**Elastic-Launched Glider Construction**
*Instructions for a sample build, intended for teaching general building skills only.*

**Tools:** Sandpaper or emery board, single-edge razor blade or hobby knife (#11 blade), felt-tip pen, ruler, scissors, wire paper clip, wax paper, ¾” thick wood scrap, drafting triangle, cardboard (for a cutting surface).

**Ballast:** Modeling clay (plasticine)

**Fuselage:** Use ¼ x 1/8 balsa, two pieces: one 37 cm and the other 9 cm long. Glue the 9-cm piece to one end of the 37-cm section; 1/8-inch edge to 1/8-inch edge. The result will be a cross-section of 1/8 x ½, this will become the front of the glider. The bottom edge of the fuselage is the one to which the 9 cm piece was added.

The other end (still ¼ x 1/8) will be the back of the glider. Carve a slight taper at the back on the bottom edge of the fuselage from about 10 cm to its end so the end has a cross section of about 1/8 x 7/32 inch.

**Wing:** From one end of a 1/16”x 3” sheet, measure 7 cm and mark a straight line from one edge to the other using a ruler and a fine felt-tipped pen. The line must be perpendicular to the edge of the sheet of wood (use the drafting triangle). Repeat the 7cm measurement from each line three more times. That will result in 4 sections (lines) equidistant 7 cm apart.

The center line is for locating the wing on the fuselage. The two lines at 7 cm from the center, start the shape of the wing tips as shown on the plan. The forth line is the end of one wing tip (the other wing tip end is the sheet end where measurements started). After marking the wing tip shapes, cut away the excess wood using a sharp blade. Then cut away approximately one centimeter from the full length of the trailing edge of the wing (that’s the edge with no tapers).
The next operation is to form the wing dihedral. Hold a straight edge on the line where the tip pattern starts and slightly crush the wood next to the straight edge using a wire paper clip as a tool.

**Note 1:** With viscous glue spread it into the crack with a scrap of balsa before the glue cures.

**Note 2:** Control accelerator application with a thin scrap of balsa dipped into the bottle rather than using the spray top. Repeat the crack and glue operation for the other wing tip. Turn the wing upside down and lightly sand the rough bottom of the joint using an emery board.

With the straight edge held on the crushed line and also on the side of the line closest to the center line, lift up the wing tip until it cracks slightly at the crushed line.

That will produce a small amount of sanding dust, but do not blow it away! Run glue again into the dusty joint to strengthen it from both sides of the wing. You may also want to follow the above two notes.

Place the cracked edge on a piece of wax paper and the wing tip on a scrap of ¾” wood with approximately one-half inch above the wood while the rest of the wing is on a flat surface. Run glue into the crack. Hold a few seconds until you are sure the glue has set.
Stabilizer and Fin: Transfer the dimensions from the plan onto the sheet of wood. Pay attention to the wood grain orientation indicated on the plan. Cut away the excess wood.

Final Assembly: Glue the bottom of the wing at its center line to the top of the fuselage with the wing’s leading edge 9 - 10 cm* from the fuselage nose. Use a small amount of glue at first to make sure the center line follows the center of the fuselage.

*Note added after photo above was taken: The wing was moved back one cm from the position shown to attain balance with less clay so that the 10-gm maximum mass was not exceeded.

After alignment is good, finish with more glue. Glue the stabilizer to the bottom of the fuselage leaving about 2 cm of fuselage behind the stab. Glue the fin to the top of the fuselage making sure it is absolutely in alignment with the fuselage.

Balancing the Glider: Make a mark on the fuselage 3 cm in front of the wing’s trailing edge. The glider must balance very close to that mark. Cut a balancing fulcrum from stiff paper (file folder or index card) and tape it to a flat surface. Add modeling clay to the nose of the fuselage until balance is obtained.

Flying the Glider: http://scioly.org/wiki/index.php/Elastic_Launched_Glider. However, grip the glider behind the stab! That’s what the fuselage extension is for.
Elastic Launch Glider  
Designed by Chuck Markos  
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- Wing, stabilizer and fin from 1/16” balsa 3 x 36 sheet.
- Fuselage from 1/8 x 1/4 balsa, 9 cm doubler at nose.

Note: Taper to 7/32”.