



Safety Training

For Students

Comox Valley Schools

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Student Expectations

- Working with these tools is a privilege and as such, we always need to work with respect and responsibility, keeping our beliefs and virtues in mind.
- Know and follow safe procedures affecting your work
- If you do not know, ask for training before you begin work
- Work safely and encourage your classmates to do the same
- Report any unsafe conditions to your teacher.



Key Safety Protocol

- **Always wear safety glasses at all times when working on projects!**
- **Immediately report all accidents or injuries to your teacher.**
- **BE Calm! Do not rush or push others. Do not throw things.**
- **Keep floor and working areas clear and clean. Keep all materials stored where they belong. Allow time for good clean up at the end of the work period.**
- **Hair MUST be tied back.**
- **Most accidents occur when people are tired, anxious or uncomfortable using tools. If you are TIRED stop working, if you are ANXIOUS connect with your teacher and if you are UNCOMFORTABLE connect with your teacher and have them review the tool and technique with you.**

Tools

Measuring

- Ruler
- Tape measure
- Speed square

Clamping

- C - Clamp
- Quick clamp
- Vice

Cutting

- Coping Saw
- Backsaw
- Exacto Knife
- Hand Saw

Drilling

- Electric Hand Drill
- Drill Press

Joining

Smoothing

- Sandpaper
- Block and Spoke Planers

- Hammer
- Screws & Nails
- Screwdrivers
- Glue Gun & Wood Glue

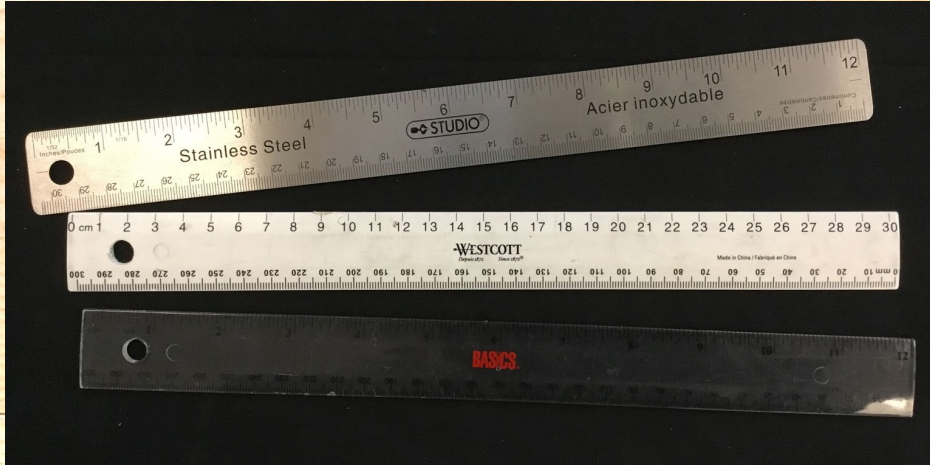
Measuring

Ruler

A ruler is used to measure shorter distances.

Tips for use:

- Ensure you're using the correct side because some rulers have metric (cm/mm) and others are imperial (inches).
- The long dashes mark each centimeter and the small dashes mark each millimeter.



Measuring

Tape Measure

A tape measure is used for measuring shorter or longer distances.

Tips for use:

- Use the locking mechanism to lock the tape in place.
- Ensure you are using metric (mm/cm) or imperial (inches).

Caution: The measuring tape can be sharp if it moves quickly. Be careful when you retract it!



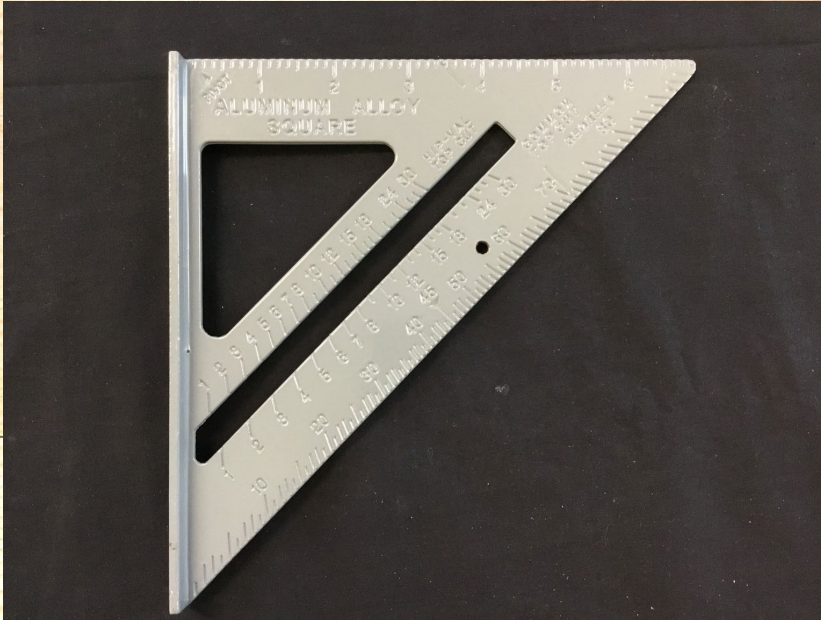
Measuring

Speed Square

A speed square is used to measure, mark straight lines, and mark 45 or 90 degree angles.

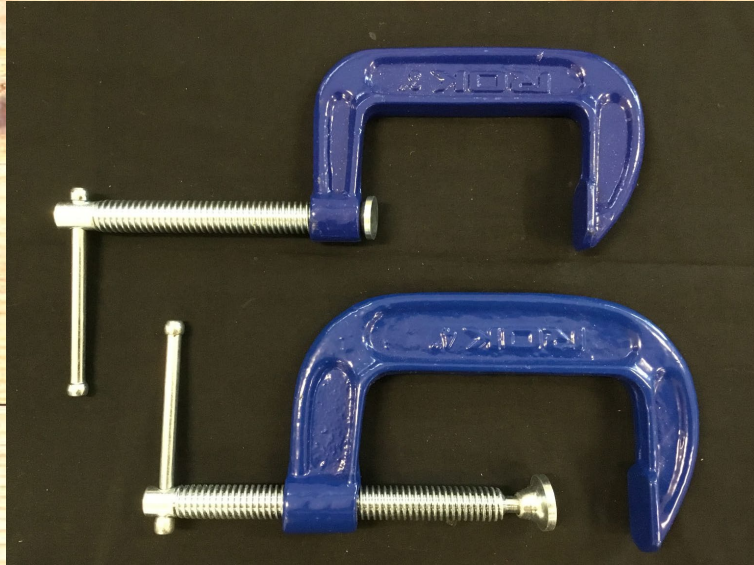
Tips for use:

- Used the raised edge against the piece of wood to ensure speed square is in place and lines are straight.
- Ideal for marking short distances on a length of wood.



Clamping

C-Clamp



A C-clamp is used to secure wood to a working surface so that you can use tools easily and safely.

Tips for use:

- Turn the handle until your wood is firmly in place and can no longer move around.
- Two clamps per board if available to ensure wood is secure.
- Be aware that the clamp may leave marks on your wood.

Clamping

Quick Clamp

A quick clamp is used to secure wood to a working surface so that you can use tools easily and safely.

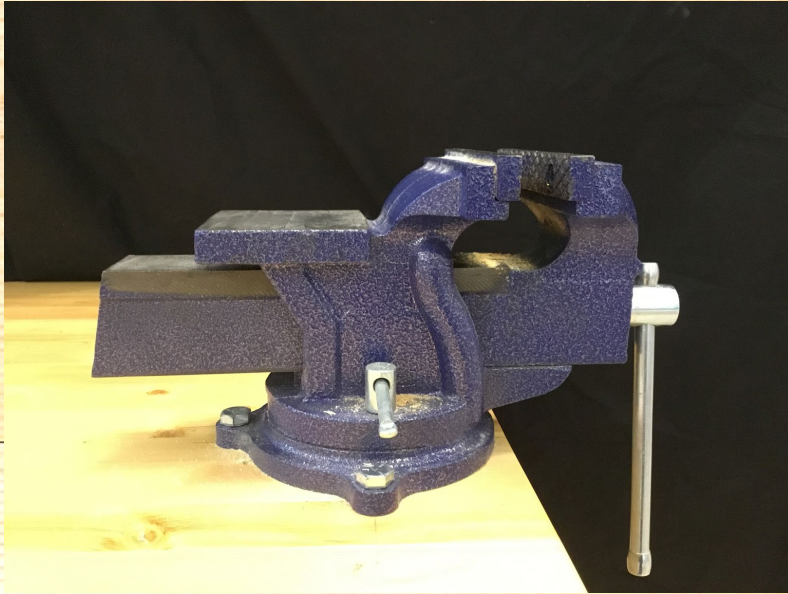
Tips for use:

- Squeeze the handle until your wood is firmly in place and can no longer move around.
- Release clamp by pressing the release button



Clamping

Vice



A vice is a clamp that is permanently attached to a workbench (Maker Cart).

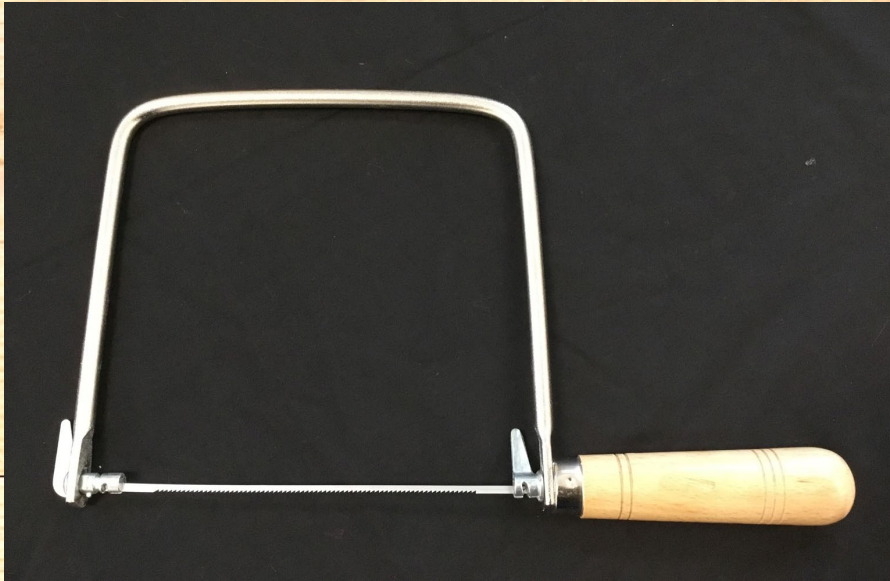
Tips for use:

- Place wood between clamps and turn handle until firmly in place.
- Turn in opposite direction to release.
- Be aware that the vice will leave a hatched imprint on all soft wood.

Caution: The vice is able to apply a very strong force. Make sure to keep all fingers and tools safely away from the clamp as you are tightening.

Cutting

Coping Saw



A coping saw is a small hand saw ideal for cutting straight lines and shapes including curves.

Tips for use:

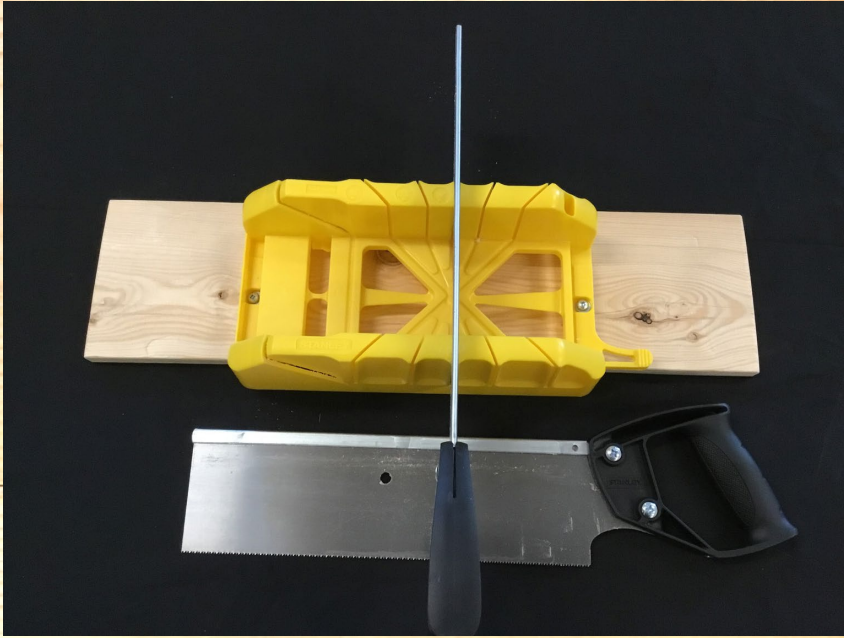
- Teeth point down to cut.
- Push forward & back OR up & down
- Back the saw out slowly and carefully when each cut is complete
- Fingers must be 4 inches away from blade.

Blade is very sharp, never test blade with finger, use scrap wood.

***Caution: BLADES CAN BREAK EASILY
an adult needs to replace***

Cutting

Back Saw & Miter Box



A backsaw is a large hand saw ideal for cutting straight lines and larger pieces of wood. It can cut on various angles when used with a miter box.

Fingers must be at least 2 inches away from blade when cutting.

Tips for use:

- Teeth point down
- Make sure your blade is straight
- Push harder going forward
- Start by cutting a groove so your saw is cutting in the right place

Cutting

Exacto Knife



An exacto knife is a small retractable blade which can be used for cutting a variety of materials.

Tips for use:

- Only have one blade section out at a time and lock in place, fingers 2" away.
- Always use on an appropriate cutting surface.
- Pull knife towards you but ensure body parts are out of the way.

Caution: Old blades must be broken off to reveal the new blade by an adult.

We recommend teacher use only.

Cutting

Hand Saw

A hand saw is used for cutting straight lines in wood. Fingers **MUST** be at least 2" away from blade.

Tips for use:

Push down and forward then pull back to cut wood. A harder down ward push will help cut through the wood quickly.

To start, place the base of the blade again where you want to cut and pull back, creating a divit in the wood so you can start cutting in the correct spot.

Caution, do not place hand or fingers on blade. Place cover back on blade when done cutting.



Drilling

Electric Hand Drill

An electric hand drill is a battery operated tool which is fitted with bits for screwing or drilling holes. You must ask the teacher if you can use the drill. Fingers 2" away from bit.

Tips for use:

- Get an adult to help with inserting, tightening, or changing the bit if needed.
- Hold the drill so that the bit goes into the wood straight.
- Make sure the drill is in neutral when done. Note forward/reverse.
- Hair must be tied back.



Caution: Battery goes in last and comes out as soon as you are done

Drilling



Impact Driver

A impact driver is a battery operated tool which is fitted with bits for screwing or drilling holes. You must ask the teacher if you can use the drill. Fingers 2" away from bit.

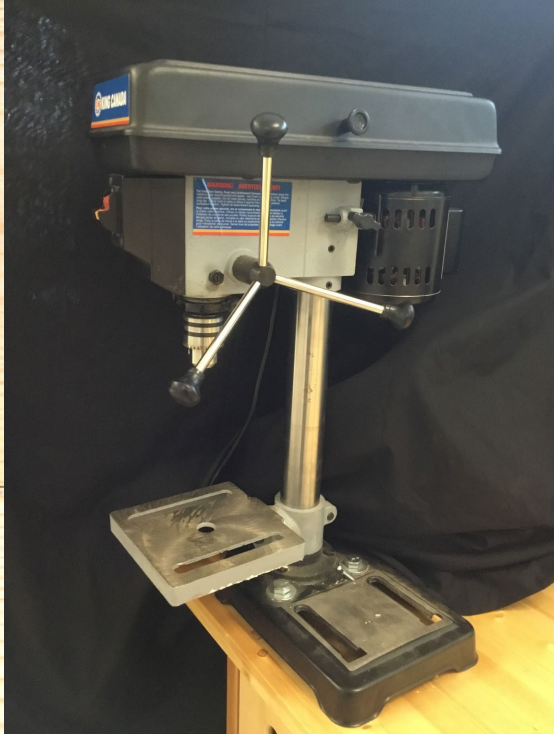
Tips for use:

- Align and push the bit into the driver. Ask a teacher for support if needed.
- Hold the driver so that the bit goes into the wood straight.
- Hair must be tied back.
- Place driver in neutral when done drilling.

Caution: Battery goes in last and comes out as soon as you are done

Drilling

Drill Press



A drill press is a heavy duty power tool which is permanently attached to the work surface. It is used for drilling holes of various sizes.

Tips for use:

- Must be set up by an adult to ensure that location and depth of hole is suitable for project. A jig may be used to help with this.
- No loose clothing or hair. Safety goggles must be worn.
- When ready, turn on power, use handle to lower drill, raise and turn off.
- Power must always be off when adjusting the wood or jig.

Caution: MUST ALWAYS be used with an ADULT.

Smoothing

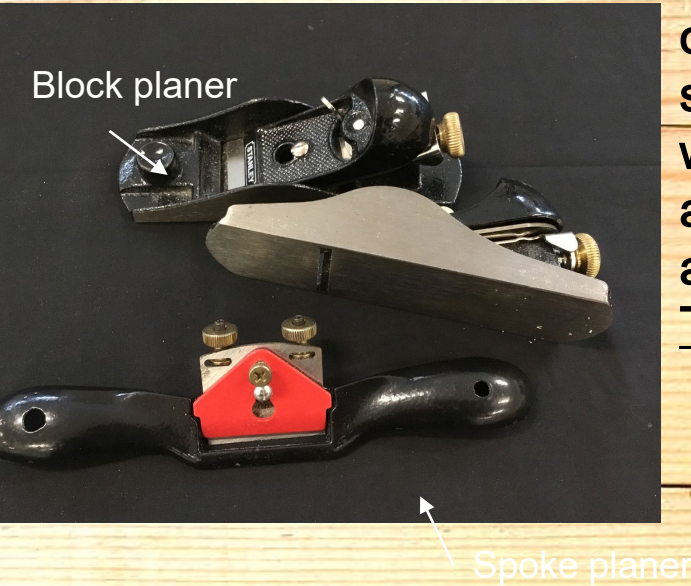
Block Planer & Spoke Planer

Planers are used to shave layers off wood to flatten, round or smooth the wood. A block planer has a metal body and sharp blade which can be adjusted. It is meant to shave wood with the grain. One hand holds the planer at the toe and the other hand holds the heel. Spoke planers are held at either side with the blade in the middle.

Tips for use:

- Planers work best with smaller pieces of wood when they are held in a vice or clamped down. Beware of cutting blade path.
- It is an adult's job to adjust the blade.
- Always set a planer down so blade is protected (e.g. on it's side).

Caution: The blade is very sharp and is meant to only extend a few millimeters. Do not extend the blade too far!



Block planer

Spoke planer

Small even strokes!

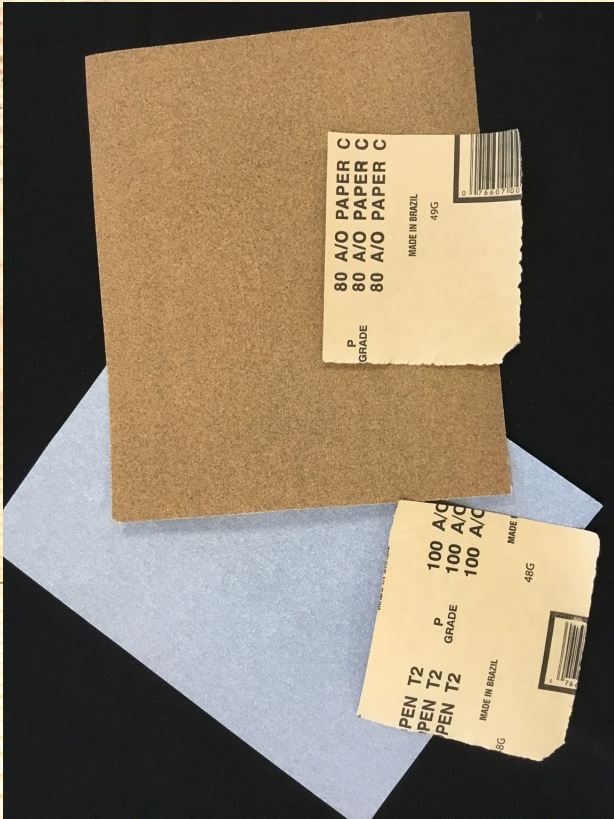
Smoothing

Sandpaper

Sandpaper is a textured paper used to smooth wood.

Tips for use:

- Start with a coarse grit sandpaper and then use finer grit sandpaper until your wood is smooth.
- Check the grit of sandpaper by looking at the number on the back. Smaller numbers mean a coarser paper and larger numbers mean a finer paper.
- Wrap the sandpaper around a block of wood or fold it until you have a shape that works for you!



Joining

Hammer



Hammer are used to attach wood pieces when used with nails. Place nail is location you want, hold the nail lightly with two fingers and lightly tap nail in. Then remove fingers and nail the nail into the wood with smooth stokes.

Tips:

Hold the hammer at the end of the handle
Use smooth stokes

Let your wrist relax and flex with hammer stokes.

Nail the nail all the way in so it doesn't catch on anything.

Clamp wood down or use a partner
Fingers should be 2" away with larger stokes.

Joining

Nails and Screws



**Decide which
will work
best for your
project!**

Screws are used to securely attach wood pieces. They have different lengths, widths and heads. Use a screwdriver or a hand drill to screw into wood. Always match the tool to the head (Robertson, Phillips or flat head). Once you've used a screw, you can usually reuse it again.



Nails are used to attach wood pieces. They have different lengths, widths and heads. Use a hammer to nail into wood. Once you've used a nail, you can remove it but it can not usually be used again.

Joining

Screwdrivers



We have three different types screwdrivers in the tool cabinet which match to different types of screws. They are flat head, Phillips head (cross shaped) and the Robertson head (square shaped) screwdrivers. Each type has different sizes and they are colour coded.

Tips for use:

- Make sure you use the correct size and shape or you may strip the screw and/or screwdriver.
- Make sure screwdriver is inserted properly and you press down firmly as you turn.
- “Righty tighty, lefty loosey”

Joining



**Decide
which will
work best for
your project!**



Glue guns use electricity to heat plastic glue sticks and join things together. Be careful with glue guns and hot glue because they can burn your skin! Place skin under cold water for 10min if you get it on your skin, do NOT pull off right away.

Wood glue is used to glue wood together. Make sure you wipe off any excess. Wood glue does not always dry clear.

Safety Guidelines

Always follow these Safety Rules when working with the tools.

1. Absolutely no running, fooling around, play fighting, etc.
2. Listen to the adults and follow directions very carefully.
3. Only use tools for their intended use. (Tools are NOT toys!)
4. The word FREEZE is the stop signal. It means immediately stop all work.
5. No loose clothing or jewelry. All long hair must be tied back.
6. Safety goggles must be worn while designing and building projects.
7. Immediately tell an adult if you see a faulty tool or if anyone gets hurt.
8. If you are not sure what to do- ask again!
9. Tidy as you go.

Safety Quiz

**Now it is time to take a small Safety quiz.
Once completed with 100% you are all set to
design and build!**



Comox Valley Schools

A Community of Learners

INNOVATIVE • INQUISITIVE • INCLUSIVE