

## High School: Level 2

### Themes, Updates, Clarification and General Notes

**KANSAS DIGITAL SUBMISSIONS ARE DUE:  
BY 11:59 PM CST on March 14th, 2025**

ALL Digital Submissions, MUST be saved as a PDF document.  
PDFs with URL links are acceptable **IF** they are directing to a site that is hosting a submission for an event such as the link for Webmaster, Video Game Design, Digital Video Production, etc.

DO NOT submit a PDF with a link to a google drive or other protected file format, it must be accessible and downloadable by professionals outside a school district or local group

#### Events with a early submissions:

<i>Architectural Design</i>	<i>Drone Challenge (UAV)</i>	<i>Photographic Technology</i>
<i>Audio Podcasting</i>	<i>Engineering Design</i>	<i>Senior Solar Sprint</i>
<i>Biotechnology Design</i>	<i>Fashion Design and Technology</i>	<i>Software Development</i>
<i>Board Game Design</i>	<i>Future Technology and Engineering Teacher</i>	<i>STEM Mass Media</i>
<i>Children's Stories</i>	<i>Geospatial Technology</i>	<i>Transportation Modeling</i>
<i>Data Science and Analytics</i>	<i>Manufacturing Prototype</i>	<i>Video Game Design</i>
<i>Digital Video Production</i>	<i>Music Production</i>	<i>Virtual Reality Visualization</i>
		<i>Webmaster</i>

#### Advisor Project Submission Link:

<http://judgespro.registermychapter.com/org/jpks-state/conf/jpks-state>

#### Student/Team Captain Project Submission Link:

<http://judgespro.registermychapter.com/org/jpks-state/conf/jpks-state/student>

**\*- Indicates the event has limited entries “per state” at the National Conference**

**!- Early Submission**

**%- State level alternation to the event**

### **Animatronics**

*Design Problem: Following the specified requirements, create an animatronic exhibit for a public library to excite young readers*

*Eligibility is three (3) teams of two to three (2-3) team members per state*

#### Items Judged

Model Appearance

Model Function

Presentation/Interview

### **!Architectural Design**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

*Upload Documentation Portfolio; Include Images of Model in Portfolio*

#### **Background**

There are many kinds of museums throughout the country and the world. From an architectural perspective, museums are designed to incorporate and reflect the kinds of things that are displayed in the exhibitions. The types and purposes of museums are truly an amazing spectrum. Types and purposes include (but are not limited to) – architecture, art, cars, children’s, living history, maritime, medical, military, natural history, science, and gardens.

#### **Challenge: Design Considerations and Constraints**

The 2025 design problem is to select a type and location for a museum of the team’s choice and then design a museum that meets the following considerations and constraints. Conduct research on museum types, designing a museum, planning a museum, and construction of a museum.

Select a location for a museum and incorporate the necessary building codes and materials available in the immediate area.

1. The maximum land space is two (2) acres. The overall solution does not require use of the entire space, nor is the model required to include the entire space.
2. The design must include, as a minimum, storage areas, nine exhibit areas (of various sizes), classrooms, restrooms for guests and staff, a theater for 20 people, food/vending, employee break areas, and an office for 3 employees.
3. Vehicle parking is included in the planning and drawings, but the model should focus on the museum.
4. 6. Additional features can be included at the discretion of the team.
5. The finished design can be all one floor or up to three floors.
6. A maximum of 24”x24” site board must be used for submitting the model.

#### Items Judged

Documentation Portfolio

Design Challenge

Model

Semifinalist Presentation/Interview

## High School: Level 2

### **!Audio Podcasting\***

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 14<sup>th</sup>**

Upload Documentation Portfolio and URL link to Audio File

*Theme:* Preparing to compete in a TSA event and/or preparing for your first TSA conference

#### Items Judged

Audio Podcast

Documentation Portfolio

Semifinal On-Site Podcast

### **!Biotechnology Design**

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 14<sup>th</sup>**

Upload Documentation Portfolio; Include Images of Display in Portfolio

*Topic:* Tissue Engineering. Tissue Engineering is a biomedical engineering discipline that uses a combination of cells, engineering, materials methods, and suitable biochemical and physicochemical factors to restore, maintain, improve, or replace different types of biological tissues.

#### Items Judged

Display (includes possible prototype/model)

Documentation Portfolio

Semifinal Presentation/Interview

### **!Board Game Design**

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 14<sup>th</sup>**

Upload Documentation Portfolio; Include Images of Game and Packaging in Portfolio

#### Items Judged

Packaging

Board Game

Documentation Portfolio

Semifinal Demonstration/Interview

### **Chapter Team**

The Navy-Blue Blazer with TSA patch is REQUIRED for this event.

Participants in this event will compete as the same team of six (6) in both the preliminary (written exam) and the semifinal (oral presentation) rounds.

*%Kansas Quirk: The test is completed according to published schedule which may be prior to the start of the conference.*

#### Items Judged

Preliminary Team Test

Semifinal Business Meeting Demonstration

### **!Children's Stories\***

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th**  
Upload Documentation Portfolio; Include Images of Physical Book in Portfolio

*Theme:* Create a “touch and feel” or interactive storybook that introduces TSA and its benefits to young readers in an engaging manner.

*UPDATE 10/8/24*

The TSA logo may be used for this year’s event in accordance with the TSA Branding Guide. Any other use of the TSA logo beyond the national TSA conference is prohibited.

*UPDATE 1/10/2025*

PRE-CONFERENCE/PRELIMINARY ROUND

A. Storybook:

5. The maximum reading time is ten (10) minutes, and no minimum.

#### Items Judged

Storybook

Documentation Portfolio

Semifinal Presentation and Interview

### **Coding\***

*%Kansas Quirk: The test is completed according to published schedule which may be prior to the start of the conference.*

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

- C version C17
- C++ version C++20
- C# version 8
- Java version 21.0
- Javascript/Node version 18.19
- Python version 3.9
- Ruby version 3.2
- Rust version 1.75
- Swift version 5.10

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.

#### Items Judged

Test Score

Testing of Solution

## High School: Level 2

### **Computer-Aided Design (CAD) 2D Architectural\***

*%Kansas Quirk:*

*Students may enter one CAD event not Both.*

*Exit interviews may be utilized in lieu of formal scheduled interviews*

#### Items Judged

Solution to Problem

Layout

Architectural Application

Interview

### **Computer-Aided Design (CAD) 3D Engineering\***

*%Kansas Quirk:*

*Students may enter one CAD event not Both.*

*Exit interviews may be utilized in lieu of formal scheduled interviews*

#### Items Judged

Solution to Problem

Layout

Engineering Application

Interview

### **!Data Science and Analytics\***

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

See [this link](#) for the scientific poster layout

Identify and use a "Real Estate," "Housing," and/or "Community" related open-source data set for your analyses and research.

In the scientific poster, cite the source of the data, including the URL/domain and file format.

*%Kansas Clarification: Portfolio score determines who presents the Poster.*

*The Poster presentation score determines who does finalist problem.*

*There is No interview/presentation after the conclusion of the Semifinal Round.*

*%Kansas Quirks: Preliminary round procedure may be altered depending on the number of entries*

#### Items Judged

Documentation Portfolio

Scientific Poster Presentation

Semifinal Visualization and Synopsis

### **!Debating Technological Issues\***

%Kansas Quirks: Using preliminary rounds depends on the number of teams entered

Topic: Biotechnology

- Subtopic 1: Biometric identification poses a security threat within the digital world.
- Subtopic 2: Gene-editing biotechnologies such as the CRISPR-Cas9 system, set a dangerous precedent for science applications in healthcare.
- Subtopic 3: Brain interface technologies, such as Elon Musk's Neuralink, provide a unique and beneficial solution to mental health issues.

#### Items Judged

Debate

### **!Digital Video Production\***

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

*Theme:* Create a short film that includes at least 30 seconds of animation

UPDATE 11/19/24

Tier 1 Digital Video

Video Effectiveness (X2)

Minimal performance

The work does not meet the project goals, has an unclear message, and reflects sloppy work. The year's theme is not well represented or represented at all.

Adequate performance

The topic is presented with some insight, and the video meets most project goals. The theme is represented somewhat but may not be fully clear to the viewer.

Exemplary performance

The video is focused, with a clear message and a rich variety of supporting material. The yearly theme is the centerpiece of the work and easily understood by the viewer.

#### Items Judged

Digital Video

Documentation Portfolio

Semifinal Interview

### Dragster Design

*Design Challenge Requirements:* Address weights and lengths only; there are no special design challenges.

UPDATE 11/5/24

Rubric - Semifinal Dragster Construction section

### Body Paint/Finish Criteria

Adequate Performance – Dragster body is painted **and/or** finished adequately.

#### Items Judged

Preliminary Dragster Qualifying Race/Post Race Inspection

Semifinal Dragster Construction

Semifinalist Interview

### **!Drone Challenge (UAV) \***

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

Upload Documentation Portfolio

See [LINK](#) for full Challenge Statement

#### *Challenge:*

Dinosaur Rescue- 2025 UAV Drone Overview The mission of your team is to design, build, assemble, document and test fly an Unmanned Aerial Vehicle drone that can complete landing, dropping, identifying and picking up tasks of varying difficulty in a course designed to test the handling, maneuverability, hardware capabilities, and piloting of your drone. The event will consist of a pre-inspection and check-in of the team members, drone, and all equipment associated (controllers, flight goggles, etc.)

#### Items Judged

Testing of Drone

Portfolio

Semifinal Interview

### **!Engineering Design\***

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

Upload Documentation Portfolio; Include Images of Display and Prototype/Model in Portfolio

*Theme:* Manage the Nitrogen Cycle

#### Items Judged

Display and Prototype/Model

Documentation Portfolio

Semifinal Presentation/Interview

## High School: Level 2

### Extemporaneous Speech\*

*%Kansas Quirk: Using preliminary rounds depends on the number of individuals entered*

#### Item Judged

Speech

### **!Fashion Design and Technology\***

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

Upload Documentation Portfolio; Include Images of Garments and Patterns in Portfolio

#### Theme:

Create a prototype of a marching band uniform for a performance with the theme of "Earth, Wind, Fire, Water." The prototype must include a type of wearable technology. No pyrotechnics or ignitable elements are permitted.

Teams will submit one (1) or two (2) garments for judging (top and bottom or one [1]-piece.) All required components must fit inside a 32-quart plastic container. Any accessories (hats, gloves, boots, etc.) may be used during semifinalist presentations, however, they are not submitted in the preliminary round.

#### Items Judged

Garments

Patterns

Documentation Portfolio

Semifinal Presentation/Interview

### Flight Endurance

#### Items Judged

Flight Times

Flight Rankings

Documentation Portfolio

### Forensic Science

*%Kansas Quirk: The test is completed according to published schedule which may be prior to the start of the conference.*

Participants are required to bring the full forensics kit as outlined on page 216.

#### Items Judged

Written Test (scores averaged)

Analysis of Crime Scene



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### **!Future Technology and Engineering Teacher**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

Upload Documentation Portfolio.

#### Items Judged

Preliminary Documentation Portfolio

Semifinal Activity Presentation

### **!Geospatial Technology**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

Upload Documentation Portfolio; Include Images of Infographic Map in Portfolio

*%Kansas Clarification: Portfolio score determines which Visual Infographic Map are evaluated; Visual Infographic Map score determines who will participate in the Semi-Final Defense Presentation/Interview*

*Theme:* Identify a disaster threat, natural or otherwise, that may impact your community. Develop an infographic that communicates hazard zones, evacuation routes, and resource distribution.

#### Items Judged

Documentation Portfolio

The Visual Infographic Map

Semi-Final Defense Presentation/Interview

### **!Manufacturing Prototype**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

Upload Documentation Portfolio.

Include images of product and manufactured pieces in Portfolio

*Theme:* An item that can be used as picture frames for a home or office while also serving another purpose

#### Items Judged

Component Analysis

Documentation Portfolio

Semifinal Sales Pitch/Demonstration

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### **!Music Production\***

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th**

Upload Documentation Portfolio and link to Music Piece

Theme: Create a musical piece that will be used as the background music for a role-playing game (RPG) video game. It will be played during the parts of the game when the player's character is visiting the blacksmith.

#### Items Judged

Musical Piece

Documentation Portfolio

Semifinal Interview

### **On-Demand Video**

#### %Kansas Quirk:

- Teams have approximately **30 hours** to complete and submit their video

- Confirm participation and pick up problem at the registration desk Day 1 of the conference beginning at 10:00am.

- Entries **MUST** be turned in by **4:00pm on Day 2 of the conference** to JudgePro (preferred) OR on a flash drive to the registration desk.

#### Items Judged

Production

### **!Photographic Technology**

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th**

Upload Digital Portfolio as per guidelines in Event Guide

*Theme:* Using five photographs, tell a story about your journey in TSA. The type of photo (color, black and white, macro, still life, and student choice) should add to the impact of the story you are sharing.

%Kansas Clarification: Semifinalist will have approximately Twenty-Four (24) Hour to complete and submit a Semifinal Portfolio. The specific details and procedures will be picked up on Day 1 of the conference beginning at 10:00am.

- Semifinalist Entries **MUST** be turned in by **12:00pm on Day 2 of the conference.**

#### Items Judged

Preliminary Photographic Portfolio

Semifinalist Portfolio/Interview

### Prepared Presentation\*

%Kansas Quirk: Using preliminary rounds depends on the number of individuals entered

*Theme:* Develop a presentation that highlights the field of digital music production, including the timeline of its origin, development, fruition, and release of the technology on a global scale.

#### Items Judged

Presentation  
Stage Presence  
Organization of the Presentation

### Promotional Design\*

*Theme:* Branding materials for a fictitious restaurant; the four (4) Promotional Folder items are student choice.

#### Items Judged

Preliminary Promotional Folder Cover  
Preliminary Promotional Folder Contents  
Preliminary Documentation Portfolio  
Semifinal Problem

### Robotics\*

Link to [Design Problem](#)

*Theme:* The mission of your team is to design, build, assemble, and a robot that can complete landing, dropping, identifying and picking up tasks of varying difficulty in a course designed to test the handling, maneuverability, hardware capabilities, and piloting of your robot. The event will consist of a pre-inspection and check-in of the team members, Robot and all equipment associated with the control of the robot.

UPDATE: 8/21/2024

Documentation Portfolios are not required for this event

#### Items Judged

Preliminary Testing of Robot  
Semifinal Interview

## High School: Level 2

### **!Senior Solar Sprint**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

Upload Documentation Portfolio; Include Images of Display and Model in Portfolio

%Kansas Quirk: Car maybe be run indoors if clear weather is not available.

- Event may be run differently than outline in the Official event guide. Specific details will be announced as needed.

UPDATE 12/18/24

Preliminary Round

#2 The decorated shoebox dimensions should not exceed 6" × 10" × 16".

#### Items Judged

Preliminary Documentation Portfolio

Preliminary Display and Model

Preliminary Senior Solar Sprint Time Trial/Post Race Inspection

Semifinal Car Builder Interview

Semifinal Race

### **!Software Development**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

Upload a URL leading to an online repository (i.e. GitHub) OR a PDF of all Executable Raw Code

*Theme:* Develop a program that enhances the environment and/or agriculture to be more sustainable and efficient.

#### Items Judged

Project Solution

Presentation/Interview

### **!STEM Mass Media**

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th**

Upload Documentation Portfolio and URL link to News Broadcast

Theme: Brain-computer interfaces (BCIs) are advanced technologies that enable direct communication between the brain and computers. Using electrodes placed on the scalp, BCIs detect brain signals that are then translated into commands for computers. These signals can control various applications, from typing messages to playing video games, solely through thought. BCIs have practical applications beyond entertainment; they assist individuals with disabilities by allowing them to operate prosthetic limbs or communicate when speech is impaired. BCIs represent a remarkable intersection of neuroscience and computer science, offering promising solutions for both medical and technological advancements.

Based on the following headline (link below), develop a news broadcast that includes an introduction of the headline, a summary of the information in the news story, and an explanation of potential future implications of the highlighted work.

<https://www.eurekalert.org/news-releases/1039721>

%Kansas Clarification: Semifinalist will have approximately Twenty-Four (24) Hours to complete and submit a Semifinal Digital News Story. The specific details and procedures will be picked up on Day 1 of the conference at the Briefing.

- Semifinalist Entries MUST be turned in by **1:30pm on Day 2 of the conference.**

#### Items Judged

Preliminary News Broadcast

Semifinal Digital News Story

### **Structural Design and Engineering**

The design brief for 2025 is to design a pair of two (2) balsa tower structures that will support the greatest load possible using the least materials. The solutions must transfer the load from the architrave to the base as efficiently as possible.

Click [Here](#) for the problem statement.

Click [Here](#) for the HS Structural Team Verification

UPDATE 9/5/24

2024-2025 Design Brief

The two column towers will be placed on the bases 8" apart instead of 6" apart to accommodate the center plate on testers.

The test block can be a minimum of 12" instead of 10"

#### Items Judged

Pre-Built Structure

Onsite Structure

Subjective Criteria

### **System Control Technology\***

*%Kansas Quirk: Exit interviews may be utilized in lieu of formal scheduled interviews*

#### Items Judged

Inventor's Log  
Solution to Problem  
Programming Structure  
Demonstration/Interview

### **Technology Bowl**

The team of 3 students who take the written tests **MUST** be the same 3 students who compete in the oral rounds.

*%Kansas Quirk: Test is completed online Day 1 of the Kansas State Conference.*

#### Items Judged

Written Test (averaged)  
Oral Competition

### **Technology Problem Solving**

*%Kansas Quirk: Kansas TSA commonly provides the materials to be used for the solution of the problem. Notice will be sent out prior to the Conference detailing what supplies, if any need to be brought.*

*All toolbox tools listed in the event guide should be brought.*

#### Items Judged

Testing of Solution

### **!Transportation Modeling**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th***

*Upload Documentation Portfolio; Include Images of Model, and Display in Portfolio*

*Design Problem: Research and present Food Truck.*

#### Items Judged

Model and Display  
Documentation Portfolio  
Semifinalist Interview

## High School: Level 2

### **!Video Game Design\***

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th**

Upload Documentation Portfolio, Video Game URL and  
Video Game Demonstration URL

*Theme:* Kid's game, 2 to 4 players, playable on one (1) screen and one (1) keyboard at a time

#### Items Judged

Preliminary Game Design  
Preliminary Video Demonstration & Documentation Portfolio  
Semifinal Interview

### **!Virtual Reality Visualization (VR)**

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th**

Upload Documentation Portfolio, and URL Link to Recording of the VR Simulation

*Theme:* Create a virtual reality (VR) simulation of a family vacation destination that includes experiences and activities that appeal to both young children and teenagers.

1/16/25

#### *D. Recording of Simulation*

*b. Absolutely no purchased content may be used in any part of the simulation.  
(Purchased content includes, but is not limited to, texture, and models)*

*%Kansas Quirk: The Recording of the Simulation should be posted on a video hosting site (such as an UNLISTED YouTube URL)*

#### Items Judged

Simulation  
Documentation Portfolio  
Semifinalist Presentation/Interview

### **!Webmaster**

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 14th**

Upload PDF with Link to Website as per guidelines in Event Guide

*Topic:* A restaurant (dine-in and carry-out) that specializes in vegetarian food

*Challenge:* Design a website for a vegan/vegetarian restaurant. Showcase the restaurant's approach (such as farm-to-table, preparation processes, and sustainability) to the food served in the restaurant.

#### Items Judged

Preliminary Website  
Semifinal Interview