This Octagon Picnic Table is a great outdoor project and is the perfect table for your outdoor events. This table seats 8 comfortably and the open seat design allows for comfortable seating without having to climb over the benches.
Octagon Picnic Table

Materials and Cutting Guide

Lumber Cut List

<table>
<thead>
<tr>
<th>Part Letter</th>
<th>Part Name</th>
<th>Thickness</th>
<th>Width</th>
<th>Length</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Left &amp; Right Seat Frame</td>
<td>1-1/2”</td>
<td>3-1/2”</td>
<td>88-3/16”</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Left &amp; Right Table Frame</td>
<td>1-1/2”</td>
<td>3-1/2”</td>
<td>48</td>
<td>4</td>
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<tr>
<td>C</td>
<td>Frame Spacers</td>
<td>1-1/2”</td>
<td>3-1/2”</td>
<td>3-1/2”</td>
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<tr>
<td>D</td>
<td>Table Legs</td>
<td>1-1/2”</td>
<td>5-1/2”</td>
<td>33-1/8”</td>
<td>4</td>
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<tr>
<td>E</td>
<td>Seat Bases</td>
<td>1-1/2”</td>
<td>5-1/2”</td>
<td>24”</td>
<td>4</td>
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<tr>
<td>F</td>
<td>Seat Legs</td>
<td>1-1/2”</td>
<td>5-1/2”</td>
<td>14”</td>
<td>8</td>
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<td>G</td>
<td>Seat Cleats</td>
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<td>1-1/2”</td>
<td>9”</td>
<td>8</td>
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<td>H</td>
<td>Top Perimeter Boards</td>
<td>1-1/2”</td>
<td>5-1/2”</td>
<td>21-5/16”</td>
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<tr>
<td>I</td>
<td>Bottom Perimeter Boards</td>
<td>1-1/2”</td>
<td>5-1/2”</td>
<td>16-1/8”</td>
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<tr>
<td>J*</td>
<td>Outside Tabletop Boards</td>
<td>1-1/2”</td>
<td>5-1/2”</td>
<td>28-1/2”</td>
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<td>K*</td>
<td>Outside Adjacent Boards</td>
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<td>5-1/2”</td>
<td>39-15/16”</td>
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<td>L</td>
<td>Center Tabletop Boards</td>
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<td>5-1/2”</td>
<td>40-1/2”</td>
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</tr>
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<td>M</td>
<td>Outside Left &amp; Right Seat Boards</td>
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<td>5-1/2”</td>
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<tr>
<td>N</td>
<td>Inside Left * Right Seat Boards</td>
<td>1-1/2”</td>
<td>5-1/2”</td>
<td>23-5/8”</td>
<td>8</td>
</tr>
</tbody>
</table>

*Indicates Parts that are initially Cut Oversized. See Instructions

- Good Choices of Lumber for this table are Cedar or Exterior Grade Pine

Additional Materials

- # 8 x 3” Exterior Wood Screws
- #8 x 2 ½” Exterior Wood Screws
- Kreg Outdoor Screws #8 x 2 ½”
- Pocket Hole Plugs (Optional)
- Gorilla Glue (Polyurethane) (Optional)
- TiteBond II or Tite Bond III Wood Glue
Building the Cross Frames

1. Cut the left & right seat frame parts (A) and the left & right table frame parts (B) to length. (As shown in figures 1 & 2). Cut a 22.5 / 67.5 degree angle on each end of parts (A & B), the final length of each frame piece is measured from the long points of the angles as shown. Next cut the eight spacers (C) to size. (See Figure 3)
Building the Cross Frames (Continued)

2. Mark out the Centered notches on both faces of the Seat Frame Parts (A) and Tabletop Frame Parts (B) As shown in Figure 4. (It is recommended to measure the combined width of the frame parts and spacers when sandwiched together to obtain the notch width. You want the mating notching to fit firmly when assembled) *To make your notches you can use a variety of methods (On the table saw using a single blade or dado stack, with a circular saw making multiple kerf cuts and cleaning up with a chisel, with a hand saw and chisel. Each of these methods is effective and will work.

3. Working on a flat surface group the frame parts side by side with the notches facing upward while aligning the ends of the boards and the notches. This will allow you to inspect the notches to ensure they are all uniform in size and the bottoms of the notches are flat. Clean up with chisel if needed.

4. Next test assemble the interlocking seat (A) and table (B) cross frames fitting the spacers where shown in figure 4. If your fit is satisfactory, disassemble, and use exterior wood glue in the joints, reassemble the frame parts and secure using #8 3” exterior wood screws vertically to join the frame pieces. Drive #8 3” wood screws through the frame sides and into the spacers in a diagonal orientation. Repeat this for all sides and for both the Seat (A) and Tabletop (B) cross frames. *For visual appeal and added protection, you may want to countersink the screws and plug with a matching wooden plugs. (Optional)
Making & Assembling the Seat Bases

1. Using 5 ½” x 1 ½ “ Stock Cut the Table Legs (D), Seat Bases (E), and Seat Legs (F) to length with the angles (shown in Figures 5 – 7.)
Making & Assembling the Seat Bases (continued)

2. Clamp a Seat Base (E) to the side of your bench. Place a Table Leg (D) against the Seat Base (as shown in Figure 8.) Next Using a Seat Leg (F) mark out a line on the Table Leg (D) and transfer that line to all 4 sides of the Table Leg.

3. Make a pair of seat spacers as shown in figure 9

4. Attach the seat legs to the seat base make sure that the back edge of the seat leg is flush with the back edge of the seat base (as shown in figure 10)
5. Now for this step a bench vise comes in handy, but is not necessary. You want to center the table leg between the two seat legs and attach the table leg to the seat base ensuring the back of the leg is flush with the back of the base (as shown in figure 10) If using a bench vise, secure the table leg using the line that was drawn on the leg in step 2, this will position the leg in the appropriate orientation so you can invert the base assembly and secure the leg using 3” screws from the bottom side be sure to pre drill and countersink for the screws. NOTE: the seat spacers clamped to the seat base will help with centering the leg (as shown in Figure 11)

Next cut 8 seat cleats glue and screw them with 2 ½” screws to the inside face of each seat leg extending them 7/8” past the outside edge of the legs and flush with the top of the legs (as shown in Figure 10 above)
**Attaching the seat assemblies to the Seat Cross Frames**

1. From each end of the cross frame assembly, make a line 13-3/4” across the top of the seat cross frame assembly. This will be your reference line for positioning the seat legs.

2. Make a pair of scrap alignments blocks and clamp the to the seat leg, ensuring that the bottom of the scrap blocks run along the top of the line drawn on the table legs. This will help hold the legs in the correct position while you glue and screw them into place.

3. Apply glue to the inside of each seat cross frame where the legs are going to be positioned. Slide the seat leg assembly into place. If placed correctly, the top of the seat legs and cleats will be flush with the top of the seat cross frame once positioned correctly using 3” screws, secure the seat leg assembly to the seat cross frame by installing (2) 3” screws through the sides of the cross frame assembly into the seat leg. Repeat this for all 4 leg assemblies (as shown in figure 12 & 13)

![Figure 12](image1.png)

![Figure 13](image2.png)
Cut 8 top perimeter boards and 8 bottom perimeter boards to the specifications in the cut list (Parts H & I)

1. Start off with assembling the top perimeter boards (The use of biscuits may assist with the alignment of the boards but are not necessary)
2. Drill 2 pocket holes on diagonal corners of each top perimeter board (as shown in Figure 14)
3. Using 2-1/2” pocket screws and glue, assemble the top perimeter frame (as shown in figure 15)

4. Using pocket holes, 2-1/2” pocket screws and glue, Assemble 4 sets of lower perimeter boards (as shown in figure 16)
Build the Table Top and Bottom Perimeters

5. Flip the top octagon upside down and place the table top cross frame so that the 4 points of the cross frame align with 4 of the top octagon joints. Measure the distances from the ends of the cross frame to the point of the joints and make sure the cross frame is centered evenly on the top octagon. (as shown in figure 17)

6. Cut 4 spacers and place them between the 4 cross frame members to ensure proper placement when assembling the structure (as shown in figure 17)

7. Attach the 4 bottom perimeter assemblies to the top cross frame (as shown in figure 17) using 2-1/2” pocket screws.

8. Screw the bottom perimeter assemblies to the top perimeter using 2-1/2” screws.

9. Remove the spacers.

10. With the top structure still upside down, install the lower seat assembly to the complete upper assembly (as shown in Figure 18)
Install the top boards and seat boards

Cut the outside top boards (J) Adjacent Top Boards (K) and Center Top Boards (L) as shown in the drawing below.

1. Flip the entire assembly upright to install the table top boards.
2. Measure cut and fit the two outside table top boards and lay them in place. Make sure they are flush against the octagon frame.

3. Next measure the distance between the two outside boards (J) now subtract the combined width of the remaining table top boards (K,L). Next divide the remaining number by 6 to determine the spacing between the table top boards. Plane or resaw some scrap spacers to that thickness.

4. Cut the required angle on one end of the adjacent top boards (K) place a spacer between the outside top boards and place the adjacent top board in place.

5. Mark the square end of the adjacent top board for a perfect fit. Lay them in place.

6. Cut the 3 remaining table top boards to fit, angle cutting the corners of the outside center boards may be required to maintain spacing.

7. Using the spacer to fit the table top boards in place, secure them to the table top using glue and 2-1/2” screws from underneath. 2 screws per board end. (Note: you may screw from the top down if you plan on countersinking and plugging the screw holes to conceal the screws)

8. 
Install the Seat Boards

1. Cut the inside and outside seat boards as shown in the figures below

2. First install the inner left and right seat boards ensuring the joints are centered between the cross frame members glue and screw the seat boards using 2-1/2” screws.

3. Next using one of the spacers used to install the top boards, place the spacer between the inner seat boards and outer seat boards to ensure even spacing and placement. Secure the outer seat boards using glue and 2-1/2” screws.

4. This completes the build. Use an outdoor protective finish to ensure years of enjoyment.