The West Virginia TSA High School Competitive Events Guidelines will adhere to the National TSA Competitive Events Guidelines with the following exceptions:

Guidelines - General Rules for State Competition
WV Creed Recital
WV Water Bottle Rocket
WV Flip Book
WV Safety Poster
WV Mouse Trap
WV Tech Sketch

WV Solar Sprint
WV Logo Contest
WV STEM Challenge
WV Catapult
WEST VIRGINIA TSA COMPETITIVE EVENTS

GENERAL RULES

I. The approved High School competitive events for West Virginia are:

A. Individual Entries:

<table>
<thead>
<tr>
<th># of Entries in WV</th>
<th>Name of Contest</th>
<th># Reps National Conference</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>CAD Architecture</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>CAD Engineering</td>
<td>1</td>
</tr>
<tr>
<td>Unlimited</td>
<td>Dragster Design</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Essays on Technology</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Extemporaneous Speech</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Future Technology Teacher</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Photographic Technology</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Prepared Presentation</td>
<td>1</td>
</tr>
<tr>
<td>Unlimited</td>
<td>Promotional Design</td>
<td>1</td>
</tr>
<tr>
<td>Unlimited for test</td>
<td>Technology Bowl Written</td>
<td>0</td>
</tr>
<tr>
<td>Unlimited</td>
<td>Transportation Modeling</td>
<td>1</td>
</tr>
</tbody>
</table>

B. Team Entries:

<table>
<thead>
<tr>
<th># of Entries in WV</th>
<th>Name of Contest</th>
<th># Reps National Conference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unlimited</td>
<td>Forensics</td>
<td>2</td>
</tr>
<tr>
<td>3 teams of 2+</td>
<td>Biotechnology Design</td>
<td>2</td>
</tr>
<tr>
<td>1 team of 6</td>
<td>Chapter Team</td>
<td>6</td>
</tr>
<tr>
<td>3 teams of 1-3</td>
<td>Board Game Design</td>
<td>2</td>
</tr>
<tr>
<td>2 teams of 1-3</td>
<td>Children Stories</td>
<td>2</td>
</tr>
<tr>
<td>2 teams of 2</td>
<td>Debating Technological Issues</td>
<td>2</td>
</tr>
<tr>
<td>3 teams of 3-5</td>
<td>Engineering Design</td>
<td>3</td>
</tr>
<tr>
<td>3 teams of 2-4</td>
<td>Fashion Design and Technology</td>
<td>3</td>
</tr>
<tr>
<td>3 teams of 2</td>
<td>Structural Design and Engineering</td>
<td>2</td>
</tr>
<tr>
<td>Unlimited team of 3</td>
<td>System Control Technology</td>
<td>3</td>
</tr>
<tr>
<td>1 team of 3</td>
<td>Technology Bowl Oral</td>
<td>3</td>
</tr>
<tr>
<td>1 teams of 2</td>
<td>Technology Problem Solving</td>
<td>2</td>
</tr>
<tr>
<td>4 teams of 2+</td>
<td>Video Game Design</td>
<td>2</td>
</tr>
<tr>
<td>2 team 3-5</td>
<td>Webmaster</td>
<td>3</td>
</tr>
<tr>
<td>2 teams of 1-3</td>
<td>Coding</td>
<td>2</td>
</tr>
<tr>
<td>3 teams of 2</td>
<td>3D Animation</td>
<td>2</td>
</tr>
<tr>
<td>3 teams of 3-5</td>
<td>VEX</td>
<td>3</td>
</tr>
</tbody>
</table>
C. Chapter Entries:

<table>
<thead>
<tr>
<th># of Entries for WV</th>
<th>Name of Contest</th>
<th># Reps National Conference</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Teams 2-3</td>
<td>Animatronics</td>
<td>2</td>
</tr>
<tr>
<td>2 Teams</td>
<td>Architectural Renovation</td>
<td>1</td>
</tr>
<tr>
<td>2 Teams</td>
<td>Digital Video Production</td>
<td>1</td>
</tr>
<tr>
<td>4 Teams</td>
<td>CIM</td>
<td>2</td>
</tr>
<tr>
<td>3 Teams</td>
<td>Music Production</td>
<td>1</td>
</tr>
<tr>
<td>1 Team</td>
<td>On Demand Video</td>
<td>3</td>
</tr>
<tr>
<td>3 Teams</td>
<td>Software Development</td>
<td>2</td>
</tr>
<tr>
<td>3 Teams</td>
<td>SciVis</td>
<td>2</td>
</tr>
<tr>
<td>2 Teams</td>
<td>Cyber Security</td>
<td>2</td>
</tr>
<tr>
<td>2 Individual</td>
<td>Flight Endurance</td>
<td>1</td>
</tr>
</tbody>
</table>

D. State Only Events (Not Receiving Funds for Nationals)

<table>
<thead>
<tr>
<th># of Entries for WV</th>
<th>Name of Contest</th>
<th># Reps National Conference</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Creed Recital</td>
<td>0</td>
</tr>
<tr>
<td>Unlimited Teams of 2</td>
<td>Bottle Rocket Vehicle</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Technology Sketch</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Mouse Trap Cars</td>
<td>0</td>
</tr>
<tr>
<td>Unlimited</td>
<td>Safety Poster</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Solar Sprint</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Flip Books</td>
<td>0</td>
</tr>
<tr>
<td>Unlimited</td>
<td>Logo Contest</td>
<td>0</td>
</tr>
<tr>
<td>Unlimited</td>
<td>Catapult</td>
<td>0</td>
</tr>
<tr>
<td>Teams of 3-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 teams of 2</td>
<td>Stem Challenge</td>
<td>0</td>
</tr>
</tbody>
</table>

II. Levels of Competition

A. The following breakdown of grades is used as a basis for competitive event entries:

1. High School - Grades 6, 7, 8, 9*
2. High School - Grades 9*, 10, 11, 12

*Ninth-graders must compete at the level in which the chapter affiliates. For example, if the ninth grade is housed in a high school (9-12), the student must compete at Level II. If the ninth grade is housed at a (6-9 or 7-9) school, the ninth grade student must compete at Level I. If the school has a 1-12 or another configuration other than the examples above, call the State TSA Office to obtain the appropriate level for the ninth grade to compete.

B. Team or chapter events will enter the appropriate Division, according to official school classification.
III. Participation

A. Students and advisors must be dues paying members and registered at the State Conference in order to enter a competitive event (e.g., displays, Dragster Design, etc.).

B. WV TSA members, advisors and chapters must be in good standing with WV TSA in order to enter any competitive event.

C. Contestants are entitled to have only one (1) entry per event. (i.e. only one Dragster, etc.)

D. A contestant entry must be self-designed and/or constructed during the current TSA year and not previously entered in any TSA competition.

E. Conference participants may enter a maximum of six (6) competitive events.

IV. Special Rules or Changes to National Events for West Virginia Events:

A. Webmaster: The URL for the chapter’s entry must be e-mailed to webentry@wvtsa.org and send an email to wvtsaadvisor@hotmail.com, also to assure that the entry is received please place a copy of your link in the folder in the group TSA Advisor. Labeled WEBSITE Entries: by midnight on March 1. The web site must be finished and accessible by that time, and no changes can be made after that time.

B. Video Game Design: The URL for the entry must be e-mailed wvtsaadvisor@hotmail.com, also to assure that the entry is received please place a copy of your link in the folder in the group TSA Advisor. Labeled video game design: by midnight on March 1. The game must be finished and accessible by that time, and no changes can be made after that time.

V. Participation

A. It is the intent of West Virginia TSA to involve as many different West Virginia TSA members as possible for competitive events and recognition, using fair-play practices and guidelines.

B. In the event a question or problem should arise that has not been covered in the "General Rules" or the individual competitive event guidelines, the State Advisor will render a decision for the conference.

C. Should a conflict develop that prevents a member from participating in more than one event, the contestant will decide which contest entry will be eliminated.

D. It will be the individual responsibility of all contestants to obtain all rules and guidelines for concerned events. Lack of knowledge or understanding about a particular event will not be reason or excuse for individual change or adjustment consideration.

E. There will be a general briefing at the beginning of each contest concerning the rules and logistics of that particular event. The contestants must be present at the appointed time and place in order to be entered in that particular contest. (Failure to do so may disqualify participation in that event.)

F. Entry blanks for participation in competitive activities must be submitted to the State Advisor by the deadline established by the State Advisor. The 2018 deadline is March 16 at midnight.
G. Contestants must work independently, without assistance from judges, teachers, fellow students or observers. Participants may be disqualified for receiving such assistance.

H. Cameras and recording devices will not be allowed in any contest area without the consent of the contest chairperson.

I. Decisions of the judges will be final. Final interpretations of all contest rules will be made by the State.

J. Any participants who violate the rules will either have 20 points deducted or be disqualified at the judge’s discretion. Judges must inform event coordinator of the rules violation or disqualification, and the reason should be noted on the supplied sheet.

K. Contest concerns for any event should be submitted in writing to the West Virginia Technology Student Association, PO Box 789 Moundsville WV 26041

L. Conference Dress Code

1. Chapter advisors are responsible for seeing that all delegates wear appropriate dress for conference activities and events. From the first scheduled TSA activity throughout the conference, all registrants shall adhere to the dress code requirements as listed in the Events Guidelines.

2. Students are allowed to dress more formally than required, but students that are dressed LESS formally than specified in the event rules will be allowed to compete, but will lose twenty (20) points.

**Official TSA Attire** (most formal)
- Blazer: navy blue with TSA patch
- Ties: scarlet red with TSA logo (men only)
- Shirt or blouse: official blue TSA shirt or white dress shirt, with collar
- Pants or skirt: light gray
- Shoes: black dress shoes (athletic shoes, army boots, work boots, or open-toed shoes are NOT acceptable)
- Dark socks: men only

**Professional Attire** (less formal)
- Shirt or blouse: button-up with turn-down collar (t-shirts and polo/golf shirts are NOT acceptable)
- Tie: men only
- Dress pants: jeans, baggy pants, pants with exterior pockets are NOT acceptable
- Dresses or skirts: length must be at least even with the tips of one’s fingers
- Dark socks: black or dark blue (men only)
- Shoes: dress shoes or dress boots (athletic shoes, army boots, work boots, or open-toed shoes are NOT acceptable)

**Casual Attire** (least formal)
Same as professional attire described above except that the shirt or blouse can be a polo or golf shirt.
3. Casual TSA dress or chapter T-shirts will be acceptable attire during the mixers and chapter meetings.

4. **NOTE:** Due to the environment at Cedar Lakes, neat, clean athletic shoes will be allowed, if the weather is bad. Realize, though that this is not allowed on the National level.

5. Registrants must wear conference identification badges at all times!
Creed Recital

OVERVIEW

The purpose of the Creed contest is to provide a means for NEW TSA members to demonstrate their ability to recite the TSA Creed.

ELIGIBILITY FOR ENTRY

Entries are limited to three (3) first year individuals per chapter. Membership at the Middle School level disqualifies participants from this event.

TIME LIMITATIONS

While this is not a "timed" event, each contestant will be given adequate time to recite the Creed.

ATTIRE

Official or Professional attire as described in General Information is the minimum requirement.

SPECIFIC REGULATIONS

A. The contest coordinator will introduce the contestant by entry number only. The contestant may begin by saying, "The Technology Student Association Creed..."

B. No written material or notes may be used.

C. All entries must submit a LEAP resume.

PROCEDURES

A. Registration - Contest participants must register for the event in accordance with procedures established for each conference.

B. Contest participants should assemble in the general area of the contest prior to time designated for the contest.

CRITERIA FOR JUDGING

A. Each judge will complete, without consultation, a rating sheet for each entry. The rating sheet points for oral competition will be assigned based on the number of words missed in each paragraph.

B. Scoring: For the six paragraphs there are 168 points. One (1) point for each word. Should a contestant fail to say the word he or she will lose a point. There will be 32 points for clarity, projection and force of speech. Total possible score will be 200 points.

C. The contestant may say a word wrong or may use a different word, but will be penalized for it.

D. When a contestant says a paragraph out of order, he/she will be notified at the end of the paragraph, so that if he/she realize their mistake, they can go back and correct it with the loss of only 10 points.

E. Points awarded will be totaled and the sheet given to the contest coordinator.

F. In case of a tie, the judges shall consult each other to ascertain the winner.
G. All judges' ratings and results are to remain confidential.

H. The official version of the Creed to be used for competition is as follows:

<table>
<thead>
<tr>
<th>The TSA Creed</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe that Technology Education holds an important place in my life in the technical world. I believe there is a need for the development of good attitudes concerning work, tools, materials, experimentation, and processes of industry.</td>
</tr>
<tr>
<td>Guided by my teachers, artisans from industry, and my own initiative, I will strive to do my best in making my school, community, state, and nation better places in which to live.</td>
</tr>
<tr>
<td>I will accept the responsibilities that are mine. I will accept the theories that are supported by proper evidence. I will explore on my own for safer, more effective methods of working and living.</td>
</tr>
<tr>
<td>I will strive to develop a cooperative attitude and will exercise tact and respect for other individuals.</td>
</tr>
<tr>
<td>Through the work of my hands and mind, I will express my ideas to the best of my ability.</td>
</tr>
<tr>
<td>I will make it my goal to do better each day the task before me, and to be steadfast in my belief in my God, and my fellow Americans.</td>
</tr>
<tr>
<td>EVALUATION CRITERIA</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>1st paragraph................................37 pts.</td>
</tr>
<tr>
<td>max.</td>
</tr>
<tr>
<td>2nd paragraph..................................32 pts.</td>
</tr>
<tr>
<td>max.</td>
</tr>
<tr>
<td>3rd paragraph..................................34 pts.</td>
</tr>
<tr>
<td>max.</td>
</tr>
<tr>
<td>4th paragraph..................................17 pts.</td>
</tr>
<tr>
<td>max.</td>
</tr>
<tr>
<td>5th paragraph..................................19 pts.</td>
</tr>
<tr>
<td>max.</td>
</tr>
<tr>
<td>6th paragraph..................................29 pts.</td>
</tr>
<tr>
<td>max.</td>
</tr>
<tr>
<td>Clarity Enunciation................................7 pts.</td>
</tr>
<tr>
<td>max.</td>
</tr>
<tr>
<td>Projection &amp; Force................................10 pts.</td>
</tr>
<tr>
<td>max.</td>
</tr>
<tr>
<td>Poise (Confidence, body control, posture)................5 pts.</td>
</tr>
<tr>
<td>max.</td>
</tr>
<tr>
<td>Personal Appearance, Grooming, Appropriate attire........10 pts.</td>
</tr>
<tr>
<td>max.</td>
</tr>
<tr>
<td>Rules Violation..........Minus 20 pts.</td>
</tr>
<tr>
<td>Total.........................................200 pts. max.</td>
</tr>
</tbody>
</table>

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

Evaluator's Signature
State Event Bottle Rocket
Participants construct an aerodynamic soda bottle using various materials and then compete against one another by having the bottles launched by means of pressurized water.

Rules:
Entries: Participants will construct one bottle rocket prior to date of event.

Materials: Maximum of one 20 ounce soda bottle, super glue, construction paper, cardboard, poster board, tape, string, plastic bag, funnel, sand, grocery bag.

Teams: Each chapter may register up to unlimited Teams of 2

Restrictions: No Hot Glue, No Holes in Bottles

Competition: Rockets will be turned in during the competitive events turn in period specified in the conference program. Rockets will be prejudged and any rocket that doesn't pass inspection will not be launched. Included with the rockets should be the documentation in portfolio format to the following questions *Bottle Rockets and Propulsion Worksheet*

10. Test fly Design 2 three times and record the actual altitude it attains each time. (a) (b) (c)

11. What is the difference between your prediction and the actual altitude? (a) (b) (c)

12. What is the difference in altitude attained between the "best" altitude attained for Design 1 and Design 2?

13. Compose one paragraph in an email giving details on how you decided on your final rocket design. Justify your ideas. Describe the differences in Design 1 and 2 and how they affected your rocket’s performance. Include the paragraph in your design portfolio

Judging will be based upon flight time and height of launched bottle rocket. Flight time will be defined as the amount of time between launch and landing of the rocket.

Point System:
30 points Portfolio
15 points Uniqueness of Design
15 points for working parachute
40 points for Flight Time
Flip Book Competition

Overview:
A flip book or flick book is a book with a series of pictures that vary gradually from one page to the next, so that when the pages are turned rapidly, the pictures appear to animate by simulating motion or some other change. For this contest, participants will create a flip book which represents the announced theme.

Eligibility:
Contest is an individual event open to both middle and high school TSA student members. Limit of 5 individuals per chapter.

Time Limit:
Students are given a one hour time limit to create their flip book and submit for judging.

Specific Regulations:
No pre-designed or templet designs. All pages are to be hand drawn. Each flip book will consist of 20 pages (each is ½ of standard index card).

Attire:
TSA competition attire is required for this event.

Procedures:
A. Students reported to the designated area for the event.
B. Coordinator will distribute materials and announce topic/theme.
C. Students will work independently to create their flip book. Color is permitted but not mandatory.
D. At the end of the allotted time period, or when complete, students will submit their project for judging.

Criteria for judging:
A. Each judge will complete, without consultation, a rating sheet for each entry.
B. Refer to the official rating form for more information.
# Flip Book Judging Rubric

## Go/No Go
- □ 20 Pages (bound)

## Rubric

<table>
<thead>
<tr>
<th></th>
<th>10-8</th>
<th>7-5</th>
<th>4-0</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theme</strong></td>
<td>There is a thorough communication of the given theme.</td>
<td>There is a clear communication of the given theme.</td>
<td>Limited or no correlation with the given theme.</td>
<td></td>
</tr>
<tr>
<td><strong>Aesthetics</strong></td>
<td>The project is extremely clean and neat in presentation</td>
<td>The project is clean and neat.</td>
<td>Project is not neat or contains lots of smudging.</td>
<td></td>
</tr>
<tr>
<td><strong>Illustrations</strong></td>
<td>Illustrations are unique, well created, and very clearly communicate the idea of the project</td>
<td>Illustrations are unique and clearly communicate the idea of the project</td>
<td>Illustrations do not clearly illustrate the idea and/or are not well created</td>
<td></td>
</tr>
<tr>
<td><strong>Flow</strong></td>
<td>The design allows for excellent flow and movement through the project.</td>
<td>The design flows easily through the project with limited disruption in movement.</td>
<td>Large amount of disruption in movement and limited flow.</td>
<td></td>
</tr>
<tr>
<td><strong>Impact (x2)</strong></td>
<td>The overall impact of the project exceeds expectations and strongly communicates the overall purpose of the project.</td>
<td>The overall impact of the project meets expectations and communicates the purpose of the project.</td>
<td>The overall impact of the project does not meet expectations and communicates the purpose of the project very little.</td>
<td></td>
</tr>
</tbody>
</table>

Total (out of 60): ______________

Judge Signature: ____________________________

Comments:

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**Safety Poster Competition**

**Overview:**

[Image of a flip book with text and graphics]
The purpose of the Safety Illustration event is to provide a means for TSA members to demonstrate their ability to recognize safety needs and to communicate a safety message in visual form. A LEAP Resume is required.

**Eligibility:**
Contest is an individual event open to both middle and high school TSA student members. Unlimited entry

**Time Limit:**
Students are given a one hour time limit to create their Safety Poster and submit for judging.

**Specific Regulations:**
No pre-designed or templet designs. All posters are to be hand drawn and done onsite during event. A LEAP Resume is required

**Attire:**
TSA competition attire is required for this event.

**Procedures:**
A. Students reported to the designated area for the event.
B. Coordinator will distribute materials and announce topic/theme.
C. Students will work independently to create their Poster. Color is permitted but not mandatory.
D. At the end of the allotted time period, or when complete, students will submit their project for judging.

**Criteria for judging:**
A. Each judge will complete, without consultation, a rating sheet for each entry.
B. Refer to the official rating form for more information.
## Safety Poster Judging Rubric

### Go/No Go

- **LEAP**

### Entrant's ID

<table>
<thead>
<tr>
<th>EVALUATION CRITERIA</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Appeal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creativity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neatness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEAP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total ______________ out of 70

Judge Signature: ___________________________
Mousetrap Vehicle

OVERVIEW

The Mousetrap Vehicle event provides an opportunity to use critical thinking skills in developing a solution to a specific problem in transportation technology.

ELIGIBILITY FOR ENTRY

Entries are limited to five individual entries per chapter. See "General Rules" for additional information.

ATTIRE

Official TSA Attire

LIMITATIONS

A. This problem focuses on the design and construction of an experimental self-propelled vehicle powered by a Victor mousetrap. The mousetrap must remain as purchased. This means that the trap base and spring cannot be altered in any way. The only acceptable alteration to the trap itself will be an extension of the trap bar.

1. The spring must remain on the trap.
2. The spring cannot be wound tighter.
3. The use of rubber bands, elastic cords, or other springs that are directly related to the movement of the trap bar will not be allowed. The original trap bar will be the only power mechanism for the vehicle.
4. It is permissible to use glue or mechanical fasteners to adhere the base of the vehicle.
5. The use of gear assemblies in the drive train to provide additional mechanical advantage will be allowed.

SPECIFIC REGULATIONS

A. The frame and wheels must be made from materials the contestant has designed and assembled. Commercially made materials will not be accepted. However, the student may engineer the frame and wheels from a variety of materials or everyday products. Materials would be such that they could be shaped, formed, or molded into parts that can be used as wheels. Examples would be:

1. Acceptable materials: Paper, wood, or cardboard, Small cans, Stereo records, Rubber balls
2. Non-acceptable materials: Metric 500 or model kit wheels (commercially made wheels), Plastic model kit frames.

B. The vehicle should be designed to run on a wood, tile, or concrete floor. The type of floor used during the competition will be announced at the contest. Therefore, all vehicles need to be ready to compete on any of these surfaces.

C. Overall dimensions of the vehicle shall not exceed:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>24 inches (with trap bar extended)</td>
</tr>
<tr>
<td>Width</td>
<td>12 inches</td>
</tr>
<tr>
<td>Height</td>
<td>18 inches (from the floor to the highest arc of the trap bar or any other portion of the vehicle.)</td>
</tr>
</tbody>
</table>
D. The track will be eight feet wide. If the vehicle leaves the confines of the track, the distance will be marked where any part of the vehicle leaves the track boundary. The vehicle should be designed to stay within the eight-foot track lane. The distance the vehicle travels will be measured from the starting line to the front of the vehicle.

E. The students will not be allowed to remove, alter, or modify their vehicle in any way after the vehicle has been registered. Any vehicles damaged during the race will be judged by the contest coordinator to determine if the vehicle was damaged by conference personnel or by design fault. A ruling as to whether or not the vehicle will be held from further competition or repaired by the student will be made at this time.

F. Students will be allowed to handle their vehicles at the beginning of the race. They will be allowed to set the trap and place the vehicle down behind the starting line. A designated judge for the contest will release the vehicle at the designated starting time. The distance traveled will be measured and the vehicle removed from the track by conference personnel.

G. Once the vehicle is set in motion, it cannot be remotely controlled or touched until it has come to rest for at least five seconds when the run will then be concluded.

PROCEDURE

A. Registration - Contest participants must register for the event in accordance with procedures established for the conference.

B. Contestants must have their mousetrap vehicle checked into the judging room as specified in the conference program before the published deadline.

C. Contest participants must assemble in the general area of the contest prior to the time designated for the contest.

CRITERIA FOR JUDGING

A. The vehicle will run two races with points for both distances being recorded for competition.

B. Students will receive .3 point per foot traveled. Any portion of a foot under 6” will not be counted. Any portion of a foot over 6” will be given the .3 point.

C. LEAP Resumes must be submitted by all participants.
### WV TSA MOUSETRAP VEHICLE - HIGH SCHOOL OFFICIAL RATING FORM

## E. ENTRANT'S ID

### EVALUATION CRITERIA

| Appearance ............... 10 pts. max. | S. | T. | U. | V. | W. | X. | Y. | Z. | AA | BB |
| Workmanship ............. 5 pts. | | | | | | | | | | |
| Aesthetics ............... 5 pts. | | | | | | | | | | |

| Technical Creativity .. 30 pts. max. | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN |
| | | | | | | | | | | |

| Race ..................... 60 pts. max. | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA |
| 1st race | | | | | | | | | | |
| 2nd race | | | | | | | | | | |

| Rule Violation .......... Minus 20 pts. | CCC | DDD | EEE | FFF | GGG | HHH | III | JJJ | KKK | LLL |
| | | | | | | | | | | |

| Race ..................... 100 pts. max. | OOO | PPP | QQQ | RRR | SSS | TTT | UUU | VVV | WW | XX |
| | | | | | | | | | | |

### YYY.

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

AAAA.

DDDD. Evaluator's Signature
Logo Competition

Overview:
A logo is a graphic mark, emblem, or symbol used to aid and promote public identification and recognition. It may be of an abstract or figurative design or include the text of the name it represents as in a wordmark. For this contest, participants will create a black and white logo which represents the announced theme. All entries require a LEAP RESUME.

Eligibility:
Contest is an individual event open to both middle and high school TSA student members. Unlimited individuals per chapter.

Time Limit:
Students are given a one hour time limit to create their logo and submit for judging.

Specific Regulations:
No pre-designed or template designs. Designs are to be created onsite. All pages are to be hand drawn. All designs are to be a min of 3”X5” and a Max of 10”X8”
A LEAP Resume is required.

Attire:
TSA competition attire is required for this event.

Procedures:
E. Students reported to the designated area for the event.
F. Coordinator will distribute materials and announce topic/theme.
G. Students will work independently to create their logo design.
H. At the end of the allotted time period, or when complete, students will submit their project for judging.

Criteria for judging:
C. Each judge will complete, without consultation, a rating sheet for each entry.
D. Refer to the official rating form for more information.

Logo Design Judging Rubric

Go/No Go
- Black and White
- Meets Size Requirements (a min of 3”X5” and a Max of 10”X8”)

<table>
<thead>
<tr>
<th>Rubric</th>
<th>10-8</th>
<th>7-5</th>
<th>4-0</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme</td>
<td>There is a thorough communication of the given theme.</td>
<td>There is a clear communication of the given theme.</td>
<td>Limited or no correlation with the given theme.</td>
<td></td>
</tr>
<tr>
<td>Aesthetics</td>
<td>The project is extremely clean and neat in presentation</td>
<td>The project is clean and neat.</td>
<td>Project is not neat or contains lots of smudging.</td>
<td></td>
</tr>
<tr>
<td>Illustrations</td>
<td>Illustrations are unique, well created, and very clearly communicate the idea of the project</td>
<td>Illustrations are unique and clearly communicate the idea of the project</td>
<td>Illustrations do not clearly illustrate the idea and/or are not well created.</td>
<td></td>
</tr>
<tr>
<td>Impact (x2)</td>
<td>The overall impact of the project exceeds expectations and strongly communicates the overall purpose of the project.</td>
<td>The overall impact of the project meets expectations and communicates the purpose of the project.</td>
<td>The overall impact of the project does not meet expectations and communicates the purpose of the project very little.</td>
<td></td>
</tr>
<tr>
<td>LEAP (x2)</td>
<td>The team’s efforts are clearly communicated, fully-detailed, and convincing; identification and/or incorporation of the SLC Practices and Behaviors is excellent.</td>
<td>The team’s efforts are adequately communicated, include some detail, are clear, and/or are generally convincing; identification and/or incorporation of the SLC Practices and Behaviors is adequate.</td>
<td>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 SLC Practices and Behaviors.</td>
<td></td>
</tr>
</tbody>
</table>

Total (out of 70): ___________________

Judge Signature: ____________________

Tech Sketch Competition
Overview:
Participants demonstrate their ability to solve on-site engineering graphics problems using standard drafting techniques.
Participants have the opportunity to analyze and interpret engineering graphic specifications, use accurate drafting terminology, and use standard sketching, drafting, and problem solving techniques to solve engineering graphic problems.
A LEAP Resume is required
Attire:
Business Casual dress as described in Competitive Events Attire is the minimum requirement.
Procedure:
A. Participants report to the event area at the time and place stated in the conference program.
B. The judge/coordinator will distribute materials and the give general instructions
C. Once presented with the problem, student will have one and a half hours to complete the given challenge and submit it for judging
D. The contestants challenge will be assigned as such:
   a. High School- participates will create a 1:1 scale isometric drawing utilizing the information obtained from the given multi-view drawing. The finished product is to include proper dimensioning and drafting annotation as needed/required.
   b. Middle School- Participates will create a 1:1 Scale Multiview drawing from a given isometric drawing. The finished product is to include proper dimensioning and drafting annotation as needed/required.
E. Participates may bring no materials or equipment to the contest and are not permitted to leave the contest area once the competition has begun.
F. At the end of the allotted time period, or when complete, students will submit their project for judging.
# Tech Sketch Judging Rubric

| Go/No Go | □ LEAP |

<table>
<thead>
<tr>
<th>Team ID#</th>
</tr>
</thead>
</table>

| Aesthetics  
          10 pts max |
| --- |

| Line quality  
           10 pts max |
| --- |

| Accuracy of  
 solution and  
 layout  
           10 pts max |
| --- |

| Dimensioning accuracy  
                      10 pts max |
| --- |

| LEAP  
         10 pts max |
| --- |

Final Score: 

| Total (out of 50): ______________ |

Judge Signature: ____________________________

Comments: ____________________________
OVERVIEW

Students who have been randomly paired [one (1) team of two (2) students from one school with a team of two (2) students from another school, in order to form one (1) team of four (4) members at the conference] must demonstrate creativity and communication skills by building a structure and then replicating it through the use of text messaging.

PURPOSE

Participants demonstrate the ability to work together in teams of randomly paired students in order to build and replicate a structure using limited communication.

ELIGIBILITY

Participants are limited to two (2) teams, of two (2) members each, per chapter.

TIME LIMITS

A. The randomly-formed conference team of four (4) members will be divided into sub-teams (sub-team A and sub-team B) of two (2) members each. Sub-team A and sub-team B will be situated in different locations with identical supplies provided on site. Using its supplies, sub-team A will be given fifteen (15) minutes to build a structure of its choice.

B. With both sub-teams using cell phones, sub-team A will communicate directions to replicate its structure to sub-team B. Sub-team B will have twenty (20) minutes to replicate sub-team A’s structure.

ATTIRE

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

A. Participants report to the event area at the time and place stated in the conference program.

B. Participants will register for a specific time slot and must arrive for competition at that designated time.

C. Participants follow the specific regulations and directions provided on-site by the event coordinator.

D. Teams report to the event area holding room at their designated time; team members must bring their own cell phone.

E. Teams will not be told their pairing until called to perform the on-site task. Teams will be paired randomly [one (1) team of two (2) members from one school, paired with one (1) team of two (2) members from another school].

F. When instructed to do so, each paired team [of four (4) members each] will be called to enter the event area and will be given the on-site task.

G. The paired team will then decide which two (2) members (sub-team A) will build the structure and send the directions via text message and which two (2) members (sub-team B) will receive the directions and replicate the structure. The sub-teams will be separated and situated in different locations and allowed to communicate only by text messaging. No videos or photos are allowed.

H. Sub-team A will be provided with materials and given fifteen (15) minutes to build a structure. When time is called, work on the structure must cease.

I. Sub-team B will be provided with identical materials and given twenty (20) minutes to replicate sub-team A’s structure, using only directions sent via text message from sub-team A. When time is called, the sub-teams must cease messaging and building. No videos or photos are allowed.

J. Teams will wait until they are dismissed or called upon to show the judges their finished products.

REGULATIONS

A. Teams must consist of two (2) members per school.

B. On-site task
   1. At the conference, each school team will be randomly paired with another school team.
   2. The paired team of four (4) members will be called into the event area and must bring their team’s SMS devices [only two (2) per
four (4) member team] to the event coordinator for inspection.

i) Of the four (4) total team members, two (2) members (each from a different school) will comprise sub-team A. Sub-team A will build a structure with the provided materials, as well as send text directions to Sub-team B [made up of the remaining two (2) members of the four (4)-member team] for replicating the structure. Sub-team A and sub-team B will be provided with identical building materials.

ii) Sub-team A and sub-team B will be situated in different locations. Sub-team B will not be allowed to see sub-team A’s structure until sub-team B’s building time is over. Sub-team B will build its structure based on text directions communicated from sub-team A.

3. When twenty (20) minutes have passed, sub-team B must stop its work. Both sub-teams will wait for the judges’ interview and review of their messages.

4. The materials provided on site could be items such as Lego™ elements, KNEX™ sets, Erector Set™ products, wood, or other materials that can be used to build a structure.

5. Each sub-team must use all of the provided materials in its design.

6. Judges will interview each four (4)-member team to assess team structures, view text messages, and evaluate the ability of sub-teams to work with each other.

EVALUATION

Evaluation is based on points earned from the complexity of the structure built by sub-team A, the accuracy and quality of the replica built by sub-team B from SMS directions, and the judge’s interview.

Coordinator’s notebook, containing:

1. Event guidelines, one (1) copy each for the coordinator and evaluators
2. Official rating forms
3. List of entries with finalist report
4. List of evaluators/assistants
5. List of materials provided for the event
6. Results envelope

B. On-site task

1. Table and chairs for the evaluators
2. Tables and chairs for the participants, structure parts, and structure
3. Curtain/wall/other divider used to separate the sub-teams
4. Building materials for the building/replication task
5. Stopwatch or clock for timekeeping
RESPONSIBILITIES

A. In the fall of each school year, develop the on-site problem for the national conference event. Secure the needed materials.

B. 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.

C. In 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.

D. One (1) hour before the event is scheduled to begin, meet with your 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.

   A. Begin the event at the scheduled time by closing the doors and checking the entry list. All participants and evaluators should be in the room at this time. Participants not present may be disqualified. In order to compete, participants must be on the entry list or must have approval of the CRC chairperson.

   B. Once teams are seated and general announcements have been made, distribute and review the problem (as appropriate) and start the time.

   C. Evaluators monitor the participants during the on-site activity.

   D. For participants who violate the rules, the decision either to 1) deduct twenty percent (20%) of the total possible points 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.

   I. Complete and submit the finalist report, which includes a ranking of the ten (10) finalist teams, and all related forms in the results envelope to the CRC room.

   If necessary, manage security and the removal of materials from the event area
**Stem Challenge**

**Solution to Problem (50 points)**

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Minimal performance</th>
<th>Adequate performance</th>
<th>Exemplary performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-4 points</td>
<td>5-8 points</td>
<td>9-10 points</td>
</tr>
</tbody>
</table>

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 far 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.)

**TEAM A:**
- **Initial structure**
  - **Completion of problem (X2)**: Solution to problem is insufficiently completed within specified time allowed, and/ or it is very poorly completed; it is comprised of only a small portion of the materials provided.
  - **Complexity of structure (X1)**: Solution is too simplified, with no complex structure or evidence of engineering principles.

**TEAM B:**
- **Replica structure**
  - **Accuracy of directions (X1)**: Team B makes a poor attempt to utilize the directions of Team A.
  - **Completion of the structure (X1)**: Team B does not come close to replicating the structure in the designated time.

**SUBTOTAL (50 points)**

**Interview Presentation (50 points)**

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Minimal performance</th>
<th>Adequate performance</th>
<th>Exemplary performance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-4 points</td>
<td>5-8 points</td>
<td>9-10 points</td>
</tr>
</tbody>
</table>

- **Teamwork (X1)**: Team seems unprepared, unorganized and lacks cooperative spirit.
  - **Knowledge of subject (X1)**: Team presents little or no understanding of the assignment, including materials/equipment to be used.

- **Teamwork (X1)**: Team is somewhat prepared and organized, but its members lack evidence of working effectively together.
  - **Knowledge of subject (X1)**: Team seems to understand the assignment but is unclear about how to use the materials/equipment provided.

- **Teamwork (X1)**: Team is prepared and organized, exhibiting a cooperative spirit and attitude.
  - **Knowledge of subject (X1)**: Team exhibits a thorough understanding of the assignment, as well as how to use the materials/equipment provided.
<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Minimal performance 1-4 points</th>
<th>Adequate performance 5-8 points</th>
<th>Exemplary performance 9-10 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review of messages (X1)</td>
<td>Messages are unorganized and difficult to follow.</td>
<td>Messages are clear, but they are simple and unorganized.</td>
<td>Messages are clear, organized and easy to follow.</td>
</tr>
<tr>
<td>Interview mechanics and responses (X1)</td>
<td>Interview is verbose and illogical; delivery includes many &quot;uhs, ums, hmms, etc.&quot;; interview responses are poorly presented and incorrect.</td>
<td>Interview is logical and well spoken, with few &quot;uhs, ums, hmms, etc.&quot;; some responses are weak or minimal</td>
<td>Interview is well spoken, distinct, and clear, with no, or very few, &quot;uhs, ums, hmms, etc.&quot;; responses are correct and specific.</td>
</tr>
<tr>
<td>Team participation (X1)</td>
<td>Only one (1) person communicates in the interview.</td>
<td>Interview is dominated by one (1) or two (2) members of the team.</td>
<td>All team members actively participate in the interview process.</td>
</tr>
<tr>
<td>LEAP</td>
<td>The team’s efforts are clearly communicated, fully-detailed, and convincing; identification and/or incorporation of the SLC Practices and Behaviors is excellent.</td>
<td>The team’s efforts are adequately communicated, include some detail, are clear, and/or are generally convincing; identification and/or incorporation of the SLC Practices and Behaviors is adequate.</td>
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</tr>
</tbody>
</table>

Rules violations (a deduction of 20% of the total possible points) 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 TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) TOTAL (100 points)

Comments:__________________________________________________________

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

Evaluator
Printed name: ___________________________ Signature: ________________

Catapult Design, State Only
Overview-
Students are to design and build a working catapult out of PVC pipe and other supporting materials. The catapult must be able to shoot a practice golf ball between 15’ and 25' away.

Attire-
TSA Official Dress

Teams-
Teams may consist of three (3) to five (5) individuals. Chapter entries are unlimited.

Materials-
The catapult must be entirely made from PVC pipe except the firing mechanism, launch mechanism, fasteners, and safety items. Items to be used other than the PVC pipe includes wood, metal, rope, and elastic materials. Items that not be used includes glass, dangerous materials, and toxic materials.

Materials To Bring To Competition-
Students must bring safety goggles and a 25’ rule to the competition site. A LEAP resume that is completed in full is required during project turn in.

Catapult Specifications-
• The catapult may be no larger than 2’ tall x 2’ long x 1.5’ wide.
• The catapult must have an area to set a 50lb bag of sand as a ballast.
• A 5’ pull cord must be used to fire the catapult.
• The catapult may have any type of firing mechanism and launch mechanism, but they must be contained in the 2’ tall x 2’ long x 1.5’ wide prior to launch.
• Weight of catapult and all mechanisms must weigh under fifteen (15) pounds.
• The catapult must start behind the firing line but may finish over the firing line.
• When catapult is on display before competition the launch mechanism should be disabled and unable to fire.

Procedure-
• Participants turn in their catapult to judges to be deemed safe or unsafe. If deemed unsafe they will be disqualified.
• The order in which teams will be testing their catapults will be decided.
• The target will be set between 15’ and 20’ from the firing line.
• A bucket of three (3)-dozen hollow plastic practice golf balls will be provided to the team testing their project.
• Students must put the 50lb ballast (bag of sand) onto the catapult, put their safety glasses on, and measure how far the target is from their catapult.
• Teams will receive five (5) minutes to test and adjust their catapult.
• Once the five (5) minutes are up the students will be given one (1) minute for their accuracy test.
• For the catapult accuracy test the balls shot for testing will be received and given back to the students.
• The accuracy test begins when the instructor says go, all balls must be shot within the one (1) minute allotted.
• When firing during the accuracy test students must do it in a safe manner. This includes using the pull cord, safety glasses, and no receiving missed balls during testing.
• Once the time is up the judge scores your points based on how many balls you got into the target.

Judging-
• LEAP will be reviewed and scored based on quality.
• Accuracy test will be judged by the following specifications.
  o The red center target is 10" in diameter, the green is 25" in diameter, and the blue target is 40" in diameter.
  o The red target is 5 points, the green target is 2 points, and the blue target is 1 point.
  o Points that will not be scored are balls that bounce into target or out of target.

Rubric-

<table>
<thead>
<tr>
<th>Accuracy Test Rubric</th>
<th># of Balls in Net</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red target - 5 points each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green target - 2 points each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue target - 1 point each</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OVERVIEW
provides a hands-on opportunity for students to apply science, technology, engineering, and mathematics (STEM) concepts, creativity, teamwork, and problem solving skills as they design, construct and race a solar-powered car.

PURPOSE
Participants experience the automotive design process when they research and conceptualize a design, make drawings, build a model from the design, and race the solar-powered car model.

ELIGIBILITY
Participants are unlimited teams per chapter, one (1) entry per team. Participants from a same school may share for the state only event the solar panel. All participants must turn in a LEAP resume.

TIME LIMITS
Entries (including the model car) must be started and completed during the current school year.

ATTIRE
TSA competition attire, as described in the Competitive Events Attire section of this guide, is required.

PROCEDURE
A. At the event, participants check in their entries for specification approval at the required time and place.
B. Entries will be evaluated in four (4) areas: 1) display, 2) notebook, 3) artisanship and engineering of the model, and 4) model’s racing performance.
C. Evaluation of racing performance will consist of two (2) components: 1) time trials, and 2) semifinalist racing of the top 16 time trial winners.
D. All models meeting safety and performance criteria will be given three (3) time trials. The average time of the three (3) time trials will be used to determine the top 16 semifinalist cars that will participate in the semifinalist races. Cars that are disqualified for any reason will be not permitted to participate in the semifinalist races.

E. The top 16 cars compete in a single or double elimination racing process. The process (single or double elimination) will be determined by the event coordinator.

F. The four (4) evaluated areas will be used to determine final standings (see criteria for assessment and racing performance scoring chart).

REGULATIONS

A. Each team must submit a notebook (three-ring binder) that contains the items, in order, as noted below in the Documentation section. Sections of the binder may be organized by dividers.

**Documentation**

1. Title page with event title, conference city and state, year of the conference, team/chapter ID#
2. Table of contents
3. Project Log that indicates preparation for the competition, as noted by date, task, time involved, obstacles/issues encountered, modifications made, team member responsible, and any comments. Download Project Log from the JSS website.
4. Design drawings; drawings show the model with a minimum of two (2) views. The drawings are developed using standard engineering practices and procedures. This will include measurements/dimensions. The drawings may be produced using traditional drafting methods or CAD. Rough sketches should be included on a separate page or pages.
5. A separate specification page will include design details of the model, including size, wheel size, gear ratio, specifications of motor and solar collector used, etc.
6. Components list

7. Design process description; this includes pre-testing of various configurations of the model and revision notes about the model design throughout the process

B. The model car must meet the following specifications:

---

Model Car

1. The model must accurately reflect the design process outlined in the online resources.

2. A decorated shoebox may be used as a display stand during judging for the model car. The notebook is not considered part of the display, but it must be placed with the model car. The display (model, shoebox, notebook) should fit in an area 15" deep x 3' wide x 4' high.

3. The materials used to construct the model car must cost less than $50. Original receipts for all materials purchased must be put in an envelope and placed in the notebook. The total cost of construction materials must be clearly written on the outside of the envelope. Model cars that exceed this construction cost limit will be disqualified from the competition.

4. The Junior Solar Sprint kit sold by Solar Made, and the Ray Catcher Sprint Kit sold by PITCO, are the solar panel/motor kits that are recommended, but not required, to be used in the competition. Solar panels cannot be shaved, drilled, or delaminated. Only the motor supplied in the kit can be used. Motors cannot be re-wound or disassembled. If an evaluation group convened by the event coordinator determines that the solar panel and/or motor have been modified, the car and team will be disqualified from the competition.

5. The remainder of the vehicle can be innovative in design and materials.

6. One (1) solar panel (limited to a maximum output of 3.2 W), and one (1) motor (limited to a maximum 3.0 VDC) are allowed per car. Reflectors, supports, and power leads can be added to these components as needed. Energy-enhancing devices, such as mirrors, must be firmly attached to the vehicle.

7. The vehicle must be structurally sound without the solar panel attached. The solar panel cannot be used as the chassis, or body of the car. The axles and wheels cannot be directly attached to the solar panel. The model car must, with the solar panel attached, not exceed the following dimensions: 30 cm (11¾ inches) wide by 60 cm (23¾ inches) long by 30 cm (11¾ inches) high (as measured from the surface the car is resting upon to the highest point of the car with all its components attached) and positioned as during the time trials and races.

8. The team is encouraged to decorate the body of the car, but a clearly visible 3-cm square space must be available on the car to attach an assigned car number for the race.

9. The sun’s light is the only energy source that can be used to power
the vehicle. Batteries, capacitors, flywheels, or any other energy storage devices are prohibited.

10. If the sun’s energy is judged insufficient by the event coordinator, a battery pack and two (2) AA 1.5 V batteries will be furnished for each team. Therefore, the model’s motor power leads must be readily accessible for easy attachment to a battery pack.

**Steering**

A student-designed device must be attached to the car to accommodate a guide wire. A guide wire, such as fishing line, will be no more than 1.5 cm from the surface of the track. It will go through the eyelet attached to the car and serve as a steering mechanism to keep the car in its lane. The vehicle must be easily removed from the guide wire, without disconnecting the guide wire. This is the only allowable method of steering the car. No radio control is permitted in the car. Lane changing or lane crossing will result in a Did Not Finish (DNF) standing. A car whose race is impacted by an out of control vehicle will be allowed an opportunity to run the race again. A car that lacks steering control and interferes with other cars in other lanes will not be allowed to race again.

C. The race lane must be 60 cm wide and 20 m long. The track will be a hard flat surface, such as a tennis court or a smooth surfaced running track.

D. The time trial/race specifications are as follows:

1. There will be tables set up for teams to use to make adjustments and minor repairs just prior to each time trial and the semifinalist heats. Teams that are “next up” to be timed or raced are given priority to use the tables. Teams must supply their own tools.

2. Time trials and semifinalist races will not be delayed to permit adjustments or repairs to cars. No adjustments or repairs are permitted once a time trial or race begins.

3. At race time, the car will be placed behind the starting line with all of its wheels in contact with the ground and an opaque sheet covering, but not touching the solar panel. The opaque sheet will be removed at the start of the race, allowing the vehicle to collect solar power and start driving. No more than two (2) team members will be allowed in the start area.

4. Releasing the car before the official start, or pushing the car during its release will result in a Did Not Finish (DNF) for that race.

5. All cars will be started when the official signal is given. Each car will have three time (3) trials. The fastest time of these three (3)
time trials will determine the 16 top semifinalists to be raced. If, for any reason, a car is not able to participate in the time trials or race at its scheduled set time, it may be disqualified.

6. The judges will note the official time for each time trial. At the time designated, if a car does not start the time trial, OR if during the time trial it does not finish, it will be noted as a Did Not Finish (DNF).

7. At least one (1), but no more than two (2) members must wait at the finish line to catch the vehicle for each timed trial.

8. No one, including team members and spectators, may accompany or touch the vehicle on the track during atimed trial or semifinalist race. Vehicles stalled on the track can be retrieved after the end of the trial or race has been declared by the lead judge. A violation of this rule will result in a disqualification of the offending team.

9. After each timed trial or race, the vehicle and team member must remain at the finish line until the time is recorded for the vehicle.

10. Challenges must be made before the next timed trial or race begins. Any challenges must come from team members who are actively competing, not the coach/advisor, parent, or coordinator, and all challenges need to be directed to the lead judge. The decisions of the judges are final.

11. Only competing students and race officials may be in the race area. All other spectators, including coaches/advisors, parents, coordinators, and non-competing students, must remain in the designated spectator area throughout the duration of the races. Teams will be disqualified if a spectator, including a coach/advisor or parent, interferes with the race.

12. Judges may inspect cars at any time before, during, and after timed trials or semifinalist races.

Any additional rules, regulations, or guidelines established by the event coordinator must be followed.

**EVALUATION**

Entries are evaluated on creativity and innovation, the display, documentation notebook, the artisanship and engineering of the model solar car, and the model’s racing performance.

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### SOLAR SPRINT COMPETITION PROJECT LOG

<table>
<thead>
<tr>
<th>Date</th>
<th>Task</th>
<th>Time involved</th>
<th>Team member responsible</th>
<th>Obstacles encountered</th>
<th>Modifications made</th>
<th>Comments</th>
</tr>
</thead>
</table>

---
### SOLAR SPRINT

**Model (40 points)**

The model is safe to participate in the time trials and, if deemed appropriate, the semifinalist races. [ ] Yes [ ] No

The model meets all required specifications. [ ] Yes [ ] No

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Minimal performance 1-4 points</th>
<th>Adequate performance 5-8 points</th>
<th>Exemplary performance 9-10 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display (X1)</td>
<td>The quality of the display is extremely poor and/or exceeds size requirements.</td>
<td>The display is adequately created and meets the size specifications.</td>
<td>The display is exemplary, includes eye-catching details and meets the size specifications.</td>
</tr>
<tr>
<td>Design quality (X1)</td>
<td>The design of the solar model is poor and shows little effort.</td>
<td>The design of the solar model is adequate but not of exceptional quality.</td>
<td>The design of the solar model exhibits exceptional quality of design.</td>
</tr>
<tr>
<td>Design creativity/ originality (X1)</td>
<td>The solar model car design lacks creativity and originality; little effort is apparent in these areas.</td>
<td>The solar model car design demonstrates an adequate level of creativity and originality.</td>
<td>The solar model car design shows exceptional creativity and originality in its design.</td>
</tr>
</tbody>
</table>

**Regulations and Documentation (50 points)**

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>Minimal performance 1-4 points</th>
<th>Adequate performance 5-8 points</th>
<th>Exemplary performance 9-10 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notebook components (X1)</td>
<td>A number of the notebook components are missing.</td>
<td>Most of the notebook components are included, but the notebook lacks overall quality.</td>
<td>The notebook includes all required components; it is neat and properly organized; effort and quality are evident.</td>
</tr>
<tr>
<td>Project Log (X1)</td>
<td>The Project Log is lacking significant portions; it is messy and demonstrates lack of effort.</td>
<td>The Project Log is acceptable, but some information is missing.</td>
<td>The Project Log is complete and accurate; the presentation is neat and orderly; a great deal of effort is evident.</td>
</tr>
<tr>
<td>Design drawings (X1)</td>
<td>Some drawings are missing and are of poor quality.</td>
<td>Drawings are acceptable; all required views are shown.</td>
<td>Drawings are accurate and complete; all required views are present; rough sketches are included.</td>
</tr>
<tr>
<td>Design details/ components list (X1)</td>
<td>Several details of the model including size, weight, wheel size, and gear ratio are missing and/or are poor; the component list is very limited.</td>
<td>Some details of the model including size, weight, wheel size, and gear ratio are missing; a few components are missing.</td>
<td>All details of the model, including size, weight, wheel size, and gear ratio are present; all components are included.</td>
</tr>
</tbody>
</table>
### SOLAR SPRINT (continued)

#### Regulations and Documentation (50 points)

| Design process description (X1) | The design process description, which includes details about pre-testing various configurations of the model and revision notes, is poorly documented. | Most of the design process description, which includes details about pre-testing various configurations of the model and revision notes, is present. | All parts of the design process description, which includes details about pre-testing various configurations of the model and revision notes, is present. |

**SUBTOTAL (50 points)**

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

Indicate the rule violated: ________________

#### Race (55 points)

<table>
<thead>
<tr>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th &amp; 6th</th>
<th>7th &amp; 8th</th>
<th>9th - 12th</th>
<th>13th – 16th</th>
</tr>
</thead>
<tbody>
<tr>
<td>55 points</td>
<td>50 points</td>
<td>45 points</td>
<td>40 points</td>
<td>35 points</td>
<td>30 points</td>
<td>25 points</td>
<td>15 points</td>
</tr>
</tbody>
</table>

**SUBTOTAL (55 points)**

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

Indicate the rule violated: ________________

(To arrive at TOTAL score, add any subtotals and subtract rules violation points, as necessary. Check your math twice!) **TOTAL (145 points)**

Comments:

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

Evaluator

Printed name: ____________________________  Signature: ____________________________