WHAT WOOD U BUILDP

Woodworking is a great tradition. Wood is perfect for building everything from houses to hat racks. It can be painted or you can show off its natural grain and shine.

What Wood U Build?

helps you develop your skill in woodworking. It requires that you make decisions about what you like and dislike. You can design your own project, or you can search for a plan that you would like to follow.

What You Will Learn

- The basics of good design.
- To recognize and practice good and safe work techniques.
- To explore your own personal design preferences, making your own decisions.
- To learn and practice skills that will be useful throughout your life.

LEVELS OF COMPETITION

For details on eligibility, see the General Event Policy.

Junior Level I:

9 to 11 years old on December 31 of the current calendar year (compete only at local and regional levels).

Intermediate:

12 to 13 years old on December 31 of the current calendar year (compete only at local and regional levels).

Senior Level I:

14 to 15 years old on December 31 of the current calendar year.

Senior Level II:

16 to 18 years old on December 31 of the current calendar year.

Refer to Alabama 4-H Competitive Events on the Alabama Extension website (www.aces.edu) to review the General Contest Policy and the Age & Eligibility Chart.

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Where Do I Start?

There are two ways of doing this: you may either create an original design, or you may work from a pattern which you have found.

If you want to create an original item, look at pictures to get some ideas about what they look like or how they are put together.

If you want to work from a pattern, visit a hardware or hobby store, search the Internet, or go to your school or community library.

It is extremely important that you practice good safety in using tools. Use tools under the close supervision of a responsible adult.

• **Think Before You Cut**. The most powerful tool in your shop is your brain–use it. Thinking through your cuts and movements before acting can help save both fingers and scrap wood.

Identification of Entry

Name, county, and level of participation should be displayed with each entry. 4-H project exhibit cards are available, but not required.

- Keep a Clean Shop. A cluttered shop is an accident waiting to happen. Keeping your shop clean will help protect you (and your tools) from tripping hazards.
- Avoid Distractions. Pay attention to your actions. Looking up to watch TV or a visitor can result in your hand contacting the blade. Always wait until you have completed your cut before you take your eyes off the blade.
- **Don't Rush**. Keep in mind that this is just a hobby. Take a break when you feel rushed or frustrated with a project. Mistakes happen when we rush to complete a job.
- **Protect Yourself**. Wearing proper shop protection is an important part of safe tool operation. Goggles, ear protection, and lung protection should be used when operating tools. Use push sticks when working close to the blade, and make sure the tool's safety features are in place.
- Let the Tool Stop. Not giving the power tool time to wind down after a cut is an often overlooked safety mistake. Even without power, the spinning blade can still do a lot of damage.
- **Fumes and Dust**. Solvent fumes and airborne dust can present health and explosion hazards. Be sure you have a supply of fresh air, and use only explosion-proof vent fans.
- Wear Appropriate Clothing. Loose clothing or hair can get caught in power tools and cause severe injury.





Junior & Intermediate Project: Toolbox (Woodworking plan included.)

Senior Level I & II Project: Shoe Organizer

The basics are simple:

- Compete by yourself or on a two-person team. Youth on teams must be the same
 4-H age level (e.g., Senior Level II).
- 2. You must create an original design or work from a pattern you have found.
- 3. You must do all the construction yourself.
- 4. You can't use a kit.
- 5. Your name and county need to be on a small piece of tape attached to your project.
- 6. Provide a copy of the plan for your Shoe Organizer.
- 7. The dimensions and specifications for your shoe organizer are listed below.

-The shoe organizer may be constructed from any type of lumber.

-It must be able to neatly hold at least twelve pairs of shoes, with a pair placed side-byside, rather than placed on top of one another.

-It must be freestanding.

-The finished organizer may be painted or stained.

-The width, height, and depth of the shoe organizer are at the discretion of the participant.

-Hardware may be used to enhance the organizer's usefulness or appearance.

8. Seniors must identify any safety hazards.



This project will help the participants develop basic woodworking skills while creating a toolbox that can be used for storing tools or holding other items. Use the following directions and materials list to complete this project.

List of Materials Needed for Project:

- (1) 1"x6"x24" board
- (1) 1"x4"x24" board
- (1) ¹/₄"x10¹/₂"x5¹/₂" plywood
- (1) ¾"x12" dowel
- (10) 1³/₄" finish nails
- (12) #18x¾" wire nails
- (2) 2¹/₂" finish nails
- Sandpaper
- Wood glue
- Painting or staining supplies

List of Tools Needed for Project:

- Hammer
- Nail punch (for setting finish nails)
- Wood filler (for filling nail holes)
- Measuring tape
- Crosscut handheld saw (or other power saw such as a jigsaw with adult supervision)
- Carpenter square or combination square
- Drill with 3/4" and 1/16" bits

Helpful Information for Project:

- When purchasing lumber, the true width is ½" less and the thickness of the lumber is always ¼" less than stated. For example, a piece that is 1"x4"x 6' is really ¾"x3½"x6'.
- Check the cuts you make for squareness (90-degree angles)
- Measure and mark with a pencil and straightedge. Make cuts one at a time, measuring between cuts. (Measure twice, cut once.)
- Sand your cut pieces until smooth, starting with 100 grit and working down to 220 grit sandpaper
- Sand and finish the box as you wish, using stain or paint.



Constructing the Toolbox:

- 1. Cut the 1"x6"x24" into (2) 1"x6"x8" pieces. These two pieces are your end pieces that will hold the handle for the toolbox. (You will have a small piece leftover.).
- 2. (Drawing A) Take the two pieces you just cut and measure 2³/₄" over from one side of each board to the center of the board. The end you marked on each board is the top edge. Using a carpenter square, draw a line from the center of the top edge all the way to the bottom edge on both pieces.
- 3. Measure down this center line, starting at the top edge of the board, 2" and make a mark. Where you made the mark, drill a ¾" hole through both pieces. (Helpful hint: To keep the hole from chipping when the tip of the bit cuts through to the other side of the board, flip it over and drill the rest of the hole from the other side.) These two holes will hold the dowel rod handle.
- 4. (Drawing B) Now that the holes are drilled, measure along the top edge, 1" each way from the center line and make a mark. Then, measure down each side edge of the end pieces 4½" and make a mark.
- 5. Using your pencil and the carpenter square or straight edge, connect the pencil mark on the side of the board to the closest pencil mark on the top edge that is 1" from center. Repeat this on the other side of the board. Do this to both end pieces.
- 6. Cut along these two lines.

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7. Once the pieces are cut, sand the edges.





Constructing the Toolbox (continued):

- 8. (Drawing C) Cut the 1"x4"x24" board into (2) 1"x4"x10½" pieces. These pieces will be the sides of your toolbox.
- 9. Sand these two pieces to remove any splinters.
- 10. Drill 4 pilot holes using the 1/16" drill where the end and the side pieces overlap. Do this to both end pieces. Drill the holes so they are about ½" deep. Apply glue along the side piece where the end piece and side piece meet. Hold the edge of the side pieces where the glue has been applied against the back side of the end piece and nail it together using the 1¾" finish nails. Do this with both side pieces and end pieces until they form a box.



- **11**. Allow the glue to dry.
- 12. Once the glue is dried, slide the ¾"x12" dowel rod through the 2 holes you drilled. Check to make sure that one end of the rod is flush or even with the outside of one of the end pieces. Use a pencil to mark the rod where it extends past the face of the other end piece.
- 13. Cut the extra piece of the rod off so that each end will be flush or even with the outside of the end pieces.
- 14. Use wood glue to secure the rod through the holes that were drilled in the two end pieces. Make sure the rod is flush with the outside edge of the end pieces.
- 15. Once the glue is dry, use the 1/16" drill bit to drill a pilot hole to a depth of ½" directly above the rod in the end piece. Drive a 2½" finish nail from the top of the end piece into the rod. This will help keep the rod in place. Repeat this on the other end piece.
- 16. Once the box part of the toolbox is assembled, set it on top of the piece of plywood. Line up one end and one side of the toolbox with the edges of the plywood.
- 17. Use a pencil to trace along the edge of the other end and side on the plywood. The marks you made give you the exact dimensions for the plywood bottom.

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Constructing the Toolbox (continued):

- 18. Cut the plywood along these two lines and gently sand the edges of the plywood. The bottom of the toolbox is now ready to be attached.
- 19. Apply a layer of glue along the bottom sides and ends of the toolbox, and carefully position it on top of the plywood.
- 20. Using the $\frac{34}{}$ wire nails, nail the plywood bottom onto the toolbox.
- 21. Wipe off any excess glue and allow the piece to dry.
- 22. Once dry, sand all surfaces of the toolbox.
- 23. Finally, customize your toolbox by painting or staining it.



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Career Connections

Skills developed through this project have direct connections to many exciting and rewarding careers and lifelong hobbies. These include carpentry and cabinet making, construction, design, teaching, industrial design, interior design, theater set design, fine arts and crafts, and hardware sales. There are also opportunities to learn how to build and sell your own new products.

Disqualification in What Wood U Build:

- Not following the instructions listed under the project on page 2.
- Using a kit.
- Creating a design on the woodworking project that features culturally or racially insensitive images violating 4-H's values of respect, fairness, and caring and will not be permitted.
- Failing to have written permission if you use any logo or art design that is trademarked or copyright protected.

Community Service

Telling a great story, showcasing projects at a community library, speaking at a local nursing home, or organizing a community cooking or building blocks workshop are great opportunities to serve others. Serving others helps you build your academic skills, learn civic responsibility, and develop leadership. It may also give you a good opportunity to meet new people, publicize 4-H, and practice your communication skills. Alabama 4-H is now requiring all senior level 4-H members to add a community service component to all 4-H Competitive Events. Each senior level 4-H member will have to complete the 4-H Community Service Report as part of their project. 4-H members will be disqualified if the community service report is not included. Please note: 4-H members will be disqualified if the community service report is not included.

You must decide what service you can provide and not have a parent or 4-H leader make this decision for you. Groups of young people are encouraged to work together to discover how they can serve their community.

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Approved for use by **Doyle Keasal**, *Extension 4-H Program Specialist*, Auburn University. **New June** 2023, 4HYD-2241 © 2023 by the Alabama Cooperative Extension System. All rights reserved. **www.aces.edu**