Exploring Post 1010

Team 8188

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Design

Team America Rocketry Challenge's goal is to get a model rocket to fly to a height of exactly 825 feet and land in 40-45 seconds, all without breaking its cargo, an egg.

- 3 7"x 70" streamers with sticks; pleated; yoke; for cargo unit
- 12" parachute with hole for booster recovery
- 450 grams total weight at last launch

Construction Process

- It was very hard to assemble because our egg protection took up so much space inside the rocket's nose cone. Rather than be discouraged by this, we upped the motor size and found a different way (bubble wrap!) of wrapping the egg. Our next two flights showed that our streamers (part of this year's TARC guidelines: the cargo must be slowed by streamers rather than a parachute) were getting tangled and therefore not deploying fully to sufficiently slow our egg.

Construction Process

- We needed something to keep our streamers separate. After some planning with the help of our adult mentor, we built a yoke to keep our streamers apart. At the suggestion of our mentor, we ironed creases across our streamers. Not only does this make it easier to pack the rocket, the creases create folds that make more drag on the cargo unit's descent. These modifications, as shown by the data from our most recent launch, worked beautifully.

Construction Process

- However, our booster (as our design then had it) would separate from the cargo unit at apogee and descend with a small parachute. It got caught on one of the streamers and significantly slowed the rate of descent. We now plan to keep our booster attached to our cargo unit (without the parachute) in order to slow the descent to the target time range.
- TARC is a very exciting program that teaches students to think on their feet as well as giving us problem-solving experience.

Teamwork

Only having 3 members in our team meant good coordination and rapid completion of work.

We learned quickly, by watching the experienced members and by doing our own experiments.

This project has taught us how to collaborate with a team in order to make something work, similar to what we would be doing when designing something to locate Helium-3 (possible uses include nuclear fusion) on the moon.

Flight Testing Process

Our basic testing process was:

1. Build the rocket.
2. Launch the rocket.
3. Record the data.
4. Modify the rocket according to the data and the competition requirements.
5. Repeat numbers 2-4 until our data is satisfactory.

Lessons Learned

- DO THIS BERNADETTE