Pop Bottle Rocket Challenge

The University of Toledo College of Engineering will be hosting a week full of events and activities to celebrate National Engineers Week February 14-20, 2010. Triangle Fraternity will be sponsoring the SPRocket Blast-Off Competition on the first floor of Nitschke Hall. This competition challenges students in teams of 3-4 members to creatively design, build, and fly a Soda-Pop Bottle-Rocket (SPRocket) starting with a two (2) liter plastic soda-pop bottle. Thrust will be provided by a combination of compressed air and water. The competition will take place on February 15th from 3:00 – 5:00 PM, on the first floor of Nitschke Hall.

- Each Team will be allowed two launches. (Assuming your rocket is still in one piece)
- Each Rocket must pass an inspection before first launch. Inspection will be done near the launch pad. The inspection will be based on the attached rules sheet
- **No metal** will be allowed anywhere in the construction. The edges of fins and other protrusions must be rounded and blunt.
- Triangle Fraternity will assist by answering questions you might have. Please feel free to send an email to cvolny@gmail.com if you have any questions.
- When properly used, SPRockets should not pose a threat of physical injury. However, the judges reserve the right to refuse to launch a rocket they deem unsafe.
- Winners will be determined by distance of flight.

To enter, please return the registration form below. Entries must be received by **February 12, 2010**
For more information, call (419) 530-8040.

Pop Bottle-Rocket Blast off Challenge Registration Form

Names of Participants: (1 team Captain)

1.(Captain)_____
2._____
3._____
4._____

School Name: _____

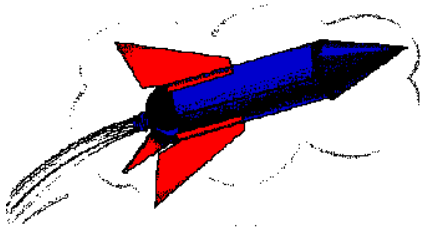
School Address: _____

_____

_____

E-mail address where your team can be reached:

_____



Registrations can be faxed to (419) 530-8046 attn. Jon Pawlecki or may be e-mailed to jpawleck@eng.utoledo.edu

SODA-POP BOTTLE-ROCKET CONTEST

Soda-Pop Bottle-Rocket Design Competition Rules

Welcome to the University of Toledo Soda-Pop Bottle-Rocket Design Competition. The Challenge is to design, build, and fly a Soda-Pop Bottle-Rocket (SPRocket) starting with a two (2) liter plastic soda-pop bottle. Thrust will be provided by a combination of compressed air and water. The University of Toledo's Triangle Fraternity will host the competition and provide the necessary launch facilities. The SPRocket that travels the furthest distance will be declared the overall winner.

Each entry will be allowed two launches. After everyone has launched twice, the 5 entries that traveled the furthest will meet for a final fly-off. Clearly, a durable and aerodynamically stable design will be needed. To become a finalist, the SPRocket must be structurally sound and safe. Therefore, all attachments should be properly secured to withstand both launch and landing forces. Teams should bring repair tools and materials to the contest! In order to win, it will also be necessary to predict the volume of water that should be placed in the bottle.

A two (2) liter plastic soda-pop bottle must be used. Almost any brand may be used, except that in order to properly fit on the launcher, the neck must be identical to that on bottles used by Coca-Cola. The interior of the bottle must remain completely unaltered. All pressure reinforcing and attachments such as fins, nose-cone, etc., must be affixed by glue (e,g., hot-glue, rubber cement, silicone) or tape (e.g., 'duct' tape, cellophane tape) to the exterior of the bottle. Triangle Fraternity will provide the launcher with a 40 psi compressed air charge. Entrants will fill their SPRocket motor with the amount of water they deem appropriate.

Bottle Modification - An unaltered soda-pop bottle is rated to withstand more than two (3) times the planned 40 psi charge without bursting. However, this much pressure will deform the cylinder, so consideration might be given to reinforcing with a layer of tape or other material. Also, the use of solvent type glues on the plastic shell may weaken it and lead to failure. To achieve an aerodynamically stable design, fins, a nose cone, additional nose weight, and other measures might be employed. **No metal** will be allowed anywhere in the construction. The edges of fins and other protrusions must be rounded and blunt. A blunt nose with a minimum 3/4 inch radius is required. Also, In order to clear the launcher, no fins or other attachments may extend to within 1-1/2 inches of the bottle opening. The complete rocket can weigh no more than two (2) pounds before adding the rocket motor water charge.

Judging - The judges reserve the right to alter any rule for safety and in the spirit of promoting a good competition. All decisions of the judges will be final.