



Boxtrot

Sneak downstairs with a little nog and chisel yourself a nice box to hold your New Year's resolutions.

Materials:

- 3/8" plywood - preferably high grade, seven-ply, cabinetmakers plywood
- Water-soluble aniline dye stains (available from specialty woodwork suppliers like [Lee Valley Tools](http://www.leevalley.com))

Cut List:

- Sides - 2 pieces 3" x 11"
- Ends - 2 pieces 3" x 5"
- Bottom - 1 piece 4 1/4" x 10 1/4"

Tools

- Hand saw - preferably a Japanese pull saw for ripping
- Hand saw - preferably a Japanese back saw which cuts on the pull stroke (Can optionally use a coping saw)
- Binder clip - optional
- Clamps
- Carpenter's scribe - optional
- Ruler
- Pencil
- Chisels
- Safety glasses
- Wooden or plastic mallet
- Tri-square
- 3/4" thick wooden block with sand paper on one side - used as a guide when chiseling
- Cabinetmaker's glue
- Artist's brush

Steps:



Aniline dyes are mixed in water, stored in jars marked 'poison', and refrigerated



Mix the pure colors together for unlimited variation

Prepare the plywood by first sanding and staining with aniline dyes or a stain of choice. The dyes can be premixed and then refrigerated. Mark them as poison, tape the top and keep them out of the reach of children.



After staining, cut out the pieces



Use a binder clip to help stabilize the loose end while cutting

Mark and cut out the sides and ends.



Box joints on an antique box



Carpenter's scribe



Set the depth to the thickness of the wood you're using



Draw the scribe along the end of each piece on both sides



Alternately, measure the thickness of the wood with a precision ruler



Transfer that size onto the wood and mark with a pencil or chalk



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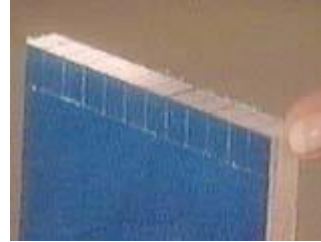
Determine the depth of the box joints. It will be the width of the plywood or 3/8" deep. Scribe that depth using a carpenter's scribe, or a ruler and very sharp pencil or even a chalk marking-tool from your sewing kit.



Mark for all of the teeth



Mark across the end of the board



Board marked and ready for cutting

Determine the size of the teeth that you want for the joints. It is easiest to make them the width of one of your chisels.

Use a ruler and pencil to mark the teeth on the ends of each board. Use a square to make saw-guide lines on the butt end of the board. Turn the board on edge and mark each of the teeth that are to be removed and the ones that stay. Put an 'X' on the ones that go.



Clamp it in place



Cut down to the scribed line at each of the marks

Use a fine toothed back saw to make cuts along the lines down to the scribed line. Japanese backsaws that cut on the pull stroke are easiest to use.

Be sure to clamp the wood in a vise or use a board and some long clamps to sandwich it to the edge of the table. Clamp the area to be cut close to the table so that the board won't wobble as the saw passes through it.

Saw through each of your penciled lines to the depth of the INSIDE of the scribed line. This will give you a very tight joint.





Place the chisel just in front of the scribed line!



Hold the chisel like this for more stability



Mallet used to strike the handle of the chisel

Use the appropriate sized chisel to start the cut along the scribed line.
Place the chisel just to the inside of the line with the flat side against the wood.



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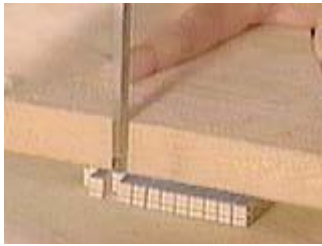
Start with a small cut on one side



Finish from the other side



Use a thick piece of wood with sand paper attached to one side as a guide for your chisel



The block keeps the chisel vertical and the sand paper prevents slipping

When the chisel is in place, hit it with a mallet and cut down into the wood part way. Then turn the wood over and cut again from the other side. This will give you the cleanest possible cut, with no splintery slivers.

If you have trouble holding the chisel perfectly vertical, use a scrap piece of $\frac{3}{4}$ inch wood with sandpaper attached to it on one side as a guide for the chisel.

Tip: Be sure your chisels are very sharp. They don't come fully sharpened, so either sharpen them yourself or have them sharpened professionally. It's worth it. Hone them as necessary while you're working. If you're wondering if they need honing, they probably do.



Use a file to clean up the joints



Dry fit the joints and choose the best fit



A good tight joint requires a mallet to tap the pieces together



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Mark the pieces in order

Once all the teeth have been chiseled out, clean any stray splinters out of the joints using a bastard file. Dry fit the joints. Move the pieces around and try them in different positions until you've achieved the best possible fit.

If one of the joints is really binding, use the file to remove a bit of material so the fit is improved. The pieces may have to be tapped together with the mallet if the joint is really tight, which it should be.

Give each of the pieces a discreet number so that when you're doing the final assembly with glue, all the pieces go together in the right order.



Place the box over a corner of spare plywood and trace the inside edge of the bottom dimension

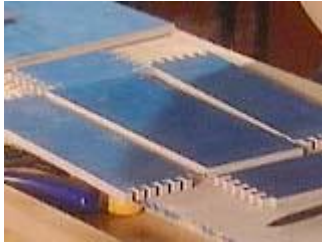


Cut along the traced line

Mark and cut out the bottom of the box.

With the joints dry fitted together, hold the box over a square corner of your plywood material and trace two sides with a sharp pencil. Saw along the lines.





Place the pieces in order for gluing



Brush glue on all the surfaces of every joint



Clamp and let dry overnight



Add copper nails for a secure bottom

Make sure the bottom fits well and then pull the pieces apart and lay them out in order for easy gluing. Put some glue in a dish and use an artist's brush to apply glue to all sides of all the joints. Assemble all at once and clamp together. Let it cure overnight.

Once the glue is set up, add nails along the lower edges to secure the bottom. There's nothing nicer than a secure bottom.



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