



## Cardboard Cruiser Card Stock Airplane



by zdedesigns

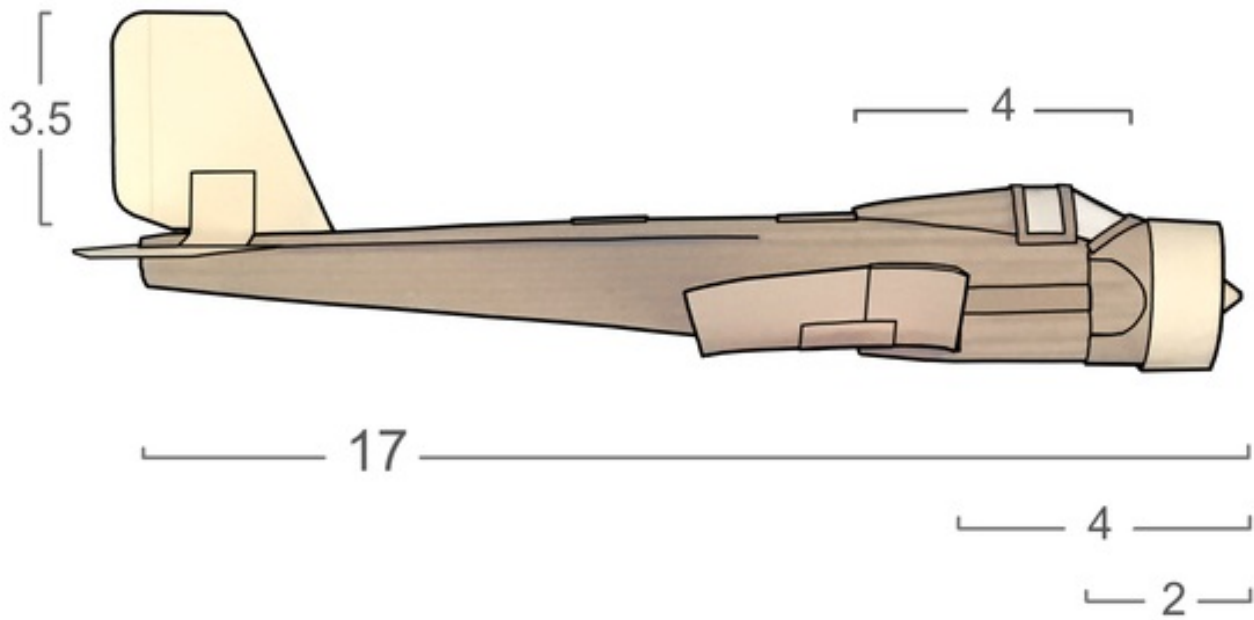
Here's a fun "old timey" design that flies pretty well. The corrugations bring to mind planes such as the Ford Trimotor. I made a prototype with front landing gears, and it looked great but was too heavy. In the end, I'm fairly happy with how this second version. I would like to reposition the windscreen, but there's no time!

### Supplies:

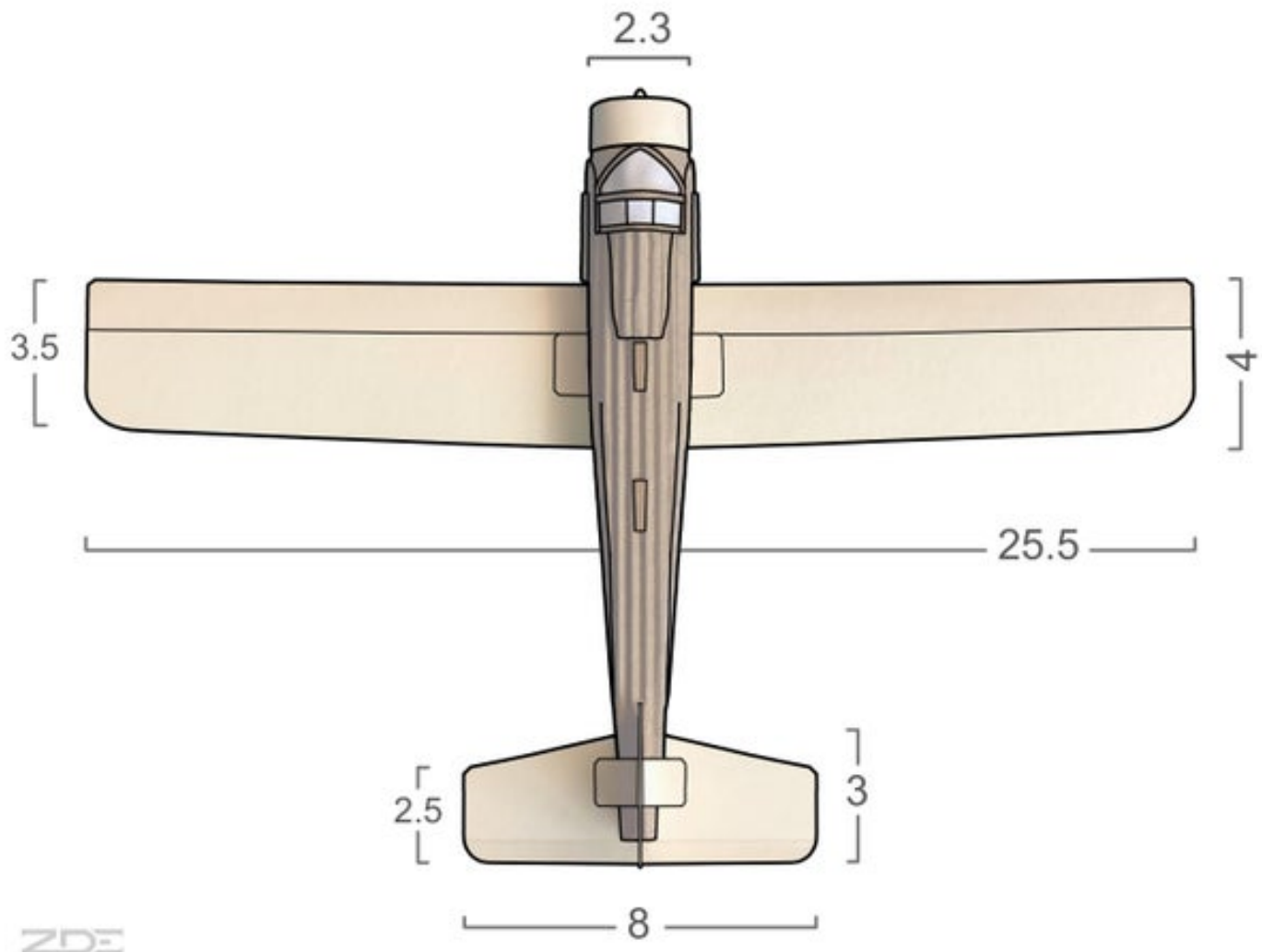
- sheet of 12" x 12" corrugated scrapbook cardboard (which has small corrugations, such as these [Kaisercraft](#) sheets)
- non-corrugated cardboard sheet, approximately 6" x 6", from food or beverage packaging
- manila file folder, or medium sheet of card stock (80 lb / 215 gsm)
- scrap of white card stock or thick paper, approximately 1" x 2"
- wine cork
- liquid white glue and glue stick
- hobby knife
- ruler
- scissors

# CARDBOARD CRUISER

in centimeters



ZDE

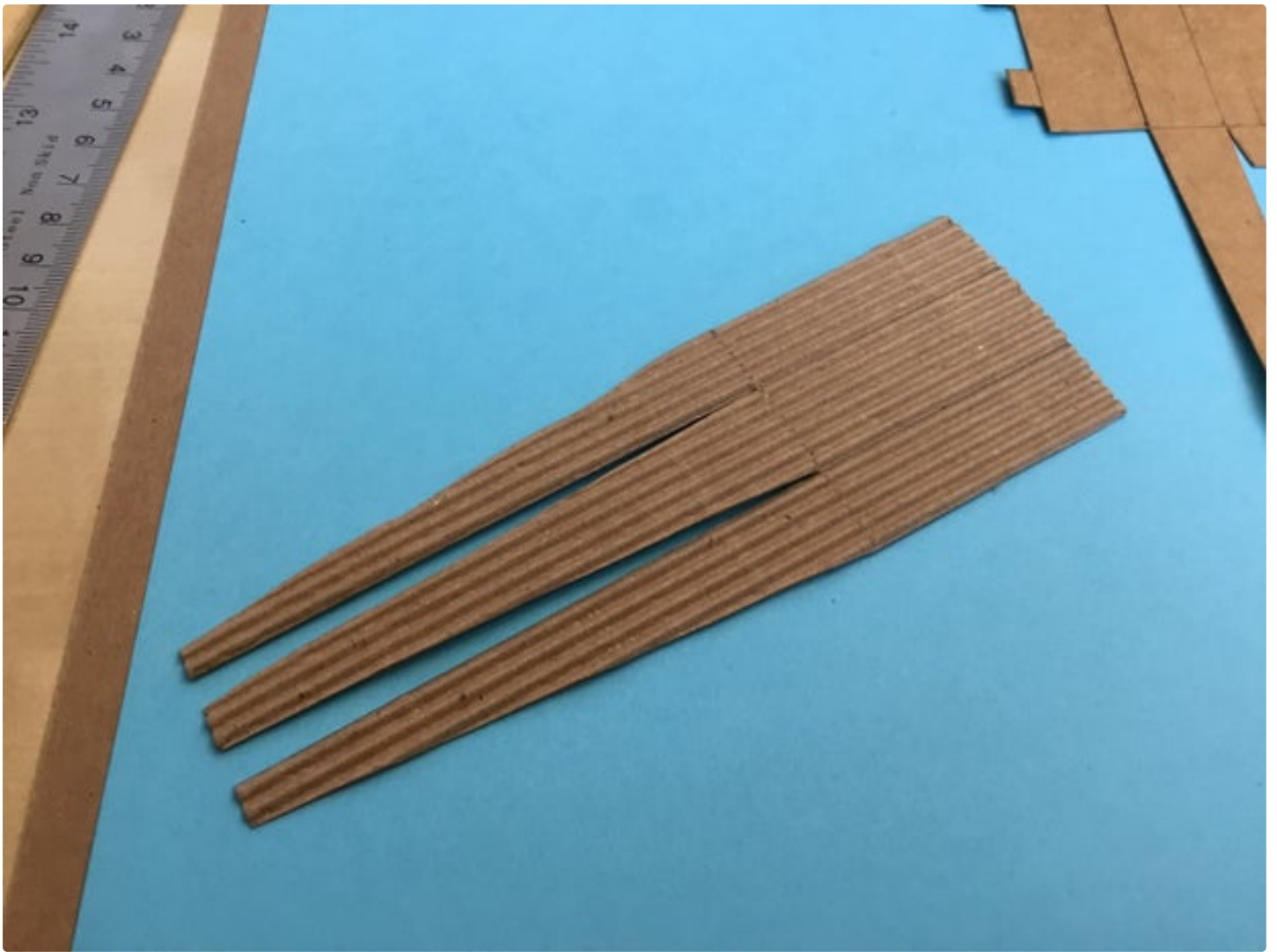


## Step 1: Fuselage

Draw the images from the plans (see PDF file) onto the appropriate material. Cut out the main fuselage piece from the corrugated cardboard. The measurements of the main piece are unusual because I was working with the width of the corrugations (there are five on both sides, six on the top). I needed the angles of the fuselage to align with the valleys of the corrugation pattern.

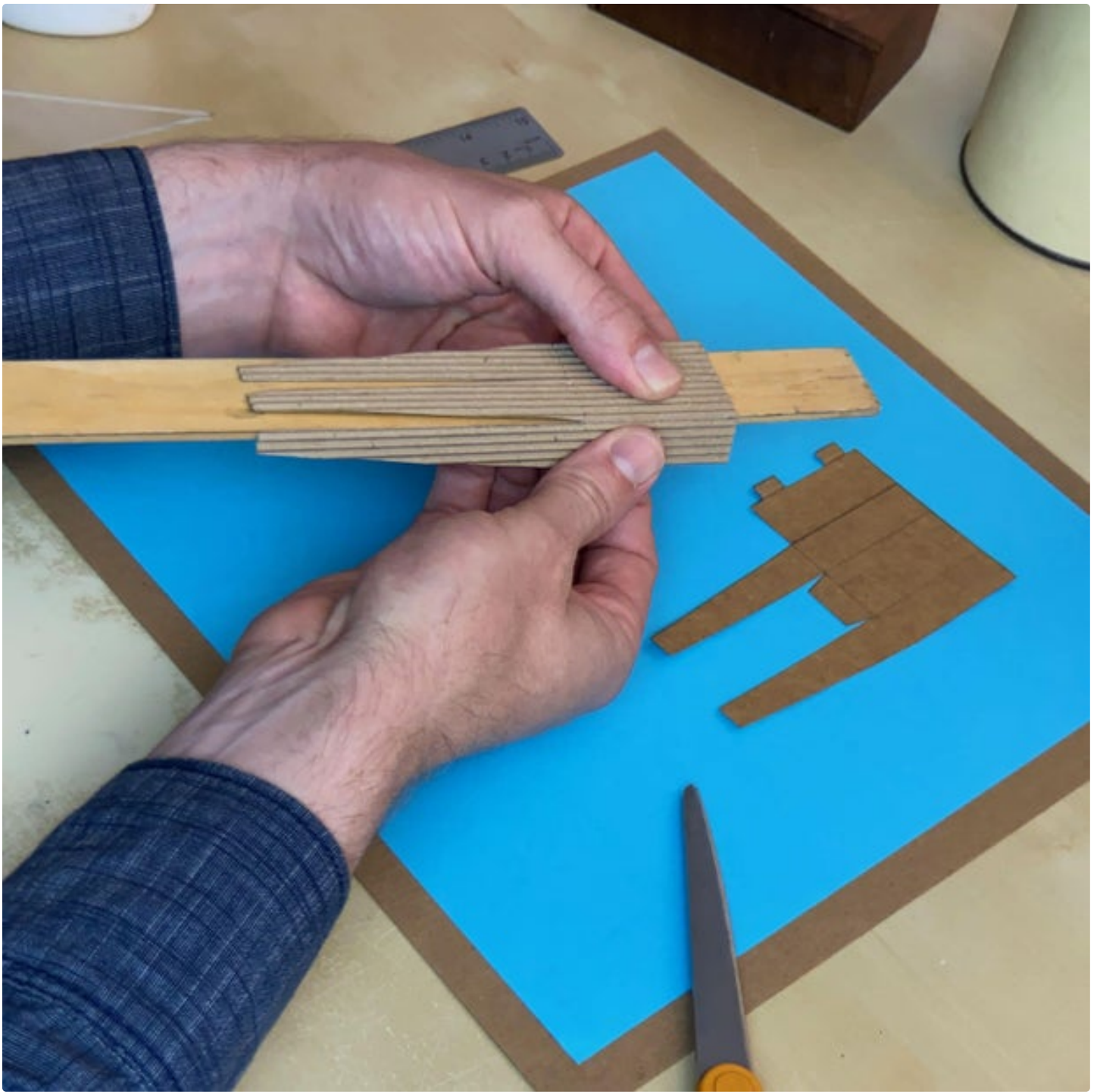
Use a rounded object to shape the top of the fuselage into an arch. Use a ruler to help you make the angles that define the sides and top.

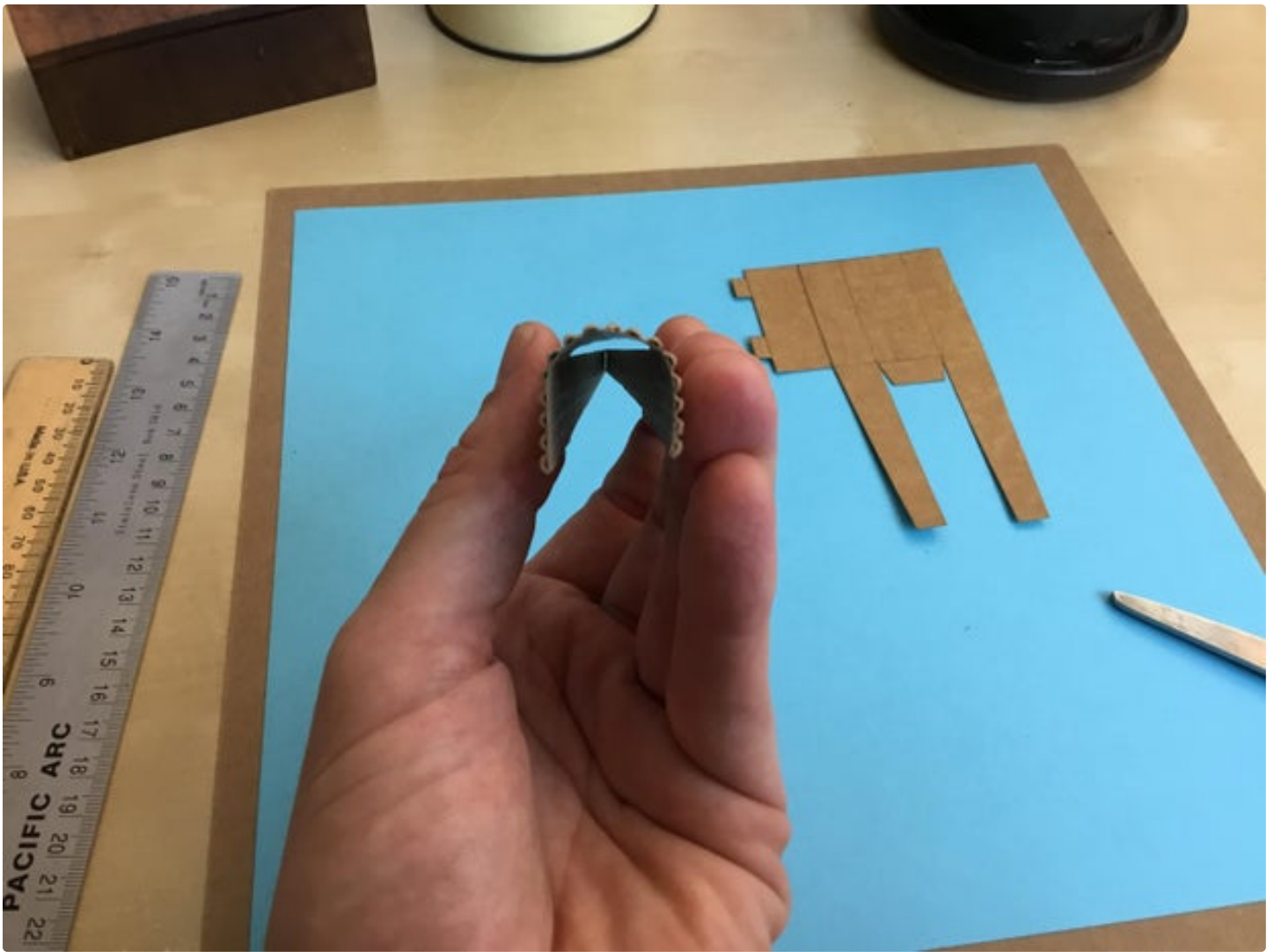
Cut out the fuselage brace from the non-corrugated cardboard. Use a ruler to bend the angles, and a curved object to form the top into an arch. Apply liquid glue and unite the piece with the fuselage.

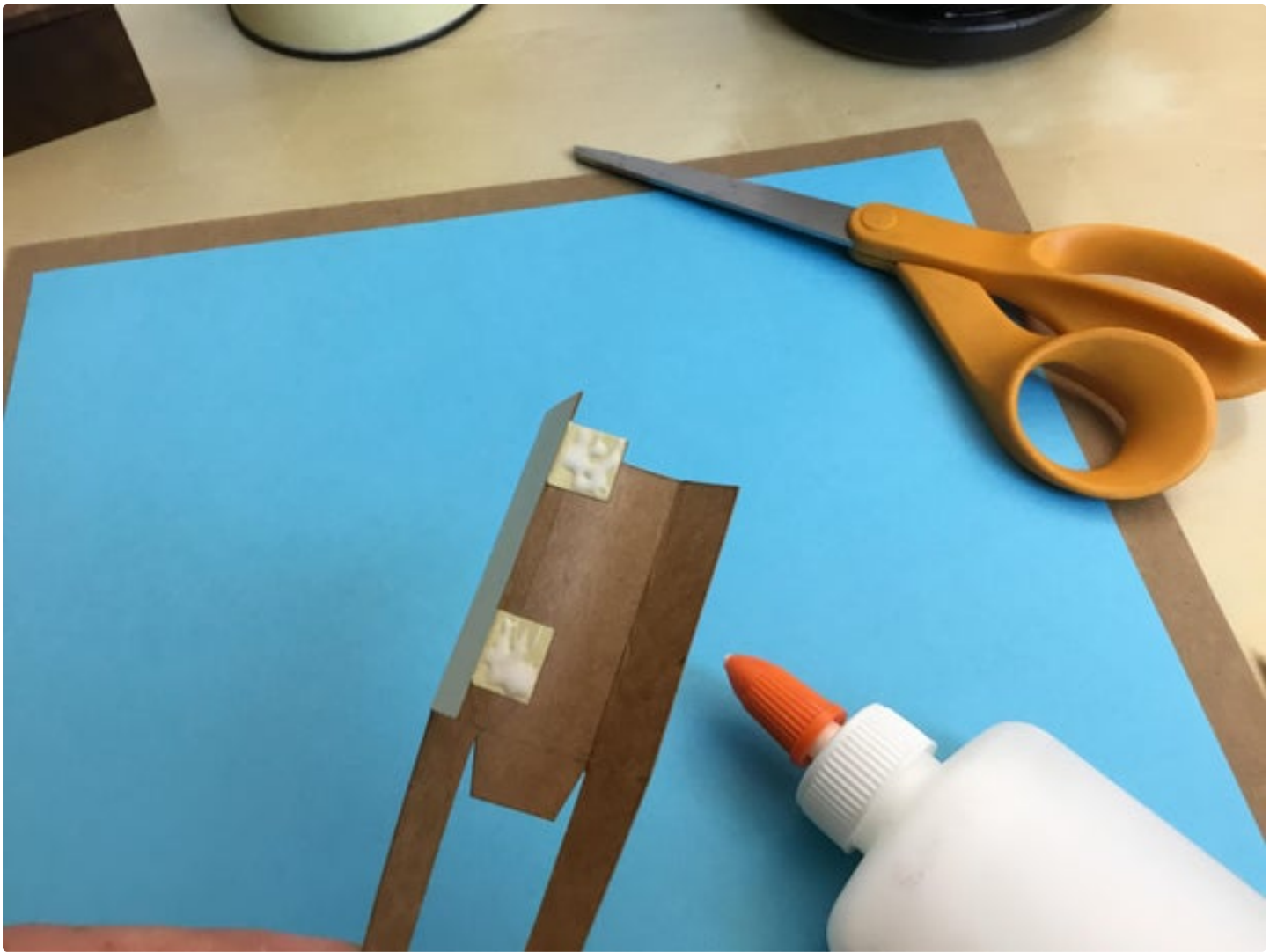






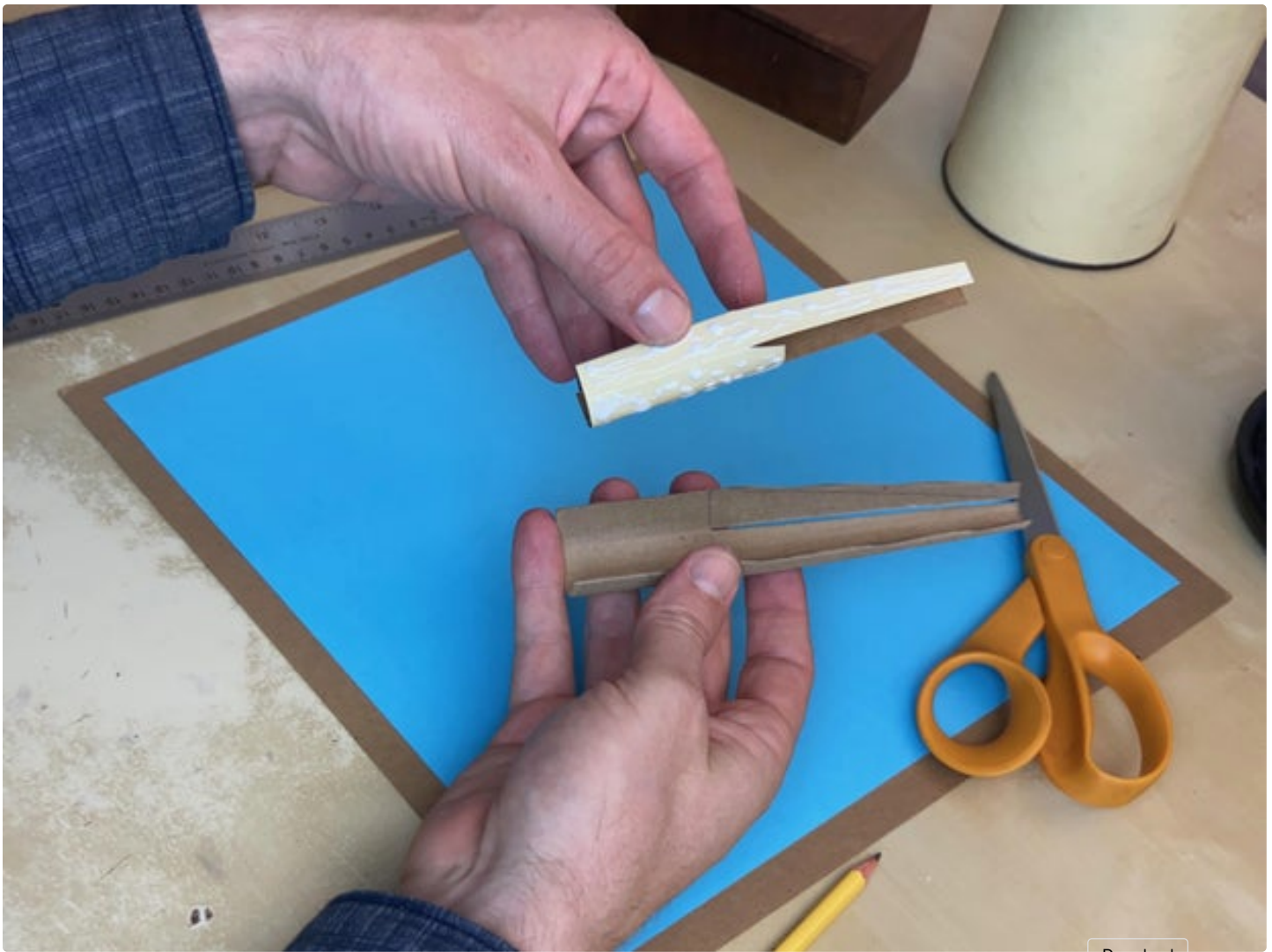










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## Step 2: Wing

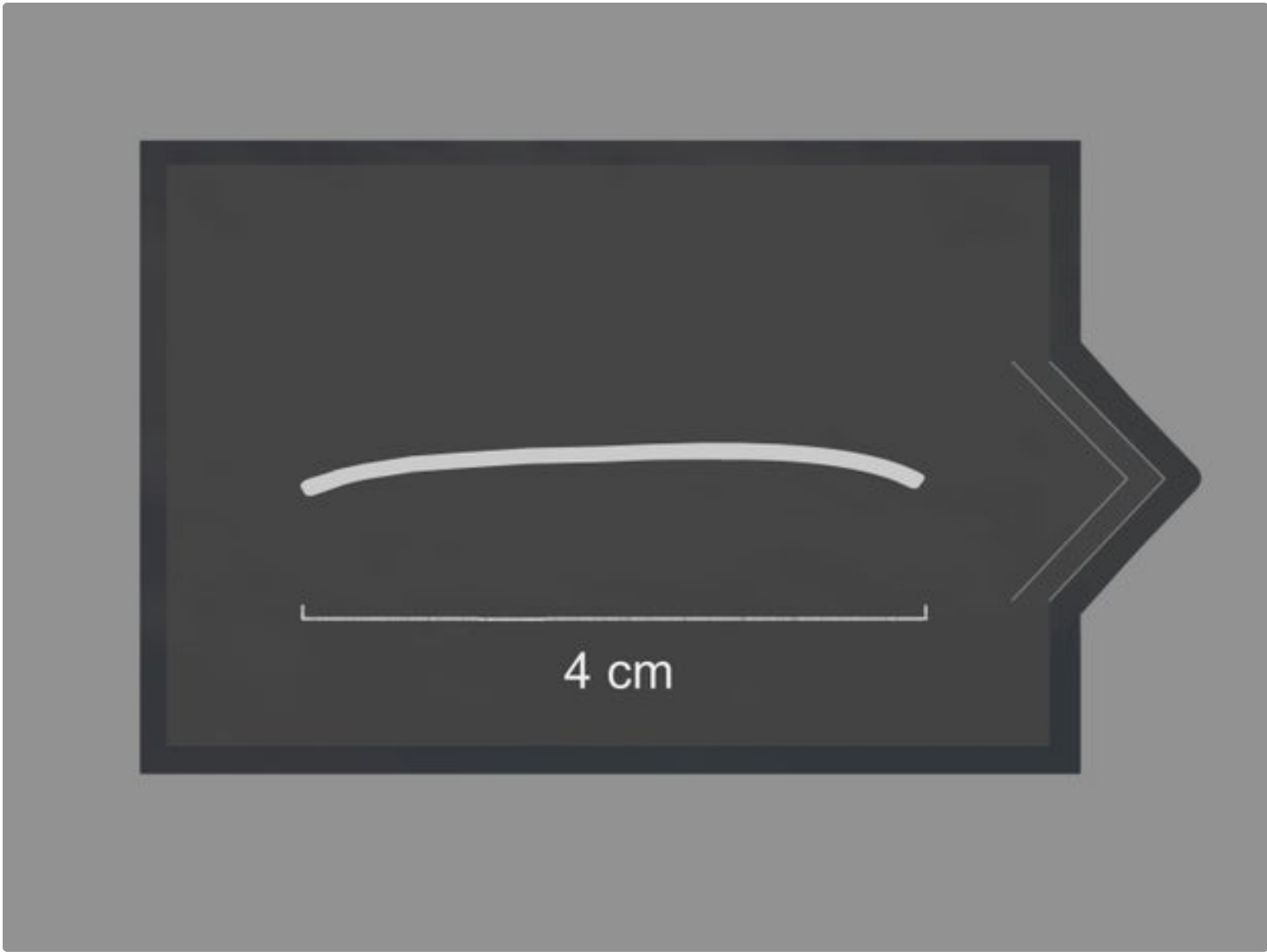
Draw or trace the wing, and its braces, onto the manila file folder (or medium card stock). Cut it out carefully. Use a ruler to establish a crease where the leading edge will be. Gradually bend the material all the way back and over. Apply glue with a glue stick. Press the layers firmly together. You may want to put it under a large book for ten minutes.

To give the wing some undercamber, slide the leading and trailing edges over the edge of a table (the box is just for demonstration) whilst pressing down with your fingers (and it's better to use both hands). Repeat this until the material holds the desired shape. Another method is to just pinch along the leading and trailing edges. Ideally, the wing should have a curve that looks like the one in the grey diagram.

Next, make the triangular relief cuts on the center line of the wing. Next, glue the bracing strips to the top and bottom of the wing. The longer of the two goes on the bottom, and should be about 8mm back from the leading edge.

Use a ruler to establish a crease on the center line. Raise the wing tips about 5 degrees above horizontal.











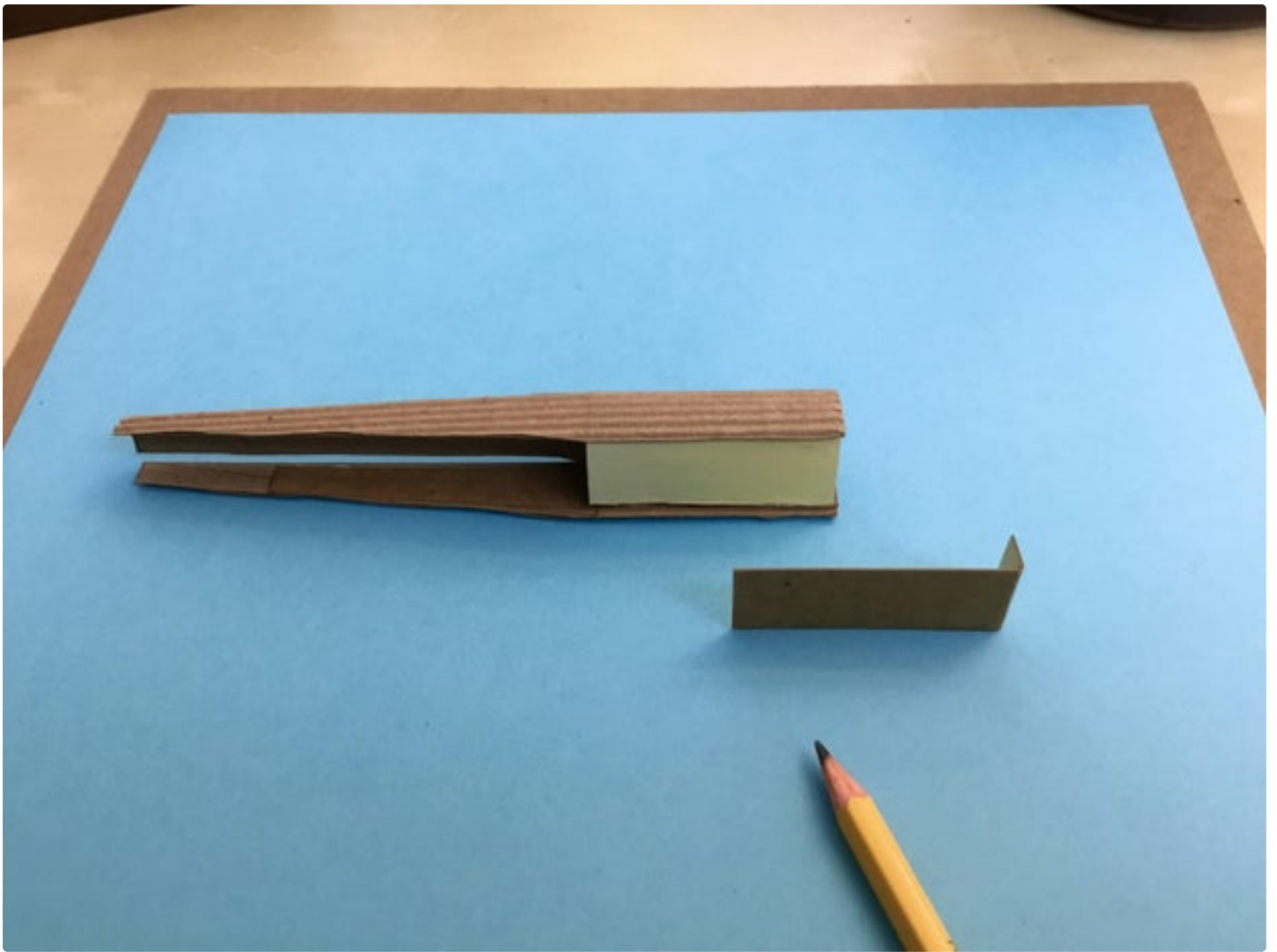


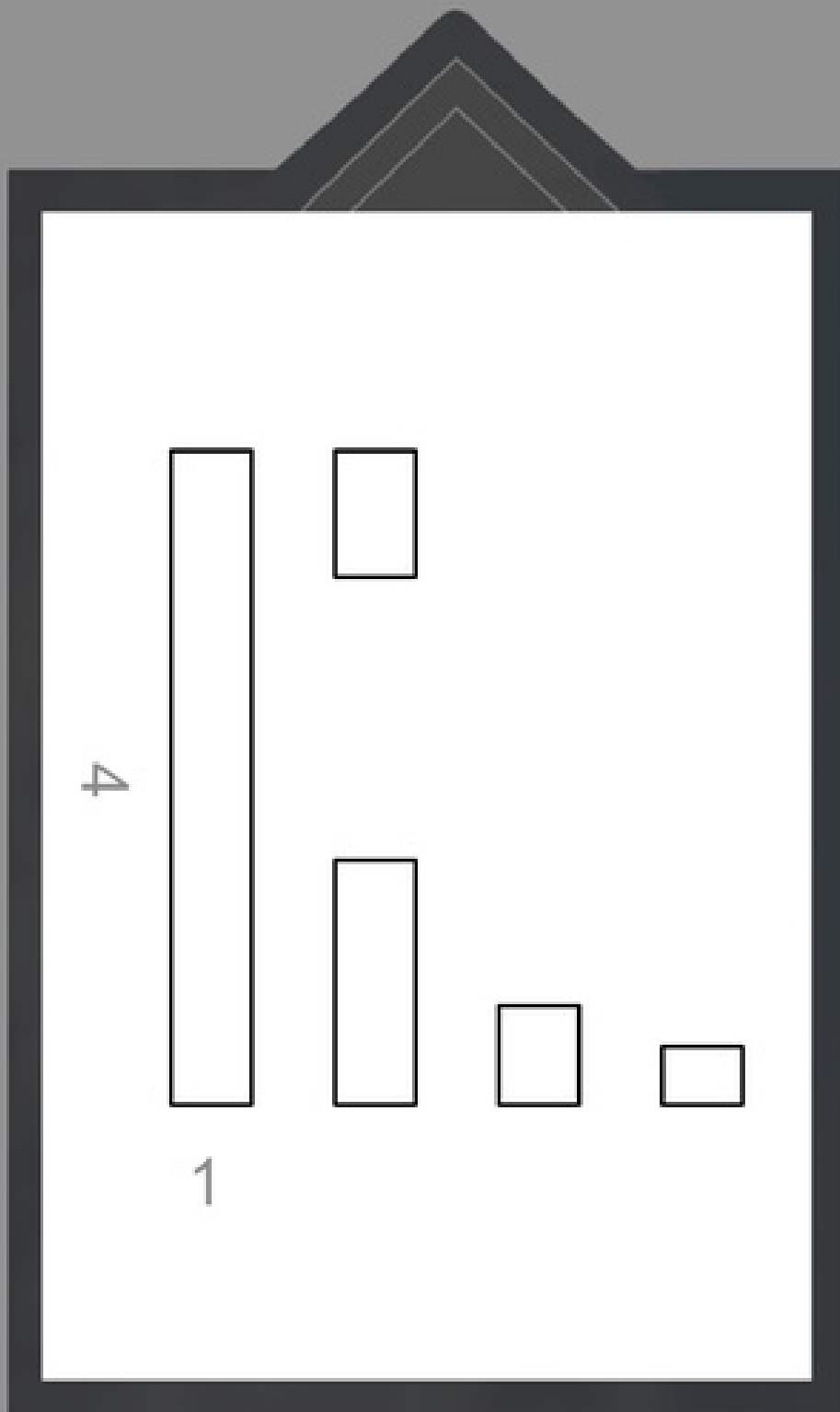


### Step 3: Mount the Wing

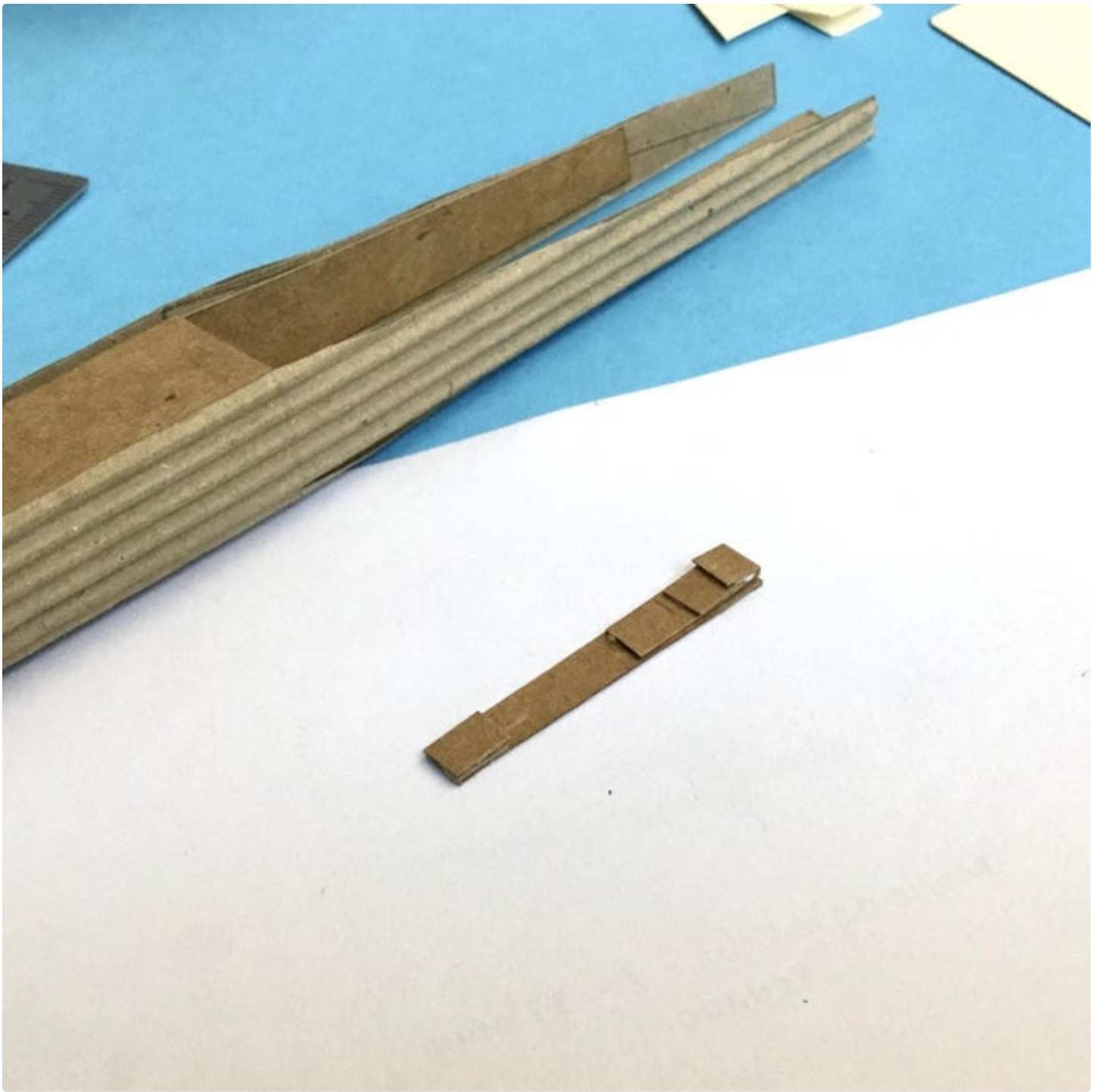
The plans have a solo rectangle. Cut it out of non-corrugated cardboard. Crease it at the dotted line. Use liquid glue to attach it to the bottom of the fuselage, at the nose area. The short panel folds over the front and back into the fuselage.

Next, you'll need to make a saddle for the wing. Cut some strips of non-corrugated cardboard, all with a width of 1 cm. The base should be 4 cm; the other pieces measure 1.5, 0.8, 0.6 and 0.4. Glue the saddle to the bottom of the fuselage, 2 cm back from the tip of the nose. Once it has dried in place, use a liberal amount of liquid glue to attach the wing. Make sure the wing span is exactly perpendicular to the fuselage.

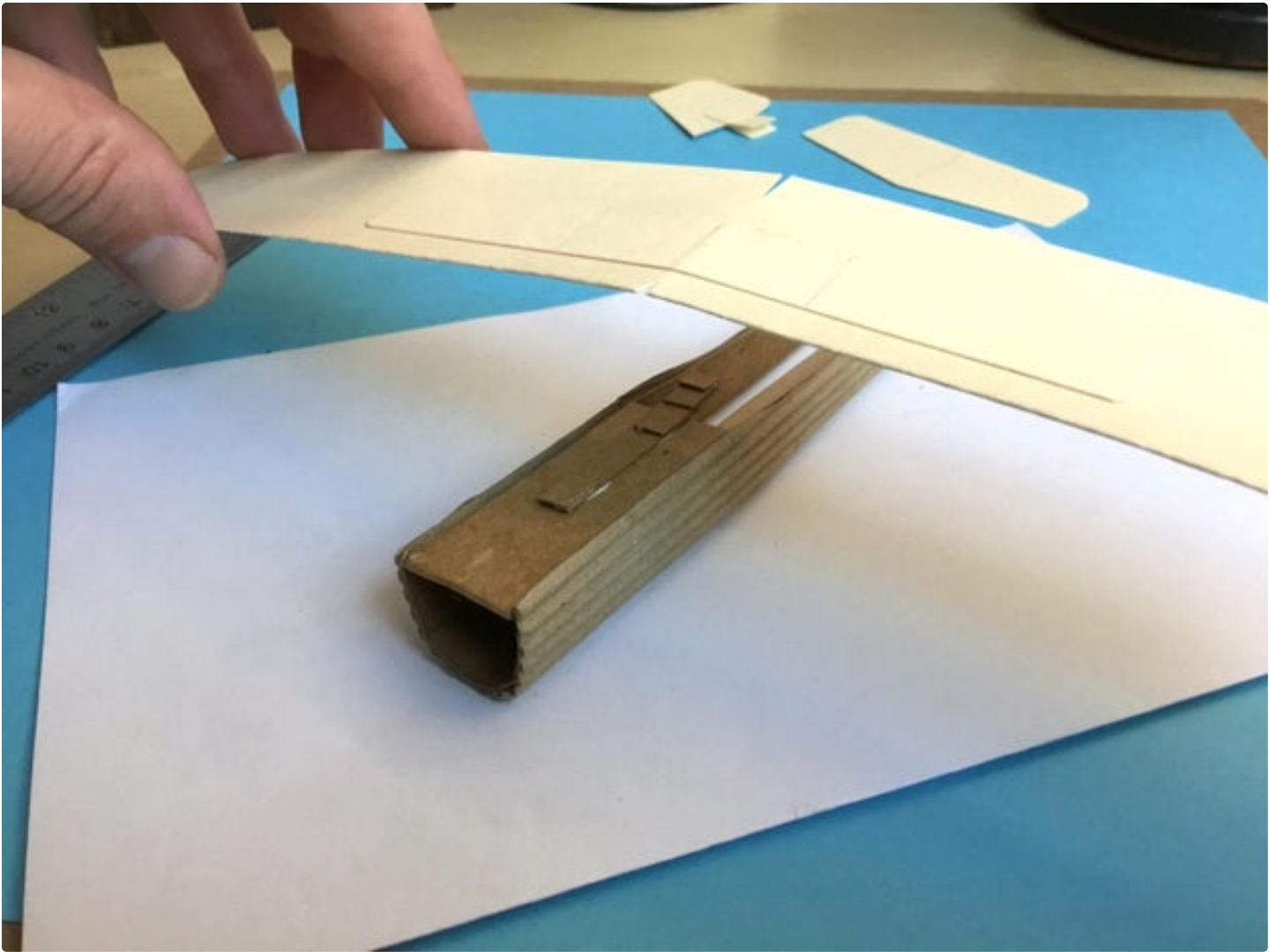












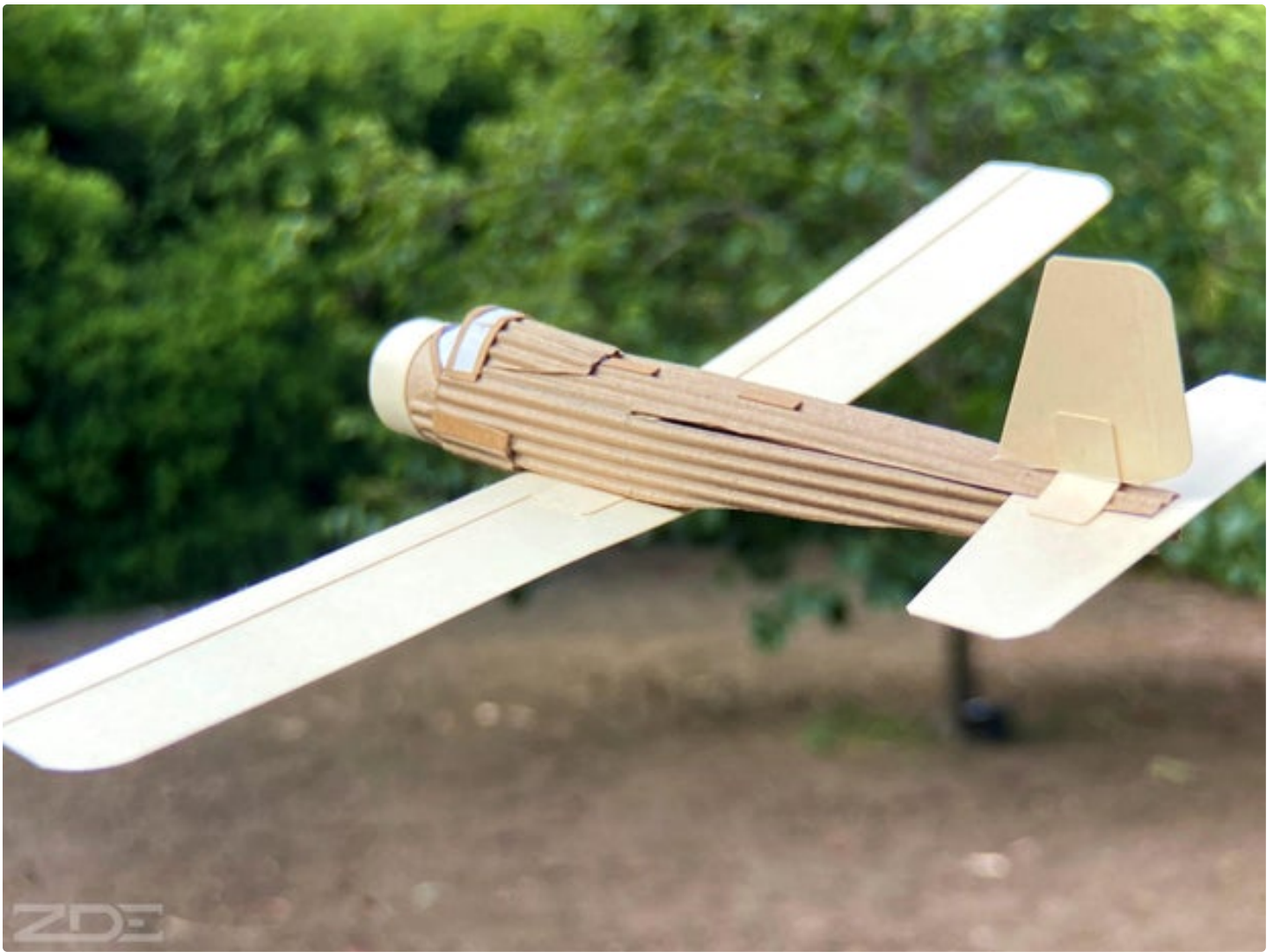
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#### Step 4: Tail

On the manila folder, draw the shapes of the horizontal and vertical stabilizers (as seen in the plans).

Slide the horizontal stabilizer between the sides and top of the fuselage, at the aft end. Apply beads of liquid glue and be sure the stabilizer is perpendicular to the line of the fuselage. Also, make sure the elevator protrudes from the tail of the fuselage. Hold the pieces together until the glue sets up, and scrape away excess as needed.

Cut two tabs (from the file folder) measuring 2 cm x 1 cm. Clip the corners every so slightly. Establish creases across the middle of each tab. Attach these to the vertical stabilizer, using liquid glue, then attach the stabilizer to the tail. HOLD it in place until the glue bonds.











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## Step 5: Nose

**CAUTION!** This is the step that is most likely to cause injury.

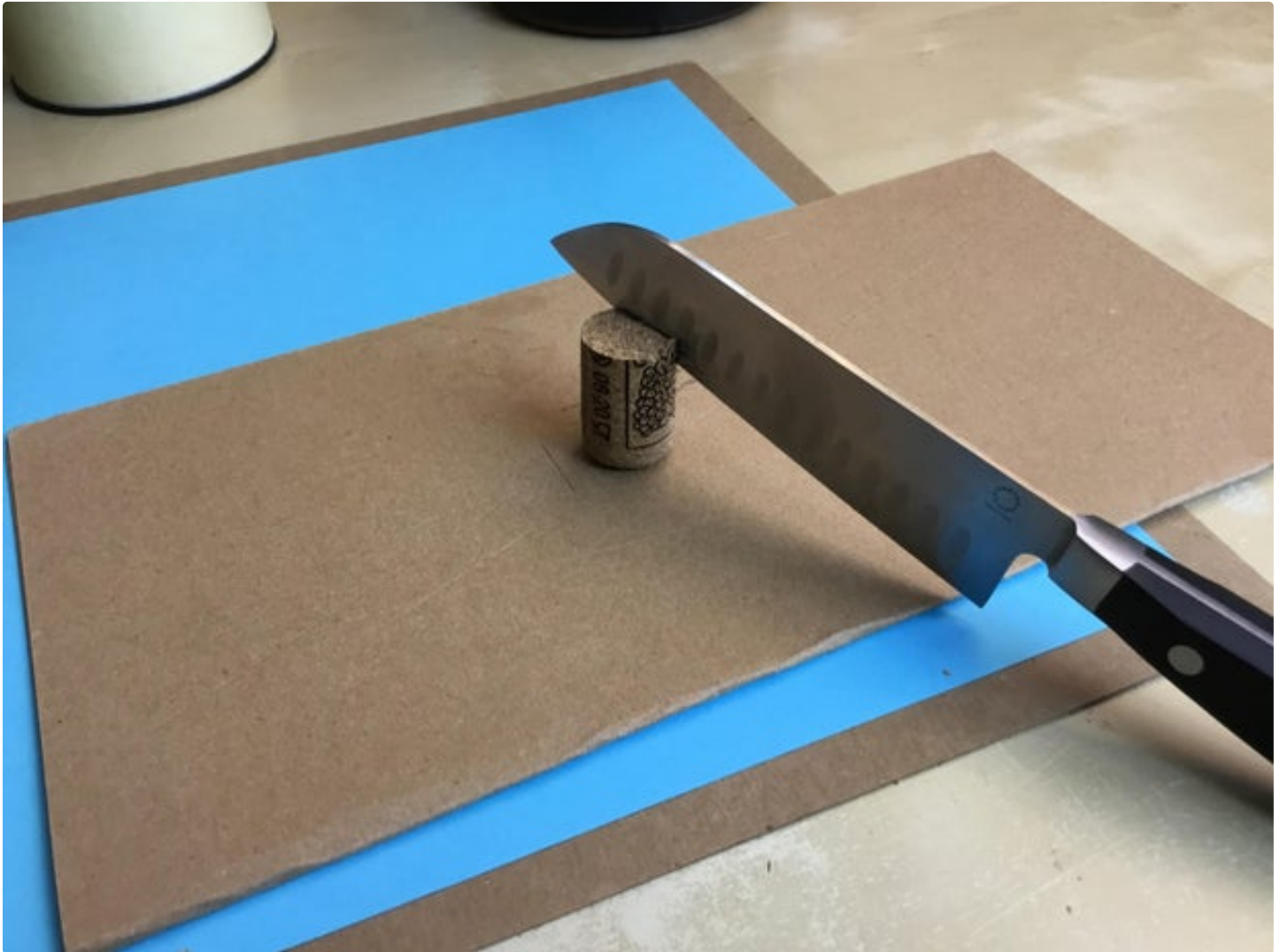
Use a sharp kitchen knife to trim the wine cork to a length of 3 cm. Half of it will rest inside the fuselage and you must trim the bottom and sides of this half so it can slide in. Use liquid glue to secure it. If desired use a strip of brown paper to wrap and cover the cork.

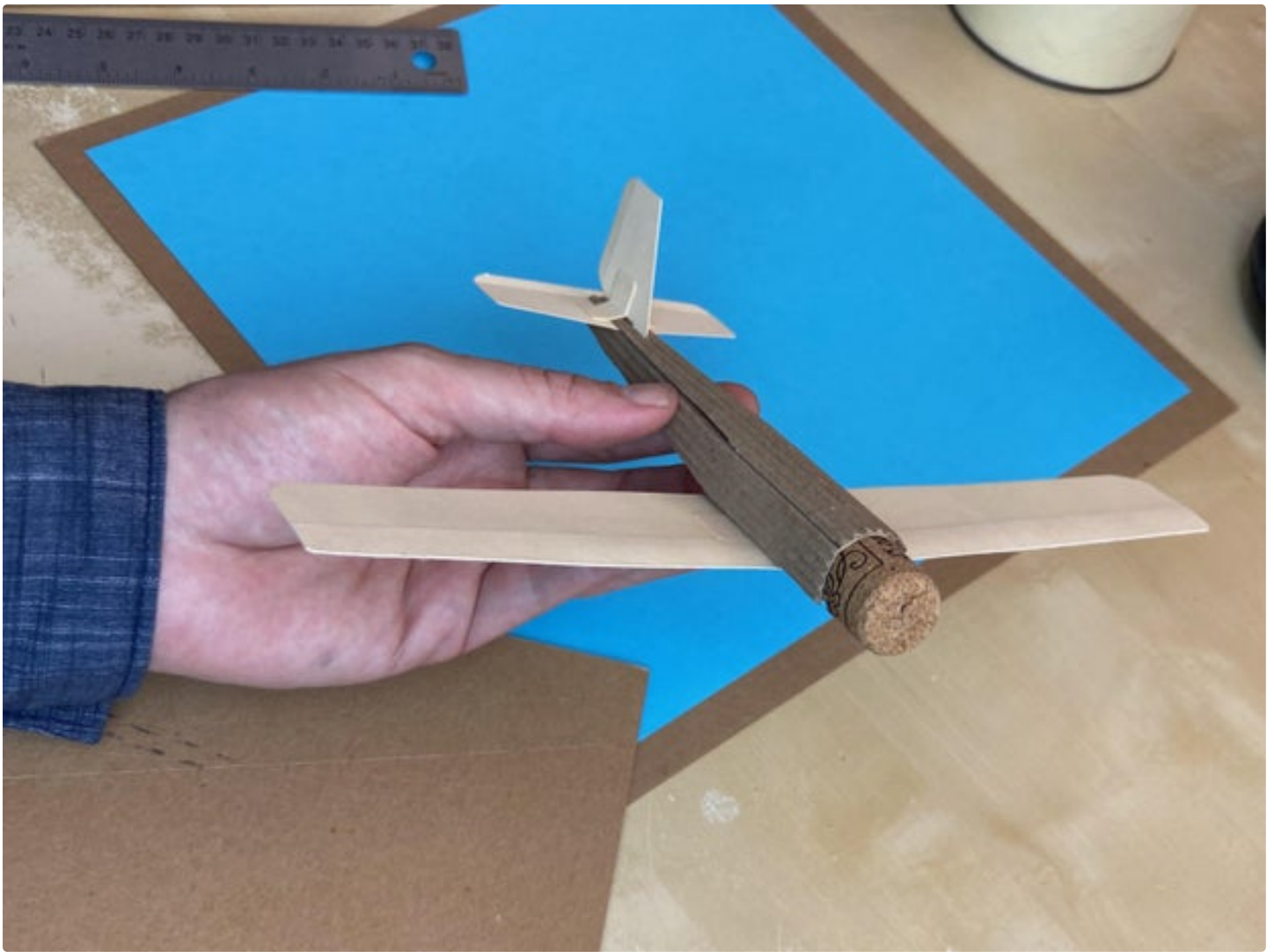
It might be a nice touch to darken the tip of the cork with a marker or some paint.

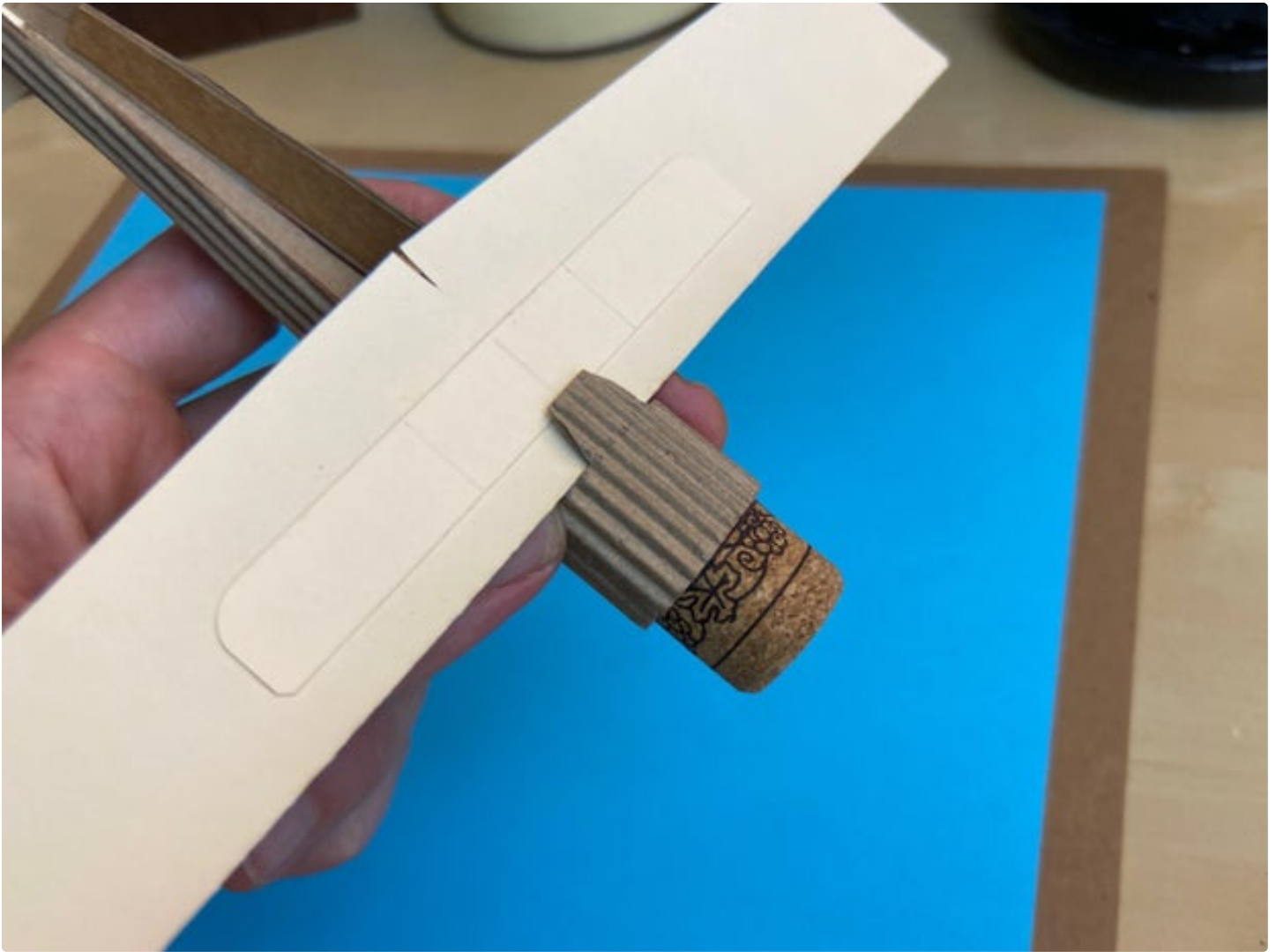


Make an engine cowling out of a strip of manila folder. Attach it so it overhangs the cork slightly, creating a recess. You can make a propeller spinner out of the same material, or find a suitable object to substitute. Attach it to the center of the cork.

Lastly, cut a piece out of the corrugated cardboard that can cover the lip of the cork and help blend the nose with the wing. This will also help secure the wing in place.







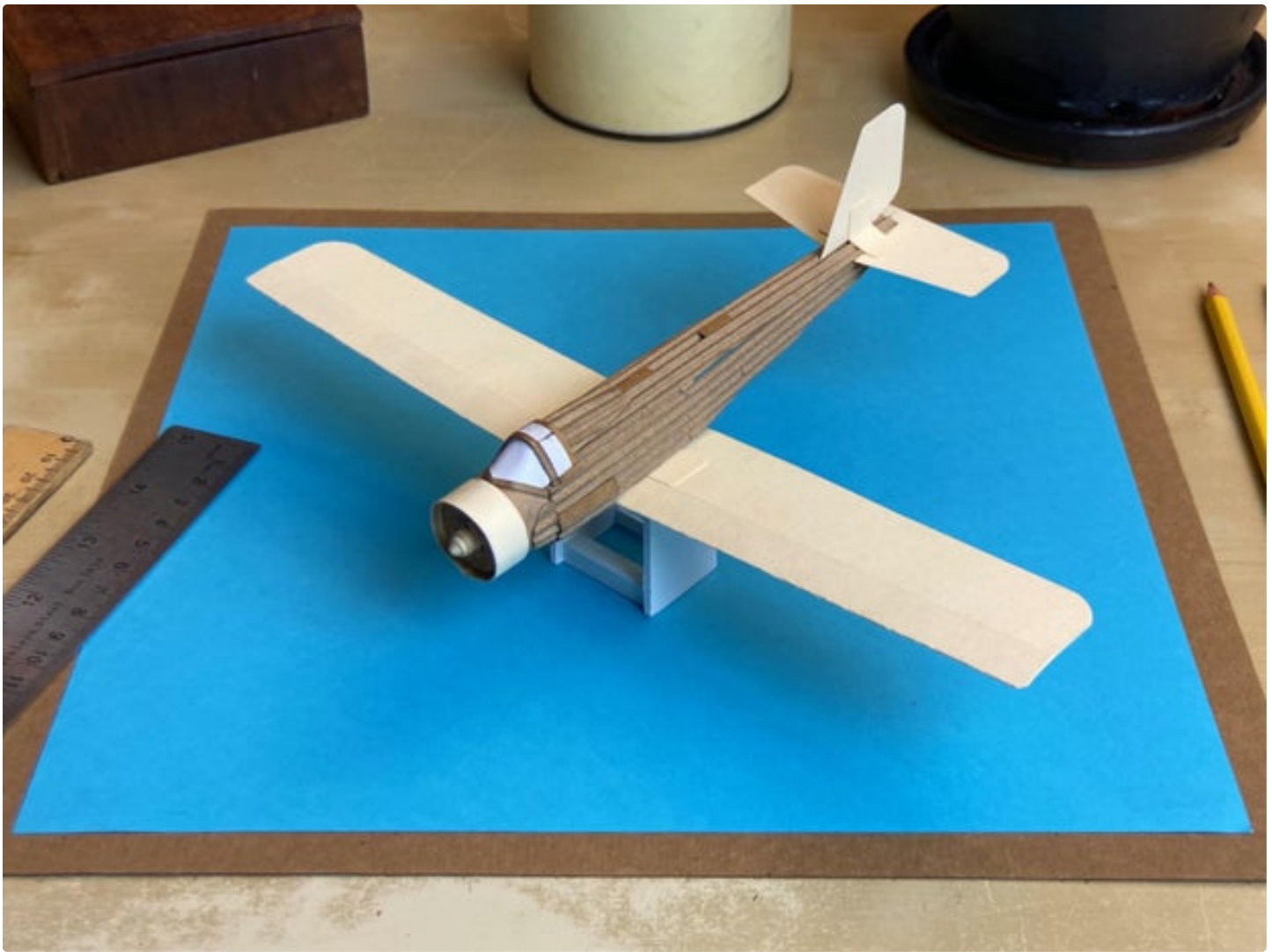
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## Step 6: Windscreen

I used some bits and pieces of cardboard, as well as some thick white paper, to create a cockpit and windscreen. Darn! I placed it too far forward. You could make this look more like a small passenger plane by making the windscreen a little smaller and adding a few passenger windows to the side. On the other hand, if you made a bubble canopy and placed it over the wing, it would look more like a fighter.







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## Step 7: Flights

Conduct test flights indoors, if you have a hallway or a large room. If testing outdoors, do so when the air is dead calm. Only make very, very small adjustments to the rudder, elevators, and wing camber.

Due to variation of materials and construction, you may need to slightly adjust the fore-aft center of gravity of the glider. If it shows symptoms of being tail heavy, add some temporary weight to the nose and test it again. If it flies better, you can add permanent weight with additional layers on the nose area and cowling. If the weight makes it fly worse, you remove the weight and try refining the position of the elevator.

In my experience, the most common causes of poor flight of a glider are (1) wind, (2) an overly light nose, and (3) asymetries in the airplane's construction. To address the third, get in a habit of checking the glider from all angles for such things as a twisted wing. Work the material gently and in increments, and you can correct such defects.

I hope it flies well for you! Thanks for checking out my Instructable.



