


Wright Stuff: Darts - (In Person - 45 minutes)

Description: Teams will build one paper plane to try and accurately hit a target. This event may take place outside, inside, or both depending on site restrictions for events. If the event takes place outside it may be delayed or canceled if inclement weather with rain or lightning predicted, but not wind. **This event has a written test on the possible topics of the basics of flight, parts of a winged aircraft, the history of airplane flight.**

Participation: 2 students per registered team.

Teams must bring: Pencils, a ruler/straight edge, scissors, flight log, and the safety equipment listed below. Optional - nonprogrammable Calculator.

- **Teams may not bring notes or resources of any type.**

<ul style="list-style-type: none">● Safety glasses labeled ANSI Z87.1+ (impact rated)● All competitors must wear their eye protection during any competitor's flight phase of the competition.● If a team does not have the required eye protection, they will be given the opportunity to obtain it, time allowing, but will not receive extra time.● If a team is unable to obtain eye protection, the team will not compete and will receive a no-show score.	<p>Impact Safety Glasses Required</p> 
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Materials Provided:

- 1 - 8 ½ x 11-inch 20-pound copy paper for each team member.
- A timer accurate to the nearest 1/100 of a second.

The Competition:

- **It is a rules violation if coaches, parents, mentors, or spectators enter the competition area. Talking to the team members any time during the competition. Violation of this rule will place the team below all other teams.**
- **Teams will be trying to hit the center of a target between 3- and 10-meters distance.**

Part 1 – Written Test: The team members will take a test on the principles of glider flight.

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| <ul style="list-style-type: none">● <u>As a part of the written test the team will estimate the distance their "airplanes" will hit from the center of the target.</u>● <u>The team will provide a chart showing testing results for the launching for a practice plane. The chart must contain a minimum of 10 flights. 5 for distance and 5 for time.</u> |
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- The estimated time to finish the written test is 15 minutes and 45 minutes for the entire event.

Part 2 – Construction Phase:

- The Team members may use any type of plane design they desire. The plane may not be a wadded up into a paper ball.
- The plane must have a wingspan of at least 10 cm measured from the
- Team members must write their team designator on their plane.
- Team members may take practice up to 4 flights to adjust their plane (2 flights per team member).
- Practice flights will not count as an official flight.
- Team members must inform the event supervisor when they are ready for their official flight.

Part 3 – Flight Phase:

- **All flights will start from a flat-footed position with both feet on the ground; No running or fast walking starts.**
- Students may not artificially launch the plane.
- Each team member will have 1 official flight (2 launches per team).
- They will launch their planes at a target with a center point located 1 meter above the floor on a wall from their chosen start point at 3, 6 or 8 meters from the wall.
- Between the target and the start line will be a hoop with a diameter of between 25 and 30 cm at a height of 2 meters and halfway between their chosen start point and the wall.
- The plane must pass through the hoop on its way to the target.
- Between the first and second launch the teams may move their start distance.
- The best flight of the 2 official flights will count towards the team score.
- For tiebreaking purposes, the event supervisor will time the flight and timing will start when they see the plane leave the hand of a team member.
- During an official flight, time will continue if the plane bounces off an object but will stop when the plane gets stuck or comes to a complete rest.
- Team members will retrieve their plane only when prompted by the event supervisor after their official flight.

Scoring:

Teams will receive two rankings. The rankings will be averaged to determine the team placements. They will be ranked based on:

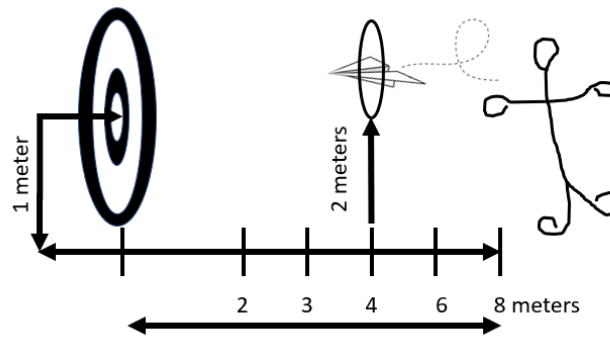
- The score on the written test.
- Placements based on the best flight of the two team members.
 - All teams will be ranked based on their start point; with teams starting further from the target receiving a better ranking.
 - Teams will receive a ranking based on their distance to the center of the target.
 - Teams not flying through the hoop will receive a tier violation.
 - Teams will receive a ranking based on score on the written test.
 - The distance and test score rankings will then be averaged to the 1/100 place value.
 - Lowest average point total wins.
 - Example: Team 1 wins in this scenario.
 - Team 1 –55 points test score, 10 cm from target center, Airplane flies through the hoop (1st test score, 1st in distance to target = 2 points)
 - Team 2 –25 points test score, 12 cm from target center, Airplane flies through the hoop (2nd test score, 2nd is distance to target = 4 points)
 - Any rules violation will result in the team being ranked behind all other teams.

- Rankings

- Tier 1 – No building violations. Airplane successfully flies through the hoop.
- Tier 2 – Plane does not make it through the hoop or has building violations.
- Tier 3 – Plane does not make it through the hoop and there are building violations.

Tiebreakers:

- Tiebreaker No. 1: The team with the closest measurement between their estimate and their distance to the center of the target for their first flight.
- Tiebreaker No. 2: Completeness of the team chart showing testing. Team members showing more testing details will be ranked above others. (Minimum requirement: 5 distance flights and 5 timed flights)



The wing is measured horizontally across the fuselage from furthest wingtip to wingtip.

