

## Aviation and Aerospace - Division 16

*Superintendent: Pamela Lopez*

*Assistant Superintendents: Robert Tschumy • Tonya McHugh • Tatiyana Brown • Jimmy Nieto*

*Student Assistant: Tyler Brown*

Entry Deadline:	January 15, 2019
Check In:	February 28, 2019, 4:00 PM to 8:00 PM in Arnold Hall. March 2, 2019, 10:00 AM to 4:00 PM in Arnold Hall.
Check Out:	April 11, 2019, 4:00 PM to 8:00 PM in Arnold Hall.
Group Entries:	As Indicated

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 three points, second place two points and third place 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.

### Rules:

1. Grade Levels: Middle and high school exhibitors only.
2. Number of Entries: Refer to each Class below
3. Size specifications: Refer to each Class below
4. Entry Tag location specifications: Refer to each Class below

### **Class 1601: Aerospace Photography High School Level**

### **Class 1602: Aerospace Photography Middle School Level**

Description of Class: 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.

1. Entry Specifications: Individual entries only. No group homeroom, group, or club entries will be accepted. Only one image may be entered per student.
2. Number of Entries: Only one entry per individual student.
3. Size and Mounting Specifications: 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 2.5" border on all sides. Total thickness must not exceed 1/4".
4. Entry Tag(s) must be placed at the bottom of the entry on the FRONT RIGHT CORNER. NO FOAM CORE BOARD OR CARDBOARD mounting.
5. Acceptable Entries: All entries must depict an aviation or space theme. Photograph may be black and white or color.
6. Only blue and red ribbon winners will be displayed based on space available.

7. ANY ENTRIES NOT CONFORMING TO THE ABOVE RULES OR THE OFFICIAL FAIR RULES WILL BE DISQUALIFIED AT THE DISCRETION OF THE JUDGES AT CHECK IN.
8. This Division will accept only those entries made expressly for the 2019 fair.
9. All decisions of the judges are final.
10. The Youth Fair management has jurisdiction over interpretation of these rules. Items entered in the wrong Division will not be judged nor shown. This Division is not responsible for lost/damaged items.

### **Aerospace Photography Class Judging Criteria:**

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

### **Class 1603: Aerospace /Rocketry Technology Display High School Level Class 1604: Aerospace/Rocketry Technology Display Middle School Level**

Description of Class: Display of specific technology used in aerospace industry; or can be MODEL of an idea for aerospace, such as “City on the Moon,” new space ship-design, etc.

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.

1. Entry specifications: Group or Individual Entries accepted (Groups of no more than 4 students.)
2. 2. Number of Entries: Only one entry per individual student, or per group.
3. Size and Mounting Specifications: A three panel foam core board display must accompany the model. The display board must meet the following criteria:
  - Max. Height – 36 Inches
  - Max. Width – 24 Inches (Center Panel)
  - Max. Depth – 12 Inches
  - Display boards MUST be covered attractively, including back and sides.
  - Boards may be painted or covered with paper.
4. Entry Tag(s) must be securely attached to the inside top right panel of the foam core display board.
- 5.
6. Acceptable Entries: 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.
  - The Model and Base: Build a THREE dimensional (3-D) model of any appropriate material of the device. Models may be functional or static. (e.g., a sectional model)

- The foam core display behind the model must include the following:
  1. A BANNER TITLE across the top of the display board, with the title of the technology or application (e.g., Lasers, Robotics, Radar, City on the Moon, New Space Vehicle Design, etc.).
  2. Illustrations and or photographs of the device(s).
  3. An explanation on how the technology is applied and its application(s).
  4. Must cite the source for all information and have it displayed on the bottom right hand side panel.
- 7. NOT ACCEPTABLE: Any entry not following the above rules will be disqualified.
- 8. Only blue and red ribbon winners will be displayed based on space available.
- 9. ANY ENTRIES NOT CONFORMING TO THE ABOVE RULES OR THE OFFICIAL FAIR RULES WILL BE DISQUALIFIED AT THE DISCRETION OF THE JUDGES AT CHECK IN.
- 10. This Division will accept only those entries made expressly for the 2019 fair. All decisions of the judges are final.
- 11. The Youth Fair management has jurisdiction over interpretation of these rules. Items entered in the wrong Division will not be judged nor shown. This Division is not responsible for lost/damaged items.

#### Aerospace or Rocketry Technology Display Class 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.

#### **Class 1605: Metric Glider High School Level**

Description of Class: The design and construction of hand-launched model aircraft (metric glider) to demonstrate the principles and theories of flight. Technical drawing of glider design should also be included with entry.

Entry Specifications: Individual entries only. NO homeroom, group, or club entries will be accepted.

1. Number of Entries: Only one glider may be entered per student.
2. Entry Tag(s) must be attached with a rubber band wrapped around the glider.
3. A technical drawing depicting the side view and top view of the glider should be included. The drawing must be created by computer drafting techniques. Indicate student name, school and scale of drawing in title block.
4. Size and Materials Specifications: The glider must be constructed within material limitations as stated. There are NO minimum dimensions for any part FOR HIGH SCHOOL GLIDERS.
  - Fuselage Blank: maximum size, 3mm (1/8") thick x 13mm (1/2") wide

- x 300mm (11 $\frac{1}{8}$ " ) long. The fuselage must be constructed from the 3mm thickness material.
  - Wing Blank: 1.5mm (1/16") thick x 77mm (3") wide x 300mm (11 $\frac{1}{8}$ " ) long. The wing(s) must be constructed from 1.5mm thickness material. Wings may be a single part or more than one part. Flaps and ailerons may be included in wings provided they are constructed from 1.5mm material.
  - Stabilizer and Fin Blank: .75mm (1/32") thick x 51mm (2") wide x 150mm (5 $\frac{1}{8}$ " ) long. Stabilizers must be constructed from 75mm thickness material. Stabilizers may be a single part or more than one part. 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.
  - Balance material may be made from plastic modeling clay for balance trim and placed at any location on the glider. Ballast shall be limited to FIVE Grams total.
  - Gliders may be Balsa or Basswood construction.
5. NOT ACCEPTABLE: No plastic, metal or other parts may be attached to the model with the exception of the clay balance weights.
  6. Only blue and red ribbon winners will be displayed based on space available.
  7. ANY ENTRIES NOT CONFORMING TO THE ABOVE RULES OR THE OFFICIAL FAIR RULES WILL BE DISQUALIFIED AT THE DISCRETION OF THE JUDGES AT CHECK IN.
  8. This Division will accept only those entries made expressly for the 2019 fair. All decisions of the judges are final.
  9. The Youth Fair management has jurisdiction over interpretation of these rules. Items entered in the wrong Division will not be judged nor shown. This Division is not responsible for lost/damaged items.

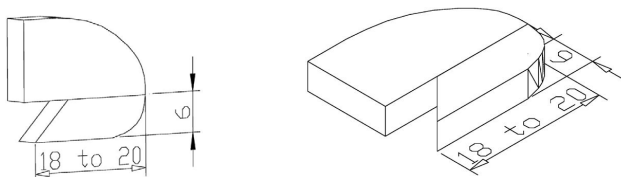
### **Class 1606: Metric Glider Middle School Level**

Description of Class: The design and construction of hand-launched model aircraft (metric glider) to demonstrate the principles and theories of flight. This is a change from previous years' rules. The Middle School Class includes new specifications below, which align with 2019 Technology Student Association (TSA) Middle School Flight Contest Rules. Technical drawing of proposed design should also be included with glider entry.

1. Entry Specifications: Individual entries only. NO homeroom, group, or club entries will be accepted.
2. Number of Entries: Only one glider may be entered per student.
3. Entry Tag(s) must be attached with a rubber band wrapped around the glider.
4. A technical drawing depicting the side view and top view of the glider should be included. The drawing must be created by computer drafting techniques.
5. Size and Materials Specifications: The glider must be constructed within

material limitations as stated. The glider may be constructed from balsa and/or basswood plus ballast material. There is a maximum size of the fuselage 300mm long.

- Fuselage Blank: maximum size, 3mm ( $\frac{1}{8}$ " ) thick x 13mm ( $\frac{1}{2}$ " ) wide x 300mm ( $11\frac{3}{8}$ " ) long. The fuselage must be constructed from the 3mm thickness material.
  - Wing Blank: 1.5mm ( $\frac{1}{16}$ " ) thick x 77mm (3" ) wide x 300mm ( $11\frac{3}{8}$ " ) long. The wing(s) must be constructed from 1.5mm thickness material. Wings may be a single part or more than one part. Flaps and ailerons may be included in wings provided they are constructed from 1.5mm material.
  - Stabilizer and Fin Blank: .75mm ( $\frac{1}{32}$ " ) thick x 51mm (2" ) wide x 150mm ( $5\frac{7}{8}$ " ) long. Stabilizers must be constructed from 1.5mm 75mm thickness material. Stabilizers may be a single part or more than one part. 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.
  - CATAPULT LAUNCH requirements: Catapult will be provided by fair judges, participants should construct a "hook" attachment or carved into glider for catapult launching.
6. Hook: 3mm ( $\frac{1}{8}$ " ) thick x 6.5mm ( $\frac{1}{4}$ " ) wide x 20mm ( $\frac{3}{4}$ " ) long, glued to the bottom of the fuselage; a "hook" or "shark's tooth" cut into the fuselage will also be permitted.
  7. Ballast material: 5 grams maximum of materials, such as modeling clay, to be used for balance trim.
  8. Drawing of suggested "shark's tooth hook."



- Tolerances are as follows:
    - Fuselage: 298mm to 300mm long
    - Shark's tooth hook: 18mm to 20mm long x 6mm wide
9. NOT ACCEPTABLE: No plastic, metal or other parts may be attached to the model with the exception of the clay balance weights.
  10. Only blue and red ribbon winners will be displayed based on space available.
  11. ANY ENTRIES NOT CONFORMING TO THE ABOVE RULES OR THE OFFICIAL FAIR RULES WILL BE DISQUALIFIED AT THE DISCRETION OF THE JUDGES AT CHECK IN.
  12. This Division will accept only those entries made expressly for the 2019 fair. All decisions of the judges are final.
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**Metric Glider Class Flight Procedures:**

Each glider entry will be given a flight test by the division judges and will be judged on flight time. Ties will be broken with additional flights. Gliders with longest flight times will be given Rosette awards for First, Second and Third Place in middle school and in high school categories.

**Metric Glider Class Judging Criteria:**

For Ribbons: Design and quality of construction and technical drawing.

For Rosette Awards: Flight duration in seconds. Rosettes will be presented to students in this event attaining; (First, Second and Third place) in middle and high school categories.

**Class 1607: Poster of Famous Aviator(s)/Astronaut(s) High School Level**  
**Class 1608: Poster of Famous Aviator(s)/Astronaut(s) Middle School Level**  
 CLASS RULES HAVE CHANGED THIS YEAR, please read carefully.

Description of Class: Research a famous aviator, astronaut or a group of famous/important people in aviation or space exploration (ex: Crew of International Space Station, Flight Crew of specific Shuttle Flight, etc.) and design a computer-generated poster.

1. Entry Specifications: Individual entries only. NO homeroom, group, or club entries will be accepted.
2. Number of Entries: Only one display may be entered per student.
3. Size and Mounting Specifications: Poster min. size 8"x11" to max. size 11"x17" Glossy or photo paper is recommended, must be mounted on poster or mat board not to exceed 12" x 18" (NO FOAM CORE BOARD, CARDBOARD, or THICK MOUNTING.)
4. Entry Tag(s) must be attached on the FRONT RIGHT CORNER on the bottom of the entry.
5. Acceptable Entries: Photo or drawing of person or group of people (may include more than one photo.) The internet source of photos or graphics MUST be identified in small type at the bottom of the poster.
  - Poster title in large bold type
  - Name of person/group
  - Paragraph, stating
    - Their achievements,
    - Time period of importance (flight, achievements, their life, etc.);
    - In your opinion "why they are important or why they became famous"
6. NOT ACCEPTABLE: NO HAND LETTERED ENTRIES WILL BE ACCEPTED.
  - No foam core or cardboard mounting.
  - Projects deemed inappropriate in terms of content and/or craftsmanship will not be displayed.
7. Only blue and red ribbon winners will be displayed based on space available.

8. ANY ENTRIES NOT CONFORMING TO THE ABOVE RULES OR THE OFFICIAL FAIR RULES WILL BE DISQUALIFIED AT THE DISCRETION OF THE JUDGES AT CHECK IN.
9. This Division will accept only those entries made expressly for the 2019 fair. All decisions of the judges are final.
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### **Famous Aviator/Astronaut Class Judging Criteria:**

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

### **Class 1609 - Aviation History High School Level**

### **Class 1610 - Aviation History Middle School Level**

Description of Class: The research & writing of a historical summary and construction of a model aircraft with diorama of significant historical importance.

1. Entry Specifications: Individual entries only. No group homeroom, group, or club entries will be accepted.
2. Number of Entries: Only one entry per individual student.
3. Size and Mounting Specifications: The model display MUST meet the following specifications:
  - 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).
  - The base of the display board MUST be foam core, one-quarter inch thick, base not to exceed 24" x 24".
  - Diorama back and side boards must not exceed 12" in height.
  - Back and sides must be decorated, painted or covered attractively with paper. NO CARDBOARD may be used for back or sides of diorama.
4. Entry Tag(s) must be attached to the inside of the diorama.
5. Acceptable Entries: The aircraft selected must have some important significance to aviation history. The historical summary must be printed and displayed on an 8.5" x 11" sheet of paper and should be attached to the inner left or right wing of the diorama. A color photograph or artist's rendering of the actual aircraft must be included in the display.
6. NOT ACCEPTABLE: No loose models or items in the diorama. Refer to the size specifications in #3.
7. Only First and Second Place Winners will be displayed based on space available.
8. ANY ENTRIES NOT CONFORMING TO THE ABOVE RULES OR THE OFFICIAL FAIR RULES WILL BE DISQUALIFIED AT THE DISCRETION OF THE JUDGES AT CHECK IN.
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**Aviation History Class Judging Criteria:**

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

**Class Number and Title – See Descriptions Above:**

- Class 1601 - Aerospace Photography High School Level
- Class 1602 - Aerospace Photography Middle School Level
- Class 1603 - Aerospace/Rocketry Tech Display High School Level
- Class 1604 - Aerospace/Rocketry Tech Display Middle School Level
- Class 1605 - Metric Glider High School Level
- Class 1606 - Metric Glider Middle School Level
- Class 1607 - Famous Aviator/Astronaut High School Level
- Class 1608 - Famous Aviator/Astronaut Middle School Level
- Class 1609 - Aviation History High School Level
- Class 1610 - Aviation History Middle School Level

**Premiums, Plaques and Trophies:**

- Steven A. Bachmeyer Aviation Award of Excellence ..... Trophy
- Best Overall High School ..... Trophy
- Best Overall Middle School..... Trophy
- First Place High School Level Metric Glider ..... Rosette
- Second Place High School Level Metric Glider ..... Rosette
- Third Place High School Level Metric Glider ..... Rosette
- First Place Middle School Level Metric Glider..... Rosette
- Second Place Middle School Level Metric Glider..... Rosette
- Third Place Middle School Level Metric Glider..... Rosette

- Purple Ribbon.....\$10.00 and Rosette
- Blue Ribbon .....8.00
- Red Ribbon .....6.00
- White Ribbon .....4.00
- Yellow Ribbon..... Ribbon Only

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