Computer Science Competitive Events

HIGH SCHOOL LEVEL
Below are summaries of the middle school level national Technology Student Association (TSA) competitive events. Detailed specifications regarding each event can be found in the competitive events guide (available online after TSA affiliation is complete).

Coding
Participants (one [1] individual, or one [1] team of two [2] individuals per chapter) 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.

Cybersecurity
Participants respond to a cybersecurity challenge by identifying a breach in computer security via "Capture the Flag" games. Participants will solve onsite challenges in a specified, limited amount of time.

Data Science and Analytics
Participants (three [3] teams of two [2] individuals per state) 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.

Scientific Visualization (SciVis)
Participants (three [3] teams per state; an individual may participate solo in this team event) 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 (one [1] team per chapter) 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.

System Control Technology
Participants (one [1] team of three [3] individuals per state) work onsite 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 write instructions for evaluators to operate the device.

Video Game Design
Participants (three [3] teams per state) 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 (one [1] team per chapter) 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.