

# Machine tool safety info



This booklet is modified from the excellent information available on Newfoundland and Labrador's Department of Education Website. For more, info see:

<http://www.ed.gov.nl.ca/edu/k12/curriculum/documents/skilledtrades/index.html>

More machine tool information is available online.



# Bandsaw information



**complete  
your  
training**



**wear  
safety  
glasses**



**get  
a  
spotter**

Operate only with the instructor's permission and after you have received instruction.

Remove jewelry, secure loose clothing, and confine long hair.

Always use personal protective equipment (PPE) and proper eye protection.

All materials should be inspected for defects such as warps, knots and foreign objects.

Keep safety guards in place. Upper guide should clear stock by about 6 mm (1/4").

Make curved cuts gradually and use relief cuts for tight radius curves.

Never back out of curved cuts while machine is still running as this will result in the blade coming off. (You must wait until blade comes to a complete stop).

Make all cuts on the waste-side of the line.

Always keep your hands on the sides of the blade while operating.... never in front of blade!

Maintain a well-balanced position and feed work into blade firmly, but without pushing too hard.

Never start the machine with stock touching blade, never reach under the table, and never perform layout or setup on the table.

Turn machine off and disconnect from power source before installing or removing accessories, when finished cutting, before adjusting or changing set-ups, or when making repairs.

If blade breaks during operation immediately stop the saw, leave the stock where it is, unplug the saw and report the incident to the teacher.



# Biscuit joiner information



**complete  
your  
training**



**wear  
safety  
glasses**



**wear  
hearing  
protection**



**get  
a  
spotter**

Always obtain the teachers permission prior to using the joiner.

Always wear appropriate Personal Protective Equipment (PPE).

Confine any long hair, secure loose clothing and remove jewelry.

Avoid accidental starting. Be sure switch is off before plugging in.

Do not carry tool with your finger on the trigger.

Remove the power cord when changing the blade or performing regular maintenance.

Remove any adjusting keys or wrenches before turning power on.

A joiner ejects dust and wood chips at a high rate of speed, keep your face away from the chute and wear safety glasses. If equipped, ensure dust collection bag is in place.

Do not overreach. Keep proper footing and balance at all times.

Use clamps or other practical ways to secure the work piece.

Make sure the blades are sharp.

Check the operation of the guards before using the tool.

Do not disable any anti-kickback points on the faceplate. Make sure they are engaged in the work piece.

Keep hands away from blade when cutting.

Never hold the work piece in your hand.

After you cut, retract the blade fully and wait for it to stop.



# Circular saw information



**complete  
your  
training**



**wear  
safety  
glasses**



**wear  
hearing  
protection**



**get  
a  
spotter**

Operate only with the instructor's permission and after you have received instruction.

Remove jewelry, secure loose clothing, and confine long hair. Make sure all guards are in place and operating properly. Always use proper eye protection.

All materials should be inspected for defects such as warps, knots and foreign objects.

Avoid accidental starting. Be sure switch is off before plugging in. Do not carry tool with your finger on the trigger.

Remove the power cord when changing the blade or performing regular maintenance. Remove any adjusting keys or wrenches before turning power on.

Keep your body to the left side of the blade, never in line with the saw blade just in case of kickback. Maintain a firm grip with both hands on the saw to allow you to resist kickback forces. Keep your hands away from the cutting area and blade.

Always cut in a straight line. Never reach underneath the piece of work. Never operate a circular saw over your head.

Start a circular saw with the shoe in contact with the stock, but the blade clear of the stock.

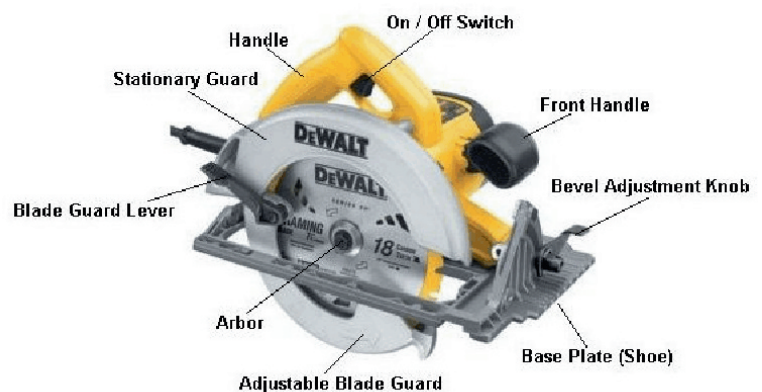
Always clamp the work piece to a bench or saw horse. Never hold the piece being cut with your hands or across your legs.

When blade binds, or when interrupting a cut for any reason, release the trigger and hold the saw motionless in the material until the blade comes to a complete stop. Never attempt to remove the saw from the material or pull it back while the blade is in motion.

Always work with a sharp blade. Never use dull or damaged blades.

Always ensure you know where your power cord is in relation to your saw.

The weight of your saw should always be on the clamped side of your stock.



# Drill press information



**complete  
your  
training**



**wear  
safety  
glasses**



**DO NOT  
wear  
gloves**



Operate only with the instructor's permission and after you have received instruction.

Remove jewelry, eliminate loose clothing, and confine long hair.

Make sure all guards are in place and operating properly.

Always use proper Personal Protective Equipment (PPE's) such as eye protection

All materials should be inspected for defects such as warps, knots and foreign objects.

Do not wear gloves.

The belt guard should always be in place.

Clamp work to the table and long stock should be placed to the left to avoid being struck by the material if a jam occurs.

Make sure the chuck key is removed from the chuck before starting.

Make all adjustments with the power off and machine unplugged.

Adjust the table depth stop to avoid drilling into the table.

Never perform setup or layout work on the table.

Make sure that the drill bit or cutting tool is secure in the chuck and in good condition.

Use the recommended speed for the material you are drilling. (the harder the material the slower the speed).

When finished shut off power, remove drill bit or cutting tool and clean up debris.



# Hand drill information



**complete  
your  
training**



**wear  
safety  
glasses**

Operate only with instructor's permission and after you have received instruction. Remove any jewelry, secure loose clothing, and confine long hair. Always use proper eye protection.

All materials should be inspected for defects such as warps, knots and foreign objects.

Before using a powered hand tool insure that the work area has been inspected for workplace hazards (e.g. water hazards, aluminum ladders)

Hold tool by insulated gripping surfaces when performing an operation where the tool may contact hidden wiring. Contact with a "live" wire will also make exposed metal parts of the tool "live" and shock the operator.

Stock being drilled should be secured to a work bench or other structure.

Never use excessive force on the power tool. Use proper bit for proper material. (Masonry vs wood vs metal) Do not overreach. Keep proper footing and balance at all times.

Do not use the power tool if the switch does not turn it on and off.

Disconnect the plug from the power source and /or the battery pack from the power tool before making any adjustments, changing accessories or storing power tools.

Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation.

Do not abuse the cord. Never use the cord for carrying, pulling, or unplugging the power tool.

Remove any adjusting key or wrench before turning the power tool on.

Wear ear protectors with impact drills. Exposure to noise can cause hearing loss.



# Jigsaw information



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your  
training**



**wear  
safety  
glasses**



**get  
a  
spotter**

Operate only with the instructor's permission and after you have received instruction.

Remove jewelry, eliminate loose clothing, and confine long hair.

Make sure all guards are in place and operating properly.

Always wear safety glasses.

All materials should be inspected for defects such as warps, knots and foreign objects.

Avoid accidental starting. Be sure switch is off before plugging in.

Do not carry tool with your finger on the trigger.

Removing adjusting keys or wrenches before turning tool on.

Do not overreach. Keep proper footing and balance at all times.

Always clamp work piece to the bench or stable platform making sure the bench is clear of the cutting path.

Do not force tool. Keep blades sharp and never use dull blades.

Should a jigsaw get stuck in a material while cutting, you should stop the saw, unplug it and safely remove the blade. Clean out the kerf and start again.

Allow tool to come to a complete stop before withdrawing blade from the kerf. A moving blade may come into contact with the work piece causing a broken blade, damaged work piece, or loss of control and result in injury.

Disconnect tool from power source before making any adjustments, changing accessories, or storing tool.



# Jointer information



**complete  
your  
training**



**wear  
safety  
glasses**



**wear  
hearing  
protection**



**get  
a  
spotter**

Operate only with instructor's permission and after you have received instruction.

Remove any jewelry, eliminate loose clothing, and confine long hair. Make sure all guards are in place and operating correctly. Always use proper eye and hearing protection.

All materials should be inspected for defects such as warps, knots and foreign objects.

Before starting the jointer ensure that table is cleared of objects, the stock is not in contact with the cutter heads and tighten the infeed and outfeed tables.

Never joint or plane a piece of stock that is shorter than 250 mm (10"), narrower than 19 mm (3/4"), or less than 13 mm (1/2") thick. The maximum depth of cut is 3 mm (1/8").

Make all adjustments with the power supply to the Jointer turned off. After making the correct depth of cut adjustment to the infeed table make sure the table is locked.

Always joint wood stock with the grain. Stock should be fed into the jointer from the infeed side only. The rotation of the cutter heads would make any other operation dangerous.

Use an appropriate push stick or safety blocks whenever fingers are expected to pass within 75 mm (3") of the cutters.

Hold the stock firmly against the fence and the table with even constant pressure to both the infeed and transfer to the outfeed table as the stock is being jointed.

Take a comfortable stance with your feet at shoulder width apart when passing stock through the jointer and transfer your weight from the rear foot to the leading foot as your stock goes through its operation.

When finished wait until the machine has come to a complete stop before commencing clean-up procedures.





# Mitre saw information



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your  
training**



**wear  
safety  
glasses**



**get  
a  
spotter**

Operate only with instructor's permission and after you have received instruction.

Remove any jewelry, secure loose clothing, and confine long hair. Make sure all guards are in place and operating correctly. Always use personal protective equipment (PPE).

All materials should be inspected for defects such as warps, knots and foreign objects.

Make certain the blade rotates in the correct direction and that the teeth at the bottom of the blade are pointing to the rear of the miter saw.

Do not perform any operation freehand and ensure small pieces are properly secured.

Hold the stock firmly against the fence and the table keeping your fingers at least 150 mm (6") away from the blade. Never hold work piece on the right side of the blade with left hand or vice versa. This is called cross-armed cutting and exposes the user to serious injury.

Allow the blade to reach full operating speed before letting the blade enter into the stock. Be aware that the saw moves up or down slightly upon startup and stopping.

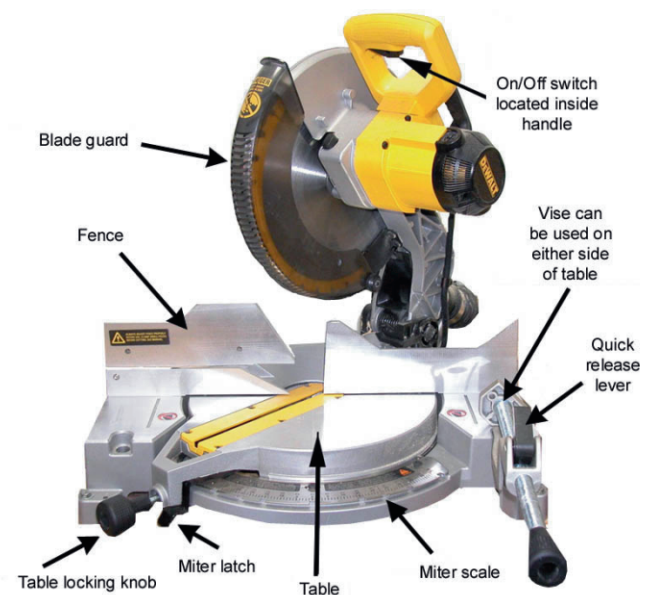
Ensure that the saw is in the full upright position when starting and in the full down position when stopping. If the blade begins to bind while cutting stop immediately.

Disconnect the compound miter saw from the power source before beginning clean-up procedures.

Make all blade changes and angle adjustments with the power supply to the compound miter saw disconnected. Only install clean, sharp, cross-cut type blades in the compound miter saw. After changing a blade you should ensure the saw is turned off, the blade moves freely, and the guard is functioning properly before plugging in the saw.

Do not reach around, behind or underneath the saw unless it is turned off and unplugged.

Do not cut iron, steel, brick, or tile.



# Palm sander information



**complete  
your  
training**



**wear  
safety  
glasses**



**wear  
a  
mask**

Operate only with instructor's permission and after you have received instruction.

Remove any jewelry, eliminate loose clothing, and confine long hair. Make sure all guards are in place and operating correctly. Always use proper eye protection and a dust mask as dust particles can irritate the eyes and lungs.

All materials should be inspected for defects such as warps, knots and foreign objects (nails, screws, etc). If sanded it is possible that such objects may become projectiles risking damage to the sander or to the user.

Do not use sandpaper that is larger than needed. Extra paper that extends beyond the sanding pad can cause serious lacerations.

Never operate this tool with perforated paper unless the dust collection bag is in place. The perforations allow dust to be transferred to the dust collection bag.

Never use the sander for wet sanding. Using this tool for this purpose could cause electric shock.

Sanding of lead based paint is not recommended due to the difficulty of controlling the contaminated dust. This is covered under the hazardous material handling documents of WHMIS.

Empty the dust collection bag regularly. It is especially important when sanding resin coated surfaces such as polyurethane, varnish, shellac, etc. as the residue from such compounds can spontaneously combust if left in the collection bag.

A dust mask or respirator should be worn by all persons entering the work area.

All surfaces in the work area should be vacuumed and thoroughly cleaned daily for the duration of the project.

Keep your machine as clean as possible by wiping with a clean cloth and blowing through it with air every 5 hours of use.

Do not operate the sander for extended periods of time as the vibrations can cause nerve damage to fingers, hands and arms.



# Planer information



**complete  
your  
training**



**wear  
safety  
glasses**



**wear  
hearing  
protection**



**get  
a  
spotter**

Operate only with the instructor's permission and after you have received instruction.

Remove jewelry, eliminate loose clothing, and confine long hair. Make sure all guards are in place and operating properly. Always use Personal Protection Equipment (PPEs) such as eye and ear protection, etc. Never look directly into the throat of a planer at table level while it is running or in operation.

All materials should be inspected for defects such as warps, knots and foreign objects. When planing bowed stock, place the concave (cup down) side of the stock on the table and cut with the grain to prevent kickback.

The minimum length of material is 300 mm (12")

The maximum depth cut of material is 3 mm (1/8"). (Dependent on material width, this is only recommend for boards of 150 mm (6") width or less.) The proper depth of cut and rate of speed is related to the material being planed. Check with your instructor. Thin stock, of 6 mm (1/4"), should be properly supported by a jig or back up board.

Make all adjustments with the power off and cord unplugged.

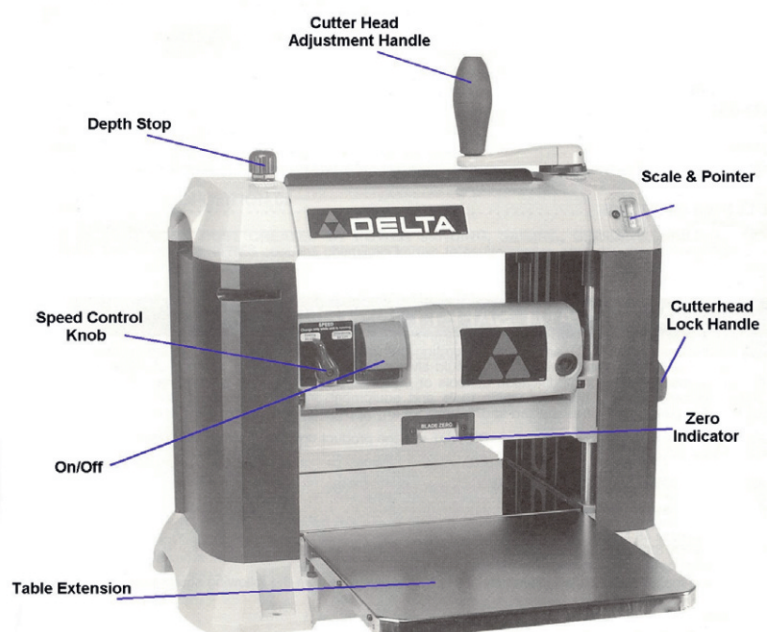
Do not force stock through the planer. Keep hands off the material & let the power feed operate. Allow the cutterhead to reach full speed before feeding a workpiece into the machine. Changing speeds while planing can cause kickback.

Do not stand directly in front of the machine while it is in operation, the possibility of kick back exists.

Remove shavings or chips when the power is turned off. Keep hands away from the chip guard and the point of operation.

When finished job turn off planer, make sure cutter head has stopped and clean workspace.

If wood gets stuck turn OFF the planer. Do not use your hand to clear the blockage ask your instructor for assistance.



# Router information



**complete  
your  
training**



**wear  
safety  
glasses**



**wear  
hearing  
protection**



**get  
a  
spotter**

Operate only with instructor's permission and after you have received instruction.

Remove any jewelry, eliminate loose clothing, and confine long hair. Make sure all guards are in place and operating correctly. Always use proper eye and hearing protection.

Check your bit frequently to ensure safe operation. Be careful the bit could be hot! Make all bit changes and adjustments with the power supply to the router disconnected. When changing a bit in a router, before beginning operations. Be sure the bit is inserted a minimum of 15mm (5/8") and the collet chuck is tight and secure. Rotate the spindle completely by hand to ensure bit is seated

Make sure the work piece is securely fastened and the travel area of the router is free of any obstructions. When routing edges using a pilot guide you route in an counter- clockwise direction.

All materials should be inspected for defects such as warps, knots and foreign objects. Make a trial cut in a similar piece of stock first. Remember this rule of thumb: harder the material the slower the speed

Make sure the switch is in the off position before plugging into the power source.

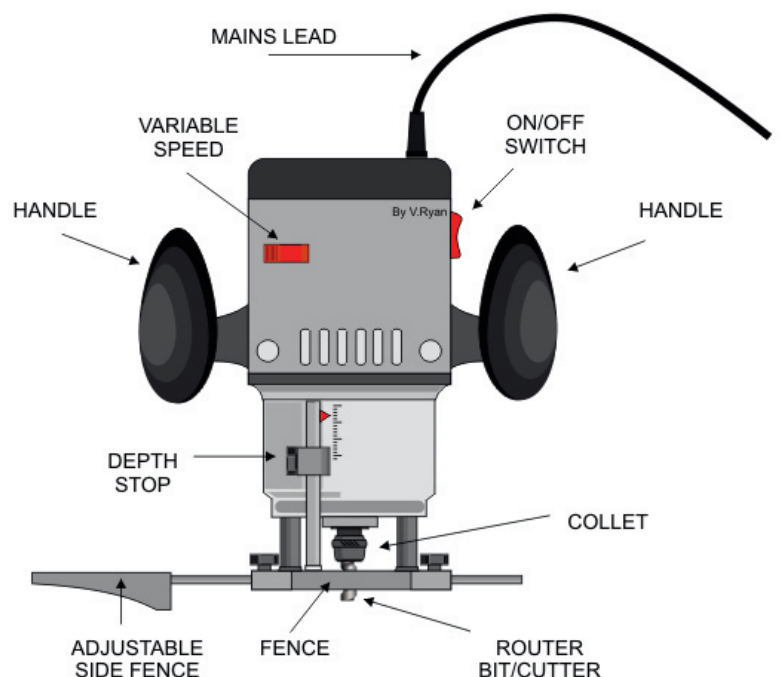
Carefully hold the router firmly with both hands and apply constant cutting pressure. Do not force or jam the cutting bit into the work piece. Guide the router slowly through the stock and let the machine do its work.

When finished, move the cutter away from the stock, turn off the router and wait for it to come to a complete stop before laying the tool down.

Unplug the router before cleanup.

## **Safe Operation of a Router Table:**

- Move workpiece from right to left.
- Feed at steady rate without stopping.
- To avoid rough and chipped surfaces make several passes for deep cuts.
- Use push sticks to keep your fingers away from the bit.
- Never position the workpiece between the fence and the bit.





# Scroll saw information



**complete  
your  
training**



**wear  
safety  
glasses**

Operate only with instructor's permission and after you have received instruction.

Remove any jewelry, eliminate loose clothing, and confine long hair.

Make sure all guards are in place and operating correctly.

Always use personal protective equipment (PPE).

All materials should be inspected for defects such as warps, knots and foreign objects.

Make all blade changes and adjustments with the power supply to the saw disconnected.

After changing the blades you must ensure that the machine rotates freely by rotating it by hand with the machine unplugged from the power source.

Choose the correct blade type and speed for the specific material and the smallest radius being cut. Use thin blades and relief cuts for tight radius cuts.

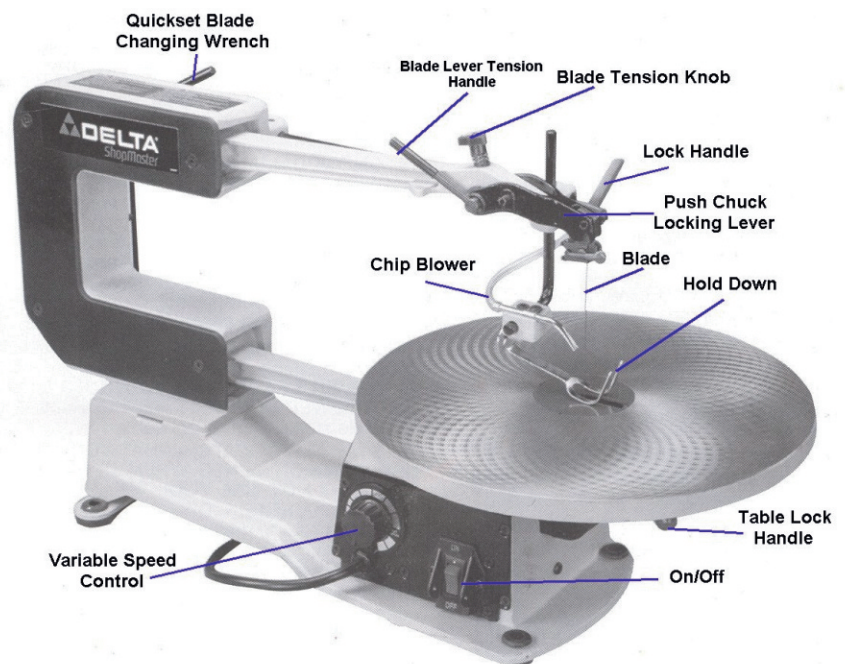
The blade should be held firmly in the chucks, be square to the table, and be properly supported by the guide.

Be sure the hold down foot is pressing lightly against the work piece.

Guide the work slowly through the saw with both hands keeping fingers to the sides of the cut line. Don't force the stock but rather feed the stock slowly to let the machine do its work.

When finished turn off the saw and wait until the blade has come to a complete stop before clean-up.

Do not attempt to saw stock that doesn't have a flat surface unless a suitable support is being used.





# Stationary sander info



**complete  
your  
training**



**wear  
safety  
glasses**



**DO NOT  
wear  
gloves**



Operate only with the instructor's permission and after you have received instruction.

Remove jewelry, eliminate loose clothing, and confine long hair.

Make sure all guards are in place and operating properly.

Always use proper eye protection.

All materials should be inspected for defects such as warps, knots and foreign objects.

Never turn the machine ON before clearing the table of debris.

Never turn the machine ON if the stock is touching the abrasive surface.

Inform teacher of damaged or worn belts so it can be replaced

Properly secure sanding belt before operating.

Dust collection system must be connected and turned on before operating.

Hold the stock firmly on the sander table to prevent loss of control.

Keep the correct size table insert in place at all times.

Always feed stock against the rotation of the sanding drum.

Do not sand very small pieces of stock or stock that is wet.

Never perform setup or layout work on the table.

Keep work area free of debris.

Turn machine off and disconnect from power source when not in use, before installing or removing accessories, before adjusting or changing set-ups, or when making repairs.

# Table saw information



**complete  
your  
training**



**wear  
safety  
glasses**



**get  
a  
spotter**



Operate only with the instructor's permission and after you have received instruction.

Always use personal protective equipment (PPE). Remove jewelry, secure loose clothing, and confine long hair. Make sure all guards are in place and operating properly. Always use guards, splitter, and anti-kickback pawls whenever possible.

Turn machine off and disconnect from power source before installing or removing accessories, before adjusting or changing set-ups, when making repairs or inspecting, or cleaning the work area. Always use the ripping fence or the cut-off guide (miter gauge). You must use one or the other...never freehand. You can never use both at the same time unless you use a "clearance block".

Inspect the blade before operation. Check for warping, cracks, teeth missing and that proper blade is in place. Remove debris before startup and when you are finished with power off.

All materials should be inspected for defects such as warps, knots and foreign objects. Only cut materials intended for cutting on the table saw (i.e. hardwood, softwood, plywood, OSB, other wood products, plastics). See instructor before cutting.

Never perform layout or setup work on the table saw.

Stand to one side of the saw while operating. If a board kicks back from binding it will not hit you if you are to one side of the saw. (Never have any part of your body in line with the blade.) Never start the machine with the stock touching the blade. Keep hands and fingers away from the blade. Never attempt to free a stalled saw blade without first turning the machine off. Always use a push stick when the fence is set under 75mm (3") to the blade.

Avoid kickback by:

- keeping the blade sharp;
- keeping the rip fence parallel to the blade;
- pushing the stock pass the saw blade before release;

To ensure safety set the saw blade 6mm (1/4") above the stock when cutting. Always turn the blade down to the lowest position when finished. Always use the proper blade designed for different operations...example a ripping blade for ripping material.

# Wood lathe info



**complete  
your  
training**



**wear a  
face  
shield**



**wear  
protective  
clothing**



**DO NOT  
wear  
gloves**

Operate only with the instructor's permission and after you have received instruction.

Remove jewelry, eliminate loose clothing, confine long hair and do not wear gloves.

Make sure all guards are in place and operating properly. Always use proper Personal Protective Equipment.

Always stand on the front of the lathe with the rotation of the stock down towards you.

All materials should be inspected for defects such as warps, knots and foreign objects. Examine workpiece for flaws and test glue joints before mounting.. Stock length and width maximums are determined by operating manual of the specific machine

Make all adjustments with the power off and the machine unplugged from the receptacle.

Rough cut workpiece as close as possible to the finished shape before installing it on the faceplate.

Securely fasten the stock to the head and tail stock prior to turning and adjust the tool rest so it is as close to the workpiece as possible.

Before starting the machine:

- snug the tailstock center against the workpiece.
- adjust the tool rest so it is 3 mm (1/8") away from the work and 3 mm (1/8") above the work centerline, and
- clear the lathe bed of all objects (tools, scraps of wood, etc..)

Never perform layout or assembly, or set-up work on the table/work area when the machine is running.

Tighten all clamp locking handles before operating and rotate the workpiece by hand to check clearance before turning on machine.

Move the cutting tool into the workpiece slowly and cut small amounts when roughing.

When sanding or finishing remove the tool rest.

Turn off lathe, wait for the machine to come to a complete stop and clean up workspace

