

The following information provides only a basic description of each event. Please consult *2010 & 2011 Middle School Technology Activities, National TSA Conference Competitive Events Guide* (on CD) for detailed specifications and rules regarding each event. Also, consult the *2009-10 WV HS and MS State Supplement* regarding the eligible number of participants for state funding to national competitions.

2010-2011 Overview Middle School Events

Agriculture and Biotechnology Issues Participants (three teams per state) conduct research on a contemporary agriculture or 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.

Career Prep Participants (one individual per chapter) conduct research on a selected technology-related career and use the knowledge gained to prepare a resume and cover letter, complete a job application, and participate in a mock interview.

Challenging Technology Issues Participants (three teams of two members per state) prepare and deliver an extemporaneous debate style presentation, with team members explaining opposing views of a current technology issue that has been selected on site from a choice of three options.

Chapter Team Participants (one team of six members per chapter) demonstrate their understanding of parliamentary procedure relative to business meetings. Participants must successfully complete a written parliamentary procedures test in order to proceed to the semifinals, where they perform an opening ceremony, dispose of three items of business, and perform a closing ceremony within a specified time period.

Communication Challenge Participants (one individual per chapter, one entry per individual) write, design and produce 1) a newsletter that promotes the chapter's activities, 2) an effective sponsor support request on chapter letterhead, and 3) a business card. Semifinalists work creatively under constraints to design a solution to an on-site problem.

Construction Challenge Participants (one team per chapter) submit a display that documents the use of their leadership and technical skills to fulfill a community need related to construction. Semifinalists discuss their projects in a presentation and an interview.

Digital Photography Participants (three individuals per state) produce and submit an album of digital photographs consisting of color or black and white digital photographs that present a theme in journalistic style. Semifinalists produce three digital photographs taken at the conference site that have been edited appropriately for the on-site task.

Dragster Participants (two individuals per chapter, one entry per individual) design, produce working drawings for, and build a CO₂-powered dragster according to stated specifications and using only certain specified materials.

Electronic Gaming Participants [one team (of at least two participants) per chapter, one entry per team] develop an E-rated game that focuses on the subject of their choice. The game should be interesting, exciting, visually appealing and intellectually challenging. A working, interactive game is submitted for evaluation.

Engineering Structure Participants (one team of two members per chapter) work to determine superior engineering as they conduct research and then model and test a structure that is designed to hold the greatest load. Teams submit their models for destructive testing.

Environmental Focus Participants (one team per chapter, one entry per team) identify and research a specific environmental problem or issue that has been influenced by advancements in technology. Students present their findings in the form of a multimedia presentation.

Flight Participants (two individuals per chapter, one entry each) study the principles of flight and design in order to fabricate (using materials provided) and test-fly gliders. Gliders must be designed to be launched from a catapult that is provided on site. Flight duration of the gliders and documentation of the design process are the primary elements of the evaluation.

Global Manufacturing Participants [one team (of no more than six students) formed from the three TSA chapters involved] design, manufacture and package a marketable mass-produced product through a collaborative effort. Two completed products will be included in the display for this event.

Go Green Manufacturing Participants (one team of at least three individuals per chapter, one entry per team) design and manufacture a product using recycled material that has been donated from business or industry. The chapter submits documentation of chapter activities and two product samples made during the manufacturing experience.

Graphic Design Participants (two individuals per chapter, one entry per individual) create and produce a graphic design that is appropriate for national TSA conference publications and other small promotional items. In a given year the design must promote the theme for the *next* year's national TSA conference.

Inventions and Innovations Participants [one team (with a minimum of three individuals) per chapter, one entry per team] investigate and determine the need for the invention or innovation of a device, system or process. Team members will 1) create a prototype or model, 2) develop a stand-alone multimedia presentation and 3) document work completed as they prepare to promote and demonstrate their idea for the invention or innovation. Semifinalists make an oral presentation to a panel of judges who will act as a group of venture capitalists interested in providing funding for the development of the idea.

Leadership Strategies Participants (one team of three individuals per chapter) work in teams to develop a plan of action that addresses a specific challenging situation provided on site. Under time constraints, semifinalists develop a plan for a second situation and then make a team presentation.

Lights, Camera, Action Participants [three teams (a team may be an individual or a group) per state] develop and submit a detailed storyboard, production plan and finished video that depicts the chapter's involvement in TSA, technology education, or community service.

Medical Technology Issues Participants [three teams per state (two or more participants per team), one entry per team] conduct research on a contemporary medical technology issue of their choosing, document their research, and create a display. The information gathered may include 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.

Multimedia Production Participants (one individual per chapter, one entry per individual) create and design a stand-alone multimedia presentation to promote TSA.

Prepared Speech Participants (one individual per chapter) develop and deliver an oral presentation that reflects the theme of the current year's national conference.

Problem Solving Participants (one team of two individuals per chapter) use problem solving skills to develop a finite solution to a stated problem given on site. Participants work as a team to provide the best solution, which is measured objectively.

Robot TOBOR Participants (one team of two members per chapter, one entry per team) design, fabricate, test, record the design and work efforts for, and demonstrate the use of a remote-controlled robot that can complete a course and perform a designated task.

System Control Technology Participants (one team of three members per state, one entry per team) develop a computer-controlled model solution to a problem provided on site. Typically, the problem is a scenario of a situation in an industrial setting that requires a solution. 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 operating the device.

Tech Bowl Participants (one team of three individuals per chapter) are required to complete a written objective examination to qualify for the oral question/response, head-to-head team competition phase of the event.

Technical Drawing Participants (two individuals per chapter) demonstrate the ability to read and interpret technical sketches, drawings, and the use of materials when they complete a technical design and illustration test. Semifinalists demonstrate their ability to solve an on-site technical design problem using standard sketching, drafting, and problem-solving techniques.

Techno Talk Participants (two teams of two members each per state) demonstrate the ability to work together in teams of randomly paired students in order to build and replicate a structure using limited communication.

Transportation Challenge Participants (two individuals per chapter, one entry per individual) design, engineer, and fabricate a battery-powered vehicle that covers a course in the shortest amount of time.

TSA Cup: Marine Design Participants (one team of at least two individuals per chapter, one entry per team) develop a model of a propeller-driven race boat (that has an affiliation with a country) that is tested and raced in a water tank. Participants construct a display that features the team's chosen country and its boat.

Website Design Participants (one team of three to five members per chapter, one entry per team) are required to design, build and launch a World Wide Web site that features the team's research about a cutting edge science, technology, engineering or mathematics-related topic. Pre-conference semifinalists participate in an on-site interview to demonstrate the knowledge and expertise gained during the development of the website. [Click here for the Middle School Website Design design brief.](#)

Write Now! Technical Writing Participants (three individuals per state) conduct research on two or three specified subtopics of a broader technological area and, using the knowledge and resources gained through that research, write a comprehensive report on the one subtopic that is designated on site.

ZAP IT! Electrical Applications Participants (two individuals per chapter) demonstrate knowledge of basic electrical and electronic theory through a written test. Semifinalists assemble a specific circuit from a schematic diagram (using a kit provided), make required electrical measurements and explain their solution during an interview.

State Level Contests Only:

Creed Recital

Demonstrate the ability to write and recite from memory the TSA Creed.

Mousetrap Vehicle

Design, engineer, and fabricate a vehicle powered only by a mousetrap, capable of traveling the longest distance.

Safety Illustration

Research safety needs in the technology lab, then design and create a poster that effectively communicates a safety message in visual form.