 55 points total** *submitted in printed hard copy*		**Total Points**	**Comments**
"Plan of Work" – 2 Points each; 10 points maximum	**Points**		
Dates			
Task			
Time Involved			
Team Member Responsible			
Comments			
Robot Description: 10 points maximum (Complete and clearly described (10pts); One item missing or incomplete (5 – 7 pts)	**Points**		
Paragraph describing how the robot meets the challenge.			
Engineering Design Process: 25 points maximum (Complete and clearly described (pts); One item missing or incomplete (2–4pts);	**Points**		
Problem Definition: Identifies the robot design challenge in detail at the start of each paragraph. States the goals for accomplishing the challenge.			
Brainstorm: Lists three or more possible solutions to the challenge with labeled diagrams			
Solution: Explains why the solution was selected through testing and/or a decision made for the solution.			
Build: Records the steps to build and program the solution. Includes enough detail to explain the steps in the notebook.			
Test & Refine: Records all the steps to test the solution, including test results. Shows times to improve performance			
Technical Drawings (Minimum 5 drawings) (10 combined points) (2 pts each)	**Points**		
Technical Drawings May Include: CAD Drawings, Tool Drawings, Technical Sketches			
Robot Demonstration – As indicated; 100 points maximum Elapsed Time:			
Misc Deductions:			
Total Points			

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

Evaluator's Signature_____

PA-TSA SAFETY ILLUSTRATION

Middle and High School

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

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 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. 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 spaces below**
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Elements of Design (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	
Creativity and Innovation (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	
Appearance and Construction (X1)	Unorganized and sloppy; seems to be thrown together	Somewhat organized and aesthetically pleasing	Logical, organized, cohesive, and aesthetically pleasing	
Documentation report (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	
			ENTRY SUBTOTAL (70 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 (70 points)**	

PA-TSA SNAPSHOT
Middle School

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

Theme
2024 Theme- Long Exposure

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 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. 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) page
        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.
    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 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)				**Record scores in the column spaces below**
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
Composition of Photograph (X2)	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	
Technical Quality of Photograph (X2)	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	
Technical Paper (X2)	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	
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	
			ENTRY SUBTOTAL (70 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 (70 points)**	