

HIGH SCHOOL EVENTS



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ARCHITECTURAL DESIGN

Event Description: Participants (5 Teams of up to 4 students per chapter) develop a set of architectural plans and related materials for an annual architectural design challenge and construct a physical, as well as a computer-generated model, to accurately depict their design.

2024 design problem is to design a vacation home for a family (minimum of 6 people) that is located on a river, lake, or stream - [Design Brief](#)

- State Conference Coordinator: Sara Parris
- Coordinator Contact: sparris22@gapps.bcsds.org

BOARD GAME DESIGN

Event Description: Participants (3 teams of 2-3 students per chapter) 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.

- State Conference Coordinator: Phil Parker, Urbandale HS
 - Coordinator Contact: parkerp@urbandaleschools.com
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CAD ARCHITECTURE

Event Description: Participants (2 individuals per chapter) create representations, such as foundation and/or floor plans, and/or elevation drawings, and/or details of architectural ornamentation or cabinetry.

Participants must bring their own computer and CAD software.

Iowa Specific Rules and Rubric

Upload your Submission [here](#)

- State Conference Coordinator: Joe Huebbe, Johnston MS
 - Coordinator Contact: joe.huebbe@johnston.k12.ia.us
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CAD ENGINEERING

Event Description: Participants (2 individuals per chapter) create 3D computer model(s) of an engineering or machine object, such as a machine part, tool, device, or manufactured product.

Participants must bring their own computer and CAD software.

Upload your Submission [here](#)

- State Conference Coordinator: Joe Huebbe, Johnston MS
 - Coordinator Contact: joe.huebbe@johnston.k12.ia.us
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CHAPTER OF EXCELLENCE

Chapter of Excellence Document: Please fill out this document completely and email to Rhys South, contact information below. The Due Date is April 3rd by 3pm.

- State Conference Coordinator: Rhys South, Johnston HS
 - Coordinator Contact: rhys.south@johnston.k12.ia.us
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CHAPTER TEAM

Iowa Specific Rules, Rubric, and Documents

- State Conference Coordinator: Cale Hutchings, Iowa Department of Education
 - Coordinator Contact: cale.hutchings@iowa.gov
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CHILDREN'S STORIES

Event Description: Participants (5 teams of 1-3 students per chapter)

Theme: Adventure book. Students will use each page to help unlock a clue/experiment/activity at the end of the book.

- State Conference Coordinator: James Roberts
 - Coordinator Contact: james.roberts@dcgschools.com
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CODING

Event Description: Participants (6 teams of 2 students per chapter) respond to an annual coding-related design challenge by developing a software program that will accurately address an onsite a problem in a specified, limited amount of time.

The following programming languages may be used to complete the assigned problems:

- Java (version 10)
- Javascript
- Python

Participants will be presented with a series of coding problems that must be completed on site at the conference. Evaluation will be based on the successful completion of the problems and the time in which it takes students or teams to complete all the challenges.

The USA Computing Olympiad website and the ACM-ICPC International website are helpful resources for the Coding event. Additional resources that can be used to prepare for the event are listed below:

- <https://icpc.baylor.edu/compete/preparation>
- <https://www.codechef.com/>
- <http://www.usaco.org/index.php?page=contests>
- http://blog.hackerearth.com/2013/09/competitive-programming-getting-started_11.html
- <https://www.quora.com/What-is-the-best-strategy-to-improve-my-skills-in-competitive-programming-in-2-3-months>

All materials should be submitted via [this form](#) by 3:30-7:00pm Monday, April 3rd. List participant names, school, chapter sponsor name and email address, along with all submitted materials.

All Teams must pre-register by Friday, March 31st here ([Pre-register Link](#))

- State Conference Coordinator: Denise Hoag
 - Coordinator Contact: dhoag@cbsd.org
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DATA SCIENCE AND ANALYTICS

Event Description: Participants of (3 teams of 2 members per chapter).

Students will synthesize the collected data in terms of factors influencing the issue, societal impacts, and ethical considerations.

Students will submit their findings using the official TSA [scientific poster template](#) and a documentation portfolio. All final products should be in PDF format. Refer to the National TSA Event Guide for specifics on what to include within your documentation portfolio and scientific poster.

By Friday, April 5, 2024, all teams must pre-register: [Data Science Team Pre-Registration](#). All documents should be submitted via this [submission form](#) by 3:00 pm Monday, April 8, 2024. Remember all submissions (scientific poster and documentation portfolio) need to be in PDF format.

Tuesday morning, all teams will participate in an on-site presentation of their digital scientific poster. Each team will have to present using their own devices. No electricity or internet will be provided.

- State Conference Coordinator: Debra Robinson, Council Bluffs Community School District
- Coordinator Contact: dlobinson@cbscd.org

DEBATING TECHNICAL ISSUES

Event Description: Participants (3 teams of 2 members per chapter) work together to prepare for a debate against a team from another chapter. Teams are instructed on site to take either the pro or con side of a subtopic (which falls under a general topic) that is designated annually. Participants need to be ready to debate all three subtopics, pro or con.

Topic: Technology in Infrastructure

Subtopic 1: Autonomous vehicles are the answer to increasing traffic demands, especially in large urban areas.

Subtopic 2: Current carbon and renewable energy policies have a negative impact on power grid reliability and consumer pricing.

Subtopic 3: Manufacturing companies should be exempt from restrictions on waste production due to their contributions to society.

- State Conference Coordinator: Cale Hutchings, Iowa Department of Education
- Coordinator Contact: cale.hutchings@iowa.gov

DIGITAL VIDEO PRODUCTION

Event Description: Participants (2 Teams of 3 Students per Chapter) develop a digital video/film that focuses on the current year's design challenge. Sound may accompany the film.

Iowa Specific Rules

2024 Theme: Epic or high fantasy - defined by the epic nature of its setting or satire of characters, themes, or plot. It is set in an alternative, fictional world.

- State Conference Coordinator: Gabe Cowan, Winterset
- Coordinator Contact: gcowan@winterset.k12.ia.us
- All materials should be submitted via [this form](#) by 3:00pm Monday, April 3rd. List participant names, school, chapter sponsor name and email address, along with all submitted materials.

DRAGSTER DESIGN

For High School, a CAD drawing with dimensions is required in order to race. No hand drawn sketches will be accepted for high school.

All cars will run one qualifying time trial. The top eight legal cars based on time will advance to championship bracket.

- State Conference Coordinator: Rhys South
- Coordinator Contact: rhys.south@johnston.k12.ia.us

EXTEMPORANEOUS SPEECH

Event Description: Participants (3 Individuals per chapter) give a three-to-five minute speech fifteen minutes after having drawn a card on which a technology or TSA topic for a speech is written.

- State Conference Coordinator: Cale Hutchings, Iowa Department of Education
- Coordinator Contact: cale.hutchings@iowa.gov

FASHION DESIGN AND TECHNOLOGY

Event Description: Participants (3 Teams of 3 - 5 Students per Chapter) research, develop and create garment designs, garment mock-ups, and portfolios that reflect the current year's published theme. Semifinalists participate in an on-site event in which they present their potential garment designs to the judges on a TSA runway.

2024 Theme: Avant-Garde. Avant-Garde is characterized by a radical approach. It values aesthetic innovation and unorthodox and experimental approaches. It often combines fabrics of different textures and shapes to result in clothing that is affordable and artistic. The prototype garment can be one (1) piece or two (2) to four (4) separate pieces.

- State Conference Coordinator: Becky Mozingo
- Coordinator Contact: becky_mozingo@yahoo.com

FLIGHT ENDURANCE

Event Description: Participants (5 Individuals per Chapter, one entry per individual) analyze flight principles with a rubber band-powered model aircraft.

- State Conference Coordinator: Heidi Lumbard, Creston
- Coordinator Contact: hlumbard@crestonschools.org

FORENSIC SCIENCE

Event Description: Participants (six [6] teams of two [2] members per chapter) Teams will examine a mock crime scene and demonstrate their knowledge of forensic science and crime scene analysis. Students will be expected to survey the scene and use proper techniques to collect evidence from the mock crime scene. Students will then collect their data and perform a detailed written analysis of the crime scene.

Teams will be required to bring a forensics kit containing items needed to process the crime scene. Materials will not be provided this year.

MANUFACTURING PROTOTYPE

Event Description: Participants design, fabricate, and use Computer Integrated Manufacturing (CIM) to create a product that addresses the annual theme. A documentation portfolio and the completed product prototype are submitted for evaluation. Semifinalists give a product “sales pitch” and demonstration.

2024 Theme: An item that could be used to represent a TSA state delegation at a trade show. It could be a giveaway or a tabletop promotional item.

- State Conference Coordinator:
 - Coordinator Contact:
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MUSIC PRODUCTION

Event Description: Participants (three teams per chapter; an individual may participate solo in this team event) produce an original musical piece that is designed to be played during the national TSA conference opening or closing general sessions.

- State Conference Coordinator: Becky Mozingo
 - Coordinator Contact: becky_mozingo@yahoo.com
 - All materials should be submitted via [this form](#) by 3:00pm Monday, April 3rd. List participant names, school, chapter sponsor name and email address, along with all submitted materials.
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ON DEMAND VIDEO

Event Description: Once participants receive the challenge details (required criteria, such as props and a line of dialogue) at the State TSA conference, they have the conference to produce a 60-second film that showcases video skills, tools, and communication processes. The quality of the completed video production determines the finalists. (3 teams of 2)

TOPIC: 2024 On Demand Problem to be determined

PROPS

LINE OF DIALOGUE

- State Event Coordinator: Gabe Cowan
 - Coordinator Contact: gcowan@winterset.k12.ia.us
 - All materials should be submitted via [this form](#). List participant names, school, chapter sponsor name and email address, along with all submitted materials.
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PHOTOGRAPHIC TECHNOLOGY

2024 Theme: Forced Perspective, Long Exposure, Architectural, and Abstract Photography (incorporate one photo using each of these types of photography in the portfolio)

- State Conference Coordinator: Gene Olsen, Central Decatur HS
- Coordinator Contact: gene.olsen@centraldecatur.org

PREPARED PRESENTATION

Event Description: Participants (3 Individuals per Chapter) deliver an oral presentation, which should include audio and/or visual enhancement, based on the theme for the current year's conference.

Theme: 2024 National TSA Conference Theme, "Evolution of Excellence"

- State Conference Coordinator: Cale Hutchings, Iowa Department of Education
- Coordinator Contact: cale.hutchings@iowa.gov

PROMOTIONAL DESIGN

Event Description: Participants (5 individuals per chapter, 1 entry each) develop and present a graphic design that can be used to promote participation in TSA competitive events. The design will promote annually-selected competitions from TSA's array of competitive events.

Theme: Develop promotional materials for a leadership development program for high school students. The program will consist of 6 two-hour sessions will be held on the 2nd Tuesday of each month from September to March. Students must apply by August 15th and 25 students will be selected to participate. You will need to design and produce recruitment documents for students, a flyer, and an application.

- State Conference Coordinator: Kylie South, Iowa State University
- Coordinator Contact:

RC TRANSPORTATION

Event Description: Participants (5 Teams of 3 Students per Chapter) will compete in a Radio Controlled Car racing event. The RC Cars will be provided either by the students or participating school chapter. A set of guidelines, motor requirements, and frequencies will be posted in this area prior to the Local and State Conferences.

Announcement: ALL RC TEAMS USING LIPO BATTERIES MUST USE A LIPO CHARGING BAG WHEN CHARGING BATTERIES. IF YOU ARE CAUGHT CHARGING LIPOS WITHOUT A BAG THE BATTERIES AND CHARGER WILL BE CONFISCATED FOR THE REST OF THE EVENT AND ALL LAPS LOST. IF YOU ARE CHARGING LIPO BATTERIES WITHOUT A BAG AND CAUSE DAMAGE TO ANY FACILITIES YOU AND OR YOUR SCHOOL WILL BE RESPONSIBLE FOR DAMAGES.

RC Car Rules: [Click to Download Rules Sheet](#)

Spring Conference RC Registration, Due April 1st, 2023: [Team Registration Link](#)

- State Conference Coordinator: Chad Morman, Perry
 - Coordinator Contact: chad.morman@g.perry.k12.ia.us
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Event Description: Participants (3 Teams of 2 Students per chapter) work as part of a team on-site with supplied materials to build a model of a structure that is destructively tested to determine design efficiency.

Iowa Specific Rule: Structures will be built at the State Conference. All participants need to bring their own building tools and glue. The building materials (except glue) will be provided by Iowa TSA at the event.

Announcement: The structure design drawing can be done in advance of the contest. Bring the completed design drawing to check in with you.

Problem Statement

Storage Box Plan Drawing (Not required for Iowa's State Conference)

Structural Design Description and Team Verification Document

- State Conference Coordinator: Ben Chadwick, Johnston MS
- Coordinator Contact: ben.chadwick@johnston.k12.ia.us

TECHNOLOGY BOWL

Event Description: Participants (3 Teams of 3 Students per Chapter) complete a head-to-head team competition.

- State Conference Coordinator: Sara Parris, Burlington
- Coordinator Contact: sparris22@gapps.bcsds.org

TECHNOLOGY PROBLEM SOLVING

Event Description: Participants (4 Teams of 2 Students per Chapter) work together on site to develop and create a solution to a problem using the limited materials provided and the tools allowed.

TOOLBOX REMINDER All problem solving teams need to bring a toolbox that contains the items listed on the National TSA event description. Please make sure prior to the event that your toolbox contains only the allowed items to participate in the challenge. Teams who use outside materials not listed by the National TSA Event Description will be subject to point deductions/disqualification. (Updated on 3/22/16)

- State Conference Coordinator: Rhys South, Johnston HS
- Coordinator Contact: rhys.south@johnston.k12.ia.us

TRANSPORTATION MODELING

Event Description: Participants (5 individuals per chapter, 1 entry per individual) use engineering skills to design and fabricate a CO₂-powered scale model of a vehicle that meets the current year's stated design theme.

2024 Design Problem: Research and present a modern motor home/RV/camper.

- State Conference Coordinator: Gene Olsen
 - Coordinator Contact: gene.olsen@centraldecatur.org
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Event Description: The TSA VEX Robotics Competition engages middle and high school students in science, technology, engineering and mathematics (STEM) education through an exciting, head-to-head robotics contest that captures student attention and both enhances—and allows them to use—their skills in STEM areas. In addition, the competition complements the existing technology-related competitive events offered by TSA at both levels of instruction. (Unlimited Entries per Chapter)

Link to Description:

<https://www.vexrobotics.com/v5/competition/vrc-current-game>

- State Conference Coordinator: Rhys South, Johnston HS
- Coordinator Contact: rhys.south@johnston.k12.ia.us

VEX Robotics Competition: Over Under | 2023 - ...



VIDEO GAME DESIGN

Event Description: Participants (three [3] teams per chapter) 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.

2024 Theme: Fantasy Adventure game

- State Event Coordinator: Josh Atwell
- Coordinator Contact: jatwell@boone.k12.ia.us
- All materials should be submitted via email @ jatwell@boone.k12.ia.us by 3:00pm Monday, April 3rd. List participant names, school, chapter sponsor name and email address, along with all submitted materials.

WEBMASTER

Event Description: Participants (three teams [3] of three to six [3-6] individuals per chapter; one entry per team) 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.

2024 Topic: Green energy initiatives are important to reduce the negative effects of fossil-fuels on the environment. There are many renewable energy programs promoted and listed by the Environmental Protection Agency and they promote various incentives for homeowners to include more green and clean energy solutions in their homes.

Challenge: Develop a website that compiles information for homeowners on green and clean energy home solutions and other initiatives. The website should provide basic information, cost, tax rebate information, and clean/green energy practices.

- State Event Coordinator: Julie Pomrenke
- Coordinator Contact: pomerjul@sblschools.com
- All materials should be submitted via email by 3:00pm Monday, April 3rd. List participant names, school, chapter sponsor name and email address, along with all submitted materials.



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