OVERVIEW

Animatronics refers to a robotic device that emulates a human or an animal, or brings an inanimate object "to life." Teams will produce an animatronics device complete with an appropriate display. The animatronics device must use control technology in its performance and fulfill the requirements of the theme to communicate, entertain, inform, demonstrate and/or illustrate a topic, idea, subject, or concept. Sound, lights, and surrounding environment are to accompany the device. The design problem for the current school year will be posted on the national TSA website under Competitions/ Themes and Problems.

ELIGIBILITY

A. Participants are limited to one (1) team, one (1) entry per chapter.

B. There is a limit of three (3) representatives per team for the presentation and for the semifinalist LEAP interview.

TIME LIMITS

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

B. Participants are given five (5) minutes to set up their equipment prior to their presentation.

C. The presentation must last no longer than five (5) minutes.

D. The presentation time begins when students give background information about the project from their portfolio and must conclude on or before the five (5)-minute time limit. Five (5) points will be deducted for exceeding the time limit. The judges' interview is not considered part of the presentation time.

E. Semifinalists will participate in a LEAP interview that will last a maximum of five (5) 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.

ATTIRE

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

PROCEDURE

A. Participants will check in their entry (animatronic device, display, and portfolio) and submit a LEAP Leadership Resume at the time and place stated in the conference program.

B. At check-in, each team will select an initial presentation time from the available times posted. When selecting a demonstration time, teams should avoid conflicts with other events for which team members are registered.

C. Participants report for the presentation/interview at the selected demonstration time with the animatronics device, display, and portfolio. Only three (3) participants are allowed to set up equipment and present the project.

D. Evaluators independently assess the entries. Semifinalists will be determined and posted by the CRC.

E. Semifinalist teams will report at the time/place stated in the conference program to sign up for a semifinalist LEAP interview.

F. No more than three (3) representatives per team report for the semifinalist LEAP interview. The interview will last a maximum of five (5) minutes.

G. No more than two (2) team members pick up their entry 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 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. The display may not exceed 15" deep x 3' wide x 4' high. The device may extend beyond the dimensions of the display during the demonstration.

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

B. The animatronics device must have three (3) or more separate movements. An exterior shell or skin is required. It must be removable in order to show the judges the internal components of the project. Fluid power, gearing systems, linkages, and/or cabling systems, etc., should be incorporated to aid in the movement of the device.

C. Sound, lights, and sensors must be used in the project model.

D. Control technology must be used during the performance.

E. Fluid power **MUST** be used to aid in the movement of the animatronics device. If no fluid power is used, a ten (10)-point deduction will be incurred.

F. 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. Title page with the event title, the conference city and state, the year, and the team/chapter ID number (identification numbers are issued on site); one (1) page
2. Table of contents; pages as needed
3. Purpose and description of the animatronics device; one (1) page
4. Design and test log, including date, test duration, problems, redesigns, and other comments; maximum five (5) pages
5. Electrical diagram of animatronic model; two (2) pages
6. Fluid power systems diagram, including labels; one (1) page
7. List of resources that includes materials, parts, software, hardware, and sources of information used in the development of the project; one (1) page
8. 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
9. Completed Student Copyright Checklist (see Forms Appendix or TSA website); permission letters for copyrighted material, if incorporated; pages as needed

G. A wet cell battery may not be used in the animatronics device.

H. The animatronics device may use AC power, but the participant will only have access to an AC outlet during the demonstration/presentation.

I. Should the device suggest anything that is inappropriate by language, sound, or movement, immediate disqualification will result.

J. A team that fails to appear for its demonstration forfeits evaluation.

K. 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.

EVALUATION

Evaluation is based on performance, device artisanship, documentation of design efforts, and LEAP requirements. Please refer to the official rating form for more information.

NOTES

Learn more about animatronics by visiting the following:

www.animatronica.co.uk/default.asp
www.animalmakers.com
www.garnerholt.com
www.dreamation.com/Animatronics.htm

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

Amusement park robotics maintenance engineer
Electronics technician
Film industry special effects engineer
Industrial designer
Toy developer

ANIMATRONICS EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator

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

C. Evaluators, two (2) or more for the portfolio evaluation and two (2) or more for the presentation/interview (preferably same two [2])

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

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. Stick-on labels for entries, as needed
   6. Results envelope
   7. Envelope for LEAP Leadership Resumes
   8. LEAP Interview Judging Protocol

B. Tables for presentation

C. Table and chairs for 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. One (1) hour before the event 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 event begins.

D. Check in all entries and collect LEAP Leadership Resumes at the time stated in the conference program. The coordinator should have each team sign up for a specific time for its presentation/interview (within the time frame designated for the event). Once each team has scheduled a presentation/interview time, make sure that the participants understand that they are to return fifteen (15) minutes before their scheduled presentation/interview time.

E. At the designated time, evaluators individually assess and score entry portfolios (prior to presentations/interviews).

F. Notify the event manager immediately of any team reporting for the presentation/interview portion of the event that is not on the coordinator's report. A team not on the report is permitted to participate, but the coordinator MUST confirm the team's eligibility. If it is found that the team is not registered for the event, the team is disqualified.

G. Evaluators independently assess each team's demonstration presentation/interview to determine twelve (12) semifinalists. Evaluators may take notes, but scoring occurs only after all team members have left the event room.

H. 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.

I. Submit semifinalist results to the CRC for posting.

J. Meet with semifinalist teams at the time/place stated in the conference program to allow teams to sign up for a LEAP interview time.

K. Inspect the area in which the interviews are to take place. Ensure that there is a table and seating for participants and evaluators.

L. Meet with semifinalist evaluators to review the LEAP Judging Protocol. If questions arise that cannot be answered, speak to the event manager before the semifinalist LEAP interviews begin.

M. Conduct semifinalist LEAP interviews. Interviews should be a maximum of five (5) minutes in length. Evaluators determine the ranking of the finalists and discuss and break any ties.

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

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

Participant/Team ID# _____

ANIMATRONICS

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.

- ☐ **Skins/shells are removable.**
- ☐ **Interior skeleton and mechanism are accessible for inspection.**
- ☐ **Documentation is present in a clear front report cover.**
- ☐ **Completed LEAP Leadership Resume is present.**
- ☐ **ENTRY NOT EVALUATED**

Documentation (50 points)

CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	Record scores in the column spaces below.
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)	Portfolio is unorganized and/ or is missing three or more components.	Portfolio has most components, and it is somewhat organized.	Only one or no components are missing in the portfolio; content and organization are clearly evident.	
Purpose and description (X1)	Purpose and description of the animatronics design idea are unclear.	Purpose and description are explained appropriately.	Purpose and description of the animatronics design are clear and concise; presentation interests the reader.	
Design and test log (X1)	Design and test log is illogical and unorganized and/or shows no evidence of growth from the initial design to the final solution; log is missing two or more of the following components: date of test(s), test duration, and/or problems/redesigns.	Most components of the design and test log are incorporated, and some evidence is shown that the log was used to shape the design of the animatronics device; the log is mostly neat, organized, and concise.	The log is neat, organized, and concise; it includes all components and shows evidence that it was used to shape the animatronics design from conception through redesign(s) and then to completion.	
Electrical diagram (X1)	The diagrams are missing important views that will aid in the explanation, and/or most electrical symbols are incorrect.	The diagrams have most views that will aid in the explanation, and/or most electrical symbols are correct.	The diagrams include views to aid in communicating design; all electrical symbols are correct.	
Fluid power diagram (X1)	The fluid power systems diagram is missing important views or labels to effectively communicate the design.	The fluid power systems diagram has most views or labels to adequately communicate the design.	The fluid power systems diagram includes all views to aid in communicating the design.	
			SUBTOTAL (50 points)	

Demonstration Presentation/interview (50 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Organization (X1)	Team seems unprepared and unorganized for the presentation/ interview, with an illogical explanation of the project.	Team is prepared for the interview and is somewhat organized in its presentation to judges; team's presentation thesis is, for the most part, logical and/or clear.	Team's presentation/interview with judges is well organized; the interview is concise and logical, with a clear explanation of the development of the project.	
Knowledge (X1)	Team members seem to have little understanding of the concepts in their project; vague interview answers are provided.	Team members have a generalized understanding of the concepts discussed and answer questions adequately.	Evidence is clear that team members have a thorough understanding of the concepts discussed; they answer questions thoroughly.	
Articulation (X1)	The presentation and interview provide an unclear, unorganized, and or illogical description of the project.	The presentation and interview offer a somewhat logical and easy-to-understand project description.	The presentation/interview provides a clear, concise, and easy-to-follow description of the project.	
Delivery (X1)	The team is verbose and/or uncertain in its presentation/ interview; participants' posture, gestures, and lack of eye contact diminish the delivery.	The team is somewhat well-spoken and clear in its presentation/interview; participants' posture, gestures, and eye contact result in an acceptable delivery.	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.	
Team participation (X1)	Only one person in the group communicates with judges; there is little or no participation from other team members.	Team members all participate to some extent and seem to understand the concepts.	Team members seem to fully understand the concepts and share an equal role in the interview.	
			SUBTOTAL (50 points)	

Model Appearance (30 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Creativity (X1)	Model lacks creativity; no or very few design principles are integrated in the model.	Some elements of creativity are evident, and most essential design principles are included and used somewhat effectively.	Model exudes creativity; essential design principles and elements are integrated.	
Aesthetics and artisanship (X1)	Work is unorganized and/or sloppy; model seems to be an afterthought and/or thrown together.	Some layout and design principles are integrated into the model, and aesthetics are adequate.	There is exemplary use of layout and design principles; artistic and aesthetic values are incorporated.	
Originality (X1)	Model lacks imagination, originality, and artistic detail.	Model is somewhat innovative.	Model is inspiring, inventive, and resourceful.	
			SUBTOTAL (30 points)	

Model Function (60 points)				
Skin and skeletal function: There is no point value for the skin and skeletal function of the animatronics model. The model's skin must be removable in order to reveal skeletal function and mechanics located beneath the skin. If the skin is not removable then the entry will not be evaluated.				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
Sound inclusion (X1)	There is little or no sound included, or the design suggests that the inclusion of sound was an afterthought to the model.	Sound is included, and it somewhat contributes to the overall function of the model.	The inclusion of sound is creative and effectively contributes to the design and performance of the model.	
Light inclusion (X1)	Light is minimal, or the design suggests that the inclusion of lights was an afterthought to the model.	Light is included, and it somewhat contributes to the overall function of the model.	The inclusion of a fluid power system(s) and the fluidity of movement that this system(s) provides in an animatronics model creatively and effectively contribute to the model's design and performance.	
Sensor inclusion (X1)	Sensors are included minimally, or the design suggests that the inclusion of sensors was an afterthought to the model.	Sensors are included, and they somewhat contribute to the overall function of the model.	The inclusion of sensors (and the interactivity that sensors allow) in the model is creative and effectively contributes to its design and performance.	
Control technology (X1)	Little control technology is used during the performance.	Some basic control technology is used during the performance.	Advanced control technology is used during the performance; the model is fully autonomous.	
Fluid power system inclusion (X1)	A fluid power system is included, but it functions inadequately or not at all.	A fluid power system is included, and it contributes somewhat to the overall function of the model.	The inclusion of a fluid power system(s) and the fluidity of movement that this system(s) provides in an animatronics model creatively and effectively contribute to the model's design and performance.	
Use of gears, linkages, cabling, etc. (X1)	The use of gears, linkages, cabling, etc. is minimally apparent or improperly incorporated into the model; the team shows little understanding of how to properly use these systems in the model.	Most gears, linkages, cabling systems, etc. are incorporated and used properly in the model; there is evidence of an adeqaute understanding of the systems.	Efficient and varied use of gears, linkages, cabling systems, etc. is apparent and properly incorporated in the model; there is evidence of a complete understanding of these systems.	
			SUBTOTAL (60 points)	

Rules violations (a deduction of 20% of the total possible points in the above sections) 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 Interview (20 points)				
CRITERIA	Minimal performance 1-4 points	Adequate performance 5-8 points	Exemplary performance 9-10 points	
LEAP Leadership Resume/Interview See Regulation K and instructions on TSA website (X2)	The 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 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 team's efforts are clearly communicated, fully-detailed, and convincing; identification and/or incorporation of the LEAP Be. Know. Do. criteria is excellent.	
			SUBTOTAL (20 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 (210 points)**	

Comments:

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

Evaluator

Printed name: _____ Signature: _____