

***Sixth Annual  
Reach for the Stars  
National Rocket Competition***

***2011 - 2012***

***Rules & Regulations  
Amended to include Collegiate Challenge***

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# ***Sixth Annual Reach for the Stars National Rocket Competition 2011 - 2012***

**Open for ages 10 to Adult**

It's as simple as **3... 2... 1...**

**3... Choose your Level of Competition & Order Rocketry Supplies**

**2... Build & Launch Rockets**

***At least three closest rockets to target - launch again.***

**1... Closest average landing *WINS LOCAL EVENT!***

**Award certificates to all competitors !**

***Enter Local winner's results into the national competition.***

***Closest of all entries (one at each level) submitted to Competition Headquarters by the deadline***

***- WINS NATIONAL EVENT!!***

***Entry Deadline – Midnight, Last Saturday in August***

**3 National Winners celebrate at the  
*October Sky Festival  
Coalwood, West Virginia***

**3 National Winners celebrate at the  
*Astronaut Hall of Fame,  
Kennedy Space Center Visitor Complex, Florida***

***There will be a maximum of six national winners***

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# 6<sup>th</sup> Annual Reach for the Stars ~ National Rocket Competition Rules Synopsis

## \*CC – Collegiate Challenge Rule Exceptions

### From National Association of Rocketry / Pink Book - Spot Landing event

“The purpose of this competition is to land the entry so that the tip of its nose cone is closest to a predetermined spot on the ground.”

### Minimum of 10 Competitors required per local event

Rockets must be constructed, prepared and launched by the competitor

**\*Only Collegiate Challengers may modify their rockets and parachutes.**

Ready-to-fly rockets Do Not Qualify / Assistance is limited to verbal coaching

See complete competition rules for details

## Two on-site adult Judges required

One must be a Public Official

**School Admin or Full Time Staff (required for CC), Police or Fire Dept. Ranking Officer, Scout District Leader, Elected Official (ie. Mayor), etc.**

**Host may act as judge / Judges should not be competitors**

1. Target (clearly marked & easily visible) should be placed 20' downrange from launch pad.
  - a. Target must be fixed to ground to prevent accidental movement.  
Ex: a nail through a piece of paper or small flag on dowel
2. Rocket must be propelled by an “A” engine and landed by parachute
3. In an order selected at random, each competitor will launch and mark their landing spot.
  - a. Touchdown spot of the tip of the nosecone should be immediately marked.

**Note:** a golf tee or similar device makes a good marker

b. A launching angle of less than thirty degrees from the vertical must be used. (NAR Pink Book)

**Note:** In the event that the judges cannot agree on the touchdown spot - the touchdown will be determined as a point halfway between the two points in question.

4. At least 3 competitors with the closest landings launch again and mark the second landing spot. It is preferred that all competitors launch twice. **\*CC all competitors launch twice.**

a. **IMPORTANT:** No repairs may be made prior to the second launch.

b. The distances from the target will then be measured.

5. Measurements must be taken in feet and inches to the nearest 1/4 inch.

a. Metric measure may be used but must be carefully converted before submitting the National Entry.

**Note:** Only the winning competitor needs to be measured with accuracy. All others may be estimated.

6. Record as 50 feet any:

a. landing at a distance greater than 50 feet.

b. landing that does not reach the ground (landings in trees, ponds, etc.)

c. rocket unable to fly.

d. rocket that cannot be returned to the judges.

e. rocket that separates into two or more unattached pieces.

7. Closest average distance wins!

(landing one distance, plus landing two distance, divided by 2, equals average distance)

8. Fill out, sign and submit National Competition Entry Form

9. Award certificates. This can be done at a later date if desired. parent night, awards banquet, etc.

## 6<sup>th</sup> Annual Reach for the Stars ~ National Rocket Competition

– Quick Reference Guide (See rules for details)

**\*CC – Collegiate Challenge Rule Exceptions**

<b>Rocket</b> <i>Examples</i> <b>Estes</b> - Alpha (#1225) Alpha III (#1256) Generic E2X (#1764) <b>Quest</b> - Astra (#1004) Astra III (#1610) <b>Custom</b> – Freedom (#10024) Sierra (#10031)	Length 11 ½” to 15 ½”  <b>*CC – no limit on length</b>	Diameter .95” to 1.25”  <b>*CC – no limit on diameter</b>	Weight not to exceed 2 ½ oz (71 grams) <b>*CC 3 ½ oz (100 grams)</b> *including parachute *without engine / motor  <b>Note: Only *CC Level may          add weight to affect altitude.</b>  A postal scale is helpful in weighing rockets.
<b>Parachute</b>	Minimum six shrouds 8” to 14” in length	Diameter 11 ½” to 14 ½”  <b>*CC – surface area must be          at least 60 sq in</b>	All or part of spill-hole <u>may</u> be removed (max 4 ¼” diam.) <b>Note: nothing may be done          to prevent the parachute          from opening fully</b>
<b>Fins</b>	3 to 5	Non-metal	
<b>Engines / Motors</b>	A8-3	A6-4	0.11 to 0.12 oz of Propellant Total Impulse of 2.5 Newtons 3 to 4 second delay
<b>Launch Rod</b>	Length 38” maximum	Launch Angle less than 30° from vertical	
<b>Target</b>	20’ downrange	Clearly Visible	Stationary

### A. Purpose

1. The purpose of this competition is to foster an interest in model rocketry, STEM subjects and space science.
2. The goal of the program is to give kids the unique educational experience of building and launching their own solid-fuel powered rocket.
3. The mission of the program is to keep alive the memory of *Christa McAuliffe* – **First Teacher-in-Space**.

### B. Eligibility

1. Open to anyone residing in any of the United States except where prohibited by law.
2. Competitor must be at least ten years of age at time of launch.
3. A minimum of 10 Competitors are required for each local Competition.
4. Groups must register before running Competition.
5. **Competitors in the Collegiate Challenge must be currently enrolled in the college or university.**

### C. Prizes

1. One national winner at each level (Kids, Intermediate, Open) for each Celebration will be awarded the Grand Prize as outlined below – maximum 6 winners.

**Note: There is only one Collegiate Challenge National Winner. Celebration is at the US Astronaut Hall of Fame**

2. Competition hosts are encouraged to award prizes at the local level.

# GRAND PRIZES - to be awarded to the 6 National Winners

In the event of cancellation due to circumstances beyond our control, the celebration will be held at a time and location to be announced.

**Travel expenses and applicable taxes not included.**

## **Astronaut Hall of Fame Celebration**

4 National Winners Celebrate at the

**US Astronaut Hall of Fame - Kennedy Space Center Visitor Complex**

(October - To be confirmed)

For **Kids, Intermediate & Open Levels**

Includes tickets to ***Kennedy Space Center - Visitor Complex***

- Competition Winners and 3 guests each

For **Collegiate Challenge**

Includes tickets to ***Kennedy Space Center - Visitor Complex***

- Competition Winner and 1 guest

★ **Launch\*** your winning rocket & receive your trophy at the historic **US Astronaut Hall of Fame**

- Special tour of the ***Astronaut Hall of Fame*** for the Winners and their families
- Visit the ***Rocket Garden & Astronaut Space Mirror Memorial***
- Ride the ***Shuttle Launch Experience***

★ Includes **\$200 Travel Expense** (per winner)

- For **Levels 1-3** funding is from **Estes** – the world leader in educational rocketry **Note:** Competitors must use **Estes** supplies to receive grant
- For **Collegiate Challenge** funding is from their states **Space Grant Consortium**

.....**and more!**

*\*Launch subject to cancellation due to wind or weather*

## **Space Camp Celebration**

3 National Winners Celebrate at the

**US Space & Rocket Center, Huntsville, Alabama**

October (to be confirmed)

★ **Receive Trophy**

- - after the tour of the **Space Camp**

★ **Launch \*** your winning rocket from **Homer Hickam Field**

- Named after the author of ***Rocket Boys / October Sky***

★ Includes **\$200 Travel Expense** (per winner) from **Estes** – the world leader in educational rocketry

★ .....**and more!**

*\*Launch subject to cancellation due to wind or weather*

## ***6<sup>th</sup> Annual- Reach for the Stars ~ National Rocket Competition***

### **D. Important Dates**

#### **Kick-off:**

##### **First Saturday in November -**

Sale of Competition supplies and *National Entry Forms* and certificates begins

**Note: Local competitions can be run at any time.**

#### **Deadline:**

##### **Last Saturday in August**

National Entry Forms must be received at competition headquarters.

Forms may be sent to us via mail, e-mail or fax. (206) 350-7880

- ★ Winners and Local Competition Hosts notified within 72 hours of deadline
- ★ Winners posted on our website one week from deadline

##### **National Winners' Celebrations: - (to be confirmed)**

##### **First Saturday in October**

- ★ ***US Astronaut Hall of Fame Celebration***  
**Kennedy Space Center Visitor Complex, Florida**

##### **Last Saturday in October**

- ★ ***Space Camp Celebration***  
**'Rocket City', Huntsville, Alabama**

### **E. Competition Registration** / on-line at [SciConServices.com](http://SciConServices.com) or by mail.

**Registration Package includes:** *National Competition Entry Form, Achievement Certificates for each competitor, Local Winner's Certificate, Host's Certificate(s) and Flight Log.*

#### **Competition Registration Fees**

Go to [SciConServices.com](http://SciConServices.com) for details and pricing of Group and Individual Registrations.

**Note: Fees included in price when ordering competition rockets and supplies from [SciConServices.com](http://SciConServices.com)**

Orders can be placed:

- on **SciCon** website via *PayPal* or *Credit Card*
- by fax or e-mail with a *Purchase Order*
- by *check* or *money order* payable to **SciCon Services** mailed to:  
**Reach for the Stars ~ National Rocket Competition Headquarters**  
1683 Siesta Drive, Sarasota, Florida 34239

**Note:** Checks will need extra time to process and clear

#### ***Important Note:***

When rocket kits are purchased from sources other than **TheRocketman** or **SciCon Services** they must adhere to the specifications outlined in Section H.

- ★ Proof of this must be shown in the form of published specifications from the manufacturer included with copy of purchase receipt.

- ★ If no such information is available measurements must be made and verified by the local competition judges. Photos can be used to substantiate measurements.

**Failure to submit this information with the *National Competition Entry Form* will void the entry**

## **F. On-site Judges**

**Note: Celebrity Judges** (astronauts, actors, authors, etc.) are encouraged.

However, their duties should be limited to countdown for the first rocket launch(es). They seldom have time to complete all of the marking and measuring for the competition.

1. Two adults (over 21 years of age)

**One must be a Public Official**

School Admin or Full Time Staff (required for CC), Police or Fire Dept. Ranking Officer,

Scout District Leader, elected official (i.e. Mayor), etc.

- a. Host may be a judge
  - b. Judges should not be competitors
  - c. Relatives of participating competitors should not be judges.
2. Judges will determine the landing spot of the rocket's nose cone and oversee the measurement of the distance from the target.
    - a. The target should be clearly marked and easily visible prior to the first competition launch.
  3. In the event that the judges cannot agree on the touchdown spot - the touchdown will be determined as a point halfway between the two points in question.
  4. Information and measurements may be recorded in the *Flight Log* provided for recording and averaging all entries.
  5. Decisions of the judges are final.
  6. *National Competition Entry Form* must be completed and signed the day of the local event.

## **G. Four Competition Levels**

**All competitors must build, prepare and launch their own solid-fuel powered rocket.**

**Direct adult supervision recommended for those under 12**

- ★ **Kids Competition** / Ages 10 to 14
- ★ **Intermediate Competition** / Ages 10 to 18
- ★ **Open Competition** / Ages 10 to adult
- ★ **Collegiate Challenge** / must be registered student

Age at time of launch

## H. Competition Supplies

***This is a national competition. Supplies are limited. Order early!***  
See detailed specs at [www.SciConServices.com](http://www.SciConServices.com)

### 1. Rockets -

Must be built by competitor from scratch or from a kit

a. Examples

- ★ **Estes - Alpha** (#1225), **Alpha III** (#1256), **Generic E2X** (#1764),
- ★ **Quest - Astra** (#1004), **Astra III** (#1610)
- ★ **Custom - Freedom** (#10024), **Sierra** (#10031)

### **Ready-to-fly rockets Do Not Qualify**

b. All rockets must fit the following specifications:

- ★ 11 ½ to 15 ½ inches tall  
\*CC – no limit on length
- ★ 7/8 to 1 ¼ inches diameter  
\*CC – no limit on diameter
- ★ 11 ½ to 14 ½ inch plastic parachute  
\*CC – surface area must be at least 50 sq in
- ★ 3 to 5 fins / non-metal  
\*CC – fins of any design are acceptable
- ★ Weight not to exceed 2 ½ oz (71 grams)  
\*CC 3 ½ oz (100 grams)
  - including parachute without engine / motor
- ★ **Note: Only \*CC Level may add weight to affect altitude \*CC 3 ½ oz (100 grams)**

A postal scale is helpful in weighing rockets.

Most commercial rocket kits that fit the dimensions are within the weight limit.

### 2. Parachute Recovery

All rockets must use a 11 ½ " to 14 ½ " plastic parachute

- a. Minimum of 6 shroud lines for recovery.
- b. Shroud lines must be 8" to 14" in length from parachute to nosecone
- c. All or part of the pre-marked 'spill-hole' or a section no more than 4 ¼ inches in diameter may be removed.

\*CC – surface area must be at least 50 sq in

**Note:** Nothing may be done to prevent full opening of the parachute.

### 3. Launch Rod

- a. Must be of standard construction – maximum 38 inches in length.

#### 4. Engines

##### ***Estes A8-3 Engine*** (#1598)

Or an engine with the following specs

Propellant 0.11 oz.

Total impulse 2.5 N

3 second delay

##### ***Quest A6-4 Engine*** (#5740)

Or an engine with the following specs

Propellant 0.12 oz.

Total Impulse 2.5 N

4 second delay

#### 5. Fins

3 to 5

Non-metal

**\*CC** – fins of any design are acceptable

#### 6. Launch Equipment

a. model rocket launch pad

b. launch rod (not to exceed 38 inches)

c. launch control

#### 7. Measuring tape

a. Able to measure distances up to 50 feet and as small as  $\frac{1}{4}$  inch.

**Note:** A tape shorter than 50 feet may be used - however attention must be paid to accuracy.

#### 8. Modeling supplies

a. Glue, sandpaper, hobby knife, ruler, scissors & paint (optional).

**Note:** 'School Glue' is not the same as white glue. It is not as strong and takes longer to set.

#### 9. National Entry Form

a. Must be signed by:

★ Winner (parent or guardian signature required for minors)

★ Three rocket competition participants

★ Judge #1 - May be Competition Host / over 21 years of age

★ Judge #2 / Public Official / over 21 years of age

b. Must be received at competition headquarters by **Competition Deadline** (See Section D).

c. We are not responsible for lost, stolen, misdirected or postage due entries.

d. Entries must be on original, numbered form.

Submission by fax, mail or e-mail accepted.

## 10. Certificates – with inspirational quotes from *Christa McAuliffe*

### ★ Achievement

- “Push yourself as far as you can. Reach for the Stars!”

- Awarded to all competitors who build and launch

### ★ Competition Winners

- “Push yourself as far as you can. Reach for the Stars!”

- Awarded to the winners of the local and national competition

### ★ Competition Host

- “I touch the future. I teach!”

- Awarded to those who run the local event

### ★ School / Group

- “What are we doing here? We are reaching for the stars!”

- Awarded to the organization that hosts the local competition

## 11. Flight Log

- ★ Included in *Registration Package* or available via mail request.

- ★ Form may be used to record flight data.

- ★ Provided for your convenience.

## I. Local Competitions

1. A minimum of 10 participants is required for each local competition.  
There is no maximum number.
2. Hosts may run multiple competitions throughout the year.  
Individual competitors can enter twice per year at different levels.
3. Participants must be registered for an event prior to launch.
4. One National Entry Form is supplied per Group Registration.
5. Any model rocket building and launching should follow the rules and precautions set forth by the rocket manufacturer and the *National Association of Rocketry*.
6. All laws and regulations regarding model rocket flights for your location should be observed.

## J. Procedures

1. Construction

***Direct adult supervision recommended for those under 12***

***All competitors must build and launch a solid-fuel powered rocket.***

- a. Model rockets must comply with all specifications in this document (see section H) and the *NAR, Model Rocketry Safety Code*

- b. Only one rocket per competitor.

- c. The rocket may not be remotely controlled or remotely guided.

- d. No modifications can be made to the original rocket design except for parachute spill-hole as specified in these rules.

**\*CC competitors are encouraged to modify their rocket and parachute**

- e. No weight may be added to affect altitude. Glue and paint must not be applied in a fashion to add excessive weight.

**\*CC competitors may add weight**

- f. Parachute must be 12 to 14 inches in diameter
  - I. Parachute modification is limited to removal of all, part or none of the center circle / spill-hole (maximum 4 ¼ in. diameter).

**\*CC competitors may redesign the parachute**

- g. Competitors must build their own rockets.
  - I. Assistance in construction and launch is hands-off only.
  - II. Demonstration and verbal direction is acceptable
- h. Construction, preflight preparation, aim and launch must be done by the competitor.

**Note:** In cases of physical limitation – local judges' decision will determine level of assistance needed.

## 2. Launch

***Practice launches are permitted.***

***However, once competition begins – all launches count.***

- a. Target (center clearly marked & easily visible) should be placed 20 ft. downrange from launch pad.
  - I. Target must be fixed to ground to prevent accidental movement (Ex: a golf tee through a piece of paper or small flag on dowel will work).
- b. Competitors must do all of their own launch prep. (i.e. parachute packing, engine and igniter insertion, aim of launch rod, attachment of micro-clips, etc.)

**Note:** In the event of a physical limitation preventing the competitor from performing these tasks. Help may be offered at the discretion of the judges. The competitor should direct the steps being performed.
- c. In an order selected at random, each participant will launch their rocket and mark its landing spot. Touchdown spot of the nosecone should be immediately marked. (golf tees & nails make good markers)
- d. At least three Competitors with the closest landings to the target launch a 2<sup>nd</sup> time to determine winner of local competition. It is preferred that everyone launch twice. **\*CC competitors must launch twice.**
- e. Measurements of the winning entry must be taken in feet and inches (*to the nearest 1/4 inch*) and recorded.

**Note:** Only the winning entry needs to be measured with accuracy. All others may be estimated.

- f. Closest average distance wins. Distance is measured from the first spot the tip of the nosecone touched the ground to the target – (Distance of 1<sup>st</sup> landing plus distance of 2<sup>nd</sup> landing divided by 2)

- g. Record as 50 feet any:

- I. landing at a distance greater than 50 feet.
- II. landing that does not reach the ground (landings in trees, ponds, etc.).
- III. rocket unable to fly.
- IV. rocket that cannot be returned to the judges.
- V. rocket that separates into two or more unattached pieces.

- g. During the competition, ignition of the engine constitutes a flight. If an engine fails to ignite, the engine, igniter or both may be replaced.

- h. Certificates of Achievement should be awarded to all competitors who launch. May be done at a later time (i.e. awards ceremony)

- i. National entry form should be filled out and signed immediately.
- j. Send to **Reach for the Stars ~ National Rocket Competition Headquarters** as soon as possible.  
(see section E)

## **K. Competition Rules**

VOID WHERE PROHIBITED

1. Winners will be notified within 48 hours of the competition deadline and posted on our website within 72 hours.
2. Decisions of the judges are final.
3. Employees of **TheRocketman / SciCon Services** and their immediate families are not eligible.
4. Winner's accommodations and travel (if provided) are for the **October Sky Festival** or **US Astronaut Hall of Fame** awards ceremonies only. If winner cannot attend on the specified date, the prize will be forfeited and an alternate winner may be selected. Prize does not include taxes or any other expenses not specifically listed herein
5. All entries become the property of **TheRocketman / SciCon Services** and will not be acknowledged or returned.
6. **TheRocketman / SciCon Services** and affiliates reserve the right to substitute prizes of equal or comparable value.
7. **TheRocketman / SciCon Services** and affiliates assume no responsibility for any losses, injuries, or damages resulting from participation in the competition or the Winner's Celebration.
8. All prizes and awards are guaranteed by the individual company involved, not by **TheRocketman** or **SciCon Services**.
9. **TheRocketman / SciCon Services** and affiliates may use each winner's name, photograph, likeness, and/or voice in any publicity or advertising relating to the competition or future promotions without compensation or approval.
10. By participating, entrants agree to be bound by the official rules and the decisions of the judges.
11. All federal, state, and local taxes are the sole responsibility of the winners.
12. All other expenses associated with this trip are the responsibility of the winner.  
The prize is subject to availability, advance reservations and other restrictions.
13. Winner and his/her parent(s) or guardian(s) are required to complete and sign an affidavit of eligibility and liability release within 7 days of receipt of prize notification. Noncompliance or return of winner's notification as undeliverable will result in disqualification and selection of an alternate winner.
14. We are not responsible for late, lost, stolen, incomplete, illegible, misdirected, or postage due mail or fax.
  
15. By entering the competition - competitors agree to release and hold harmless the sponsor, distributor and affiliates from any and all liability, loss, damage or injuries to any person or property of any kind sustained in connection with their participation in the competition and/or use of any prize awarded.

## **L. Additional Information**

1. Check the website [www.TheRocketman.net](http://www.TheRocketman.net) for competition updates and further information.
3. In the event of a tie the winner will be chosen by the closest single landing among the tying entries. If a tie still exists nationally, the winner will be chosen by the earliest postmark or fax date.
4. For local competitions no questions or protests will be considered later than 15 minutes after the winner is announced.
5. Questions and protests must reach competition headquarters by the competition deadline.
6. Decision of the judges, both local and national, shall be final.

## **M. Winners' Announcement**

Names of winners (available 72 hours after Competition Deadline) will be posted on our website [www.TheRocketman.net](http://www.TheRocketman.net) or send a self-addressed, stamped envelope to:

### ***Reach for the Stars ~ National Rocket Competition - Winners***

1683 Siesta Dr.  
Sarasota, FL 34239

***This competition is void where prohibited and subject to federal, state, and local laws, taxes and regulations. Certain restrictions may apply.***

## **Reference:**

**National Association of Rocketry:** Model Rocketry Safety Code, United States Model Rocketry Sporting Code (Pink Book) - Spot Landing Competition

**Estes:** Model Rocket Contest Guide, Laws Pertaining to Rocketry, Rocketry 101, Model Rocketry Technical Manual

**NASA:** Rockets, an Educators Guide