WOOD SHOP PROJECT

Build Your Own Stool

Follow each step in order. Check in with Mr. Semler at the approval stops before moving on.

PHASE 1 OF 7

1 Gluing Up the Boards

Pick your wood

Ask Mr. Semler which species of wood to use. You will need enough boards to make **two glued-up panels**, each ending up at **8" wide × 18" long**. One panel becomes the top, the other becomes both legs.

[PHOTO]

Different wood species options available in the shop

Optional — add accent strips

You can include **one or two thin strips** (½" or less) of a contrasting wood like walnut to create decorative stripes in your panel. Plan this before glue-up!

[PHOTO]

Example panel with walnut accent stripes

Cut boards to rough length

Use the **miter saw** to cut all your boards to about **12" long**. (The Timesaver machine requires a minimum of 12" — this is why we start longer than the final size.)

Clean up the edges

Use the **table saw** to joint any rough or uneven edges. Edges must be flat and square so your glue joints are tight.

Glue up the panels

Arrange boards to reach your final **8" width**. Apply glue, clamp evenly, and let both panels fully cure.

[PHOTO]
Applying glue to board edges

[PHOTO]
Clamping a panel correctly

PHASE 2 OF 7

2 Sanding & Cutting to Final Size

Run both panels through the Timesaver

Sand both panels down to exactly **¾" thick**. **Always check the thickness with a tape measure** — do not trust the Timesaver's built-in gauge.

> Important: Measure with a tape measure, not the Timesaver gauge. The gauge is not always accurate.

[PHOTO]
Measuring panel thickness with a tape measure

Square one end of each panel

Use the **miter saw** to cut one perfectly square end on each panel. This gives you a clean reference edge for all your other cuts.

Cut panels to final sizes

Using your squared end as the reference:

Part	Width	Length	Qty
Top	8"	17"	1
Legs	8"	8½"	2 (from one panel)

[PHOTO]

[PHOTO]

Cutting the top to 17"

Cutting two legs at 8½" from one panel

> Set your leg pieces aside somewhere safe after cutting. You will come back to them in Phase 4.

PHASE 3 OF 7

3 Finishing the Top

Sand all four edges
Take the top to the **edge sander** and sand all four edges smooth and square.

Run through the router table
Run all four edges of the top through the **router table** to create a finished profile on every edge.

[PHOTO]
Running the top through the router table

[PHOTO]
Close-up of the finished routed edge profile

Finish sand the top surface
Hand-sand the entire top face smooth. Work through grits until the surface looks and feels great.

Optional — Laser engraving
If you want a design, name, or artwork on your top, now is the time to do it. See Mr. Semler about using the laser engraver before you move on.

[PHOTO]
Example of a laser-engraved stool top

PHASE 4 OF 7

4 Shaping the Legs

Trace the leg template

Get the **leg template** from Mr. Semler. Trace the shape onto each leg blank with a pencil, making sure you trace it on the correct face.

[PHOTO]

Tracing the leg template onto a leg blank

Cut out the leg shape on the bandsaw

Use the **bandsaw** to cut along your traced lines for both legs.

Common mistake: Cut on the OUTSIDE (waste side) of your pencil line — not through it or on the inside. Cutting on the wrong side of the line will make your leg too small and you may need to start over!

[PHOTO]

Correct side of line to cut on the bandsaw

[PHOTO]

Both legs cut out and ready for sanding

Sand the arch and angled edges

Take both legs to the **edge sander**. Sand the arch at the bottom and the angled cuts only — do not sand the flat top or side edges.

Finish sand the legs

Hand-sand both legs smooth on all faces. Legs are done!

✋ **Stop — Approval Check #1**

Bring your top AND legs to Mr. Semler for approval before making the rails.

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5 Making the Rails

Find matching wood for your rails

Look under the **miter saw bench** or on the **table saw** for wood that closely matches your stool. You need three rails total:

Rail	Width	Thick	Length	Qty
Top rails	1½"	¾"	13½"	2
Bottom rail	1"	¾"	13½"	1

Drill pocket holes with the Castle Pocket Driller

Use the Castle pocket hole jig as follows:

- ☐ Each top rail: 2 holes at each end + 2 holes drilled 3" from each end, perpendicular to the face
- ☐ The bottom rail: 1 hole at each end only

[PHOTO]
Pocket hole layout on a top rail

[PHOTO]
Pocket hole layout on the bottom rail

Finish sand the rails

Sand all three rails smooth. Rails are done!

✋ **Stop — Approval Check #2**
Bring all three rails to Mr. Semler for approval before assembly.

PHASE 6 OF 7

6 Putting It All Together

> Work on a piece of carpet or a padded surface the entire time you are assembling. This protects your finished surfaces from scratches.

Screw selection

Use **1¼" pocket screws**. Choose **coarse thread** for softwood, **fine thread** for hardwood.

Step 1 — Attach the top rails to one leg

Place one leg good-face-down on the carpet. Take a top rail and:

- ☐ Flush the top of the rail with the top of the leg

- ☐ Set the rail in by exactly ¼" from the outer face of the leg
- ☐ Drive screws with the impact driver and a 6" bit — this must be a 6" bit
- ☐ Tighten SLOWLY and GENTLY — never over-crank pocket screws
- ☐ Repeat for the second top rail on the same leg

> Use a 6" bit. A shorter bit will not reach the pocket hole at the correct angle and may split the wood.

[PHOTO]
Top rail flush and inset ¼" from leg face

[PHOTO]
Driving pocket screws with a 6" bit

Step 2 — Attach the second leg

Flip the assembly over and attach the second leg to the other ends of both top rails — same position: flush to top, inset ¼".

Step 3 — Attach the top

Place the top **good-face-down** on the carpet. Center the leg/rail assembly on top of it. Drive all **4 screws** to secure it.

[PHOTO]
Centering the leg assembly on the underside of the top

Step 4 — Attach the bottom rail

Center the bottom rail between the two legs. Position it so the **bottom of the rail is exactly ½" above the top of the arch**. Drive one screw into each leg.

[PHOTO]
Bottom rail positioned ½" above the arch

[PHOTO]
Completed assembly before final check

PHASE 7 OF 7

7 Final Sanding & Leveling

Break all edges

Use a piece of **200–300 grit sandpaper** and lightly soften (break) every sharp edge on the assembled stool. Run your finger along each edge — if it feels sharp, sand it a little more.

Check that it sits flat

Find the flattest surface in the shop and set your stool down. **Check all four leg contacts.** If it rocks, one or more legs is slightly long.

Level the legs if needed

If the stool rocks, **gently and slowly** sand down whichever leg(s) are too long on a flat surface with sandpaper. Check frequently — remove a little at a time until it sits perfectly flat.

> Go slow when leveling legs. It is very easy to take off too much. Check after every few passes.

[PHOTO] *Checking if the stool sits flat on a flat surface*	**[PHOTO]** *Completed stool — finished example*

🎉 **Final Inspection — Bring to Mr. Semler**

Bring your completed stool to Mr. Semler for final inspection. Nice work!