



Tuesday, December 1, 2020

Dear TSA Advisors and Technology, Engineering and Design Teachers,

Attached is the registration packet and tentative schedules for the Central, Eastern and Western Regional NC TSA Conferences. These conferences will all be held virtually during the month of February.

The Regional Conferences are open to all affiliated TSA Chapters and schools expressing an interest in starting a TSA Chapter. **Only the TOP 8 in each event at each regional will qualify to compete in the said event at the State Conference.**

The [Eastern Region Conference](#) serves all LEA east of Wake County.

The [Central Region Conference](#) serves all LEA in between Guilford and Wake County, including Guilford and Wake County.

The [Western Region Conference](#) serves all LEAs west of Forsyth County, including Forsyth County.

Registration Cost is \$15 per student and \$10 for all advisors and includes a conference t-shirt.

Conference Registration is open from December 1, 2020 – February 1, 2021

Schools will upload submissions on February 8, 2021 – February 12, 2021

Judging will take place from February 15, 2021 – February 19, 2020

The Awards Ceremony will streamed on March 1, 2021 at 2:00 PM.

Medals and shirts will be mailed out on March 2, 2021 to the address provided in the conference registration system.

Attached is the event information, registration links (links above) and the medical/photo release form. Please make sure that you turn in the medical/photo release form when you submit registration. **This year we are asking that each school provide at least two judges for this event. Registration will open on December 1, 2020.**

Please note that some of the events will operate differently than described in the TSA Competitive Events Guides. Due to time constraints and the virtual environment, some events will deviate from the event guidelines.

We can only guarantee spaces in events to those schools/students that have pre-registered by February 1st. Payment should be postmarked no later than February 8th. Submission of conference registration confirms the individual / chapter's intent to remit payment to North Carolina TSA. Failure to submit payment prior to the conference will result in elimination from the event.

For additional information about the events, contact Jerianne Taylor (stateadvisor@nctsa.org), via phone or email.

Sincerely,

Jerianne S. Taylor

Jerianne Taylor, EdD, DTE

NC TSA Executive Director and State Advisor

336-692-4794 (cell) stateadvisor@nctsa.org (email)

PERSONAL LIABILITY RELEASE FORM

North Carolina Technology Student Association
2021 Regional Competitive Events Conference

Name of Student Participant:

Name of School:

Advisor:

NOTE: EVERY STUDENT MUST HAVE A COPY OF THIS FORM SIGNED BY PARENT OR GUARDIAN IN ORDER TO PARTICIPATE.

I hereby agree to release the North Carolina Technology Student Association, Inc., its representatives, agents, servants, and employees from liability for any injury to the above named person, resulting from any cause whatsoever occurring to the above named person at any time while attending the North Carolina Technology Student Association Regional Conference, including travel to and from the conference, excepting only such injury or damage resulting from willful acts of such representatives, agents, servants and employees.

I do voluntarily authorize the North Carolina Technology Student Association's Regional Conference Chair, assistants and/or designee to administer and/or obtain routine or emergency diagnostic procedures and/or routine or emergency medical treatment for the above named person as deemed necessary in medical judgment.

I agree to indemnify and hold harmless the North Carolina Technology Student Association, Inc., said medical service coordinator and/or assistants and designees from any and all claims, demands, actions, or rights of action, on account of said procedures and/or treatment rendered in good faith and according to accepted medical standards.

Having read and understood completely the "Student Code of Conduct" for the North Carolina Technology Student Association, Inc., I do hereby agree to follow the conduct described. I fully understand that this is an educational activity and will, to the best of my ability, apply myself for the purpose of learning and will uphold at all times the good qualities of a person representing the North Carolina Technology Student Association, Inc.

Participant

Date

Parent or Guardian

Date

PUBLICITY: I agree to allow pictures of my child from this conference to be used for NC TSA promotional purposes.

Parent or Guardian

Date

I DO NOT give NCTSA the right to collect self-reported data, that will be used for educational purposes only, from my child.



Below is a summary description of the 2020 MIDDLE School level TSA competitive events. Detailed specifications and rules regarding each event can be found in the *Middle School VIRTUAL Competitive Events Guide for the 2021 National TSA Conference*.

[Link to TSA Middle School VIRTUAL GUIDE](#)

Biotechnology: Participants [5 teams per chapter (2-6 individuals per team)] conduct research on a contemporary biotechnology issue of their choosing, document their research, and create a display. The information gathered may be student-performed research or a re-creation or simulation of research performed by the scientific community. If appropriate, a model or prototype depicting some aspect of the issue may be included in the display. *No semifinalist Interviews.*

Career Prep: Participants (5 individuals per chapter) conduct research on a selected technology-related career and use the knowledge gained to prepare a letter of introduction and a chronological skills resume. Top 10 Semifinalists participate in a mock interview.

In 2021, students choose one (1) of these careers:

- Architecture and Construction
- Health Science
- Law, Public Safety, Corrections, and Security
- Transportation, Distribution, and Logistics

Community Service Video: Participants (**five teams per chapter; entries may be submitted by an individual or group**) create and submit a video that depicts the local TSA chapter's service with the American Cancer Society, national TSA's community service partner.

Digital Photography: Participants (**five individuals per chapter**) produce an album of color or black and white digital photographs (representing or relating to a chosen theme) and place the album on a storage device for submission. No semifinal round.

Theme: *Nature*

Inventions and Innovations: Participants (5 teams per chapter (3-6 individuals per team) investigate and determine the need for an invention or innovation of a device, system, or process, and brainstorm ideas for a possible solution. Teams prepare an interactive display and model/prototype. Semifinalist present to a panel of judges (who act as venture capitalist investors) to persuade the panel to invest in their invention/innovation. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (5 minute max).

Theme: *Entertainment*

Leadership Strategies Participants [3 teams per chapter (3 per team)] demonstrate leadership and team skills by preparing a presentation based on a selected challenge the officers of a TSA chapter might encounter. Participants planning to compete in this competition need to be available on Friday, February 19 for the competition.



Mechanical Engineering Participants [5 teams per chapter (3-6 individuals per team)] design and build a mechanical device to solve the problem statement for the identified theme. Teams identify and research an engineering process and construct a mechanical system. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (10 minute max).

Theme: Design Challenge: Teams design and build a "Rube Goldberg" mechanical device. This device will contain four (4) subsystems that when combined make up a larger system. Each subsystem will contain only two (2) types of simple machines in a fun and inventive way. Each type of simple machine must be used at least twice in the subsystem in which it is placed. All six (6) simple machines must be represented in the final subsystem. The transfer of energy in the device will travel a specific path from start to finish for a minimum of seven (7) seconds per board. The device must be self-powered utilizing kinetic energy after the initial touch that starts the device. The device must be capable of repeating demonstrations with the reset time for the entire system to be less than three (3) minutes. The size of each sub system must not exceed 12" wide x 12" deep x 18" tall. The entire system must fit within an area of 24" wide x 24" deep x 18" tall. Each subsystem should be self-contained to its own 12"x12" base made from a material of your choice (please refer to the [attached diagram](#) for a visual reference)

Medical Technology: Participants (**five teams of at least two individuals per chapter; one entry per team**) conduct research on a contemporary medical technology issue of their choosing, document their research within a display, and design a prototype depicting a medical technology solution. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (10 minute max).

Microcontroller Design: Participants (5 teams per chapter (individual entries permitted) develop a working digital device (product) with real-world applications. Through a product demonstration and documentation, the team demonstrates knowledge of microcontroller programming, simple circuitry, and product design and marketing. The project should have educational and social value, and conform to the theme for the year. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (5 minute max).

Challenge: Design an interactive platform to promote reading and math to early elementary schoolers.

Prepared Speech: Participants (**three individuals per chapter**) deliver a speech that reflects the theme of the current year's national conference. All teams will submit a YouTube link to a video during their initial upload based on the requirements outlined in the TSA MS Virtual Competitive Events Guide.

Theme: Together Towards Tomorrow

STEM Animation: Participants (**five teams per chapter, one entry per team**) use computer graphics tools and design processes to communicate, inform, analyze, and/or illustrate a STEM topic, idea, subject, or concept. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (10 minute max).

Challenge: Podcast Technologies

Context: Podcasting has become one of the most consumed mediums in the world, changing the way that information and entertainment are written, produced and delivered.

Challenge: Create a STEM animation that demonstrates what podcasting is, its production process, and what its future holds.



Video Game Design: Participants (**five teams of two to six individuals per chapter**) develop, build, and launch an E-rated game that focuses on the subject of their choice. The game should be interesting, exciting, visually appealing, and intellectually challenging. The game and all required documentation will be evaluated. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (10 minute max).

Website Design: Participants (**five teams of three to six individuals per chapter, one entry per team**) design, build, and launch a website that features the team's ability to incorporate the elements of website design, graphic layout, and proper coding techniques. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (10 minute max).

Theme: E-Bikes and Transportation

Context: An electric bicycle, also known as an e-bike or booster bike, is a bicycle with an integrated electric motor which can be used for propulsion. Due to recent global events, e-bikes have been seen as an alternative transportation solution within high-density, metropolitan cities.

Challenge: Develop a website that advertises a fictitious business specializing in electronic bicycles. Teams should strive to develop a business website that is interactive, engaging, graphically interesting, and easy to understand. Teams are reminded that the point of their solution should be to advertise the business to potential customers, who want to experience or convert to electronic bicycles.

<http://www.tsaweb.org/Competition•Updates>



Below is a summary description of the 2021 HIGH SCHOOL level TSA competitive events. Detailed specifications and rules regarding each event can be found in the VIRTUAL Competitive Events Guide for the 2021 National TSA Conference.

[Link to TSA High School Virtual Guide](#)

Animatronics: Participants [5 teams per chapter (2-6 individuals per team)] demonstrate knowledge of mechanical and control systems by designing, fabricating, and controlling an animatronics device that will communicate, entertain, inform, demonstrate and/or illustrate a topic, idea, subject, or concept. Sound, lights, and a surrounding environment must accompany the device. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (9 minute max).

Design Challenge: Create an Animatronic exhibit for a science center

Architectural Design: Participants [5 teams per chapter (2-6 individuals per team)] develop a set of architectural plans and related materials in response to an [annual architectural design challenge](#) and construct a physical, as well as a computer-generated model, to accurately depict their design. Participants must demonstrate an understanding of and aptitude for architectural design, the development of plans, modeling techniques and practice, and the awareness of the role that the built environment can play in human behavior and interactions. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (10 minute max).

Biotechnology Design: Participants (**five teams of two to six individuals per chapter, one entry per team**) select a contemporary biotechnology problem (that relates to the current year's published area of focus) and demonstrate understanding of it through documented research, the development of a solution, a display, and an effective multimedia presentation. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (10 minute max).

Area of focus: Theme: The use of biotechnology in medicine

Board Game Design Participants [5 teams per chapter (2-6 individuals per team)] develop, build, and package a board game that focuses on the subject of their choice. The game should be interesting, exciting, visually appealing, and intellectually challenging. Each team will have to design the packaging, instructions, pieces, and cards associated with creating and piloting a new board game. Semifinalists for the event will set up the game, demonstrate how the game is played, and explain the game's features. . All teams will submit a YouTube link to a video for the semifinalist round during their initial upload. Participants are allowed five (5) minutes to set up the game and five (5) minutes to repackage the game. 5. Participants are allotted a maximum of ten (10) minutes to discuss the features of the game and respond to design questions.6. Participants may refer to the product during the presentation.

Digital Video Production: Participants (**five teams per chapter, one entry per team**) develop a public service announcement and a digital video (with sound) that focuses on the given [year's theme](#).

Theme: Interview with your future self



Extemporaneous Speech: Participants (**three individuals per chapter**) verbally communicate their knowledge of technology or TSA subjects by giving a speech after drawing a card on which a technology or TSA topic is written. Participants planning to compete in this competition need to be available on Friday, February 19 for the competition.

Music Production: Participants (**five teams per chapter; a team of one member is permitted**) produce an original musical piece that is designed to be played during the national TSA conference opening or closing general sessions.

On Demand Video: Participants [5 teams per chapter (2-6 individuals per team)] write, shoot, and edit a 60-second video onsite during the conference. The topic will be sent out on February 10th and need to be uploaded by 11:59 PM on February 12th.

Photographic Technology: Participants (**five individuals per chapter**) demonstrate understanding of and expertise in using photographic and imaging technology processes to convey a message based on a theme. Preliminary participants submit a photographic portfolio to qualify for semifinalists. Semifinalists demonstrate expertise in photographic technology by producing two (2) portfolios within a limited, specified amount of time. No Semifinals.

Theme: Nature

Prepared Presentation: Participants (**three individuals per chapter**) deliver an oral presentation, using a digital slide deck, on a topic provided onsite. All teams will submit a YouTube link to a video during their initial upload based on the requirements outlined in the TSA HS Virtual Competitive Events Guide. The topic will be sent out on February 10th and need to be uploaded by 11:59 PM on February 12th.

Scientific Visualization (SciVis): Participants (**five teams per chapter, one entry per team**) develop a visualization focusing on a subject or topic from one or more of the following areas: science, technology, engineering or mathematics.

Video Game Design: Participants [**five teams per chapter (a minimum of two individuals per team), one entry per team**] develop an E+10-rated game that focuses on the subject of their choice. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (10 minute max).

Theme: An adventure game.



Webmaster: Participants (**five teams of three to five individuals per chapter**) are required to design, build, and launch a website that features their school's career and technology/engineering program, the TSA chapter, and the chapter's ability to research and present a given topic pertaining to technology. Semifinalists participate in an on-site interview to demonstrate the knowledge and expertise gained during the development of the website - with an emphasis on web design methods and practices, as well as their research for the annual design topic. All teams will submit a YouTube link to a video for the semifinalist round during their initial upload (10 minute max).

Theme: Medical On Demand

Context: Due to recent global events, consumers and the healthcare industry were forced to change their medical screening practices. Virtual appointments via mobile interfacing and webcam communications have been used for patients that were unable to or restricted from physically seeing a doctor.

Challenge: Create a fictional medical telecommunications company and design a website. The website should serve as a guide for information about the company and their communication services provided. Present an overview of services as if you were a consumer. Provide the type of solutions your company creates, sells, and/or serves. Sections of the site may include photos, product descriptions, renderings, company history, contact, and news updates.

Be sure to refer to the following site for competition updates: <http://www.tsaweb.org/Competition-Updates>