

New York State
Technology Student
Association
Conference
2006 – 2007



Level Two Rule
Modifications

2006-2007 New York TSA

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FORWARD

The diverse competitive events that are listed within this booklet are open to TSA chapters registered to compete in the New York State TSA Conference. The conference will be held at SUNY Oswego College on Friday March 30, 2006 and Saturday March 31, 2006. The booklet presents: the competitive events in alphabetical order, the maximum number of participants or teams permitted to compete in each event and, the names and contact information of the event coordinators.

To understand how this booklet works, each chapter must refer to the national rulebooks. Middle schools use the 2006-2007 *Middle School Technology Activities, Official TSA Competitive Events Guide*. High schools refer to the 2007-2008 *High School Technology Activities, Official TSA Competitive Events Guide*. These can be purchased from National TSA <www.tsaweb.org>. Each New York competitive event lists only the modifications from the National guidelines. Substitute the NY modification in this booklet for the number or letter on the national guidelines to ensure that your chapter meets all guidelines for the NY competitive events.

It is the hope of the NYSTSA Board of Trustees, Advisor Committee, and Student Officers that this guide will enable students, competitive event judges, and teachers/advisors to better prepare for this exciting conference.

Any questions may be directed to either Mr. Walters at <bwalters@twcny.rr.com> or Mr. Kubicki at <kubicki@oswego.edu>.

I. HIGH SCHOOL EVENT TYPES AND EVENT COORDINATORS

ON-SITE JUDGING*	PRE-CONFERENCE JUDGING**
Architecture Model Jennifer Hill jmh1029@rit.edu	Cyberspace Pursuit Michael Giallombardo mr_g14625@yahoo.com
Catapult (Simple Machines) Challenge Bruce Salisbury at sbcs@wmconnect.com	
Computer Aided Design 2D, Architectural NYSERDA	
Desktop Publishing Tom Kubicki kubicki@oswego.edu	
Dragster Design Challenge Jay Gauthier jgauthier@wayne.k-12.ny.us	
Electronic Research and Experiment Mark Hardy at hardy@oswego.edu	
Extemporaneous Speaking Evie Weinstein at myisland3@yahoo.com	
Flight Endurance Jeremy Mikels jmikels@wayne.k12.ny.us	
Film Technology Tom Kubicki kubicki@oswego.edu	
Mousetrap Challenge Bruce Salisbury sbcs@wmconnect.com	
Prepared Presentation Speaking Clark Greene greenecw@buffalostate.edu	
Problem Solving Scott Breigle Sbreigle@icsd.k12.ny.us	
Promotional Graphic Tom Kubicki kubicki@oswego.edu	
Structural Engineering Rob Clark robclarkjets@earthlink.net	
System Control David Buchner dbuchner31@hotmail.com	
Technical Research and Report TBA	
Technical Sketching Tom Kubicki kubicki@oswego.edu	
Technology System NYSERDA	

***On-Site Judging:** Events that are either prepared at home school and judged at the conference **OR** completed entirely on-site at conference. See individual event descriptions for detail.

****Pre-Conference Judging:** Submitted and judged *prior* to conference.

II. PARTICIPATION IN COMPETITIVE EVENTS:

- A. Students must be registered at the State Conference in order to enter and become winners in a competition. Pre-registration is strongly recommended.
- B. Pre-registered chapters that have previously attended a New York TSA State conference are required to participate in at least eight (8) events.
- C. No substitutions will be accepted after registration closes.
- D. No school or individual names labeled on projects; only ID#s are to be used. Upon registering, students are automatically assigned an ID# which they will receive at the conference. **This number needs to be on all student projects.**
- E. Projects/entries are picked up at the time stated in the conference program.

III. COMPETITIVE EVENTS ATTIRE

ALL STUDENTS ATTENDING THE CONFERENCE **MUST** wear either official TSA or business-like attire. Your cooperation with this policy will assist in providing a positive image for the organization and its members.

A. Official TSA attire:

Blazer:	navy blue with TSA patch
Ties/scarves:	scarlet red
Shirt or Blouse:	white with collar
Slacks or Skirt:	light gray
Shoes:	black dress shoes
Socks:	black or nylon hosiery

B. Business-like attire is considered to **minimally** include:

A collared shirt/blouse, long pants (no shorts or jeans), dresses/skirts, socks/hosiery and appropriate footwear (black dress shoes; no sneakers, tennis shoes, etc).

C. The official NYTSA Polo Shirt. Standards of Business-like attire still apply.

Students NOT wearing approved New York State attire will lose 20 points from total score of each event entered. Hats are NOT allowed.

IV. PROPERTY DAMAGE OR LOSS

The College of SUNY OSWEGO and New York State TSA are not responsible for damage to or loss of property brought to the conference.

Architectural Model
On-Site Judging

Overview	Home for the family of four must be designed as a “green building”
Purpose:	No change
Eligibility:	2 per chapter
Time Limits:	No change
Procedures:	B: no finalists; Delete C & D
Regulations:	No change
Evaluation:	There will be no interview included in the evaluation
Coordinator:	Jennifer Hill jmh1029@rit.edu

Catapult Design

On-Site Judging

SIMPLE MACHINES/ CATAPULT

OVERVIEW: TSA of New York students entering the Simple Machines event are required to research, design, draw and build a lever machine (catapult) to demonstrate their knowledge of technology and the principles of simple machines.

EVENT COORDINATOR: Bruce Salisbury sbcs@wmconnect.com

I. CONTEST PURPOSE: To provide a means for TSA members to demonstrate their ability to research, design, draw and build a catapult that illustrates the principle of a lever.

II. ELIGIBILITY FOR ENTRY: Up to three students per team. No limit on entries per chapter.

III. LEVELS OF COMPETITION: Level I and II

IV. TIME LIMITATIONS: Participants must present research material, a complete set of drawings and a technical report at the time specified in the conference program. Catapult must be constructed before arriving at the conference. All participants in this event must arrive and be in place at the specified time and location.

V. SPECIFIC REGULATIONS:

- A. Entries must be designed and constructed by the student. Contestants may enter only one catapult that has been researched, designed, drawn, and constructed during the current TSA of New York school year.
- B. Research: A collection of material, which explains the principles of levers as related to the design submitted. May include some pictures.
- C. Design: Support the principle of simple machines and utilizes research information.
- D. Drawings: A detail drawing in two views for each part of the catapult that is cut and assembled separately. Must use metric dimensions. Paper no larger than B size with a border and title block as illustrated on this website. Drawings should be developed using standard engineering practices and procedures. The drawings may be produced using traditional drafting methods or CADD. Copies of drawings are acceptable.
- E. Technical Report: Explanation of overall research involved in designing and constructing the catapult. Must include construction and assembly procedure for the catapult submitted and a description of the launch techniques that should be employed to ensure payload accuracy. Drawings and diagrams may be used to supplement the report.
- F. Target space will be limited to a 4 foot circle.
- G. Size of the Catapult project may not be larger than 4 feet cubed. (4ft x 4ft x 4ft)
- H. Catapults must use a lever only.
- I. The projectile used will be a standard sized Hacky Sack.

VI. PROCEDURE:

- A. Students will enter the competition before registration deadline.
- B. Participants will follow instruction and event timelines provided at registration.
- C. Completed research, design and drawings turned in at registration.
- D. A pre-launch period is provided so that participants can make adjustments to weights, balance, and fit. Catapults must be returned to the evaluators after the pre-launch period.
- E. Each participant is given three opportunities to launch their catapult to a target (X) feet from the starting point, hand launched from the designated location. The closest opportunity to the target is used to determine accuracy points.

VII. REQUIRED CONTEST PERSONNEL/ EQUIPMENT;

- A. Contest Coordinator
- B. Three judges
- C. Rating sheets for judges
- D. Target
- E. Measuring tape
- F. Large enclosed area (gym)
- G. Triple beam balance
- H. Construction material

VIII. CRITERIA FOR JUDGING:

- A. Research
- B. Design
- C. Drawings
- D. Construction
- E. Technical Report
- F. Accuracy

IX. ACCURACY POINTS

- 1st place 50 points
- 2nd place 46 points
- 3rd place 42 points
- 4th place 38 points
- 5th and 6th place 35 points
- 7th and 8th place 30 points
- 9th to 12th place 25 points
- 13th to 16th place 20 points
- 17th to 18th place 15 points
- All other launched 10 points

Computer-Aided Design 2D, Architecture
On-Site Judging

Overview	Event prepared prior to conference based on the Architectural Model event theme
Purpose:	No change
Eligibility:	2 per chapter
Time Limits:	Prepared during the school year
Procedures:	Delete A-F, H-I. The plans drawn will be for the home specified in the Architectural Model event for NY State (“home for a family of four with green design used”)
Regulations:	Delete A-D, F
Evaluation:	Drawings submitted during conference registration are evaluated.
Coordinator:	NYSERDA

Cyberspace Pursuit
Pre-Conference Judging

Overview	This is a NYSERDA sponsored event. The 2007 NYS topic will be: "Is Energy Conservation Still a Valuable Component of the Total Energy Program in New York State?" No on-site finalist task.
Purpose:	No change
Eligibility:	Unlimited
Time Limits:	Delete B Replace C: URL must be submitted to nystsa_cyberspace@yahoo.com by midnight March 15, 2007. All emails will be time stamped which will serve as proof of submitting project by deadline.
Procedures:	Delete D-G.
Regulations:	F Change to site must be able to be launched in Internet Explorer v5 or higher. Delete G.
Evaluation:	Delete B.
Coordinator:	Michael Giallombardo mr_g14625@yahoo.com

Desktop Publishing
On-Site Judging

Overview	No on-site problem given at conference
Purpose:	No change
Eligibility:	This is an individual event and there is no limit to the entries per chapter.
Time Limits:	Delete B and C. Entries must be submitted at the registration on Friday before noon.
Procedures:	Delete C – G.
Regulations:	Delete A, D, E and F. C: Clip art may be used in notebook.
Evaluation:	Evaluation is based on points earned for the notebook.
Coordinator:	Tom Kubicki kubicki@oswego.edu

Dragster Design
On-Site Judging

Overview	No change
Purpose:	No change
Eligibility:	7 per chapter
Time Limits:	No change
Procedures:	Delete D, E, F and G. All cars race one time only.
Regulations:	No change
Evaluation:	No wind tunnel test will be performed. Cars will be raced one time only.
Coordinator:	Jay Gauthier jgauthier@wayne.k-12.ny.us

Electronic Research and Experimentation
On-Site Judging

Overview	Electronic device is constructed on-site only.
Purpose:	No change
Eligibility:	2 teams of 2 per chapter
Time Limits:	Device is built on-site
Procedures:	Delete A – F. Team studies basic electronics during school year. Team is given challenge at conference and must build electronic device on-site.
Regulations:	Delete A – G.
Evaluation:	Device will be evaluated upon completion for design accuracy and effectiveness.
Coordinator:	Mark Hardy hardy@oswego.edu

Extemporaneous Presentation
On-Site Judging

This is a NYSERDA-sponsored event

Overview	Topics for event will be energy related.
Purpose:	No change
Eligibility:	Unlimited
Time Limits:	No change
Procedures:	Delete H – J.
Regulations:	E: There will be no heats for this event
Evaluation:	No change
Coordinator:	Evie Weinstein at myisland3@yahoo.com

Film

Pre-Conference Judging

This is a NYSERDA-sponsored event

Overview	Topic for this event: "How addicted to oil are the citizens of your community?"
Purpose:	No change
Eligibility:	2 per chapter
Time Limits:	No change
Procedures:	Video and notebook must be turned in at the NY State Conference registration table by noon on Friday, March 30, 2007.
Regulations:	A: Film may be submitted in DVD or VHS format. B: Film and notebook become property of NYSERDA and NYSTSA.
Evaluation:	No change
Coordinator:	Tom Kubicki kubicki@oswego.edu

Flight Endurance
On-Site Judging

Overview	Planes are not built at the conference
Purpose:	Planes are not built at the conference. No construction materials provided.
Eligibility:	Four individuals per chapter.
Safety:	Planes are not built at the conference, Rules apply if repairs are needed.
Timelimits:	Delete A
Procedures:	Delete B E refers to all participants (there are no finalists.)
Regulations:	Delete A, B, E and F.
Evaluation:	No change
Coordinator:	Jeremy Mikels jmikels@wayne.k12.ny.us

Junior Solar Sprint

On-Site Judging

3 vehicles/chapter, up to 4 individuals per team

The Northeast Sustainable Energy Association provides the standard rules. *In addition to these rules the teams must also provide design portfolio &/or sketches as evidence of the student design process.* Please note: a final working drawing would NOT show the design process!

EVENT COORDINATOR: Bob Walters bwalters@twcny.rr.com

Materials and vehicle specifications:

1. The Ray Catcher solar panel sold by Pitsco and the JSS Solar Panel sold by Solar World may be used. Panels cannot be shaved, drilled or delaminated. The motors supplied with these panels (Mabuchi #280-2865 and Mabuchi #260-18130) may be used. Motors may not be re-wound or disassembled. Solar panels used in 1995-2005 and motors used in 1996-2005 may be re-used this year as well. Any other panels and motors may not be used in the competition. All parts mentioned here must be used without modification. One solar panel and one motor allowed per car. However, reflectors, supports, and power leads may be added to these components.
2. The remainder of the vehicle can be made from any other materials.
3. The vehicle may not be larger than 30 cm. (12 in.) wide by 60 cm. (24 in.) long by 30 cm. (12 inches) high.
4. The solar vehicle must be structurally sound without the solar panel. The solar panel must be able to be removed from the vehicle, and easily disconnected from the motor.
5. A 2 cm x 2 cm surface must be available for the car number, which should be easily visible when the vehicle is in the ready to race position.
6. The vehicle must be designed with a compartment to carry a payload of 1 empty 12 oz. aluminum soda can. The can may not be part of the vehicle's structure, and must be easily and rapidly removed or reinserted. The can will be supplied by NYSTSA before the start of the race, and must remain with the vehicle and unaltered during the entire event, and returned to the judges following the race if requested.
7. The vehicle must be powered solely by the sun's energy. No energy storage devices (e.g. flywheel battery, etc.) may be used in conjunction with the solar panel.
8. If the sun's energy is judged insufficient, a battery pack will be furnished for each race. Motor power leads should be readily accessible for easy attachment to a battery pack.

9. The vehicle will be steered via a guide wire that runs the length of the track (typically fishing line). The vehicle must be attached to the guide wire by a minimum of 1 attachment point. The vehicle must be easily attached (and removed) from the wire without disconnecting the guide wire.

10. The vehicle must be of student's own design and manufacture from the current school year; no car or major part thereof from a previous year shall compete. Each team from a given school must have a unique car design.

The Race Track

11. The race lane is 60 cm. wide and 20 meters long. The track is a hard flat surface such as an asphalt tennis court or running track. The track can be oriented in any direction (e.g. North-South, East-West, etc.)

12. The guide wire will be located in the center of the lane. The wire will be no higher than 1.5 cm. above the track surface. The wire will be small diameter line, such as fishing line (e.g. 60# test monofilament). There will be no free end on the guide wire, thus the cars must be hooked into the wire, not strung onto it.

Conduct of the Race

13. The races will be run in a double elimination format. Thus you will have a minimum of two opportunities to race before you are eliminated from competition.

14. Only two members of the race team will be allowed on the track during the race: one at the starting line and one at the finish line. A non-team member may act as a catcher if necessary. Student non-team members will be chosen over adult non-team members if possible.

15. Each vehicle must have an assigned student team captain. No student shall be assigned team captain to more than one vehicle. No team shall consist of more than four students.

16. The vehicle will start from behind the starting line with all wheels touching the track. The solar panel will be covered by an opaque sheet, which will be held above the panel by a member of the race team to block the sunlight. The vehicle should not be touched by the sheet or by any member of the team at this time. When the line judge gives the signal to start the race the team member will remove the sheet so the panel will be exposed to the sunlight.

17. There will be a 5-minute time limit to prepare your vehicle to race in your lane. This should be sufficient time to attach the vehicle to the guide wire. The race will start at the end of this time limit regardless of whether the vehicle is ready to compete.

18. Once the race has begun team members are not allowed to touch their vehicle or be on the race lanes until their vehicle has crossed the finish line and the judges have

determined the heat completed. Pushing the vehicle after the race has begun may result in disqualification or a re-run of the race.

19. Any car that leaves its lane will be disqualified from the heat in question. However, the offending vehicle may compete in its second trial if not having done so already. If the car leaving its lane interferes with any other cars those cars whose run was interfered with will be allowed an additional opportunity to run.

20. Loss of payload during a race will result in disqualification from the heat in question. However, the offending vehicle may compete in its second trial if not having done so already. If the loss of payload interferes with any other cars those cars whose run was interfered with will be allowed an additional opportunity to run.

21. Winner of a heat will be the first vehicle to cross the finish line or the vehicle to travel the farthest down the track. Generally speaking, the top two finishers will advance to the next heat. In the event of a tie, the judges may determine multiple winners, and admit additional cars to advance to the next round of competition.

22. Awards will be given for speed and technical merit.

Advancement from Area to Regional Competition

23. Only level one contestants may advance to the regional competition

Mouse Trap Vehicle

On-Site Judging

OVERVIEW: TSA of New York students entering the Tehnological Systems event are required to design, draw, and build a moustrap powered vehicle to demonstrate their knowledge of Technology and the principles of energy transfer.

EVENT COORDINATOR: Bruce Salisbury sbcs@wmconnect.com

I. CONTEST PURPOSE: To provide a means for TSA members to demonstrate their ability to design and construct a working vehicle within a set of specifications.

II. ELIGIBILITY FOR ENTRY: 3 entries per chapter.

III. LEVELS OF COMPETITION: Level I and II.

IV. TIME LIMITATIONS: 8 minutes

V. SPECIFIC REGULATIONS:

- A. Entries must be designed and constructed by the student. Contestants may enter only one vehicle that has been designed and constructed during the current TSA of New York year. NO KITS.
- B. Only one standard mousetrap (single spring 5x10cm) may be used. Although it may be altered, no alteration to the energy-storing capacity (the spring) is allowed. The "vehicle" must be a self contained unit and move as a whole.
- C. The total energy used by the vehicle at the start of the race must come from only the mousetrap spring. While other energy storage is permissible it must be powered up by the mousetrap. (Ex. a rubber band could be used in the vehicle but must not be stretched or twisted at the beginning of the race.
- D. The race will be on a smooth surface.
- E. Drawings: Every entry must submit a full size or scaled drawing of the completed vehicle. A two-view (top and side) drawing with English standard dimensions shall be made on paper no larger than B size with a border and title block as illustrated in the title border section. Drawings should be developed using standard engineering practices and procedures. The drawings may be produced using traditional drafting methods or CADD. Copies of drawings are acceptable.
- F. Technical report: Explanation of overall design consideration and materials used to construct the vehicle. Must include theory(s) of energy transfer and a description of the launch techniques that should be employed to ensure a successful run. Drawings and diagrams may be used to supplement the report.

VI. PROCEDURE:

- A. Students will enter the competition before the registration deadline.
- B. When it is the students' turn, they will place the loaded vehicle with the spring

centered on the starting line and release it. It must be started by the normal release mechanism of the mousetrap. (No push may be given to the vehicle by the student).

- C. The student will be given two trial runs, with the average score of travel distance and travel time being used for the judging. If the student cannot get the vehicle in operation within a reasonable time (2minutes), that trial will be scored a zero for the distance traveled and a minus 120 points for travel time.

VII. REQUIRED CONTEST PERSONNEL/ EQUIPMENT:

- A. Contest Coordinator
- B. Three judges
- C. Rating sheets for the judges
- D. Two stop watches
- E. 100' Tape measure
- F. Smooth surface (corridor, gym floor)

VIII. CRITERIA FOR JUDGING:

- A. Design 10 points
- B. Drawing 30 points
- C. Construction 30 points
- D. Technical Report 20 points
- E. Distance Unlimited points
- F. Travel time Limited to minus 120 points
- TOTAL Unlimited points

NOTE:

Distance, the point the vehicle stops moving (3 points per foot, measured to the nearest inch. Distance will be measured perpendicular to the starting line to the center of the spring).

Travel time (minus 1 point per second, measured to the 0.01 second. Timing will be from the instant of trigger release to the instant the vehicle ceases motion).

Prepared Presentation
On-Site Judging

Overview	No change
Purpose:	No change
Eligibility:	Unlimited
Time Limits:	No change
Procedures:	No change
Regulations:	C: No heats. Delete D – F.
Evaluation:	No change
Coordinator:	Clark Greene greenecw@buffalostate.edu

Promotional Graphics
On-Site Judging

Overview	No change
Purpose:	No change
Eligibility:	2 per chapter
Time Limits:	No change
Procedures:	Delete C.
Regulations:	No change
Evaluation:	No change
Coordinator:	Tom Kubicki kubicki@oswego.edu

Structural Engineering
On-Site Judging

Overview	Prepared prior to conference
Purpose:	No change
Eligibility:	Two teams of two per chapter
Time Limits:	Delete B and C. Bridge built prior to conference.
Procedures:	Delete B, C, E – K, M.
Regulations:	Delete A. All bridges are completed prior to conference. Delete B - D. Sketch is completed prior to conference E: Length of bridge is 12” span is 10” Delete F 2.
Evaluation:	No change
Coordinator:	Rob Clark robclarkjets@earthlink.net

System Control Technology
On-Site Judging

Overview	No change
Purpose:	No change
Eligibility:	3 teams of 3 per chapter
Time Limits:	2 hours total
Procedures:	C and D: the entire event will take 2 hours.
Regulations:	No change
Evaluation:	No change
Coordinator:	David Buchner dbuchner31@hotmail.com

Technical Research and Report Writing
On-Site Judging

This is a NYSERDA-sponsored event

Overview	NYS topic: “What are the benefits and concerns of increasing our production of electricity with nuclear energy?”
Purpose:	No subtopic research question.
Eligibility:	Unlimited
Time Limits:	No change
Procedures:	A: No subtopic Delete C, D E: 4 pages* Delete G.
Regulations:	A: No subtopic E: 4 pages All papers become property of NYSERDA and NYSTSA
Evaluation:	No change
Coordinator:	TBD

Technical Sketching and Applications
On-Site Judging

Overview	No written test, and no finalists.
Purpose:	No change
Eligibility:	3 per chapter
Time Limits:	Delete A. B: No finalists, all participants
Procedures:	Delete B and C. D: No finalists; all participants
Regulations:	A: No answer sheet. A – C: All participants
Evaluation:	Delete A. B: Placement is determined by sketch only.
Coordinator:	Tom Kubicki kubicki@oswego.edu

Technology Systems

On-Site Judging

This is a NYSERDA-sponsored event

* Use the **2005-2006** *High School Technology Activities, The Official TSA Competitive Events Guide*, for detailed specifications and rules for this event.

Overview	Students, as an individual or team of two, will create an interactive display that instructs the public about a topic in energy relating to one of the following energy applications: agriculture, housing or transportation.
Purpose:	No change
Eligibility:	3 teams of 1 or 2 per chapter
Time Limits:	Must be completed during the school year. Delete B.
Procedures:	B: No finalists Delete: C and D
Regulations:	Delete I. Project becomes the property of NYSERDA and NYSTSA
Evaluation:	No interview or presentation
Coordinator:	NYSERDA

Technology Problem Solving
On-Site Judging

Overview	No change
Purpose:	No change
Eligibility:	3 teams of 2 per chapter
Time Limits:	No change
Procedures:	D: Repeatability testing: coordinator's discretion.
Regulations:	No change
Evaluation:	No change
Coordinator:	Scott Breigle Sbreigle@icsd.k12.ny.us

Registration Forms

Complete and Mail with
payment to:

Evie Weinstein
376 Brooktondale Rd
Brooktondale, NY 14817

Cost

Post marked before March 1st

\$25 per student

After March 1st

\$30 per student

Make Checks Payable to: NYSTSA
No credit cards or purchase orders accepted