

MESA DAY

Glider Contest

Level: High School/Grades 9 - 12

Teams: 2 students per team

Overview: Students will design and construct a glider which will fly through as many of three targets as possible.

Materials: The following materials will be provided by MESA:

- One balsa wood sheet $3/32$ " thick 3"x36"
- One balsa wood stick $1/4$ " x $1/2$ " x 24"
- Rubber band powered hand launcher

These materials do not have to be used; the glider can be made out of any size, quantity, and quality of **BALSA** wood.

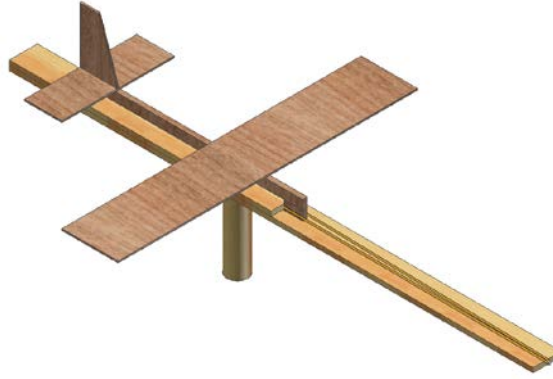
Any type and amount of glue can be used, but keep the glider's weight in mind.

Students must use launchers/catapults provided by TSPS MESA at MESA Day.

Rules:

- 1) Gliders can only be made from balsa wood.
- 2) Purchased kits are not allowed.
- 3) The maximum weight of a glider must not be more than 30 grams.
- 4) A glider, which meets all requirements, but appears to the judges to pose a danger to persons or property, will be disqualified at the sole discretion of the judges.
- 5) Each team will be permitted one glider at the contest.
- 6) Gliders may also be painted/decorated, but keep in mind that paint adds weight. (markers and colored pencils are good alternatives to paint)
- 7) The glider must have a hook on the underside of the fuselage to permit launching with the catapult.
- 8) The glider is hooked to the rubber loop at the end of the catapult. The contestant pulls the glider back until the hook of the glider touches the wooden stop at the front of the stop plate on the catapult (see diagram below). The launch angle of the catapult is determined by the contestant. Any launches made with the nose hook pulled beyond the stop plate will be

counted as an un-scored launch, thereby reducing the number of scored launches for the contestant.



- 9) There will be 3 targets for the glider to fly through. They will be aligned one behind another so the glider can fly through all three if it doesn't turn too far left or right. The targets will be placed at 3 meters, 6 meters and 9 meters away from the start line. The glider must fly through the first target or the flight will count as a zero.
- 10) Flying through the targets will award bonus meters to the overall distance of the flight, target one (3) bonus meters, target two (6) bonus meters, and target three (12) bonus meters.

Judging:

1. Flights are measured from the start line to the closest point of the glider to the start line.
2. A flight is disqualified if the plane fails to fly through the first target.
3. All flights measured by a judge are official flights, regardless of distance achieved.
4. Each team is allowed 2 flights; the best flight of the 2 will be recorded as the team's score.
5. In the event of a tie, duplicate medals will be awarded.
6. Gliders can be repaired or modified between trials if necessary.

Score: (100 points possible)

1. Team Score (TS) = Distance achieved on their best flight.
2. Winning Score (WS) = Greatest distance achieved by any team competing.
3. Final Score = $(TS/WS) \times 100$

Awards:

1st, 2nd, and 3rd place awards will be given to the teams with highest final score.