

BYF Session Curriculum

Session 5 - Picnic Table


Materials:

- 4 pieces of 2x6 lumber – 36" long LEGS
- 2 pieces of 2x6 lumber – 60" long SUPPORTS
- 5 pieces of 2x6 lumber – 72" long TABLETOP
- 4 pieces of 2x6 lumber – 72" long SEATS
- 3 pieces of 2x4 lumber – 28 ½" long SUPPORTS
- 2 pieces of 2x4 lumber – 34 ½" long BRACES
- ½ lb. box of 3 ½" carriage bolts
- ½ lb. box of 2 ½" pocket screws
- ½ lb. box of 2 ½" screws
- Wood clamp
- Saw and milter box for every group
- Hammer for every group
- Screwdriver for every group
- Tape measure



Objectives:

- Students will be able to hammer a nail successfully.
- Students will be able to describe the various jobs that work together to build a house.

<p>Greeting Activity - 10min</p> 	<p>Hammer, Blueprint, Architect – Get to know you.</p> <p>Put students in partners. This game is played like rock paper scissors: Rock = hammer Paper = Blueprint Scissors = Architect</p> <p>Explain to students: “The rock is the hammer because on a construction site you use hammers to pound the nails. The blueprint beats the hammer because you can’t build something that isn’t planned first. The architect beats the blueprint though because they oversee designing those blueprints and can change them at will. The hammer beats the architect because sometimes things do change on the jobsite that the architects couldn’t have foreseen.”</p> <p>When a student loses a round it becomes their job to cheer on the person who won.</p>
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Objective Preview - 10min



Slide 4

Life Skill:

- Project planning
 - Visualize the project and how all the pieces fit together before you start building
 - <https://youtu.be/2GnGF6WB5bM>
 - **This is true in life as well. If you visualize how you want all the pieces of your life to fit together before you start you are more likely to achieve your goal.**
- Collaboration
 - Working with others to achieve a common goal
 - **As a group today we are building one picnic table. We will have to have strong collaboration to make sure all the parts are done correctly, and the final product is usable.**

Construction Skill: (5-9)

- Identify different kinds of bolts and screws
 - Carriage bolts
 - Regular screws
- Vocabulary
 - Countersink – make the screw flush with the seat so that there isn't a bump when you sit down
 - Pocket hole – this is a kind of vertical hole that allows you to drill into vertical wood. It appears in the manner of a pocket.



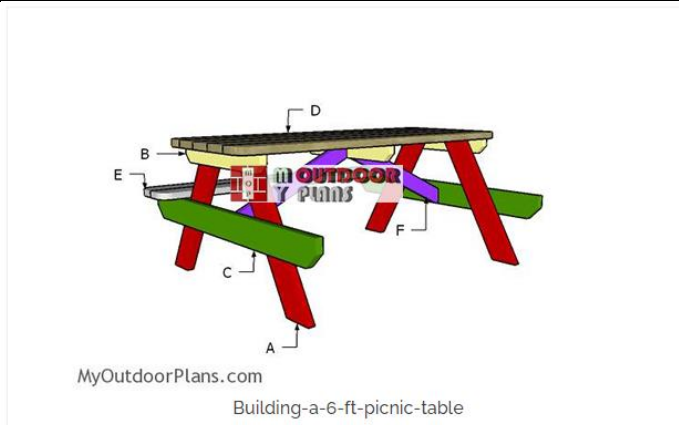


Pre-Teach - 10 min



Materials/Tool Handling: (Slides 8-12)

- Drill
 - **Only high schoolers and adults are to use the drill. They will drill pocket holes and starts for the screws. We will attach the screws with screwdrivers after the starts are drilled.**
- Screwdriver
 - Demonstrate: Right to tighten, left to loosen.
 - **This is how we will attach the screws after the instructors have drilled pocket holes and starters.**
- Screws and screwdriver vocab
 - **Phillips and flathead**
- Saw and miter box
 - Demonstrate: **One student will hold the long end of the wood on a steady surface at least two feet off the ground. The other student holds the saw in their dominant hand and pulls it back and forth through the wood along the designated line. The saw-ready side of the wood should hang off the steady surface.**
 - When a student is sawing there must be at least one other student holding the wood in place.



Safety Expectation: Slide 13

- There must be a highschooler or adult always using the power tools.
- Share the other tools respectfully
- Everyone “on site” wears goggles
- Everyone is responsible for their own part of the project.
 - **In your groups of three, remember who chose to be the Project manager for this build. This person will get your materials, interpret the plans, and make sure the piece works with the whole. Laborers make sure everything, and everyone is safe and that tools are used correctly. Remember to stick to your role as we build.**

Focus Activity - 1hour



Slides 14-19

Process:

- Separate students into groups
 - Tabletop and seats
 - Group a
 - Works on the left side of the tabletop and braces
 - Group b
 - Works on the right side of the tabletop and braces
 - Legs and braces
 - Group a
 - Works on the right-side table legs and braces
 - Group b
 - Works on the left side table legs and braces

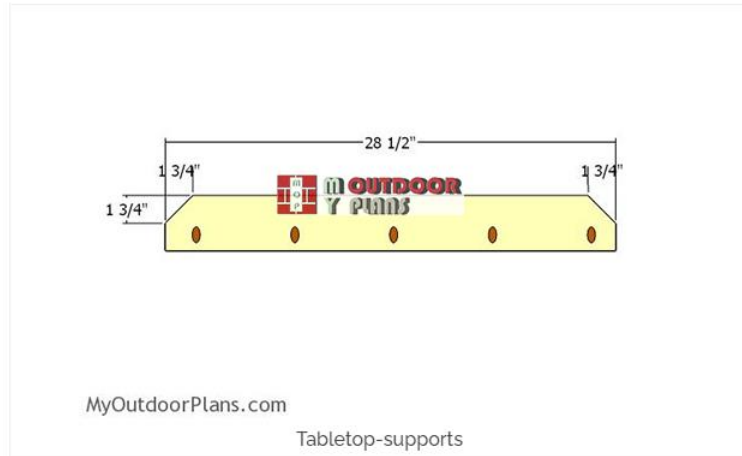
Building Plans:

Plans can also be found at: myoutdoorplans.com/furniture/6-foot-picnic-table-plans/

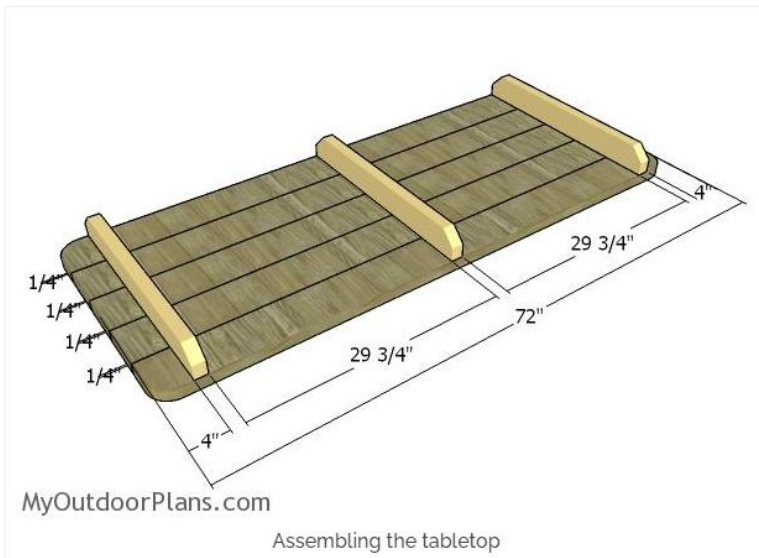
- Pass out plans to each project manager.

Note: Instead of drilling all of the screws in, allow students to use screwdrivers where possible.

Table and Seats groups:



Next, you need to build the tabletop supports from 2x4 lumber. Make 45 degree cuts to both ends of the supports, following the diagram. Moreover, drill pocket holes into the 2x4 supports, so you can lock it to the tabletop slats.

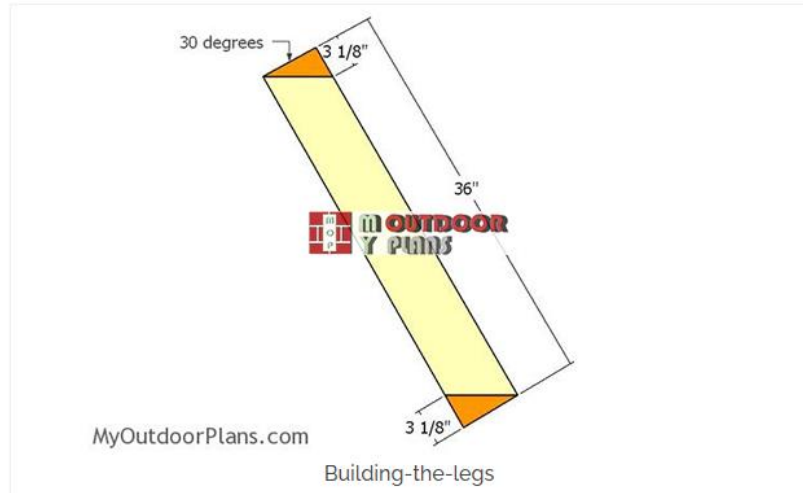


Lay the 2x6 tabletop slats on a level surface. Place 1/4" plywood pieces between the slats so you can create even gaps. Fit the supports to the slats and then place them equally spaced. Insert 2 1/2" screws to secure the supports into place tightly.

Alternative to the pocket hole method:

- Have students line up the wood upside down from shown above, balancing part B vertically on the floor.
- Attach part A into part B from the top.
- Note: This is harder to stabilize, but simpler construction skills.

Legs and braces group:



The first step of the outdoor project is to build the legs for the 6' picnic table. As you can easily see in the diagram, you need to make 30 degree cuts to both ends of the 2x6 legs. Smooth the edges with sandpaper.

Note: Students will not have the tabletop on which to measure. They will need to be intentional about the level top and 6 inch space



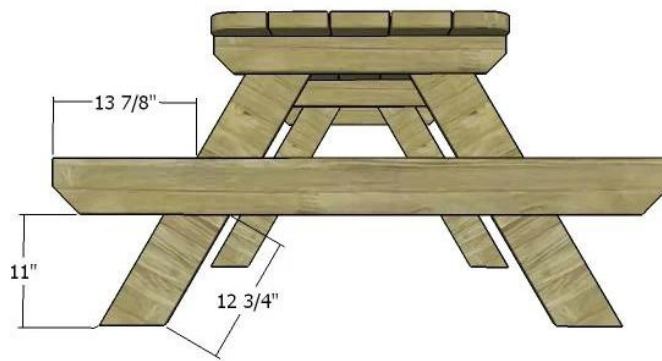
Fit the 2x6 legs to the picnic table, as shown in the diagram. Clamp the legs to the supports and then drill pilot holes through both components. Insert 3 1/2" carriage bolts and tighten the components into place. Use two bolts for each joint for a professional result. Using the carriage bolts will also make disassembling the picnic table easy, if you want to move it to another location.



MyOutdoorPlans.com

Seat-supports

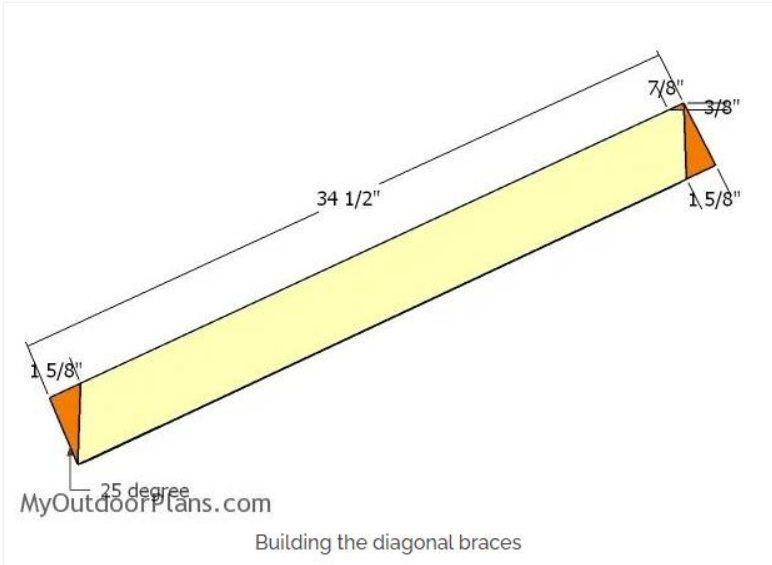
Build the seat supports from 2x6 lumber. Make 45 degree cuts to both ends of the supports, as shown in the plans.



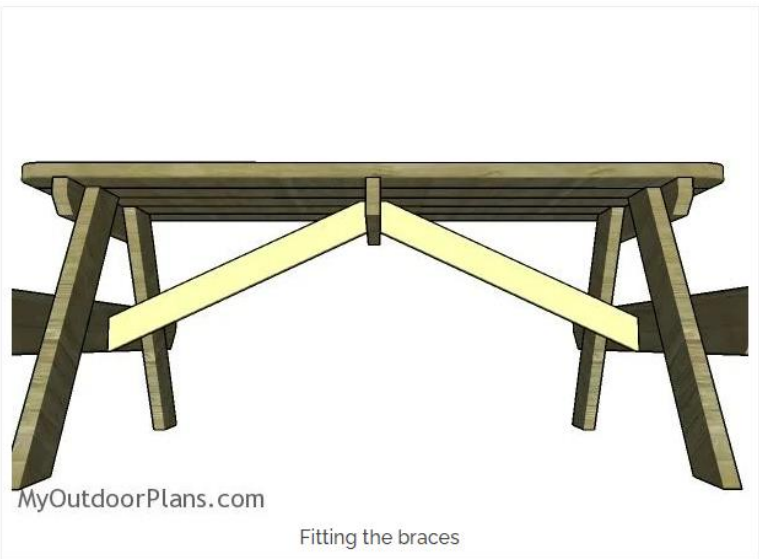
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Fitting the seat supports

Align the seat supports to the legs and then clamp them into place tightly. Drill two pilot holes through the braces and through the legs, for each joint. Insert 3 1/2" carriage bolts to lock the components together tightly. Use a spirit level to plumb the seat supports horizontally.

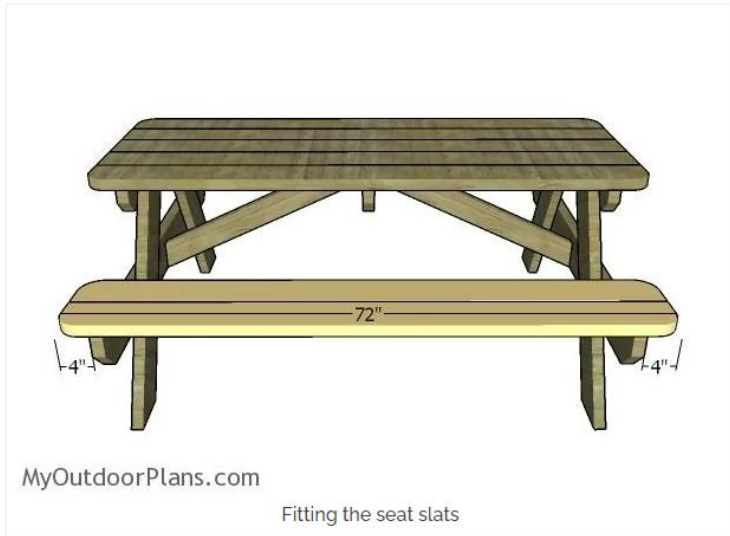


Build the braces for the table from 2x4 lumber. Make 25 degree cuts to both ends of the diagonal braces and then get the job done with another small cut to the top end.



Fit the diagonal braces to the picnic table, making sure the corners are square. Use a spirit level to plumb the legs and to check if the top is horizontal. Drill pilot holes and insert 2 1/2" screws to lock the braces to the frame of the picnic table.

Table and Seats Part 2:



Last but not least, you need fit the 2x6 seat slats. Center the slats to the frame of the picnic table. drill pilot holes and insert 2 1/2" screws. Countersink the head of the screws for a neat result.

Job Exploration - 20min




Slide 20-29

Residential Construction Focus:

- **Residential construction is the kind of construction that builds houses, or residences, places where people reside.**
 - **During our building today we practiced two of the careers involved with residential construction. Can anyone guess what those might be?**
 - Carpenter
 - **Carpenters work with wood, just like we did today!**
 - Roofer
 - **Roofers cover structures with a roof. They do this with lots of different materials, but today we will be putting a roof of wood on our house.**
- **But we also talked about some careers that help build houses we didn't practice but are still really important. Turn and talk to your group about some things that houses need and the jobs that could provide them.**
 - Have each group share some of their ideas, being sure that they hit the following:
 - Electrician
 - **We are just building the structure of a birdhouse today, but when we build a house for humans, we need to include electricity. This is the job of the electrician.**
 - Plumber

	<ul style="list-style-type: none"> • Just like the electrician puts electricity into houses for people, the plumber helps provide running water, toilets, showers, and the like. It's a very important part of building a house. ▪ Windows: Glazier <ul style="list-style-type: none"> • The Glazier is the person who takes care of the windows. Lot of times this means just providing the glass for a window but can include designing special windows as well. ▪ Heating and cooling: HVAC Technician <ul style="list-style-type: none"> • We can't live in Indiana without heat and air conditioning! But putting in these kinds of systems is a special job that has its own special training. HVAC technicians specialize in installing and fixing these systems. <p>Now, let's hear from a real industry professional who can tell us about their career in residential construction!</p> <ul style="list-style-type: none"> ○ Introduce a community partner if applicable. ○ If no community partner can attend introduce the video. • Show slide with general salary information on it. • Open the floor for students to ask their own questions of the industry professional. <ul style="list-style-type: none"> ○ Note: If no industry professional is available ask students what their questions would be and make a list. Send this list to your Coordinator and they will try to get those questions answered. <p>Plumber Video: https://youtu.be/qnvNZvdqC7c Electrician Video 1, Success Story: https://youtu.be/u5ypG1rdwe8 Electrician Video 2, Inside the hard hat: https://youtu.be/AfSISgTo700 Electrician Video 3, another success story: https://youtu.be/Akm2O66z8M0</p> <p>Questions for industry professionals:</p> <ul style="list-style-type: none"> • What soft skills are important in your job? • What does your "office" look like? Work Environment? • What education did you need to get this job? • What is your favorite part of your job? • What is some good advice to someone who wants to go into your field?
Wrap-Up - 10 min	<p>Slide 30</p> <p>Students take this google quiz as an exit ticket: https://forms.gle/rAEtt6ikz4bACxY18</p>

	
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