

STATIONARY POWER TOOLS

I understand that my son will be learning about stationary power tools under the supervision of his counselor. I hereby give my permission for _____ to operate these tools under his counselor's supervision.

signature • circle one: parent / guardian



1. Learn the following safety rules. It is not necessary to memorize them word for word, but you do need to know what they mean and clearly understand their importance.

- Always wear approved personal safety apparatus such as safety glasses, earplugs, and a dust mask. It's good to have goggles or face shields for operations that really throw chips.
- Before operating any machine, remove all loose clothing, roll sleeves up above the elbows, and confine long hair. Do not wear coats. **DO NOT WEAR GLOVES.** Always wear shoes, no sandals or crocs. Remove jewelry and watches.
- Keep the machine guards in place at all times.
- Make sure that the motor switch is in the OFF position before connecting the machine to the power supply. Always unplug any machine before changing cutters and blades. Make sure all adjustments and changes are tightened properly.
- Be aware of the kickback zones. Take every precaution to protect yourself and others around you.
- Use push sticks, hold-downs and featherboards when possible. Use suitable support if the stock does not have a flat surface. Make sure all material is held firmly on the table and against any fence.

- Never remove scraps until the blade or cutter has come to a COMPLETE stop.
- Never leave a machine running and unattended.
- If a machine is not performing properly, or is out of adjustment in some way, shut the power off immediately, unplug the machine, and seek assistance.
- Power tools can only be used with a counselor or other knowledgeable adult.
- Never cut a piece of wood less than 12" (30.5 cm) and keep fingers at least 3" (7.6 cm) from blade. (Most new machines have a safety zone near the blade that is marked.)

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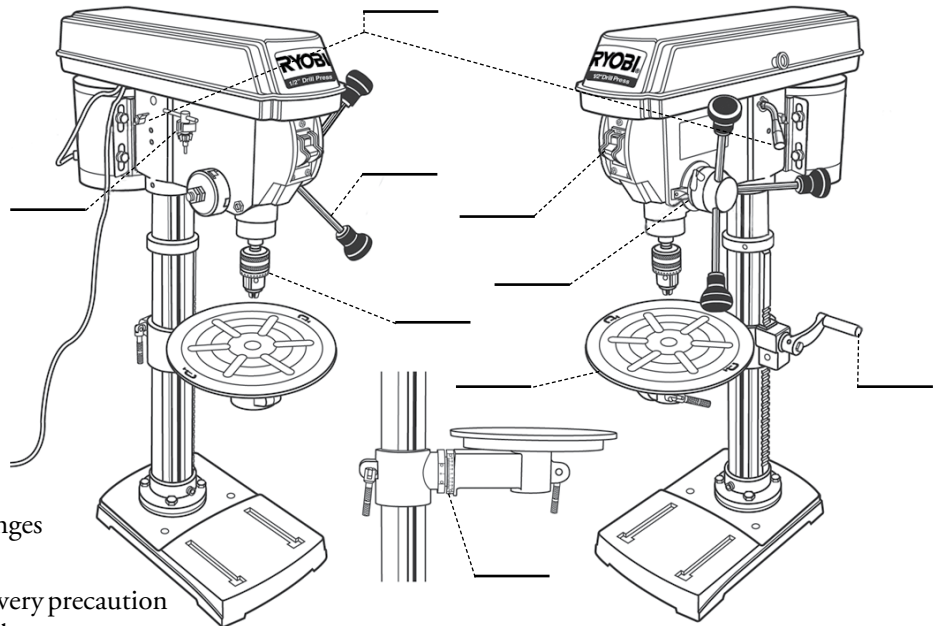
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2. Select three of these four stationary power tools to work with to earn this merit badge. Answer the questions in this "Learning" section and perform the work in the "Doing" section for those three tools.

a. Drill Press

1) Find and identify the following parts of a drill press on the drawing and on an actual drill press. Tell your counselor what each part is used for.

- | | |
|------------------|---------------------|
| a) on/off switch | f) feed handles |
| b) depth gauge | g) table adjustment |
| c) miter gauge | h) speed adjustment |
| d) worktable | i) chuck key |
| e) chuck | |



2) Learn the safety rules specific to a drill press.

- Clamp stock.
- Use a backer board under the material you are drilling.

- Remove the chuck key before starting the machine.
- Remember this rule: The larger the bit, the slower the speed; the harder the material, the slower the speed.

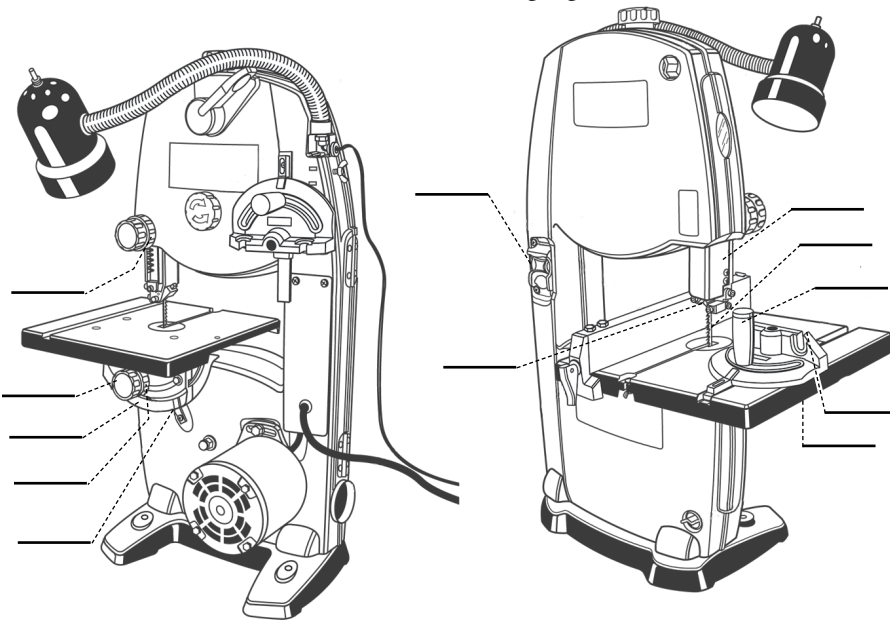
3) What is the main purpose of the drill press?

4) Why would you use a drill press rather than a handheld drill? _____

b. Bandsaw • A bandsaw is an electric or pedal-driven saw with a long, narrow, flexible band (blade) of toothed metal. The band rides on two wheels in the same vertical plane with a space between them. Bandsaws can be used for cutting wood, metal, or a variety of other materials. They are particularly useful for cutting irregular shapes. The radius of a curve that can be cut with a particular saw is determined by the width of the band or blade.

1) Identify the following parts of a bandsaw on the drawing and on an actual bandsaw, and explain the use of each part.

- | | |
|--------------------|--------------------------|
| a) on/off switch | g) blade guide knob |
| b) blade guard | h) blade guide assembly |
| c) scale | i) table lock knob |
| d) saw blade | j) scale indicator |
| e) bandsaw table | k) angle adjustment knob |
| f) lock knob/lever | l) miter gauge |

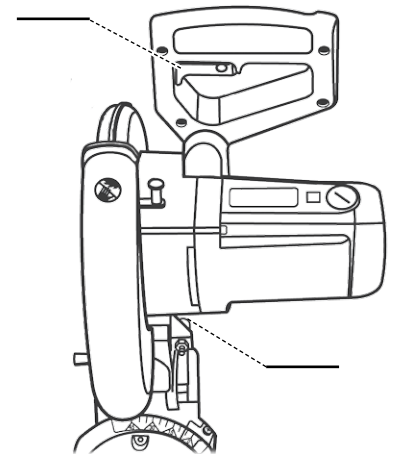
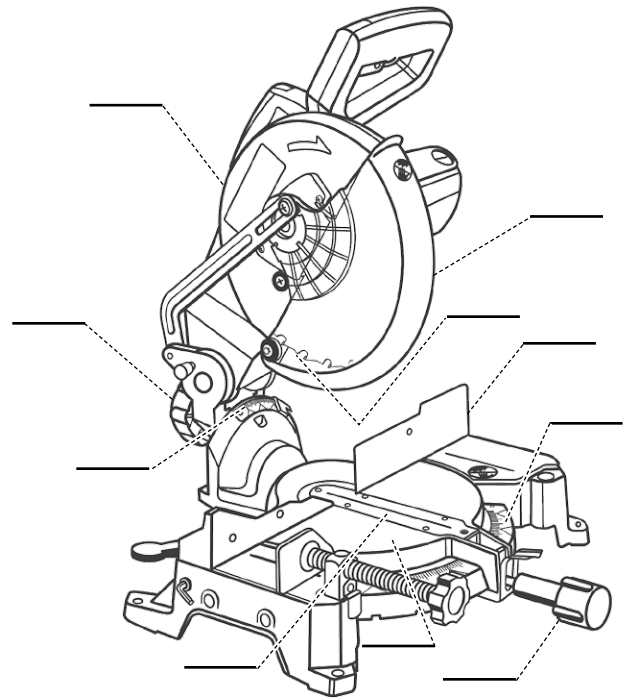


2) Learn these bandsaw safety rules.

- Stock must rest on the table.
- The blade guard should be positioned 1/8" (3.2 cm) above the material being cut.
- When appropriate, near the end of your cut, either use a push stick or pull the stock through from behind.

c. Compound Miter Saw • This power tool can be used to make miter cuts on stock.

1) Identify the following parts (list on next page) of a compound miter saw on the drawing and on an actual saw, and explain to your counselor the importance and use of each of these parts.



- a) on/off switch
- b) fence
- c) miter table
- d) bevel scale
- e) miter scale
- f) miter lock handle
- g) upper blade guard
- h) lower blade guard
- i) bevel lock handle
- j) depth adjustment
- k) throat plate
- l) blade

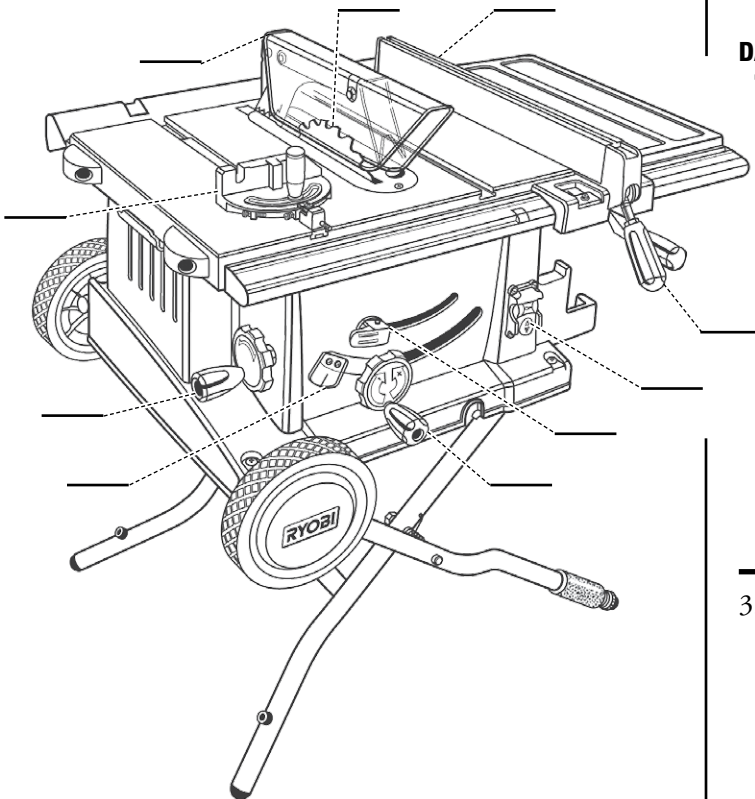
2) Learn these compound miter saw safety rules.

- Keep your stock firmly against the fence.
- Take note of your hand placement before you press the trigger and pull the saw.
- Pull or depress the saw slowly, return it back to its starting position, and allow the blade to stop before removing stock.

d. **Table Saw** • A table saw is used to make various straight cuts in wood. It can be used to rip wood, to make miter cuts, and to make exact cuts.

1) Identify and give the purpose of the following items of the drawing and on an actual table saw.

- a) on/off switch
- b) bevel indicator
- c) rip fence
- d) miter gauge
- e) saw blade
- f) bevel handle
- g) bevel locking lever
- h) blade guard
- i) rip fence locking lever
- j) blade adjusting handle
- k) push tool (not shown)



2) Learn the following table saw safety rules.

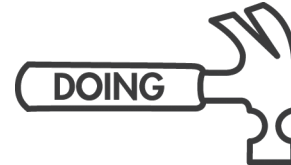
- Don't stand directly behind the blade.
- Don't use both the fence and the miter gauge at the same time.

TOOLS SELECTED (choose three of four)

- drill press
- bandsaw
- compound miter saw
- table saw

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Fulfill the requirements for the same three tools that you selected in the "Learning" section.

1. Drill Press

- a. Demonstrate the correct procedure for installing a drill bit into the drill chuck and adjust table.
- b. Show the proper hand positioning and support of board while drilling.
- c. With the help of your counselor, drill the necessary holes in a small board to make a peg-solitaire jumping game (using golf tees for pegs).

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2. Bandsaw • A bandsaw's main purpose is to cut wood in various angles and designs. Knowing this, complete the following:

- a. Demonstrate how to adjust the table to various angles, how to tighten the blade, and the proper use of the blade guide.
- b. Watch your counselor cut the following letters in a 1/2" (1.2 cm) pine board.

E F H M N

- c. After your counselor has demonstrated cutting these letters, cut the same letters.

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3. Compound Miter Saw

- a. Watch as your counselor demonstrates the following cuts, uses the safety precautions, and makes the adjustments required to make the cuts
 - square cut
 - 45° cut
 - 30° bevel cut
 - compound miter cut — 45° miter and 30° bevel

- b. Duplicate the cuts your counselor did, taking care to turn off and unplug the machine each time, as your counselor did.
- c. Demonstrate how to remove, install, and clean a saw blade. Explain what type of blade to use for various materials.

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4. Table Saw

- a. With the saw unplugged, demonstrate the use of the following table saw parts:
 - rip fence
 - blade adjusting handle
 - miter gauge
 - table tilt handle

- b. After your counselor demonstrates making the following cuts with a table saw, demonstrate your ability to follow the safety rules and duplicate the same cuts.
 - rip cut
 - cross cut
 - miter cut

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MERIT BADGE APPROVED BY

MERIT BADGE COMPLETED ON

