

CHOPPER CHALLENGE



Description: Contestants will build and test 2 choppers (rotary flying devices) using on the materials provided at the competition. They may bring pencils, a ruler/straight edge and scissors. No other equipment/supplies are allowed.

Number of Participants: 2

Approximate Time: 30min. build time, 10 min. test time

Construction:

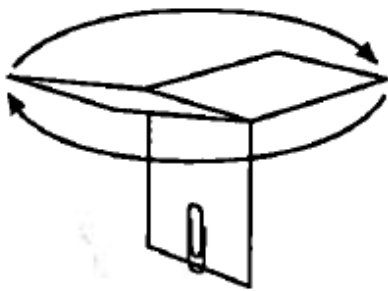
1. Each team will be given one sheet of 8 ½ by 11 in. 60 – 90 lb. card stock and 2 standard paper clips to construct 2 choppers that use rotation to slow their descent.
2. Each chopper must be made using a single continuous piece cut from the single sheet of cardstock. The paperclips may be added to one, both or neither of the helicopters. Paperclips will be attached to helicopter at time of build and may not be moved from one helicopter to the other after the build time.
3. Each chopper **must rotate** in a different direction along the y-axis. Choppers must fall so that the rotation of the chopper blade spins about the vertical y-axis. Choppers may not rotate vertically (or end over end.) Choppers are to be labeled at the time of build in which direction they should rotate. (Very Important)
4. At the time of the build a small piece of tape no larger than ¾ by ¾ in. will be used to attach a piece of fishing line to the helicopter in a manner that the line lays along the vertical portion of the helicopter and extends upwards above the axis of rotation. The string will be used by the launch mechanism to ensure that each helicopter is dropped in the same manner.
5. Contestants may test their devices by dropping them in the build area prior to the end of the build time but will not be allowed to test from the official drop location.

The Competition:

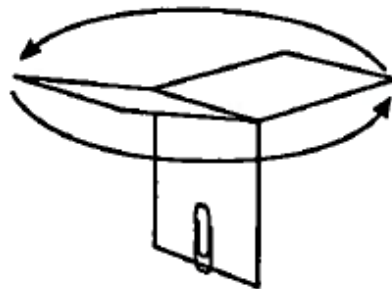
1. Competitors must attend the 30min build time on the day of competition to build their device. They will not be allowed to build later in the day once competition has begun.
2. When it is their turn, contestants will attach the fishing line to the launch device themselves to prepare for launch.
3. All devices will be dropped from the same height announced on the day of competition.
4. When students check in at launch time, students will gather their helicopter from impound and prepare it for launch. A judge will inspect the helicopters to make sure they meet the parameters of the event.
5. Judges will measure and record the time of descent for each of the two chopper flights. Students must drop each of the two helicopters they build. Time will continue if the chopper collides with another object but will stop if the chopper comes to a rest for more than a count of three.
6. A chopper's flight time will be divided by two if it does not rotate in the direction it is labeled.

Scoring:

1. The team's score will be the sum of the flight times from each helicopter. Any deductions due to rules violation will occur before adding the times together.
2. Ties will be broken by comparing each team's longest flight regardless of rotation. Longest flight will win the tie breaker.



Clockwise Rotation



Counter-Clockwise Rotation