



ANIMATRONICS

OVERVIEW

Animatronics refers to a robotic device that emulates a human or an animal, or brings an inanimate object to “life.” Disney and Six Flags theme parks use animatronics in some of their attractions. Participants will produce an animatronics device complete with an appropriate display. The animatronics device must use control technology in its performance. The device must not suggest anything that is inappropriate by language, sound or movements. Evaluation is based on performance, device artisanship, and documentation of design efforts.

PURPOSE

Work as part of a team to demonstrate knowledge of mechanical and control systems by designing, fabricating, and controlling an animatronics device that will communicate, entertain, inform, demonstrate and/or illustrate a topic, idea, subject or concept. Sound, lights and surrounding environment are to accompany the device.

ELIGIBILITY

- A. One (1) team entry per chapter is permitted.
- B. There is a limit of three (3) representatives per team for the semifinalist presentation/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 presentation 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 notebook and must conclude on or before the five (5) minute time limit. Point deductions will be assessed for exceeding the time limit. The judges' interview is not considered part of the presentation time.



ATTIRE


Professional dress as described in Competitive Events Attire is the minimum requirement.

PROCEDURE

- A. Participants check in their entries at the time and place stated in the conference program.
- B. Each team will submit a notebook and model at the designated check-in time specified in the conference program.
- C. During check-in, each team selects a demonstration time from the available times posted. When selecting a demonstration time, teams should avoid conflicts with other events for which team members are registered.
- D. Participants report for the presentation/interview at the selected demonstration time with the project, display and notebook. Only participants are allowed to set up equipment and present the project.

REGULATIONS

- A. The display may not exceed 48" wide, 48" high and 30" deep.
- B. The animatronics project must have three (3) or more separate movements. A skin or covering is required. The covering must be removable in order to show the judges the skeleton and mechanics of the project. 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 incorporated in the project model.
- D. Some form of fluid power system must be incorporated to aid in the movement of the animatronics device. If no use of fluid power is incorporated, the animatronics device will lose the maximum of ten (10) points, which are awarded for incorporating a fluid power system into the device.
- E. A standard three (3)-ring binder, with a clear front sleeve for a cover page, is required. The cover page must include the event title, the conference city and state, and the year. The inside of the binder must include the following single-sided, 8½" x 11" pages:
 1. Title page with the event title, the conference city and state, the year and the team/chapter ID number (identification

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



- numbers are issued on site and therefore may be handwritten); one (1) page
2. Table of contents
 3. Purpose 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. List of resources that includes materials, parts, software, hardware and sources of information used in the development of the project; one (1) page
 6. Plan of Work Log that indicates preparation for the event, as noted by date, task, time involved, team member responsible, and comments (See Plan of Work Log); one (1) page
 7. Permission letters for copyrighted material, if incorporated; pages as needed
- F. The animatronics device may not contain a wet cell battery.
- G. The animatronics device may use AC as a power source.
- H. Should the device suggest anything that is inappropriate by language, sound or movement, immediate disqualification will result.
- I. A team that fails to appear for its demonstration forfeits judging.

EVALUATION

Teams are evaluated on their written work, model function, programming structure and efficiency. Refer to the official rating form for detailed information.

NOTES

You can learn more about animatronics by visiting the following:

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



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

PRIMARY LEADERSHIP SKILLS

Leadership skills promoted in this event:

- **CRITICAL THINKING** — Students use prior knowledge to accomplish a task. Suggested leadership lessons: *And the Answer Is* and *Figure it Out*
- **PROBLEM SOLVING** — Students work out any animation design flaws. Suggested leadership lessons: *Finding the Right Way* and *Problem Solving Steps*
- **TEAMWORK** — Students delegate tasks based on individual skills. Suggested leadership lessons: *Effective Meetings* and *Restaurant Building Plan*

Additional leadership skills promoted in this event: communication, creative thinking, organization, self-esteem

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

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



TECHNOLOGY STUDENT ASSOCIATION PLAN OF WORK

Date	Task	Time involved	Team member responsible	Comments
1				
2				
3				
4				
5				
6				

Advisor signature _____



ANIMATRONICS


EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

- A. Event coordinator
- B. Assistant for check-in and notebook collection, one (1)
- C. Evaluators, two (2) or more for the notebook evaluation and two (2) or more for the presentation/interview [preferably same two (2)]

MATERIALS

- A. Coordinator's notebook, containing:
 - 1. Event guidelines, one (1) copy each for coordinator and evaluators
 - 2. Official rating forms, one (1) set for each event evaluator
 - 3. List of entries, with finalist report
 - 4. List of evaluators/assistants
 - 5. Pens for evaluators
 - 6. Notepads for evaluators
 - 7. Calculators, one (1) for each event evaluator
 - 8. Results envelope
- B. Table for presentation
- C. Table and chairs for evaluators

 Be sure to seal the results in the envelope provided and return them to the CRC room.

RESPONSIBILITIES

- A. Upon arrival at the conference, report to the CRC room and check the contents of the coordinator's notebook. 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. At least one (1) hour before the event is to begin, meet with your 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 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 time.
- E. At a designated time evaluators individually evaluate and score entry notebooks prior to presentations.
- F. Notify the event manager immediately of any team reporting for the presentation portion of the event that is not on the entry list. A team not on the entry list 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 a team's presentation/interview. Evaluators may take notes, but evaluation occurs only after all team members have left the event room.
- H. For participants who violate the rules, the decision either to deduct twenty percent (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. Secure the initials of the coordinator and manager on the rating form.
- I. Complete and submit the finalist report and all related forms in the results envelope to the CRC room.
- J. If necessary, manage security and the removal of materials from the area.



ANIMATRONICS

2011 & 2012 OFFICIAL RATING FORM **HIGH SCHOOL**

PARTICIPANT/TEAM ID#																				
EVALUATIVE CRITERIA																				
Notebook (20 pts.) Cover page 1 pt. Title page 1 pt. Table of contents 1 pt. Description of purpose..... 3 pts. Design and test log 10 pts. List of resources 2 pts. Plan of Work log 2 pts.																				
Presentation (20 pts.) Clear and concise communication 5 pts. Organization 5 pts. Demonstration of knowledge and poise 5 pts. Equal team participation 5 pts.																				
Model appearance (20 pts.) Creativity/originality 5 pts. Entertainment value 5 pts. Educational value 5 pts. Aesthetics 5 pts.																				
Model performance (40 pts) Three (3) separate movements 5 pts. Sound inclusion 5 pts. Lights inclusion 5 pts. Sensor inclusion 5 pts. Use of gears, linkages, cabling systems, etc. 10 pts. Inclusion of a fluid power system 10 pts.																				
SUBTOTAL 100 pts.																				
Rules violation (must be initialed by coordinator and manager)minus 20% of the total possible pts.																				
TOTAL 100 pts.																				
Comments:																				
I certify these results to be true and accurate to the best of my knowledge.																				
Evaluator																				
Printed name: _____										Signature: _____										