

Teacher Procedure

Student Procedure

Overview

Students compare the flight times of three glider designs to determine the one with greatest amount of flight time.

Materials

- Laser-cut balsa wood parts for wind dihedral gauge
- Laser-cut balsa wood parts for gliders
- Hobby knife
- Glider clip
- Rocket tubes
- Rocket caps
- Clay
- Ruler
- Transparent tape
- CA adhesive, such as Insta-Cure (or IC-GEL with an accelerator)
- AP Launcher
- Glider Launch Stabilizer
- Air pump
- Stopwatch
- Pencil or marker
- Safety goggles
- “Boost Glider Worksheet”

Vocabulary

- flight time
- rocket boost

Procedure

Students will work as individuals to construct their gliders. The AP Glider Class Pack (listed by its individual parts in the Materials list) contains 10 each of three different glider designs. Assign students different designs so that the number of gliders of each type is approximately equal.

Be sure to follow all safety and procedure instructions as written and shown in the *AP Launcher User Guide*. **Caution:** Safety goggles are an absolute must for this activity.

For the AP Gliders, the Glider Launch Stabilizer must be added to the AP Launcher by sliding the device over the metal tube of the launcher. Consult the *AP Launcher User Guide* for information on the stabilizer and the AP Launcher device in general.

You may want to set the pressure relief to 25 psi for outdoor launches (outdoor launches are recommended) and 5 psi for indoor launches. See the *AP Glider User Guide* for tips on indoor launches.

Students will work in teams of two for construction and experimentation. One student should launch the glider and the other should time the amount of the glider’s flight time. Flight time should be determined from the time the launch button is pressed to the time the glider hits the ground.

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Gluing Tips

When using a thinner CA adhesive such as Insta-Cure, you can place the balsa wood parts together and apply the adhesive on the seams where the parts meet. This type of adhesive will wick, or absorb, into the wood crevices.

If using a thicker adhesive such as IC-GEL, you need to apply the glue on the balsa wood parts before putting them together. Apply the adhesive wherever the parts will touch.

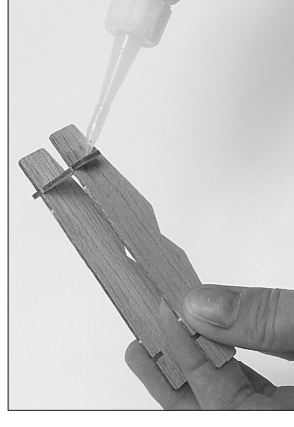
Procedure

Assembling the Wing Dihedral Gauges

The parts for the gauges are on the short sheets of balsa wood.

1 Place one short sheet of balsa wood flat on a work surface. Using a hobby knife, carefully cut the contact points that hold the parts to the sheet. Remove the parts from the sheet.

2 Glue the two B pieces to the bigger A pieces by sliding them together where they have slots. Let dry for several minutes.



3 Repeat Steps 1 and 2 for the other two gauges.