October 30, 2017

Dear TSA Advisors and Technology, Engineering and Design Teachers,

Attached is the tentative schedule for the Western Region NC TSA Conference, to be held on the campus of Appalachian State University on Friday, February 23, 2018.

All TSA chapters including Guilford County and west are encouraged to attend. Schools from these regions that are interested in starting a TSA chapter are also encouraged to participate as well.

I am also attaching the event information, A TENTATIVE SCHEDULE, registration link and the medical/photo release form.  Please make sure that you turn in the medical/photo release form when you check-in at registration. **This year we are asking that each school provide at least one coordinator and one judge for this event. Registration will open on December 18, 2017.**

 Please note that some of the events will operate **differently** than described in the TSA Competitive Events Guides. Due to time constraints, some events that normally involve on-site construction of projects will deviate from the event guidelines.

 As many of you know, weather in Boone is naturally unpredictable.  If the university is closed or if the roads are deemed unsafe by the event coordinator, the event may be delayed or canceled.    If the conference is canceled, then schools will receive a maximum of a 50% refund.  Refunds will not be given to schools that decide not to attend due to weather or any other unforeseen events.  *There will be no on-site registration.*

We can only *guarantee* spaces in events to those schools/students that have **pre-registered by February 2nd.** Payment should be postmarked no later than **February 9th**.  Failure to submit payment prior to the conference will result in elimination from the event.

For additional information about the events, contact the event coordinator, Jerianne Taylor (taylorjs@appstate.edu), via phone or email.

We look forward to seeing you on February 23rd.


Sincerely,

*Jerianne S. Taylor*

Jerianne Taylor, EdD, DTE
NC TSA Executive Director and State Advisor
Career & Technical Education Program Director
Appalachian State University
828-262-6352 (phone) 336-692-4794 (cell) 828-265-8696 (fax)  taylorjs@appstate.edu (email)

# PERSONAL LIABILITY RELEASE FORM

North Carolina Technology Student Association
2018 Regional Competitive Events Conference
February *23,* 201*8*- Appalachian State University, Boone, NC

Name of Student Participant:

Name of School: Advisor:

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

I hereby agree to release Appalachian State University and 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 Western Region 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 Western Region 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., Appalachian State University, 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 and Appalachian State University 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.

## <u>Participants: please bring a signed copy of this form to the Conference</u>

2018 Western Region NC TSA Conference
February 23, 2018
Appalachian State University

Below is a summary description of the 2018 and 2019 MIDDLE School level TSA competitive events. Detailed specifications and rules regarding each event can be found in the *2018 & 2019 Middle School Technology Activities, National TSA Conference Competitive Events Guide.*

**Biotechnology:** Participants (**three teams per chapter**) 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 Onsite Presentations or Interviews.*

**CAD Foundations** Participants (two [2] individuals per chapter) have the opportunity to demonstrate their understanding of CAD fundamentals as they create a two-dimensional (2D) graphic representation of an engineering part or object.

**Career Prep:** Participants **(three 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 5 Semifinalists participate in a mock interview.

　　　In 2018, students choose one (1) of these careers:
- Agriculture, Food & Natural Resources
- Manufacturing
- Finance
- Government & Public Administration

**Children's Stories:** Participants **(three teams per chapter; a team of one individual is permitted)** create an illustrated children's story that will incorporate educational and social values. The story must revolve around the theme for a given year that is posted on the TSA website. Top 5 semifinalists will present their stories to the judges.

　　　**Theme: STEM Interactive – Participants are to design an interactive book for elementary aged students in grades K-3 on a topic of their choosing in Science, Technology, Engineering or Mathematics (STEM).**

**Coding** Participants (two [2] team of two [2] members per chapter) will demonstrate their knowledge of computer science and coding by taking a written test. Semifinalists will further demonstrate their programming knowledge by participating in an on-site programming challenge. Details about the on-site challenge (e.g., programming language to be used and practice problems) can be found on the TSA website under Themes and Problems.

**Community Service Video:** Participants **(three 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.

**Construction Challenge:** Participants **(three teams per chapter)** submit a scale model/prototype with a portfolio that documents the use of their leadership and technical skills to fulfill an identified community need related to construction. *No Onsite Presentations or Interviews.*

**Digital Photography:** Participants **(three 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. Semifinalists produce a series of digital photographs taken at the conference that are edited appropriately for an on•site task. *No on•site problem.*
    **Theme: Heroes**

**Dragster:** Participants **(five individuals per chapter; one entry per individual)** design and produce a $CO_2$•powered dragster according to stated specifications, using only specified materials. *No on•site interview.*

**Flight:** Participants **(five individuals per chapter, one entry each)** study the principles of flight and design in order to fabricate a glider that stays in flight for the greatest elapsed time. Flight duration of the gliders and documentation of the design process are the primary elements of evaluation.

**Inventions and Innovations:** Participants **(three teams of at least three individuals per chapter; one entry per team)** investigate and determine the need for an invention or innovation of a device, system, or process, and then brainstorm ideas for a possible solution. Top 5 Semifinalists make an oral presentation to a panel of judges (who act as venture capitalist investors) to persuade the panel to invest in their invention/innovation.

**Junior Solar Sprint:** Participants **(three teams per chapter, one entry per team)** apply STEM concepts, creativity, teamwork, and problem-solving skills as they design, construct, and race a solar-powered model car.

**Mass Production:** Participants **(one team of at least two individuals)** manufacture a marketable product related to the current year's theme. The team submits a documentation portfolio of the activities involved and three identical products made during the manufacturing process.

**Mechanical Engineering** Participants (two [2] team of three to six [3-6] individuals per chapter; one [1] entry per team) will design and build a "Rube Goldberg" mechanical device. This device will contain three (3) subsystems within a larger system. Each subsystem will contain all six (6) simple machines in a fun and inventive way. The final solution or grand finale is open-ended to maximize creativity. The transfer of energy in a 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. The device must be capable of repeated demonstrations without long setup times. No On-site interviews.

**Medical Technology:** Participants **(three 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, and create a display. If appropriate, a model or prototype depicting an aspect of the issue may be included in the display. *No Onsite Presentations or Interviews.*

**Microcontroller Design:** Participants (three teams of three to five individuals per chapter) develop a working digital device with real•world applications. Through a multimedia presentation, product demonstration, and documentation, the team demonstrates in detail its knowledge of microcontroller programming, simple circuitry, product design, and marketing.

      **Challenge:** Wearable Technology.

**Off the Grid** Throughout the world, people are working to become more self-sustaining when it comes to landscaping and architectural design. Sometimes the purpose is to live off the grid, and other times it is to create a smaller carbon footprint. There are many options throughout the world, but sometimes a location limits or enables those options. In this event, participants conduct research on a sustainable architectural design for a home in a country of the team's choosing (other than their home country).
Participants (three [3] teams per chapter) will create a display and a model. The model can be of the home the team designed or of a specific aspect of their design. Semifinalist teams will give a presentation and are interviewed about their design. The design brief for this competition will be posted on the TSA website under Competitions/Themes and Problems.

**Prepared Speech:** Participants **(two individuals per chapter)** deliver a speech that reflects the theme of the current year's national conference.

      **Theme:** A Celebration of Success

**Problem Solving:** Participants **(one team of two individuals per chapter)** use problem solving skills to develop a finite solution to a problem provided on site.

**Promotional Marketing:** Participants **(three individuals per chapter, one entry per individual)** design a three-part **TSA Marketing Toolkit** that must include a national conference promotional poster, a state delegation fact sheet, and a chapter t•shirt design. *No on•site problem.*

**STEM Animation:** Participants **(three 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. Semifinalists give a presentation.

**Structural Engineering:** Participants **(three teams of two individuals per chapter)** apply the principles of structural design and engineering through basic research, design, construction, and destructive testing to determine the design efficiency of a structure. *No on•site construction.*

**Structural Engineering Continued:**

*Link to 2018 Challenge:* http://tsaweb.org/sites/default/files/2017-2018%20Middle%20School%20Structrual%20Engineering%20Problem%20Statement.pdf

*Link to Verification Form:*
http://tsaweb.org/sites/default/files/MS Structural Engineering Verification form.pdf

**Tech Bowl:** Participants **(one team of three individuals per chapter)** take a written objective examination to qualify for the oral question/response, head•to•head team competition phase of the event.

**Video Game Design:** Participants **(three 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 pre•conference. *No on•site interview.*

**Website Design:** Participants **(three 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. *No on•site interview.*

> **Link to 2018 Challenge: http://tsaweb.org/Themes-and-Problems**
>
> **To submit your URL, please use this link:**
> **https://goo.gl/forms/PWW2Ge4IubOK6M0u2**
> **Be sure to submit your URL on or before 11:59 PM on February 22, 2018**

**VEX IQ:** Teams must be registered with Roboevents.com in order to compete. Limit of ONE team per chapter. Additional information is located at:
http://tsaweb.org/sites/default/files/2017%20TSA%20VIQC%20-%20Competition%20Guidelines%201.25.pdf

**VEX VRC:** Teams must be registered with Roboevents.com in order to compete. Limit of ONE team per chapter. Additional information is located at:
http://www.roboticseducation.org/vex•robotics•competitionvrc/tsa•vex•robotics•competition/

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

Below is a summary description of the 2017 and 2018 HIGH school level TSA competitive events. Detailed specifications and rules regarding each event can be found in the 2017 & 2018 High School Technology Activities, National TSA Conference Competitive Events Guide.

**3D Animation:** Participants **(three teams of two members per chapter)** demonstrate their knowledge of 3D Animation technology and design skills to creatively solve the challenge posted on the national TSA website. *No On-site Competition.*

**Architectural Design:** Participants **(three teams, or one individual, per chapter; one entry per team or individual)** develop a set of architectural plans and related materials for an annual architectural design challenge and construct a physical, as well as a computer-generated model, to accurately depict their design.

**Biotechnology Design:** Participants **(three 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. *No On-Site Interviews.*

    Area of focus: Vaccines

**Children's Stories:** Participants **(three teams per chapter; a team of one individual is permitted)** create an illustrated children's story of high artistic, instructional, and social value. The narrative may be written in prose or poetry and take the form of a fable, adventure story, or other structure. The physical storybook should be of high quality and designed to meet the year's given theme. The story must have a science, technology, engineering, and mathematics (STEM) focus. Top 5 semifinalists will read their stories to the judges.

**Coding:** Participants **(two (2) individuals, or two (2) teams of two to three (2-3) members).** Participants respond to an annual coding-related design challenge by developing a software program that will accurately address an on-site problem in a specified, limited amount of time. Specific elements to be used, such as the programming language, operating system, or application programming interface (API), will be released on-site. Completed solutions will be objectively measured to determine the best and most effective solution for the stated problem.

**Computer-Aided Design (CAD), Architecture:** Participants **(two individuals per chapter)** use complex computer graphic skills, tools, and processes to develop representations of architectural subjects, such as foundation and/or floor plans, and/or elevation drawings, and/or details of architectural ornamentation or cabinetry.

**Computer-Aided Design (CAD), Engineering:** Participants **(two individuals per chapter)** use complex computer graphic skills, tools, and processes to develop three-dimensional representations of engineering subjects such as a machine part, tool, device, or manufactured product.

**Computer Integrated Manufacturing (CIM):** Participants **(three teams of two members per chapter)** design, fabricate, and use Computer Integrated Manufacturing (CIM) to create a promotional TSA product that will showcase the current conference city and/or state.

**Digital Video Production:** Participants **(three 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.

**Dragster Design:** Participants **(five individuals per chapter, one entry per individual)** design, produce working drawings for, and build a CO2-powered dragster. *No Interviews.*

**Engineering Design:** Participants **(three teams of three to five individuals per chapter, one entry per team)** develop a solution to a National Academy of Engineering grand challenge that is posted on the national TSA website. The solution offered will be informed and designed by precise problem definition, thorough research, creativity, experimentation (when possible), and the development of documents and appropriate models (mathematical, graphical, and/or physical prototype/model). Semifinalists justify and demonstrate their solution in a timed presentation.
> **Theme: Engineer the Tools of Scientific Discovery**

**Fashion Design and Technology:** Participants **(three teams of two to four members per chapter)** research, design, and create a portfolio and wearable prototype that reflect the current year's theme. Semifinalist teams participate in a presentation/interview in which they present their garment designs to judges. *No Fashion Show.*

**Flight Endurance:** Participants **(five individuals per chapter, one entry per individual)** analyze flight principles with a rubber band-powered model aircraft.

**Future Technology Teacher:** Participants **(three individuals per chapter)** research and select three accredited colleges or universities that offer technology education teacher preparation as a major. Each participant writes a one page simulated college essay explaining why he/she would like to become a technology educator and what would constitute success in the field. Participants also develop and present a lesson plan to judges. Top 5 Semifinalists will present their lessons to the judges.

**Music Production:** Participants **(three 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.

**Photographic Technology:**  Participants **(three individuals per chapter)** capture and process photographic and digital prints that depict the current year's published theme. Semifinalists participate in an on-site event in which they capture digital images and utilize multimedia software to prepare and develop a media presentation during the annual conference. *No On-Site Problem.*

> **Theme: Battle Between Nature and Technology – Who Wins?**

**Prepared Presentation:**  Participants **(three individuals per chapter)** deliver an oral presentation that includes a visual enhancement, based on the theme for the current year's conference.

**Promotional Design:**  Participants **(three individuals per chapter, one entry each)** develop and submit electronically a graphic design that can be used to promote participation in TSA-related interests.

**Scientific Visualization (SciVis):**  Participants **(three 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.

**Structural Design and Engineering:**  Participants **(two teams of two individuals per chapter, one entry per team)** work as part of a team to build a structure that is posted on the [TSA website](#). The structure is destructively tested and assessed to determine design efficiency. Semifinalists work on a construction problem that is a variation of the posted design. *No On-site Problem.*

**STEM Careers:**  Participants **(five individuals per chapter)** develop a specific skill and complete a thorough project about the skill's relationship to a STEM career area of their choice. Participants research and prepare documentation related to the skill and prepare a video that demonstrates the skill. Semifinalists participate in an on-site interview to discuss the skill developed.

**Technology Bowl:**  Participants **(one team of three individuals per chapter)** complete a written, objective test in order to qualify for oral question/response, head-to-head team competition.

**Technology Problem Solving:**  Participants **(one team of two individuals per chapter)** work together on site to develop and create a solution to a problem using the limited materials provided and the tools allowed.

**Transportation Modeling:** Participants **(three individuals per chapter, one entry per individual)** design and produce a scale model of a vehicle that fits the annual design problem.

> **Theme: History of Stock Car Racing**

**Video Game Design:**  Participants **[three 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. *No On-site Interviews.*
   **Theme: Sports Games**

**Webmaster:**  Participants **(one team 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. *No On-Site  Interview.*

   Link to the 2018 Challenge
   **To submit your URL, please use the following link:**
   **https://goo.gl/forms/1t5YNVehKVmuWUEU2**
   **Be sure to submit your URL on or before 11:59 PM on February 22, 2018.**

**VEX VRC** - Teams must be registered with Roboevents.com in order to compete. Limit of ONE team per chapter. Additional information is located at

http://www.roboticseducation.org/vex-robotics-competitionvrc/tsa-vex-robotics-competition/

Be sure to refer to the following site for competition updates:

http://www.tsaweb.org/Competition-Updates

# Tentative Schedule for the 2018 Western Region NCTSA Conference

| High School | | | Middle School | | |
|---|---|---|---|---|---|
| **Time** | **Event** | **Room** | **Time** | **Event** | **Room** |
| Check-In/Inspections begin at 8:00 | | | Check-In/Inspections begin at 8:00 | | |
| **8:00** | VEX Robotics | Blue Ridge | **8:00** | VEX Robotics –IQ and VRC | Blue Ridge |
| Project Set-Up Until 10:00 | | | Project Set-Up Until 10:00 | | |
| | 3D Animation | 329 RCOE | | Biotechnology Design | 124 C RCOE |
| | Architectural Design | 124 B RCOE | | Career Prep | 239 RCOE |
| | Biotechnology Design | 124 B RCOE | | Children's Stories | 115A RCOE |
| | Children's Stories | 115A RCOE | | Community Service Video | Upload |
| | CIM | 124 B RCOE | | Construction Challenge | 124 C RCOE |
| | Digital Video Production | Upload | | Digital Photography | Upload |
| | Dragster Design | Grandfather | | Dragster Design | Grandfather |
| | Engineering Design | 124 B RCOE | | Flight | Varsity Gym |
| | Fashion Design | 124 B RCOE | | Off the Grid | 124 C RCOE |
| | Flight Endurance | Varsity Gym | | Inventions & Innovations | 124 C RCOE |
| | Future Technology Teacher | Upload | | Junior Solar Sprint | Grandfather |
| | Music Production | Upload | | Mass Production | 124 C RCOE |
| | Photographic Technology | 124 B RCOE | | Mechanical Engineering | 229 RCOE |
| | Prepared Speech -Sign Up | 20 RCOE | | Medical Technology | 124 C RCOE |
| | Promotional Design | Upload | | Microcontroller Design | 124 C RCOE |
| | SciVis | Upload | | Promotional Marketing | Upload |
| | STEM Careers | 239 RCOE | | STEM Animation | Upload |
| | Structural Engineering | 229 RCOE | | Structures | 229 RCOE |
| | Transportation Modeling | Grandfather | | Video Game Design | Upload |
| | Video Game Design | Upload | | Website Design | Upload |
| | Webmaster | Upload | | | |

| High School | | | Middle School | | |
|---|---|---|---|---|---|
| **Competitions** | | | **Competitions** | | |
| 9:00 | VEX Robotics | Linville Falls | 9:00 | VEX Robotics | Linville Falls |
| 10:00 | Coding | 127 RCOE | 10:00 | Dragster Design-Races | Grandfather |
| | Dragster Design-Races | Grandfather | | Flight Endurance-Testing | Varsity Gym |
| | Flight Endurance-Testing | Varsity Gym | | Structures-Testing | 229 RCOE |
| | Prepared Presentation | 20 RCOE | | Technology Bowl -Written | Roan Mtn. |
| | Struct. Engineering-Testing | 229 RCOE | 11:00 | Children's Stories | 115A RCOE |
| | Technology Bowl-Written | Roan Mtn. | | Career Prep | 239 RCOE |
| 11:30 | CAD 2D | 013 RCOE | | Mechanical Engineering-Testing | 229 RCOE |
| | CAD 3D | 013 RCOE | 12:00 | | |
| | | | | Inventions & Innovations | 232 RCOE |
| | Technology Bowl-Orals | Roan Mtn. | | Junior Solar Sprint Races | Grandfather |
| 12:00 | Children's Stories-Finalists | 115A RCOE | | Prepared Speech | 331 RCOE |
| | Future Technology Teacher -Finalists | RCOE 236 | | Problem Solving | Grandfather |
| | | | | Coding | 127 RCOE |
| | Problem Solving | Grandfather | 1:00 | Technology Bowl-Orals | Roan Mtn. |
| | | | **Awards Ceremony** | | |
| 1:00 | STEM Careers- Interviews | 239 RCOE | **3:00** | IG Greer Auditorium | |
| | Transportation Modeling-Races | Grandfather | | | |
| | | | **Grandfather, Linville Falls, Blue Ridge and Roan Mountain Ballrooms are located in Plemmons Student Union.** | | |
| **Awards Ceremony** | | | | | |
| **4:00** | IG Greer Auditorium | | | | |
| The Gym/Gym Lobby is located in Varsity Gym next to Roess Dining Hall | | | | | |
| 124 A in the College of Education Building will serve as Conference Headquarters. | | | | | |