Competitive Event Overviews – Middle School

Biotechnology
Participants 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. Semifinalist teams make a presentation and are interviewed about their topic.

Career Prep
Participants conduct research on a selected technology-related career according to a theme posted on the TSA website, and use this knowledge to prepare a letter of introduction and a chronological skills resume. Semifinalists participate in a mock interview.

Challenging Technology Issues
Participants work together to prepare and deliver a debate-style presentation with participants explaining opposing views of a current technology issue. The current year's topics can be found on the Themes and Problems page.

Chapter Team
Participants take a written parliamentary procedures test in order to qualify for the semifinals, in which they conduct 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 that will incorporate educational and social values. The story may be written in a genre of their choice. Examples are fables, adventures, non-fiction, fiction, and fairy tales. The story must revolve around the theme chosen for the given year.

Computer-Aided Design (CAD) Foundations
Participants 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.

Coding
Participants 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 onsite programming challenge. Details about the onsite challenge (e.g., programming language to be used and practice problems) can be found on Themes and Problems.

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

Construction Challenge
Participants 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. Semifinalists discuss their projects in a presentation and an interview.

Cybersecurity Foundations
Participants complete a Cybersecurity exam covering general cybersecurity vocabulary and knowledge needed to execute tasks commonly performed by all levels of cybersecurity professionals. Using digital presentation software participants prepare a presentation, addressing a specific cybersecurity issue, to a group of hypothetical corporate board members (i.e., judges). Participants must explain the importance of cybersecurity and why it is essential that the organization invest in such measures. The problem statement will be posted on the TSA website under Themes and Problems. Semifinalists exhibit proficiency by recommending security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.

Data Science and Analytics
Participants conduct research on an annual theme or topic, collect data, and document their research in a supporting portfolio and a display. Participants implement a variety of methods to find connections between data, and gain insightful knowledge about a particular issue. Using analytics, participants assess collected data to make predictions and informed decisions. Semifinalist teams report for a timed, onsite challenge in which they must review specific data sets, provide insights, make predictions, and present their findings.

Digital Photography
Participants produce a digital portfolio addressing an annual theme posted on the Themes and Problems page. Semifinalists participate in a timed challenge, which includes digital photographs taken and edited onsite. Semifinalists demonstrate their knowledge of digital photography in a presentation/interview.

Essays on Technology
Participants conduct research on specified subtopics of a broader technological area and, using the knowledge and resources gained through that research, write a comprehensive essay on one subtopic that is designated onsite.

Foundations of Information Technology
Participants complete a examination covering essential IT skills and knowledge needed to perform tasks commonly performed by all levels of IT professionals. Semifinalists exhibit proficiency and demonstrate creative problem solving by applying techniques to troubleshoot an industry-related challenge.

Forensic Technology
Participants take a written test of basic forensic science theory to qualify as semifinalists. Semifinalists participate in a skills demonstration onsite.

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Inventions and Innovations
Participants 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. 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 (JSS)
Participants apply STEM concepts, creativity, teamwork, and problem-solving skills as they design, construct, and race a solar-powered model car.

Leadership Strategies
Participants demonstrate leadership and team skills by preparing a presentation based on a selected challenge the officers of a TSA chapter might encounter.

Mass Production
Participants 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 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 that can be used to address the problem statement. Semifinalists participate in a presentation/interview.

Medical Technology
Participants 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. Semifinalists participate in a presentation.

Microcontroller Design
Participants 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, which can be found on Themes and Problems. Semifinalists demonstrate and promote their work in a presentation.

Off the Grid
Participants conduct research on a sustainable architectural design for a home in a country of the team's choosing (other than their home country), and document their findings in a display and a model. The model can be of the home designed by the team, or of a specific aspect of their design. Semifinalist teams give a presentation and are interviewed about their design. The design brief can be found on the Themes and Problems page.

Prepared Speech
Participants deliver a speech that reflects the theme of the current year's National TSA Conference. The current year's topics can be found on the Themes and Problems page.

Promotional Marketing
Participants create a portfolio of marketing tools. Semifinalists work creatively under constraints to design a solution to a problem given onsite, using their own computer/laptop work station. Semifinalist entries will be saved to the individual's event USB drive (provided by TSA) for judging. The current year's topics can be found on the Themes and Problems page.

STEM Animation
Participants use computer graphics tools and design processes (i.e., animation) to communicate, inform, analyze, and/or illustrate a topic, idea, subject, or concept that focuses on one (1) or more of the following areas: science, technology, engineering, or mathematics. Sound may accompany graphic images. Semifinalists participate in an onsite presentation. The current year's topics can be found on the Themes and Problems page.

Tech 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 a question/response, head-to-head competition.

Technical Design
Participants demonstrate their ability to use the technical design process to solve an engineering design problem onsite and present the team's solution in a portfolio at the conference.

Video Game Design
Participants develop, build, and launch an E-rated, online game that focuses on the subject of their choice. The game should be interesting, exciting, visually appealing, and intellectually challenging. Semifinalist teams participate in an onsite interview to demonstrate the knowledge and expertise they gained during the development of the game.

Website Design
Participants 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. Semifinalists participate in an onsite conference interview, with an emphasis on web design as it pertains to their solution, to demonstrate the knowledge and expertise gained during the development of the website. The design brief can be found on the Themes and Problems page.