



GEOSPATIAL TECHNOLOGY

OVERVIEW

Participants are encouraged to explore and gain an understanding of how geospatial data and related technology are used to prepare a profile of a geographic area of interest. In response to a design brief provided by TSA, participants develop a portfolio containing maps, data, and appropriate documentation. Semifinalists create a presentation for an on-site problem.

The design brief for this competition will be posted on the TSA website under Competitions/Themes and Problems.

ELIGIBILITY

Participants are limited to one (1) team of two to five (2-5) members per chapter.

TIME LIMITS

- A. Entries must be started and completed during the current school year.
- B. Semifinalists will have a thirty (30)-minute set-up time , and two (2) hours to complete the on-site problem.
- C. Semifinalists participate in an interview.

ATTIRE

TSA competition attire, as described in the National TSA Dress Code section of this guide, is required.

PROCEDURE

- A. Participants check in their entries at the time and place stated in the conference program.
- B. Entries are reviewed by evaluators.
- C. Twelve (12) semifinalist teams will be posted.
- D. Semifinalist teams report to the event area at the time and place stated in the conference program for the semifinalist portion of the event.

- E. Semifinalist teams are allowed thirty (30) minutes for set up. They then will be provided with the on-site problem and are allowed two (2) hours to complete their entry. Semifinalists must compile a data library prior to the conference and submit it on a USB flash drive with the entry. No internet will be provided for the on-site problem.
- F. A PowerPoint presentation of the solution is saved and turned in on a USB flash drive at the end of the two (2) hour time frame.
- G. All winning entries, digital and hard copy, become the property of national TSA.
- H. Participants pick up their entries from the display area at the time and place stated in the conference program.

It is essential that students and advisors routinely check the TSA website (www.tsaweb.org) for updated information about TSA general rules and competitive event guidelines. This information is found on the website under Competitions/ Competition Updates. When students participate in any TSA competitive event, they are responsible for knowing of all updates, changes, and clarifications related to that event.

REGULATIONS

- A. Semifinalist participants supply their own computer work station with a USB drive, power strip/surge protector, an extension cord, and software. A laptop computer is recommended.
- B. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover. (Click [here](#) for a sample.) The report cover must include the following single-sided, 8½" x 11" pages, in this order:
 - 1. Title page with the event title, the conference city and state, the year, and the team ID number; one (1) page
 - 2. Table of contents
 - 3. Explanation of the team's solution to the design brief problem; two (2) pages
 - 4. Maps, data, and documents noted below; pages as needed. (The same material must also be presented in an orderly fashion on a USB flash drive that is inserted in a sleeve in the portfolio; any software used must be identified.)
 - a. Maps, printed in JPEG or PDF
 - b. Project journal, including
 - i. Description of activities and timeline of work
 - ii. Description of location factors for the project

- iii. Data dictionary (in an Excel spreadsheet or any type of table, see example below)
- iv. Analysis documents (an explanation of the maps, their relationship to the solution, and the methods used to create them)

File name	Description	Source (URL)	Metadata
roads_rt.shp	Roads for County X	http://someplace.gov	Yes or No

Note: Data types may include but are not limited to:

1. Location maps in relation to the area in question in the problem
 2. Elevations, as needed
 3. Watershed identification
 4. Demographics (of any nature) required for the problem
 5. Location factors that may impact the problem
 6. Any unusual local geographic attributes, e.g. karsts, caves, lakes, or streams
 7. Topography
- C. All work for the on-site problem is developed, saved as a slide presentation (Ex. PowerPoint) on a USB flash drive, and submitted using only the team's ID#. Teams that finish before the time limit must leave their computer(s) in place. If teams wish to leave the room, they may do so only with the permission of the event coordinator.
- D. Teams will be interviewed by evaluators for approximately five (5) minutes. Team members will remove their equipment only when interviews are completed.
- E. All entries become the property of national TSA and will not be returned after judging.



EVALUATION

Evaluation is based on the interpretation of the pre-conference design brief; the execution of a thorough, relevant, and understandable solution/presentation; the submission of requested materials; the solution for the on-site problem, and the on-site interview (semifinalists only). Please refer to the official rating form for more information.

STEM INTEGRATION

This event has connections to the STEM standards noted below. Please refer to the STEM integration section of this guide.

Science, Technology, Engineering, Mathematics

COMMON CORE STATE STANDARDS (CCSS) INTEGRATION

Please refer to the Common Core State Standards (CCSS) Integration section of this guide for more information.

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- Creative thinking: Students visualize an issue to develop a solution to a problem. Use leadership activities: *Around the World* and *Fashion Forward*
- Problem solving: Students identify and acquire data needed to develop solutions. Use leadership activities: *Implementation Ideas* and *Including Everyone*
- Evaluation: Students review and critique work throughout the development of a project. Use leadership activities: *Assumptions* and *Grading the Advertisement*

Additional leadership skills promoted in this event:

- Decision making
- Evaluation
- Organization
- Teamwork

TSA AND CAREERS

This competition has connections to one or more of the career areas featured in the TSA AND CAREERS section of this guide. Use *The 16 Career Clusters* chart and the *TSA Competitions and Career Clusters* grid as resources for information about careers.

CAREERS RELATED TO THIS EVENT

- Programming and software developer
- Logistics planning manager
- Transportation systems technician
- Infrastructure planning manager

GEOSPATIAL TECHNOLOGY EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

- A. Event coordinator
- B. Evaluators, two (2) or more
- C. Semifinalists evaluators, two (2) or more

MATERIALS

- A. Coordinator's packet, containing:
 - 1. Event guidelines, one (1) copy for the coordinator and each evaluator
 - 2. TSA Event Coordinator Report
 - 3. List of evaluators/assistants
 - 4. Results envelope with coordinator forms
- B. Computer capable of reading a USB flash drive, and a monitor
- C. Extension cords, two (2), 25' minimum length
- D. Power bar with surge protection, two (2)
- E. Tables and chairs for event coordinator and evaluators

RESPONSIBILITIES

- A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's packet. Review the event guidelines and check to see that enough evaluators/assistants have been scheduled.
- B. Inspect the area(s) in which the event is being held for appropriate set-up, including room size, chairs, tables, outlets, etc. Notify the event manager of any potential problems.
- C. Check in the entries at the time stated in the conference program. Anyone reporting who is not on the entry list may check in only after official notification is received from the CRC. Late entries are considered on a case-by-case basis and only when the lateness is caused by events beyond the participant's control. Requirements for attire do NOT apply during check-in.



- D. Each entry must include the participant's identification number in the upper right-hand corner of the entry (portfolio and USB flash drive). Secure the entries in the designated area.
- E. One (1) hour before the on-site event is scheduled to begin, meet with evaluators/assistants to review time limits, procedures, and regulations. If questions arise that cannot be answered, speak to the event manager before the event begins.
- F. Evaluators independently assess the portfolios and USB flash drive entries.
- G. For participants who violate the rules, the decision either to 1) deduct twenty percent (20%) of the total points earned or 2) disqualify the entry, must be discussed and verified with the evaluators, event coordinator, and CRC manager, who all must initial either of these actions on the rating form.
- H. Evaluators determine twelve (12) semifinalists. Submit semifinalist results to the CRC for posting.
- I. Evaluators independently assess the semifinalist entries and conduct interviews.
- J. Evaluators determine the ten (10) finalists and discuss and break any ties.
- K. Submit the finalist results and all related forms in the results envelope to the CRC room.



Participant/Team ID# _____

GEOSPATIAL TECHNOLOGY

2016 & 2017 OFFICIAL RATING FORM

MIDDLE SCHOOL

Documentation (70 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Evaluators: Using minimal (1-4 points), adequate (5-8 points), or exemplary (9-10 points) performance levels as a guideline, 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.)			
Portfolio See Regulation B (X1)	Portfolio is unorganized and/or missing three or more components.	Portfolio has most components and is generally organized.	One or no components are missing in the portfolio, and content and organization are clearly evident.
Explanation of design brief solution (X1)	Explanation of solution is unclear.	Solution is explained appropriately.	A clear and concise explanation of the solution is evident.
Maps (X1)	Maps provided are not appropriate, and/or they are missing a number of parts.	Maps have most needed parts; information is adequate.	Maps provided contain all or nearly all needed parts, with information that is clear and appropriate for the solution.
Project journal and descriptions (X1)	Little or no documentation of the project has been included, and/or it is disorganized.	Partially complete documentation of the project is included.	The project documentation is organized, orderly, and largely or entirely complete.
Data dictionary (X1)	Data dictionary is present in a table/spreadsheet format, however, two required forms of information (File name, Description, Source URL, Metadata) are missing.	Information is organized in a table/spreadsheet format, but one required form of information is missing.	All required forms of information are present in a table/spreadsheet format.
Analysis documents (X1)	Few documents are provided that explain the maps and their relationship to the design brief solution.	Most documents show the correlation between the maps and design brief solution.	Documents are provided for all maps, with a precise explanation of the relationship of the maps to the design brief solution.
Flash drive structure (X1)	The flash drive does not contain storage of information in an organized fashion (such as in category folders).	Folder structure to categorize maps, data, and documents is evident on the flash drive; information is adequately organized.	A fully organized folder system is evident on the flash drive, which allows for easy access and, therefore, understanding of the design brief solution.
			SUBTOTAL (70 points)

Record scores in the column spaces below.

Rules violations (a deduction of 20% of the total possible points for the above section) must be initialed by the evaluator, coordinator and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____



Semifinalist Problem (30 points)			
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Innovation and originality (X1)	The solution to the problem lacks original and innovative use of data.	Some original or innovative data is used to solve the on-site problem.	The solution demonstrates an original and innovative use of data.
Problem solution (X1)	The solution fails to show a correlation between the problem and the information gathered.	An adequate solution is presented, indicating correlation between the problem and the data gathered.	The solution indicates complete understanding of the correlation between the problem and the data gathered.
Use of data (X1)	Little or no use of data is evident; only pictures of existing maps are used.	Some data is used; new maps are presented and somewhat show a solution.	The use of data is obvious and complete; new map(s), in appropriate format, provide a clear solution to the problem.
SUBTOTAL (30 points)			
Semifinalist Interview (60 points)			
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Organization (X1)	Participants seem unorganized and unprepared for the interview; illogical explanation of problem and solution is presented.	Participants are generally prepared for the interview; explanation of problem and solution are generally communicated.	Interview is logical and easy to follow; the problem and solution are communicated in a concise manner.
Articulation (X1)	Interview is full of illogical thoughts that lack clarity, and/or there is insufficient information provided describing the project.	Interview is somewhat logical, easy-to-follow, and/or there is sufficient information provided describing the project.	Interview is clear, concise, and there is ample information provided describing the project.
Team participation (X1)	Majority of the delivery is made by one member of the team; partner(s) may be disengaged from the presentation.	Team members generally are engaged in the process, though one member may take on more responsibility than the others.	All team members are actively involved in the interview and responses to questions; there is shared responsibility among the team members.
Knowledge (X2)	Team members exhibit little understanding of the concepts in their project; answers to questions may be vague.	Participants exhibit a general understanding of the concepts in their project.	Participants show clear evidence of a thorough understanding of the project.
Delivery (X1)	The team is verbose and/or uncertain in its interview; participants' posture, gestures, and lack of eye contact diminish the interview.	The team is somewhat well-spoken and clear in its interview; participants' posture, gestures, and eye contact are acceptable in the interview.	The team is well-spoken and distinct in its interview; participants' posture, gestures, and eye contact result in a polished, natural, and effective interview.
SUBTOTAL (60 points)			



Rules violations (a deduction of 20% of the total possible points for the semifinalist section) must be initialed by the evaluator, coordinator and manager of the event. Record the deduction in the space to the right.

Indicate the rule violated: _____

(To arrive at the TOTAL score, add any subtotals and subtract rules violation points, as necessary.)

TOTAL (160 points)

Comments:

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

Evaluator

Printed name: _____

Signature: _____