

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

Information Technology (IT) Fundamentals+

Participants demonstrate understanding of and expertise in basic information technology concepts by taking an online exam. Certifications will be granted through TSA’s partnership with CompTIA for a passing score.

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.

System Control Technology

Participants compete in a timed, on-site challenge 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 evaluators to operate the device.

Video Game Design

Participants develop a game that reflects the theme for the year, which can be found in the Competitions & Programs section of the TSA website, on the [Themes and Problems](#) page. 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, the TSA chapter, and the chapter’s ability to research and present a given topic pertaining to technology. 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.