5 NATIONAL COMPETITIONS

- Engineering Design Competitions (3)
  - Mousetrap Car
  - Water Rocket
  - Vex Robotics
- Internet Science and Technology Fair
- Essay Competition

IMPORTANT DATES TO REMEMBER:
April 21, 2014 (midnight)
- Certification of first place Regional/State Winners
- First place winning essays due at the SECME National Office

May 5, 2014 (midnight)
- ALL National winners will be notified
- Engineering Design (Mousetrap Car) Technical Reports are due at the SECME National Office
- VEX Robotics Engineering Notebooks are due at the SECME National Office

May 16, 2014 (midnight)
- ALL Teams must be Registered for the 2014 SECME National Competition Finals
Dear SECME Educators and Competition Hosts:

Welcome to another exciting year of SECME Competitions. Our National Office Staff and Competition Task Force have strengthened and enhanced this year’s competition opportunities for you and your students.

This packet contains Guidelines for the 2014 SECME National Competitions. These Guidelines serve as the framework for local, regional or state competitions. Technical assistance is provided by many SECME Member Universities or districts, which may coordinate and host SECME workshops for teachers to learn basic SECME competitions (Mousetrap car, Water Rocket, Vex Robotics) skills or other STEM content. Please contact your SECME Program Director or Member University partner for dates and locations in your area. If unsure about this information, please contact our national office and we will be glad to assist - secme@coe.gatech.edu; 1-888-262-8307.

Our STEM education competitions are aligned to National Standards, which can easily be drilled down to your state standards which means, SECME competition activities are packed with math and science required skills. It has been demonstrated that over time, the academic performance of students participating in SECME is higher than those that do not.

We’re off…get your students geared up to start their engines, launch their rockets, and program their robots!

Additionally, we encourage you to join us this summer for the 38th Annual SECME Summer Institute where you receive state-of-the art professional development and SEE THE NATIONAL COMPETITION IN ACTION!

Sincerely,

Michele Williams, SECME National Interim Executive Director
GENERAL INFORMATION

Competitions are a wonderful way for teachers to reinforce science and math skills with exciting, hands-on activities while challenging students to persevere and excel. SECME competitions are designed to expose students to a variety of real-world applications for science and math, while generating interest and excitement about college and careers in STEM.

Following are the 2014 SECME National Student Competitions Guidelines. Activities, competitions and deadlines at the Regional/State Competition level are at the discretion of the Member University or Host Sponsor. We encourage participation at all levels or divisions (elementary and middle and high schools).

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# 2014 SECME National Competitions Updates & Changes

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ELIGIBILITY CRITERIA

PLEASE READ AND FOLLOW CAREFULLY

- Your 2013-14 data must be entered electronically into the SECME National database prior to your Regional/State Competition.
- Only students active in a local SECME program are eligible to enter competitions.
- SECME Member Universities, Program Directors and School Coordinators are asked to distribute (or reference) these Guidelines to all (educators, parents, business/industry partners, graduate and undergraduate students) who will help prepare students for this year’s competitions or serve as mentors and/or judges. It is important that all fully understand the judging criteria for each Competition and their division.
- All entries are expected to be neat, original, and completed by the students.
- Elementary, Middle/Junior High, and High School students each will compete with other students at their respective levels.
- 1st place Regional/State winning student or student competition teams, as identified in these guidelines, will be eligible to compete in and/or attend the 2014 SECME National Competitions Finals.
- 1st place Regional/State winning students and/or student teams participating in Elementary Mousetrap, Water Rocketry, ISTF and Essay DO NOT travel to compete in the SECME National Competition Finals. National winners are chosen by score elimination. Scores from 1st place Regional/State competition winners will be submitted. The highest score from that competition will be the winning student and/or student team. In case of a tie, a tie-breaker will be in position.
- 1st place Regional/State Mousetrap Car winners (Middle and High School) and all Vex Robotics teams DO travel to the National Student Competition Finals to compete.
- SECME school coordinators should identify a chaperone (one chaperone per team) to accompany their teams to the National Student Competition Finals.
- Certification of Regional/State Competition Winners. SECME Member Universities (or Sponsors) that host a Regional/State competition must provide the SECME National Office information on their winning student and/or student teams. This CERTIFICATION is to be submitted electronically not later than Monday, April 21, 2014. Hard copy CERTIFICATIONS and/or emails will not be accepted. Regional/State winning essays must be saved as a PDF and submitted via email to: secme@coe.gatech.edu no later than this date as well.
- Engineering Design (Mousetrap Car) Technical Reports and VEX Robotics Engineering Notebooks are due at the SECME National Office on or before May 5, 2014. Technical Reports are to be sent via email to: secme@coe.gatech.edu.

1 In the case of mixed gender teams, we encourage two chaperones (male and female)

2 Certification of winning students/student teams DOES NOT constitute REGISTRATION FOR NATIONAL COMPETITION FINALS. These are two separate and distinct processes.
Financial responsibilities for SECME Student Competitions

a. SCHOOLS/SCHOOL DISTRICTS are responsible for covering all expenses involved in conducting competitions at the school/school district level.

b. MEMBER UNIVERSITIES are responsible for:
   - Hosting regional/state competitions (including awards)
   - Travel expenses to the National Competition Finals: round-trip travel, including transportation to/from the airport for up to three student teams (three students per team) and one chaperone per team

Competition Requirements:
Specific competition requirements are identified separately for each competition.

Competition Behavior:
Unsportsmanlike Behavior
Each student, teacher, chaperone, and parent works hard during the school year to prepare for competitions. To honor their hard work and dedication, as well as contributing to an exciting environment, unsportsmanlike behavior will result in disqualification of your team. Unsportsmanlike conduct will be determined by the SECME staff and/or competition judges.

Collaboration:
To foster collaboration and a knowledge sharing STEM community, all materials submitted to SECME for national competitions will become the property of SECME and may or may not be shared via the SECME website, marketing documents, presentations, etc. Materials include, but are not limited to, technical reports, engineering notebooks, pictures, technical drawings, etc.

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3 In the case of mixed gender teams, we encourage two chaperones (male and female)
Special Note to Regional/State Competition Hosts

Thank you in advance for hosting your Regional/State SECME Competition. Please contact our office as soon as your competition date is confirmed. If you are new to hosting a SECME competition, feel free to contact our office for guidance and/or technical assistance.

Remember that your CERTIFICATION of winning teams is due April 21, 2014. The certification link will be available in January 2014. After we receive all certifications, the 2014 SECME National Competitions scores for non-traveling teams will be posted on our website (www.secme.org) under “Resources and Forms” in the “Student Resources” section. We look forward to hosting your winning teams at the 2014 SECME National Student Competition Finals and working with you to enhance your local SECME program and competitions.
WATER ROCKET DESIGN COMPETITION

While promoting Space Propulsion Awareness, the Water Rocket Competition serves to familiarize students with the basic principles of rocketry, design engineering, and manufacturing engineering. Students will design and manufacture a water rocket using a 2-Liter bottle as the pressure vessel. The rocket must be capable of launching from the SECME Water Rocket Launcher given specific launch criteria. Additionally, each team will develop a patch design, technical report, and technical drawing. The team’s complete success will not solely be judged on rocket performance, but the combined effort of the team.

THE MISSION

*The mission is to design a Water Rocket Vehicle capable of staying aloft for the longest amount of time (measured in seconds).*

MISSION SUCCESS and Safe Flying!!

*** Remember you will never be a winner unless you try and if you try your best, you have already made it to the bull-eye :-) ***
Diagram 1

ROCKET IDENTIFICATION DIAGRAMS

- Nose Cone
- Pressure Vessel (Clear 2 Liter Bottle)
- Bottle Height (max. 76.0 cm)
- Fin
- Rocket Clear of Any Coverings (min. 7.5 cm)
- Bottle Throat
- Throat Exit Plane
- Fins may extend To Throat Exit Plane
NOSE CONE DIAGRAM

Diagram 2

FIN DIAGRAM

max 16.5 cm

max 10.0 cm
WATER ROCKETY RULES AND GUIDELINES

(ELEMENTARY SCHOOL)

1. Each team is required to submit a completed entry form and patch design
   a. (check with your Regional/State Host for local submission deadlines)

2. On the day of competition, but, prior to launch an actual operating rocket with its corresponding patch design must be submitted in order to compete in the competition.

   **NOTE: At this time each entry must pass a visual inspection and height requirement in order to be eligible to compete. Entries that fail inspection will be given ONE opportunity to make modifications to pass inspection, prior to the beginning of the water rocket launching competition.

3. An overall winner will be judged upon the following criteria (based on 100%):
   - Hang Time of Rocket 70%
   - Patch Design 30%

   **Final Hang time Score Calculation**

   \[
   \text{Final Hangtime Score} = \left( \frac{\text{team hangtime}}{\text{max hangtime}} \right) \times 100
   \]

   Hang time… is defined as the time from when the rocket leaves the launch pad until the time it reaches the ground or strikes an object.
   This measurement will be taken using a stopwatch by at least three qualified judges; the average of the judges times will be used as the final “hang time”.

   Max hang time… maximum hang time recorded during the competition

   The objective of the contest is for each team to launch a rocket propelled by water and air and for it to stay aloft for the maximum amount of time (measured in seconds). The launch angle which can be adjusted from approximately 90 degrees will be kept the SAME for all rockets launching during a particular competition. Each rocket will be launched using 12 ounces of water and at 70 psi of air pressure.
1. Each team is required to submit a completed entry form, technical paper, and patch design
   a. (check with your Regional/State Host for local submission deadlines)

2. On the day of competition, but, prior to launch an actual operating rocket with its corresponding technical
drawing must be submitted in order to compete in the competition.

   **NOTE: At this time each entry must pass a visual inspection and height requirement in order to
be eligible to compete. Entries that fail inspection will be given ONE opportunity to make
modifications to pass inspection, prior to the beginning of the water rocket launching competition.

3. An overall winner will be judged upon the following criteria (based on 100%):
   - Hang Time of Rocket 45 %
   - Patch Design 15 %
   - Technical Paper 25 %
   - Technical Drawing 15 %

4. Final Hang time Score Calculation

   \[
   Final \ Score = \left( \frac{team \ hangtime}{max \ hangtime} \right) \times 100
   \]

   Hang time… is defined as the time from when the rocket leaves the launch pad until the
time the rocket (or any part of the rocket) reaches the ground or strikes an
object.
This measurement will be taken using a stopwatch by at least three qualified
judges; the average of the judges times will be used as the final “hang time”.

   Max hang time… maximum hang time recorded during the competition

The objective of the contest is for each team to launch a rocket propelled by water and air and for it to stay
aloft for the maximum amount of time (measured in seconds). The launch angle which can be adjusted
from approximately 90 degrees will be kept the SAME for all rockets launching during a particular
competition. Each rocket will be launched using **12 ounces** of water and at **70 psi** of air pressure.
WATER ROCKETY RULES AND GUIDELINES

CONSTRUCTION AND OPERATION REQUIREMENTS

1. The pressure vessel must be ONE clear 2 liter bottle (i.e. **no** tinted bottles allowed for use as pressure vessel), see Diagram 1.

2. Water and air pressure will be the sole source of propellant.

3. **Do not use the following materials to construct you rocket…!!!**
   a. Metal
   b. Glass
   c. Hard plastics
   d. Spikes
   e. Antennas of any kind
   f. Rocks
   These materials are dangerous and could cause harm to the operator and those present in the presence of the water rocket launch.
   **NOTE: ***USE OF THESE MATERIALS WILL AUTOMATICALLY DISQUALIFY THE TEAM FROM THE COMPETITION***.

4. On the bottom of the rocket, leave 7.5 cm from the throat of the exit plane clear of any coverings (paint, markings, drawings, etc.), see Diagram 1.

5. Maximum total height of rocket is 76.0 cm, see Diagram 1.

6. Nose-cone tip must have a minimum radius of 1.5 cm, see Diagram 2.

7. Fins may extend to throat exit plane, see Diagram 2.
   **Note: No forward swept types of fins are allowed to be used on the rocket.**

8. The maximum fin width distance from the bottle is 10.0 cm (or 16.5 cm from center of bottle axis). See Diagram 3.

9. The use of parachutes is **NOT** allowed.
HOW TO BUILD THE WATER ROCKET

Note: These build instructions are basic suggestions and is NOT the only (or necessarily the best) way to design your rocket

Materials and Tools Needed

1. Pressure Vessel (Clear 2-Liter Bottle)
   **Note: Be certain that your clear, 2-liter bottle is free of scratches, nicks, dents, and discoloration.**

2. Adhesive, Caution Hot Glue Guns weaken walls of Pressure Vessel.

3. Foam mounting tape (approximately 1/16 thick, 2-sided adhesive)

4. Carpet tape (thin 2-sided adhesive)

5. Clear packing tape is HIGHLY RECOMMENDED FOR CONSTRUCTING ROCKETS

6. Use adhesive to bond fins, nose cone, and other allowed materials onto the water rocket

7. Cutting utensils (Scissors, Hacksaw Blade, Utility Knife, etc.)

8. Markers, spray paint, stickers, etc. for decoration of the rocket (No water color paint).

9. Safety First: Children should be supervised at all times while constructing their Water Rockets

10. For Fin Construction:
    Balsa and Bass Wood, Plastic, Foam Board, 1/4” to 1/2” thick Styrofoam, Plastic Plates, and/or PE (2L) Bottle Material
Water Rocket Assembly Method

**Step 1:** Cut the bottom off of a 2L Bottle (discard bottom).

**Step 2:** Add ballast (weight) to shift your rocket's center of mass forward.

**Step 3:** Carefully align top portion of bottle on the 2L bottle to be used for the pressure vessel.

**Step 4:** Rotate and observe your water rocket from several angles to ensure good alignment.

**Step 5:** Tape/secure the joint between the nose cone stage and the pressure vessel.
Nose Cone Design and Construction

1. Determine what material you want to use.

2. Pattern the nose cone and cut it out.

3. Attach the nose cone to the top of the rocket by using some recommended adhesives.

**Note: Remember use only the material recommended
MAINTAIN A NOSE RADIUS OF 0.5 INCH OR GREATER.

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**Step 1:** Cut a Circle out of thick stock paper or thin poster material (Using 16” or larger diameter).

**Step 2:** Cut a line along the radius as shown.

**Step 3:** Rotate the paper into a cone. Next Tape or Glue the seam to maintain the cone’s shape. You can adjust the angle of the cone with more rotation.

**Step 4:** If needed trim the base of cone as required so that it has a uniform fit with the diameter of a 2L bottle.
Step 5: Uniformly trim top of paper nose cone to accept a craft foam or Styrofoam ball or cone.

Step 6: Add the foam ball or cone to create a 0.5” or larger nose cone radius.

Step 7: Secure the resulting nose cone to the pressure vessel using an adhesive like tape, glue, velcro etc...
**Fin Design and Construction Suggestions**

1. Determine a fin pattern from your analytic design or trial and error.

2. Use the recommended materials, however we encourage you to be creative. Keep in mind not to use the off-limit materials.

3. Cut fins out of the material you choose.

4. You can use as many fins as you feel are needed.

5. Attach the fins to the lower section of the rocket using glue, Velcro, tape, or other adhesives.

6. **Tip:** It is easier to attach fins to a bottle that is slightly pressurized. You can pressurize the bottle by placing the bottle with its top off in a freezer for 2-3 hours. Next, take it out of the freezer and put the top on very tight, eventually, the air inside warms and the bottle will become slightly pressurized.

7. **Tip:** Using a **Low** melt glue gun is an excellent way to quickly bond fins. First clearly mark desired locations on the bottle prior to bonding. Try applying glue to a fin; then apply the fin to one of the marked locations on your bottle. This technique will aid in preventing your pressure vessel (i.e. bottle) from deforming due to the ‘initially’ very warm temperature of the glue.

8. Fin design examples:
PATCH DESIGN

WHAT IS A PATCH?

A Patch is a creative display that reflects the dedication and mission of the team. This symbolic picture must comply with the following rules:

1. Each entry is to be prepared and submitted by the SECME School Teams who will be participating in the Water Rocket Design Competition.

2. Patch designs must be submitted on 13” X 13” poster board.

3. All entries must contain the team name and follow the theme of this year’s SECME competition.

4. A short (less than 1-page) explanation of the symbols of the patch must be included on the back of the patch (Refer to example on next page)

5. All teams participating in the Water Rocket Competition must be prepared to display their patch prior to the launch of their rocket.

6. Patches must be hand-made original work.

7. Only Ink pens, pencils, markers, or paint may be used.

**NOTE: Any Patch Design deemed inappropriate will be pulled from the competition.

THE PATCH DESIGN WILL BE JUDGED ON:

| ORIGINALITY: | Innovation of the design. | 30 |
| CREATIVITY:  | Uniqueness of the information depicted. | 30 |
| APPEARANCE:  | The attractiveness and neatness of the presentation. | 20 |
| CONTENT:     | Design representation of the Team’s name and SECME theme. | 20 |
|              |                             | 100 |
**Explanation of Patch**

The propelled rocket represents the school system, supported by the educators and students, following a path towards excellence. The radiant five 8-point stars symbolize the enrichment of Science, Engineering, Communication, and Mathematics, whereas, the seven 4-point stars represent for the seven Universities that founded SECME. The three distinct contrails steaming behind the rocket, symbolize the support offered through SECME, Universities, and Industry partners. The ring before the rocket depicts the student’s path through the SECME program, returning full circle to support the efforts of the program. As we have entered the new millennium, the sun over the horizon symbolizes of the induction of the new Water Rocket Design Competition into the SECME Programs. Accuracy, the focus of the contest, is represented by the target created by the outer ring, deep space, and the earth. The border is supported on the left and right by symbols, respectively, for water and compressed air, which are the fluids used to propel the rockets.
WATER ROCKET TECHNICAL REPORT
(MIDDLE AND HIGH SCHOOL ONLY)

As a part of the Water Rocket Competition, the team is required to write a Technical Report describing the design, construction, and operation of the Water Rocket. Drawings, sketches, and tables may be included in appendix.

STRUCTURE: (0-25 points)

- Cover Page
- White 8.5”x11” Paper
- 12-pt type/standard font
- Double-spaced text
- 1” margins on all sides

1. COVER PAGE:
   - Name, addresses, grade level of team members
   - Team's school name and address
   - School system/district name
   - School coordinator's name
   - Date (date of competition)

2. ABSTRACT (1/2 to 1 page):
   - Includes the essential points of the purpose, methods, scope, results, conclusions, and recommendations
   - This is your chance to convince the readers that they should continue reading in a clear and concise way

3. TABLE OF CONTENTS

4. INTRODUCTION

5. DESIGN BACKGROUND
   - Discussion of the thoughts, design ideas, and experimental process by which you designed your car.

6. CALCULATIONS (See the Calculations Manual at www.secme.org > Resources & Forms > Student Resources):
   - Table of equations and constants
   - High time assumptions
   - Mass flow rate calculations
   - Drag calculations
   - Final time aloft in seconds
   - (Calculations will be scored on units, assumptions, accuracy, etc.)

7. CONCLUSIONS/RECOMMENDATIONS
   - Discussion of the results of your final design and why you feel it is superior to prior designs

8. ACKNOWLEDGMENT/REFERENCES

9. APPENDIX
**SECME WATER ROCKET TECHNICAL REPORT**  
(Evaluation Sheet)

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Regional Sponsor (if applicable):

**STRUCTURE:** (0-25 points)

- Cover Page with required information (0 – 5 pts)
- 8½” x 11” white paper w/ 1” margins (0 – 5 pts)
- 12pt/Standard Font/Computer Typed (0 – 5 pts)
- Double-spaced Text (0 – 5 pts)
- Report is neat and thorough; pages are numbered and in order (0 – 5 pts)

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**EVALUATION CATEGORIES:** (0-60 points)

- Table of Contents (0-4 pts)
- Abstract (0-7 pts)
- Introduction (0-6 pts)
- Design Background (0-10 pts)
- Calculations (0-15 points)
- Conclusions/Recommendations (0-7 pts)
- Acknowledgement/References (0-6 pts)
- Appendix (0-5 pts)

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**MECHANICS:** (0-15 points)

- Correct grammar, punctuation, and spelling (0 – 5 pts)
- Correct use of past tense and passive voice (0 – 5 pts)
- Report flows logically with minimal fragmentation (0-5 pts)

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**Judge’s Notes:**

(ATTACH TECHNICAL REPORT TO EVALUATION SHEET)
# SECME WATER ROCKET TECHNICAL DRAWING

## (Evaluation Sheet)

Please Check: [ ] Middle School  [ ] High School

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Regional Sponsor (if applicable):

### ENGINEERING PAPER REQUIREMENTS:

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- ANSI C Size Engineering Paper (17” x 22”)
- 1" Border (All Sides)
- 16 pound Vellum Paper
- Title and legend (on bottom left hand corner of drawing)

- Team name
- School Name
- School District
- Team Members’ Names and Grade Levels
- School Coordinator’s Name
- Date of Competition

### EVALUATION CATEGORIES

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. RESEMBLANCE – between the drawing and actual rocket (0 – 40 points)</td>
<td>/40</td>
</tr>
<tr>
<td>II. SCALE (0 – 20 points)</td>
<td>/20</td>
</tr>
<tr>
<td>III. NAMING/LABELING OF ALL PARTS (0 – 15 points)</td>
<td>/15</td>
</tr>
<tr>
<td>a. All parts should be clearly labeled.</td>
<td></td>
</tr>
<tr>
<td>IV. APPEARANCE/NEATNESS (0 – 15 points)</td>
<td>/15</td>
</tr>
</tbody>
</table>

### TOTAL: (The highest possible score is 100)

<table>
<thead>
<tr>
<th>Points</th>
</tr>
</thead>
</table>

Judge’s Notes:

(ATTACH TECHNICAL DRAWING TO EVALUATION SHEET)
**SECME WATER ROCKET PATCH DESIGN**  
(Evaluation Sheet)  

Please Check:  
- [ ] Elementary  
- [ ] Middle School  
- [ ] High School  

<table>
<thead>
<tr>
<th>Team Name</th>
<th>School Name</th>
<th>District</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Name #1</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Name #2</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Name #3</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Judge’s Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Regional Sponsor (if applicable):  

**EVALUATION CATEGORIES**  

<table>
<thead>
<tr>
<th>Evaluation Category</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. ORIGINALITY (0 – 30 points)</td>
<td>/30</td>
</tr>
<tr>
<td>Innovativeness of the design.</td>
<td></td>
</tr>
<tr>
<td>II. CREATIVITY (0 – 30 points)</td>
<td>/30</td>
</tr>
<tr>
<td>Uniqueness of the information depicted.</td>
<td></td>
</tr>
<tr>
<td>III. APPEARANCE (0 – 20 points)</td>
<td>/20</td>
</tr>
<tr>
<td>Attractiveness/neatness of the presentation</td>
<td></td>
</tr>
<tr>
<td>IV. CONTENT (0 – 20 points)</td>
<td>/20</td>
</tr>
</tbody>
</table>
| Representation of the team’s name and SECME’s theme.  
| “SECME: Going Out On a STEM!” |  

TOTAL (The highest possible score is 100)  

<table>
<thead>
<tr>
<th>TOTAL</th>
<th>/100</th>
</tr>
</thead>
</table>

Judge’s Notes:  

(ATTACH PATCH DESIGN TO EVALUATION SHEET)
# SECME Water Rocket Vehicle Competition
## Construction and Operation Evaluation Worksheet

Please Check: ☐ Elementary ☐ Middle School ☐ High School

<table>
<thead>
<tr>
<th>Rocket Name</th>
<th>School Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>District</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Name #1 (Mission Captain)</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Name #2 (Mission Specialist)</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Student Name #3 (Mission Specialist)</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Launch Site</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Regional Sponsor (if applicable):

## EVALUATION CATEGORIES:

**Overall Height:** (max 76.0 cm) ________________

**Fin Width Distance:** (max 10.0 cm) ________________

**Fin-Base Distance from Throat Exit:** (min 10 cm) ________________

**Nose Cone Tip Radius:** (min 1.5 cm) ________________

**Throat Exit Clearance:** (min 7.5 cm) ________________

### SCORING:

**Judge #1:** ________________

**Judge #2:** ________________

**Judge #3:** ________________

**Average Hangtime (sec):** ________________

## FINAL SCORE:

\[
\text{Average Hang-time (sec)} \times 100 = \text{Maximum Hang-time (sec)}
\]
SECME NATIONAL COMPETITION DATES AND DEADLINES

April 21, 2014 - Due at the SECME National Office
- Certification of first place Regional/State Winners
- First Place Winning Essays in PDF format (submit via email: secme@coe.gatech.edu)

May 5, 2014 - ALL National winners will be notified
- SECME/ISTF
- Water Rocketry (all divisions)
- Mousetrap Car (Elementary only)
- Essay (all divisions)

May 16, 2014 - Due at the SECME National Office via email: secme@coe.gatech.edu
- Engineering Design (Mousetrap Car) Technical Reports (PDF format)
- VEX Robotics Engineering Notebooks (PDF format)

May 30, 2014 - All teams must be REGISTERED for National Competition Finals

The 2014 SECME National Student Competition Finals dates and host university will be announced in January 2014.

4 Certification of winners is NOT the same as REGISTRATION FOR NATIONAL COMPETITION FINALS. School Coordinators will receive a separate email and link to REGISTER their participating students/teams.
FREQUENTLY ASKED QUESTIONS
Local/Regional/State Competitions

If you have any questions, or need help in these specific areas, please contact:

- Engineering Design (Mousetrap Car): the Engineering Faculty Consultant or Minority Engineering Program Director at the Member University which sponsors your Regional/State competition

- Engineering Design (Water Rocketry): the Engineering Faculty Consultant or Minority Engineering Program Director at the Member University which sponsors your Regional/State competition

- VEX Robotics: Miller Roberts ● miller_roberts@roboticseducation.org
  o Miller Roberts can also refer you the VEX robotics support person for your state (see page 50)

- ISTF: Bruce Furino ● Bruce@istf.ucf.edu

- Essay: Anthony Bowser ● Anthony.Bowser@coe.gatech.edu

The SECME National Office is always here to help. We can be reached at secme@coe.gatech.edu

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1. **Can we purchase mousetrap kits from the SECME National Office?** Yes; SECME recently returned to selling mousetrap kits. Inventory constantly fluctuates so call for availability. If SECME is Out of Stock mousetrap car kits can also be purchased at the following:
   1. Pitsco
   2. Midwest Supply company
   5. www.sciencekit.com

1. **Where can we purchase the engineering paper?** Please find one suggested supplier below:

2. **Our team won our Regional/State Competition but one of the team members is unable to attend National Competition Finals. Can we replace him/her?** YES. A student team member can be replaced with another SECME student. The replacement student should be able to participate in the competition, in particular, the team interview as outlined in the guidelines.

3. **Our team won our Regional/State Competition but one of the team members is unable to attend National Competition Finals and we are NOT able to replace them. Can we still come and compete with two team members?** You will be allowed to come to the National Competition to participate and get “the experience” but any team without 3 team members are not eligible to place in the competition.
4. **Can parents/family members attend the National Student Competition Finals?** YES. Parents and family members are always encouraged to attend SECME events. Transportation, meals and lodging will need to be secured by the individual family members. The Host University is only responsible for meals and lodging for the 3-member student teams and the authorized chaperone(s). A listing of local hotels will be provided.

5. **We are the 1st place winning team from our Regional/State Competition. Do we send in our Technical Drawing and Report prior to attending National Competition Finals?** Email your Technical Report (PDF format) **only** and physically bring your drawing with you to National Competition Finals.

6. **We have an active SECME program at our school but, there will be no Regional/State Competition in our area this year; can my students compete in the National Competitions?** YES.

   - **ISTF:** Students can participate in the Internet Science and Technology Fair (ISTF) competition
   
   - **Essay:** SECME programs can host a “local” Essay Competition and submit the winning essay to the SECME National Office for entry into the National Competition Finals
   
   - **Engineering Design (Mousetrap Car) and Vex Robotics:** Winning Regional/State teams travel to the National Student Competition Finals to compete. In the absence of such it will be your responsibility to raise the travel funds to send your 3 student team and chaperone to the National Student Competition Finals to compete. Please contact us at secme@coe.gatech.edu for additional guidance.

**Concerns and Complaints** - Please complete and submit the Competition Grievance Form to the Local/Regional/State Competition Host. Grievances should be handled at the local level.

*Note:* Please follow any additional instructions or procedure that maybe implemented by your local (Local/Regional/State) Competition Host.
SECME Student Competition
Grievance Request for Review by Judges

Competition Host

School

District

Team Name

SECME School Coordinator/Teacher Leader

Preferred Email

Telephone

Competition Rule or Procedure in Question

Specific Concern

(Use back or 2nd sheet if needed to document fully)

Submitted by

(Name)

Date

SECME 2013-14 Competition Guidelines