

# Aviation and Aerospace

## Division Code: 16

*SUPERINTENDENT: Pamela Lopez*

*ASSISTANT SUPERINTENDENTS: Patrick Cure, Noemy Pascual, Robert Tschumy, Sean Gallagan*

### Entry Form Registration Deadline: Tuesday - February 2, 2010

*Accepts Groups?*

NO

#### Competition Dates:

Metric Glider - Tuesday, March 23, 2010, 4:00 pm until 5:30 pm. (Flight times will be assigned on project check-in days.) Flight Simulation Challenge – Saturday, April 11, 2010 at 3:00 pm in Arnold Hall.

#### Check-In:

Teachers and Club Leaders, Thursday March 18, 2010 from 4:00 pm to 8:00 pm, in Arnold Hall.

Individuals, Saturday March 20, 2010 from 10:00 am to 4:00 pm, in Arnold Hall.

#### Check-Out:

Thursday April 15, 2010 from 4:00 pm to 8:00 pm, in Arnold Hall.

The Aviation and Aerospace Division will award an outstanding trophy for each level (middle and senior high school) based upon the following criteria:

1. Each entry in this division receiving a first place ribbon will be awarded one point.
2. Each entry in this division receiving a special award will receive one point.
3. The school receiving the most total points will be awarded the outstanding trophy.

#### Note:

This division will only accept entries from middle and high school.

#### Aerospace Photography:

Class 1 - Aerospace Photography - Grades 6-8

Class 2 - Aerospace Photography - Grades 9-12

A student produced photograph or original digital image with an aviation or space theme. This means you actually take the picture yourself using either a 35mm or digital camera. You may NOT take or use any photograph or image from the internet or any other source. Copyrighted or non-copyrighted images from any stock libraries may also not be used.

#### Rules:

1. Only one image may be entered per student.
2. Individual entries only. NO class/club entries will be accepted.

#### Limitations:

1. Photograph may be black and white or color.
2. Photograph size MUST be no less than 8" x 10" or no more than 11" x 14". It must be mounted on mount board, mat board or railroad board with a minimum 1" and a maximum 2 ft" border on all side.
3. Total thickness must not exceed 1/4", (NO FOAM CORE BOARD OR CARD-BOARD).
4. All entries must depict an aviation or space theme.
5. All entries must be titled in computer generated type of 18 point. Title should reflect and support the image theme.
6. Entry form placed on the FRONT RIGHT CORNER on the bottom.
7. Only First and Second Place Winners will be displayed based on space available.

#### Judging Criteria:

Projects will be judged on the following: composition, creativity, display quality, effectiveness in depicting theme and lighting.

#### Aerospace or Rocketry Technology Display:

Class 3 - Aerospace or Rocketry Technology Display - Grades 6-8

Class 4 - Aerospace or Rocketry Technology Display - Grades 9-12

Research and development of an applied technology used in the aerospace industry and prepare a display of the technology, including a model to demonstrate how the technology is applied to air and/or space vehicles, or their manufacture, control or operation. May also be research and display of a scale model rocket, missile or space exploration vehicle or structure, such as the international space lab, lunar module, space shuttle, etc.

#### Rules:

1. Select an applied technology, rocket or space vehicle to research. This may be current, past or future technology. Research the way the technology is used (or its proposed use) and prepare a display of your findings.
2. Build a THREE dimensional (3-D) model of the device that will explain how the technology is applied in industry.
3. Individual entries only. NO group or class entries.

#### Specifications and Limitations:

1. A three panel foam core board display must accompany the model. The display board must meet the following criteria:
  - a. Max. Height – 36 Inches
  - b. Max. Width – 24 Inches (Center Panel)
  - c. Max. Depth – 12 Inches
  - d. Display boards MUST be covered attractively, including back and sides. Boards may be painted or covered with paper.
2. The display must include the following:
  - a. A BANNER TITLE across the top of the display board, with the title of the technology or application. (e.g., Lasers, Robotics, Radar, Telemetry, Spectrometer, etc.
  - b. Illustrations and or photographs of the device(s).
  - c. An explanation on how the technology is applied and its application(s).
  - d. An explanation on why the technology is important to the application(s).
  - e. Must cite the source for all information and have it displayed on the bottom right hand side panel.
3. Model may be of any material but MUST be THREE dimensional (3-D). Models can be functional or static. (e.g., A sectional model that shows the details may be used to demonstrate or illustrate the application of the technology in an aerospace environment.) The model must be mounted on a base not to exceed 14" x 14".
4. Attach entry form to the inside top right panel.
5. Only First and Second Place Winners will be displayed based on space available.

#### Judging Criteria:

Projects will be judged on the following: logic of presentation, originality, subject coverage, interest and appeal, quality of work. Careful attention should be given to lettering, mounting, color and presentation of information. Entries not deemed acceptable will not be displayed.

#### Metric Glider:

Class 5 - Metric Glider - Grades 6-8

Class 6 - Metric Glider - Grades 9-12

The design and construction of hand-launched model aircraft (metric glider) to demonstrate the principles and theories of flight.

#### Rules:

1. Only one glider may be entered per student.
2. **Individual entries only.** NO class/club entries will be accepted.
3. Entry form must be attached with a rubber band wrapped around the glider.

### Specifications and Material Limitations:

1. Fuselage Blank: **maximum** size, 230mm x 75mm x 3mm
2. Wing Blank: **maximum**, size 300 mm x 74mm x 1.5mm
3. Stabilizer Blank: **maximum** size, 75mm x 40mm x 1.5mm
4. Must be all **BALSA** construction.

### Specific Tolerances:

1. The glider must be constructed within material limitations as stated. A participant may choose to use all of the materials provided for construction. There are NO minimum dimensions for any part.
2. The fuselage must be constructed from the 3mm thickness material. It may be any shape or size within the 230mm x 75mm blank and may be constructed from more than one part.
3. The wing(s) must be constructed from 1.5mm thickness material. Wings may be a single part or more than one part.
4. Stabilizers must be constructed from 1.5mm thickness material. Stabilizers may be a single part or more than one part.
5. Rudders and Vertical stabilizers may be an integral part of the fuselage or constructed as a separate part. They may be constructed from 1.5mm or 3mm material.
6. Placement of parts is solely at the discretion of the designer. Wings, stabilizers and other parts may be attached by slots or glued to the fuselage. Struts may be used, provided they are cut from the basic material specified for the fuselage, wings and stabilizer blanks. No additional materials may be used for construction.
7. Flaps and ailerons may be included in wings provided they are constructed from 1.5mm material.
8. Balance weights made from plastic clay (modeling clay) may be used and placed at any location on the glider. Weights shall be limited to TEN Grams total.
9. The glider model shall be all-wood (**BALSA**) construction. No plastic, metal or other parts may be attached to the model with the exception of the clay balance weights.

### Flight Procedures:

1. Each entrant, in order to receive a qualifying flight time, must attend the scheduled flight period on Tuesday, March 23, 2010, flight start times will be begin at 4:00 pm. Flight times will be assigned on project check-in days.
2. Each entrant is given three opportunities to fly the glider, hand-launched from a designated area. The accumulated flight time of the three trials (from release to touchdown) is used to determine flight duration.
3. Each entrant must launch his/her own glider. All launchings are done by hand. No mechanical device or rubber bands are allowed.
4. Any repairs are to be done at the flight area. No additional materials may be added to the glider at this time. Repairs may be made after test flights and between time trial flights.
5. Entrants who do not attend the scheduled flight period will not qualify for trophies but their entries will be judged for ribbons and awards.

### Judging Criteria:

For Ribbons: Design and quality of construction

For Trophies: Flight duration in seconds, longest combined flight time of three flights. There will be six trophies: three for middle school and three for high school; First, Second and Third place awarded to students in this event.

### Famous Aviator:

Class 7 - Famous Aviator - Grades 6 - 8

Class 8 - Famous Aviator - Grades 9 - 12

Research a famous aviator or astronaut and prepare a display describing their contributions to aviation and/or space technology.

### Rules:

1. Only one display may be entered per student.
2. Individual entries only. NO class/club entries will be accepted.
3. Entry form attached on the FRONT RIGHT CORNER on the bottom.

### Specific Limitations and Requirements:

1. The display must be mounted with a mount not to exceed 16" X 20" Layout may be horizontal or vertical. The display must contain the following: half of the display must contain an illustration, drawing or photograph of the individual, the other half a biography of the person. (NO FOAM CORE BOARD OR CARD-BOARD).
2. Each half must have a cut out window to display either the illustration and/or the biography. As an example: use a precut mount from a picture frame to display both items.
3. Each display must include an illustration (photo, drawing or painting) of a famous aviator or astronaut. Illustration need not be original. Source of the illustration MUST be identified.
4. Each display must include a brief history of the famous aviator.
  - a. His/her name, date of birth, date of death of deceased should be displayed on the TOP of the brief biography in 18 point type.
  - b. NO HAND LETTERED ENTRIES WILL BE ACCEPTED.
  - d. Projects deemed inappropriate in terms of content and/or craftsmanship will not be displayed.
5. Only First & Second Places winners will be displayed based on site availability.

### Judging Criteria (Famous Aviator):

Quality of work, neatness and accuracy of the display and the information it contains.

### Aviation History:

Class 9 - Aviation History - Grades 6 - 8

Class 10 - Aviation History - Grades 9 - 12

The research and construction of a model aircraft and diorama of significant historical importance.

### Rules:

1. Only one display may be entered per student.
2. Individual entries only. NO class/club entries will be accepted.

### Specific Limitations and Requirements:

1. The aircraft selected must have some important significance to aviation history.
2. The historical summary must be printed and displayed on an 8.5" x 11" sheet of paper.
3. Attach entry form to the inside of the diorama.
4. The model display MUST meet the following specifications:
  - a. The model must be displayed in a 3 sided diorama and MUST be securely attached to the base or sides (no loose models or items on display).
  - b. The base of the display board MUST be foam core, one-quarter inch thick, base not to exceed 24" x 24"
  - c. Diorama back and side boards must not exceed 12" in height.
  - d. Back and sides must be decorated, painted or covered attractively with paper. NO CARDBOARD may be used for back or sides of diorama.
  - e. A color photograph or artist's rendering of the actual aircraft must be included in the display.

### Judging Criteria:

Quality of work, neatness and accuracy of the display and the information it contains.

### Flight Simulation Challenge:

Class 11 - General Aviation Flight Simulation - Grades 9-12

Class 12 - Aerial Combat Flight Simulation - High School Grades 9-12

This competition will be judged on the demonstration of simulated aircraft flight controls, maneuvers, and proficiency. Baker Aviation School will provide computers and software on the competition day.

Competition Date: April 11, 2010 at 3:00 pm in Arnold Hall. Entries: There is no entry project to submit, but participants must register in Class 11 or 12, and may not enter both classes. **Because of equipment and space limitations, the number of participants will be limited. Pre-qualification or elimination requirements may be used.** For more information, contact Thomas Cummings, Instructional Supervisor of Technology Education.

**Rules:**

Class 11

1. Only senior high school students are eligible to participate.
2. Individual entries only.

Class 12

1. Only senior high school students are eligible to participate.
2. Individual entries only.

**Limitations:**

Class 11

1. Student will utilize a Microsoft Windows Based Aerial Combat Flight Simulator Program.
2. Simulator software will be pre-configured prior to competition. No adjustments, drivers, controls, etc. allowed.
3. Student will simulate flight in a Cessna 172.
4. Student will take off from one airport and land at another airport.
5. Student with best from "full stop" to "full stop" time will be considered winner.
6. Physical yoke and pedal controls will be available for aircraft control.
7. Updated information will be posted on website [teched.dadeschools.net/Resources.htm](http://teched.dadeschools.net/Resources.htm).

Class 12

1. Student will utilize a Microsoft Windows Based Simulator Program.
2. Simulator software will be pre-configured prior to competition. No adjustments, drivers, controls, etc. allowed.
3. Student will simulate combat "dog fight" in two man team.
4. Students compete until all students have competed and been eliminated.
5. Match win is considered to be last pilot flying.
6. Physical stick and throttle controls will be available for aircraft control.
7. Updated information will be posted on website: [teched.dadeschools.net/Resources.htm](http://teched.dadeschools.net/Resources.htm)

First, Second and Third Place trophies will be awarded in both classes.

**Premiums:**

Purple Ribbon .....	\$5.00 and Special Award Rosette
Blue Ribbon .....	4.00
Red Ribbon .....	3.00
White Ribbon .....	2.00
Yellow Ribbon .....	Ribbon Only

**School Trophies and Awards:**

- Best Overall Middle School (Plaque)
- Best Overall Senior High School (Plaque)
- Steven A. Bachmeyer Aviation/Aerospace Award of Excellence (Plaque)
- General Aviation Flight Simulation Best Overall School (Plaque)
- Aerial Combat Flight Simulation Best Overall School (Plaque)

**First Place, Second Place and Third Place Individual Trophies:**

- General Aviation Flight Simulation Contest
- Aerial Combat Flight Simulation Contest
- Middle School Metric Glider
- High School Metric Glider

**Important Note:**

**If you are unable to pick up your exhibits on Thursday, April 15, 2010, please make arrangements to have someone else pick them up for you. Exhibits not picked up during check-out WILL BE discarded on Friday, April 16, 2010 at 8:00 am.**

**If there are no entries meeting the quality standards for any awards, no award will be given.**

**Boy Scouts**

**Division Code: 52**

*SUPERINTENDENTS: Karen Robinson*

*ASSISTANT SUPERINTENDENT: Steven Robinson*

*STUDENT ASSISTANT: Brad Norris*

**Entry Form Registration Deadline:**

**Tuesday - February 2, 2010**

*Accepts Groups?*

**YES**

*Limitations:*

Exhibits larger than 24" X 24" or over 5 pounds in total weight must be approved the Superintendent Karen Robinson prior to February 2, 2010, please contact Karen Robinson at 305-271-4626.

**Dioramas & Science boards must be covered attractively, including the back and sides**

**Check-In:**

Units with displays that require extra time and space to assemble must contact the Superintendent Karen Robinson 305-271-4626, prior to the Tuesday February 2, 2010 registration deadline to arrange special access to the area. Units with slightly oversized displays are requested to check-in on Thursday, March 18, 2010 from 4:00 pm to 8:00 pm, in Arnold Hall. Any other display may be checked-in either Thursday, March 18, 2010 from 4:00 pm to 8:00 pm or on Saturday March 20, 2010 from 10:00 am to 4:00 pm, in Arnold Hall.

**Check-Out:**

Thursday, April 15, 2010 from 4:00 pm to 8:00 pm, in Arnold Hall.

**Entry Form Guidelines:**

Please use the **Club Entry Form**. The division code is 52. Fill in the name of the Scout and his grade. Please indicate Pack/Den or Troop/Patrol in the space provided for Club Information. This is the only way we can determine individual and den awards. In the space provided for Club Leader Information please type in the leaders information. **If this is a group project, please indicate on the entry form and submit the name of each scout in the group.** Only one tag will be printed for all group projects since **A GROUP PROJECT IS ONE ENTRY WORKED ON BY MORE THAN ONE PERSON.** You **MUST** show the leader's name and address so the entry tags can be mailed to them. This division is for anyone in Tigers, Cub Scouts, Boy Scouts, Eagle Scouts and/or Explorers. Anyone entering an exhibit(s) in this division **MUST** be a member of the Scouting Organization and they will be able to enter any project(s) that is either a Scouting requirement or reflects his achievements in Scouting. This includes specific projects such as Pinewood Derby, Raingutter Regatta, crafts, displays, dioramas or writings.

**Boy Scout Exhibits**

Class 1 - Individual Entry

Class 2 - Group Entry

**Rules:**

1. Scouts may submit no more than 6 exhibits in this division.
2. All entries must clearly relate to a Scouting Project, achievement or special Scouting event within the past twelve months. Exhibitor may be requested to explain their project at check-in. **PLEASE DO NOT ENTER SCHOOL PROJECTS.**
3. Exhibits larger than 24" X 24" or over 5 pounds in total weight must be approved the Superintendent Karen Robinson prior to February 2, 2010, please contact Karen Robinson at 305-271-4626. Oversized projects, such as gateways, towers, or large floor displays will have to be constructed in the display area the weekend prior to March 19, 2010. Please contact Karen Robinson so arrangements can be made.