OVERVIEW

Scientific and Technical Visualization (SciVis) is the representation of complex scientific and/or technical concepts in a visual form. Participants use either 2D or 3D computer graphics tools and design processes to communicate, inform, analyze, and/or illustrate a STEM topic, idea, subject, or concept.

ELIGIBILITY

Participants are limited to three (3) teams per state, one (1) entry per team. Collaborative work is strongly encouraged, but an individual may participate solo in this team event.

TIME LIMITS

A. Entries must be started and completed during the current school year.

B. The visualization is to be two to four (2-4) minutes in length. There will be a five (5)-point deduction for each fifteen (15) seconds under two (2) minutes or over four (4) minutes.

C. The visualization time length is calculated from the start of the first image or sound to the end of the last image or sound.

D. Semifinalists are given ten (10) minutes to present their visualization to the judges.

E. The semifinalist LEAP interview will be conducted as part of each semifinalist presentation and will last a maximum of five (5) additional minutes.

LEAP LEADERSHIP RESUME/INTERVIEW

A Team LEAP Leadership Resume is required for this event and must be submitted at event check-in. Semifinalists will respond to interview questions related to their submitted LEAP Resume for a maximum of five (5) minutes. A team competing in this event will use the *Team LEAP Leadership Resume* template; an individual competing in this event will use the *Individual LEAP Leadership Resume* template.

☑ Scientific visualization has come a long way in recent years. With this event TSA members can demonstrate their skills in using sophisticated, advanced technology to illustrate ideas of their choice.

ATTIRE

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

PROCEDURE

A. Participants check in their entries and submit a LEAP Leadership Resume at the time and place stated in the conference program.

B. Visualizations must be turned in on a USB flash drive in either an MPEG or Quick Time file format.

C. Each visualization must advance automatically once it has been opened and started by evaluators.

D. Entries are reviewed by evaluators. Neither students nor advisors are present at this time. A semifinalist list in random order is posted.

E. No more than two (2) representatives from each semifinalist team may report to the event area for the presentation at the time and place stated in the conference program.

F. Each semifinalist team explains its portfolio to the evaluators, discussing the purpose, value, research and design, and development process of its work.

G. The semifinalist LEAP interview will be conducted as part of each semifinalist presentation and will last a maximum of five (5) additional minutes.

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

REGULATIONS

A. A USB flash drive must be submitted with the documentation materials at check-in. Documentation materials (comprising a "portfolio") are required and should be secured in a clear front report cover. The report cover must include the following single-sided, 8½" x 11" pages, in this order:

   1. USB flash drive (containing the visualization) in a secure holder or sealed sleeve at the front of the portfolio.

✓ Read the General Rules and Regulations section in the front of this guide for information that applies to all of TSA's competitive events.

2. Title page with the event title, the conference city and state, and the year; one (1) page
3. Table of contents; pages as needed
4. Purpose of visualization; one (1) page
5. Hand-sketched storyboard that documents the flow and progression of the visualization with written notes; special effects, audio cues, dialogue, transitions, and scene duration should be incorporated into the storyboard; pages as needed
6. Written description of what the visualization illustrates or demonstrates; one (1) page
7. List of references that includes sources for materials, copyrighted and otherwise; pages as needed. The term "Fair Use" and similar terms are not acceptable citations when creating the list of references.
8. Permission letters for copyrighted material; pages as needed
9. List of software and hardware used in the development of the visualization; one (1) page
10. Plan of Work log that indicates preparation for the event, as noted by date, task, time involved, team member responsible, and comments (see Forms Appendix or TSA website); one (1) page
11. Completed and signed Student Copyright Checklist (see Forms Appendix or TSA website); one (1) page

B. The visualization may be an animation, such as a biological cell dividing or a group of static images that explain the concept. No posters or models will be accepted. Live action video is not allowed, including "whiteboard" style entries. All work must be included in the portfolio and on a USB flash drive.

C. The visualization is not to be under two (2) or over four (4) minutes in length. There will be a five (5)-point deduction for each fifteen (15) seconds under the minimum time or for each fifteen (15) seconds over the maximum time.

D. Sound may accompany the visualization.

E. All entries must be the original work of the participant or team. Where applicable, all ideas, text, images, and sound from other sources must be cited. If copyrighted material is used, proper written permission must be included. **NOTE: Failure to follow this procedure results in disqualification.** Absolutely no purchased content may be used in any part of the visualization. (Purchased content includes, but is not limited to, texture, models, and royalty free music.)

F. The semifinalist presentation team may involve no more than two (2) members.

G. All entries become the property of TSA, Inc. and will not be returned after judging.

H. LEAP Leadership Resume (see Forms Appendix or TSA website)/Interview — Teams document, in the LEAP leadership resume (see resume template), the leadership skills that the team has developed and demonstrated while working on this event. Semifinalists will respond to questions about the content of their resume as part of their LEAP interview. The LEAP Leadership Resume/Interview guidelines and other resources can be found on the TSA website. A <u>team</u> competing in this event will use the *Team LEAP Leadership Resume* template; an <u>individual </u>competing in this event will use the *Individual LEAP Leadership Resume* template.

EVALUATION

Please refer to the official rating form for more information.

NOTE: The LEAP requirements will also be evaluated.

NOTES

You can learn more about SciVis by visiting this web site:

www.ncsu.edu/scivis

STEM INTEGRATION

This event aligns with the STEM educational standards noted below. Please refer to the STEM Integration section of this guide for more information.

Science, Technology, Engineering, Mathematics

TSA AND CAREERS

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

CAREERS RELATED TO THIS EVENT

- Computer animator
- Game designer
- Instructional technologist
- Software engineer

SCIVIS
EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

B. Assistant for check-in, one (1)

C. Evaluators, two (2) or more for initial review of entries

D. Evaluators, two (2) or more for semifinalist interviews

MATERIALS

A. Coordinator's packet, containing:
   1. Event guidelines, one (1) copy for the coordinator and for each evaluator
   2. TSA Event Coordinator Report
   3. List of evaluators/assistants
   4. Pre-populated flash drives for evaluators
   5. Results envelope
   6. Envelope for LEAP Leadership Resumes
   7. LEAP Interview Judging Protocol

B. Tables for entries

C. Tables and chairs for initial evaluators

D. Tables and chairs for semifinalist evaluators and participants

E. Extension cords and power-bars with protection for evaluators, as needed

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. One (1) hour before the evaluation of entries is to begin, meet with evaluators and check-in personnel to review time limits, procedures, and regulations. If questions arise that cannot

be answered, speak to the CRC event manager before the evaluation begins.

D. Check in the entries and the LEAP Leadership Resumes at the time stated in the conference program. Notify the event manager immediately of any team that is not on the coordinator's report. Determine if the team in question is properly registered.

E. Evaluators independently assess the entries.

F. For participants who violate the rules, the decision either to deduct 20% of the total possible points or to disqualify the entry must be discussed and verified with the evaluators, event coordinator, and a CRC manager.

G. The number of evaluators depends upon the number of entries. Each group of evaluators averages its scores to determine the top four (4) entries from the initial group of twenty (20) entries. The top four (4) entries from each evaluator group are then reviewed by a different group of evaluators. These four (4) scores are then averaged to determine the twelve (12) semifinalist teams to be interviewed.

H. Evaluators determine the twelve (12) semifinalist teams. Submit the semifinalist results to the CRC for posting.

I. Semifinalists report to the event area at the time and place stated in the conference program. Each semifinalist team signs up for a time to present its visualization. During the presentation, the semifinalist team representatives will explain their work and answer any questions the evaluators may ask. As part of the semifinalist presentation, semifinalists will participate in a LEAP interview that will last a maximum of five (5) additional minutes.

J. Evaluators independently assess the twelve (12) semifinalists to determine the ten (10) finalists and their ranking. Evaluators discuss and break any ties.

K. Review and submit the finalist results and all items/forms in the results envelope to the CRC room.

L. Collect all USB flash drives and portfolios and give them to the event manager.

M. If necessary, manage security and the removal of equipment and materials from the area.

Participant/Team ID# _____

SciVis

2017 & 2018 OFFICIAL RATING FORM　　　　　　　　　　　　　　　　HIGH SCHOOL

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 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.

☐ **The portfolio is present.**

☐ **The USB flash drive is present.**

☐ **The visualization is playable.**

☐ **Completed LEAP Leadership Resume is present.**

☐ **ENTRY NOT EVALUATED**

Portfolio (30 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.) A score of zero (0) is acceptable if the minimal performance for any criterion is not met.				
Portfolio components See Regulation F (X1)	The portfolio is unorganized and/or missing three or more components.	The portfolio has most components and is adequately organized.	All components are present, and content and organization are clearly evident.	
Purpose and description (X1)	The purpose and description of the visualization idea generation are unclear.	The purpose and description are explained appropriately, and adequately.	The purpose and description of the visualization are clear and concisely written, and compelling.	
Storyboard (X1)	The storyboard is sloppy, seems to have been thrown together after the creation of the visualization, and/or it does not correlate with the visualization.	The storyboard is drawn appropriately and largely correlates with the completed visualization.	The storyboard is of exceptional aesthetic and artistic quality and clearly correlates with the visualization.	
			SUBTOTAL (30 points)	

Visualization (50 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Communication of visualization (X1)	It is difficult to understand the solution being communicated; an illogical explanation is presented.	The solution is communicated generally adequately.	The solution is communicated in an organized, clear, and concise manner.	
Creativity (X1)	The visualization lacks creativity; no, or very few, design principles are integrated in the visualization.	Some elements of creativity are expressed, with most design principles integrated.	The visualization exudes creativity; essential design principles and elements are integrated.	
Aesthetics and artisanship (X1)	Unorganized, sloppy work is evident; the visualization seems to be an afterthought and/or thrown together.	A largely organized presentation of layout and design principles is evident.	An exemplary use of layout and design principles to logically communicate important data is evident.	

Record scores in the column spaces below.

Visualization (continued) (50 points)

Graphical representations (X1)	Graphical representations do not help to clarify visualization, or they are of little significance to the project.	Graphical representations are appropriate and help supplement the visualization by providing clarity to the project.	Graphical representations are of excellent quality; and clarify abstract concepts.
Originality (X1)	The visualization lacks imagination, originality, and artistic detail.	The visualization is somewhat effective, inventive, and inspiring.	The visualization is inspiring, inventive, resourceful, and motivating.
			SUBTOTAL (50 points)

Time Deductions

There will be a five (5) point deduction for each fifteen (15) seconds under the minimum time or each fifteen (15) seconds over the maximum time allowed for the visualization.

Total time for visualization	
Visualization time deduction	
TOTAL TIME DEDUCTION	

Rules violations (a deduction of 20% of the total possible points in the sections above) 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 Presentation (60 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points
Organization (X1)	The team/individual seems unprepared and unorganized for the presentation.	The team/individual is somewhat prepared and organized in its presentation.	The presentation is well organized and any questions asked by judges are answered concisely.
Knowledge (X1)	The team/individual seems to have little understanding of its chosen topic.	The team/individual has a generalized understanding of its chosen topic.	There is clear evidence of a thorough understanding of the chosen topic.
Articulation (X1)	The presentation is full of illogical thoughts that lack clarity.	The presentation is somewhat logical, and/or clear, and concise.	A concise, logical, clear explanation of the entry is given.
Delivery (X1)	The team/individual is verbose and/or uncertain in the presentation; posture, gestures, and lack of eye contact diminish the delivery.	The team/individual is somewhat well-spoken and clear in the presentation; posture gestures, and eye contact result in an acceptable delivery.	The team/individual is well-spoke and distinct in the presentation; posture, gestures, and eye contact result in a polished, natural, and effective delivery.
LEAP Leadership Resume/Interview See Regulation H and instructions on TSA website (X2)	The individual's or team's efforts are not clearly communicated, lack detail, and/or are unconvincing; few, if any, attempts are made to identify and/or incorporate the LEAP Be. Know. Do. criteria.	The individual's or team's efforts are adequately communicated, include some detail, are clear, and/or are generally convincing; identification and/or incorporation of the LEAP Be. Know. Do. criteria is adequate.	The individual's or team's efforts are clearly communicated, fully-detailed, and convincing; identification and/or incorporation of the LEAP Be. Know. Do. criteria is excellent.
			SUBTOTAL (60 points)

Rules violations (a deduction of 20% of the total possible points in 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 (140 points)** | |

Comments:

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

Evaluator

Printed name: _____   Signature: _____