

leaf table

Leaves dropped, this traditional oak table makes an ideal kitchen island.

Leaves extended, it's a small breakfast table



The drop-leaf table is a traditional favourite, but the one I've designed takes a few hidden, modern liberties. The most helpful is also the least obvious—ready-turned legs. In today's wood market, it's often only slightly more expensive to buy high-quality legs than it is to purchase thick wood at retail prices, then turn them yourself. I also used metal tabletop clips to secure the top, instead of under-table screw blocks or screws driven into pocket holes. Clips offer fast, easy, secure performance, while letting the solid wood tabletop move with the seasons. Traditional furniture wasn't usually built with as much concern for seasonal movement because old-time woodworkers never planned to accommodate the wide humidity swings common in today's centrally heated homes. Building new furniture exactly like the old often leads to cracks and trouble.

I planed my own 1"-thick rough oak for this table, creating the $\frac{7}{8}$ " stock you see listed for most parts on the materials list. Just about any other wood will do fine, too. This thicker-than-standard stock looks much better than regular $\frac{3}{4}$ " material for this project, and it even costs less if you begin with rough lumber bought directly from the mill. This is just one advantage of owning a thickness planer. Maple, ash, cherry, and pine are all excellent options. Whatever you use, get the hinges and tabletop mounting clips you'll need before making sawdust. The exact size of this hardware will affect some important steps along the way.

Getting Started

Whether you buy or make your legs, they need a $2\frac{3}{4}$ " x $2\frac{3}{4}$ " square top end that extends 7" down before hitting any turned profile. Grain patterns will vary from leg to leg, of course, so take a close look and assign each one a particular spot in the table's final design. Mark the



Gary uses a Ryobi JS048 jigsaw to cut the corner shape on each leaf. The piece is securely clamped, and Gary uses his thumb on the base plate to guide the saw

position on top with a pencil. Next, cut a $\frac{1}{2}$ " x $\frac{1}{2}$ " x $5\frac{1}{2}$ "-long mortise in the centre of the four leg faces that'll join with the side skirts. It's best to do this operation with a carbide bit in a table-mounted router, taking $\frac{1}{4}$ "-deep passes. Even if your router has the power to cut each mortise in one go, you'll get smoother results if you take it in several steps. Spiral-shaped bits do an excellent job in this application.

The end frames span the short distance between pairs of legs, encasing the drawer fronts. Cut the long and short end frame members to size, then use glue and screws to join them into rectangles measuring 2" thick x 6" high x 13" wide. Use glue and clamps to secure these frames to the inner faces of the legs, the back edges of the frames flush with the inside leg corners.

Adding Details

It's often the little things that make a woodworking project shine, like

the delicate beading that surrounds each of the table's end frame drawer openings. Start by cutting four, 48" lengths of straight-grained, knot-free wood into $\frac{1}{4}$ " x 1" strips, then rout a half-round profile on one edge using a table-mounted router and featherboards. This shape is called a bullnose, and it's a classic detail that's seen most often in old woodwork. It's a wonderful visual feature—just one of the great things you can explore in a home workshop. Install carefully mitred strips of bullnose beading around both drawer openings, and along the bottom of the end frames, between each leg. The strips' rounded, outer edges should sit $\frac{1}{8}$ " proud of the frame. Although a mitre saw is the ideal tool to cut these parts, it's not the best one for fine-tuning the length of pieces that are just a little too long. The easiest way to shorten strips of bullnose beading by just a few thousandths of an inch is with a block plane.

Gary's advice

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The view from underneath, showing the leg, skirt and drawer undercarriage assembly. You can turn your legs, or buy them factory-made, as long as the square ends are at least 7" long

Peeling a few curls of wood off the back face of bullnose beading (not the mitred end) is often the best way to fit a mitre.

Bring Together the Legs and Skirts

Make the two side skirts by cutting them to size and preparing $\frac{1}{2}$ " x $\frac{1}{2}$ " x $5\frac{1}{2}$ " tenons on each end. You'll find a tablesaw or table-mounted router the best tools for this job. But before

you rush ahead and join the skirts to the legs, be sure to cut a $\frac{1}{8}$ "-wide x $\frac{3}{8}$ "-deep groove along the inside face of the skirts and end frames. The plans show details. These grooves allow the tabletop clips to connect to the skirts. The other end of the clips screw to the tabletop. Depending on clip design, you'll have to cut the grooves $\frac{3}{8}$ " or $\frac{1}{2}$ " down from the skirts' top edges. Check your hardware and adjust to suit.

Dry-fit the skirts, legs and end frames now, and reassemble with glue once you're satisfied with the fit. The framework should be square and flat before setting it aside to dry. Put the structure on a flat floor, leg-bottoms down, then measure and equalize diagonal measurements taken across the top, outside corners of the legs. When diagonals are equal in length, the frame will be square. Complete the

drop-leaf hinging: not as easy as it looks

It's no coincidence that many drop-leaf tabletops don't operate smoothly. That's because there's more to drop-leaf hinge installation than meets the eye. If you simply cut mortises and install hinges as usual, your table leaves won't operate smoothly. There are two secrets to success.

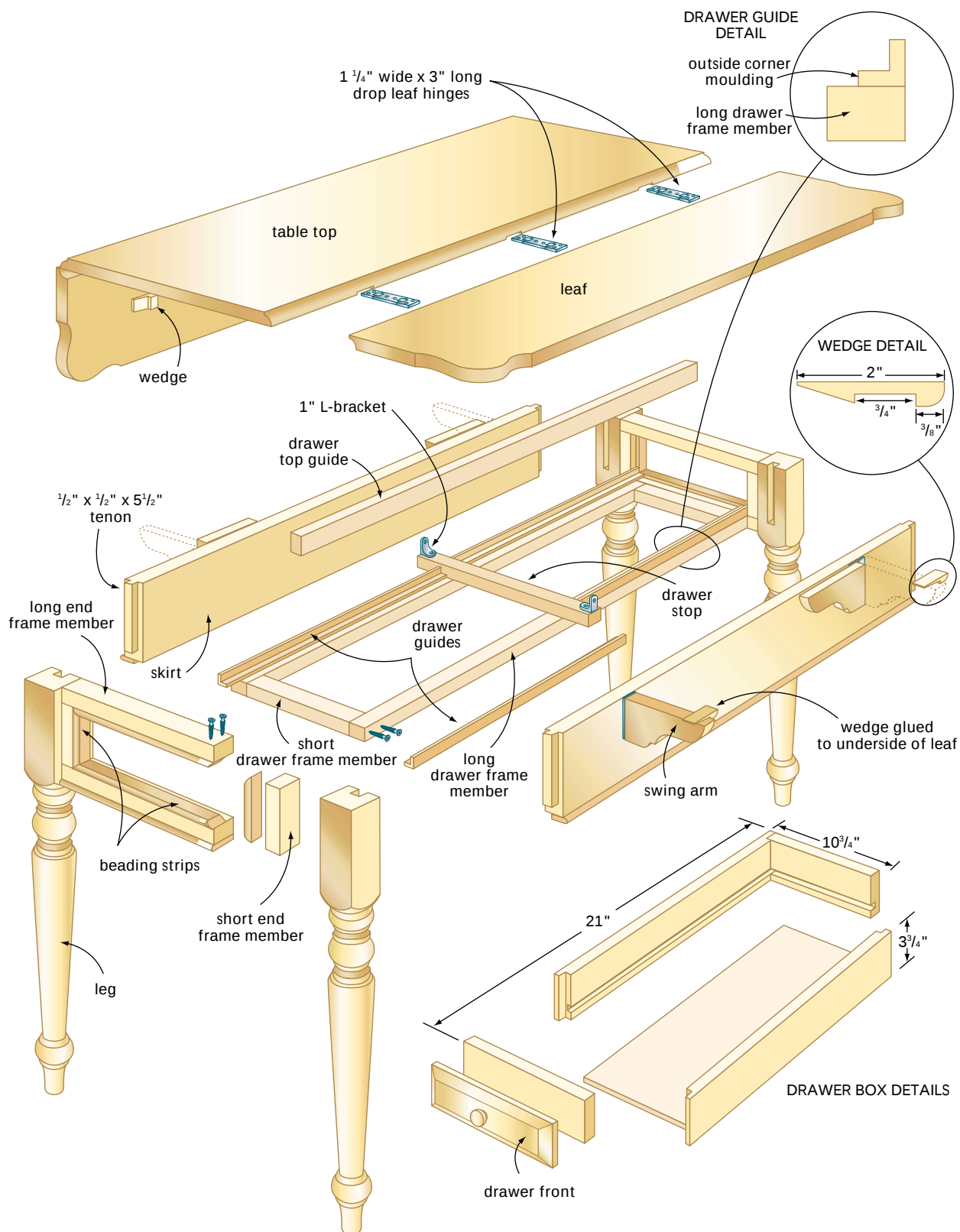
The first is the need to install hinges so their centre of rotation is $\frac{1}{32}$ " towards the leaf side. This moves the leaf away from the tabletop as it tilts down, assuring freedom from friction.

The second secret has to do with the hinge pins up-and-down location relative to the curvature of the routed profile on the table edge. The plans show how the centrepoint of the hinge pins Gary used

must be slightly less than $\frac{1}{2}$ " down from the top of the rounded tabletop edge. This $\frac{1}{2}$ " figure varies depending on the radius of the router bits used to cut the interlocking table edge details. A larger bit, say $\frac{3}{4}$ " radius, would require the hinge pin be located slightly less than $\frac{3}{4}$ " from the top of the curve. Take a look at the plans for details.

But even with these details in mind, there's no substitute for practice. When you rout the edges of your tabletop and leaves, mill the same interlocking profile on some scrap. When it comes time for hinge installation, take a few practice shots. There's nothing like experience to boost your confidence and increase the quality of your work. —Steven Maxwell

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A 14-volt cordless drill has plenty of power to drill the pilots and drive the screws for the support-wing hinges (shown here) and the special drop-leaf hinges

materials

part	material	size	qty
Legs	oak	2 3/4" x 2 3/4" x 29"	4
Long end frame members	oak	7/8" x 2" x 13"	4
Short end frame members	oak	7/8" x 2" x 4 1/4"	4
Beading	oak	1/4" x 1" x 16' (total length required)	1
Side skirts	oak	7/8" x 6" x 41"	2
Long drawer frame members	oak	7/8" x 1 1/4" x 40"	2
Short drawer frame members	oak	7/8" x 1 1/4" x 8 3/4"	2
Drawer stop	oak	7/8" x 1" x 14 7/8"	1
Drawer guides	outside corner moulding	3/4" x 3/4" x 20 5/8"	4
Tabletop	oak	7/8" x 20 1/2" x 48"	1
Leaves	oak	7/8" x 8 1/2" x 48"	2
Drawer top guide	oak	7/8" x 1 1/8" x 40"	1
Swing arms	oak	7/8" x 3" x 8"	4
Wedges	oak	1/4" x 1" x 2"	4
Drawer boxes	plywood	3 3/4"H x 10 3/4"W x 21"L	2
Drawer fronts	oak	7/8" x 3 11/16" x 10 11/16"	2
Knobs	oak	1 1/4" diameter	2
L-bracket	metal	1"	2
Table legs: Woodturners Inc. (877-603-9663) TL-800-29. Support-arm hinges: 3" cabinet hinges, National brand #N146-852. Drop-leaf hinges: Workshop Supply (800-387-5716) 4025-0125A. Tabletop clips: Lee Valley Tools (800-267-8767) 13K01.01			
Recommended Power Tools: Tablesaw, Belt Sander, Table-mounted Router, Hand-held Drill, Jigsaw, Bandsaw or Scrollsaw, Thickness Planer, Jointer			

frame by adding bullnose beading to the bottom edges of the side skirts, between the legs.

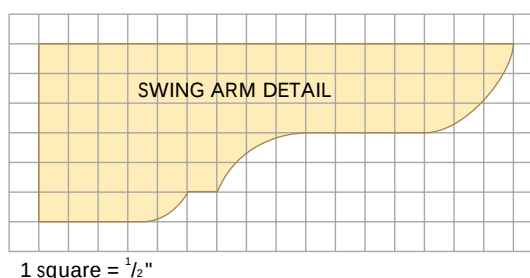
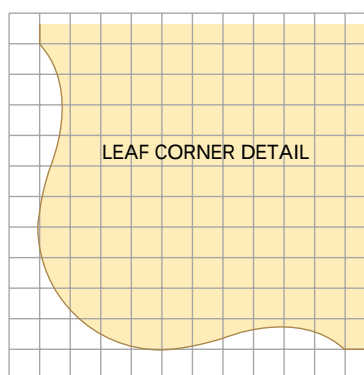
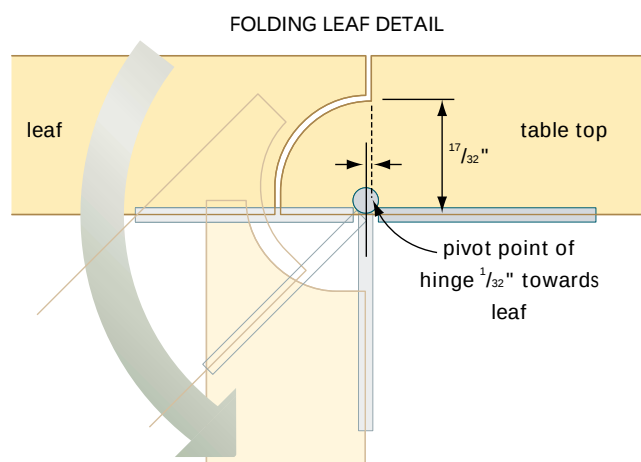
Build the Drawer and Frame

The drawers rest on a frame inside the table. Cut the long and short drawer frame parts you'll need and assemble them with two #8 x 2 1/2" screws per corner and glue. The rectangle should measure 7/8" x 11 1/4" x 40" when you're done. Fasten the drawer stop strip across the top of this frame, using one screw at each intersection point, as shown in the plans. Slide the frame into position from underneath the table, butting the drawer frame's ends to the inside faces of the lower end frames. Secure the drawer frame to the end frame with screws, counterbored to accept tapered wooden plugs. Be sure the drawer frame is centred between the side skirts. You can now strengthen the assembly by fastening the drawer stop strip to the side skirts with a pair of 1" L-brackets.

Although the drawers are supported on the frame you just installed, drawer travel is guided by two pieces of commercially milled outside corner moulding nailed to the top of the frame. Cut and install these four drawer guides now, outside edges flush with the outside edges of the drawer frame. Silky drawer action depends on smooth guide surfaces, so spend some time sanding. Applying a finish to these guides later will make the drawers work even better.

Measure the space between drawer guides and build a pair of drawer boxes to suit. The size in the materials list is theoretically correct, but you should custom-build drawers for your table. Aim for a 1/16" total side-to-side clearance between drawer and guide. Any less and you run the risk of drawers sticking in humid weather; any more and the drawers could wobble as they move. Complete the drawers by making the two drawer faces and cutting 25° bevels on their edges. The outer edge of each face should measure 1/2" thick. Wait until later to join the drawer boxes and faces.

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Make the Tabletop

Edge-glue enough stock for the tabletop and leaves, sand these parts, then cut them to final shape before getting ready to rout the interlocking edge profiles. This feature is called a rule joint, and I used standard 1/2"-radius roundover and cove bits in my router to create them. Given the choice, though, 3/4"-dia. bits would have been slightly better, but not many woodworkers (me included) own them.

Drop-leaf hinge installation requires special attention to detail, so take a look above and read the sidebar on page 50 for valuable tips. I recommend three hinges per side: one in the middle and two 6" from each end.

When the hinges are done, soften the table and leaf edges with a 1/8"-radius roundover bit in your router. Then flip the tabletop upside down on your bench (put a blanket underneath to protect it),

and install the leg-and-skirt assembly using the clips I told you about earlier. The plans show where to fasten the drawer top guide to the underside of the table. This stops the drawer from tipping downward as it's fully opened. And since the top guide also affects drawer travel, it must be smooth and finished just like the bottom drawer guides.

Make the Swing Arms

Four hinged arms—two on each side—swivel out to support the leaves when they're extended. Cut these now, following the outline above, and prepare the four wedges they work with, too. These are designed to fasten to the underside of the leaves, locking the swing arms at 90° when the leaves are up. If your swing arm hinges have too much play in the knuckles, they may allow the arms to droop, preventing the leaves from being supported horizontally. Shim the space

between the swing arm hinges and the side skirts solves this problem. Cardboard or thin pieces of wood work well for this.

Fitting and Finishing

Install the drawer faces and knobs now, and test that every part of the table operates smoothly. When you're satisfied, take it all apart and give everything a final going-over, sandpaper in hand. I finished my table with two coats of Minwax Golden Oak stain, followed by four coats of semi-gloss, oil-based urethane. Be sure to sand lightly with 240-grit paper after the second and third coats have dried. The surface fibres of the wood swell and stand up as they soak in finishing liquids, creating a rough surface that gets rougher unless you sand after each coat. But take care sanding around corners. It's easy to sand through the finish and stain, revealing the light-coloured wood underneath.