

# HOTROD's

## Rocket CHALLENGE 2012

### EGG PAYLOADS

Your eggs are your simulated Astronauts. Get them back safe!

#### Class 1.

**Ages 14 and Under** Timed Duration = Longest flight.

*(age changed 12-26-11)*

Participants will use **ANY** model rocket suitable for Egg Lofting.

**Bonus style points for scratch built rockets. But commercial kits are o.k.**

Your rockets will lift **ONE** raw grade A large hen's egg of 57 to 63 grams weight and must return this egg from the flight without any cracks or other external damage.

1. Your Goal is Maximum Flight Duration. Timed liftoff- to landing of egg.
  2. Class 1. impulse (thrust) limited to "D" total maximum impulse range! Any motor or combination up to 20.00n-seconds total impulse.
- .....

#### Class 2.

**Ages 14-21** Max Altitude Scratch-built.

Participants will use a **SCRATCH- Built** model rocket suitable for Egg Lofting at these impulse limits.

1. Your Goal is to lift **TWO** raw grade A large hen's eggs of 57 to 63 grams weight and must return the eggs from the flight without any cracks or other external damage.
2. Class 1. impulse (thrust) limited to "F" total maximum impulse range! Any motor or combination up to 80.00n-seconds total impulse.
3. Any commercial rocketry altimeters can be used.

Altimeters must be able to read altitude as stand alone units. No computer interface needed. Contest judge should be easily able to read via beeps, flashes, or on-board readout with out any special equipment.

.....

Contest will be held at one each SPRING launches at the following Club Venues

**CATO**

**CMASS**

**MMMSCS**

*and at* **LDRS**

### **ENTRY**

**A simple e-mail with your intention to participate is all that is needed.**

Pre-Entry registration is encouraged. This helps organizers know how many participants may attend each event.

Pre-Registration begins December 01, 2011 .

Please include your age at launch date. And Class you will participate.

Teams entry are welcome. Please note how many members are part of your team.

Enter via e-mail at [HotRodRockets@yahoo.com](mailto:HotRodRockets@yahoo.com)

---

## HOTROD's Rocket **CHALLENGE 2012**

### RULES

#### **Contest Day**

1. Eggs will be issued to the participants by event officials.
2. All eggs and rockets **MUST** be returned to the judges area. Payloads will be sealed with tape and **must be re-opened in front of an official** at the return of the flight to be considered a successful flight. Any external damage to the egg is disqualifying.

**Please, Do Not open Cargoes in the field!**

3. Rockets must be allowed to land at the end of flight without human intervention (catching). Participants will be disqualified if there is such intervention.
4. **Timed Events:** Class 1. Duration timed until the rocket hits the ground. **Or** Timers

lose sight of the rocket.

5. **Altimeter events:** Return rockets and Altimeters. To judges. Electronics must be easily read by judges via. Beeps, flashes, or on-board readouts. Judges will NOT have laptops or software to read Altimeters.
6. **Rockets must be recovered.** Plan your flights and recovery strategies accordingly. Rockets need to land within the boundaries of the launch field.
7. All flights are subject to the RSO/ Safety check of the host clubs. Their decisions are final. Build rockets to conform to model rocket safety code. Remember we are the guests of the clubs that run these launches.
8. Rockets CAN be altered repaired or changed during the day.
9. Number of launches is limited to THREE attempts per participant or team.

## MODEL ROCKET SAFETY CODE

<http://www.nar.org/NARmrsc.html>

## SAFETY

1. All rockets must be built and flown in accordance with the Model Rocket Safety Code of the National Association of Rocketry, any applicable local fire regulations, and Federal Aviation Regulations.
2. For the LDRS event Please review the TRIPPOLI Safety code.
3. All Rockets will be inspected before launch by an event official, (hosting club's RSO Range Safety Officer) whose judgment on their compliance with the Safety Code and with these rules will be final. Competitors are encouraged to consult with an NAR member before the competition to answer questions or concerns regarding design, flight safety, and the NAR's Model Rocket Safety Code.
4. **SAFE RECOVERY.** Each separate part of the rocket must either contain a recovery device or return to earth at a velocity that presents no hazard (boosters). Any entry which has a major part (including but not limited to an expended engine casing) land without a recovery system or at a velocity that is judged by an event official to be hazardous, due to recovery system absence, insufficiency, or malfunction, will be disqualified.
5. The entire rocket must be returned to the *CONTEST* officials in order to be considered a successful flight.
6. The rocket must be able to perform a subsequent flight. Any damage to the rocket should be such that light repairs could be done to fly the rocket again.

**NO expendable parts. All parts must be recovered and able to be re-flown!**

---

## **THE ROCKETS**

**Class 1.** Participants will use **any** model rocket suitable for Egg Lofting.

Bonus style points for scratch built. But commercial kits are o.k.

**Class 2.** Participants will use a **SCRATCH- Built** model rocket suitable for Egg Lofting at these impulse limits.

### **Motors:**

1. **MOTORS:** Choose motors wisely, never exceed the maximum liftoff gross weight for the motor used. See the motor size limits for your age group.

Example: motor "D12-5" **Max 10oz liftoff weight.** (But you would want to be much lighter than that!)

**Class 1.** Any motor or combination up to "D" impulse limits.

10.01--20.00 Installed Total Impulse (N-sec)

**Class 2.** Any motor or combination up to "F" impulse limits.

40.01--80.00 Installed Total Impulse (N-sec)

2. All entries must pass inspection and approval by RSO (range safety officers) of the hosting club. Their decision as to flight worthiness **is final.**

## **ROCKET KNOWLEGE**

This should be a learning experience!

All competitors should be ready and able to show a contest official or any other interested person the following:

Your rockets:

1. Center of Pressure (and how you calculated it)
2. Center of Gravity
3. Type of motor.
4. Recovery System

-A short written description of your rockets build process is always nice. Photos are also great!

-Simulation data for scratch-built rockets is also a good idea.

Need help with these terms? Go to: [www.nar.org](http://www.nar.org)

## **LAUNCH SYSTEMS**

Launch systems will be available at the event. Including but not limited to:

1/8" standard launch rods.

3/16" launch rods.

1/4" launch rod.

Standard Rail.

If you plan to bring your own Rod, launch pad, piston or tower launcher. It must be checked in (inspected) Before you set up you rocket.

Must pass inspection and approval by host clubs **RSO / Safety personnel**.

This is not the call of the contest organizers.

**NO loose black powder allowed. Period.** For any reason.

---

## **Launch Sites / Club Links**

-Central Massachusetts Space modeling Society

[www.cmass.org](http://www.cmass.org)

-CATO Connecticut

[www.catorockets.org](http://www.catorockets.org)

-Maine Missile Math and Science Club

[mmsclub.org](http://mmsclub.org)

---

Weather or other factors could delay these events and or move it to another launch site on another date.

1. The host clubs have graciously offered to host this contest at their launch on their field.
2. Check the host club's websites for launch status and weather condition prior to leaving for the contest.
3. Participants are expected to use their best conduct and sportsmanship at all times.
4. Please remember to thank the host club's **volunteer** launch staff!  
(It does not hurt to volunteer for set-up of take down either.)
5. This host club's launch fields are ONLY in use during club launches.

They are not for Rocketry use at any other time.

Please check the host club's schedule.

## **Entry FEES**

1. There is no contest entry fee.
2. There is a field fee charged by host clubs and or the launch event. This allows you to launch rockets all day.

So bring all your rockets, launch all day and enjoy yourself. An afternoon of Rocketry is an enjoyable family event!

## **Scoring Class 1.**

**Longest timed Duration of flight is** the primary goal of the contest.

### **DURATION.**

1. Times are based on total flight duration of the portion of the rocket containing the egg.
2. Times are measured from first motion at liftoff from the launch pad until the moment of landing or until the rocket can no longer be seen due to distance or an obstacle.
3. Times must be measured independently by Event Official not by the participants.
4. Times will be measured by separate electronic stopwatches.
5. All Rockets will have a maximum of THREE flight attempts. Make certain you bring motors and recovery supplies for three attempts.
6. Notify a Contest Official that you plan a launch attempt. Non-Scoring Practice Flights are fine, just let officials know your intentions.
7. All rockets and any portion of a rocket MUST land within the launch field boundaries!
8. Follow all host club's rules for safe launch and recovery. Don't be afraid to ask questions on launch day.

## **Scoring Class 2.**

1. Maximum altitude.
2. Safe return of eggs.

### **FAQ's**

Q: Can I bring more than one identical rocket, just in case something goes wrong?

A: YES. back-ups are a great idea.

---

Q: Can I use "clusters" or "staging"?

A: Yes just don't exceed the impulse limits for your class.

---

Q: Can I use Glide recovery?

A: Yes. Make certain it's o.k. with the host Club's rules. Any form of recovery that gets the Eggs back safely is o.k.

---

Q: Are team projects o.k.?

A: Yes.

---

## **Bonus Categories**

**Just for Fun separate awards.**

**Best Paint Job/ Artwork:** Good looking rockets are always cooler!

**Best Presentation:** Document your work, present your work to the judges in book format, slide show on-line, simulations, build photos, testing and research. Forum and Blog Posts. Are always great.

**Best Appearing Participant or Team:** Look good, look professional.

**Questions and Clarifications please contact: David**

**[HotRodRockets@yahoo.com](mailto:HotRodRockets@yahoo.com)**

Sample List of altimeters / suppliers for Class 2

Please work within your budget. No endorsements just information.

<http://www.adeptrocketry.com/> \_\_\_\_\_ [ALTIM1](#)

<http://www.perfectflite.com/>

<http://www.jollylogic.com/>

<http://www.missileworks.com>

End