

HART™



Breakfast In Bed Tray

PROJECT PLAN

Finished Dimensions: 22"w x 9"h x 16"d


Skill Level: Intermediate


Materials

Item	Qty
1" x 8" x 48" Board*	1
1" x 3" x 8' Board*	1
1" x 2" x 8' Board*	1
1/4-20" x 40mm Hex Drive Connecting Bolt & Cap Nut	4
# 8 x 1-1/4" Square Drive Round Head Pocket-Hole Wood Screws	
Sand Paper**: 150g, 220g & 320g	
Drill Bits: 1/8", 3/16" & 3/8"	
Wood Glue	

* Board Dimensions are "nominal". Actual dimensions are smaller due to lumber industry standards. Cuts are actual length.

** Starting grit will depend on board surface condition, a rough surface will require starting with a coarse grit first.

 Grit is measured in the coarseness of the particles on the sandpaper. The lower the grit number, the coarser the paper. Heavy sanding would require 60 to 80 grit, medium sanding would require 120 to 220 grit, and finish sanding would require 320 to 400 grit. Super fine sanding would be 600 grit and higher.

 A select/premium board or plywood comes with a smoother surface finish. It is clear or has very few tight knots, and it will have straight and sharp edges. This grade of wood pairs well with other boards or panels better and requires less time to sand and finish.

Tools Used



Miter Saw

or



Circular Saw



Drill/Driver



Jig Saw



Orbital Sander



20V 1.5Ah Battery



20V 4.0Ah Battery



Charger



Tape Measure



Safety Glasses



Drill Bits



#2 Square Dr. Bit




Hex Key Set



Phillips-Head SD

Also Needed:
 Pocket Hole Jig
 (3) 24" Bar Clamps
 (4) 6" Bar Clamps
 Framing Square
 Drawing Compass

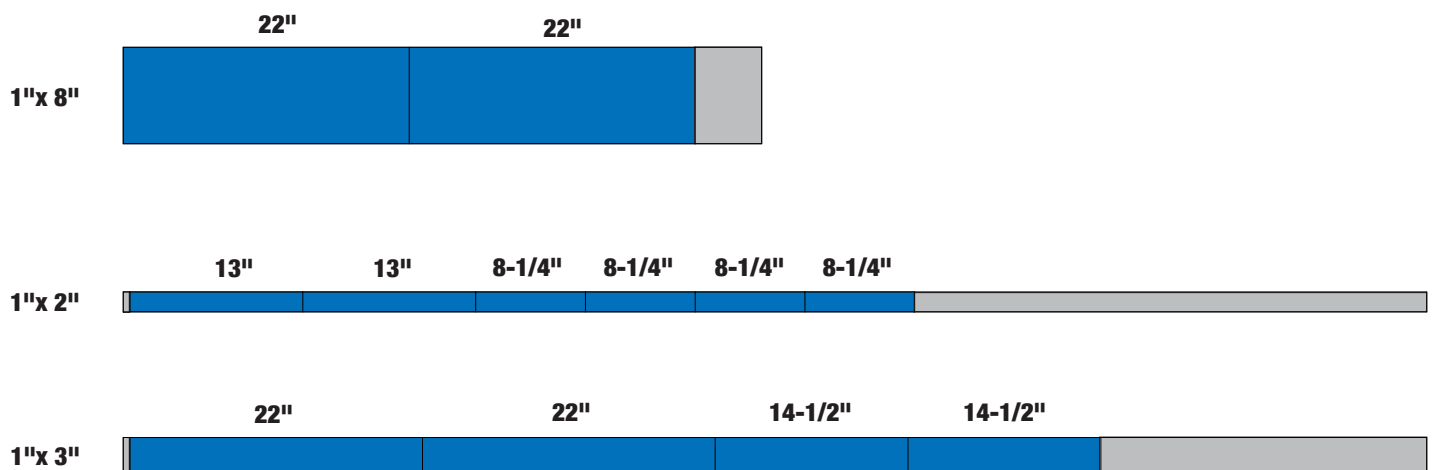
 **Battery Tip:** A 4.0 Ah battery is recommended to be paired with high amp draw tools for maximum efficiency.

Lumber Cut List

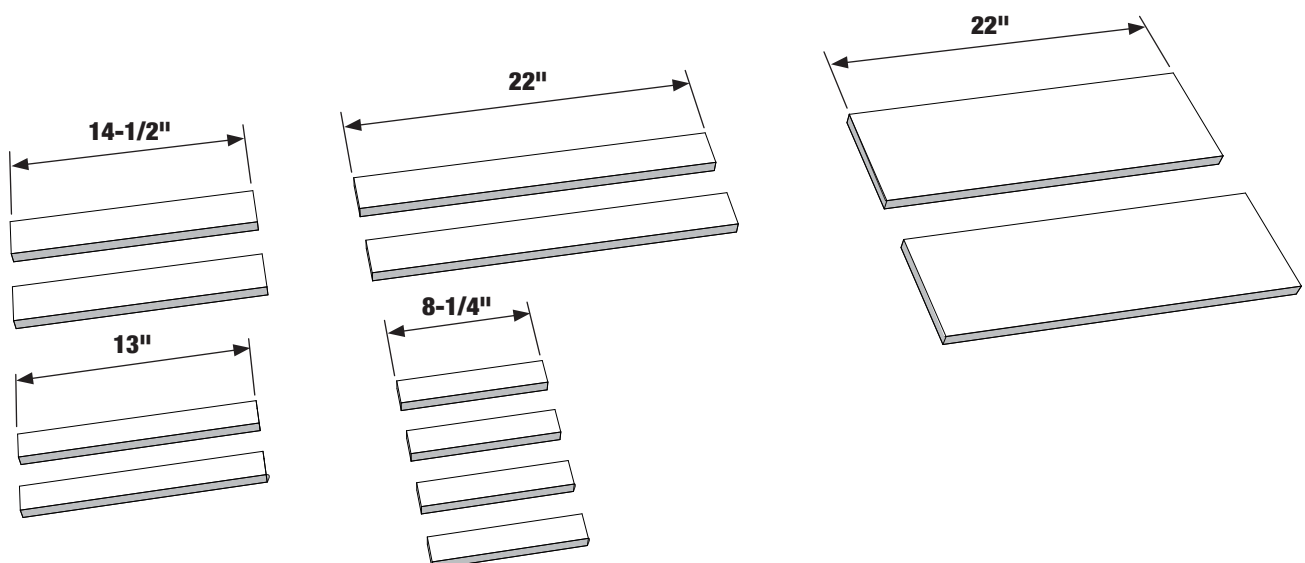
Board*	Cut to	Qty
1" x 8"	22"	2
1" x 3"	22"	2
1" x 3"	14-1/2"	2
1" x 2"	13"	2
1" x 2"	8-1/4"	4

* Board dimensions are "nominal." Actual dimensions are smaller due to lumber industry standards. Cuts are actual length.

Lumber & Sheet Lay-Out Guide



Lumber & Sheet Cut Lay-Out Guide



Assembly Instructions

Step 1

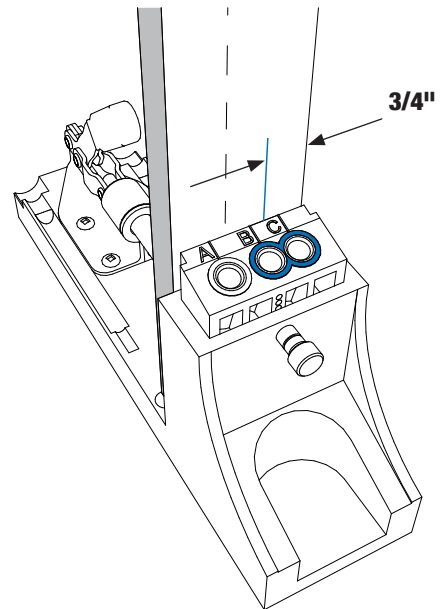
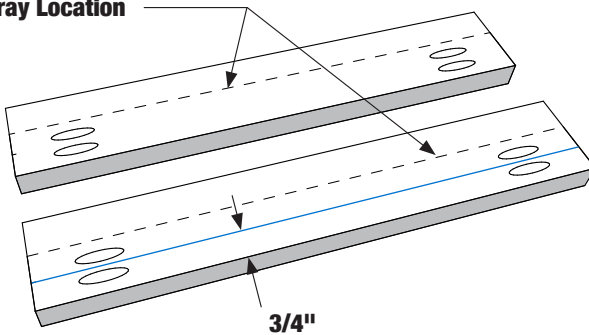
Cut out all material using the Lumber & Sheet Cut Lay-out Guide.



Step 2

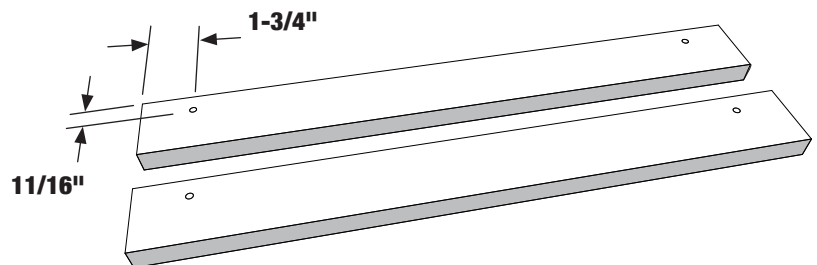
Mark a line at $\frac{3}{4}$ " from one of the side edges of the 14-1/2" boards. Align this to the center of the (B&C) guide holes on the Pocket Jig to drill two holes on each end of the board.

Bottom of Tray Location




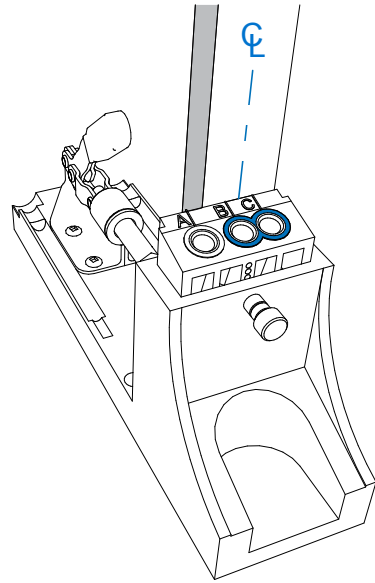
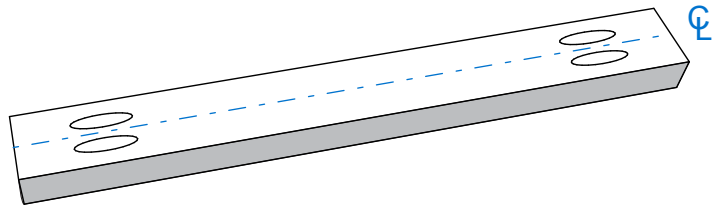
Step 3

Drill a $\frac{1}{4}$ " hole at each end of the 22" boards. See diagram for specific measurements.



Step 4

Mark a center line () on the 13" boards. Align to center and use the (B&C) guide holes on the Pocket Jig to drill pocket holes on each end of both boards.



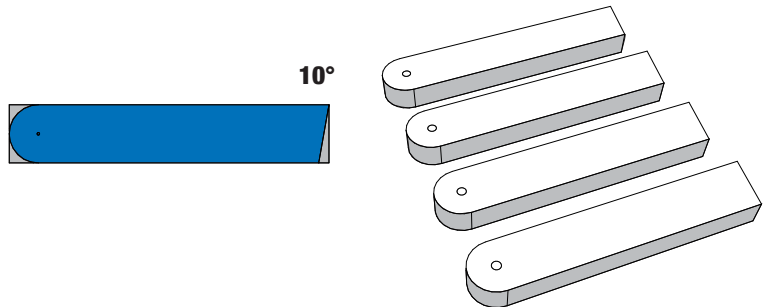
Step 5

The 8-1/4" boards will become the pivoting legs. Use a Miter Saw to cut a 10° angle on each one.

Mark a point 1-1/2" from the opposite end in the center of the board. Using a Drawing Compass, draw an arch using this point as the center.

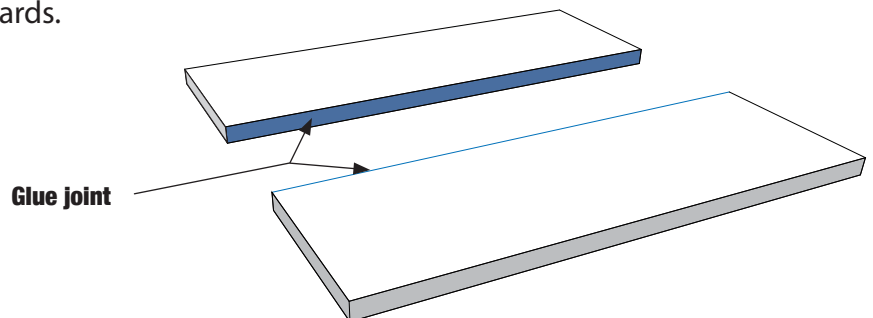
Cut along the arch with a Jig Saw.

Use a Drill/Driver to drill a 3/8" hole at the center point.



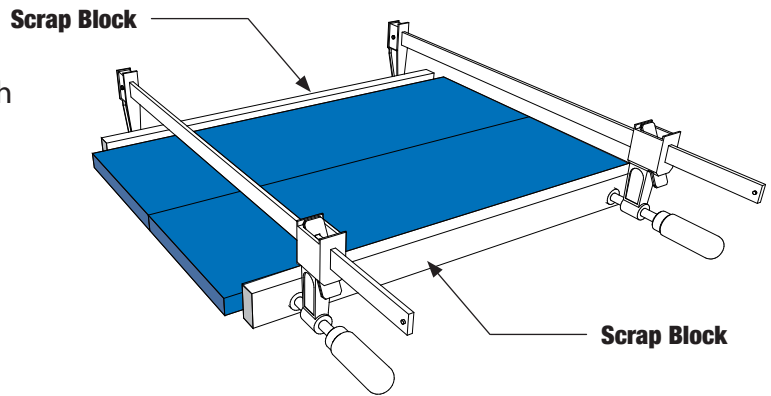
Step 6

Apply glue to one long side of both 22" boards.



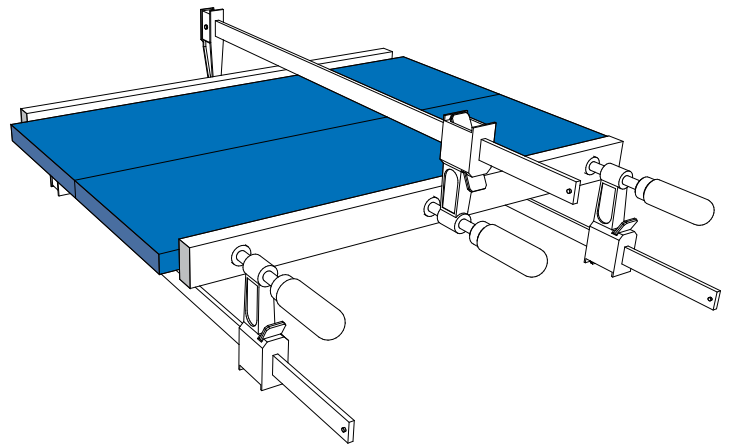
Step 7

Find scrap blocks to help prevent clamps from damaging the tray top. Secure the scrap blocks with 24" Bar Clamps just enough to stay in place.



Step 8

Flip tray top over and add a third 24" Bar Clamp in the middle. Again, secure it just enough to stay in place.



Step 9

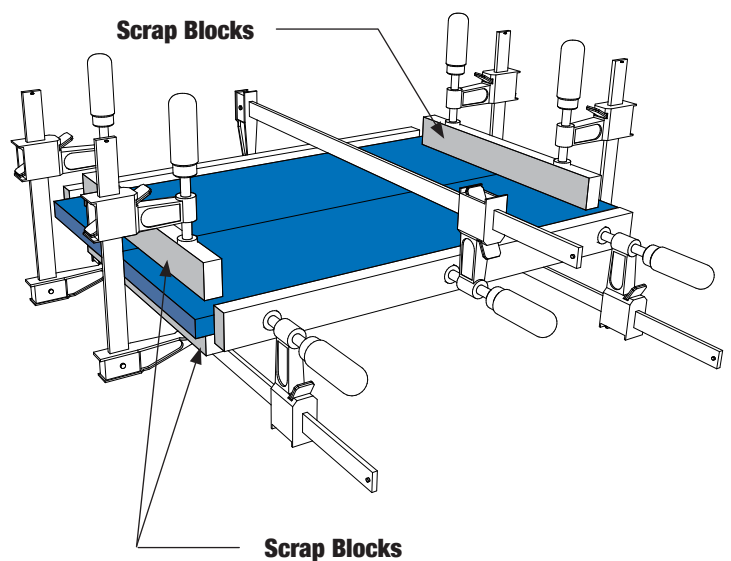
Find or cut four scrap blocks approximately 12" long.

Place them on top and bottom of the tray top. Use 6" Bar Clamps to secure them in place. This will prevent the tray top from cupping.

Re-tighten the 24" Bar Clamps as well.



Tip-Place wax paper under boards to catch excess glue. Take another piece of wax paper and fold it in between the scrap blocks and tray table. This will keep the scrap blocks and tray top from sticking together.



Allow glue to dry 24 hours (follow instruction on the glue bottle).

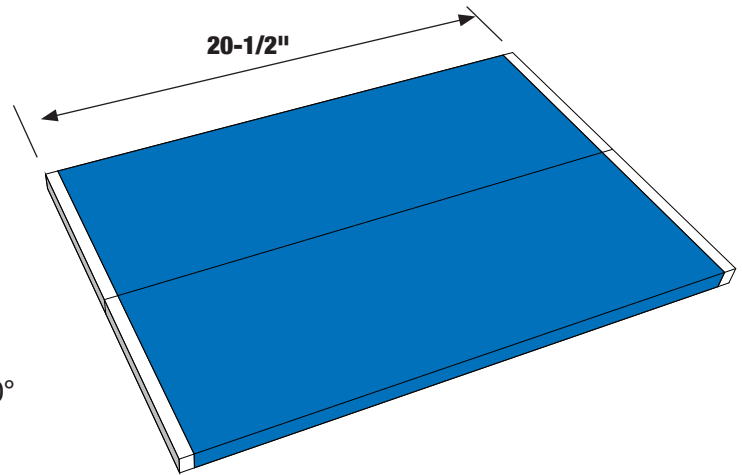
Step 10

After the glue has set, remove clamps and blocks. Clean off any dried glue on both sides.

The gluing process can shift the edges of the board. Therefore, you will need to trim both edges of the board to create one even edge. One side may require more trimming than the other. **The final length of the tray is 20-1/2", so trim accordingly.**

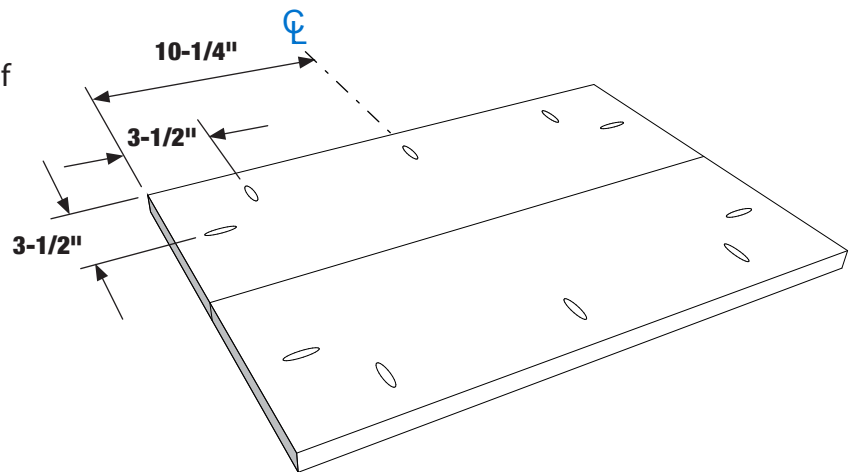
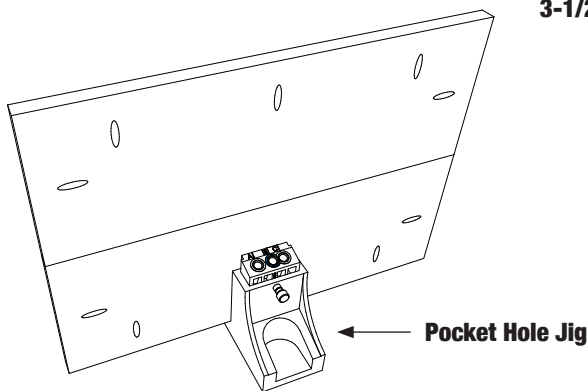
Use a Framing Square to mark a straight line that is 90° to sides on both ends where you plan to trim.

Use a Circular Saw to cut along the outside of the line.



Step 11

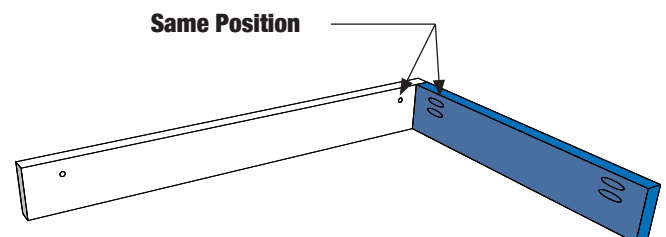
Drill pocket holes into the bottom surface of the tray top. Align hole location with the (B) guide hole. Follow diagram for pocket hole positioning (dimensions are symmetrical).



Step 12

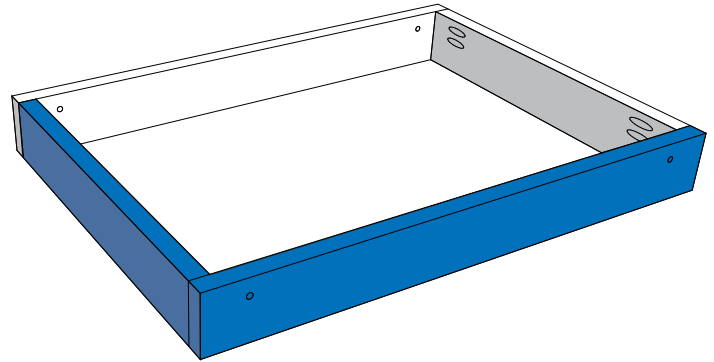
Align and glue the 14-1/2" frame board to the 22" board. Attach using #8 x 1-1/4" pocket hole screws.

The pocket holes on the 14-1/2" board and the 1/4" holes in the 22" frame board should both be on the same edge of the frame.



Step 13

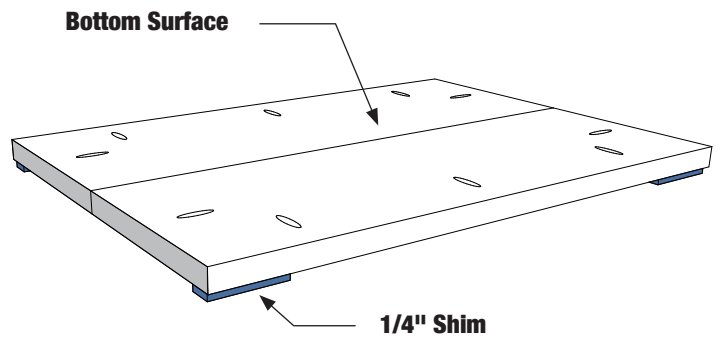
Attach the other 14-1/2" and 22" frame boards to the assembly using the same method as Step 11.



Step 14

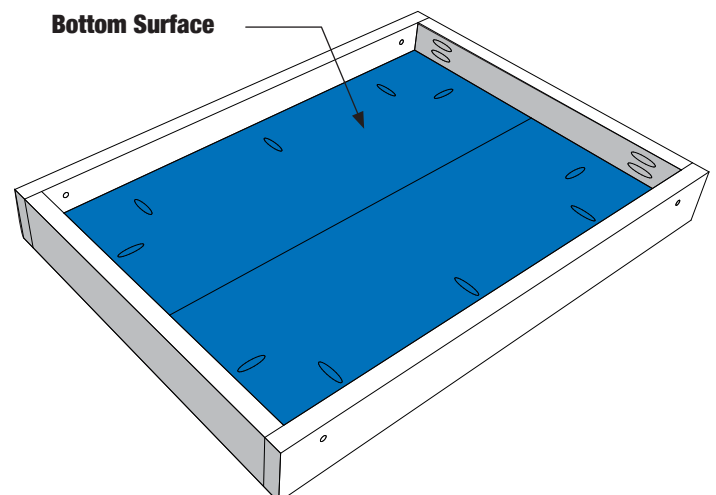
Cut four 1/4" thick spacers out of scrap wood to use as shims. A shim is something used to fill up space. In this case, the shims will offset the frame's edges and give the Breakfast Tray a 1/4" lip.

Place them under the tray top with the face down. They will not be permanently attached to the piece and are simply placeholders.



Step 15

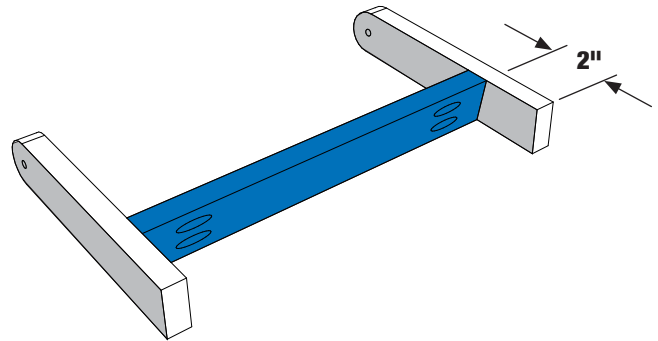
Attach tray top to frame with #8 x 1-1/4" pocket hole screws.



Step 16

Measure and mark a line 2" from the short end of the legs.

Attach 13" supports to the legs with the pocket hole face down.



Step 17

Sand and finish to your desire before assembling legs and handles.

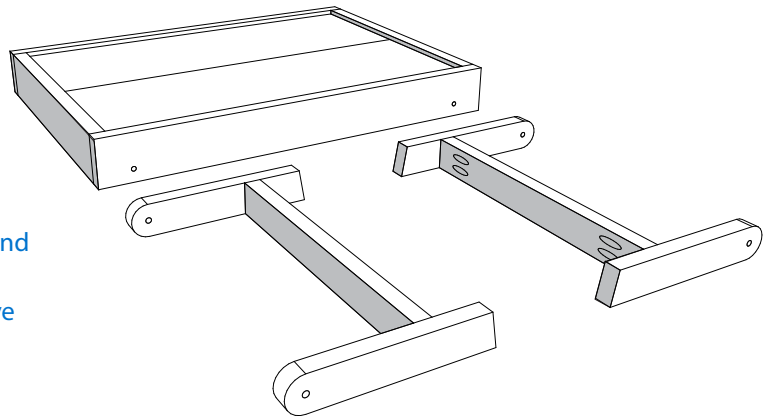
H Rougher finish – Use 60-80 grit sandpaper to hand sand with the grain of the wood.

Smoother finish – Use 60-80 grit sandpaper to remove scratches & imperfections.

Followed by using 120-220 grit to smooth.

Finish Sanding – Use 320-400 grit sandpaper

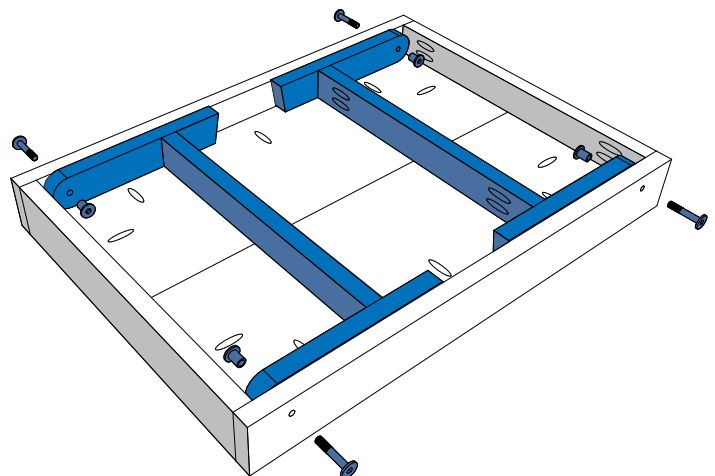
Super fine sanding – Use 600+ grit sandpaper



Step 18

Attach both legs to the frames using 1/4-20" x 40mm connecting bolts and cap nuts.

The long edge of the legs should be facing up when the legs are pivoted in.



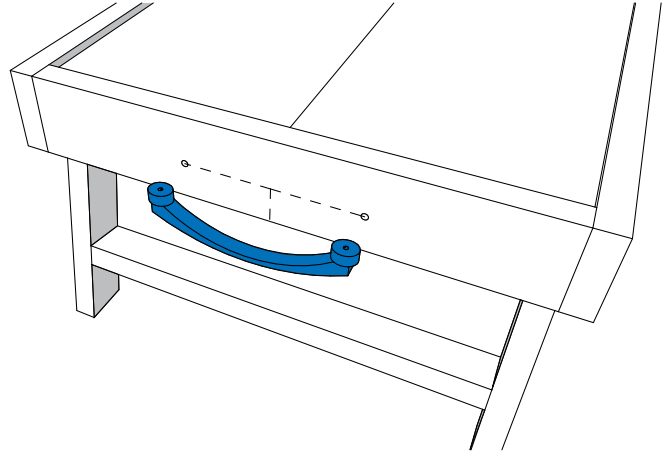
Step 19

Handle widths will vary in length. First, measure the distance between the holes in the handle.

Then, measure and mark 1" up from the bottom center of the tray frame. Divide the handle hole dimension in half and mark that length from both sides of the center line.

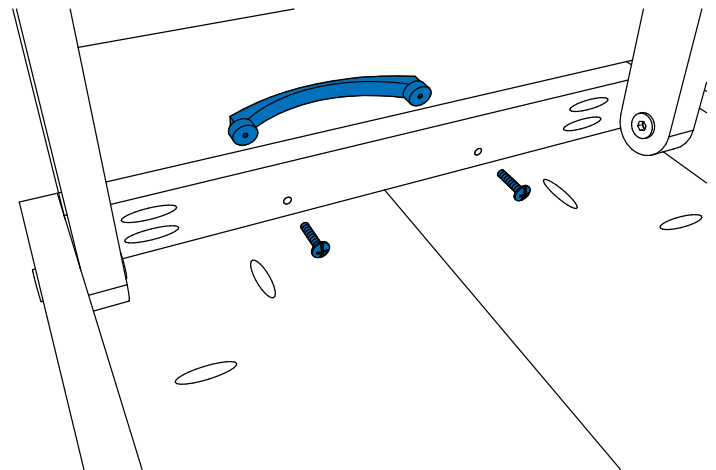
Drill a 3/16" hole through the frame at both points.

Repeat this step on the other side of the tray.



Step 20

Run handle screws through frame from the inside of the tray and thread them through the handle.



Step 21

Project complete and ready for use!

