

EVENT 6: PAPER HELICOPTER

(revised 8/2023)

OBJECTIVE: To build a slow descent paper helicopter to fall a distance between 3 and 4 meters in the longest time interval.

RULES:

1. Each team may only use the following materials to build one helicopter:
 - Paper, cardstock, cardboard
 - Masking tape or transparent (Scotch-type) Tape
2. The blades of the helicopter must spin around the vertical axis of the helicopter.
3. Once dropped the helicopter must spin at least four times (four full rotations) before hitting the floor.
4. The wingspan of the helicopter, measured from central axis of rotation to tip of blade, rotation to tip of blade, must be at least 2.5 cm.
5. No parachutes or other attachments may be used.
6. All types of glue or adhesives besides masking and scotch tape are prohibited.

COMPETITION AND SCORING:

7. The height will be selected the day of the competition. Each team will drop from the same height.
8. One person from the team will drop the helicopter from a height between 3 and 4 meters.
9. The bottom of the helicopter will be at the starting height.
10. The person dropping the helicopter may not impart energy to it (i.e. the person dropping the helicopter may not throw it or spin it).
11. The judge will stay “3-2-1-drop” and will record the descent time until any part of the helicopter touches the floor.
 - a. If the student does not immediately drop the helicopter at the word “drop”, the time for that trial will be recorded as ‘zero’.
 - b. If the helicopter should hit something else before it hits the floor on its way down, the team will be allowed one restart for that trial.
12. Teams will get two consecutive trials for the same helicopter and the better time will be used for scoring.

Scoring:

$$\text{Your Team's Final Score} = \frac{\text{Your Team's Time}}{\text{Winning Team's Time}} \times 100$$

Tiebreaker (1st place tie only) : Teams that are tied for 1st place will re-run their helicopters to break the tie. The original times for each team will be kept, and 5% will be added to the winning team's original time. This adjusted time will become the new "winning team's time" in the scoring formula above.

Disqualification Score: A minimum non-zero score may be applied to participating teams, according to judges' decisions about disqualification.

- Teams who do not make a helicopter, who use illegal materials or who impart energy on the drop will be given a zero for this event.
- Helicopters that are built and dropped to specification but do not rotate at least 4 times will be given a DQ score.