



Arkansas Judges' Guide

2025

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Introduction

ARTSA is a chapter of the national Technology Student Association, which is an organization dedicated to serving students interested in pursuing opportunities in innovation, design, technology, and engineering.

At the ARTSA State Conference, over 500 students from across the state come together to compete in more than 50 events, attend breakout sessions, network with other students, future employers, and possible post-secondary institutions, and practice their durable skills.

In my experience as a teacher, former Chapter Advisor, and now State Advisor, I've noted that students are more receptive to feedback from adults who are not their teachers or parents, and having a content matter expert evaluate their work will demonstrate to them the high standards we know they can achieve.

While we maintain high expectations, we also understand that these students are still learning, and they may be completing their first documentation portfolio. When providing feedback, consider using the "compliment sandwich" model: begin with a compliment, suggest specific areas for improvement, and conclude with another compliment or words of encouragement. Remember, actionable feedback is crucial, as students who qualify for the National Leadership Conference will be resubmitting their projects.

Thank you for considering this opportunity to judge for the Arkansas TSA's Spring Leadership Conference; your support is greatly appreciated. Please don't hesitate to contact me if you have any questions. If you are ready to make a commitment, please fill out the form linked under the [Remote Judging](#) section or the [On-Site Judging](#) section.

With appreciation,

Allison B. Carter

ARTSA State Advisor
stateadvisor@arkansastsa.org

Asynchronous, Remote Judging

[Click here to sign up.](#)

Time Requirements

As a remote judge, you will be evaluating students' written portfolios based on a provided rubric. The approximate time commitment is 3-5 hours, but those hours can be spread over the two weeks between when students submit their portfolios on 2/18/25 and when semifinalists need to be published on 3/6/25.

Judge Qualifications

Remote judges are expected to assess the subject matter of project portfolios. Therefore, it is recommended that remote judges possess background knowledge in the competitions they choose to judge. The following list is categorized by area of interest. We welcome individuals with relevant career experience or a strong avocation for a particular subject to serve as judges. For further details about a competition, just click on it! Note that some competitions appear multiple times, as they can be evaluated from various perspectives. "MS" indicates that the competition is exclusively for middle school students; unlabeled competitions are intended for high school students.

Remote Opportunities by Interest

Art & Design

[Architectural Design](#)
[Board Game Design](#)
[Children's Stories](#) (HS and/or MS)
[Community Service Video](#) (MS)
[Digital Video Production](#)
[Digital Photography](#) (MS)
[Fashion Design and Technology](#)
[Photographic Technology](#)
[Promotional Design](#)
[STEM Mass Media](#)
[Video Game Design](#) (HS and/or MS)
[Virtual Reality Simulation \(VR\)](#)

Aviation & Transportation

[Drone Challenge \(UAV\)](#)
[Flight Endurance](#)
[Transportation Modeling](#)

Engineering & Robotics

[Architectural Design](#)
[CAD \(Computer-Aided Design\),](#)
[Architecture](#)
[CAD \(Computer-Aided Design\),](#)
[Engineering](#)
[Drone Challenge \(UAV\)](#)

Engineering & Robotics, cont.

[Engineering Design](#)
[Flight Endurance](#)
[Manufacturing Prototype](#)
[Mechanical Engineering](#) (MS)
[Transportation Modeling](#)

Environment & Geography

[Biotechnology Design](#)
[Geospatial Technology](#)
[Off the Grid](#) (MS)
[Transportation Modeling](#)

Math & Logical Thinking

[Data Science and Analytics](#)

Media & Storytelling

[Audio Podcasting](#)
[Children's Stories](#)
[Community Service Video](#) (MS)
[Digital Photography](#) (MS)
[Digital Video Production](#)
[Music Production](#)

Media & Storytelling, cont.

[On Demand Video](#)
[STEM Mass Media](#)
[Vlogging](#) (MS)
[Video Game Design](#) (HS and/or MS)

Communications

[STEM Mass Media](#)

Science & Research

[Biotechnology Design](#)
[Future Technology and Engineering Teacher](#)
[Geospatial Technology](#)

Technology & Programming

[Data Science and Analytics](#)
[Software Development](#)
[Video Game Design](#) (HS and/or MS)
[Virtual Reality Simulation \(VR\)](#)
[Webmaster](#)
[Website Design](#) (MS)

On-Site Judging

[Click here to sign up.](#)

Judge Qualifications

Evaluations conducted on-site predominantly focus on evaluating students' abilities to effectively demonstrate their understanding and knowledge. Prior experience or in-depth knowledge of the specific subject matter is not typically required of on-site judges as the emphasis of the day is the students' capacity to articulate their learning and present it to a general audience. The only events where background knowledge could be useful are as follows:

Event(s)	Suggested Knowledge	Event	Suggested Knowledge
Architectural Design CAD- Architecture	- Architecture basics - Physical modeling basics	CAD- Architecture	- Autodesk Revit or similar - Architectural CAD conventions
Data Science & Analytics	Data visualization and presentation	CAD- Engineering	- Autodesk Inventor or similar - CAD conventions
		Forensic Science	Evidence collecting procedures
Promotional Design	Graphic design principles Marketing/advertising basics	Photographic Technology	DSLR camera settings and/or editing software experience
System Control Technology	Industrial Engineering, Mechanical Engineering, or similar	Fashion Design & Technology	- Sewing basics - Knowledge of textiles
Transportation Modeling	Food Truck/Kitchen design	Chapter Team	Parliamentary Procedure/Robert's Rules of Order
Coding	Text-based UI usage and input testing	Future Technology and Engineering Teacher	Educational theory and best practices

Time Requirements

As a judge, you will assess student performances through presentations, interviews, or specific skills. The time commitment required will depend on the competition and its assigned block. On March 11th, you will receive an email with your assigned event, location, an example rubric, and your detailed schedule. The schedules below indicate the required start time and approximate end times that a judge will need to be available on-site for a given competition. All judges will receive a complementary boxed lunch, snacks, and beverage service. Lunch breaks will be 30 minutes, and there will be shorter breaks scheduled throughout the day. Please see the event groupings on the next page.

Competitions by Schedule

Group 1- 7:45 am - 12:30 pm	Group 2- 7:45 am - 4:00 pm	Group 3- 9:15 am - 12:30 pm
Interviews and physical products	Interviews and Physical Products	Interviews/Skills Judging
Animatronics Biotechnology Design Flight Endurance Geospatial Technology Manufacturing Prototype Children's Stories (MS)	Architectural Design Board Game Design Children's Stories	Coding Community Service Video * (MS) CAD Foundations (MS) Data Science & Analytics Dragster Design Promotional Design System Control Technology Technology Problem Solving Digital Video Production * Drone Challenge Software Development Webmaster
Group 4- 9:15 am - 4:00 pm	Group 5- 11:15 am - 4:00 pm	
Interviews/Skills Judging	Interviews and Physical Products	Interviews/Skills Judging
CAD-Architecture Interviews CAD- Engineering Interviews Extemporaneous Speech Forensic Science Performance Photographic Technology Interviews Prepared Presentation Video Game Design *	Engineering Design Fashion Design and Technology Inventions and Innovations (MS) Mechanical Engineering (MS) Off the Grid (MS) Transportation Modeling STEM Mass Media (no interviews, just press release judging)	Chapter Team (HS) Coding (MS) Debating Technological Issues Digital Photography (MS) Dragsters (MS) Future Technology and Engineering Teacher Music Production * Prepared Speech (MS) Problem Solving (MS) Robotics Technology Bowl Semifinals Video Game Design (MS) Virtual Reality Simulation (VR) Website Design (MS)

* Judges will need to preview an entry but will not need to evaluate it.

All High School Competitions by Interest

Art & Design

[Architectural Design](#)
[Board Game Design](#)
[Children's Stories](#)
[Digital Video Production](#)
[Fashion Design and Technology](#)
[Photographic Technology](#)
[Promotional Design](#)
[STEM Mass Media](#)
[Virtual Reality Simulation \(VR\)](#)

Aviation & Transportation

[Dragster Design](#)
[Drone Challenge \(UAV\)](#)
[Flight Endurance](#)
[Transportation Modeling](#)

Engineering & Robotics

[Animatronics](#)
[Architectural Design](#)
[CAD \(Computer-Aided Design\), Architecture](#)
[CAD \(Computer-Aided Design\), Engineering](#)
[Dragster Design](#)
[Drone Challenge \(UAV\)](#)
[Engineering Design](#)
[Flight Endurance](#)
[Manufacturing Prototype](#)
[Robotics](#)
[System Control Technology](#)
[Transportation Modeling](#)

Environment & Geography

[Biotechnology Design](#)
[Geospatial Technology](#)
[Transportation Modeling](#)

Math & Logical Thinking

[Coding](#)
[Data Science and Analytics](#)
[Prepared Presentation](#)
[Technology Bowl](#)
[Technology Problem Solving](#)

Media & Storytelling

[Audio Podcasting](#)
[Children's Stories](#)
[Digital Video Production](#)
[Music Production](#)
[On Demand Video](#)
[STEM Mass Media](#)

Communications

[Chapter Team](#)
[Debating Technological Issues](#)
[Extemporaneous Speech](#)
[Prepared Presentation](#)
[STEM Mass Media](#)

Science & Research

[Biotechnology Design](#)
[Forensic Science](#)
[Future Technology and Engineering Teacher](#)
[Geospatial Technology](#)
[System Control Technology](#)

Technology & Programming

[Coding](#)
[Data Science and Analytics](#)
[Software Development](#)
[Technology Problem Solving](#)
[Video Game Design](#)
[Virtual Reality Simulation \(VR\)](#)
[Webmaster](#)

All Middle School Competitions by Interest

Art & Design

[Children's Stories](#)
[Community Service Video](#)
[Digital Photography](#)

Aviation & Transportation

[Dragster](#)

Engineering & Robotics

[Mechanical Engineering](#)

Environment & Sustainability

[Off the Grid](#)

Math & Logical Thinking

[Essays on Technology](#)
[Problem Solving](#)
[Tech Bowl](#)

Media & Storytelling

[Community Service Video](#)
[Digital Photography](#)
[Vlogging](#)

Communications

[Prepared Speech](#)

Technology & Programming

[Coding](#)
[Video Game Design](#)
[Website Design](#)

All High School Competitions, Alphabetical

Animatronics

Teams produce an animatronic device complete with display. The device must use control technology in its performance and fulfill the requirements of the theme to communicate, entertain, inform, demonstrate and/or illustrate a topic, idea, subject, or concept.

Sound, lights, and surrounding environment are to accompany the device. The annual design problem is posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: N/A

Judged on Site: Device and presentation

Architectural Design

Participants develop a set of architectural plans and a portfolio in response to an annual architectural design challenge. They also construct physical and computer-generated models 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. The design problem for the current school year will be posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Documentation portfolio

Judged on Site: Architectural model and presentation

Audio Podcasting

Participants use digital audio technology to create original content around a predetermined technology theme. Podcasting encourages good storytelling, voice acting, and foley sound effects to create a coherent creative work. The theme will be posted on the [National TSA website](#) under *Themes & Problems*.

Semifinalists complete an on-site challenge to produce additional podcast(s).

Judged Remotely: Podcast and documentation portfolio

Judged on Site: On-site challenge results

Biotechnology Design

Teams conduct research on a contemporary biotechnology advancement based on an annual theme posted on the [National TSA website](#) under *Themes & Problems*. Teams document their research and create an effective interactive display. The information gathered may be student-performed research or a recreation or simulation of research performed by the scientific community. If appropriate, a model or prototype may be included.

Judged Remotely: Documentation portfolio

Judged on Site: Display and presentation

Board Game Design

Participants 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 designs and creates the packaging, instructions, pieces, and/or cards for their game and documents the processes associated with creating and piloting a new board game. Semifinalists set up the game, demonstrate how the game is played, explain the game's features, and discuss the design process.

Judged Remotely: Documentation portfolio

Judged on Site: Packaging, board game, and demonstration

Chapter Team

Participants take a parliamentary procedures test in order to qualify for the semifinals. Semifinalist teams are challenged to complete an opening ceremony, items of business, parliamentary actions, and a closing ceremony within a specified time period.

Judged Remotely: N/A

Judged on Site: Demonstration of a chapter business meeting

Children's Stories

Participants 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 story book should be of high quality and designed to meet the year's given theme as posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Documentation portfolio

Judged on Site: Physical storybook and presentation

Coding

Participants will take a test related to coding concepts to qualify for the semifinals. Semifinalist teams will respond to an annual coding-related design challenge by developing software programs that will accurately address the on-site problems in a specified, limited amount of time. Completed solutions are objectively measured to determine the best and most effective solution for the stated problem.

Judged Remotely: N/A

Judged on Site: Successful completion of the problems

Computer-Aided Design (CAD)- Architecture

Individuals 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 in response to a design brief given at the time of competition.

Judged Remotely: Design solution

Judged on Site: Interview

Computer-Aided Design (CAD)- Engineering

Individuals use complex computer graphic skills, tools, and processes to design and develop a 3-dimensional representation of an object that addresses the given design challenge.

Judged Remotely: Design solution

Judged on Site: Interview

Data Science & Analytics

Entrants collect, analyze, and visually represent data. They then draw conclusions or make predictions based on the data set. Participants document their research and summarize their findings in a digital scientific poster. Semifinalists participate in a two (2) hour semifinal challenge to visually represent a data set

provided on-site. Participants access the annual theme on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Documentation portfolio, digital scientific poster, video of presentation

Judged on Site: Visual representation and synopsis of data provided on site.

Debating Technological Issues

Team members collaborate to prepare for a debate against a team from another chapter. On-site, the teams are assigned either the Pro or Con side of a selected subtopic. The theme and subtopics for this event will be posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: N/A

Judged on Site: Debate

Digital Video Production

Participants use digital video skills, tools, and processes to communicate, entertain, inform, analyze, or illustrate the annual theme on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Documentation portfolio and video

Judged on Site: Presentation/Interview

Dragster Design

Individuals design, model, and build a CO₂- powered dragster according to stated specifications using only specified materials. Special annual design requirements will be posted for this event on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: N/A

Judged on Site: Dragster safety, construction, and interview

Drone Challenge (UAV)- National Qualifier

Teams design, build, assemble, document, and test fly an open- source Unmanned Aerial Vehicle according to stated specifications and to meet the challenge of the yearly theme/problem. The annual theme will be posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Documentation portfolio

Judged on Site: Drone testing and Interview

Drone Challenge (UAV)- State Title Only

Teams bring and fly a pre-built drone of their choosing to meet the challenge of the yearly theme/problem.

The annual theme will be posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: N/A

Judged on Site: Drone testing

Engineering Design

Teams develop a solution to one of the [Grand Challenges for Engineering \(GCE\) in the 21st century](#) based on the annual theme posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Documentation portfolio

Judged on Site: Display, prototype/model, and presentation/Interview

Extemporaneous Speech

Participants verbally communicate their knowledge of technology or TSA subjects by giving a three-to-five (3-5) minute speech fifteen (15) minutes after being randomly assigned a topic.

Judged Remotely: N/A

Judged on Site: Speech

Fashion Design and Technology

Teams demonstrate an expertise in fashion design principles by creating a wearable design that incorporates technology and reflects the annual theme as published on the [National TSA website](#) under *Themes & Problems*. Semifinalist teams participate in an on-site presentation and interview in which they present their garment designs, discuss the design process, and answer questions from judges.

Judged Remotely: Documentation portfolio

Judged on Site: Prototype, patterns, and presentation

Flight Endurance

Participants apply the design iteration process to build, fly, and adjust a fixed-wing, rubber-band powered model aircraft to make long endurance flights inside a contained airspace.

Judged Remotely: Documentation portfolio

Judged on Site: Model, flight ranking points, and flight times

Forensic Science

Participants take a test of basic forensic science theory to qualify as semifinalists. Semifinalist pairs examine a mock crime scene and demonstrate their knowledge of forensic science and crime scene analysis by using proper techniques to collect evidence. Teams then collect their data and perform a written analysis of the crime scene.

Judged Remotely: N/A

Judged on Site: Performance of crime scene analysis

Future Technology and Engineering Teacher

Participants create a portfolio demonstrating their interest and aptitude for the teaching profession, which will include a lesson plan and accompanying activity that incorporate standards of technological literacy. Semifinalists engage the judges with the proposed activity. Topics will reflect Science, Technology, Engineering, and Mathematics (STEM) initiatives and integration.

Judged Remotely: Documentation portfolio

Judged on Site: Presentation

Geospatial Technology

Competitors interpret geospatial data in multiple formats and formulate projections about the area of interest based on an annual theme posted on the [National TSA website](#) under *Themes & Problems*. Participants develop a digital portfolio containing maps, data, and pertinent documentation, which is submitted pre-conference. Participants summarize their findings in a visual infographic map to be submitted on-site and defend their projections in a presentation.

Judged Remotely: Documentation portfolio

Judged on Site: Infographic map and presentation/Interview

Manufacturing Prototype

Teams design, fabricate, and use Computer Integrated Manufacturing (CIM) to create a product that addresses the annual theme found on the [National TSA website](#) under *Themes & Problems*. The product may use additive and/or subtractive manufacturing of any

traditional, Computer Numerical Control (CNC), 3D printing, or laser technology available. A documentation portfolio and one completed prototype are evaluated. Semifinalist teams participate in an on-site challenge to demonstrate their product and give a promotional "sales pitch" to the judges.

Judged Remotely: Documentation portfolio

Judged on Site: Sales pitch/demonstration

Music Production

Participants produce an original musical piece that reflects the annual theme on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Documentation portfolio and musical piece

Judged on Site: Presentation/Interview

On Demand Video

Participants showcase video skills, tools, and processes to produce a film in 5 days or less before the ARTSA State Conference. Required criteria, such as props and a line of dialogue, make the competition more challenging and will be revealed when the challenge is released.

Judged Remotely: Video production

Judged on Site: N/A

Photographic Technology

Individuals demonstrate an expertise in using photographic and imaging technology processes to convey a message. Participants then communicate their logical processes through an on-site interview.

The annual theme will be posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Photographic portfolio

Judged on Site: Presentation/Interview

Prepared Presentation

Individuals prepare to deliver an oral presentation, using a digital slide deck of their own design. The theme is posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: N/A

Judged on Site: Presentation

Promotional Design

Participants use computerized graphic communications layout and design skills in the production of a promotional resource based on the annual theme as posted on the [National TSA website](#) under *Themes & Problems*. Semifinalists demonstrate competency through participation in an on-site technical design challenge.

Judged Remotely: Promotional materials and documentation portfolio

Judged on Site: On-Site design challenge

Robotics

Participants design, build, assemble, document, and test a vehicle according to stated specifications and to meet the annual challenge as posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: N/A

Judged on Site: Robot testing and interview

Software Development

Participants apply knowledge of cutting-edge technologies and algorithms to design, implement, test, and document a software development project. The project should have educational or social value. The theme of the current year's software development project will be posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Coded solution

Judged on Site: Presentation

STEM Mass Media

Participants utilize written and verbal communication skills designed for a mass audience to convey a news story revolving around a designated theme in both a video broadcast (preliminary) and a digital written format (semifinals). Participants must demonstrate a strong understanding of journalism etiquette and common practices of the field. The theme is posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: News broadcast and documentation portfolio

Judged on Site: Interview and digital news story

System Control Technology

Participants collaborate on-site to develop a computer-controlled model solution to a problem, typically one from an industrial setting. Teams analyze the problem, build a computer-controlled mechanical model, program the model, explain the program and mechanical features of the model solution, and leave instructions for judges to operate the device.

Judged Remotely: N/A

Judged on Site: Inventor's log, model function, programming structure and efficiency, interview

Technology Bowl

Teams of three demonstrate their individual knowledge of TSA and concepts addressed in the technology content standards by completing a multiple choice test. Semifinalist teams participate in a question/response, head-to-head, Quiz Bowl-style team competition.

Judged Remotely: N/A

Judged on Site: Head-to-head competition

Technology Problem Solving

Participants develop a finite solution to a stated problem provided on-site. Participants work as a team to provide the best solution, which is measured objectively. This event is similar to on-site Destination Imagination or Odyssey of the Mind challenges.

Judged Remotely: N/A

Judged on Site: Solution to on-site challenge

Transportation Modeling

Using only designated materials and following required specifications, participants research, design, and produce a scale model of a vehicle that fits the annual design problem as posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Documentation portfolio

Judged on Site: Model, display, and presentation

Video Game Design

Participants develop a video game that focuses on the annual theme posted on the [National TSA website](#) under *Themes & Problems*. The game must be interesting, exciting, visually appealing, and intellectually challenging. The game must have high

artistic, educational, and social value. Semifinalist teams participate in an on-site interview to demonstrate the knowledge and expertise they gained during the development of the game and answer questions about their process.

Judged Remotely: First three levels of the game, documentation portfolio, demonstration video

Judged on Site: Presentation/Interview

Virtual Reality Simulation (VR)

Participants use video and 3D computer graphics tools and design processes to communicate, inform, analyze, and/or illustrate a given topic, idea, subject, or concept based on the theme posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Non-VR Visualization, documentation portfolio

Judged on Site: VR Visualization w/ hardware, presentation/interview

Webmaster

Participants are required to design, build, and launch a website to present a given topic as posted on the [National TSA website](#) under *Themes & Problems*.

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.

Judged Remotely: The website

Judged on Site: Presentation/Interview

All Middle School Events, Alphabetical

Children's Stories

Participants create an illustrated children's story of high artistic, instructional, and social value. The physical story book should be of high quality, designed to meet the year's given theme, which will be posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Documentation portfolio

Judged on Site: Physical storybook, reading, and presentation

Coding

Teams respond to an annual coding-related design challenge by developing a set of software programs that will accurately address onsite problems in a specified and limited amount of time. Completed solutions are objectively measured using predetermined test cases to determine if the stated problem has been adequately and efficiently solved.

Judged Remotely: N/A

Judged on Site: Completion of the on-site problems

Community Service Video

Participants create and submit a video that depicts their local TSA chapter's involvement with a community service project (e.g., American Cancer Society) of their choice.

Judged Remotely: Video and documentation portfolio

Judged on Site: Presentation

Computer Aided Design (CAD)

Foundations

Participants demonstrate their understanding of CAD fundamentals as they create a two-dimensional (2D) graphic representation of an engineering part or object.

Judged Remotely: Design solution

Judged on Site: Presentation/Interview

Digital Photography

Participants produce a digital photographic portfolio that represents or relates to a chosen theme posted on the [National TSA website](#) under *Themes & Problems*.

Semifinalists demonstrate competency in the

production of a series of digital photographs taken at the conference site within the time limit specified and complete a presentation/interview.

Judged Remotely: Preliminary photographic portfolio

Judged on Site: On-site multimedia presentation and interview

Dragster

Individuals design, model, and build a CO₂- powered dragster according to stated specifications using only specified materials. Special annual design requirements will be posted for this event on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: N/A

Judged on Site: Dragster construction, interview, and race points

Essays on Technology

Participants conduct research on specified subtopics of a broader technological area. The topic and subtopics will be posted on the [National TSA website](#) under *Themes & Problems*. Participants apply the knowledge and resources gained through their research to write a comprehensive essay on the one (1) subtopic that is designated on-site.

Judged Remotely: N/A

Judged on Site: Detailed outline and essay

Inventions and Innovations

Participants research and brainstorm the need for an invention or innovation of a device, system, or process related to the current year's theme, which will be posted on the [National TSA website](#) under *Themes & Problems*. Team entries must include documentation of the team's work through a static display and a model/prototype. Semifinalists give a "sales pitch" presentation to a panel of judges (who act as venture capital investors) to persuade the panel to invest in their invention/innovation.

Judged Remotely: N/A

Judged on Site: Display, model/prototype, "sales pitch" presentation

Mechanical Engineering

Participants make a vehicle that meets the stated Vehicle Specifications and comes to rest exactly the required distance in the fastest time for the specific conference year. The current year's problem statement will be posted on the [National TSA website](#) under *Themes & Problem*.

Judged Remotely: Documentation portfolio

Judged on Site: Vehicle performance

Off the Grid

Participants conduct research on a sustainable architectural design for a home in a country of the team's choosing other than the team's resident country. Teams will create a display and a model. The model can be of the home the team designs or of a specific aspect of their design. Semifinalists demonstrate competency by presenting and responding to questions about their design. The design brief for this competition will be posted on the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: Documentation portfolio

Judged on Site: Display, model, and presentation

Prepared Speech

Participants deliver a speech that reflects the theme of the current National TSA Conference. See the [National TSA website](#) under *Themes & Problems*.

Judged Remotely: N/A

Judged on Site: Speech

Problem Solving

Participants in problem solving work as a team to develop a finite solution to the stated problem provided on-site. This event is similar to on-site Destination Imagination or Odyssey of the Mind challenges.

Judged Remotely: N/A

Judged on Site: Solution to the on-site problem

Video Game Design

Participants develop a video game that focuses on a subject of their choice. The game must be interesting, exciting, visually appealing, and intellectually challenging. The game must have high artistic, educational, and social value. Semifinalist teams

participate in an on-site interview to demonstrate the knowledge and expertise they gained during the development of the game and answer questions about their process.

Judged Remotely: First three levels of the game and documentation portfolio

Judged on Site: Presentation

Vlogging

Participants use digital video technology to create original content around a predetermined technology theme. Vlogging encourages good storytelling, videography, and editing techniques to create a coherent series of creative work. Participants will find the current year's theme posted on the [National TSA website](#) under *Themes & Problems* for this information. For ARTSA, this event is entirely virtual/remote.

Judged Remotely: Vlog series

Judged on Site: N/A

Website Design

Participants are required to 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. The design brief for this event will be posted on the [National TSA website](#) under *Themes & Problems*. Semifinalists participate in an interview, with an emphasis on web design as it pertains to their solution, to demonstrate the knowledge and expertise gained during the design process.

Judged Remotely: Website

Judged on Site: Presentation/Interview