

Miami-Dade County Public Schools
2008 ELEMENTARY SECME FESTIVAL

March 22, 2008

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Introduction

The Miami-Dade County Public Schools Division of Mathematics and Science Education is pleased to present the annual District Elementary SECME Festival. We are excited about having you join us. The Division Staff has planned a variety of activities designed to give students an opportunity to demonstrate skills learned through their mathematics, science, and language arts classes. Registration and check-in will be from **8:30 a.m. to 9:15 a.m.** All the activities should conclude at approximately 3:00 p.m.

To the degree possible, this year's theme, **"SECME: Lighting The Torch To Empower Future Leaders"** should be incorporated into each phase of the festival.

Each school should bring a sufficient number of students to participate in the day's activities. Keep in mind that some of the events will run concurrently. **Each team must have a teacher as a sponsor who remains with the team throughout the day's activities.** Teacher sponsors and parents are asked to check in at the registration desk upon arrival.

Individuals and teams are asked to model the spirit of good sportsmanship. **The decision of the judges will be final.** All questions regarding rules/procedures during any event should be initiated by the concerned student and addressed to the judges. Students will be asked to stay for the entire length of a competition. They may not leave the competition room unless it is an emergency.

Students and sponsors are asked to carefully review this booklet and put forth maximum effort in preparing for this event. As with all competitions, advance preparation will yield a high degree of comfort and confidence. Students should not underestimate their abilities as individuals nor the collective strength of their school's team. Advise the students to represent their school in a positive manner by demonstrating pride, courage, and good sportsmanship.

Our hope is that the Festival will prove to be a satisfying and pleasurable event for all participants—students, parents, and school personnel.

Good Luck,

The M-DCPS District SECME Team

Ms. Colleen Del Terzo, Administrative Director

Mr. Richard W. Lawrence, Director of Competitions

Ms. Claudette Connor, SECME Competitions

Ms. Kathy Burch, Curriculum Support Specialist, SECME Stars

Ms. Lavern Ferguson, Assistant, SECME Stars

Ms. Donna Reichert, Senior Secretary

2008 Elementary Festival Theme: ""SECME: Lighting The Torch To Empower Future Leaders""

LOGO:



2008 ELEMENTARY SECME FESTIVAL THEME:

"SECME: Lighting The Torch To Empower
Future Leaders"

The 2007-08 theme reflects SECME's global mission and purpose - to increase the pool of historically under-represented, under-served, and differently-abled students who will be prepared to enter and complete post-secondary studies in science, technology, engineering, and mathematics, thus creating a diverse and globally competitive workforce. The measure of that accomplishment is a student's academic and career success.

Description of Events

BANNER

Each school **must** enter one banner that will be displayed in the Parade of Schools.

DESIGN AND BUILD

Each school may enter one team of four (4) students who will build a structure according to the directions and materials provided.

ESSAY

Each school **must** enter one essay written by one student on the subject of the 2007-08 Festival theme, "SECME: Lighting the Torch To Empower Future Leaders." Essays must be received by this district office no later than Friday, February 15, 2008.

GO-CARTS

Each school may enter one pre-constructed Go-Cart that has been built by one or two students. The student(s) who built the Go-Cart will race it on the day of the competition.

MATHEMATICS CHALLENGE

Each school may enter one team of four (4) students who will compete as a team. They will be given clues and manipulatives to solve mathematical problems.

POSTER

Each school **must** enter one poster created by one student. Posters must be received by this district office by Wednesday, March 15, 2008.

SCIENCE BRAIN BOWL

Each school may enter one team of four (4) students who will participate in a contest filled with science questions.

WATER-BOTTLE ROCKETS

Each school may enter one pre-constructed water-bottle rocket that has been built by a team of up to four (4) students.

Check-in Procedures

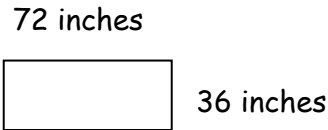
Check-in will take place from 8:30 a.m. to 9:00 a.m. Upon arrival, the school's coordinator should:

1. Ensure that all the school's team members are present.
2. Check in at the general registration area.
3. Submit one complete *Student Registration Form* (see page 4) with the names and ID numbers of all competing students.
4. Check the program for locations; then proceed to submit the following:
 - Go-Cart
 - Water-Bottle Rocket
5. Select two (2) students to march in with the banner. Students carrying the banners will line up at 9:00 a.m., so the opening ceremonies may start at 9:30 a.m.

Banner Competition

General Rules

1. Banners must measure 72 inches wide and 36 inches long (plus or minus an inch), not including the parade pole if used.



2. The face of the banners must include the following information: school name, current year, and SECME emblem.
3. The back of the banners must have the following information: school name, SECME school coordinator, and date.
4. Two students from each participating school will parade with their banner at the start of the festival.
5. Banners must be a handmade, original work created by the students the year it is submitted.
6. Banners can be made out of any fabric.
7. Banners will be displayed after the judging is completed.

Scoring

Maximum points for the banner are **50**. Banners will be scored based upon the following categories:

1. Size and Content 10 points (Quality and organization of information on the banner)
2. Originality 15 points Originality of design and how well it presents this year's theme: "**SECME: Lighting The Torch To Empower Future Leaders**"
3. Creativity 15 points (Uniqueness of information depicted.)
4. Appearance 10 points (Attractiveness, neatness, scale, and balance of the presentation.)

Banner Evaluation Worksheet

School _____

Banner Title (Optional) _____

Judge _____

EVALUATION CATEGORIES POINTS

Size and Content (1-10 points) _____

Measure the quality and organization of the information on the banner and the inclusion of :

- a. Size (72" X 36") 3 points
- b. School Name 2 points
- c. Current Year 2 points
- d. SECME Emblem 3 points

Originality (1-15 points) _____

Evaluate the originality of the design, and how well it presents this year's theme: "**SECME: Lighting The Torch To Empower Future Leaders**"

Creativity (1-15 points) _____

Judge the uniqueness of the information depicted.

Appearance (1-10 points) _____

Examine the entry for attractiveness, neatness, scale, and balance of the presentation.

TOTAL NUMBER OF POINTS (Maximum: 50 points) _____

Design-and-Build Competition

This Design-and-Build Competition will provide the students with an opportunity to demonstrate their engineering skills. They will work cooperatively to design, build, and test a structure according to the specifications and materials provided.

General Rules

1. There will be one team per school containing up to four (4) students, including one team captain.
2. Students will compete as a team.
3. Students will be given a set of materials and directions regarding their construction.
4. The team will work together to build their structure within the time limit given.
5. Points will be awarded according to the directions given.

Essay Competition

General

1. Each entry is to be written and submitted by an **individual student**, not a team.
2. Schools are encouraged to have an in-house essay contest and send their best entry to the district office. **Essays must be received in the Division of Mathematics and Science Education, Room # 327, by 4:30 p.m. on Friday, February 15, 2008.** They may be personally delivered; e-mailed to rlawrence1@dadeschools.net or sent via school mail to: Division of Mathematics and Science # **6628**, Attn: Mr. Richard W. Lawrence.
3. The theme for the 2008 SECME Essay Competition is: "**SECME: Lighting The Torch To Empower Future Leaders**".

Requirements: Any entries not meeting these requirements will be automatically disqualified.

The entry should include a Title Page, Essay Narrative, and Bibliography.

Format	Computer-printed or typewritten 8½" X11" white paper Double-spaced with one-inch margins on all four sides 12 pt. Times New Roman or CG Times font
Title Page	Essay's title - MUST be this year's theme Student's name, grade, age Home address, zip code, and telephone number Student's ID number Name and address of school Miami-Dade County Public Schools SECME Teacher Coordinator's name and date
Essay	Three to four neat computer-printed or typewritten pages. (Title page and bibliography are not included in required page limit.)
Bibliography	Reference sources and direct quotations are required to be identified as cited.

Scoring

The essay will be scored on: Title page, organization, grammar and sentence structure, mechanics/spelling/punctuation, creativity/style, and relation to the competition theme. A maximum of 100 points will be awarded.

Essay Evaluation Worksheet

Essay Title _____

School _____

Date _____

Requirements: Any entries not meeting these requirements will be disqualified.

___ Title page with required information

___ 12 pt. font size

___ Length 3-4 pages

___ Times New Roman/CG Times

___ 1" margins

___ White paper

___ Double-spaced

The essay will be given from 1 to 5 points for every item in the following categories.

EVALUATION CATEGORIES

POINTS

Essay Organization (Maximum points: 40)

- 1. Interesting title relevant to the theme (1-5 points) _____
- 2. Clear and concise main idea (1-5 points) _____
- 3. Effective introduction maintaining readers' interest and indicating the subject (1-5 points) _____
- 4. Essay contains supporting details related to the main idea (1-5 points) _____
- 5. Clear transitions between paragraphs (1-5 points) _____
- 6. Logical and coherent essay as a whole (1-5 points) _____
- 7. Each paragraph adequately developed (1-5 points) _____
- 8. Satisfying closing (1-5 points) _____

Grammar and Sentence Structure (Maximum points: 15)

- 1. Complete sentences without misplaced sentences parts, sentence fragments, comma splices, or run-ons (1-5 points) _____
- 2. Proper subject verb agreement and pronoun/antecedent usage (1-5 points) _____
- 3. Effective use of subordination and coordination to relate ideas (1-5 points) _____

Mechanics/Punctuation/Spelling (Maximum points: 15)

- 1. Correct spelling (1-5 points) _____
- 2. Correct use of punctuation (1-5 points) _____
- 3. Capitals, underlining, and abbreviations correctly used (1-5 points) _____

Creativity and Style (Maximum points: 15)

Demonstrates Relationship to the Theme (Maximum points: 15) _____

TOTAL NUMBER OF POINTS (Maximum: 100 points) _____

Go-Cart Competition

Construction and Operation Rules

1. Each team will consist of one or two students.
2. Each school will enter one Go-Cart of their own design using common construction materials such as, but not limited to: cardboard, dowels, paper clips, rubber bands, etc. All cars must be packed in a container to facilitate handling.
3. On the day of the competition, but prior to the running of the car, an actual operating Go-Cart must be submitted in order to compete.

Note: At this time, each entry must pass a visual inspection (see # 4 & 5 below) Entries that fail inspection will be given ONE opportunity to make whatever modifications are needed to pass inspection prior to the beginning of the competition; then the Go-Cart will be weighed and measured.

4. The Go-Cart must be self-propelled and powered only by rubber bands.
5. The Go-Cart must run on a minimum of three wheels.
6. The frame and size of the body and the size of the wheels will depend on the team's chosen design. It can be as long or as short as desired.
7. The cart will run on a smooth surface. The distance will be measured from the starting line to the stopping point, utilizing a straight line between the two points.
8. There will be two runs for each car. The best single performance will be used for final scoring.
9. The formula used to judge the performance of the car will give the best score for the shortest, lightest, and farthest traveling car.
10. The formula used to determine the winner is:

$$F = \frac{1}{W} \left[\frac{D}{L} \right]^2$$

- F = Final Score
D = Longest single distance traveled in a straight line.
D = 2500 if Go-Cart traveled 2500 centimeters or more.
L = Longest dimension in any direction (length, width, height) in centimeters.
W = **Total Mass of completed vehicle.**

Go-Cart Evaluation Worksheet

Team Name _____

School _____

Date _____

Student Name _____ Grade _____

Student Name _____ Grade _____

1. Mass of Car measured in grams W _____

2. Length of Car - measured in centimeters
(Longest dimension: length, width or height) L _____

4. Distance Traveled
first run _____
second run _____

Greatest distance traveled D _____
(2500 if distance traveled is 2500 centimeters or more)

$$\text{FINAL SCORE} = F = \frac{1}{W} \left[\frac{D}{L} \right]^2$$

FINAL SCORE: _____

Mathematics Challenge

General Rules

1. There will be one team per school. Each team will have four (4) students, including one captain per team.
2. The team will solve one problem at a time.
3. If any manipulatives or calculators are to be used, they will be provided. The problem may be solved using a variety of strategies such as: make a table or chart, use objects, work backwards, create a diagram, use arithmetic, etc.
4. Team members will work together to solve the problem.
5. Each time the team has solved its problem, members will write the solution and the school's name on the answer sheet provided. The team captain will hold up the answer sheet for the judges to collect.
6. The judges will score the solution, and points will be given for correct responses.
7. First, second, and third place will be determined according to the total number of points each team has accumulated.
8. In case of a tie, first, second, and third place will be selected according to the earliest completion time.

Poster Competition

General Rules

1. Each poster is to be prepared and submitted by an individual student (not a team). Only one entry per school will be accepted.
2. The theme of the 2008 Competition is: **"SECME: Lighting The Torch To Empower Future Leaders"**
3. Lamination may be used to protect posters during transport.
4. Schools are encouraged to have an in-house poster contest and send their best entry to the Festival Competition.

Requirements: Any entry not meeting these requirements will be automatically disqualified.

1. This year's theme must appear on the poster.
2. The size required will be a standard-size poster board (22" X 28" including frame). The frame must be a standard 22" x 28" black, slide-on, plastic or metal poster frame. Framed posters are not to use glass.
3. The poster must be an original work. The design may include but is not limited to: actual hand drawings (charcoal, markers, crayon, paint, etc.) cut and paste computer graphics (the complete work cannot be generated by computer) or any combinations of the above
4. Three-dimensional posters are NOT ALLOWED.
5. A title card (4 X 6 cards) must be included with the following information:
 - Title of the poster (MUST be this year's theme)
 - Student's name, grade, age
 - Home address, zip code, and telephone number
 - Student's ID number
 - School name and address
 - School District (Miami-Dade County Public Schools)
 - SECME Teacher Coordinator's name
 - Date

Poster Evaluation Worksheet

School _____

Student's Name _____

Student's ID _____ Grade _____ Age _____

Poster Title _____

The poster is disqualified if any of these requirements are not met:

___ 4 X 6" Title Card:

Student's name, grade, age; home address and telephone number; name and address of school; school district, SECME School Coordinator's name; date.

___ Poster size 22" X 28" including frame

EVALUATION CATEGORIES

POINTS

Description: Physical Facts (1-20 points)

- Theme visible and integral to poster design. (1-10 points) _____
- Appearance and craftsmanship, including spelling. (1-10 points) _____

Analysis: Visual Principles and Unity of Design (1-30 points)

- Words and images support each other visually. **(1-10 points)** _____
- Elements (lines, shape, color, value, texture) are used intentionally and effectively. (1-10 points) _____
- Visual principles (form, layout, pattern, emphasis, rhythm, contrast, balance, proportion, variety) combine elements in a pleasing, appropriate, and effective way. (1-10 points) _____

Interpretation: Meaning and Intention (1-30 points)

- Verbal theme is translated by effective metaphor into visual terms. (1-10 points) _____
- All points of the theme's concept are illustrated effectively. (1-10 points) _____
- Stylistic use of medium supports the overall work of art. (1-10 points) _____

Comparison and Response (1-20 points)

- This work is more effective than those in its category in visually carrying out the theme. (1-10 points) _____
- This work appeals to me personally as an isolated work of art. (1-10 points) _____

TOTAL NUMBER OF POINTS (Maximum: 100 points) _____

Science Brain-Bowl Competition

General Rules

1. Each school team will be made up of four students including the team captain.
2. Before beginning the match, the moderator will ask each contestant to test his/her buzzer.
3. The match starts with the toss-up round followed by the bonus round.
4. In the toss-up round, the moderator will ask the question and the answer must be given without conferring. Anyone on the team may buzz to give an answer.
5. In the bonus round, the moderator will ask the question to one team at a time. The team may confer, but only the captain may give the answer.
6. Only the captain may voice a dispute regarding a question, answer, or a procedure. This dispute must be made immediately following the incident. **The judge's ruling is final.**
7. The questions for both rounds will be taken from the elementary science curriculum.
8. Only student contestants will be allowed in the competition room.
9. The final round will be held in the auditorium in front of an audience.

Toss-up Round

1. The toss-up round is 5 minutes long. Once a toss-up question is read, the contestants have 10 seconds to buzz. The contestant must wait to be recognized before answering the question. The contestant who is recognized is then allowed 5 seconds to answer the question.
2. Interrupting the moderator to answer a question is allowed. The moderator will stop asking the question immediately. The person who signaled must answer within 5 seconds.
3. The timekeeper will mark the time (5 seconds) from the moment the contestant is recognized to the time the answer is given. Going over the time limit will be considered an incorrect answer. If a contestant answers the question without being recognized, that will be considered an incorrect answer as well.
4. If the answer is correct, the team will receive 10 points.

5. If a team's response is incorrect, the question will be reread for the opposing team. If the other team's answer is incorrect, the moderator will ask a new toss-up question.

Bonus Round

1. The number of correctly answered questions in the toss-up round will be the number of bonus questions each team will be asked.
2. The bonus round is conducted without buzzers. The moderator will ask a question to one team at a time beginning with the team that holds the lower point total.
3. Once the moderator finishes reading the question, the team captain has ten seconds to give an answer. The team members may confer, but only the team captain may answer.
4. If there is a tie at the end of the bonus round, one final toss-up question will be given to each team in order to determine the winner.

Judging

1. The value of each correct answer is 10 points.
2. Points will not be deducted for incorrect answers.
3. The team with the most points at the end of both the toss-up and the bonus round will continue to the next level of the competition.

Water-Bottle Rocket Competition

The Mission

The mission is to build a Water-Bottle Rocket Vehicle using a 2-liter bottle and launch it from the Pratt & Whitney SECME Rocket Launcher to achieve the longest hang time. The objective of the contest is for each team to construct a rocket propelled by water and air, which will be launched at an approximately 90-degree angle to reach the maximum height possible and maintain the longest "hang time."

Design and Contest Rules:

1. Each school may enter one team with one water-bottle rocket.
2. Each team will consist of up to four (4) students.
3. On the day of the competition, but prior to the launch, a completed entry form, an actual operating rocket, and a patch design must be submitted in order to compete.
4. Prior to the beginning of the water-bottle rocket launching competition, each entry must pass a visual inspection as to height and material requirements in order to be eligible to compete. Entries that fail inspection will be given ONE opportunity to make whatever modifications are needed to pass inspection.
5. The rocket will be launched at an approximately 90-degree angle using 355 ml (12 ounces) of water and 60 psi of air pressure. The hang time of the rocket will be measured using a stopwatch.
6. The "hang time" is defined as the time from the point when the rocket leaves the launch pad until the time it reaches the ground. This measurement will be recorded by at least two qualified judges, with the average "hang time" used to determine the final score.
7. The final score for hang time will be calculated based on the greatest single hang time recorded during the competition, using the following formula:

$$\frac{\text{Average hang time (seconds)}}{\text{Maximum hang time (seconds)}} \times 100$$

8. An overall winner will be selected upon the following criteria:

Hang Time of Rocket	70 %
Patch Design	30 %

Construction and Operation Requirements:

1. The pressure vessel must be ONE (1) clear plastic, 2-liter bottle.
2. Water and air pressure will be the sole source of propellant. At check-in, the water volume (355 ml) will be measured and placed in the rocket fuel chamber.
3. Metal, glass, or spikes may NOT be used to construct the rocket. The use of these materials will automatically disqualify the team from the competition.
4. At the bottom (throat) of the rocket, a space measuring 7.5cm must be left clear of any coverage (e.g. paint, markings, drawings) See Diagram 1.
5. The maximum allowed total height of the rocket is 76.0 cm. See Diagram 1.
6. The nose-cone tip must have a minimum radius of 1.5 cm. See diagram 2.
7. The fins must start 10 cm from the throat exit plane. See Diagram 1. **Note: No forward-swept type fins are allowed to be used on the rocket.**
8. The maximum width of the fin from the bottle is 10.0 cm (or 16.5 cm from the center of the bottle axis). See Diagram 3.
9. The use of parachutes is NOT allowed.

Patch Design Criteria:

This is a creative display that reflects the dedication and mission of the team. This symbolic picture must comply with the rules below. See sample on page 22.

1. Patch designs must be submitted on a 13 inches X 13 inches poster board.
2. All entries must contain the team name and crew members' names.
3. The patch must reflect this year's theme, "SECME: Lighting The Torch To Empower Future Leaders".
4. The patches must be handmade, original work prepared and submitted by the SECME school team who will be participating in the Water-Bottle Rocket Design Competition. Ink, pencils, markers, and /or paint may be used to create the patch.
5. Participating teams must be prepared to display their patches prior to the launch of their rockets.
6. Each entry is to be submitted by the mission captain along with the rocket at the time of check-in. The patch and rocket should be placed in a large grocery paper bag.

Diagram 1

Rocket Identification

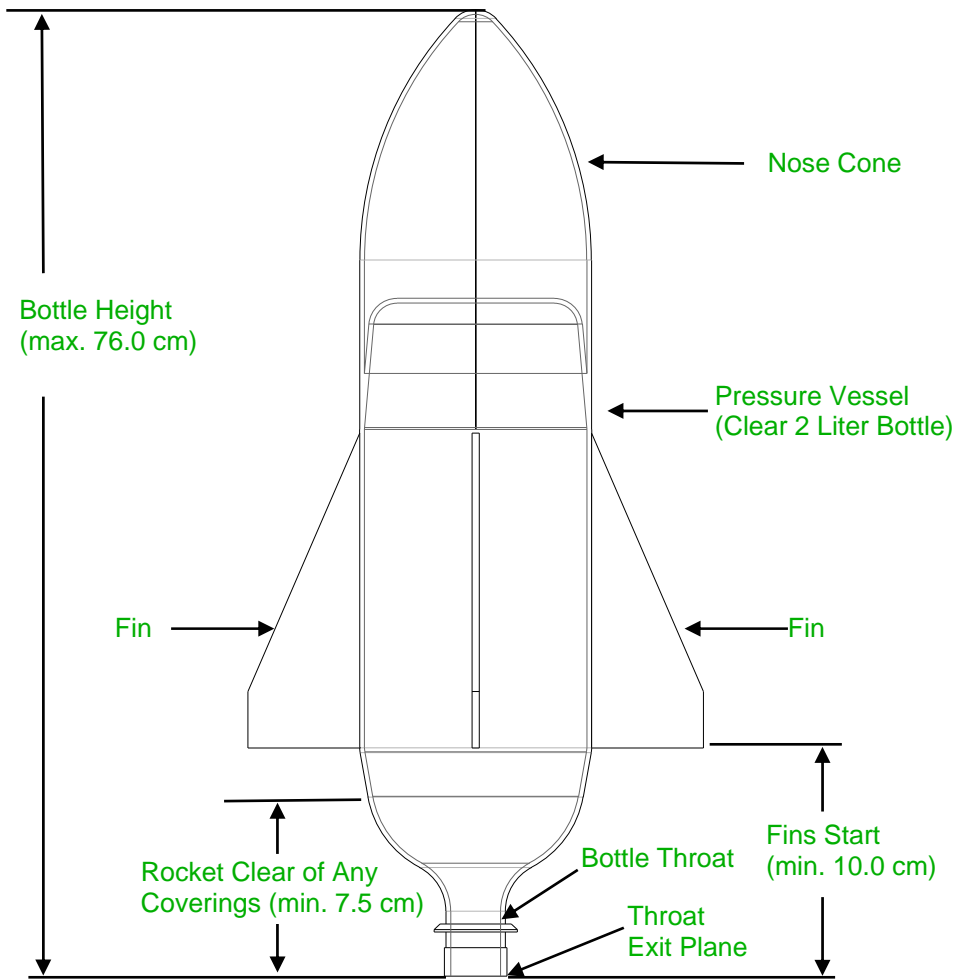


Diagram 3

Nose Cone Diagram

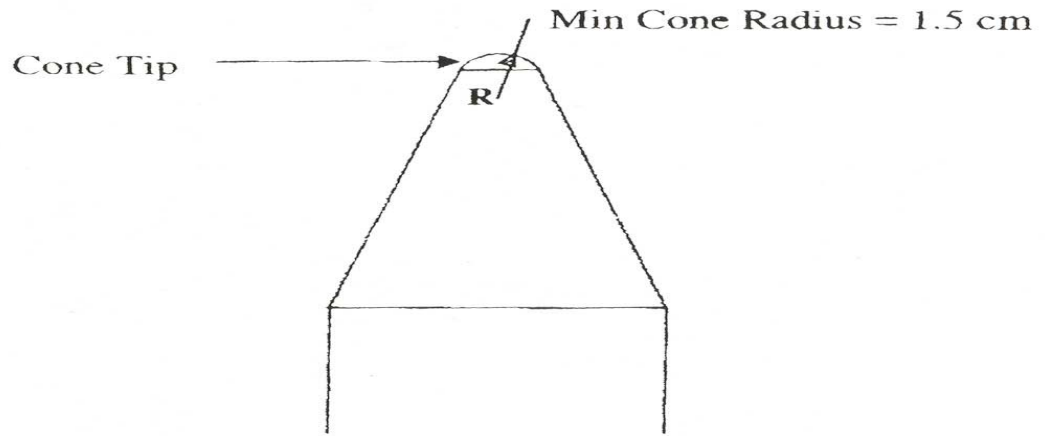
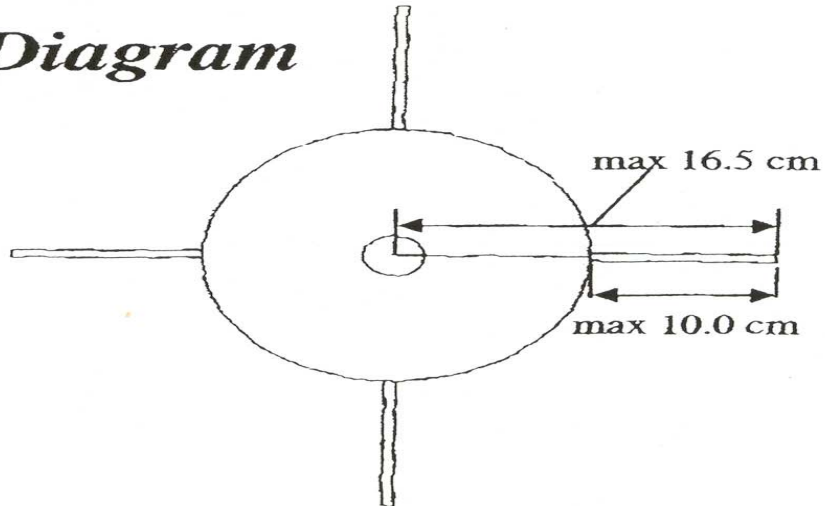


Diagram 4

Fin Diagram



“Here is an Example...”

Patch Design

Patch Design



Explanation of Patch

The propelled rocket represents the school system, supported by the educators and students, following a path towards excellence. The radiant five 4-point stars symbolize the enrichment of Science, Engineering, Communication, and Mathematics. Where as, the seven 8-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-Bottle Rocket Patch Evaluation Worksheet

Team Name _____

School Name _____

Date _____

Student Name (captain) _____ Grade _____

Student Name _____ Grade _____

Student Name _____ Grade _____

Student Name _____ Grade _____

The maximum score for the Water Rocket Patch is 100 points.

PATCH EVALUATION CATEGORIES	POINTS
------------------------------------	---------------

<i>Originality</i> (1-25 points) The innovation of the patch design.	_____
--	-------

<i>Creativity</i> (1-25 points) The uniqueness of the information depicted.	_____
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<i>Appearance</i> (1-20 points) The attractiveness and neatness of the presentation.	_____
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<i>Content</i> (1-25 points) Representation of the team's name, crew members' names, and SECME theme.	_____
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<i>Entry Requirement</i> (1-5 points) Paper size 13" X 13"	_____
--	-------

TOTAL NUMBER OF POINTS (Maximum 100 points)	_____
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Water-Rocket Construction and Operation Evaluation Worksheet

Team Name _____

School Name _____

Date _____

Student Name (captain) _____ Grade _____

Student Name _____ Grade _____

Student Name _____ Grade _____

Student Name _____ Grade _____

CONSTRUCTION SPECIFICATION REQUIREMENTS

Overall Height: 76.0 cm or less _____

Fin-Width Distance: 10.0 cm _____

Fin-Base Distance from Throat Exit: 10 cm _____

Nose Cone-Tip Radius: 1.5 cm or greater _____

Throat Exit Clearance: 7.5 cm or greater _____

SCORING

"Hang Time"

Judge 1 _____

Judge 2 _____

Judge 3 _____

Average "Hang Time" in seconds

Score: $\frac{\text{average hang time}}{\text{maximum hang time}} \times 100 =$ _____

FINAL RANKING

_____ + _____ = _____
"Hang Time" of Rocket Patch Design Final Score
70% 30%

A W A R D S



All participating students will receive certificates.

First-, second-, and third-place winning schools/students will receive awards.

The First-place essay and poster will be eligible to enter the SECME National Student Competition.

