How to Build a Kitchen Helper

An amateur guide to building a kitchen helper. These plans can be adjusted to create a single or double kitchen helper.

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DISCLAIMER: This is the DIY approach Montessori in Real Life's husband took to building a Kitchen Helper. He made it up as he went along. The plans below are the product of building two Helpers and learning along the way. These are not intended to be perfect and are not in any way tested for structural integrity or safety standards. Proceed at your own risk: because we can't be held liable for the resulting work product. There is very little magic in these plans. Modify as needed. Have fun!

Materials

Item	Quantity	Notes
Wood		
1" dowel	1-2	A standard sheet of plywood is 4 feet x 8 feet in the US. Plenty of wood to make the sides, supports, and steps if you plan your cuts. The quantity of dowels depends on how wide you want it to be. You'll always use two dowels in the build itself, but can you get both of those rods out of one store bought dowel? Plan your width before buying.
¾" plywood	1 sheet	
Hardware		
Construction Screws	20	2" construction screws (#8x or similar)
Tools		
Router, cutting, rounding bits	1	Or a jigsaw and a steady hand
Compound Mitre Saw	1	A circular saw / jig saw will work in a pinch
Power drill	1	Standard bits too
Clamps	?	Lots of clamps
Forstner bit	1	1"
Speed Square	1	
Measuring Tape	1	
Something to use as straight edges (if routing)	6+	I used leftover MDF trim scrap

Before you begin

These plans were generated based on various photographs of Kitchen Helpers found around the internet. If you'd like to modify them - great! There's no magic here: other than screwing in enough cross-pieces to ensure lateral stability of the Helper. I bought a compact router for this project. It was well worth the money (assuming you'd use it again). It allowed me to make sure the support pieces (the ones with view holes in them) were *exactly* the same, and it allowed me to easily cut out those view holes. Also, rounding the edges of each board was super fast. You can pull this build off with a circular saw and jigsaw, but you have to be very careful not to let your blades drift - ever. Symmetry is key. With apologies to readers outside of the United States and Great Britain, all measurements below are stated in INCHES.

Step 1: Cut out the (2) big, almost triangular uprights

Out of ¾" plywood, cut out two polygons that fit the dimensions in figure 1 below. It's important that these polygons be *exactly* the same. I initially set up a fence with scrap trim (perfectly straight), clamps, and my circular saw. The result: the blade walked a bit on a few of the cuts, and my polygons weren't straight (see figure 2). I ended up salvaging the build using my compact router and a cutting bit. You may choose to jump directly to the router approach (outlined below).

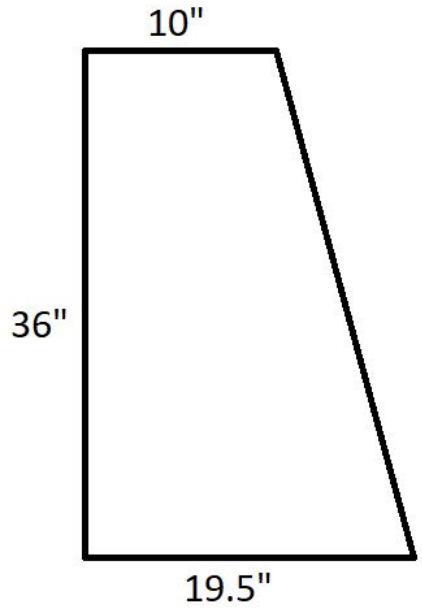


Figure 1: basic measurements

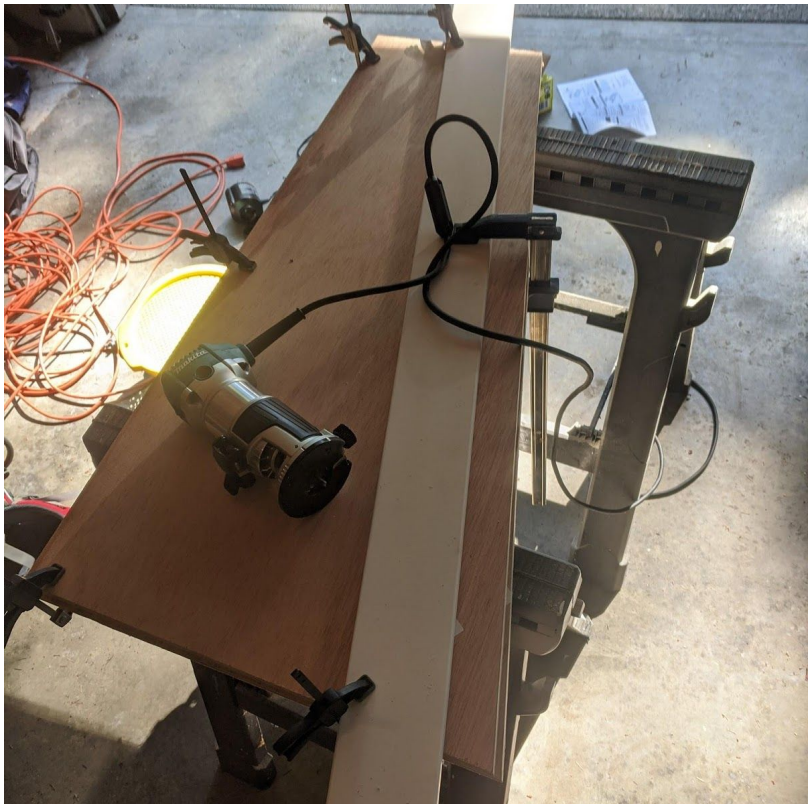


Figure 2: note the imprecise edges on the right side and the white fence I set up to guide my compact router.

Taking the compact router (or CNC machine) approach, you basically set up a fence with a truly straight edge and clamp it down onto your plywood. If you look closely at Figure 2, you'll note that I have both pieces of plywood clamped together, with a fence on top. That fence will guide my router blade to cut through both pieces of plywood at exactly the same place. Note: if you're new to routers and cutting bits, you can't simply cruise through 1.5" of wood at once. You need to take multiple passes, a fraction of an inch at a time. Read your owners' manual. It goes faster than it sounds. Figure 3 shows how the compact router interacts with the clamped fence & plywood. In the end, you'll get nice, perfect edges like in Figure 4.

Figure 3: The router rides along the fence, making multiple passes through both boards to make them identical.

Figure 4: That's two pieces of plywood stacked on top of one another. You'll keep them clamped together this way for nearly the entire build.

Step 2: Measure and draw the view holes

These view holes serve a few purposes:

1. Shaving weight to make it easier to move the Helper around.
2. Giving you a way to see what your kids' are doing in there.
3. Providing handle(s)

You don't actually *have* to cut the view holes. And they are time-consuming to do. Your call.

You can really put these view holes wherever you want...except the zone in the middle where the platform goes. Feel free to use my rough measurements. Or make up your own. See Figure 5 for details on what I did. If you choose to include view holes, draw the cutouts on your plywood polygons, which should still be clamped together (i.e. draw the cutouts on the top one). Figures 6 and 7 show you what this step looked like in my build.

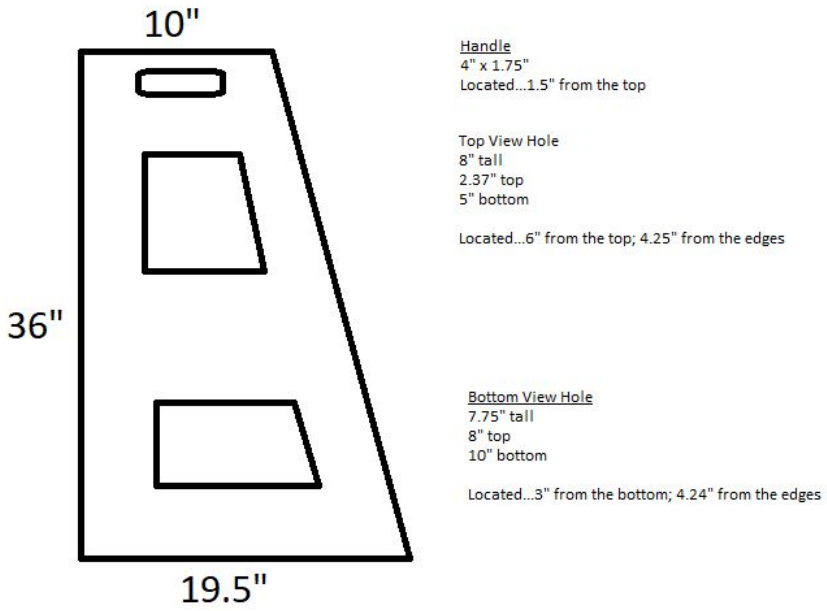


Figure 5: this drawing is not at all to scale. And you'll note that my finished helper includes a notch taken out of the very bottom as well (not pictured here).

Figure 6: here's a picture of my cutouts drawn on the plywood. ***Note the parallel, horizontal lines*** *in the middle of the board. That's where the platform will get bolted in (three options). So don't let your cutouts get too close to that zone!*

Figure(s) 7: Here you can see some rough measurements off the top, bottom, and sides that should reinforce what I attempted to say in my 'not-to-scale' drawing.

Step 3: Cut out the view holes

Again, the writeup below describes how to do this with a compact router. You can use a jigsaw here as well. You'll just need to spend a lot more time sanding the final output to make it look precise. Or perhaps you need to be way better with a jigsaw than I am.

Using a truly straight edge and some clamps, set up fences for your router to glide across. Once your fences are measured, clamped, re-measured, and re-measured, go to town with the router. Figure(s) 8 will show some pre/post fencing and routering.

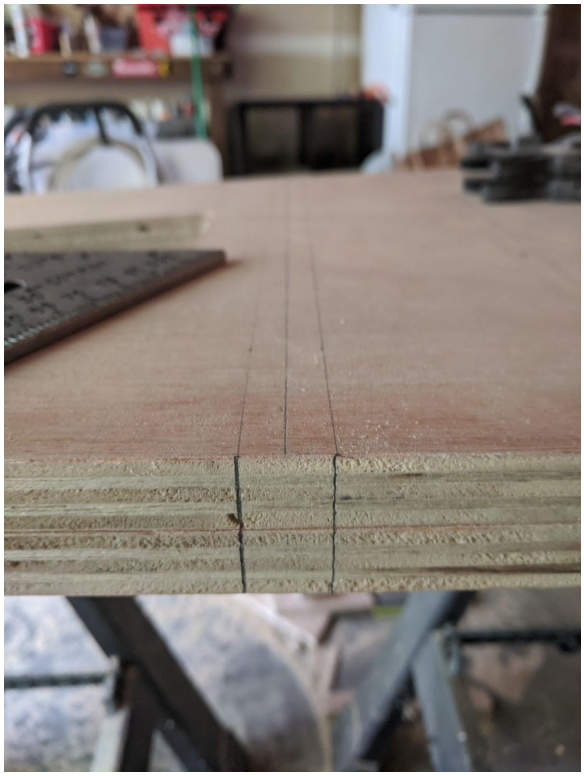
Figure 8: set up your router fences and cut into both boards at once via many passes of a cutting bit. Note that the fences should be offset by the distance from your bit edge to the edge of the flat router floor.

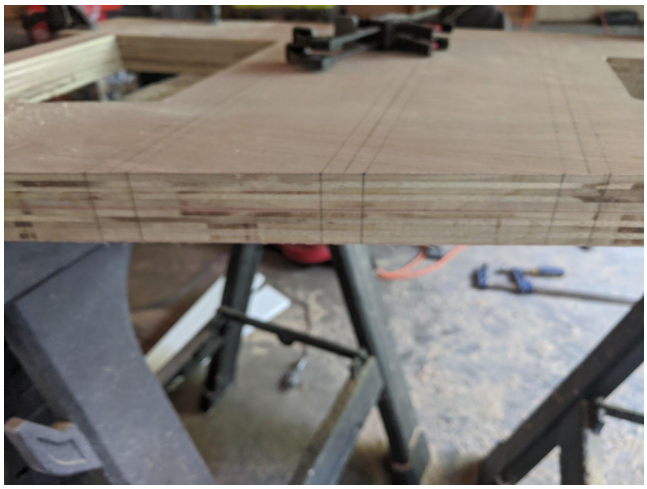
Step 4: Measure out your platform slots

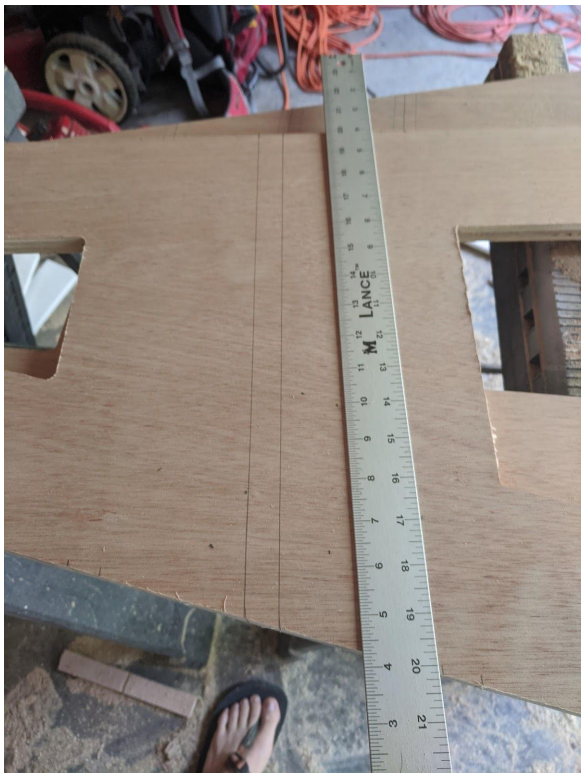
From the bottom of your (still clamped) polygons, measure 12” up and draw a horizontal line. Do the same at 16” and 20”. Look back up to Figure 6 to see these lines. Each of those three lines denotes the center point on which you’re going to bolt in the platform your kids will actually stand on. Since we are using ¾” plywood, you’ll need to also draw guide lines around those 12/16/20” guides to denote the bottom and top of the plywood. Figure 9 shows you what that looks like.

Figure 9: We’re looking directly at the 20” guide line now, and the lines around it that denote the bounds of the ¾ plywood. On the far right side, you’ll see the 18” lines.

There’s a reason why your plywood polygons are still clamped together: you need to make sure your platform guides are *exactly* the same. Figure 9 shows a speed square lined up with a guide. Figure(s) 10 show you how you should leverage that speed square to draw yourself reference lines on the bottom piece of plywood that are identical to the top.







Figure(s) 10: use a speed square to extend your guide lines down the edges of the plywood. Flip the (still clamped) plywood over, and draw straight lines across the middle using those you just drew on the edges as a guide. When you un-clamp, the two polygons should be a mirror image of one another.

Un-clamp your piece to show two pieces of plywood that are a mirror image of one another. The final marking you need to make is where the platform will stop at. On the vertical side of each polygon (imagine them standing upright - this is the side that will butt against your counter top), measure inward along the platform guide lines 1.5” and make a mark (Figure 11). In the next step, we won’t cut past this spot when carving a recess in which the platform will sit.

Figure 11

Step 5: Carve a recess for your platform to sit in

It’s possible that this step is optional. I haven’t tried putting one of these together without carving a recess in the wood. Such a recess offers precision related to where the platform actually lands, as well as structural integrity (because the recess adds loads of friction).

This step is essentially the same as Step 3, with one major caveat. You’ll set up fences with straight edges and clamps again. And you’ll use the compact router and a cutting bit to cut into the wood, guided by those fences again. The key difference is that you will not go all the way through the wood. This should be possible to do in 1 pass with the router. Set the router to go approximately halfway through your plywood (error on the side of carving out less plywood), and cut yourself a recess. See Figure(s) 12 for a view into the setup and the finished product.

Figure(s) 12: set up your fences again (note the fence at the top stops the router from cutting past that 1.5” setback) and get routing! (Halfway through your plywood or less). Note: you can also do this with a “poor man’s router” - a combo of wood and a chisel. YouTube it.

Step 6: Round the edges

The compact router shines here again. Use a roundover bit of your choice to round-off the every edge of the two polygons you just completed. No router? You can always sand down the sharp stuff manually. See Figure 13 for a shot of some rounded edges.

Figure 13: round over bits make this super easy. I can't believe it took me this long to buy a router.

Step 7: Pre-drill your dowel recesses

You're going to run a 1" dowel across the front and back of the Helper to both reinforce it as well as give your kids something to hold them in the Helper. It's generally a good idea to screw dowels like this into a recess, which adds friction and ensures they are screwed in squarely. It's important that the depth of these recesses be just about the same for all 4 recesses you'll drill (in total: 2 recesses per board).

Use a 1" forstner bit and a power drill to drill your pilot recesses roughly halfway through the plywood polygons (from the same side as you just carved out your platform guide recesses). Those 1" circular recesses should be located near the edges of your plywood, with about ½" buffer between the edge of the circle recess and the edge of the plywood. Figure 14 shows you a view of the finished Helper from above the left side of the photos is the vertical (counter-top) side of the Helper. The right is the slanted side. On the vertical side, my pilot recess is located 10" down from the top of the Helper. On the slanted side, my pilot recess is located 4" down from the top of the Helper. That extra pilot recess you see...was a mistake. But it shows you the fact that putting a recess too far inward from the edge may make the standing area too narrow in the end.

Figure 14: an overhead view of the finished helper, to illustrate where 1” circular recesses should be drilled to facilitate dowel rod installation.

Step 8: Set the width & begin assembly

Before you make any additional cuts (platform, step, supports), we’re going to get the dowel rods the right length and install them. This is the step in which you decide how wide you want your Helper to be. The one I built was for two kids. It comfortably holds both of them with a little room to spare. And my dowel rods are 26” each. Adjust accordingly. I wouldn’t go much longer (due to structural integrity considerations), and I wouldn’t go smaller than 13” (due to stability / tipping considerations).

Here we go:

1. Pick your length.
2. Cut down two 1” dowel rods to exactly the same length.
3. Stand the polygons upright (preferably with another person’s help), slotting the dowel rods into your pilot recesses.
4. Drill small pilot holes, beginning from the outside of the polygon through the center of the dowel rod.
5. Drive a 2” screw from the outside of the polygon through the center of the dowel rod.
6. Repeat 3 more times for each polygon-dowel connection point.

The resulting, half-Helper will be wobbly and useless. Handle it carefully as we cut some final boards and install them.

Step 9: Install two vertical support pieces

Measure the gap between the insides of your two polygons on your wobbly Helper - preferably at the connection points between the polygons and the dowels. Said another way - how wide is the inside of your helper now that those dowels have been recessed into the sides? Write down that measurement. It will apply to three cuts.

Cut 1: You need to brace the front (verical) side of your Helper on the bottom. I was using scrap plywood for mine at this point, but you could use a 1x6 or 1x10 here as well. In short, get a piece of wood that's about 6"-10" wide (and ¾" thick) - and cut it to the width measurement you made at the beginning of Step 9. That board will get screwed in (no recess) from the outside of the polygons just like the dowels were. You'll see in Figure 15, mine sits about 2" off the ground.

Figure 15: a view of the bottom support board. This board is screwed in to secure the bottom of the vertical (counter-facing) edge of the Helper.

Cut 2: Same length as cut 1, but you can get away with a less wide board (4"-6"). This board gets screwed into the bottom of the sloped side of the Helper - approximately 2" off the ground, and square to the ground.

Cut 3: Same length as cut 1 and 2. This board is the step you'll install to help you kids get into the Helper itself. I used a 1x6 I had lying around and used the router to round over the edges. You'll install Cut 3 as seen in Figure 16, sitting on top of (and perpendicular to) Cut 2 beneath it.

Figure 16: The step sits on top of a support board that is also perpendicular to it.

Step 10: The platform

Now you should have a mostly stable Helper. The platform will tie it all together. Measure the width from the inside of your Helper, accounting for the recesses you carved (in which the platform will sit). You can make the platform out of plywood or (like I did) grab two 1x6 boards you have lying around. The platform itself should be ¾" thick, 11" (or so) wide...and the length should be whatever you just measured in the beginning of step 10. Note: if you're using 1x6 boards, you'll likely want to screw them together somehow.

Slide your platform into the height you currently want to use (remember you should have 12", 16", and 20" slots) and secure it just like the dowels, supports, and step: with pilot holes and 2" screws.

Step 11: Finish it

Sand it thoroughly and add a finish of your choice (paint, stain, oil). I chose to just spray paint this one white. It involved two rounds of painting, with sanding in between.

You’re done!