

## OVERVIEW

Data science is a broad term for implementing a variety of methods to find connections between data to gain insightful knowledge about a particular issue. Data analytics is an even more focused way of sorting through collected data to make predictions.

Applying leadership and 21<sup>st</sup> century skills, participants conduct research on the annual topic and analyze the provided data set posted on the [TSA website](#) under *Themes & Problems*, document their research in a supporting portfolio and create a display. Semifinalist teams participate in an on-site presentation highlighting their pre-conference submission.

## ELIGIBILITY

Three (3) teams of two to three (2-3) individuals per state are permitted.

## TIME LIMITS

### SEMIFINAL ROUND

- A. Five (5) minutes are allowed for the presentation
- B. Five (5) minutes are allowed for a question and answer session

## ATTIRE

TSA competition attire is required.

## PROCEDURE

### PRE-CONFERENCE

- A. Participants review the TSA Honor Statement for Competitive Events found in the General Rules and listed in the individual competitive event rules.
- B. Participants access the annual topic and provided data set on the [TSA website](#) under *Themes & Problems*.
- C. The provided data set must be used.
- D. Participants research the issue using credible sources, analyze the provided data set, and draw conclusions.
- E. Participants prepare their documentation and display according to the regulations.

### PRELIMINARY ROUND

- A. Participants report at the time and place stated in the conference program to:
  - 1. Set up the static entry display
  - 2. Submit the documentation portfolio
- B. Entries are reviewed by judges and based on the following criteria:
  - 1. Judges score the display criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.
  - 2. Judges score the documentation criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.
- C. A list of twelve (12) semifinalist teams (in random order) is posted.

### SEMIFINAL ROUND

- A. A representative from each semifinalist team reports at the time and place stated in the conference program to schedule a time for the on-site presentation/interview.
- B. Semifinalist teams report at the assigned time and place stated in the conference program for the on-site presentation/interview.
- C. Semifinalists are given no more than five (5) minutes to present their presentation to the judges, followed by a judge-led question and answer session that will last no more than five (5) minutes.
- D. Teams pick up their entry from the display area at the time and place stated in the conference program.
- E. Ten (10) finalists are announced during the conference awards ceremony.

## REGULATIONS AND REQUIREMENTS

Students will work to develop their leadership and 21<sup>st</sup> century skills in the process of preparing for and participating in this TSA competitive event. The development and application of those skills must be evident in their submission, demonstration, and/or communication pertaining to the entry.

**PRELIMINARY ROUND**

- A. Participants must understand the fundamental concepts and principles of the contemporary issue researched. Research about the issue shall focus on:
1. Analysis of the provided data.
  2. Representation of that data in statistical graphs.
  3. Synthesis of the provided data in terms of factors influencing the issue, societal impacts, and ethical considerations.
- B. Display:
1. The display shall include, at a minimum, the following major key points:
    - a. The team identification number and the event name in the upper-right hand corner of the display. No other identifying information shall be included.
    - b. The definition and explanation of the issue.
    - c. An explanation of the importance of the issue including problems, impact, and possible solutions or recommendations (if applicable).
    - d. Emphasis shall be placed on the graphs, which should depict not only the issue, but any causal factors.
  2. Highlight your display with creative visual elements (e.g., photos, titles) to actively engage the audience. Participants may use images "labeled for reuse," but must properly cite the source(s) on the display (refer to the General Rules).
  3. No commercial or copyrighted material may be used. If the entry contains images of people, proof of consent must be provided for each person in the presentation.
    - a. Minors require parental consent
    - b. Use the Photo/Film/Video Consent and Release form (see 2026 & 2027 Forms Appendix) for any individuals included in the presentation.
    - c. Participants must attach the consent forms within the documentation portfolio
  4. May be three-dimensional as long as it does not exceed the size limitations of 15" deep x 30" wide x 48" high
  5. Any digital display (e.g. iPad) must fit within the allotted display space. All power must be switched off once the team has completed set-up. If teams want judges to activate any electronic device in their display, complete instructions must be clearly displayed and should include information about turning on devices, logging in, etc.
  6. A/C electricity may not be used.
  7. If the display requires power, it must be powered by dry-cell batteries or photo-voltaic cells.
  8. Any power source used must fit within the display dimensions.
  9. No liquids, viruses, live plants, or animals may be used as a part of the display.
  10. No harmful or illegal substances may be displayed.
  11. Once the display set-up time frame has closed, participants may not re-enter the event area.
- C. Documentation Portfolio:
1. The documentation portfolio shall include all supporting material such as research notes, links to articles, sketches, illustrations, etc.
  2. Documentation portfolio is required and must be secured in a [clear front report cover](#) with the following single-sided, 8½" x 11" pages, in this order:
    - a. Title page that includes the event title, the conference city and state, the year, and the team/chapter ID number; one (1) page
    - b. Table of contents; pages as needed
    - c. Supporting materials; maximum ten (10) pages
    - d. A summary of the issue, one (1) page
    - e. Analysis of the provided data; pages as needed
    - f. A summary of findings and recommendation, one (1) page
    - g. A list of software used, references, and credible resources; a minimum of three (3) different types of resources must be used; pages as needed
    - h. Work Log (see 2026 & 2027 Forms Appendix); pages as needed

- i. Photo/Film/Video Consent and Release Forms. If the entry contains images of people on the display or in the documentation portfolio (minors require parental consent), proof of consent must be included for each person (see 2026 & 2027 Forms Appendix); pages as needed

## SEMIFINAL ROUND

- A. The on-site presentation must include all team members.
- B. A semifinalist representative reports at the time and location in the conference program to sign-up for a presentation/interview time.
- C. Semifinalists report at the assigned time and place stated in the conference program to give their presentation/interview.
- D. Participants are permitted to present for up to five (5) minutes on their analysis, conclusions, and/or recommendations.
- E. The question and answer session is limited to five (5) minutes.
- F. Participants are NOT permitted to:
  - 1. Use their phones during the presentation or the interview.
  - 2. Contact outside sources for assistance.

## EVALUATION

### PRELIMINARY ROUND

#### Tier 1

- A. The display

#### Tier 2

- B. The documentation portfolio

### SEMIFINAL ROUND

- A. The presentation/interview

Refer to the official rating form for more information.

## TSA HONOR STATEMENT

All work must be created and completed by individual competitors or teams. Plagiarism, the use of Generative Artificial Intelligence (GenAI) software, copyright violation, cheating, and falsification of information are prohibited. Participants may NOT use any generative artificial intelligence (GenAI) tools (e.g. ChatGPT, Google Gemini, GitHub Copilot, etc.). Any attempt to gain an unfair advantage will not be tolerated. Competitors at any level of TSA competition understand and agree to abide by the TSA Honor Statement.

If it is determined that a student violated the TSA Honor Statement, a rules violation of twenty percent (20%) will be incurred.

## STEM INTEGRATION

This event has connections to the STEM areas of Science, Technology, Engineering, and Mathematics.

## LEADERSHIP AND 21<sup>ST</sup> CENTURY SKILLS

This event provides opportunity for students to build and develop leadership and 21<sup>st</sup> century skills including but not limited to – Communication, Collaboration/Social Skills, Initiative, Problem Solving/Risk Taking, Critical Thinking, Perseverance/Grit, Creativity, Relationship Building/Teamwork, Dependability/Integrity, and Flexibility/Adaptability

## CAREERS RELATED TO THIS EVENT

This competition has connections to one (1) or more of the careers below:

- Data scientist
- Data analyst
- Actuary
- Economist
- Epidemiologist
- Forensic accountant
- Market researcher
- Meteorologist
- Operations research analyst
- Quality engineer

# DATA SCIENCE & ANALYTICS

## 2026 & 2027 OFFICIAL RATING FORM

### MIDDLE SCHOOL

Judges: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline in the rating form, record the scores earned for the event criteria in the column spaces to the right. The X1 or X2 notation in the criteria column is a multiplier factor for determining the points earned. (Example: an "adequate" score of 7 for an X1 criterion = 7 points; an "adequate" score of 7 for an X2 criterion = 14 points.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.

#### Go/No Go Specifications

- Before judging the entry, ensure that the items below are present; indicate presence with a check mark in the box.
- If an item is missing, leave the box next to the item blank and place a check mark in the box labeled ENTRY NOT EVALUATED.
- If a check mark is placed in the ENTRY NOT EVALUATED box, the entry is not to be judged.

- ☐ TIER 1 – Display is present
- ☐ TIER 2 – Documentation portfolio is present
- ☐ ENTRY NOT EVALUATED

TIER 1 – DISPLAY (80 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
<b>Explanation of Impacts</b> (X1)	Explanation is missing a discussion of the issue's relevance to environmental, economic, social, and/or ethical considerations.	Explanation addresses some of the issues relevant to environmental, economic, social, and/or ethical considerations.	Explanation includes a full discussion of the issue's relevance to environmental, economic, social, and/or ethical considerations.	
<b>Data Charts and Graphs</b> (X2)	The data is not represented in charts and graphs.	The data is represented in charts and graphs and somewhat supports the analysis of the team.	The data is represented in charts and graphs and supports the analysis of the team.	
<b>Communication of Issue</b> (X2)	It is difficult to understand the issue being communicated in the display; display organization does not aid in conveying the points.	The issue is somewhat communicated by the data presented, imagery, and organization of the display.	The issue is communicated in an organized, clear, and concise manner through effective use of imagery and the display organization.	
<b>Creativity</b> (X2)	The display lacks creativity; no, or very few, design principles are integrated in the display.	Some elements of creativity exist in the display, and essential design principles are generally evident.	The display exudes creativity; essential design principles and elements are well integrated.	
<b>Aesthetics and Artisanship</b> (X1)	Work is unorganized and sloppy; display seems to be an afterthought or thrown together.	Display shows an organized presentation of the issue; design and layout considerations are evident in some aspects.	Display is exemplary in logically communicating important data; design and aesthetics are considered and add to the effectiveness of the display.	
<b>TIER 1 – DISPLAY SUBTOTAL (80 points)</b>				
Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.  Indicate the rule violated: _____				
<b>TIER 1 – SUBTOTAL (80 points)</b>				

TIER 2 – DOCUMENTATION PORTFOLIO (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
<b>Portfolio Components</b> (X1)	Portfolio is unorganized and/or is missing three (3) or more components.	Portfolio is missing one (1) or two (2) components and/or is loosely organized.	Portfolio has all required components in order and is well organized.	
<b>Support Materials</b> (X2)	Support materials do not help clarify the documentation or are of little significance to the issue.	Support materials are appropriate and help supplement documentation by providing clarity to the issue.	Support materials are of excellent quality; if not original, they are cited; support materials clarify the issue.	
<b>Research Base</b> (X2)	Research is inadequate, and/or very few credible sources are referenced.	Research has been conducted appropriately, with some credible sources included.	Research indicates evidence of a comprehensive assortment of materials that are credible sources.	
<b>Quality, Effectiveness, and Mechanics</b> (X1)	Portfolio appears to have been thrown together; distracting errors in punctuation, grammar, and spelling are evident in the documentation.	Portfolio is generally organized; punctuation, grammar, and spelling are generally correct, with few errors.	Work is of exceptional quality and well organized; punctuation, grammar, and spelling are correct, with no errors.	
<b>TIER 2 – DOCUMENTATION PORTFOLIO SUBTOTAL (60 points)</b>				
<p>Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.</p> <p>Indicate the rule violated: _____</p>				

<b>PRELIMINARY SUBTOTAL (140 points)</b>	
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SEMIFINAL PRESENTATION/INTERVIEW (60 points)				Record scores in the column spaces below.
CRITERIA	Minimal performance	Adequate performance	Exemplary performance	
	1-4 points	5-8 points	9-10 points	
<b>Articulation</b> (X2)	The analysis is full of illogical thoughts that lack clarity, and/or there is insufficient supporting information provided; leadership and/or 21 <sup>st</sup> century skills are not evident.	The analysis is somewhat logical, generally easy to follow, and/or there is sufficient supporting information provided; leadership and/or 21 <sup>st</sup> century skills are somewhat evident.	The analysis is clear, concise, and there is ample supporting information provided; leadership and/or 21 <sup>st</sup> century skills are clearly evident.	
<b>Knowledge</b> (X2)	Participants seem to have little understanding of the concepts in their analysis; responses to questions may be vague.	Participants exhibit a general understanding of the concepts in their analysis.	Participants show clear evidence of a thorough understanding of data analysis; the analysis is accurate and supported by evidence.	
<b>Delivery</b> (X1)	The team is verbose and/or uncertain in their analysis; the participants' posture, gestures, and lack of eye contact diminish the delivery; participants rely too heavily on the notes.	The team is somewhat well-spoken and clear in their analysis; participants' posture, gestures, and eye contact result in an acceptable delivery; participants rely on the notes.	The team is well-spoken and distinct in its presentation/interview; participants' posture, gestures, and eye contact result in a polished, natural, and effective delivery.	
<b>Team Participation</b> (X1)	The majority of the presentation is made by one member of the team; the partner(s) may be disengaged.	Team members are generally engaged in the process, though one member may take on more responsibility than the other(s).	All team members are actively involved in the presentation/interview.	

SEMIFINAL PRESENTATION/INTERVIEW SUBTOTAL (60 points)		
<p>Rules violations (a deduction of 20% of the total possible points for the above sections) must be initialed by the judge, coordinator, and manager of the event. Record the deduction in the space to the right.</p> <p>Indicate the rule violated: _____</p>		
SEMIFINAL SUBTOTAL (60 points)		
<p>To arrive at the <b>TOTAL</b> score, add any subtotals and subtract rules violation points, as necessary.</p>		
TOTAL (200 points)		

Comments:

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I certify these results to be true and accurate to the best of my knowledge.

**JUDGE**

Printed name: \_\_\_\_\_ Signature: \_\_\_\_\_

# DATA SCIENCE AND ANALYTICS

## EVENT COORDINATOR INSTRUCTIONS

### PERSONNEL

- A. Event coordinator
- B. Judges:
  - 1. Preliminary round, two (2) or more
  - 2. Semifinal round, two (2) or more
- C. Assistant, one (1)

### MATERIALS

- A. Coordinator's packet, containing:
  - 1. Event guidelines, one (1) copy for the coordinator and for each judge
  - 2. TSA Event Coordinator Report
  - 3. Stick-on labels for identifying entries
- B. USB with provided data set for judge reference.
- C. Measuring tape for judges
- D. Display tables for entries
- E. Table and chairs for event coordinator and judges

### RESPONSIBILITIES

#### AT THE CONFERENCE

- A. Attend the mandatory event coordinator's meeting at the designated time and location.
- B. Report to the CRC room and check the contents of the coordinator's packet.
- C. Review the event guidelines and check to see that enough judges have been scheduled.
- D. Inspect the area(s) in which the event is to be held for appropriate set-up, including room size, tables, chairs, etc. Notify the event manager of any potential problems.
- E. At least one (1) hour before the event is to begin, meet with judges and assistants to review time limits, procedures, regulations, evaluation, and all other details related to the event. If questions arise that cannot be answered, speak to the event manager before the event begins.
- F. Ensure the judges have access to the online judging system.

### EVENT CHECK-IN

- A. Check in the entries at the time stated in the conference program. Participants:
  - 1. Set up the static entry display
  - 2. Submit the documentation portfolio
- B. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control.
- C. In order to compete, participants must be on the entry list or must have CRC approval.
- D. Requirements for attire do NOT apply during check-in, only on the first day of the conference.
- E. Each entry must include the team's identification number in the upper right-hand corner of the entry.
- F. Instruct participants to position the entries for viewing.
- G. Secure the entries in the designated area.

### PRELIMINARY ROUND

- A. Entries are reviewed by judges based on the following criteria:

#### Tier 1

- 1. Judges score the display criteria to determine the top twenty-four (24) preliminary contestants, which will not be posted.

#### Tier 2

- 2. Judges score the documentation portfolio criteria of those top twenty-four (24) contestants to determine the top twelve (12) semifinalist teams.

- B. Decisions about rules violations must be discussed and verified with the judges, event coordinator, and the CRC manager to determine either:
  - 1. To deduct twenty percent (20%) of the total possible points in this round
  - 2. To disqualify the entry
 The event coordinator, judges and CRC manager must all initial either of these actions on the rating form.
- C. Judges determine the twelve (12) semifinalists.

### SEMIFINAL ROUND

- A. A representative from each semifinalist team reports to the time and place stated in the conference program to sign-up for the on-site presentation/interview.
- B. Semifinalist teams report at the assigned time and place stated in the conference program for the on-site presentation/interview.
- C. Semifinalists are not permitted to:
  - 1. Use their phones during the presentation or during the interview
  - 2. Contact outside sources for assistance
- D. Semifinalists are given no more than five (5) minutes to present their presentation to the judges.
- E. Semifinalists are given no more than five (5) minutes to answer questions from the judges.
- F. Judges use the same official rating form for both the preliminary and semifinal round of evaluation.
- G. Discuss rule violations (e.g., 20% deduction, disqualification) and have all relevant parties initial the rating form.
- H. If necessary, manage security and the removal of materials from the event area.