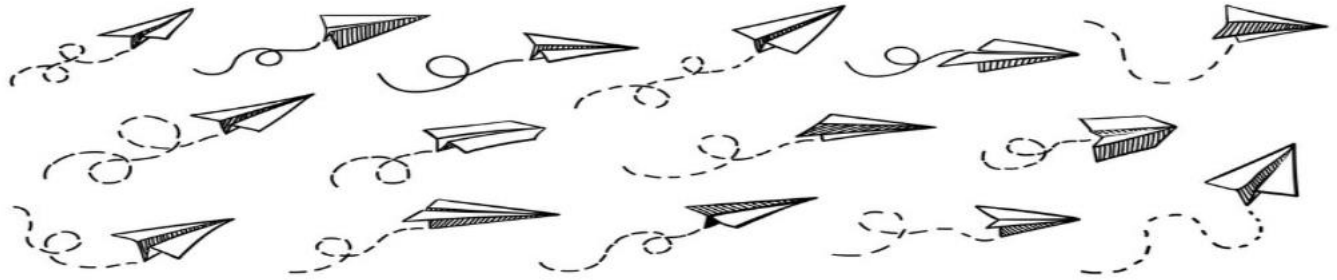


2027 Nebraska Science Olympiad Trial Event (B & C Divisions)

Paper Pilots (TE)



Description Teams of up to two students will design and construct paper airplanes from a single sheet of paper. Competitors will test their understanding of aerodynamics by building aircraft capable of flying long distances and accurately reaching designated targets.

A TEAM OF UP TO: 2 IMPOUND: NO EYE PROTECTION: A Approximate Time: 20 – 50 min
(depending on flight times)

Supplies: All Supplies will be provided by the Event Supervisor, including:

- Ten sheets of 8.5" x 11" printer paper (20 # weight). No other supplies are allowed.

Participating teams must provide

- Up to 2 team members to design, build, and launch paper planes

Optional: Build logs are optional and may include design sketches, testing records, modifications, and observations. If needed as a tiebreaker, logs will be evaluated for completeness and organization.

On-Site Construction Parameters

- Paper planes must be built on site on event day with the provided paper.
- Paper planes must only be constructed out of one piece of paper: Standard letter size (8.5" x 11").
The sheet must be modified by folding only! No ripping, gluing, cutting, stapling, or ballasting is allowed!
- Teams may construct up to ten airplanes. A maximum of four official flights will be permitted (two Distance attempts and two Accuracy attempts). Any legal airplane may be used for any attempt, and the same airplane may be used multiple times.
- **Time limit for building: 10 minutes.** (Minor adjustments may be made later "on the fly").
- **At the end of the Build period, 1-4 airplanes will be impounded.**

The Competition

- The event will be held indoors. Tournament officials will announce the room dimensions (approx. length, width, and ceiling height) in advance of the competition. Tournament Officials and Event Supervisors are urged to minimize the effects of environmental factors such as air currents. Rooms with minimal ceiling obstructions are preferred over exceedingly high ceilings.
- The event supervisor will share the flight distance. The longest distance possible will be 50 m.
- The competition will consist of two flight tasks: Distance and Accuracy.
- **Either team member may launch any flight attempt.**
- Teams will be called upon for their flights. They may retrieve all their paper airplanes from the competition table at that time.

1. Distance Flight

- Students launch their airplane from a designated line.
- The longest measured flight distance earns the highest distance score.
- **Two trials per team are allowed.** Different planes can be used; the better attempt counts.
- Flight distance is measured horizontally (via right angle) from the launch line to the point on the airplane farthest from the launch line after the airplane comes to rest. **Distance will be measured to the nearest centimeter.**
- Planes may strike inanimate objects (wall, ceiling, fixtures, floor, ...) along the way. We measure 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 longest possible flight distance will be provided before tournament day. Flights reaching all the way to the far wall and striking it will be scored whatever the precise distance is, measured on the event day.
- Invalid attempts: Any part of the competitor's body touching or crossing the launch line during release results in an invalid attempt. A run-up or fast-walk as part of the launch is not permitted, nor the use of ramps or like devices. **Invalid attempts receive a score of zero** and count as one of the team's official attempts.
- Only ONE team member may move beyond the launch line, after the paper plane has come to rest.

2. Accuracy Flight

- Students attempt to land their airplane as close as possible to a target on the floor.
- **Two trials per team are allowed.** Different planes can be used; the better attempt counts.
- Points are awarded based on distance from the center of the target.
- Measurements are taken after the airplane has come completely to rest.
- Distances shall be measured from the point on the airplane closest to the center of the target after the airplane comes to rest to the nearest centimeter. The target shall consist of concentric rings with radii of 15 cm, 30 cm, 60 cm, and 90 cm.
- Contact with walls, ceilings, fixtures, or other inanimate objects does not invalidate a flight.
- Invalid attempts: Any part of the competitor's body touching or crossing the launch line during release results in an invalid attempt. A run-up or fast-walk as part of the launch is not permitted, nor the use of ramps or like devices. **Invalid attempts receive a score of zero** and count as one of the team's official attempts.
- Only ONE team member may move beyond the launch line, after the paper plane has come to rest.

Scoring

This event is score using the criteria of Distance and Accuracy

Distance Flight Score (50 points)

- Two attempts
- Longest legal flight counts
- **Team with the longest distance receives 50 points**
- **The BEST DISTANCE = the actual longest distance (might be less than 50)**
- All other teams receive: **Distance Score = (Team Distance ÷ Best Distance) X 50**
- The Best Distance = the distance of the team with the longest distance

Accuracy Flight Score (50 points) (Distance to the center of the circle from closest edge of plane)

- Bullseye (within 15 cm): 50 pts
- Ring 2 (15–30 cm): 40 pts
- Ring 3 (30–60 cm): 30 pts
- Ring 4 (60–90 cm): 20 pts
- Outside rings: 10 pts
- Misses target area: 0 pts

Final Score = Distance Score + Accuracy Score

Tiebreakers in this order

1. Highest Accuracy Score
2. Highest Accuracy Score of each team's lowest accuracy score.
3. Longest Distance Flight Score
4. Longest Distance Flight for each team's lowest distance score.
5. Best professionally written build log as deemed by the event supervisor