

# Middle School: Level 1

## Themes, Updates, Clarification and General Notes

**KANSAS DIGITAL SUBMISSIONS ARE DUE:  
BY 11:59 PM CST on March 15<sup>th</sup>, 2022**

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 digital submission:

<i>Biotechnology</i>	<i>Digital Photography</i>	<i>Off the Grid</i>
<i>Career Prep</i>	<i>Flight</i>	<i>Promotional Marketing</i>
<i>Children's Stories</i>	<i>Junior Solar Sprint</i>	<i>STEM Animation</i>
<i>Community Service Video</i>	<i>Mass Production</i>	<i>Video Game Design</i>
<i>Construction Challenge</i>	<i>Mechanical Engineering</i>	<i>Website Design</i>
<i>Data Science and Analytics</i>	<i>Microcontroller Design</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>

\*- National Qualifying Event

!- Early and digital submission

%- State level alternation to the event

### **!Biotechnology\***

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>**  
Include Images of Display (and Model/Prototype as applicable) in Portfolio

Theme: Sustaining natural resources for future generations

### Items Judged

Documentation

Display

Presentation

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### **!Career Prep**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>***

Upload Cover Letter and Job Specific Resume as per guidelines in Event Guide

Participants are to select a career from one (1) of the following career clusters:

1. Arts, Audio/Visual Technology and Communications
2. Marketing, Sales and Service
3. Science, Technology, Engineering and Mathematics

#### Items Judged

Letter of Introduction  
Job Specific Resume  
Semifinalist interview

### **Challenging Technology Issues\***

MUST place in the top 3 to be eligible to compete in this event at the National Level

#### *Topics:*

- Contactless Payments (Tap to Pay, Venmo, etc.)
- Cryptocurrency
- General Education Curriculum
- Plastic Bags and Water Bottles
- Social Media Privacy

#### Items Judged

Pro Side presentation  
Con Side Presentation

### **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

Written Test  
Business Meeting Presentation

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

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>**

Include Images of Physical Storybook in Portfolio

#### Theme:

Design a children's book on STEM careers for elementary students in grades 1-3

Click [HERE](#) for updated Rubric

#### Items Judged

Tier 1- Storybook

Tier 2- Documentation Portfolio

Semifinalist Reading and Interview

### **Coding**

Teams will take a written test to determine semifinalist.

To prepare for MS Coding competition, teams should have knowledge of concepts (software development, computer science, and coding topics) that will be on the Coding written test. They also should be familiar and comfortable with using the Scratch programming language.

Scratch is a free visual programming language available from the MIT Media Lab ([https://scratch.mit.edu/starter\\_projects/](https://scratch.mit.edu/starter_projects/)). An offline version of the Scratch tool should be downloaded and available on each team's laptop.

Teams that advance to the semifinalist level, based on written test performance, will perform a challenge using the Scratch programming language. Semifinalist teams will receive the challenge on site and will have two hours to complete it. (PLEASE NOTE: Semifinalist teams MUST have a version of this program available for offline use, as there will be no Internet access available during the semifinalist level of the competition.)

Examples of the types of challenges students may be asked to complete can be found at this link: <http://scratched.gse.harvard.edu/resources/short-scratch-programming-challenges>.

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

#### Items Judged

Written Test

On-Site Problem- Subjective

On-Site Problem- Objective

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### **!Community Service Video**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>***

Include link to Video in the Portfolio

Click [HERE](#) for updated Rubric

#### Items Judged

Video Production

Video Effectiveness

Semi-Finalist Presentation/Interview

### **Computer Aided Design (CAD) Foundations\***

#### Items Judged

Layout

Software Utilization

### **!Construction Challenge**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>***

Include Images of Model/Display in Portfolio

Click [HERE](#) for updated Rubric

#### Items Judged

Tier 1- Model/Display

Tier 2- Documentation Portfolio

Semi-Finalist Presentation/Interview

### **Cybersecurity**

#### Problem Challenge:

Employees of 1904 Enterprises have recently been clicking on links downloading malware onto their network. As a result, they are worried about a potential ransomware attack. Explain some measures that they can use to prevent a ransomware attack as well as business-wide measures that could be implemented in their workplace.

Click [HERE](#) for updated Rubric

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

#### Items Judged

Written Test

On-Site Problem

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

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>**

Include Images of Display in Portfolio

#### Problem Challenge:

Use Google Trends Analysis to review and analyze the emerging technology trends (biometrics, cybersecurity, data science, or quantum computing). Analyze keyword(s) using demographic/geospatial, time series, and related query data. If possible, predict the emerging technology trends over the next five years.

#### Items Judged

Tier 1- Display

Tier 2- Documentation Portfolio

Semi-Finalist Presentation/Interview

### **!Digital Photography\***

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>**

Upload Portfolio as per guidelines in Event Guide

Theme: Challenges – personal, school, family, friends, etc.

Four (4) digital photographs are required for the portfolio.

#### Items Judged

Digital Photographic Portfolio Album

Semi-Finalist Challenge

Semi-Finalist Presentation/Interview

### **Dragster**

There are no Special Design Challenge Requirements.

Click [HERE](#) for updated Rubric

#### Items Judged

Dragster Construction (including drawing)

Top 16 Interview

Race

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### Electrical Applications

Check event guide for required toolbox items

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

#### Items Judged

Written Test

Semi-Finalist Solution to On-site Problem

### Essays on Technology\*

Theme: The impact of remote learning on students.

#### Subtopics:

- Social skills
- Extracurricular activities
- Athletics

*%Kansas Quirk: Contestants should be prepared to upload or bring their completed outline to conference. Specific details will be communicated to the Chapters involved with the event.*

#### Items Judged

Detailed Outline

Essay

### !Flight

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>**

Upload Portfolio as a Multi-Page PDF in order noted in the Event Guide

*Read the Rules carefully; the event has changed.*

Students are to bring a completed glider, portfolio, safety glasses, toolbox and building materials to competition. All contestants will fly the pre-built glider. The average of 3 flight times will determine contestants moving on to the semifinalist portion.

Semifinalist will have 45 minutes to construct a new glider; and then will fly the new glider.

#### Items Judged

Documentation

Flight Times (Prelims)

Flight Times (Finals)

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### Forensic Technology

Teams should have the necessary supplies to make a presentation on each of the three Forensic Science concepts.

Concepts:

1. Collect and analyze fibers and textiles
2. Forensic entomology
3. Forensic psychology

Competitors are responsible for bringing tools/supplies needed to demonstrate the skills/concepts and no other materials will be needed.

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

Items Judged

Written Test

Skill Demonstration

### Foundations of Information Technology

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

Items Judged

Written Test

### Invention Innovations

Theme: Assistive technology for the elderly

Items Judged

Interactive Display

Semi-Finalist Presentation/Interview

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### **!Junior Solar Sprint**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>***

Upload Portfolio as a Multi-Page PDF include Images of display and Car

Click [HERE](#) for updated Rubric

[AEOP JSS Website Link](#)

#### Items Judged

Display and Model

Documentation Portfolio

Race

Car Builder Interview

### **Leadership Strategies\***

*%Kansas Quirk:*

*The use of preliminary rounds depends on the number of entries in the event. Specific details will be communicated to the Chapters involved with the event.*

#### Items Judged

Presentation

### **!Mass Production**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>***

Upload Portfolio as a Multi-Page PDF include Images of the Prototype Product

Design Challenge: Random novelty office desk item

#### Items Judged

Documentation Portfolio

Prototype

Semi-Finalist Presentation/Interview

### **!Mechanical Engineering**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>***

Upload Portfolio as a Multi-Page PDF include Images the Vehicle

*Theme:* Build a Mousetrap Vehicle - Track required distance is 12 feet

#### Items Judged

Placement from Best of Two Runs

Interview

Portfolio Contents



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### Medical Technology\*

Theme: DNA genetic testing

#### Items Judged

Display  
Model/Prototype  
Semi-Finalist Presentation/Interview

### !Microcontroller Design

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>***

Upload Portfolio as a Multi-Page PDF include Images the Product

Design Challenge: Design an interactive creature, real or fictional, that includes at least three (3) movements and includes one (1) sensor. Refer to section “F” in General Rules and Regulations.

#### Items Judged

Documentation Portfolio  
Device/Product  
Presentation

### !Off the Grid\*

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>***

Upload Portfolio as a Multi-Page PDF include Model and Display

Design Challenge: Design a home for a family of three (3) in an economically developing country of your choice. The house must be designed for an area that does not have access to a power grid. In addition, the house must include a passive solar system, water collection system, and solve one (1) problem that is specific to the area.

#### Items Judged

Tier 1- Display  
Tier 1- Model Design  
Tier 2- Documentation Portfolio  
Semi-Finalist Presentation/Interview

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### Prepared Speech\*

*Theme:* Discover Your Journey

*%Kansas Quirk: The use of preliminary rounds depends on the number of entries in the event. Specific details will be communicated to the Chapters involved with the event.*

#### Items Judged

Content  
Stage Presence  
Organization  
Semi-Finalist Presentation/Interview

### Problem Solving

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

*%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.*

#### Items Judged

Testing of Solution

### !Promotional Marketing

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>***

Upload Portfolio as a Multi-Page PDF as noted in the Event Guide

Design Challenge: TSA chapter advisors are attending a fictitious special interest session at the National TSA Conference. They have come to learn about a new piece of STEM equipment for chapter members to use in their classroom that your fictitious company is selling.

Your promotional toolkit needs to include the following three items.

1. Printable: Design an 8 ½ X 11 postcard promoting your fictitious company and the new piece of STEM equipment. Postcard may be front and back.
2. Wearable: A t-shirt that promotes your company, which can be used as a promotional item to distribute to the TSA chapter advisors (potential clients).
3. Digital Signage: Short video (2-2 ½ minutes) to be showed at the special interest session to showcase your fictitious company and the new piece of equipment.

#### Items Judged

Print Design  
Wearable Design  
Digital Signage  
Semi Finalist Challenge

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### **!STEM Animation\***

**KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>**

Upload Portfolio as noted in the Event Guide; Include link to the animation

Theme: The term “big data” refers to data that is so large, fast, or complex that it is difficult or impossible to process using traditional methods. The act of accessing and storing large amounts of information for analytics has been around a long time. Visualize the data process and its application in the current IT fields.

#### Items Judged

Documentation Portfolio

Animation

Semifinal Presentation

### **Structural Engineering**

The challenge this year is to research, design, and build a **Segmented Truss Tower** that is composed of TWO SEPARATE truss sections that will be stacked one on top of the other. The two stacked truss sections measured together will form the total 10” height of your tower.

Click [here](#) for the Design Brief.

Click [here](#) for the MS Structural Team Verification

#### Items Judged

Pre-Built Structure

Onsite Structure

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

#### Items Judged

Inventor’s Log

Solution to Problem

Programming Structure

### **Tech Bowl**

*%Kansas Quirks: Test is completed online Day 1 of the Kansas State Conference.  
- Multiple teams per school at the Middle School level maybe allowed; Schools with multiple teams CANNOT interchange team members.*

#### Items Judged

Test (averaged)

Oral Competition

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### Technical Design

*%Kansas Quirk: Confirm participation and pick up Problem at the registration desk begins Wednesday at 10:00am.*

*-Entries MUST be turned in by 12:00pm on Thursday to the registration desk.*

#### Items Judged

Solution to Problem

### **!Video Game Design**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>***

Upload Portfolio with Game Link as per guidelines in Event Guide

No theme – subject is participant’s choice.

#### Items Judged

Video Game Design

Documentation Portfolio

Semi-Final Presentation

### **!Website Design**

***KANSAS Digital Submission Due Date: 11:59 PM CST on March 15<sup>th</sup>***

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

Theme: Website for a cultural events venue

Context: Traditionally, cultural events are held in-person. Websites for in-person venues include event information and ticket sales. Due to the global pandemic, venues have had to find new ways to meet their audiences’ needs.

Challenge: Develop a website for a cultural events venue that could be virtual only. Strive to develop a website that is interactive, engaging, graphically interesting, and easy to understand and navigate. Advertise the venue to potential customers who want to experience a cultural event through a virtual experience.

#### Items Judged

Website

Semi-Final Interviews