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. If you have questions, you may certainly e-mail us at sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.

Advisors are required to register online at GeorgiaNationalFair.com (http://www.georgianationalfair.com/youth-educational-exhibits/) for all competitions by September 12, 2018. Late entries will not be accepted. No substitutions allowed. Required password must be obtained by Sept. 10.

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.

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.

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 West ticket gate for admittance. NOTE TO ADVISORS NOT ATTENDING WITH GA TSA: If you are bringing students that are not competing in TSA events, please call Keaton Walker (800-987-3247 ext 483) or email kwalker@gnfa.com to arrange for entry for those students into the Fair at no charge. While entry into the Fair is free, students must pay a $20 fee to TSA to attend the TSA rally. Advisors attending for POW must register and pay for students. All participating students must report with their teacher/advisor to the South gate for admittance. Fair midway armbands must be purchased for **$20 with pre-registration** and will be available for pick up at CHECK-IN.

3. Top ten entries will be on display in the Miller-Murphy-Howard Building during the remainder of the Fair; other projects may be picked up after 2:30 PM on October 8, 2018.

4. **Winning entries not picked up at the Fairgrounds after the Fair will be available at the GA TSA Leadercon '18 - Fall Leadership Conference. Any entries not picked up at that time will be discarded.**

5. **ONLINE REGISTRATION WITH GEORGIA NATIONAL FAIR IS REQUIRED FOR ALL ENTRIES. DEADLINE IS SEPT. 12, 2018. Late entries will not be accepted.**

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 CORE or electronically submitted by 11:59 PM **September 12, 2018**. These events will be judged during CORE (Chapter Officer Retreat for Excellence) and not at the Rally. None of those events will be at the Rally.

On-site Competitions will be judged on site with an interview or testing and must be turned in October 8, 2018 between 9:00 AM and 10:45 AM.

TSA Events

Pre-judged Competitions	On-site Competitions
Architectural Design	Alternative Energy Design - Wind Turbine
Georgia TSA Pin Design	Mechanical Engineering - Perpetual Motion Machine
Program Promotion High School	Mousetrap Car Challenge
Program Promotion Middle School	Robotic Challenge H.S. “Tractor Pull”
Transportation Modeling	Robotic Challenge M.S. “Tractor Pull”
	Structural Design - The Chair

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

Sponsored in part by:

PITSCO
INNOVATIVE EDUCATION.

ARCHITECTURAL DESIGN CHALLENGE

THIS IS A CHAPTER EVENT AND MUST BE ENTERED IN THE CLUB NAME (ex. Smith High School TSA).

Enter online at www.GeorgiaNationalFair.com
(http://www.georgianationalfair.com/youth-educational-exhibits/) by September 12, 2018.

Entries are limited to one per chapter.

DIVISION 40101 ARCHITECTURAL DESIGN CHALLENGE

CLASS
01 Architectural Design Challenge

Design Challenge Background: The "Tiny House Movement" is a social movement where people are choosing to downsize the space they live in. The typical American home is around 2,600 square feet, whereas the typical small or tiny house is between 100 and 400 square feet. After studying various tiny house designs, students use technology to create their very own unique "Tiny House".

OBJECTIVE:
Your team has been chosen to design a house to have a 400 square feet footprint or less as part of the Tiny House Movement. Your team must creatively design the house to include a food preparation/eating area, clothes washing/drying, bathroom, sleeping space and living space. The spaces can be flexible. You may also make use of vertical space. Entries are limited to one (1) per chapter.

PROCEDURES:
The display must be two dimensional. **Students must submit their projects during the event check-in at CORE or have it shipped to The Kaplan-Mitchell Retreat and Conference Center prior to the 1st day of the conference.** The Drawing, Rendering, and Written Description shall be mounted on a 20x30 foam core board. See sample at bottom of page. During turn in, you will sign up for a time to return to your project to be interviewed by a judge. A copy of the online registration confirmation will be required to check-in for competition.

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. If you have questions, you may certainly e-mail us at sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**
2. The participants are to design an architectural floor plan that meets the current year's problem.
3. 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.
4. A 3-D rendering must be submitted on maximum drawing sheet cut size B (11" x 17"). Smaller format is acceptable.
5. While 3-D modeling may be used to enhance the rendering, the actual habitat must be the original work of the student. **Do not submit a physical 3-D model of your design.**
6. 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. What are the advantages of your layout?
    c. Why have you included specific features?
    d. Please supply a list of all credits for any third party models used within your rendering.

ARCHITECTURAL DESIGN CHALLENGE (continued)

EVALUATION:

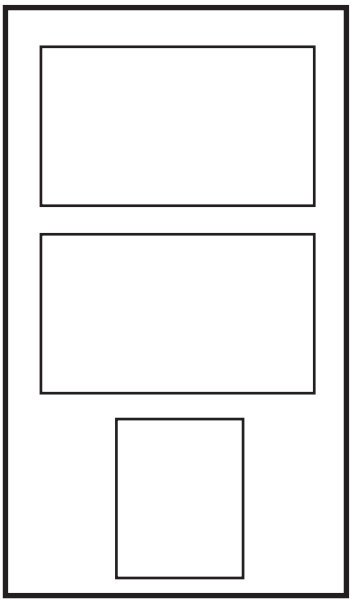
Design (35 pts)
- Does the design incorporate features needed and required for the intended purpose?
- Is the layout logical and functional?
- Are the sizes of the rooms adequate for their purpose?

Quality (25 pts)
- Is the drawing neat and precise?
- Are rooms properly labeled?
- Are dimensions correctly placed?

Written Description (25 pts)
- How does your design meet the main requirements for the intended purpose?
- What are the advantages of your layout?
- Why have you included specific features?
- List of credits

Rendering (15 points)
- 3-D Rendering

Sample of Mounting



GEORGIA TSA PIN DESIGN CHALLENGE

THIS IS AN INDIVIDUAL EVENT AND MUST BE ENTERED IN THE INDIVIDUAL'S NAME (ex. Bobby Smith).

Enter online at www.GeorgiaNationalFair.com
(http://www.georgianationalfair.com/youth-educational-exhibits/) by September 12, 2018.

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 12, 2018 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. If you have questions, you may certainly e-mail us at 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 it's 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 by the competition committee prior to being judged by all attending participants at CORE. Each registered Chapter will receive colored tickets to vote for the BEST design. Each entry's votes will be counted and ranked to determine Top 10 Placements for Tech Day.

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 PROMOTION CHALLENGE

THIS IS A CHAPTER EVENT AND MUST BE ENTERED IN THE CLUB NAME (ex. Smith High School TSA).

Enter online at www.GeorgiaNationalFair.com
(http://www.georgianationalfair.com/youth-educational-exhibits/) by September 12, 2018.

DIVISION 40303 MEMBERSHIP RECRUITMENT CHALLENGE MIDDLE SCHOOL
40304 MEMBERSHIP RECRUITMENT CHALLENGE HIGH SCHOOL

CLASS
01 Membership Recruitment 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 14, 2018. 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 14, 2018, 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. If you have questions, you may certainly e-mail us at 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.
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. Theme of the entry must be "Your School's STEM/Engineering Program".
7. Electricity will not be provided for the displays.
8. 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 (such as laptop computers, tape players, etc.) 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.

EVALUATION:

Submissions will be screened for rules infractions by the competition committee prior to being judged and ranked to determine top 10 placements for Tech Day.

TRANSPORTATION MODELING

THIS IS AN INDIVIDUAL EVENT AND MUST BE ENTERED IN THE INDIVIDUAL'S NAME (ex. Bobby Smith).

Enter online at www.GeorgiaNationalFair.com
(http://www.georgianationalfair.com/youth-educational-exhibits/) by September 12, 2018.

DIVISION 40401 Transportation Modeling

CLASS
01 Transportation Modeling - Maglev City People Mover

OBJECTIVE: Using only certain materials and following required specifications, participants research, design and produce a scale model of a vehicle that fits the annual design problem and that takes appearance and realism into consideration. The design theme is Maglev City People Mover – For inner city point-to-point movement.

Entries are limited to three individuals per chapter and one entry per individual.

PROCEDURES: Entries must be started and completed during the current school year. Students must submit their display during check-in at CORE on September 14, 2018. 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 between September 14, 2018, or have the entry brought to CORE by another Chapter. GA TSA is not responsible for entries lost in shipping. No entries for 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. If you have questions, you may certainly e-mail us at sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**
2. 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 NOT BE TESTED and be counted as a disqualification.
- Vehicle scale model is present.
- The entry reflects the current year design theme.
- The model is inside the display and the entire display is less than 16”x16”x16”.
- Glass or liquids are not involved in the entry.

3. Chapter entries must include a scale model and a display.
4. Model and display must meet the following specifications:

Model:
- The scale model must accurately reflect the annual design problem (see above).
- The model main body itself must be made from scratch by the member entering the event.
- **Using pre-manufactured model vehicle body parts is prohibited. (Including Hoods, Fenders, wings, propellers, frames, etc.)**
- *It is permissible to use pre-manufactured parts such as body strengtheners, plastic canopy, exhausts, mirrors, head and tail lights, windshields and antennae. They may be attached to or enclosed within the vehicle and may be constructed from materials other than wood, excluding glass or liquids. These parts must be fastened securely.
- *It is permissible to use 3D Printers in the production of the parts of this model.
- The finished vehicle size must fit inside the display space of 16”x16”x16”.
- The themed vehicle model must have an actual length that measures at least 6” (six inches).
- The designer must choose a scale for the vehicle so that it meets the size requirement. The chosen scale must an actual length that measures at least 6” (six inches).

TRANSPORTATION MODELING (continued)

Wheels:
- Dimensions must be consistent with the scale of the body.
- Wheels must roll.

Display:
- The model must be presented for evaluation on a display not to exceed 16” tall x 16” deep x 16” long (including the model). No electrical access will be provided for displays. Use of Dry Cell batteries is permissible but must be contained within the stated display space.

Judging Rubric
Go-No-Go
The display size is no more than 16”x 16”x 16”.

EVALUATION:
Entries are evaluated by a combination of points earned from the model, and display.

Paint/Finish/Overall
Aesthetics.....(40 pts)
Graphics.....(10 pts)
Attention to Detail in Construction.....(20 pts)
Accompanying Display …….....(30 pts)

ALTERNATIVE ENERGY DESIGN

THIS IS A CHAPTER EVENT AND MUST BE ENTERED IN THE CLUB NAME (ex. Smith High School TSA).

Enter online at www.GeorgiaNationalFair.com
(http://www.georgianationalfair.com/youth-educational-exhibits/) by September 12, 2018.

DIVISION 40501 Alternative Energy Design

CLASS
01 Wind Turbine

OBJECTIVE: The objective is to build a wind turbine fan that will generate the highest voltage.

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

PROCEDURES: One (1) Student per team must submit the completed fan during check-in at Reaves Arena at the Georgia national Fair. During turn in, you will sign up for a time to return setup and test your blade system.

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. If you have questions, you may certainly e-mail us at sprice@gatsa.org or contests@gnfa.com. Please help us prevent entry disqualifications.**
2. Students will 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 NOT BE TESTED and be counted as a disqualification.
4. The device must meet the following specs:
- Stand Height: 24 in (must use stand with gear box system provided by GATSA)
- Maximum blade diameter: 36 in
- Maximum number of blades: 12

MATERIALS:
- KidWind Wind Turbine Hub - Part # KW-WTH3 - Part Url is:http://www.vernier.com/products/kidwind/wind-energy/kw-wth3/
- Any materials may be used for blades and must be attached by dowel to the hub
- Dowel material is student choice

TESTING:
- Student will attach their hub and blade system to the provided KidWind Stand and Gear System. Only the approved Kidwind Hub will be used. Part Url is:http://www.vernier.com/products/kidwind/wind-energy/kw-wth3/
- 4 Box fans will be used to create a wind tunnel (2 fans on bottom with 2 fans on top). Wind tunnel will be 48inx48inx48in cube open on the back

EVALUATION:
- Voltage will be measured using a multimeter attached to the generator leads
- Student will have three opportunities and the three voltages will be averaged.
- Award places determined by voltage ranking
- Ties will be broken by testing efficiency of the wind turbine

MECHANICAL ENGINEERING - PERPETUAL MOTION MACHINE DESIGN

THIS IS A CHAPTER EVENT AND MUST BE ENTERED IN THE CLUB NAME (ex. Smith High School TSA).

Enter online at www.GeorgiaNationalFair.com
(http://www.georgianationalfair.com/youth-educational-exhibits/) by September 12, 2018.

DIVISION 40601 Mechanical Engineering

CLASS
01 Perpetual Motion Machine

OBJECTIVE: Participants will design and build a perpetual motion machine. A perpetual motion machine is a machine that has continuous motion with no human interaction after triggering the device. Create a video entry that shows your machine design entry in motion. The video entry must be uploaded to the EMS. When submitting physical media, the video needs to be at least 720p (1080p+ preferred) and uploaded to the EMS as an MPEG4 (Max size 1.5 GB). The video must be at least one (1) minute long and cannot exceed three (3) minutes in length. Only clear and audible videos will be accepted. All video entries submitted become the sole property of Georgia TSA.

The video must be uploaded by Midnight on September 14, 2018.
Semifinalists will be posted, the week prior to Tech Day, in the latest news section of the GA TSA website (bottom left hand corner) and advisors will receive an email.

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

PROCEDURES: Semifinalist must submit their completed machine during the event check-in at Reaves Arena at the Georgia National Fair. Students will sign up for a time slot during check-in. Students will set up and set off the machine in front of the judges - 60 second max 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. If you have questions, you may certainly e-mail us at 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 Perpetual Motion Machine.
3. You MAY NOT use any of the following materials:
   - Glass (marbles are excluded)
   - Flammable, corrosive, or explosive materials
   - Compounds that produce odors or gases
   - Electronics or electrical devices
   - Bearings (such as those in fidget spinners)
   - Liquids, flying objects or suspended objects must be contained in the given area and display standard safety practices of a classroom or lab setting
4. 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 NOT BE TESTED and will be counted as a disqualification.
5. Students will sign up for a time slot and test their own devices in front of the judges. Students will have 60 seconds to set up prior to testing.
6. Once triggered, the device has 10 seconds to begin. The entire event will be timed. 10 Points will be deducted for devices taking longer than 10 seconds to trigger. Time will stop at 3 minutes and be judged. If motion does not begin in 15 seconds, the entry will have failed. Your goal is to create a machine that will last at least three minutes.
7. The entry must be clean and neatly constructed. It must also be constructed in such a way as to be attractive on display. Points will be assessed based on the final product, construction, efficiency, and appearance.

8. Instructions on how to operate the device must be included. They must be clearly visible and easy to read. They do not have to be permanently affixed to the device, but must be easy to find and clearly explain how to operate the machine.

All entries must meet the following guidelines:

- The entry and all elements of the entry must be the entrant's original work.
- The video entry must not be less one (1) minute in length and shall not exceed three (3) minutes total running time. The video entry must clearly show the function of your machine in motion. You are welcome to narrate and explain the function of your design, but this is not required.
- The entry must not violate the intellectual property rights of any third party. That means that the
- video must not contain a trademark or logo of another company, nor any copyrighted materials
- such as music, photographs, artwork or patents.
- The top 15 finalists will bring their entry for final judging to the fairgrounds and the top 10 will be left for display.
- Size and Weight Limits are as follows:
  Maximum weight of your entry is 10 pounds.
  Maximum dimensions of 18" x 18" x 18" must be followed.

Device (Go or No-Go)
Is the video uploaded to the EMS in the correct format?.....(Yes/No)
Is the device smaller than allowed (18"x18"x18")?.....(Yes/No)
Does the device weigh less than or exactly the maximum weight?.....(Yes/No)
Is the device free of illegal liquids or dangerous materials?.....(Yes/No)
Is the device safe to operate and adhere to standard safety procedures?.....(Yes/No)
The device is powered on its own without battery, solar or electrical power……..(Yes/No)

Any device receiving a "No" answer to any of the above requirements will result in the device NOT BEING TESTED.

JUDGING CRITERIA

Eligible entries will be judged by a panel of judges that will select the winners on the originality and design concept (based on the device and the interview), longevity of the motion maintained, engineering concepts and quality of the machine itself.

EVALUATION:

- Attractiveness, Neatness of the Product Design (20 pts.)
- Ingenuity of Design (25 pts.)
- Time in motion (0-45pts. based on time)*
- Instructions for operation (10 pts.)
- Additional creativity in video, design or presentation.(+5 pts. each)

*Points for time will be awarded by multiplying the seconds the device stays inmotion by .25

MOUSETRAP CAR CHALLENGE

THIS IS A CHAPTER EVENT AND MUST BE ENTERED IN THE CLUB NAME (ex. Smith High School TSA).

Enter online at www.GeorgiaNationalFair.com
(http://www.georgianationalfair.com/youth-educational-exhibits/) by September 12, 2018.

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 16 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.

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. If you have questions, you may certainly e-mail us at 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: 1-3 inches x 3-7/8 inches. 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 or target.
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 smooth level floor and non-carpeted. The winner will be that vehicle that has obtained the lowest score any of the two attempts. Any ties will be decided by a single run off 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.

ROBOTICS CHALLENGE

THIS IS A CHAPTER EVENT AND MUST BE ENTERED IN THE CLUB NAME (ex. Smith High School TSA).

Enter online at www.GeorgiaNationalFair.com
(http://www.georgianationalfair.com/youth-educational-exhibits/) by September 12, 2018.

DIVISION 40801 Robotics Challenge

CLASS
01 High School Tractor Pull
02 Middle School Tractor Pull

OBJECTIVE: Design and build a robot that will pull a sled in a tractor pull style event. Robots must meet the criteria and constraints set forth. Robots will compete in elimination rounds with each round requiring the robot to pull a heavier and heavier "Full Load".

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 GNF 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. If you have questions, you may certainly e-mail us at 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:

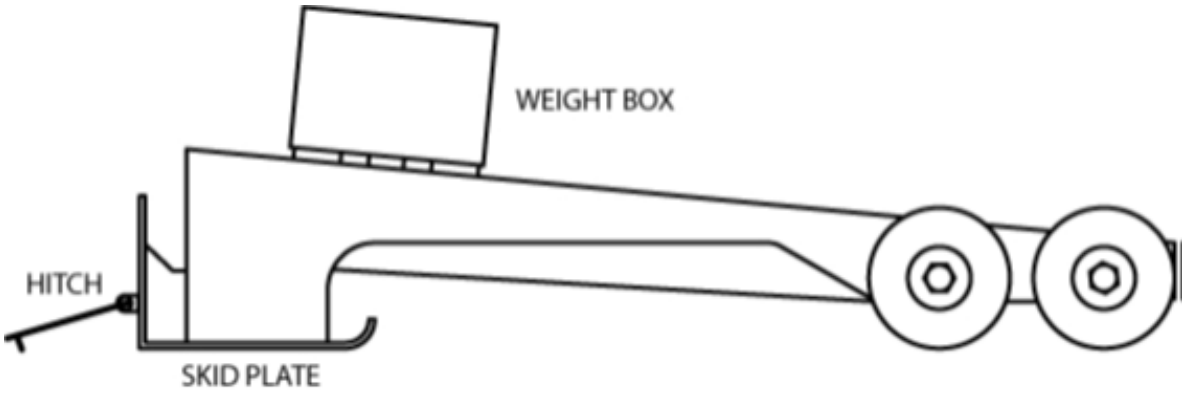
- Robot can use no more than 4 motors: VEX, FLL, or any DC Motor
- Robot can have no more than 6 wheels: VEX, FLL, or custom (no metal spike modifications).
- The robot cannot be constructed using glue, tape, cardboard, and packing materials. Acceptable materials include VEX parts, FLL parts, or custom created metal chassis.
- Robots must be no more than 12"x15"x 9" (WxDxH). They may not expand beyond their starting size constraints. A box jig will be used to test compliance…must fit in box that reflects max dimensions.
- The robot may not exceed 6 pounds in weight (including the battery).
- Each robot must have a strong horizontally mounted hitch point on its centerline at the rear of the robot, 1" plus or minus .25" from the floor for attachment to the sled hitch. (The hitch counts as part of the total length) This hitch must be able to accommodate a hitch pin that measures 3/8" in diameter. This hitch must be sturdy because it will be the main connection your robot has to the Full Pull XL sled. If a hitch fails during a pull, the team may not retry the pull.
- 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.
- Robots may not lift the front of the sled. The skid plate must maintain contact with the playing surface at all times.
- The robot must be student constructed and NOT from a preassembled kit. For example, RC devices from a box may not be used.

The Track:
The track is constructed of commercial-grade, low pile carpet. The pulling area is designated by a taped outline that measures 20" wide and 72" long. All other areas outside of, and including, the tape is considered out of bounds.

ROBOTICS CHALLENGE (continued)

The Sled

The Full Pull XL sled is 29 inches long and weighs approximately 15 pounds when empty. The skid plate rests on the track surface, and all four rear tires are free to rotate. The sled utilizes a chain and sprocket system to move the weight box up the back of the sled as it moves forward. At the start of a pull, all of the weight is over the sled's rear wheels. As the sled is pulled along the track, the weights are pulled forward of the sled's wheels. This pushes the front of the sled into the carpet, increasing friction. As the weight is added to the sled, the resulting forces increase and eventually overwhelm the pulling device.



Device (Go or No-Go)

- Does the robot meet the maximum motor specifications (no more than 4)?
- Does the robot meet the maximum wheel 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 within the weight specifications?
- Is the robot a custom built robot?
- Is there a hitch point per the criteria and constraints?

The Competition:

1. Robots will be attached to the sled and positioned such that the sled is lined up with the track starting line, and the robot is in front of the sled on the track.
2. A "Full Pull" is achieved when the front of the sled crosses the tape at the end of the pulling track. A "Full Pull" is 72 inches. Robots must make it the entire length of the course within 60 seconds or they will be eliminated.
3. The first pull will consist of robots attempting a "Full Pull" of the sled only (the sled weight box will be empty). The 10 robots that complete a "Full Pull" in the quickest amount of time will advance to the next pull.
4. In the second and following pulls, increments of five pounds of weight will be added to the sled. Pull rounds will continue until the top 10 ranking is achieved. If the final few robots are all eliminated pulling the same amount of weight, the winner will be determined by which team pulled the greatest distance. In the unlikely instance that there is still a tie, the amount of time it took to achieve the distance will be used.
5. During the pull, the driver must remain at their station until released by the referee.
6. There may be only one driver for each pull.
7. If a robot makes contact with or goes over the taped field outline, it will not be allowed to return to the pull.
8. Once a team begins a pull, the may not stop and restart or reverse direction.
9. If a robot becomes stuck or disabled on the pull track or any track element, or if a team's power fails during a pull, no interventions may be made.
10. If at any time the robot operation is deemed unsafe or has damaged the playing track surface or sled, the referees will stop the pull and the offending team will not be allowed to finish their pull.
11. In case of a sled failure, the pull will be replayed.

<u>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.</u>

STRUCTURAL DESIGN CHALLENGE

THIS IS A CHAPTER EVENT AND MUST BE ENTERED IN THE CLUB NAME (ex. Smith High School TSA).

Enter online at www.GeorgiaNationalFair.com
(http://www.georgianationalfair.com/youth-educational-exhibits/) by September 12, 2018.

DIVISION 40901 STRUCTURAL DESIGN CHALLENGE

CLASS
01 The Chair

OBJECTIVE: Design and build a cardboard chair that will comfortably support a person weighing up to 300lbs. You will use the engineering design process and keep track of brainstorming, iterations, sketches and the prototyping process. Your chair and an engineering notebook will both be submitted as part of this competition.

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

PROCEDURES: Students must submit the completed chair and engineering book during check-in at the GNF Reaves Arena. Go/No Go criteria will be used to determine eligibility. A time sheet will be provided for sign-up at check in for interview times. Rubric scores will be based on a review of the engineering book and interviews.

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

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Criteria and Constraints (Chairs not meeting these criteria will result in a disqualification.):
1. Chair must be made entirely out of corrugated cardboard and glue. No cardboard premanufactured tubes..
2. The chair must have a functional seat, armrests, and back.
3.The seat of the chair must be at least 16” from the floor (measured to the bottom of the seat).
4.The top of the back must be no less than 30” from the floor.
5. Maximum width and depth of chair allowed is 36".
6. The chair must be portable (able to be carried through standard doors) with a mass of no more than 10 lbs.
7. The chair must be able to support a mass of up to 300 lbs without showing major signs of stress.
8. Entry must include an engineering notebook of one of the following types:
- Oxford Clear-Front Report Cover
- Hard bound engineering notebook
- Softbound composition notebook

9. Chair must have three or four legs that support the weight of the tester. No boxes stacked inside of boxes.
10. In the event of a tie, the chair with the lowest weight will be deemed the winner.

EVALUATION:
The chair must pass a GO-NO-GO inspection:
- Is the chair made entirely out of cardboard and glue (no paint or non-cardboard parts)?
- Does the chair have a seat and a back?
- Is the seat of the chair at least 16” from the floor (measured to the bottom of the seat)?
- Is the top of the back no less than 30” from the floor?
- Is the chair portable (able to be carried through standard doors) with a mass of no more than 10 lbs?
- Does the chair support a mass of up to 300 lbs without shows major signs of stress?

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

FURTHER EVALUATED.

STRUCTURAL DESIGN CHALLENGE (continued)

Engineering Book:

- Has the objective been clearly identified? Score 0 - 5
- Drawings have been included that show an overall design process. These drawings appear throughout the book and clearly show a progression of brainstorming, iterations, prototyping, and testing. Score 0 - 5
- Daily logs have been included that represent at least 5 days worth of work. Score 0 - 5
- A clear prototype testing process is shown to evaluate various iterations of the chair. Score 0 - 5

Interview:

Performance 1-10 points per categiory

- Organization - The presentation/interview is logical, well organized, and easy to follow
- Knowledge - There is clear evidence of a thorough understanding of the design challenge; questions are answered well.
- Articulation - The presentation/interview provides a clear, concise, and easy-to-follow description of the project.
- Delivery - The team/individual is well-spoken and distinct in the presentation/ interview; participant posture, gestures, and eye contact result in a polished, natural, and effective delivery.

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

Technology Day Rally October 8, 2018
Reaves Arena, Georgia National Fairgrounds
Deadline for registration for all events is Sept. 12, 2018

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

Contest Registration - Deadline: Sept. 12, 2018 on Georgia National Fair Website

Rally Registration – (GA TSA Rally Registration and Wristband Orders Deadline: Sept. 12, 2018 via the GA TSA EMS Registration System via www.gatsa.org)
Rally Registration Fee: $20.00 – Register
GNF Rides Armbands: $20.00 armbands can be pre-purchased in advance through GA TSA's On-line Event Management System Registration for the rides and picked up on arrival.

Schedule for October 8th

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 2:00 PM	Ribbons placed on top ten; other entries may be removed at approximately 2:30 PM

This year, there will be no second session. At approximately 2:00PM – Ribbons Placed on Top 10. 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 Leadercon'18 (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 in Catapult and Rube Goldberg will be transported to FLC for pick up. North GA and Metro Atlanta Area Chapters may retrieve their winning entries in those two events from the Stockbridge, GA office of GA TSA. Please contact Mr. Price for arrangements.