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# Tool Tote Project

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Description:**

This project consists of building a small tool tote that is useful in the shop or garden. General skills used to build this project include drawing, measuring, laying out the project and cutting the materials. Nails and screws are used to fasten different parts together. Sanding is another important skill for this project as well.

**Materials:**

5d finish nails  
#6 x 1 5/8" course drywall screws (woodscrews)  
120 grit sand paper  
1" x 8" x 6' #3 pine (12' board makes 2)  
1" hardwood dowel  
Wood glue

**Tools:**

Table Saw  
Power Miter Saw  
Band saw  
Claw Hammer  
Nail set  
Portable Drill with Phillips driver  
#6 Countersink bit  
Drill Press  
1" Forstner Bit  
Combination square  
Steel Tape

**Procedure:**

1. Rip lumber to 4 1/2" and 6 1/2" width.
2. Cut the ends and bottom to length.
3. Layout the angles and center of the handle hole with a combination square.
4. Cut the angles on the band saw.
5. Drill the holes for the handle using the drill press and Forstner bit.
6. Cut the dowel to length. Hint: cut 1/16" long to insure a good fit.
7. Cut the sides to length.
8. Install the handle in the ends (no glue so it can be replaced).
9. "Dry fit" all the parts to be sure you have a good fit.
10. Assemble the ends to the bottom with nails and glue.
11. Assemble the sides to the bottom/ends with glue, nails and screws (see plan). Be sure to use the countersink to prevent splitting. Use the sides to square the ends to the bottom.
12. Counter sink all nails.
13. Sand and finish.
14. Use a short screw or nail to secure the handle.

**Cutting List:**

2	3/4"x6 1/2"x8 1/2"	End	#3Pine
2	3/4"x4 1/2"x17 1/2"	Side	#3Pine
1	3/4"x6 1/2"x16"	Bottom	#3Pine
1	1"x17 1/2"	Handle	Hardwood dowel

**Notes:**

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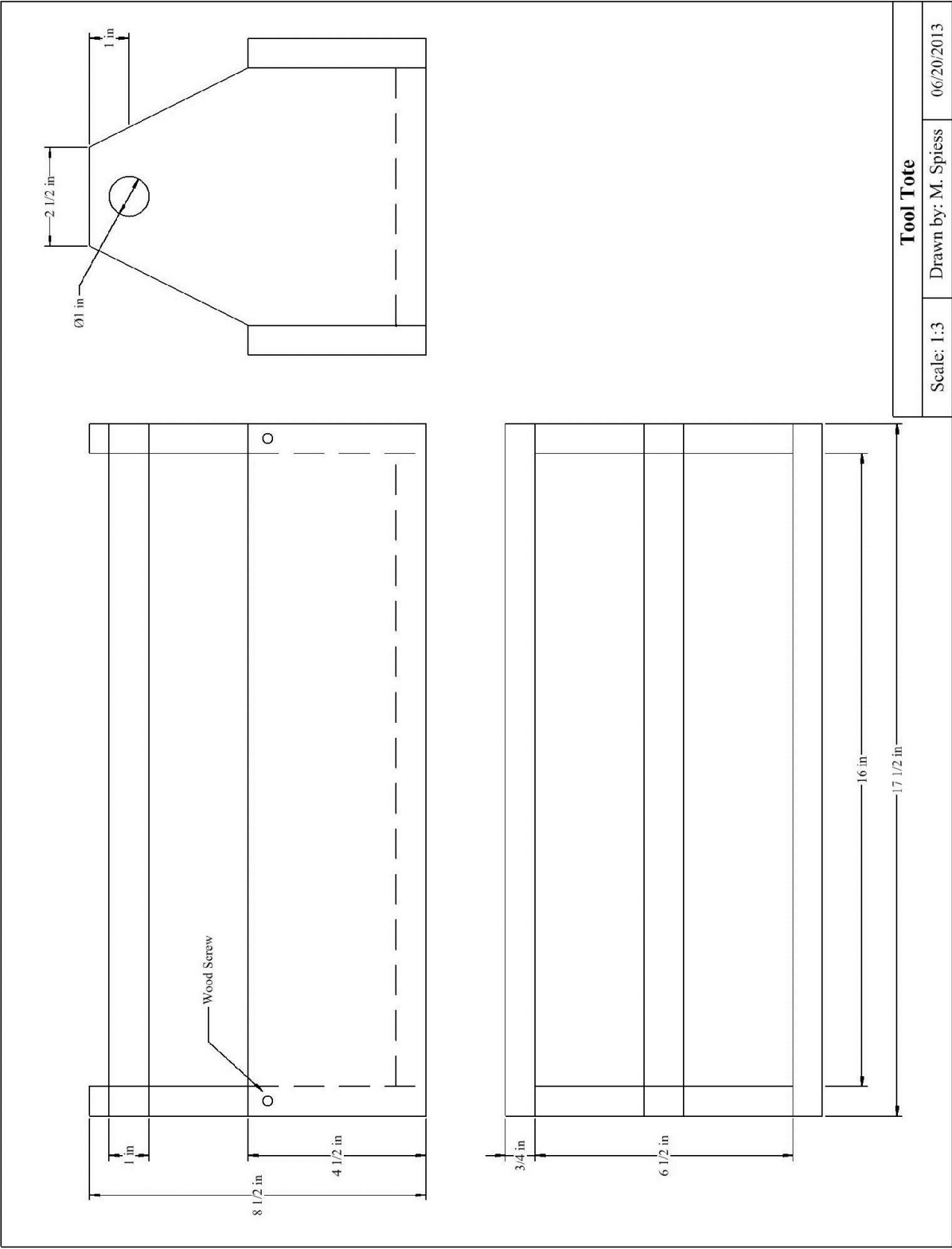
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**Photo/Drawing:**



## Pre-Building Worksheet

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Why is wood selection important for this project?
2. What nails specifically are used for this project?
3. Why is it important to use the countersink bit to drill holes before actually putting the screws in?
4. What type of bit is used to drill the holes for the handle?
5. What safety precautions must be observed when using the power miter saw?

### Grading Rubric:

<u>CRITERIA</u>	<u>POSSIBLE</u>	<u>SCORE</u>
Length	5	
End height	5	
Handle location	5	
Screws and nails are counter-sunk	5	
Workmanship (fit, cuts, sanding)	5	
TOTAL	25	

## Teachers Notes:

### Agricultural Standards Met:

- 6.0 Health and Safety. Students understand health and safety policies, procedures, regulations, and practices, including the use of equipment and handling of hazardous materials:
- 6.1 Know policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities.
  - 6.2 Understand critical elements of health and safety practices related to storing, cleaning, and maintaining tools, equipment, and supplies.
  - 6.4 Maintain safe and healthful working conditions.
  - 6.5 Use tools and machines safely and appropriately.
  - 6.6 Know how to both prevent and respond to accidents in the agricultural industry.
- B1.0 Students understand personal and group safety:
- B1.1 Practice the rules for personal and group safety while working in an agricultural mechanics environment.
  - B1.2 Know the relationship between accepted shop management procedures and a safe working environment.
- B2.0 Students understand the principles of basic woodworking:
- B2.1 Know how to identify common wood products, lumber types, and sizes.
  - B2.3 Know how to identify, select, and implement basic fastening systems.
  - B2.4 Complete a woodworking project, including interpreting a plan, developing a bill of materials and cutting list, selecting materials, shaping, joining, and finish-ing

### Objectives:

By properly completing this project, students will be able to:

- Read a plan and implement layout dimensions.
- Fasten all components together using nails and screws.
- Select kinds, grades, and quantity of lumber for a given task.
- Demonstrate proper use of common woodworking power tools.

### Alternative Tools/Methods/Materials:

This project could be built entirely using nails or woodscrews, instead of incorporating both. However, by using two different methods, the students get to demonstrate their knowledge with multiple skills instead of only using one.

The project can be altered to use 1" x 6" for all pieces. This removes the need to use a table saw. With 1" x 6" lumber the project can be built with hand tools. See alternate plan below.

### Safety Review:

- Safety Glasses
- Table Saw Safety
- Miter Saw Safety
- Drill Press Safety

- Band Saw Safety
- Proper use of tools (hammer, drill)

### Project Time:

Demonstration:	15-25 minutes
Build:	1-2 hours

### Demonstration Notes:

1. Rip 1 x 12 ahead on the table saw if you don't want students to use the table saw. Ripping 12' pieces is more efficient than 3' pieces.
2. Identify all the tools and materials you will be using. It is good to reinforce this even if it is not your first wood project.
3. Cut a 3' piece of each width. Talk about where knots might fall and plan accordingly.
4. Demonstrate how to cut the square pieces using the power miter saw. Explain that they must mark and cut, mark and cut because of the saw kerf.
5. Using the combination square to layout the ends.
6. Demonstrate the use of the band saw and drill press to complete the ends. On the drill press explain the need to place a scrap under the work to prevent splitting.
7. Demonstrate a "dry" fit of the parts to insure everything fits OK.
8. Assemble in the order of the directions. Key here is to place the handle in the ends first (hard to install later). Show how the grain runs in the handle. It should be installed with the grain vertical for strength. Handle can be held in place with a #6 x 3/4" screw or a brad. Pre-drill for the screw so the dowel will not split.
9. A solder flux brush works well to spread glue. You don't need much! Have a damp rag handy to wipe of excess.
10. Install the screws last. Demonstrate the use of the countersink. It is useful to use two battery powered drills. One with a screw bit and one with the countersink. Screws should be slightly countersunk to avoid sanding.
11. Demonstrate countersinking the nails just below the surface so they are not sanded.

### Bill of Materials:

Projects:		24					
Size	Description	Units	Qty/Project	Cost/Unit	Order	Amount	
1"x12"x12'	#3 Pine	each	0.25	\$18.00	6	\$	108.00
1 5/8"	Drywall Screws #6	1lb box	0.02	\$6.47	1	\$	6.47
5d	Finish Nails	1 lb box	0.01	\$3.47	1	\$	3.47
	Elmer's Wood Glue	16 oz.	0.0025	\$4.99	1	\$	4.99
1" x 36"	Hardwood dowel	each	0.5	\$ 2.50	12	\$	30.00
					TOTAL		\$152.93

Project and plan by Mike Spiess.

Alternate Plan with 1" x6" lumber

