



Delaware Technology Student Association

2012- 2013 MODEL ROCKETRY

Delaware Only Competition

***"SERVING TECHNOLOGY EDUCATION STUDENTS"
SPONSORED BY THE DEPARTMENT OF EDUCATION***

Updated 1/15/2013

MODEL ROCKETRY

Overview: Delaware TSA contestants entering the model rocketry competition will design and construct an original model rocket that must take a size "A" engine. Any design is acceptable as long as safety standards are observed when designing and constructing the rocket.

Written: *Each student must submit a persuasive 1-2 page essay in support of space exploration (roughly 5 paragraphs, 750 words). Include details of a positive spin-off technology that has directly benefited humans due to the research and development involved with space exploration. Add convincing reasons why federal spending by Congress for space exploration should continue.*

Contest Purpose: The model rocketry design and competition will provide a means for TSA members to demonstrate their understanding of aerodynamics, the design process, and physics of rocketry through the construction of an original model rocket.

Eligibility for Entry: Entries are limited to one rocket per student. Competition will be for level I and level II. Rockets must meet safety criteria set forth in the Estes - Education Safety Rules for Model Rocketry.

Levels of Competition: Level I and Level II.

Time Limitations: The contest will run throughout the conference.

Specific Regulations:

- a. **The Rocket** - Students must prepare a rocket made from "scratch". No kit components are allowed, except for the engine mount and launch lug. All other components are all to be designed and fabricated by the student including the nose cone and recovery system.
- b. A recovery system must be part of the rocket - However, full parachutes cannot be used. They must have a hole or holes accounting for 1/2 the total area size of the parachute. No store purchased parachutes allowed.
- c. Students will bring the rockets and reports to competition site at time of registration.
- d. One "A" size engine and electronic launcher will be supplied by the Delaware TSA.
- e. The rocket's body tube diameter cannot be any larger than 1 1/2" and its body tube length must be between 6 and 12".
- f. **Written Report** – Written based on the writing prompt. This must be written before the conference.

Procedures:

- a. Students will submit during the display events registration.
- b. Weather permitting, all rockets will be launched at conference according to schedule.
- c. Rockets will be launched and the rocket that has the longest flight time will be given the maximum points. A student entering the rocketry competition must be in attendance for their rocket launch, so he/she can adjust the angle prior to the launch.
- d. Written: Students must submit the *persuasive 1-2 page essay on March 23, 2013.*

Criteria for Judging:

Please note: Any model rocket that is entered that includes its components from a kit other than those identified in the regulations will be disqualified.

- a. Originality and appearance 20 pts.
- b. Rocket design adheres to concepts, meets specifications
and safety codes? 20 pts.
- c. Rocket Flight..... 20 pts.
 _____ Flight is free of flutter, shuttle cocking 15 pts.
 _____ Student has cooperated with judges and follows safety rules 5 pts.
- d. Flight time - Rockets will be timed from liftoff to point when rocket no longer descends

 Longest..... 20 pts.
 2nd 15 pts.
 3rd 10 pts.
- e. Written: 20 pts.
 _____ Masterful Response..... **16-20 pts.**
 _____ Skilled Response..... **11-15 pts.**
 _____ Satisfactory Response..... **6-10 pts.**
 _____ Insufficient Response..... **1-5 pts.**
 _____ No Response **0 pts.**
- f. Rules violation..... - 20 pts.

TSA STATE CONFERENCE

Competitive Event Evaluation

MODEL ROCKETRY

Student's ID: _____ Level: _____

Chapter/School: _____

*PLEASE NOTE: In event of unsuitable launch conditions the only judging criteria will be originality/appearance, design specifications/safety & written report (A, B & E).

A. _____ **ORIGINALITY & APPEARANCE**20 pts.

_____ Fin design & alignment..... 5 pts.

_____ Nose cone design & aerodynamic..... 5 pts.

_____ Overall aesthetic & finish 5 pts.

_____ Proper balance and weight distribution..... 5 pts.

B. _____ **DOES ROCKET MEET SPECIFICATIONS & SAFETY CODES** 20 pts.

_____ Tail fin, nose cone & recovery system are
fabricated by student..... 10 pts.

- Engine tube & launch lug can be "store bought".
- No full parachutes!
- Any rocket that does not meet the specifications will not be launched.

_____ Design meets safety standards..... 10 pts.

Any design that is a health hazard will not be launched.

C. _____ **ROCKET FLIGHT** 20 pts.

D. _____ **FLIGHT TIME** 20 pts.

E. _____ **WRITTEN**..... 20 pts.

F. _____ **RULES VIOLATION** - 20 pts.

_____ **POINT TOTAL** (100 possible)

_____ **RANKING**

Judge's Signature _____

	Description
Masterful Response	<ul style="list-style-type: none"> Illustrates a thorough understanding of the persuasive task with a consistent focus on the topic through outstanding control over and development of ideas [details, reasons, examples, evidence, anecdotes, events, descriptions, etc.] Presents an effective organization through the use of purposeful paragraphs, including a compelling introduction, purposeful transitions between paragraphs, and an effective conclusion. Establishes a consistent perspective or stance with distinctive tone and style appropriate for purpose and audience. Demonstrates consistent use of appropriate, powerful, precise language to support development of ideas. Contains only few errors, illustrating effective control of age-appropriate standard writing conventions [spelling, usage, punctuation, and capitalization] that are correct to the extent that errors do not detract from overall delivery and requires only minimal editing.
Skilled Response	<ul style="list-style-type: none"> Illustrates a competent understanding of the persuasive task with a clear focus on the central topic through strong control over and development of ideas [details, reasons, examples, evidence, anecdotes, events, descriptions, etc.] that usually, but not always, are relevant to and add support for the central topic with minimal or no digression. Presents a planned organization through the use of multiple paragraphs, including an effective introduction, useful transitions between paragraphs, connections between ideas that may be predictable, and a conclusion that provides a sense of resolution. Establishes a clear perspective or stance with a tone and style appropriate for purpose and audience. Exhibits variety in sentence structure and length to ensure the smooth flow of ideas throughout most of the response. Demonstrates use of appropriate language throughout most of the response to support development of ideas. Contains occasional errors, illustrating reasonable control of age-appropriate standard writing conventions [spelling, usage, punctuation, and capitalization] that are correct to the extent that errors detract only minimally from overall delivery and requires only minor editing.
Satisfactory Response	<ul style="list-style-type: none"> Illustrates a satisfactory understanding of the persuasive task with a focus on the central topic through adequate development of ideas [details, reasons, examples, evidence, anecdotes, events, descriptions, etc.] that somewhat support the central topic but may be undeveloped and/or sometimes list-like. Presents an organization that loosely supports the central topic, with or without multiple paragraphs includes few transitions between paragraphs; ends with a conclusion that is predictable or may be a restatement of the introduction. Attempts to establish a perspective or stance but presents an uneven tone and style that are minimally adequate for purpose and audience. Exhibits minimal variety in sentence structure and length and may include sentences that are mechanical and/or rambling but understandable. Contains errors, illustrating limited control of age-appropriate standard writing conventions [spelling, usage, punctuation, and capitalization] to the extent that errors may detract from overall delivery and require moderate editing.
Insufficient Response	<ul style="list-style-type: none"> Illustrates little or no understanding of the persuasive task with only a weakly implied focus or no focus on the central topic with no control over development of ideas [details, reasons, examples, evidence, anecdotes, events, descriptions, etc.] that relate to the central topic and are confusing, illogical, or undeveloped. Lacks organization to support the central topic with or without multiple paragraphs; may include an introduction that provides little or no direction may or may not end with a conclusion, which, if present, is often inappropriate and/or unconnected. Demonstrates little or no perspective or stance; shows little discernable tone or style or may show inappropriate tone or style. Includes some sentences with structural and word placement problems, a pattern of simple and monotonous sentences that may be unclear. Uses some vague or incorrect language that may be confusing; contains words and expressions that may be redundant, vague, or incorrect. Contains numerous errors, illustrating a struggle with control of age-appropriate standard writing conventions [spelling, usage, punctuation, and capitalization] to the extent that errors detract from overall delivery and require extensive editing.