How to make a wooden toy airplane.

What tools do I need?
This toy can easily be made with the kind of tools the average home handyman already has:

1. An electric drill or a battery drill.
2. Drill bits – 8.5mm, 8mm, 4mm and 2.5mm.
3. A jigsaw or a bandsaw.
4. A few woodworking clamps.
5. A wood file and some sandpaper, 80 grit and 100 grit.
6. A sharp knife for carving the propellant.
7. A pair of compasses or something with a round shape for drawing the wing tips.
8. The usual toolkit also includes things like a hammer and screwdriver.
Optional tools.
This is a list of tools that may be considered to be optional. They are not essential for completing the project, but they do make certain tasks much easier which adds to the enjoyment of woodworking.

1. Linisher/sander or a 12” disc sander.
2. Drum sanders of various diameters.
3. Router with 6mm and 4mm roundover bits.
4. Drill press or at least a drill guide.

Of course, you will need a ruler and a pencil, and personally I find a combination square very useful for marking out and measuring.

You can make your own wooden wheels or buy them ready made. Refer to woodworkingdownunder.com for tips on making wooden wheels or where to buy them ready made.

How much wood do I need?
There is not a lot of wood in this toy, and you probably have a few pieces left over from another project. This is what you will need:

1. 19mm thick pine 50mm wide x 275mm long for the fuselage and nose, or add an extra 100mm for a total of 375mm long if you are going to make your own wheels.
2. 12mm thick pine or meranti 90mm wide x 850mm long for the wings, tailplane and rudder.
3. 8mm dowel 600mm long for the wing struts and the axle.
4. Four 8g woodscrews 30mm long and one 8g woodscrew 50mm long.
Wooden Toy Biplane

Half Size Wing Layout Plans

Bottom Wing

Top Wing

Dimensions:
- Bottom Wing:
  - Width: 30 cm
  - Height: 90 cm
- Top Wing:
  - Width: 60 cm
  - Height: 90 cm

This work is licensed under the Creative Commons Attribution-NonCommercial 2.5 Australia License.
Wooden Toy Biplane

Full Size Tailplane Outline

Notch to suit rudder

Full Size Rudder Outline

Full Size Propeller Outline
Wooden Toy Biplane

Alternate Tailplane Shape

Make 2

Landing Gear

Notch to suit rudder

8.5mm dia hole

Dimensions:
- 135
- 76
- 45
- 25
- 20
- 65
- 60
Wooden Toy Biplane

19mm thick pine

12mm thick pine or Meranti

Fuselage
Nose

Direction

Tailplane
Rudder

Bottom Wing

Top Wing

90
160
75
270
330
850
Step by step instructions for making the wooden toy airplane.

You may want to make more than one toy airplane, so it would be a good idea to make templates of the fuselage, tailplane and rudder.

1. Trace the outline of the fuselage and the nose onto a piece of 19mm (3/4") pine and cut out the shapes using a jigsaw or bandsaw.

2. Position the nose on the fuselage and drill a 2.5mm pilot hole for the propellor in the centre of the nose.

3. The next step is to glue the nose to the fuselage using the 30mm long woodscrew. Set it to one side for the glue to set.

4. Trace the outline of the rudder and tailplane onto a piece of 12mm pine or meranti, and cut out the shapes using a jigsaw or bandsaw. Photo shows how to draw the scalloped edges using a bottle top.
5. Using a scrap piece the same thickness as the rudder, mark out a notch on the tailplane.

6. Use the fuselage to measure the depth of the notch for the rudder. Cut out the notch carefully for a snug fit.
7. Mark out the wings to the dimensions shown on the plan. Using the combination square, mark out the position of the struts on the top wing only. Using a pair of compasses as shown in the photo, I made my wingtips round, but you can make them any shape you want to. I used a 12” disc sander to clean up the edges, but it can be done with a wood file instead.

8. There is a trick to drilling the holes for the wing struts. On a real biplane, the top wing sits slightly forward relative to the bottom wing. It is important that the wing struts line up, so be sure to clamp the two wings together and drill the holes for the 8mm dowels accurately with a drill press. Mark both wings “left” and “right” so that when it comes to final assembly everything lines up the way it should. Do not drill the hole in the centre of the top wing yet, leave this until step 16.

9. Make a pair of landing gear struts. Clamp them together and drill a hole for the axle with the 8.5mm drill bit. This is where the drill press is useful.

10. Round off the edges of the wings and the tailplane parts, and the landing gear struts except the area where they are glued to the wings. Again, a router is useful for this step, but you may not be comfortable with such small pieces. Use a wood file and sandpaper instead. Note that if you are going to be using a router, I found the 6mm roundover bit removed too much material, so I used a 4mm roundover bit instead.
11. Glue the rudder to the tailplane as shown in the photo, making sure that everything is perpendicular.

12. Mark out the position of the landing gear struts and attach them to the wings using the 8x30 woodscrews. Note how the axle keeps the struts aligned. Once the glue has set, you may want to remove the screws and plug the holes with 8mm dowel.
13. By now, the glue should have set on the fuselage, so remove the woodscrew and round off all the edges except for where the bottom wing and the tailplane is seated. Use a router or a wood file and 80 grit sandpaper.

14. Glue the bottom wing to the fuselage, making sure everything is perpendicular. Leave it to set.

15. Make the propellor from a piece of 19mm pine, 100mm by 30mm. It is easier to drill the 4.5mm hole for the wood screw before carving it.
16. Glue the tailplane assembly to the fuselage, again ensuring that everything is perpendicular. It is easier to use a woodscrew to clamp the tailplane assembly in place. Once the glue has set, the woodscrew may be replaced with a dowel to form a tailskid.

17. Cut 4 pieces of dowel 90mm long for the wing struts.

18. The time has come, (the walrus said) to drill the hole in the top wing. Using the dowel struts, line up the top wing left and right as marked earlier, and carefully drill the hole for the 8mm dowel through the top wing into the fuselage. Now the top wing may be glued in place.

Copyright 2010 Tony Slattery Woodworkingdownunder.com
19. All that remains is to attach the propellor and the wheels and you are ready to zoom around the room!

**Painting and finishing.**

Use child-safe paints for bright colours, food colouring or leave it untreated.

I sincerely hope that you enjoyed making this wooden toy airplane, and that it will continue to bring joy wherever it goes. Please use this contact us form if you have any comments or suggestions. I look forward to hearing from you.