

Competitive Event Overviews – High School



Animatronics

Participants 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.

Architectural Design

Participants 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.

Biotechnology Design

Participants select a contemporary biotechnology problem that reflects the theme for the year. Participants demonstrate understanding of the topic through documented research, the development of a solution, a display (including an optional model or prototype), and an effective multimedia 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 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.

Chapter Team

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

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 reflect the theme for the year. The story must have a science, technology, engineering, and mathematics (STEM) focus.

Coding

Participants respond to an annual coding-related design challenge by developing a software program that will accurately address an onsite problem in a specified, limited amount of time.

Computer-Aided Design (CAD), Architecture

Participants 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 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.

Data Science and Analytics

Participants collect data, conduct an analysis of the data, and make a prediction about the outcome. Participants document and summarize their research within a scientific poster and present their findings. Semifinalist teams create a digital visual representation of their data using a platform of their choice, and present.

Debating Technological Issues

Participants work together to prepare for a debate against a team from another chapter. The teams will be instructed to take either the pro or con side of a selected subtopic.

Digital Video Production

Participants develop a digital video (with sound) that reflects the theme for the year.

Engineering Design

Participants 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). Semifinalist teams present and defend their proposed solution to a panel of judges.

Essays on Technology

Participants write a research-based essay (using two or more sources provided onsite) that makes insightful connections about a current technological topic.

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Extemporaneous Speech

Participants 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.

Fashion Design and Technology

Participant's research, design, and create a portfolio and wearable prototype that reflect the theme for the year. Semifinalist teams participate in a presentation.

Forensic Science

Participants take a written test of basic forensic science to qualify as semifinalists. Semifinalist teams will examine a mock crime scene and demonstrate their knowledge of forensic science and crime scene analysis. Participants will be expected use proper techniques to collect evidence and perform a detailed written analysis of the crime scene.

Future Technology Teacher

Participants create a screencast webinar that teachers can reference to learn a new technology that can be used in a lesson. Semifinalists demonstrate mastery of the technological app in a mock lesson and presentation.

Geospatial Technology

Participants interpret geospatial data in multiple formats and formulate projections about the area of interest in response to an annual theme. Participants develop a digital portfolio containing maps, data, and pertinent documentation. Preliminary round participants also summarize their findings in a visual infographic map. Semifinalists defend their visual infographic projections in a digital presentation.

Music Production

Participants 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 write, shoot, and edit a 60-second video onsite during the conference.

Photographic Technology

Participants 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.

Prepared Presentation

Participants deliver an oral presentation, using a digital slide deck, on a topic provided onsite.

Promotional Design

Participants use computerized graphic communications layout and design skills in the production of a promotional resource for TSA.

Scientific Visualization (SciVis)

Participants use either 2D or 3D computer graphics tools and design processes to communicate, inform, analyze, and/or illustrate a STEM topic, idea, subject, or concept.

Software Development

Participants use knowledge of cutting-edge technologies, algorithm design, problem-solving principles, effective communication, and collaborative teamwork to design, implement, test, and document a software development project of educational or social value.

Technology Bowl

Participants demonstrate their knowledge of TSA and concepts addressed in the technology content standards by completing a written, objective test. Semifinalist teams participate in question/response, head-to-head team competition.

Transportation Modeling

Participants research, design, and produce a scale model of a vehicle that fits the annual design problem.

Video Game Design

Participants develop a game that reflects the theme for the year. The game must have high artistic, educational, and social value and be interesting, exciting, visually appealing, and intellectually challenging.

Webmaster

Participants design, build, and launch a website that features the school's career and technology/engineering program, TSA chapter, and the chapter's ability to research and present a given topic pertaining to technology. Semifinalists participate in an onsite 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.