

WRIGHT STUFF

DESCRIPTION: Prior to the tournament, participants will construct and test up to two rubber-motor-powered, propeller driven monoplanes, which do not need take off from the ground. Canard wings are equal to horizontal stabilizers and neither is considered a wing for this event. The flight time of each airplane will be measured and recorded. The event should occur inside and the room dimensions (approximate length, width and ceiling height) should be made available to teams in advance of the competition. Directors and supervisors are urged to minimize the effects of environmental factors such as air currents (e.g., doors, fans, etc.).

NUMBER OF PARTICIPANTS: UP TO 2

APPROXIMATE TIME: 10 minutes

1) CONSTRUCTION SPECIFICATIONS:

IMPOUND: No

- a) A rubber-motor-powered, propeller-driven airplane may be constructed from published plans, a commercial kit and/or a student's design as long as the following specifications are satisfied:
 - b) Total mass of the airplane throughout the flight, excluding the rubber motor, must be 8.0 grams or more.
 - c) Maximum horizontally projected wing span of 52.0 cm, maximum wing chord (straight line distance from leading edge of wing to trailing edge, parallel to the fuselage) of 13.0 cm, and maximum horizontally projected stabilizer span of 37.0 cm.
 - d) The propeller assembly may include a propeller, shaft, hanger, and/or thrust bearing. Bushings may be placed in the propeller or thrust bearing to reduce wobble or friction. The assembly can be built by the competitor(s) or purchased pre-assembled. It must use a single two-bladed commercially made plastic propeller with a maximum diameter of 24.0 cm. Longer propellers may be trimmed to meet this specification. Trimming/shaving/twisting is also permitted to balance and/or reduce the mass of propeller or to change its pitch. Variable pitch propellers are not allowed.
 - e) Airplanes will be powered by a single-loop rubber motor (which may include a knotted joint) not to exceed a mass of 2.0 grams. Mass will include all attachments and will be massed separately from the airplane after the timed flights are completed. Motors may be lubricated before and/or after check-in.
 - f) Airplanes will be constructed only from wood, paper, and glue except for the propeller assembly, ribbon assembly and motor hooks. The major components (wing assembly, tail assembly and motor stick) may be attached to each other using thread, music wire, malleable wire, paper or plastic tubes, and/or rubber bands. Plastic or rubber o-rings may be used to attach the motor to the airplane and propeller drive. Any dense material may be used for ballast.
 - g) The airplane must be marked in such a way as to be easily identified by the event supervisor.

WRIGHT STUFF (Cont.)

2) THE COMPETITION:

- a) At the event supervisor's discretion, trim flights may occur throughout the contest but will yield to any official flight. No trim flights will occur in the last half-hour of the event. Multiple airplanes may fly at once. Inspection station(s) will be made available to students for checking their airplanes. It is recommended that officials staff the station. The participants may bring and use a lubricant on the rubber motor if desired. The use of any type of winder is permitted.
- b) If the airplane is designed with removable flying surface(s) (i.e., wings, stabilizer, fin, etc.), it must be presented to the event staff in a disassembled state before trim flights are made. The competing student(s) must do assembly and all trimming. The event supervisor will designate the flight area and all flights must initiate from any location within this area.
- c) Only competitors will be allowed in the testing / flying areas. Competitors shall communicate only with officials and their Wright Stuff teammate upon entering the testing / flying areas until after their official flights have been completed. The event director shall have a separate area away from the competitors' area designated for coaches, parents, and other spectators. Any team having any type of communication other than that described above shall be disqualified.
- d) Teams will be given 8 minutes to launch 2 official flights. Event time starts when the first airplane is launched. Any flight beginning within the 8-minute period will be permitted to fly to completion. Participants will be permitted to make adjustments to the airplane; however, time for such adjustments will be part of the 8 minute flight period.
- e) Timing for each flight starts when the airplane leaves the student's hand and will stop when any part of the airplane touches the floor or comes to rest in/on any obstruction. The timing official will measure and record the time aloft in seconds (rounded off to the nearest tenth second) for each flight. Sliding or bouncing along the floor is not considered aloft. During the flight of one team's airplane, other official flights may be launched when the other plane is a sufficient distance from the start. This can - best be done if the first airplane has started its descent pattern. In the unlikely event of a collision, a team may elect are-flight.
- f) Bonus: At the State level, a 15 seconds bonus may be earned by having the airplane release a ribbon, during the flight anytime after the first 15 seconds and before the airplane lands. At the National level a 20 second bonus will be awarded if the ribbon is released from 30-45 seconds into the flight. The ribbon size must be at least 1.0 cm wide X 10.0 cm long and readily seen. Any ribbon released from the airplane during flight will not be included in the mass of the airplane.
- g) Resource links may be found at <http://www/soinc.org>

SCORING: The winner is the team with the longest time aloft for either flight. Ties will be broken by the longest second flight.

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