Ping Pong Parachute Trial Event
(aka Indoor Bottle Rocket)
Inquiry Committee Rule

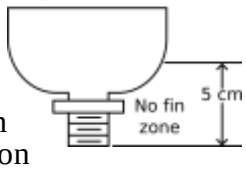
1. **DESCRIPTION:** Prior to the tournament, teams will construct up to two rockets designed to launch a ping pong ball using air pressure only that stays aloft for greatest amount of time inside a typical gym.

   A TEAM OF UP TO: 2 **IMPOUND:** No **EYE PROTECTION:** B **EVENT TIME:** 10 minutes

2. **EVENT PARAMETERS:**
   a. Teams must design, build, and bring up to two rockets to the tournament. Teams will have a total of two launches. Teams may use the same rocket on both launches or use two different rockets.
   b. All rockets must be launched using the launcher provided by the supervisor.
   c. Event supervisors will provide the launchers, the air pressure and announce the ceiling height as early as possible.
   d. No part of the rocket should hit the ceiling of the launch room.
   e. Teams must have proper eye protection and provide the ping-pong balls.
   f. Ping pong balls must separate from the rocket and may deploy a recovery system.

3. **CONSTRUCTION PARAMETERS:**
   a. Rocket pressure vessels must be made out of a single 1-liter or less plastic carbonated beverage bottle with a nozzle opening internal diameter of approximately 2.2 cm (a 1/2-inch Schedule 40 PVC pipe must fit tightly inside the nozzle opening) and a standard neck height from flange to bottle's opening of under 1.6 cm. Labels may be removed from the bottle but must be presented at the safety inspection.
   b. Only tape must be used to attach fins and other components to the pressure vessel. No glues of any type may be used on the pressure vessel. Metal of any type and commercial rocket parts are prohibited anywhere on the rocket.
   c. The structural integrity of the pressure vessel must not be altered. This includes, but is not limited to: physical, thermal or chemical damage (e.g., cutting, sanding, using hot or super glues, spray painting).
   d. The nose of the rocket must be rounded or blunt at the tip.
   e. All energy imparted to the rocket must originate from air pressure provided by the judge. Explosives, gases other than air, chemical reactions, pyrotechnics, electrical devices, elastic powered flight assists, throwing devices, remote controls, and tethers are prohibited at any time. The supervisor may provide an optional tether to prevent the rocket from hitting the ceiling.
   f. Fins and other parts added to the bottle must be 5 cm or higher above the level of the bottle's opening, to ensure rockets fit on the launcher.

Figure 2



4. **THE COMPETITION:**
   a. Teams must arrive at the competition site ready to launch with proper eye protection on. Teams without proper eye protection will be given a chance to obtain eye protection if time allows.
   b. Rockets will be safety inspected.
   c. When called to launch, teams will load their rocket onto the launcher provided by the event supervisor. Once the rocket is loaded, but NOT pressurized, teams will have 30 seconds to place the ping pong ball and its recovery system on or in the rocket, after which it cannot be manipulated. After launching the team will prepare for their second launch.
   d. Rockets will be launched at 40 psi.
   e. Time aloft is recorded in hundredths of a second. Timing begins when the rocket separates from the launcher and stops when the ping-pong ball touches the ground, goes out of sight, or is slowed by an obstruction.
   f. All times for each launch MUST be recorded for breaking ties. The middle value of three timers must be the officially recorded time.

5. **SCORING**:
   a. Teams that violate rules 3 a-f, and 4.a. will not be launched.
   b. Teams that violate rule 2d will be placed in Tier 2.
   c. The potential score for each launch is the flight time of the ping pong ball in seconds. Ranking within each tier is determined by the best score of a single rocket launch.
   d. Tiers:
      i. Tier 1: Rockets launched without any violations.
      ii. Tier 2: Any launch that violates rule 2d.
   e. Ties will be broken by the better score of each tied team's other launch.