



EGG-O-NAUT

Read the General Rules in the manuals and on www.soinc.org as they apply to every event.

1. **DESCRIPTION:** Prior to the tournament teams will construct rockets designed to carry an Egg-O-Naut (a raw Grade A large chicken egg), stay aloft the greatest amount of time and return to earth without breaking the egg. Some tournament hosts may require eggs to be in a sealed plastic bag.

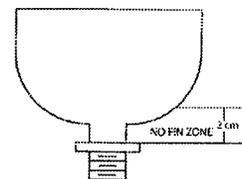
A TEAM OF UP TO: 2

IMPOUND: No

MAXIMUM TIME: 5 min. for both launches

2. **CONSTRUCTION:**

- a. Teams may bring up to two rockets to the tournament. Each rocket's pressure vessel must be made out of a single 1-liter or smaller plastic carbonated beverage bottles with a neck/nozzle opening approximately 2.2 cm inside diameter (1/2 inch Schedule 40 PVC pipe should just fit inside the nozzle opening).
- b. Labels may be removed from the bottle but they must be presented at the safety inspection. The structural integrity of the pressure vessel (carbonated beverage bottle) may not be altered. Examples of altering structural integrity include but are not limited to physical, thermal or chemical damage (e.g. cutting, sanding, using hot glues, or super glues). Adhesive may be used to attach fins and other components but must be limited to glue such as silicone adhesive, polyurethane based adhesives and others that do not damage the structural integrity of the pressure vessel (this can be assessed by looking into the bottle through the nozzle for discoloration, bubbles, or thinning of the walls of the bottle).
- c. Metal may be used, but may not be attached to or have direct contact with the pressure vessel at any time. For safety, rockets may not use sharp or pointed metal components or a leading surface consisting of a rigid spike.
- d. Each rocket will undergo a safety check. The supervisor will **not** allow unsafe rockets to launch.
- e. Commercial model rocket parts may not be used.
- f. All rockets will be launched using the launcher provided by the supervisor. To insure rockets will fit on the launcher, fins and other parts added to the bottle must be 2 cm above the level of the flange on the bottle's neck.
- g. All energy imparted to the rocket must originate from the water/air pressure combination (both provided by the event supervisor). No other potential or kinetic source of energy is permitted for any purpose (e.g., explosives, electric, elastic powered flight, throwing, remote controls, or pyrotechnics may be not used).
- h. The supervisor will provide raw Grade A large chicken eggs on which they have placed an identifying mark (using a Sharpie or ink stamp) to insure that teams are using the eggs provided. The rocket(s) must be built so that the egg is easily removed. Nothing (e.g., glue or tape) may be adhered to the egg.
- i. The rockets and each part that is intended to separate must be clearly marked by the teams in such a way that the judges can easily identify the team and each individual rocket (if 2 rockets are launched).
- j. The part of the rocket containing the Egg-O-Naut should be brightly colored if it is to detach from the rocket.



3. THE COMPETITION:

- a. Teams should arrive at the competition site ready to launch. Teams must bring and wear safety spectacles/goggles for loading, launching, and retrieving their rockets and Egg-O-Nauts. Following the safety inspection of each rocket, teams will receive 1 egg per rocket, add any amount of water and load their egg in each rocket. When called to launch, the teams will have a total of 5 minutes to launch 1 or 2 rockets they have brought to the competition (only 1 launch per rocket). Any rocket launched before the time expires will be scored. The second rocket may be launched prior to retrieval of the Egg-O-Naut.
- b. All rockets will be launched at 60 psi. Once the rocket is pressurized, contestants may not touch or approach the rocket.
- c. Time aloft will be recorded to the nearest hundredth of a second. Timing begins when the rocket separates from the launcher and stops when the Egg-O-Naut or portion of the rocket containing the egg touches the ground, comes to rest on a tree, building, or other obstruction or goes out of sight. Preferably three timers should be used and the middle recorded time will be used for scoring.
- d. The teams will retrieve their rockets and show the rocket or capsule with the Egg-O-Naut to an event inspector. The Egg-O-Naut capsule or wrapping must be opened in the presence of an event official.

4. SCORING:

- a. An Egg-O-Naut (or portion of the rocket containing the egg) that completely detaches from the pressure-vessel will receive a 3 second bonus. Any type of free-fall recovery system is allowed. Rockets whose parts (e.g. fins) do not remain linked while aloft will not be disqualified or penalized.
- b. Egg-O-Nauts that can be retrieved **and** survive will receive a 15 second bonus. Egg-O-Nauts survival is defined as not cracking the egg enough to leave a wet spot on a paper towel. An Egg-O-Naut that cannot be retrieved will not receive the 15 second bonus.
- c. The score for each rocket will be equal to its time aloft plus bonus seconds for Egg-O-Naut capsule separation and bonus seconds for Egg-O-Naut survival. A team's final score for the event will be the score for their individual rocket with the highest score.
- d. Teams whose final score is for a rocket with construction violations will be scored as follows:
 - i. Rockets that violate a safety related construction rule will not be launched and will receive only participation points (this includes competitors not wearing proper eye protection).
 - ii. Teams having other construction violations will be ranked below other teams.
- e. In cases of ties, the tiebreaker will be the better score of the other rocket.

