



Steve Price, Georgia TSA Executive Director, 678-551-0840 [sprice@gatsa.org](mailto: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 found at <http://www.georgianationalfair.com/youth-educational-exhibits/>. Once the page opens scroll down to the Information tab and click on Youth Educational Exhibits General Rules. 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](mailto:sprice@gatsa.org) or [contests@gnfa.com](mailto: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 14, 2016**. Late entries will not be accepted. **No substitutions allowed.** Required password must be obtained by Sept. 12.**

**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**

**1<sup>st</sup> Place - Superior Chapter - \$500  
2<sup>nd</sup> Place - Reserve Superior Chapter - \$250**

**Sponsored by the Georgia National Fair**

**All placings will be put on a point system, example: 1<sup>st</sup> place=10 pts, 2<sup>nd</sup> 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](mailto: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 West ticket gate for admittance. Fair midway armbands should 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 10, 2016.
4. **Winning entries not picked up at the Fairgrounds after the Fair will be available at the GA TSA Leadercon '16 - 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. 14, 2016. 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 p.m, **September 14, 2016**. 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 should be turned in October 10, 2016 between 9:00 a.m. and 10:45 a.m.

**TSA Events**

**Pre-judged Competitions**

- Georgia TSA Pin Design
- Membership Recruitment High School
- Membership Recruitment Middle School
- Promotional Design
- Shirt Design

**On-site Competitions**

- Architectural Design
- Catapult Design Challenge
- Dragster Challenge
- Mousetrap Car Challenge
- Rube Goldberg
- Structural Bridge

<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	<u>5th-7th</u>	<u>8th-10th</u>
\$100	\$75	\$50	\$25	\$15	\$10

Sponsored in part by:



# GEORGIA TSA PIN DESIGN CHALLENGE

Enter online at [www.GeorgiaNationalFair.com](http://www.GeorgiaNationalFair.com)  
(<http://www.georgianationalfair.com/youth-educational-exhibits/>) by September 14, 2016.

**DIVISION 40101 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.**

**This is an individual event and should be entered in the individual's name (ex. Bobby Smith).**

**PROCEDURES:** Students should upload their designs via the GA TSA Event Management System Tech Day Registration site no later than midnight September 14, 2016 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 found at <http://www.georgianationalfair.com/youth-educational-exhibits/>.** Once the page opens scroll down to the Information tab and click on Youth Educational Exhibits General Rules. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. If you have questions, you may certainly e-mail us at [spruce@gatsa.org](mailto:spruce@gatsa.org) or [contests@gnfa.com](mailto: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](http://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 should 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 should 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 should not be the shape of the pin.
- The design must be computer generated and submitted as an 8 ½" x 11" document and should 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 should 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.

# MEMBERSHIP RECRUITMENT CHALLENGE

Enter online at [www.GeorgiaNationalFair.com](http://www.GeorgiaNationalFair.com)

(<http://www.georgianationalfair.com/youth-educational-exhibits/>) by September 14, 2016.

**DIVISION 40203 MEMBERSHIP RECRUITMENT CHALLENGE MIDDLE SCHOOL  
40204 MEMBERSHIP RECRUITMENT CHALLENGE HIGH SCHOOL**

## CLASS

### 01 Membership Recruitment Challenge

**OBJECTIVE:** Chapter members should work together to create a display that could be used to recruit new members to their TSA chapter. The theme of the display should be TSA Membership Recruitment. Membership Recruitment 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.**

**This is a chapter event and should be entered in the club name (ex. Smith High School TSA).**

**PROCEDURES:** Students should submit their display during check-in at CORE on September 20, 2016. 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 17th and 19th, 2016, 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 found at <http://www.georgianationalfair.com/youth-educational-exhibits/>. Once the page opens scroll down to the Information tab and click on Youth Educational Exhibits General Rules. 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](mailto:sprice@gatsa.org) or [contests@gnfa.com](mailto:contests@gnfa.com). Please help us prevent entry disqualifications.**
- 2. Display size is limited to 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 plastic.**
- 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 should be a display only. Extra printed materials should 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 should be "TSA Membership Recruitment".**
- 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 by all attending participants at CORE. Each registered Chapter will receive colored tickets to vote for the BEST designed boards for Middle and High School. Each submission's votes will be counted and ranked to determine Top 10 Placements for Tech Day.**

# PROMOTIONAL DESIGN CHALLENGE

Enter online at [www.GeorgiaNationalFair.com](http://www.GeorgiaNationalFair.com)  
(<http://www.georgianationalfair.com/youth-educational-exhibits/>) by September 14, 2016.

**DIVISION 40301 PROMOTIONAL DESIGN CHALLENGE**

## **CLASS**

### **01 Promotional Design Challenge**

**OBJECTIVE:** Participants design a computer generated graphic that can be used to advertise/promote one of our four state level conferences that we provide each year (CORE, Tech Day, Leadercon and the State Leadership Conference.)

**Entries are limited to three per chapter.**

**This is an individual event and should be entered in the individual's name (ex. Bobby Smith).**

**PROCEDURES:** Students should submit their designs via the GA TSA Event Management System Tech Day Registration site no later than midnight September 14, 2016 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 found at <http://www.georgianationalfair.com/youth-educational-exhibits/>. Once the page opens scroll down to the Information tab and click on Youth Educational Exhibits General Rules. 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](mailto:sprice@gatsa.org) or contests@gnfa.com. Please help us prevent entry disqualifications.**
- 2. The design may not exceed 8.5"x11" and may be presented either horizontally or vertically.**
- 3. The design must be computer generated.**
- 4. The design must be the original work of the entrant. Computer-generated type and public domain computer clip-art may be used. **The use of copyrighted artwork or characters is prohibited and will result in disqualification.****
- 5. The design must include the following:**
  - a. The words "Engineering and Technology Education"**
  - b. The words "Technology Student Association" and/or the use of the official TSA emblem with the words "Technology Student Association" in the lower red bar of the emblem.**
  - c. There should be no use of copyrighted materials other than the TSA logo.**
- 6. 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](http://www.tsaweb.org). You cannot alter the logo or its parts(i.e.: using standard font in place of the logo letters on the logo) - Logo links - National Full Logo (<http://gatsa.org/about/images/TSA%20logo-Georgia-Version.jpg>), GA TSA Full logo (<http://gatsa.org/about/images/GA%20TSA%202011-12%20Logo.jpg>).**
- 8. The winning entry may be used as a promotional poster for Engineering and Technology Education.**

## **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. All entries will become property of GA TSA.

# T-SHIRT DESIGN CHALLENGE

Enter online at [www.GeorgiaNationalFair.com](http://www.GeorgiaNationalFair.com)

(<http://www.georgianationalfair.com/youth-educational-exhibits/>) by September 14, 2016.

**DIVISION 40401 T-SHIRT DESIGN CHALLENGE**

## **CLASS**

### **01 T-Shirt Design Challenge**

**OBJECTIVE:** To design a GA TSA t-shirt that promotes the 2016 Annual TSA Theme: **"Defining Your Future"**

**Entries are limited to one per chapter.**

**This is an individual event and should be entered in the individual's name (ex. Bobby Smith).**

**PROCEDURES:** Students should submit a sample t-shirt ADULT SMALL on a wire hanger during check-in at CORE on September 20, 2016. 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 17th and 19th, 2016, or have the entry brought to CORE by another Chapter. No t-shirts will be accepted at Tech Day to be judged. **Do not include the name of the chapter in the design that is submitted.**

**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 found at <http://www.georgianationalfair.com/youth-educational-exhibits/>. Once the page opens scroll down to the Information tab and click on Youth Educational Exhibits General Rules. 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](mailto:sprice@gatsa.org) or [contests@gnfa.com](mailto:contests@gnfa.com). Please help us prevent entry disqualifications.**
- 2. Original designs can be hand-drawn or computer generated. Computer-generated type and public domain computer clip-art may be used. All entries must be the original work of the entrant. The use of copyrighted artwork or characters is prohibited and will result in disqualification.**
- 3. Designs must contain the following:**
  - a. The GA TSA Logo or the National TSA Logo with the Georgia in the top stripe**
  - b. The annual TSA Theme: Defining Your Future**
  - c. The words "Technology Student Association" (which can be incorporated into a TSA logo)**
- 4. Additional words other than those listed in Regulation 2 may be used in the design.**
- 5. 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](http://www.tsaweb.org). You cannot alter the logo or its parts (i.e.: using standard font in place of the logo letters in the logo). There should be no use of copyrighted materials other than the TSA logo.**
- 6. The design must be placed onto a t-shirt for submission. This can be done through a variety of processes including (but not limited to) screen printing, heat press, embroidery, sublimation.**
- 7. The design may be on any part(s) of the t-shirt including the front, back, and sleeves.**
- 8. A t-shirt in the size Adult Small should be submitted on a wire hanger.**
- 9. The process of placing the design onto the t-shirt may be completed by a commercial source.**
- 10. Chapters are encouraged to have their entire chapter wear the t-shirt design at the Georgia National Fair Tech Day event.**
- 11. Winning entries must be left for display during the Georgia National Fair and may be recovered during the Fall Leadership Conference.**

## **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 designed T-Shirts. Each submission's votes will be counted and ranked to determine Top 10 Placements for Tech Day.**

All designs become property of GA TSA and may or may not be used in future promotional items.

# ARCHITECTURAL DESIGN CHALLENGE

Enter online at [www.GeorgiaNationalFair.com](http://www.GeorgiaNationalFair.com)

(<http://www.georgianationalfair.com/youth-educational-exhibits/>) by September 14, 2016.

**DIVISION 40501 ARCHITECTURAL DESIGN CHALLENGE**

**CLASS  
01 Architectural Design Challenge**

## **Design Challenge Background:**

Design Challenge Background: DIY (Do-it-yourself) is coming back into style. Many home owners are adding separate multi-use buildings to park vehicles and have a workshop as well.

## **OBJECTIVE:**

The challenge is to design one of these garage/workshops for a client. Your job is to act as an architect and prepare a proposed design for a client who wants to park two cars and have a workshop in the same building, separate from the main house. You do not have to include a main house. The entry needs to be only the garage/workshop. Consideration needs to be made for getting materials into and large projects out of the workshop. Research what machines would be included in the workshop and where they may be placed inside for safe use. Also include some space for storage.

**Entries are limited to two (2) per chapter.**

**This is an individual event and should be entered in the individual's name (ex. Bobby Smith).**

## **PROCEDURES:**

Students should submit their projects during the event check-in at Reaves Arena at the Georgia National Fair. 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.**

## **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 found at <http://www.georgianationalfair.com/youth-educational-exhibits/>.** Once the page opens scroll down to the Information tab and click on Youth Educational Exhibits General Rules. 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](mailto:sprice@gatsa.org) or [contests@gnfa.com](mailto: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 should 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 should 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)**

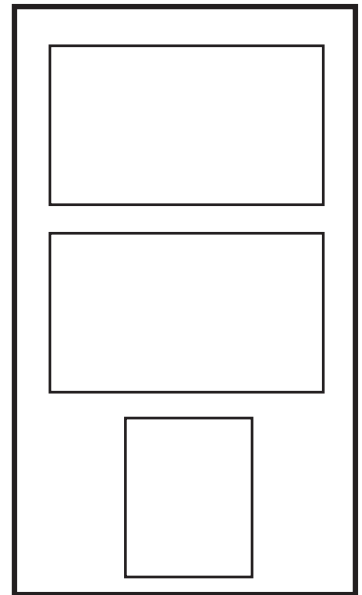
- Is the drawing neat and precise?
- Are rooms properly labeled?
- Are dimensions correctly placed?

**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

**Interview (25 points)****Sample of Mounting**

# CATAPULT DESIGN CHALLENGE

Enter online at [www.GeorgiaNationalFair.com](http://www.GeorgiaNationalFair.com)  
(<http://www.georgianationalfair.com/youth-educational-exhibits/>) by September 14, 2016.

## DIVISION 40601 CATAPULT DESIGN CHALLENGE

### CLASS

#### 01 Catapult Design Challenge

**OBJECTIVE:** Participants will design and build a catapult that will launch one plastic practice golf ball (no whiffle ball holes) at a time at a chipping target that has multiple scoring sections that will be approximately 20 feet from a launch line.

**Entries are limited to one per chapter.** (There can be up to 4 members on the team)  
**This is a chapter event and should be entered in the club name (ex. Smith High School TSA).**

**PROCEDURES:** Students should submit their projects during the event check-in at Reaves Arena at the Georgia National Fair. Catapults will be tested throughout the day. Students must be with their catapults to test. A time sheet will be provided for sign up at check-in. Students must bring safety glasses for this activity.

**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 found at <http://www.georgianationalfair.com/youth-educational-exhibits/>.** Once the page opens scroll down to the Information tab and click on Youth Educational Exhibits General Rules. 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](mailto:sprice@gatsa.org) or [contests@gnfa.com](mailto:contests@gnfa.com). Please help us prevent entry disqualifications.
2. Students will comprise a team of up to 4 individuals to create a catapult.
3. Any type of catapulting/launching device design may be used **except** for a Ballista or a crossbow-type of launching device.
4. Students will be responsible for submitting the Catapult with the following criteria:
  - a. **Catapults must pass a "Go/No-Go" inspection to test, see evaluation section of the rules. If judges deem the device to be unsafe, it will be disqualified.**
    - i. Participants must bring and wear safety goggles.
    - ii. The device must not exceed **2 ft. tall x 2 ft. long x 1.5 ft. wide**
    - iii. **DO NOT include ballast (weights) in the base.** The base should accommodate the provided ballast. Ballast will be in the form of 1 (one) bag of playground sand, 50 lbs in weight, provided on-site by GA TSA.
    - iv. The device must operate completely within a 2 ft. x 2 ft. x 2 ft. space.
    - v. The device can have any type of spring mechanism to power the arm but all must be contained within the 2 ft. x 2 ft. x 2 ft. space.
    - vi. The device total weight may not exceed **15 pounds**.
    - vii. All parts of the device must start behind the Launch line but parts may extend over the line during and after the last shot.
    - viii. The device cannot have wheels.
    - ix. The structure and launching arm must be made of PVC pipe with the exception of the launch mechanism, firing mechanism, fasteners and safety. These items may be wood or metal, and must be constructed in a safe way so as not to cause damage to the device or to the testing area or do harm to others.
    - x. The device must have at least a 5 foot pull cord to launch from a safe distance.
    - xi. When the device is on display or not actually engaged during the competition, it must be fully disabled and unable to cock for firing. This is to prevent accidental launches.
    - xii. You **MAY NOT** use any of the following materials:
      1. Glass (marbles are excluded)
      2. Flammable, corrosive or explosive materials
      3. Compounds that produce odors or gases
    - xiii. **Liquids, flying objects, or suspended objects must be contained in the given area and not produce waste, hazards, or trash in the testing area.**

**CATAPULT DESIGN CHALLENGE (continued)**

b. Testing (Up to 175 pts)

- i. There will be multiple teams with different colored golf balls launching at the same time. Teams will receive a bucket of 3 dozen, plastic practice golf balls (example can be found at <http://m.dickssportinggoods.com/product/index.jsp?productId=33553536&cp=4406646.4413986.11294664&categoryId=4414216&fg=Training%20Type>).
- ii. Once teams receive their bucket they will have 1 minute to launch as many golf balls from the bucket as they can and score as many points as possible in the scoring area.
- iii. The center of the scoring area (red circle) will be approximately 20 feet from the launching area to the center of the target. The scoring area will consist of a chipping target with (preferably three) separate concentric scoring areas. An example can be found at <http://www.golfsmith.com/product/30098582/hank-haney-pop-up-chipping-net/?lcode=CI&gclid=CIDihOefoMwCFQhkhgodPQYMYw>.
- iv. To be scored, the ball must not bounce into the target. The center target will count 5 points, the next out from center will count 2 points, and the outer will count 1 point. If another target is being used nearby, no points will be awarded for scoring in another target.
- v. Golf balls must enter the target on the fly and be fully in the scoring net to count. No scores will be given to bounced or half in/half out golf balls.

**TESTING:**

1. The device will be put through a safety inspection to insure no harm or damage will occur. **Any unsafe devices WILL NOT BE TESTED** and be counted as a disqualification. "Unsafe" devices will be considered as ones that have parts detach during operation, create a visibly dangerous rotation or throwing motion that could cause the unit to break or hurt someone during operation, possibly fail and snap back hurting the operators, etc. Judges will make a final determination on whether the device is safe to operate.
2. The team will have 1 minute to set up the catapult on line. Once triggered, the device has **1 minute to score as many golf balls in the target as possible**. The entire event will be timed. Every participant must cease firing at the end of 1 minute.
3. All machine times will be ranked in ascending order by scores. Ties will be broken as follows: The team with the highest score and least amount of golf balls to do so and a second tie breaker will be the shortest time recorded to score the most points.
4. All points will be calculated from testing and grading of the device to determine final ranking of all submissions.
5. All rules violations will be subject to disqualification.

**EVALUATION:**

**Device (Go or No-Go)**

- Does the team have safety goggles? ..... (Yes/No)
- Does the device have a way to be weighted down with the sand bag? ..... (Yes/No)
- Is the device the correct size? ..... (Yes/No)
- Does the device launch with a pull cord? ..... (Yes/No)
- Does the device launch safely? ..... (Yes/No)
- Does the device have a safe launching mechanism? ..... (Yes/No)
- Is the device built with the correct materials? ..... (Yes/No)

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

**Scoring - 1 minute**

- Center Target (5 points) scored .....
- Middle Target (2 points) scored .....
- Outer Target (1 point) scored .....

Tie Breaker will be the score made with the fewest balls in target. (Most accurate)

# DRAGSTER CHALLENGE

Enter online at [www.GeorgiaNationalFair.com](http://www.GeorgiaNationalFair.com)

(<http://www.georgianationalfair.com/youth-educational-exhibits/>) by September 14, 2016.

## DIVISION 40701 DRAGSTER CHALLENGE

### CLASS

#### 01 Dragster Challenge

**OBJECTIVE:** The participant will design a dragster to race for the fastest time while meeting stated regulations and producing an isometric drawing of the model.

**Entries are limited to two entries per chapter.**

**This event is for an individual and should be entered in the student’s name (ex. Bobby Smith).**

**PROCEDURES:** Students should submit their projects during the event check-in at Reaves Arena at the Georgia National Fair. Dragsters will be raced once and ranked by times to determine Top 10 Placement. Entries not meeting the regulations will be disqualified and subsequently not raced.

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

### CONTEST RULES:

- All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations found at <http://www.georgianationalfair.com/youth-educational-exhibits/>.** Once the page opens scroll down to the Information tab and click on Youth Educational Exhibits General Rules. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. If you have questions, you may certainly e-mail us at [spruce@gatsa.org](mailto:spruce@gatsa.org) or [contests@gnfa.com](mailto:contests@gnfa.com). Please help us prevent entry disqualifications.
- Each entry must be submitted with a full-size isometric drawing of the completed vehicle. A two (2)-view (top and side) drawing with metric dimensions is made on paper no larger than 11” x 17” drawing paper. Drawings are developed using standard engineering practices and procedures. The drawing may be produced using traditional drafting methods or CAD. The title block includes only the participants entry number that is assigned at registration time and is placed on the entry and drawing during check-in.

### DRAGSTER BODY

DB1. One (1)-piece, all-wood construction. Any type of lamination results in disqualification. No add-ons such as body strengtheners, fenders, plastic canopy, exhausts, or air foils may be attached to or enclosed within the vehicle. Fiberglass and shrink wrap are considered body strengtheners and cannot be used on the car body for any reason. 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. Two (2) or more like or unlike pieces of wood glued together are not considered one-piece, all-wood construction.

This “Throwback Design Challenge” is for the 2017 conference year only:

For 2017, TSA is “flashing back” to the very beginning of the TSA Dragster Event in late 1970s, when the event was called LSRV (Land Speed Record Assault Vehicle). At that time, there were no “shell cars.”

Only for 2017, all four (4) wheels must be completely exposed. No part of the body may cover any part of the front or back wheels, while meeting the specs that follow.

	<b>Minimum</b>	<b>Maximum</b>
DB2. Body length.....	(2017) 240mm.....	285mm
DB3. Body height with wheels.....		75mm
DB4. Body mass (completed car without CO <sub>2</sub> ).....	(2017) 35g.....	N/A
DB5. Body width at axles, front and back.....	35mm.....	42mm
DB6. Vehicle total width (including wheels) .....		90mm

	Minimum	Maximum
<b>AXLES/AXLE HOLES/WHEELBASE</b>		
A1. Dragsters must have two (2) axles per car, no more.		
A2. Bottom of axle hole or bearing above bottom of car body. (Note: This will be measured at the sides of the wood car body, from the bottom of the car directly beneath the axle to the bottom of the axle hole or bearing hole.)	5mm	10mm
A3. Rear axle hole from rear of car	9mm	100mm
A4. Wheelbase (axle distance apart at farthest points)	105mm	270mm
A5. Bearings, bushings and lubricants may be used.		
A6. Glue may be used to secure bearings to body.		

**Power plant (CO<sub>2</sub> cartridge hole)**

P.1 The power plant hole must be at 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 <sub>2</sub> cartridge. A minimum of 3mm thickness around the entire power plant hole must be maintained on the dragster for safety. Inside of the power plant hole must not be painted.		
P.2 Hole depth	45mm	55mm
P.3 Safety zone thickness	3mm	
P.4 Chamber diameter	19mm	20mm
P.5 Lowest point of chamber diameter to race surface (with wheels)	26mm	40mm

**Eye screws**

ES1. Dragsters must have two screw eyes per car that meet tolerances, no more. 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 eye screw 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.		
ES2. Inside diameter	3mm	5mm
ES3. Distance apart (at farthest points)	150mm	270mm

**WHEELS**

W1. A dragster must have four (4) wheels, no more. Two (2) wheels must meet rules W2 and W3. The other two (2) must meet rules W4 and W5. All four (4) wheels must touch the racing surface at the same time. All wheels must roll. Wheels must be made entirely from plastic. Dimensions must be consistent for the full circumference of the wheel.		
W2. Front diameter	30mm	37mm
W3. Front width (at surface contact point)	1.5mm	5mm
W4. Rear diameter	30mm	40mm
W5. Rear width (at surface contact point)	12mm	18mm

**EVALUATION:**

Paint/Finish/Overall aesthetics	(40 pts)
Graphics	(10 pts)
Attention to Detail in Construction	(20 pts)
Full-size matching orthographic metric drawings (top and side)	(30 pts)

Dragsters will be ranked according to their time trials. Tie-breakers will be done by analyzing the drawing included with the dragster.

# MOUSETRAP CAR CHALLENGE

Enter online at [www.GeorgiaNationalFair.com](http://www.GeorgiaNationalFair.com)

(<http://www.georgianationalfair.com/youth-educational-exhibits/>) by September 14, 2016.

**DIVISION 40801 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 21 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)

**This is a chapter event and should be entered in the club's name (ex. Smith High School TSA).**

**PROCEDURES:** Students should 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:**

- All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations found at <http://www.georgianationalfair.com/youth-educational-exhibits/>. Once the page opens scroll down to the Information tab and click on Youth Educational Exhibits General Rules.** 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](mailto:sprice@gatsa.org) or [contests@gnfa.com](mailto:contests@gnfa.com). Please help us prevent entry disqualifications.
- Students will comprise a team of up to 4 individuals to create a Mousetrap Car/Vehicle.
- 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.
- 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.
- The vehicle must steer itself and may not receive a push in any direction in order to avoid a collision.
- The vehicle must have 3 or 4 wheels that make contact with the race surface.
- 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.
- 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.
- 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.

# RUBE GOLDBERG CHALLENGE

Enter online at [www.GeorgiaNationalFair.com](http://www.GeorgiaNationalFair.com)

(<http://www.georgianationalfair.com/youth-educational-exhibits/>) by September 14, 2016.

## DIVISION 40901 RUBE GOLDBERG CHALLENGE

### CLASS

#### 01 Rube Goldberg Challenge

**OBJECTIVE:** Participants will design and build a Rube Goldberg device that can set up a tee and place a golf ball on top utilizing at least 6 simple machines (not more than two could be same type of machine) in as close to 1 minute as possible without going over.

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

**This is a chapter event and should be entered in the club name (ex. Smith High School TSA).**

**PROCEDURES:** Students should 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. 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 found at <http://www.georgianationalfair.com/youth-educational-exhibits/>.** Once the page opens scroll down to the Information tab and click on Youth Educational Exhibits General Rules. 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](mailto:sprice@gatsa.org) or [contests@gnfa.com](mailto:contests@gnfa.com). Please help us prevent entry disqualifications.
2. Students will comprise a team of up to 4 individuals to create a Rube Goldberg device.
3. The device must contain a **minimum** of 6 separate simple machines (no more than two could be same type of machine), that when triggered in order, create a continuous movement to raise the golf tee and then place the golf ball on top of it. Students will sign up for a time slot. Students will have 30 seconds to set up and set off the machine in front of the judges - The golf ball must be set up on the vertical golf tee within the 60 second max time.
4. Students will be responsible for submitting the Rube Goldberg Device:
  - i. The device may be no larger than 18 in. x 18 in. x 18 in. The sides of the device must be constructed in such a way to allow stacking of multiple devices.
  - ii. It must contain a base with the dimensions no larger than listed above. The device must operate completely within the given area. The entire device must not weigh more than 15 lbs.
  - iii. The students must make the golf tee stand up from a horizontal starting position, then place the golf ball on the tee by the actions of the Rube Goldberg device.
  - iv. The device **MUST** have a starting mechanism that once triggered, allows the machine to work continuously until the task is completed.
  - v. You **MAY NOT** use any of the following materials:
    1. Glass (marbles are excluded)
    2. Flammable, corrosive, or explosive materials
    3. Compounds that produce odors or gases
    4. Electronics or electrical devices
  - vi. Liquids, flying objects or suspended object must be contained in the given area and not produce waste, hazards or trash in the testing area.

**RUBE GOLDBERG CHALLENGE (continued)**

- vii. The entry should be clean and neatly constructed. It should also be constructed in such a way as to be attractive on display. Points will be assessed based on the final product, construction and appearance.
- viii. Instructions on how to operate the device must be included somewhere on the device. They should be clearly visible and easy to read.

**TESTING:**

1. 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. 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.
2. Once triggered, the device has 1 minute to raise the golf tee and place the golf ball on it. The entire event will be timed. 10 Points will be deducted for devices taking longer than 1 minute to do this, up to 10 seconds of time. Time will stop at 1 minute and 10 seconds. If the task is not completed by the 1 minute and 10 seconds, the entry will have failed. Your goal is to complete the task in exactly one minute.
3. All points will be calculated from testing and grading of the device to determine final ranking of all submissions.
4. Egregious violations such as using materials from the exclusion list will be disqualified.
5. Bonus Points will be awarded for each additional (above the required 6) simple machine included in the design. Each additional mechanical simple machine that operates properly will receive 10 points; up to 50 bonus points for 5 additional simple machines.

**EVALUATION:**

**Device (Go or No-Go)**

- Is the device larger than allowed (18"x18"x18")?.....(Yes/No)
- Does the device contain at least 6 simple machines?.....(Yes/No)
- Does the device contain at least 4 different types of simple machines?.....(Yes/No)
- Does the golf tee start off in a horizontal position?.....(Yes/No)
- Does the device contain illegal liquids or dangerous materials?.....(Yes/No)
- Does the device weigh less than or exactly the maximum weight?.....(Yes/No)
- Can the entry support another entry stacked on top?.....(Yes/No)

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

**DEVICE (100 pts):** After passing Go-No-Go requirements

- Time recorded to complete task in seconds .....\_\_\_\_\_
- Closest time to 1 minute receive points based on the following scale:
 

1st - 60 points	8th - 25 points
2nd - 55 points	9th - 20 points
3rd - 50 points	10th - 10 points
4th - 45 points	11th - 12th receive 14 points
5th - 40 points	13th - 16th receive 13 points
6th - 35 points	17th - 18th receive 12 points
7th - 30 points	19th - 20th receive 10 points
- Craftsmanship/Appearance.....(30 points)
- Device worked on first attempt.....(15 points)
- Additional Simple Machines included beyond the required 6.....(+5 points each)



# STRUCTURAL BRIDGE CHALLENGE

Enter online at [www.GeorgiaNationalFair.com](http://www.GeorgiaNationalFair.com)

(<http://www.georgianationalfair.com/youth-educational-exhibits/>) by September 14, 2016.

## DIVISION 41001 STRUCTURAL BRIDGE CHALLENGE

### CLASS

#### 01 Structural Bridge Challenge

**OBJECTIVE:** Students will build a truss bridge structure. The objective is to hold the greatest load possible. The bridge will be submitted with a technical drawing. NO identification of school or name may be included.

**Entries are limited to two per chapter.**

**This is an individual event and should be entered in the individual's name (ex. Bobby Smith).**

**PROCEDURES:** Students should submit the completed truss bridge during check-in at Reaves Arena at the Georgia National Fair **before 10:45 a.m.**, along with an 11x17 technical drawing that shows the bridge with either an isometric drawing or an orthographic drawing. Structures will be destructively tested to rank Top 10 entries.

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

### CONTEST RULES:

**All exhibitors are required to read and abide by the Georgia National Fair General Rules and Regulations found at <http://www.georgianationalfair.com/youth-educational-exhibits/>. Once the page opens scroll down to the Information tab and click on Youth Educational Exhibits General Rules. PLEASE NOTE: IT IS YOUR RESPONSIBILITY TO READ AND UNDERSTAND THE RULES. If you have questions, you may certainly e-mail us at [spruce@gatsa.org](mailto:spruce@gatsa.org) or [contests@gnfa.com](mailto:contests@gnfa.com). Please help us prevent entry disqualifications.**

### Materials:

1. The bridge is built from 1/8 inch by 1/8 inch balsawood only.
2. Any type of glue may be used.

### Structure dimensions:

1. The total mass of structure is limited to no more than 30 grams.
2. The span of the bridge must be 16 inches. A maximum of one additional inch may rest on each abutment. The total maximum length from end to end may not exceed 18 inches (16" span + 1" abutment + 1" abutment = 18").
3. The continuous interior width and height must allow a 2 inch high by 2 inch wide by 17 inch long (or longer) measuring device to pass through one end, the interior, and out the other end completely without obstruction.
4. The structure must allow the 3/4 inch by 2 inch by 10 inch testing block to be placed directly on the road bed for testing without being forced or obstructed.
5. The structure should be placed easily between the abutments, without pressure or twisting by the judging staff.
6. The center of the roadbed must not be blocked, so that the testing rod (0.375 inch diameter) may pass through. The center of the bridge must provide at least 3/4 inch clear vertical passage for the test rod.
7. No part of the bridge may extend more than 1 inch below the level of the testing platform.
8. Laminations are defined as two or more pieces glued together with grain parallel. Lamination may not exceed two (2) pieces. Lamination of more than two pieces will result in disqualification. Students are cautioned not to laminate at small angles to try to technically circumvent this rule.



(Figure shows end view of bridge pieces)

**STRUCTURAL BRIDGE CHALLENGE (continued)****TESTING:**

All structures are destructively tested by attaching the test block and adding load until the structure fails. The test block is 3/4 inches thick, 2 inches in width and the length of the test block is 10 inches.

**Structures are disqualified if:**

1. Pins, paper, or other foreign materials are found in or on the structure.
2. Excessive glue has been used. "Excessive" means that in the opinion of the judges, glue has been used to coat members, create gussets, or serve as a structural element.
3. Student fails to submit a drawing or a submits a drawing that does not accurately represent the structure.
4. The structure fails to comply with the materials list or any of the structural dimension requirements and limitations as outlined in the "Structure Dimensions" section above.

**Ties are broken by measuring the mass of the structure. The structure with the lowest mass wins.**



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

**Technology Day Rally October 12, 2016**  
**Reaves Arena, Georgia National Fairgrounds**  
**Deadline for registration for all events is Sept. 14, 2016**

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

Contest Registration - Deadline: Sept. 14, 2016 on Georgia National Fair Website

Rally Registration – (GA TSA Rally Registration and Wristband Orders Deadline: Sept. 14, 2016 via the GA TSA EMS Registration System via [www.gatsa.org](http://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 12th**

9:00 - 10:45 a.m.	Registration/Event Check-in and Time Slot sign up
11:00 - 12:00 p.m.	TSA Rally
12:00 p.m.	Interviews, Live Events and Judging continue
Approximately 2:00 p.m.	Ribbons placed on top ten; other entries may be removed at approximately 2:30 p.m.

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'16 (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.