



MESA DAY CONTEST RULES 2009-2010

Balsawood Glider

LEVEL:	6 th - 8 th Grade
TYPE OF CONTEST:	Team
COMPOSITION OF TEAM:	1 - 2 students per team
NUMBER OF TEAMS:	3 teams per Center
SPONSOR:	Alan Brown, UCSC Center MESA

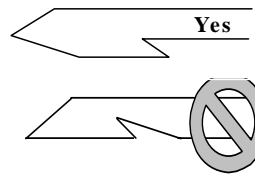
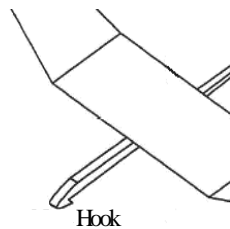
OVERVIEW: Students will design and build a glider made of balsawood, which will be launched outdoors using a hand-held catapult provided by the host center. The goal of the contest is to fly the glider the greatest straight-line distance from the launch point.

MATERIALS: The following are the **ONLY** materials that may be used to build the glider.

- Balsawood
- Glue, any type
- Modeling Clay
- Paint, stickers, decals, markers and ink may be used as needed for decoration or for identification

RULES:

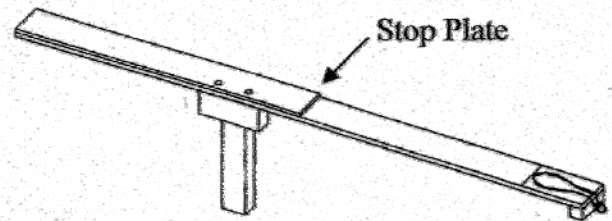
- 1) No ready-made kits are allowed. Each glider must be designed, constructed, launched and repaired by contestants.
- 2) The minimum wing-span of the glider is 10 inches. This will be measured from wingtip to wingtip at right angles to the nominal direction of flight. The point is to avoid arrow-type projectiles.
- 3) Any glider that incorporates additional materials not mentioned above will be disqualified.
- 4) The glider must have a hook on the underside of the fuselage to permit launching with the catapult. Cutting a flush notch into the underside of the fuselage is **NOT** acceptable. (see diagram). The hook need not be a separate item from the main fuselage.



The hook must protrude from the bottom of the fuselage so that it engages cleanly with the stop plate.

- 5) The contestant's name(s), school, and center should be clearly visible on the glider. They should be identified using a sharpie pen or equivalent. **Do not use a separate tie-on label, as this will be considered to be a part of the model when it is turned in for judging**. Failure to correctly identify the glider as noted will result in a 10% deduction from the final score as calculated in item 7 of 'Judging'. Two decals will be allowed up to two inches square each, but no material which could be construed as an extra surface finish.
- 6) The glider must be competition-ready when turned in for inspection at MESA Day. No modifications to the glider are allowed after the glider is submitted to the judges for inspection.
- 7) The gliders will be launched using a catapult provided by the host center. Catapults have the following specifications:

- Platform: One piece of wood 5mm x 45mm x 700mm
- Stop Plate: One piece of wood 6mm x 45mm x 350mm
- Handle: 20mm x 30mm x 150mm
- "T" Handle Support: 15mm x 15mm x 75mm (Two screws attach the handle support to the platform and the stop plate)
- Screw Eye Attachment Block: 15mm x 15mm x 45mm
- Screw Eye
- Rubber Band: Office Max # 32 or equivalent. The rubber bands will be kept in a sealed plastic bag. The band on the catapult will be replaced by a new one every five launches.



- 8) The glider is hooked to the rubber loop at the end of the catapult. The contestant pulls the glider back until the hook touches the wooden stop at the front of the stop plate on the catapult. (see diagrams above) The launch angle and attitude 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 unscored launch, thereby reducing the number of scored launches for the contestant.
- 9) The release height of the glider shall not exceed six feet above ground level as measured by a stick held vertically next to the contestant during launch. Launches above six feet shall be counted as an unscored launch, thereby reducing the number of scored launches.

- 10) The contestant releases the glider after being given the “OK” from the official. Distance will be measured downwind of the launch point to when the glider hits the ground or comes to rest against any obstruction. The direction of launch is at the discretion of the contestant, but the distance traveled will be measured in a direction determined a priori by the judges., starting from the prescribed launching area, and clearly stated to the contestants.
- 11) Each glider is given three (3) launches. The winning glider will be the one that has the combined longest distance + second longest distance.
- 12) Repairs are allowed between flights. However, no changes may be made to the basic design of the glider once the competition is under way. Repairs must be made by the contestants.

JUDGING:

- 1) Once an entry has been registered it may not be altered or repaired to meet technical inspection.
- 2) No part(s) of the glider may be removed or added after the specification check has occurred. No backup gliders will be allowed. No tools or materials will be supplied at MESA Day.
- 3) Each team will be allowed three non-consecutive launches. Each glider must be ready for competition when called. The glider should be launched within 30 seconds of being called or contestants will forfeit that launch. The distance will be measured by the judges in a direction generally downwind of the launch site, and clearly identified to the contestants.
- 4) The judges will determine where the launching site should be. They will ensure that there is sufficient space available that the gliders can fly downwind without hitting obstructions. Typical dimensions might be a fifteen meter radius circle, and eighty meters downwind.
- 5) Spectators should not be allowed within the flight area at any time during the competition.
- 6) In the event of a tie, the glider with the longer single distance will be the winner.
- 7) Overall scoring is determined from paragraphs 11 and 12 of ‘Rules’ above.

AWARDS: Awards will be given for 1st, 2nd and 3rd place.

CHECKLIST:

- Glider made of balsa, glue and modeling clay; no metal or plastic objects on/in glider
- Glider has projecting hook, not cut into fuselage
- Glider is properly labeled with names, school and MESA center
- Glider has no extra surface finish material other than small decorations.