Safety Test Study Guide

The following behavior is **NOT** acceptable in the shop:

- Running.
- Sliding down the stair rail.
- Wrestling, boxing, or generally touching other people.
- Napping or putting your head down on the tables.

When not in use, vises should be kept closed, with the handles down.

If at any time you are unsure about a safety-related procedure, ask the teacher for help.

Safety glasses are to be worn when operating any power tools.

Inappropriate attire in the shop includes:

- open-toed shoes and sandals.
- everything forbidden in the rest of the school.
- long necklaces, bracelets, string ties, and chains
- long loose sleeves and long loose hair.

The proper care of used oil-based finish rags is to soak them with water and then put them in the approved metal container.

Apply stains and finishes in the finish room with the fan on.

The Golden Rules of Woodshop Safety

(These rules apply to EVERY machine in the woodshop)

1. **PPE** (Personal Protective Equipment): Safety Glasses, Ear Plugs, Safe, appropriate clothing, ETC.
2. You must pass the **SAFETY TEST with a 90% or better** and be signed off before using any machine.
3. **4- INCH RULE**: NEVER get closer than 4” to any blade or bit that is in motion. Whether the machine is on or off!
4. **12 inch rule**: boards must be longer than 12” to go through the table saw, miter saw, surface sander, and surface planer.
5. **Full speed ahead**: let the machine reach full speed before you start the cut and never start a machine while it is touching your stock.

6. **Unplug or get slugged (bit by the tool)**: unplug the tool before changing bits, blades, or settings.
7. **Gaps are bad**: avoid gaps between the fence and stock on any tool or project.
8. **Hands inside the ride**: keep hands inside the scope of the machine while making cuts. This gives you better control while machining.
9. **KNOW** what you are doing **BEFORE** you start the machine.
10. Complete **CONCENTRATION** on the cut being made.
11. No yelling: except in the case of an emergency

To remove scrap from a machine, use a bench brush, ***but only after the machine has stopped.***

It is important to return hand tools to their proper place in the tool room when you are done using them because:

- It lets other people know it is available for use.
- It saves time for everybody if they don't have to search for it.
- A clean shop is a safe shop.
- It is expected of you.

MP3 players are not allowed in the shop.

Cell phones are to be turned off and out of view.

Backpacks should be stored by the front door, not on the tables. They are a tripping hazard.

When handling large sheets of **melamine** during deliveries or cutting procedures:

- use a partner to help with the sheet.
- be very careful with the corners because they can break off easily.
- be very careful with the edges because they can cut you like a ragged blade.

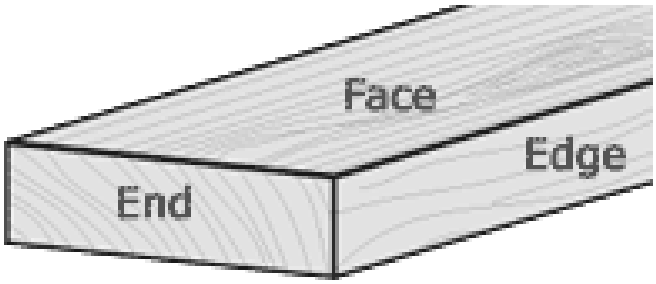
Yellow lines on the floor indicate and define machine operator "only" areas.

Scrap wood **under 10"** in length should be put in the scrap bin as soon as you are done with your cuts.

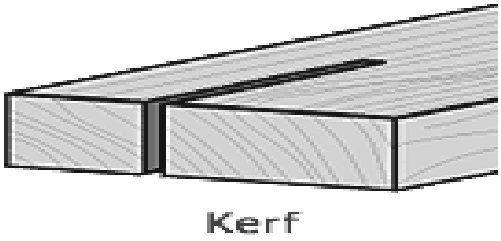
When gathering clamps at a work table for use, lay them flat on the table.
Do Not Lean them against the table!

I'M Board

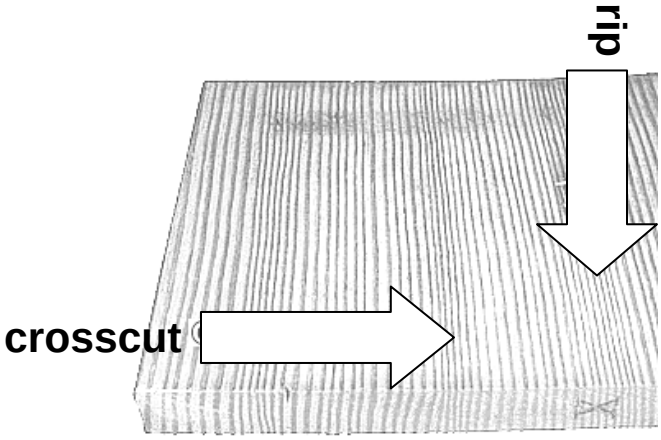
Wood grains react differently to cutting. Be sure the machine you are using and cut you are making is appropriate for the grain of the board.



- **Face** grain is typically softer with a larger, flat grain pattern.
- **Edge** grain is typically tighter and a little harder.
- **End** grain is VERY HARD and shows the growth rings of the tree.



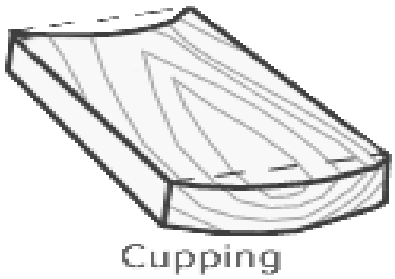
A **Kerf** is a cut made in the board that is the equivalent of the saw's blade width.



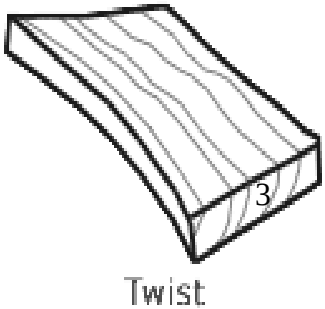
A cut made **across** the grain of a board is called a **cross cut**

A cut made **with** the grain of a board is called a **rip cut.**

In the woodshop, he term "**stock**" refers to the wood material you are machining.



Sometimes a board might be **cupped, warped**, or **twisted**. When working with a board like this, make sure the board is positioned in a stable manner



when milling it with an appropriate machine.

The humped portion of a cupped board is called the crown. This cupped board is illustrated with the **crown** down.
Be sure the dust collector is ON when running any machine that is connected to it!

Powermatic 15” Surface Planer

The first steps in using this planer are to:

1. Measure the thickness of your stock.
2. Set the planer to 1/16” less

The minimum length of board that should be planed is 12”.

The planer is **NOT** designed to surface particleboard and plywood, **only solid wood** may be put in the planer.

The planer is primarily designed to surface **face grain**.

The most that should be removed on the first and any subsequent pass through the planer is **1/16**”.

If the stock becomes stuck during surfacing, the first thing you should try is to lower the table.

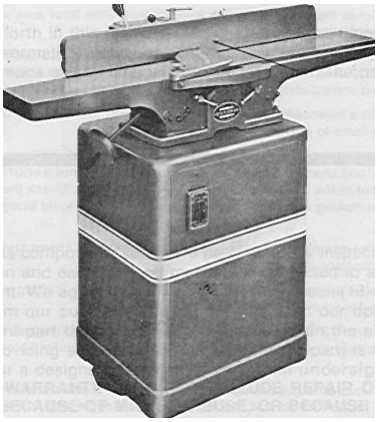
Before using the planer, make sure that:

- The stock is clean and free of nails, staples, or excessive glue.
- The dust collector is on.
- Your fingers are on the top of the board.
- The crown is up.

If your stock will not pass through the planer it might be because:

- The planer is not set to remove enough material.
- The planer is set to remove too much material.
- The feed rollers are not turned on.
- The board is less than 12” in length

Jointer



Primarily, the jointer should be used only on **edge grain.**

Typically, two pushsticks are needed to joint a piece **less than 4” wide**.

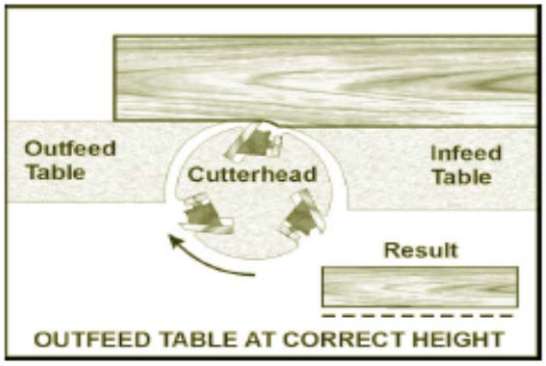
Before using the jointer, check the guard operation, depth of cut, and the square of the fence.

The jointer will not make two edges of a board parallel.

Minimum length of board that should be jointed is **12”.**

When deciding which part of a board to joint, you should generally choose the **bowed edge (concave edge).**

If properly adjusted and used, the jointer will make an edge straight and square to the face.



Move the stock from right to left, from the infeed to the outfeed table.

Keep your hands above the fence line or use pushsticks to feed the board through.

Tablesaw

The first two settings you should check before using the tablesaw are the **blade height** and **angle.**

The tablesaw blade height should be set **no higher than** ¼" **above** the top of the stock being cut.

The blade on the tablesaw can tilt from 0-45 degrees.

To start the *SawStop* tablesaw:

1. The power switch must be in the "**on**" position.
2. A **solid green light** on the switch box means the system is ready for use.
3. **Gently** pull the start/stop paddle out at the bottom to start the saw.

This image shows the blade covered with the guard. This is the set-up students will use for most cuts.

This image shows the blade with only a riving knife.
This is a set up for thin rips (under 1”).
You **MUST HAVE TEACHER PERMISSION** to use this set-up!

Figure 1 Correct use of rip fence.

Figure 2 Correct use of miter gauge.

In **most** tablesaw ripping operations, the piece you want to **keep** should be **between** the blade and the fence, or in other words, **set the saw up to cut the piece you want to keep.**

Whether using the rip fence or the miter gauge, **push only on the main portion** of the board.

Always use a pushstick when ripping stock that will bring your fingers closer than 4” to the blade.

The shortest allowable board that may be ripped on the table saw is 12”

When using the **tablesaw rip fence**, the board that you are cutting should **be longer than it is wide.**

When using the rip fence, the best place to stand is **left or right**, depending on where you have the **best** control of the stock and are **least** likely to be hit by a **KICKBACK!**

When **cross cutting** narrow stock on the tablesaw, use the miter gauge.

It is okay to use the fence and the miter gauge **together** on the tablesaw **only when the fence and the miter gauge** are on the **same** side of the blade.

NEVER attempt to make freehand cuts on the tablesaw.

The job of the "tail off" person is to help **support** large pieces.

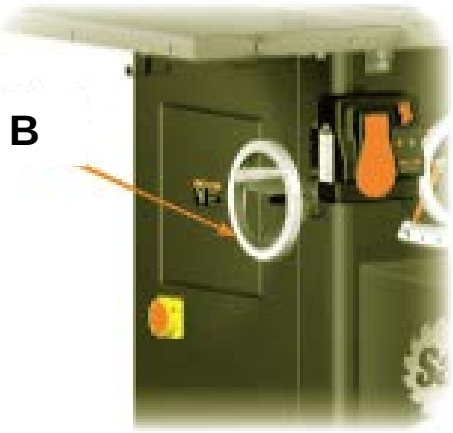


Figure A **Elevation hand wheel.** Figure B **Tilt hand wheel**

If the board becomes jammed while cutting you should **hold the board stable with one hand and turn the saw off with the other.**

If a board won't go through the saw it might be because:

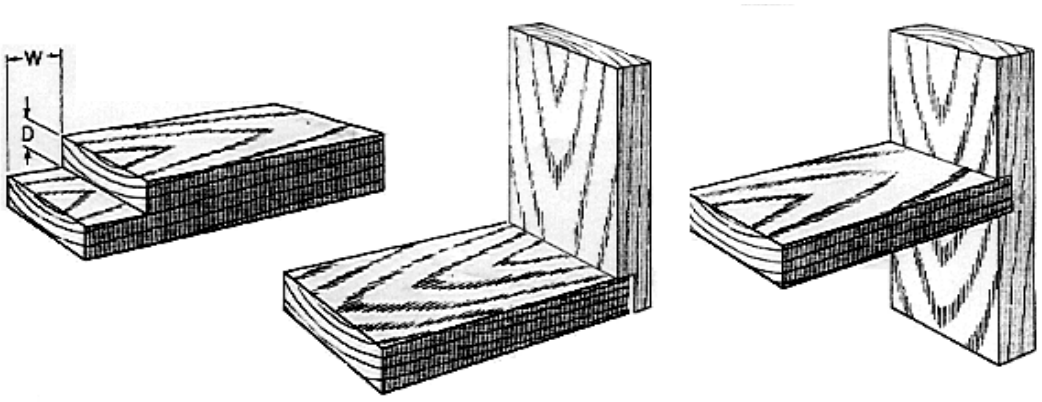
- The blade is not high enough.
- The grain is aggressive and the kerf is pinching down on the splitter.
- There is scrap stuck in the guard.
- The board is unstable.

Never attempt to remove scrap from the tablesaw guard **while the saw is spinning**.

When selecting a pushstick for use on the tablesaw:

- Check to see if the pushstick has a heel to control the stock.
- Use an appropriate pushstick for the cut you are making and that gives you the **best** control of the stock.
- Wider is better for wider stock.
- Narrower is better for narrow stock.

Tablesaw – Rabbets and Dados



Rabbet **Dado**

If you are using the stacked dado blade, you **MUST**:

- use **BOTH** the outside blades.
- line the first chipper up with the gap in the first blade.
- offset/stagger each chipper from the chipper next to it.

You **MUST** have the teacher approve **ALL** rabbet and dado set-ups before proceeding.

When setting up for a rabbet cut:

- Make sure the correct throat plate is on.
- Double check to make sure the blade is not touching the fence.
- Stand away from the “on” switch and other people.

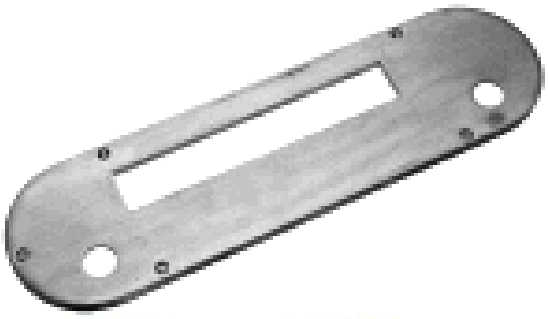
When setting up a dado or rabbet, the teeth of the blade should point towards you.

Except for one special chipper, all of the pieces in the stacked dado blade cut **1/8**" wide.

Outside Blades

Chippers

Throat Plate



Brake Cartridge

When switching between dado/rabbet cuts and standard saw cuts, the appropriate brake cartridge will also need to be inserted.

When making a dado cut, you must keep **pressure** against the fence **all the way through the cut.**

When making a dado cut, you should:

- Make a least two passes and make sure the cut is complete.
- Make the cut *slowly*.
- Hold the board firmly, using the correct pushstick(s) as necessary.

The dado blade has a tendency to push the stock **up and back.**

Primarily, dado and rabbet cuts should be limited to a **depth of ¼" or ½ the thickness** of the stock.

Mitersaw

Standard Mitersaw

This saw pivots from a single point with the blade always cutting square (90°)to the table. Typically, this saw is used to cut miters across the width of a board by swinging the saw table to the left or to the right. In this case, the face of the board lies flat on the saw table with the edge tight against the fence. A standard mitersaw also can cut a bevel with the board on edge and with one face held against the fence. This saw can crosscut up to 5”

Compound-Mitersaw

This saw can cut miters like a standard mitersaw, but the blade and motor assembly also can flop over to one side, allowing you to cut a bevel with the face of the board lying flat on the table. You also can cut a miter and a bevel at the same time. A compound miter which is used for joining crown molding as well as for framing roofs and cutting stairs. This saw can crosscut up to 8”

Sliding Compound-Mitersaw

This tool can cut miters, bevels and compound miters like a compound-miter saw. Instead of a fixed pivot point, however, the blade and motor assembly can slide forward and back on a rail. A sliding saw can cut significantly wider stock than a fixed-head saw. This saw can crosscut up to 12”.

Material to be cut on the three types of mitersaws in our shop should always be **laid flat on the base and tight against the fence.**

The mitersaw in our shop can cut **accurate** miters up to 45-degrees, left or right.

Mitersaws are a good choice for safe and **accurate cross cuts.**

The **difference** between a mitersaw and a compound mitersaw is that the **compound mitersaw can cut two angle planes simultaneously.**

The sliding compound mitersaw is designed to cut on the **push stroke.**

The **widest** board you may cut on the standard **10" mitersaw** is **5"**

The **widest** board you may cut on the **12" compound mitersaw** is **8".**

The **widest** board you may cut on the **10" sliding compound mitersaw** is **12".**

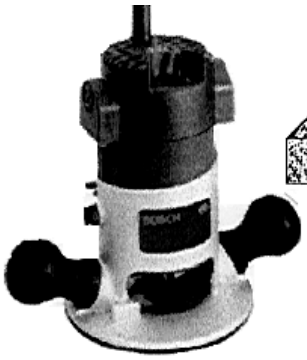
To make an accurate cut to length on the mitersaws, first square up one end,by cutting it on the saw, then draw a line on the stock and carefully line up the blade before making the cut.

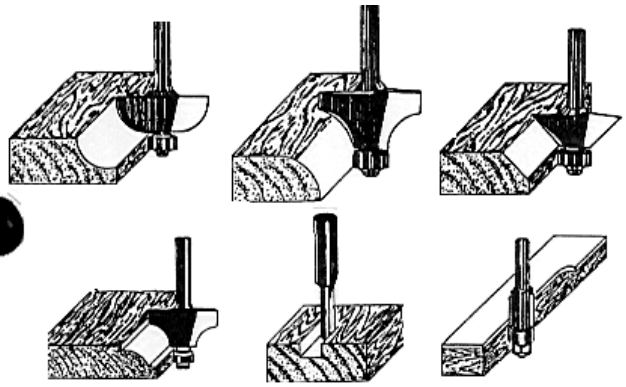
Before starting a cut with the mitersaw, let the blade come to full speed.

When using the mitersaws:

- Pay attention to what side of your pencil line the blade is on, otherwise you might cut the piece too short by the width of the blade.
- The operator **MUST** verify that the blade guard is returning back over the blade after each cut.
- Cutting too fast with a mitersaw can result in the saw pulling and/or throwing the board.

Router





When making the first pass with the router, feed the stock **against** the rotation of the bit.

When using the router;

- Either the router (table) or the stock must be clamped.
- Always unplug it before changing bits.
- The guide wheel **MUST** have something to ride against.
- Two passes are usually required for a clean cut.

To ensure success when using the router**, run a test piece** to see if the bit and setting are what you want.

Bandsaw

The first thing you should do before using the bandsaw is adjust the upper guard wheel to within ¼" **of the stock.**

It is possible to pull the blade off the saw when backing out of a cut carelessly.

When cutting curves or tight turns, make a series of relief cuts to ease pressure on the blade.

If the blade breaks while you are using the bandsaw,
turn off the saw, step back, and notify the instructor.

Sanders

The spindle sander is best used for sanding inside curves.

The **disc** portion of the belt/disc sander should be use on the down rotation.

The **belt** portion of the **belt/disc sander** is best used for sanding straight lines

The **belt** portion of the sander is best used for sanding straight lines.

The **disc** portion of the sander should be used on the down rotation for sanding outside curves and straight ends.

The **belt/disc** and **spindle** sanders can injure you. The 4" rule applies to these machines!

Hand Tools

When using the **palm sander:**

- Unplug the sander before changing paper.
- Make sure it is in the "off" position before plugging it in.
- Take care not to sand over the cord.
- Unplug it by holding the receptacle, not the cord!

When using the **portable drill**, make sure:

- Smaller stock is clamped.
- The bit has been tightened.
- The direction switch is in the "forward" position.
- Hold firmly and don't drill too far.

If the stock becomes stuck on the drill bit, reverse the direction switch and back out slowly.

Pneumatic Nailers and Staplers

Brad Nailer

Stapler

When using the pneumatic nailer or stapler:

- Be sure of the depth and direction of the nail or staple.
- Be aware of air discharging every time you fire.
- Treat the nailer / stapler like a loaded gun, be careful of the direction it is pointing
- Discharging the nailer / stapler at anyone could result in expulsion and criminal charges.

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If a nail or staple becomes jammed in the gun, the most important thing to do is ***disconnect the hose*** before looking for the obstruction.

The typical order in which you would mill a rough board is to ***plane, joint, rip, crosscut.***

The following rules apply to every machine in the shop.

- Concentrate on the task at hand, or you might lose one.
- Never let your hands get closer than 4” to any blade or bit.
- Be sure that the line of cut is free of nails, staples, and debris.
- Know what you are doing **BEFORE** you start the machine.