Steve Price, Georgia TSA Executive Director, 678-551-0840 sprice@gatsa.org

The Technology Student Association (TSA) is a national organization for elementary, middle and high school students who are presently enrolled in or have completed technology education classes. Engineering & technology education classes have a twofold mission: to help students gain an understanding of the engineering career field, the development and use of technology and to assist in the development of individual potential. TSA fosters this mission by developing leadership abilities and instilling a sense of pride in one's work. TSA also promotes high standards of technical ability, scholarship and safety. TSA is an organization that values the unique capabilities of students and offers many opportunities for personal growth and success.

Technology Day at the Georgia National Fair provides Georgia TSA (Technology Student Association) members with an opportunity to compete in various competitions to win money for their chapter and participate in a motivational rally to help get you pumped up and excited about the year to come!

Open to all students who are presently or have been enrolled in any technology education class in any middle school or high school in the State of Georgia.

All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. Email questions to sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.

Advisors are required to register online at GeorgiaNationalFair.com (https://www.georgianationalfair.com/p/georgialiving/youth) for all competitions by September 6, 2023. Late entries will not be accepted. No substitutions allowed. Required password must be obtained by Sept. 1, 2023.

ONLINE REGISTRATION

You will log in as your "club", but all contests will be entered in the Chapter/Club name.
When you add the exhibitor, you will enter the SCHOOL NAME in the first name field and TSA in the last name field. You will add all entries under this one exhibitor name. Individual student names must be entered in the Student Name field.

All checks $15 or more will be made out to the Chapter and the advisor/agent will be responsible for distributing funds to participants. Participant names must be entered in the Student Name field for each entry to be able to track premium awards.

Exhibitors will be required to turn in a copy of their online registration confirmation to check-in for competitions.

PLEASE NOTE THAT THE COMPETITIONS AND THE RALLY ARE TWO SEPARATE EVENTS AND REQUIRE SEPARATE REGISTRATION.

Due to increased administrative costs, for chapters/clubs that earn less than $15 in cumulative premiums, the exhibitors who place will receive ribbons, but will not be issued a check.

Rally information is included on the last page of this information. ***IMPORTANT - SEE FAIR GATE ENTRY PROCEDURE AND FEES. For rally questions, please contact Georgia TSA at 678-551-0840 or sprice@gatsa.org.

GEORGIA NATIONAL FAIR
TSA SUPERIOR CHAPTER AWARD

1st Place - Superior Chapter - $500
2nd Place - Reserve Superior Chapter - $250

Sponsored by the Georgia National Fair

All placings will be put on a point system, example: 1st place=10 pts, 2nd place=9 pts, etc. These points will be calculated by chapter and the chapter with the highest accumulated points after the last competition will receive a GNF Superior Chapter Award plaque and $500. The second place chapter will receive a GNF Reserve Superior Chapter Award plaque and $250.

Congratulations!
2022 Georgia National Fair
TSA Superior Performance Award Winners

Superior Chapter
East Forsyth High School

Reserve Superior Chapter
(3 WAY TIE)
Paul Duke STEM High School
Houston County High School
Wesleyan Middle School

TSA RULES

1. Open to all students who are presently or have been enrolled in any technology education class in any middle school or high school in the State of Georgia.

2. All participating students must report with their teacher/advisor to the East ticket gate for admittance.

3. Top ten entries will be kept at the fair for display in the Miller-Murphy-Howard Building during the remainder of the Fair; other projects must be picked up after top tens have been established. **Due to the varying number of event entries, GA TSA cannot guarantee exactly when judging will be completed. Signage will be displayed at the event when entries may be retrieved.**

4. **Winning entries will be retrieved from the Fairgrounds after the Fair closes by GA TSA. They will be available at the GA TSA Locust Grove Office for chapters within a reasonable driving distance (Metro/South Metro Counties). All other entries will be taken to the GA TSA Fall Leadership Conference for pickup. Any entries not picked up at that time will be discarded. Any remaining at the Locust Grove Office will be discarded at the end of the school year.**

5. **ONLINE REGISTRATION WITH GEORGIA NATIONAL FAIR IS REQUIRED FOR ALL ENTRIES. DEADLINE IS SEPT. 6, 2023. Late entries will not be accepted. Deadline for securing account password is Sept. 1, 2023.**

6. **Exhibitors will be required to turn in a copy of their online registration confirmation to check-in for competitions. NO SUBSTITUTIONS WILL BE ALLOWED.**

COMPETITIONS

Pre-judged Competitions: Pre-judged Competitions will be turned in at the CORE Conference or electronically submitted by 11:59 PM **September 6, 2023**. These events will be judged during CORE (Chapter Officer Retreat for Excellence) and not at the Rally. None of those events will be accepted or judged at Tech Day.

On-site Competitions will be judged at the fair with an interview or live testing and must be turned in October 9, 2023 between 9:00 AM and 10:45 AM.

TSA Events

*Pre-judged Competitions	On-site Competitions
Architectural Design	Alternative Energy Design - Rubber Band Powered Airplane
Georgia TSA Pin Design	Conceptual Design - CO_2 Dragster
Program Promotion High School	Manufacturing Prototype
Program Promotion Middle School	Mousetrap Car Challenge
	Robotic Challenge H.S. “Rover Challenge”
	Robotic Challenge M.S. “Rover Challenge”
	Structural Design - Modular Toolbox

1st	2nd	3rd	4th	5th-7th	8th-10th
$100	$75	$50	$25	$15	$10

Sponsored in part by:

PITSCO
INNOVATIVE EDUCATION.

Due to increased administrative costs, for chapters/clubs that earn less than $15 in cumulative premiums, the exhibitors who place will receive ribbons, but will not be issued a check.

ARCHITECTURAL DESIGN CHALLENGE

ALL EVENTS MUST BE ENTERED with the School Name in the "First Name" field and "TSA" in the "Last Name" field. (Example: First Name "Best High School" and Last Name "TSA") and individual names must be listed in the Student Name field.

Enter online at www.GeorgiaNationalFair.com
(https://www.georgianationalfair.com/p/georgialiving/youth) by SEPTEMBER 6, 2023.

Entries are limited to one per chapter.

DIVISION 40101 ARCHITECTURAL DESIGN CHALLENGE

CLASS 01 Architectural Design Challenge

Design Challenge Background: Tree dwelling origins can be traced back to the people of the South Pacific and Southeast Asia. They lived in the trees to provide safety and security for their families and came and went using thatched baskets raised and lowered along the tree trunk. From backyard forts to sustainable houses, modern tree house construction has evolved into a thriving business.

OBJECTIVE:
The focus of the 2023 Architectural Design problem is to design a tree house capable of maintaining a permanent residence. This means year round living that includes plumbing and electrical. Tasks should include research and planning of an appropriate support system capable of withstanding expected tree movement due to weather conditions and other environmental and location related phenomenon.

a. Minimize environmental impact
b. Proper support structure
c. Minimum elevation of the first floor above ground is 10 ft.
d. Minimum 400 sq. ft.
e. Appropriate infrastructure (MEP) needs consideration.

PROCEDURES: Students must submit their display during check-in at CORE on September 9, 2023. Tech Day entrants who cannot attend CORE may ship their entry to Steve Price, GA TSA c/o Kaplan Mitchell Retreat and Conference Center, 70 Darom Lane - Clayton, GA 30525 to arrive by September 8, 2023, or have the entry brought to CORE by another Chapter. GA TSA is not responsible for entries lost in shipping. **No entries will be accepted at Tech Day.**

A copy of the online registration confirmation will be required to check-in for competition.

CONTEST RULES:
The design must meet the following criteria:
1. **All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. Email questions to sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**
2. The participants must place all requirements on a standard display board (20" x 30")
3. The participants are to design an architectural floor plan that meets the current year's problem.
4. The floor plan is to be submitted on maximum drawing sheet cut size B (11" x 17") with standard scale as found on Architectural triangular scale, (1/8" = 1' - 0", 1/4" = 1' - 0", etc.). Smaller format is acceptable and must include a detail drawing of the support system.
5. A 3-D rendering must be submitted on maximum drawing sheet cut size B (11" x 17"). Smaller format is acceptable.
6. While 3-D modeling may be used to enhance the rendering, the actual habitat must be the original work of the student.
7. **Do not submit a physical 3-D model of your design**.

ARCHITECTURAL DESIGN CHALLENGE (continued)

8. A written description of the style and merits of the design concepts must be included and must answer the following questions (1 page).

a. How does your design meet the main requirements for the intended purpose?
b. Provide a rationale for site location and tree species selected.
c. Construction materials and methods shall be clearly defined and should be carefully selected to take into account durability, and overall appropriateness.
d. What are the advantages of your layout?
e. Why have you included specific features?
f. Please supply a list of all credits for any third party models used within your rendering.
g. **Sources cited for research.**

EVALUATION:

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Written Description 25 points	Description is incomplete/ missing several required elements	Description has all required basic elements	Description has all required basic elements. It is well written and is very detailed.
Design 35 points	The design is missing some required features. The layout is not functional/ logical. Required support structures have not been included.	The design incorporates all required features. The layout is functional and logical. Support structures have been included.	The design incorporates all required features and maybe some extra. The layout is well thought out, functional and logical in all aspects. Support structures have been included and show proper planning and forethought.
Quality 25 points	The drawing is poor and lacks precision. Some areas are not clearly labeled and some dimensions are not included and/or are improperly placed.	The drawing is neat and precise. Most areas are clearly labeled and Most dimensions are included and properly placed.	The drawing is neat and very precise. All areas are clearly labeled and all dimensions are included and properly placed.
Rendering 15 points	A 3D rendering is included that somewhat matches the description. It has few details but does not give the viewer an accurate idea of the intended design.	A 3D rendering is included that matches the description. It has basic details and gives the viewer an accurate idea of the intended design.	A 3D rendering is included that precisely matches the description. It is very detailed and gives the viewer an excellent idea of the intended design.

GEORGIA TSA PIN DESIGN CHALLENGE

ALL EVENTS MUST BE ENTERED with the School Name in the "First Name" field and "TSA" in the "Last Name" field. (Example: First Name "Best High School" and Last Name "TSA") and individual names must be listed in the Student Name field.

Enter online at www.GeorgiaNationalFair.com
(https://www.georgianationalfair.com/p/georgialiving/youth) by SEPTEMBER 6, 2023.

DIVISION 40201 GEORGIA TSA PIN DESIGN CHALLENGE

CLASS 01 Georgia TSA Pin Design Challenge

OBJECTIVE: Participants design a lapel pin that can be used to promote Georgia TSA at legislative events and that members can trade at the TSA National Conference Mixer.

Entries are limited to three per chapter.

PROCEDURES: Students must upload their designs via the GA TSA Event Management System Tech Day Registration site no later than midnight September 6, 2023 in a PDF document.

A copy of the online registration confirmation will be required to check-in for competition.

CONTEST RULES:
1. **All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. Email questions to sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**
2. The design must meet the following criteria:
- Any and all use of the TSA emblem must abide by TSA Trademark Policies as outlined in the National TSA webpage at www.tsaweb.org. You cannot alter the logo or its parts. (ie: using standard font in place of the logo letters in the logo)
- There must be no use of copyrighted materials other than the TSA logo.
- Participants will design a TSA pin that can be worn on blazers, jackets, shirts, sweaters, or blouses.
- The pin must include the letters TSA. It must also include either the state shape or the word Georgia or both in the design. Icons that represent our state have been used in previous designs.
- The design of the lapel pin must avoid using the shape of the state filled with art. Please be creative with the shape and make something unique and creative. The state shape may be used in the art, but must not be the shape of the pin.
- The design must be computer generated and submitted as an 8 ½" x 11" document and must include the design in both actual size and in an enlarged version to show detail.
- The actual pin size will range from ¾" to 2". The size and number of letters in the design must be taken into consideration; a letter on a 10 inch piece of paper will be reduced to 1/10 of an inch on a 1" pin. Therefore, fewer letters and greater size is recommended for a more legible pin.

EVALUATION:
Submissions will be screened for rules infractions prior to being judged at CORE.

NOTE: Georgia TSA reserves the right to make any changes to the design which may conflict with its production. All pin designs become the property of GA TSA. When a participant enters a design, he or she relinquishes all rights for the sale and use of the design to GA TSA.

PROGRAM PROMOTIONAL CHALLENGE

ALL EVENTS MUST BE ENTERED with the School Name in the "First Name" field and "TSA" in the "Last Name" field. (Example: First Name "Best High School" and Last Name "TSA") and individual names must be listed in the Student Name field.

Enter online at www.GeorgiaNationalFair.com
(https://www.georgianationalfair.com/p/georgialiving/youth) by SEPTEMBER 6, 2023.

DIVISION 40303 PROGRAM PROMOTION CHALLENGE MIDDLE SCHOOL
40304 PROGRAM PROMOTION CHALLENGE HIGH SCHOOL

CLASS 01 Program Promotion Challenge

OBJECTIVE: Chapter members must work together to create a display that could be used to Promote their school's STEM/Engineering Program offerings which includes their TSA chapter. The display could be used at PTSA or Open House to explain/advertise all that your STEM/Engineering Program has to offer. Program Promotional Challenge will be judged on both the middle school and high school levels. Places will be awarded for this event on each level.

Entries are limited to one per chapter.

PROCEDURES: Students must submit their display during check-in at CORE on September 9, 2023. Tech Day entrants who cannot attend CORE may ship their entry to Steve Price, GA TSA c/o Kaplan Mitchell Retreat and Conference Center, 70 Darom Lane - Clayton, GA 30525 to arrive by September 8, 2023, or have the entry brought to CORE by another Chapter. GA TSA is not responsible for entries lost in shipping. No entries for Middle or High School challenge will be accepted at Tech Day.

A copy of the online registration confirmation will be required to check-in for competition.

CONTEST RULES:

1. **All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. Email questions to sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**
2. The total assembled maximum display size is 46" in width, 36" in height, and 18" in depth. **Although some pieces on the display may be made from plastic or wood, the main board may not be made from solid plastic such as Acrylic or PVC. However, sign making materials like Coroplast and Fome-Cor are acceptable.**
3. The display must be able to fold flat for transporting and storing. Attachments must be able to be removed and the chapter must provide a labeled container to store the loose attachments in, with specific instructions as to where these are to be placed and how to set up the display. Maximum Container Size: 10"x12"x15"
4. **The use of copyrighted artwork or characters is prohibited and will result in disqualification.**
5. The entry must be a display only. Extra printed materials must not be submitted with the display and will not be judged as a part of the project (ie. brochures, flyers, etc.).
6. Electricity will not be provided for the displays.
7. The top entries will be displayed during the Georgia National Fair; therefore, chapters must be prepared to leave their display in its entirety. The use of expensive accessories is strongly discouraged, unless the team is prepared to leave the item for the duration of the Georgia National Fair. Neither the Georgia National Fair nor Georgia TSA will be responsible for these items.

PROGRAM PROMOTIONAL CHALLENGE (continued)

EVALUATION:

Go/No Go (DQ offenses):

- **Display fits within 46" width, 36" height, 18" depth when set up, but folds flat**
- **Container for "additional materials" no bigger than 10" x 12" x 15" includes set-up/breakdown instructions.**
- **Main board must be made from Chloroplast or Foam-Core (no solid plastic, wood, etc)**
- **Must not include copyrighted artwork or characters**

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Content (x3)	Display is missing several required elements.	Entry displays School Name (including school level…MS vs. HS). Includes Information about STEM/Engineering Courses Includes Information about the TSA Chapter Includes Information about your School, Community, and/or State involvement	Clearly displays School Name (including school level…MS vs. HS) Includes Information about STEM/Engineering Courses Includes Information about the TSA Chapter Includes Information about the School, Community, and/or State involvement Other information central to your program not listed here
Design (x2)	The flow of the information needs work. Some information is readable and clear. The color scheme and proportionality are not complementary to the display.	The flow of the information is good. Most information is readable and clear. The color scheme and proportionality are complimentary.	The flow of Information is great. All information is readable and clear. The color scheme and proportionality are very effective and pleasing to view.
Impact	Overall impression is not positive. Display does not appeal to a broad audience.	Overall impression is mostly positive. Display appeals to broad audience, but could do more to appeal to those who might be unfamiliar with STEM/Engineering programs.	Overall impression is immediately positive. Display appeals to broad audience, including those who might be unfamiliar with STEM/Engineering programs.

ALTERNATIVE ENERGY DESIGN

ALL EVENTS MUST BE ENTERED with the School Name in the "First Name" field and "TSA" in the "Last Name" field. (Example: First Name "Best High School" and Last Name "TSA") and individual names must be listed in the Student Name field.

Enter online at www.GeorgiaNationalFair.com
(https://www.georgianationalfair.com/p/georgialiving/youth) by SEPTEMBER 6, 2023.

DIVISION 40401 Alternative Energy Design

CLASS 01 Rubber Band Powered Plane

OBJECTIVE: The objective is to build the lightest plane powered by a rubber band that will fly straight for at least 40 ft. with the least number of rubber band twists.

Entries are limited to one per chapter. (One team member will demonstrate on site.)

PROCEDURES: One (1) Student per team must submit the completed plane in the storage/travel box during check-in at Reaves Arena at the Georgia National Fair. After the opening session, the student will return to the event site to see if they made the top 24 and to sign up for a performance flight time.

A copy of the online registration confirmation will be required to check-in for competition.

CONTEST RULES:
1. **All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. Email questions to sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**
2. Students will sign up for a time slot and test their own devices in front of the judges. Students will have 30 seconds to set up prior to testing.
3. The device must pass a GO-NO-GO inspection including a safety inspection to insure no harm or damage will occur. **ANY UNSAFE DEVICES WILL BE DISQUALIFIED AND NOT TESTED**.
4. Devices not meeting the following specifications will be disqualified:
- Wing span not to exceed 13 inches
- Length of fuselage not to exceed 12 inches
- Tail fin height not to exceed 4 inches
- The device must have a storage/travel box not to exceed 14x14x5 inches (Uline model # S-462).

MATERIALS:
- The plane should be as light as possible and fly straight for at least 40 feet with the least number of rubber band twists. The time of flight will be recorded to break ties if needed.
- **You may use/modify a plane kit. (such as J&H Aerospace or Pitsco)**

Round 1 Judges Evaluation:
- The judges will evaluate each entry for storage box dimensions, plane specifications, weight of plane and craftsmanship to determine the top 24.
- After evaluation, the top 24 will be assigned a time slot to fly their plane. Students should check back with the event manager at the conclusion of the opening ceremony for testing time.

Round 2 Two Flight Attempts:
- The top 24 entries will get two attempts to fly their plane. The distance of flight and flight time will be recorded along with the number of twists of the rubber band.
- Judges will determine the top 10 by distance of flight with the number of twists used. Ties will be broken by time of flight.

CONCEPTUAL DESIGN CHALLENGE

ALL EVENTS MUST BE ENTERED with the School Name in the "First Name" field and "TSA" in the "Last Name" field. (Example: First Name "Best High School" and Last Name "TSA") and individual names must be listed in the Student Name field.

Enter online at www.GeorgiaNationalFair.com
(https://www.georgianationalfair.com/p/georgialiving/youth) by SEPTEMBER 6, 2023.

DIVISION 40501 Conceptual Design Challenge

CLASS 01 Conceptual Design - CO_2 Dragster

OBJECTIVE: The participant will design a CO_2 dragster for aerodynamic design and aesthetic appeal while considering specified regulations.

Entries are limited to two per chapter.

PROCEDURES:Students should submit their Conceptual Design Challenge vehicles during the event check-in at the Georgia National Fair.

A copy of the online registration confirmation will be required to check-in for competition.

CONTEST RULES:
1. **All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. Email questions to sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**
2. Each entry (Dragster) must adhere to the specifications listed below:

Dragster Body
2024 car body must have horizontal wings extending from both sides at the front and rear.
1.One (1)-piece, construction of wood or plastics, including urethane modeling foam
a. Two (2) or more like or unlike pieces of material glued together are not considered one (1)-piece
b. Any type of lamination will result in disqualification.
c. No add-ons, such as body strengtheners, fenders, plastic canopy, exhausts, or air foils may be attached to or enclosed within the vehicle. Hydro dipping technique is permitted.
d. Fiberglass, vinyl wrap, and shrink wrap are considered body strengtheners and cannot be used on the car body for any reason.
e. Decals may be used for decoration only; they may not be used to gain an aerodynamic advantage, i.e., decals cannot cover the exterior axle holes or be used to cover open areas of the body

	Minimum	Maximum
2. Body length	(2024) 265mm	(2024) 275mm
3. Body height with wheels		75mm
4. Body Mass (completed car – no CO_2 cartridge)	(2024) 98g	N/A
5. Body width at the point the axles pass through the body, front and back	35mm	42mm
6. Vehicle total width (including wheels)		90 mm

Axles/axle holes/wheelbase
1. Dragsters must have two (2) axles per car, no more.
2. Bottom of axle hole or bearing above bottom of car body. (Note: This will be measured at the side surfaces of the car body at the axle hole.)

	5mm	10mm
3. Axle hole from front and rear of car	15mm	100mm
4. Minimum wheelbase (axle distance apart at farthest points)	105mm	Not Specified

5. Bearings, bushings, and lubricants may be used.
6. Glue may be used to secure bearings to body.

CONCEPTUAL DESIGN CHALLENGE (continued)

	Minimum	Maximum
Spacer washers/clips		
1. Spacer washers		10
2. Axle clips		8
3. Silicone or any other type of glue/adhesive may not be used in place of wheel clips to hold wheels or axles in place		

Power Plant (CO_2 Cartridge Hole)

1. The power plant hole must be the farthest point at the rear of the car and must be drilled parallel to the racing surface to assure proper puncture of the CO_2 cartridge. A minimum of 5 mm thickness around the entire power plant hole must be maintained on the dragster for safety. The inside of the power plant hole must not be intentionally painted.

2. Hole depth	45mm	55mm
3. Safety zone thickness	5mm	
4. Chamber diameter	19mm	20mm
5. Lowest point of chamber diameter to race surface (with wheels)	26mm	40mm

Screw eyes

1. Dragsters must have two (2) screw eyes (no more) per car that meet tolerances. Screw eyes must not make contact with the racing surface. The track string must pass through both screw eyelets, which are located on the center line of the bottom of the car. Glue may be used to reinforce the screw eyes. It is the responsibility of the car designer/engineer to see that the screw eye holes are tightly closed to prevent the track string from slipping out. As with all adjustments, this must be done prior to event check-in.

2. Inside diameter	3mm	5mm
3. Minimum distance apart (at farthest points)	150mm	N/A

Wheels

1. A dragster must have four (4) wheels, no more.
    a. Two (2) wheels must meet the requirements in #2 and #3 below.
    b. The other two (2) wheels must meet the requirements in #4 and #5 below.
    c. All four (4) wheels must touch the racing surface at the same time.
    d. All wheels must roll.
    e. Wheels must be made entirely from plastic
    f. Dimensions must be consistent for the full circumference of each wheel.
    g. Measurement represents the FULL surface contact point where wheel makes contact with the track.

2. Front diameter	30mm	40mm
3. Front width (at surface contact point)	1.5mm	5mm
4. Rear diameter	35mm	40mm
5. Rear width (at full, unbroken, surface contact point)	12mm	18mm

Evaluation:

All dragsters will be weighed. Dragsters that are in compliance with the weight specifications will run a time trial. Dragsters that are out of weight compliance will not run. When time trials have concluded, dragsters with the fastest times will be checked for the above specifications until a top 10 is established. If a car does not pass inspection, the next fastest car will be moved up in the ranking order.

MANUFACTURING PROTOTYPE

ALL EVENTS MUST BE ENTERED with the School Name in the "First Name" field and "TSA" in the "Last Name" field. (Example: First Name "Best High School" and Last Name "TSA") and individual names must be listed in the Student Name field.

Enter online at www.GeorgiaNationalFair.com
(https://www.georgianationalfair.com/p/georgialiving/youth) by SEPTEMBER 6, 2023.

DIVISION 40601 Manufacturing Prototype

CLASS 01 Manufacturing Prototype

OBJECTIVE: Participants will use additive and/or subtractive manufacturing of any traditional, Computer Numerical Control (CNC), 3D printing, or laser technology available to create a product that fits the year's theme. This year's theme is a mechanical cam toy.

Entries are limited to one per chapter. (There can be up to 4 members on the team)

PROCEDURES: Students should submit the completed product and the display board during check-in at Georgia National Fair at Reaves Arena. Rubric scores will be based on a review of the product and the display.

A copy of the online registration confirmation will be required to check-in for competition.

CONTEST RULES:

1. **All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. Email questions to sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**

- One sample of the manufactured product must be submitted
- The cam mechanical toy cannot use copyrighted or trademarked characters or images.
- The product may use additive and/or subtractive manufacturing of any traditional, Computer Numerical Control (CNC), 3D printing, or laser technology available.
- The prototype must be constructed using at least two (2) CNC or CIM processes, including, but not limited to:
  - CNC Machining
  - Laser Engraving
  - 3D Printing
  - CNC Vinyl Cutting
- The finished product may not exceed 8"x8"x8".
- The product may be made of wood, plastic, or metal.
- Stock fasteners may be used. These include (but are not limited to) nuts, washers, screws, etc.
- Adhesives may be used in the product
- Parts may be finished (sanded, painted, stained) if necessary.

Display: A 20"x30" foam core, two-dimensional display must be submitted, containing the following items:

- The name of the event (Manufacturing Prototype)
- The name and description of the product created, including the purpose of the product.
- A CAD drawing of the product. This may be a 3D model. a working drawing, or an isometric assembly drawing.
- At least four pictures (actual photographs, not renderings) that show the process of manufacturing the item. Captions must accompany each picture
- A Bill of Materials

MANUFACTURING PROTOTYPE CHALLENGE (continued)

EVALUATION:

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Product: Theme	The effort is basic, with only a loose association to the product theme and the finished product is minimally creative.	The effort adequately addresses the product theme and the finished product displays average creativity.	The effort to address the product theme exceeds expectations and the finished product shows high levels of creativity.
Product: Additive or subtractive manufacturing piece (x2)	One or no CNC or CIM processes were used; finished product is poorly constructed and/or doesn't match the CAD drawing on the display.	Two CNC or CIM processes were used; however, the product quality could be improved or the product doesn't match the CAD drawing.	Product is attractive and neat and matches the CAD drawing indicated on the display. The product uses at least two CNC or CIM processes including, but not limited to CNC machining, 3D printing, laser engraving, CNC Vinyl Cutting.
Display: Components	Four or more components are missing from the display.	Two or three of the required components are missing from the display.	The display contains the name of the event, name of the product, a description of the product, a CAD drawing, at least four photographs and a Bill of Materials
Display: Drawing	The CAD drawing is poorly executed with key elements of the product design missing.	A CAD drawing is included, but components are missing from the drawing.	An accurate CAD drawing is included in the display. This may be a 3D model, a working drawing or an isometric assembly drawing.
Display: Manufacturing Process X2	Photographs are missing or are not labeled or do not show the process of manufacturing the product.	Some photographs are missing or are not clearly labeled. The manufacturing process is not clearly explained.	Four or more photographs of the manufacturing process are provided. All photographs are clearly labeled and thoroughly explain the manufacturing process
Display: Bill of Materials	Bill of Materials is included, but more than three or materials are missing.	A Bill of Materials is included, with one or two materials missing; Bill of Materials is generally organized.	All components are included on the Bill of Materials and it is well organized

MOUSETRAP CAR CHALLENGE

ALL EVENTS MUST BE ENTERED with the School Name in the "First Name" field and "TSA" in the "Last Name" field. (Example: First Name "Best High School" and Last Name "TSA") and individual names must be listed in the Student Name field.

Enter online at www.GeorgiaNationalFair.com
(https://www.georgianationalfair.com/p/georgialiving/youth) by SEPTEMBER 6, 2023.

DIVISION 40701 MOUSETRAP CAR CHALLENGE

CLASS 01 Mousetrap Car Challenge

OBJECTIVE: The objective is to build a vehicle that is powered solely by a standard-sized mouse trap that will travel and stop closest to a finish line located 12 feet from the start line in the shortest amount of time.

Entries are limited to one per chapter. (There can be up to 4 members on the team.)

PROCEDURES: Students must submit the completed car during check-in at Reaves Arena at the Georgia National Fair. During turn in, you will sign up for a time to return and run your car. Each entry will get 2 runs to achieve the best score.

A copy of the online registration confirmation will be required to check-in for competition.

CONTEST RULES:

1. **All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. Email questions to sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**
2. Students will comprise a team of up to 4 individuals to create a Mousetrap Car/Vehicle.
3. The vehicle MUST be powered by a single VICTOR brand mouse trap measuring: 3 7/8" L x 1 3/4" W. The mouse trap spring CANNOT BE ALTERED to add power in any way.
4. The vehicle may not start with additional potential and/or kinetic energy other than what is stored in the mouse trap spring. Vehicles MUST be self-starting. Rubber bands or any other elastic materials may not be used in the launch mechanism.
5. The vehicle must steer itself and may not receive a push in any direction in order to avoid a collision.
6. The vehicle must have 3 or 4 wheels that make contact with the race surface.
7. The timing of the vehicle will begin when any part of the vehicle passes over the start line and will end when the vehicle comes to rest.
8. The distance from the target will be measured from the point of the vehicle that first passed the start line to the finish line.
9. The overall dimensions of the Mousetrap Car cannot exceed 20" L x 10" W x 12" H. The measurement will be taken while car is in resting position.

TESTING:
The course will be the arena concrete floor and non-carpeted. The winner will be the vehicle that has obtained the lowest score in either of the two attempts. Any ties will be decided by a single runoff between the tied vehicles.

EVALUATION:
The scoring will be the total of the time in seconds added to the distance from the finish line in centimeters.

Score=time(s) + distance from finish line (cm). The lowest number is the best car.

ROBOTIC ROVER CHALLENGE

ALL EVENTS MUST BE ENTERED with the School Name in the "First Name" field and "TSA" in the "Last Name" field. (Example: First Name "Best High School" and Last Name "TSA") and individual names must be listed in the Student Name field.

Enter online at www.GeorgiaNationalFair.com
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DIVISION 40803 ROBOTIC ROVER CHALLENGE MIDDLE SCHOOL
40804 ROBOTIC ROVER CHALLENGE HIGH SCHOOL

CLASS 01 Robotic Rover Challenge

OBJECTIVE: Design and build a robotic rover that will navigate an obstacle course, deliver a payload, and return to the starting point in the shortest time. Robots must meet the criteria and constraints set forth.

Entries are limited to one per chapter with up to three members on each team.

PROCEDURES: Students must submit the completed robot for inspection during check-in at the Georgia National Fair at Reaves Arena. Go/No Go criteria will be used to determine eligibility.

A copy of the online registration confirmation will be required to check-in for competition.

CONTEST RULES:

1. **All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. Email questions to sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**
2. Robots must pass a GO-NO-GO inspection including a safety inspection to insure no harm or damage will occur. Any robot not passing full Go-No-Go inspection will be disqualified. Challenges to a "No-Go" decision must be made before removing the robot from the holding site. Any robot handled or moved after the initial submission will not be re-evaluated by the judges.
3. Criteria and Constraints:

- Robot can use no more than 6 motors: VEX, FLL, or any DC Motor.
- Acceptable robot construction materials include VEX, FLL, or other robotic platform parts or custom created parts (3D printed, Laser, CNC, etc)
- Robots must fit within a 14" cube (WxDxH). They may expand beyond their starting size constraints. A box jig will be used to test compliance. The robot must fit in a box that reflects max dimensions.
- Robots may not be modified during the event. They can be repaired with referee approval. No significant changes can be made during the repair. The robot must be re-inspected before it will be allowed to compete. Teams may be requested to submit to random inspections by event personnel. Refusal to submit to the inspection will result in disqualification. Referees or inspectors may decide that a robot is in violation of the rules. This will result in a disqualification.
- The robot must be student constructed and NOT from a pre-assembled kit. For example, RC devices from a box may not be used.
- Any weight added to the robot must be securely attached to the robot.

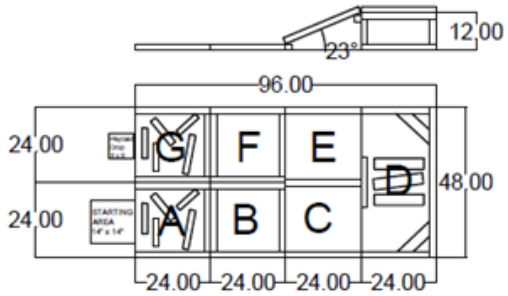
ROBOTICS CHALLENGE (continued)

The Track:
The track is 24” wide. It will be constructed of a wooden base with the various obstacles diagrammed below.

Device (Go or No-Go)
• Does the robot meet the maximum motor specifications (no more than 6)?
• Is the robot made from VEX, FLL, or a metal chassis?
• Is the robot within the size specifications?
• Is the robot a custom built robot?

Robots will be placed at the starting line and the payload (tennis ball) will be loaded. Time will be started when the team is instructed to begin.
The course will be considered completed when the payload is successfully deposited into the specified receptacle (8” x 8” x 5” box) and the robot fully returns to the starting area. Time will be recorded at this point.
During the run, the driver must remain at their station until released by the referee.
There may be only one driver per run.
If a robot leaves the course, the run is over and the time will be recorded as a DNF.
Once a team begins a run, no interventions may be made.
If at any time the robot operation is deemed unsafe the referees will stop the run.

The top 10 robots will be left for display at the Georgia National Fair. However, the battery, remote control, and microcontroller, in example VEX Cortex Microcontroller, will be allowed to be removed from the robot. The chassis and drivetrain (wheels and motors) will not be allowed to be removed. Robots will be returned to schools after the Georgia National Fair.



A - 2' x 2' x 2" Fixed, randomly placed dowel rods up to 1.25" Diameter
B - 2' x 2' x 2" Sand Pit
C - 23 Degree Up Ramp
D - 3.5" w x 1.25" h Speed Bumps
E - 23 Degree Down Ramp
F - 2' x 2' x 2" Golf Ball Pit
G - 2' x 2' x 2" Fixed, randomly placed dowel rods up to 1.25" Diameter

STRUCTURAL DESIGN CHALLENGE

ALL EVENTS MUST BE ENTERED with the School Name in the "First Name" field and "TSA" in the "Last Name" field. (Example: First Name "Best High School" and Last Name "TSA") and individual names must be listed in the Student Name field.

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DIVISION 40901 STRUCTURAL DESIGN CHALLENGE

CLASS 01 Modular Rolling Toolbox

OBJECTIVE: Design and build a cardboard 3 piece modular connecting rolling toolbox. You will use the engineering design process and keep track of brainstorming, iterations, sketches, and prototyping process. Your toolbox and an engineering portfolio will all be submitted as part of this competition.

Entries are limited to one per chapter (there can be up to 4 members on the team).

NOTE: Due to durability and space issues, the top 10 entries will be discarded after the fair and will not be returned to the chapter

PROCEDURES: Students must submit the completed toolbox and engineering portfolio during check-in at the Georgia National Fair at Reaves Arena. Go/No Go criteria will be used to determine eligibility. Rubric scores will be based on a review of the final product and the engineering portfolio. The portfolio shall be in a clear report cover and must include photos documenting the process, size A orthographic CAD drawing, and a log documenting a minimum of 5 days of work.

A copy of the online registration confirmation will be required to check-in for competition.

CONTEST RULES:
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Criteria and Constraints (Nightstands not meeting these criteria will result in a disqualification.):
1. The Modular Toolbox must be made entirely out of cardboard and be friction fit (no glue, tape, etc). The only exception is the axle for the wheels, which may be constructed from wood or plastic.
2. The toolbox must have 3 interlocking stacking tool boxes.
3. The toolbox must be wheeled, have a handle that extends above the tool boxes, and have a lid that can be secured.
4. The maximum height of the toolbox including the handle is 40" from the floor.
5. The maximum depth of any toolbox is 20".
6. The maximum width of the toolbox is 22".
7. The maximum height of the toolbox is 30", with individual modular boxes not exceeding 15".
8. The minimum volume of all three boxes must exceed 10,000 cubic inches of storage.
9. The toolbox must be friction fit with a mass of no more than 6 lbs.
10. The toolbox must support a mass of 25 lbs without showing major signs of stress.
11. The toolbox must be TSA themed.
12. The entry must include an engineering portfolio contained in a Clear-Front Report Cover. No other formats will be accepted.

STRUCTURAL DESIGN CHALLENGE (continued)

EVALUATION:
The toy must pass a GO-NO-GO inspection:

- Is the toolbox made entirely out of cardboard and friction fit (no glue, tape, or non-cardboard parts)?
- Does the toolbox have 3 individual interlocking tool boxes that stack?
- Does the toolbox have 2 wheels that roll?
- Is the height of the toolbox including the handle 40” or less from the floor?
- Is the maximum height of the interlocking tool boxes 30” or less?
- Is the width of the toolbox no more than 22”?
- Is the depth of the toolbox no more than 20”?
- Does the toolbox have a mass of no more than 6 lbs.?
- Does the toolbox support a mass of 25 lbs. without showing major signs of stress?
- Does the entry include a clear cover engineering project portfolio?

Any device receiving a “No” answer to any of the above requirements will result in the device NOT BEING FURTHER EVALUATED.

Engineering Rubric:

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Concept	The product does not meet the design criteria and there is little to no evidence to support the choice.	The product is somewhat meets the design criteria and is supported with some evidence of brainstorming and selection.	The product clearly meets the design criteria and is supported with evidence of brainstorming and selection.
Daily Logs	No daily log is provided or the included log contains minimum details.	Daily logs have been included that contain at least 3 days of work.	Daily logs have been included that contain at least 5 days of work.
Engineering Drawings	No drawings are included or drawings are of poor quality with little to no detail or annotation.	Drawings are included in the portfolio but do not include all 3 views. Details are missing and not all annotation is listed.	Detailed engineering drawings are included in the portfolio. Views include top, front and side with full annotations.
Testing and Iteration	Little to no evidence of testing and iteration is present.	Some evidence is present of testing and iteration of the design through logs or other means.	Evidence is present of testing and iteration of the design through logs, photos, and sketches.
Prototype	The build quality is substandard. Joints are loose fitting and the assembly is of poor quality.	The build quality is acceptable. The assembly is of average quality.	The build quality is exceptional. Care is taken to ensure a neat and precise assembly of the final product.

Steve Price, Georgia TSA Executive Director, 678-551-0840 **sprice@gatsa.org**

Technology Day Rally October 9, 2023
Reaves Arena, Georgia National Fairgrounds
Deadline for registration for all events is Sept. 6, 2023

For additional rally information, contact Steve Price, Georgia TSA Executive Director (678-551-0840 **sprice@gatsa.org**)

Contest Registration - Deadline: Sept. 6, 2023 on Georgia National Fair Website

Rally Registration – (GA TSA Rally Registration and Wristband Orders Deadline: Sept. 6, 2023 via the GA TSA EMS Registration System via www.gatsa.org)
Rally Registration Fee: $25.00 GNF Rides Armbands: $25.00

All Buses must Park in the East Gate parking lot. All students must report with their teacher/advisor to the EAST TICKET GATE for admittance. Each chapter attending the TSA Tech Day Rally must pre-register with Georgia TSA and pay the $25 Tech Day registration fee for Advisors, Chaperones, and Students. Bus drivers get in free. Anyone attending that has not pre-registered will not be on the list from EMS and will have to wait until the fair opens to the public and pay the $14 fair entry fee at the East Gate prior to entering the Fair. Fair personnel will verify the group's entrants outside the East Gate for admittance.

Fair midway armbands must be pre-purchased for $25 with pre-registration and will be available for pick up during CHECK-IN at Reaves Arena. One advisor from each chapter is required to check in at the designated table upon arrival at Reaves Arena. (Please do not have your chapter members in line for checking in inside Reaves Arena.) Those that do not check in will cause their chapters to be listed as no-shows in the official records. Those chapter advisors that still owe the registration payment will be directed to a separate line to settle the account with the Georgia TSA bookkeeper.

Schedule for Tech Day

9:00 - 10:45 AM	Registration/Event Check-in and Time Slot sign up
11:00 - 12:00 PM	TSA Rally
12:00 PM	Interviews, Live Events and Judging continue
Approximately 3:00 PM	Ribbons placed on top ten; other entries may be removed at that time

There will be no second session. At approximately 3:00PM – ribbons will be placed on Top 10 entries. Winning entries will be put on display in the Miller-Murphy-Howard Building for the remainder of the fair. All other entries must be picked up by the owner. **Please do not remove entries until all ribbons have been placed.** Any exhibit/entry left behind (that does not place) will be discarded. Event and Superior Chapter Winners will be announced and receive their Plaques during FLC '23 (Fall Leadership Conference).

Winning exhibits and their ribbons must be picked up at FLC on Saturday afternoon after the Technical Sessions, with the following exceptions - Due to limited space for transportation, only South Georgia Chapter winning entries will be transported to FLC for pick up. North GA and Metro Atlanta Area Chapters may retrieve their winning entries from the Stockbridge, GA office of GA TSA. Please contact Mr. Price for arrangements.