Engineering Day 2020

Paper Airplane Competition

Goal:

Design and build paper aircraft for long distance and accuracy. The aircraft will be scored in two equally weighted categories. Different planes may be used for each category.

Rules/Judging:

1. Students will design and “build” paper planes on the day of the contest. Students are encouraged to practice their folding techniques and launches prior to Engineering Day.
2. This competition is open to individuals and teams of two students.
3. Paper planes must only be constructed out of one piece of paper: Standard legal size (8.5” x 14”). The sheet must be modified by folding only! No ripping, gluing, cutting, stapling or ballasting is allowed.
4. Paper planes have to be built on site on event day with the provided official Crowder Engineering Day paper (20 lb. copier paper). Time limit for building: 10 minutes. (Minor adjustments may be made later “on the fly”.)
5. Six (6) sheets of paper will be provided to each team and as many as six (6) airplanes may be built. However, as the rules below imply, a maximum of four planes may be flown in competition.

Long Distance Category

- The aircraft must be launched by one person throwing the aircraft unaided from behind a straight launch line marked on the floor. Passing over the launch line leads to an invalid attempt. Touching the launch line or any point beyond during the launch, leads to an invalid attempt.

- Two trials per team are allowed. Different planes can be used, the better attempt counts.
- The distance is measured from the starting line to the furthermost part of the plane after it has come to rest. Planes may strike inanimate objects (wall, ceiling, bleachers, fixtures, and floor) along the way. We measure the North-South component of the horizontal displacement (e.g. if a plane gets hung up on the ceiling or flies into a corner, we will not measure a diagonal distance).
- The event will be held in the Sneller Gymnasium, ground floor. Paper planes will be launched toward the north. The far wall is approximately 110 feet away. Flights reaching all the way to the far wall and striking it will be scored as 110 feet.

Accuracy Category

- The event will be held in the Sneller Gymnasium. Paper planes will be launched from the second floor seating area, aiming at a target marked on floor 1 (roughly 10 feet vertical distance and 30 feet horizontal distance). The score is based on the distance from the target to the position where the paper plane comes to rest.
- The aircraft must be launched by one person throwing the aircraft unaided from a reasonably static position. The participant needs to have both feet firm on the ground during the attempt. For safety reasons, all team members including the person throwing the plane must stay behind a line on the floor one foot from the railing.
- A run-up or fast walk as part of the launch is not permitted, nor the use of ramps or like devices.
- Two trials per team are allowed. Different planes can be used, the better attempt counts.

Score:

Overall score will be equated as follows:

$$\left[\frac{distance}{110} * 100\right] + \left[\frac{150 - distance\ away\ from\ target\ (in\ inches)}{150} * 100\right]$$