

Science Technology Activity Centre (STAC)

General Safety Rules



Acknowledgements

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Specific situations will require discussions with the principal and the Board's Joint Health & Safety Committee. Finally, the teacher may require professional legal counsel. It is expected that any teachers instructing in the Science and Technology Activity Centre (STAC) be aware of the Peel DSB Indemnification Policy and have completed the Board provided training for STAC teachers and have earned a Certificate of Completion related to the training.



STAC

Safety Rules & Procedures

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General STAC Safety Rules

- None of the following is allowed in the STAC room while tools are in use:
 - Cell phones, mp3 players, headphones, or other electronic devices
 - Backpacks, bags
 - Baggy clothing
 - Food or drink
 - Open-toed shoes
 - Loose clothing (must be pinned back, tucked in or removed)
 - Loose jewelry (must be removed)
 - Long hair (must be pinned back).
- Know the location of the fire extinguisher, the first aid kit, portable fire blanket, emergency eye wash.
- Only use tools and machines when properly trained and when given permission by the teacher. **Never use any tools or machines unless there is a teacher in the room.**
- No running, fooling around, or throwing objects. Loose long hair (must be tied back and out of the way.)
- Do not distract and crowd around someone working on a machine – including the teacher! **Keep a safe, arm length, distance back.**
- Never** use a machine or tool if you don't feel well. If you feel sick, tired, stressed, or are under the influence of medication (or the lack of it) do not use any of the shop equipment and see the teacher.
- If there is an injury of any kind – even if you only need a band aid for a paper cut – let the teacher know immediately.
- Only use tools for their intended purpose and check to see if all safety guards are in place.
- Pick it up, clean it up, and help keep the shop clean as you are working: even if you didn't put it there. If you spill or drop any fluid, **immediately clean it up and let the teacher know.**
- If it is broken, report it. If it doesn't work, report it. If it's broken or doesn't work, don't try to use it.
- Ensure you are wearing all personal protective equipment required by your teacher and they are the correct size for you** (e.g., safety glasses).
- Make sure your hands are dry when touching all electrical equipment (e.g., cords, plugs, sockets).



General Machine Safety Rules

1. Never operate a machine without the teacher's permission.
2. Wear Personal Protective Equipment (PPE) – i.e., safety glasses – whenever you use a power tool.
3. Put on your safety glasses before starting a machine.
4. No loose clothing, untied long hair or jewelry is allowed when using a machine.
5. Be aware of the position of the on/off switches and emergency STOP button before turning a machine on.
6. Emergency stops are **there for emergencies**. You can use them at anytime you feel is appropriate with or without teacher permission.
7. Make all adjustments to a machine with the power off.
8. Make sure all guards are in place and properly adjusted.
9. Report any damage to guards immediately to the teacher.
10. Be sure to have firm footing when operating any machine.
11. Always operate machines from the front never from the side.
12. Keep our hands beside or behind the blade: never in front.
13. Do not leave a machine until the blade or bit has stopped.



AT ALL TIMES – IF IN DOUBT, SPEAK TO YOUR INSTRUCTOR

Glue Gun Safety

- *most injuries in the shop are the result of improper use of the glue gun*

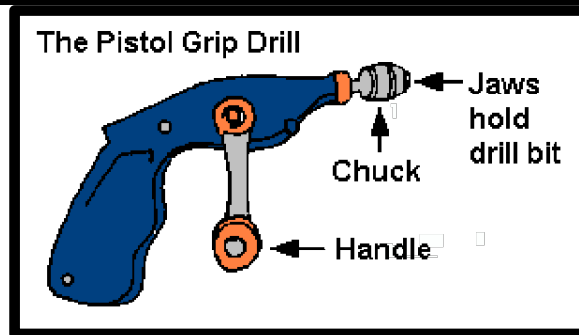
1. Wear Personal Protective Equipment (PPE) such as safety glasses and gloves while using the glue gun.
2. Wait for the glue gun to warm up at least five minutes before testing the trigger (squeezing too early will cause pressure that forces a lot of glue to be wasted when it finally warms up).
3. Do not leave the hot glue gun unattended while the cord is plugged in.
4. Be aware that there is no on/off switch. **When the tool is plugged in it is on.** Always assume that it is hot!
5. Do not flip excess glue off the tip of the glue melter. Let it drip onto a piece of scrap material. Do not touch the hot glue with your hands. Do not touch the tip!
6. Do not jam items down the feeder end *OTHER* than more glue sticks.
7. Allow the melter to cool down several minutes before putting it away.
8. In case of a hot glue burn, flush **immediately** with cold water for at least five minutes while your partner informs the teacher.
9. The hot glue gun is **NOT** a toy. It should **NOT** be waved around or pointed at anyone.



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Hand Tools

1. Wear EYE PROTECTION whenever you are using hand tools.
2. Select the right tool for the job. Substitutes increase the chance of having an accident.
3. Use blades that are sharp. Do not use blunt tools. Blunt cutting tools slip and can cause injuries.
4. Never crowd someone using a tool. Stay an arm's length back.
5. Inspect tools for defects before use. If defects are found, do **not use the tools**. Show the defective tool to the teacher immediately.
6. Keep cutting tools sharp and cover sharp edges with suitable covering to protect the tool and to prevent injuries from unintended contact.
7. Ensure that the handles of tools like hammers and axes fit tightly into the head of the tool.
8. Point sharp tools (e.g., saws, chisels, knives) lying on benches away from aisles and handles should not extend over the edge of the bench top.
9. Secure or clamp your material to keep it from moving (using a C-Clamp is advised).



10. Keep the work environment clean and tidy to avoid clutter which may cause accidents.
11. Do not apply excessive force or pressure on all tools.

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12. Do not cut towards yourself when using cutting tools. Do not wear bulky gloves to operate

hand tools.

13. Do not throw tools. Hand them, handle first, directly to others including your teacher.

14. Do not carry a sharp tool in your pocket.

15. Keep loose cords under control. Do not use the tool if the cords are frayed or damaged in any way. Be sure that grounding plugs have all three prongs present. Ensure that prongs on all powered tools are not bent.



16. After use, clean and return tools to their proper place so they are ready to use when you need them.

17. Never remove the grounding post from a 3-prong plug to make it fit into a 2-plug wall socket. Under no circumstances shall an extension cord with a missing ground plug be used.

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Scroll Saw

1. Use this saw to cut only wood.
2. Ensure that the scroll saw table surface is free of sawdust. If any sawdust is present on the surface, please remove before working (use a brush not your hands).
3. If the blade is dull or broken ask your teacher for permission to change it. Make all adjustments with the power in the off position. Ask teacher for help in the event you see any piece of equipment damaged or missing.
4. Ensure the blade tension is properly adjusted. If “knocking” is heard, readjust the tension.
5. Set the blade guard at the appropriate height.
6. Adjust the speed to match the type of wood you are cutting and the level of detail you need. Do not set the speed too fast. When in doubt, slow the speed of the machine.
7. Before cutting, check the wood for foreign objects (nails, staples) and loose knots. Cut on the waste side of your pencil line (sanding to the line is more accurate).
8. Before starting the cut, watch the saw while it operates. If it makes an unfamiliar noise or vibrates excessively, stop right away and inform your teacher.
9. Allow the blade to reach full operating speed before starting the cut.
10. Plan your cuts carefully. Saw curves gradually. Sudden twists will cause the blade to bind or break. Use relief cuts if necessary.
11. Always make short cuts first.
12. Do not hand-hold pieces so small that your finger will go under the blade guard. Use a jig to hold a small work piece.
13. Keep your face and body to one side of the blade and out of line with a possible thrown piece if the blade should break.
14. Keep fingers clear of the blade path. Use both hands and keep fingers at least 10 cm (4 in.) from the blade at all times.
15. When using the saw do not force the piece by pushing too hard. Trying to cut too fast only results in a poor cut that is often far from your pencil line.



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16. Never pull or force a jammed piece through the equipment. Shut the power off and then carefully dislodge the piece.
17. If the blade breaks, turn the power off immediately and step back. Inform the teacher that a new blade needs to be put on the saw. Ask the teacher for help if necessary.
18. Remove scrap pieces from the table only after the blade has stopped.
19. Throw all scraps in the garbage and clean the machine of any sawdust before leaving.
20. Never leave the machine running unattended.



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Drill Press

1. Select only drills that are sharp, in good condition and suitable for the job.
2. Always operate the drill press from the front, never from the side.
3. Remove the chuck key from the chuck before starting the machine.
4. Ensure that the drill press table surface is free of sawdust. If any sawdust is present on the surface, please remove before working (use a brush not your hands).
5. When using large drill bits or small pieces of wood, clamp work securely to the machine table. Attempting to hold the work under the drill with one hand can result in serious injuries.
6. Operate the drill at the proper speed. Ask your teacher to confirm that the drill press is operating at the right speed before you use it.
7. Do not force the drill bit into the wood. Pushing too hard or quickly can cause the drill bit to break or the wood splinter and increase the chance of serious injuries.
8. If the wood slips from your hand or clamp, never attempt to grab it with your hands while the machine is operating. Turn off the drill press and wait for the bit to stop spinning before attempting to retrieve the wood.
9. Never reach between the drill bit and the round drill press column. This could lead to serious injury.
10. If the drill sticks in the work, turn off the motor and rotate the chuck by hand to free it from the work.

Always ensure that the machine has been switched off and comes to a complete stop before you attempt to change the drill bit.

11. When drilling very small pieces of wood (i.e., less than 2 inches in length) or when using large drill bits (i.e., greater than 2 inches in diameter), the material **MUST** be clamped.



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Band Saw

1. Use band saw blades that are sharp, properly set and otherwise suitable for the job (e.g., the right tooth pitch; tooth form; blade width).
2. Never remove or disable the blade guard.
3. Before beginning cuts, adjust the setup if needed with the machine in the OFF position.
4. Never try to cut very small pieces of wood.
5. Before cutting, check the wood for foreign objects (nails, staples) and loose knots.
6. Always operate the saw from the front never from the side.
7. Keep your hands beside the blade. Never in line with the blade. Use a push stick on small pieces.
8. Ensure that the blade is running at full speed before starting a cut.
9. Ensure the blade is tracking correctly and runs freely in the upper and lower guide rollers. Ensure the blade is under proper tension. See your teacher for guidance.
10. Keep upper guides less than 0.5 cm ($\frac{1}{4}$ inch) from the material being cut. Adjust the guides before turning the saw on.
11. Hold wood firmly and flat on the table to prevent wood from turning and drawing your fingers against the blade.
12. Use both hands and keep fingers at least 10 cm (4 inches) from the blade at all times.
13. Plan your cuts carefully. Saw curves gradually. Sudden twists may cause the blade to bind or break. Use relief cuts when necessary.
14. Always make short cuts first. Avoid backing out of cuts with the power on. Backing out of a cut may cause the blade to come off the drive wheels.
15. Cut on the waste side of your line. Sanding to the line is always more accurate.
16. Never cut any metal with the band saw unless you received direct approval by your teacher.
17. If the blade breaks, immediately turn the power off and step back. Inform the teacher right away.
18. Remove scrap pieces from the table only after the blade has stopped.
19. Do not leave the band saw until the blade has stopped.



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Hack Saw

1. Hack saws should always be carried with the blade facing down.
2. Always wear glasses when using hack saw.
3. When cutting wood, you MUST use the mitre box.
4. Hold the jinx wood in the mitre box away from the saw blade and ensure fingers are not near the cutting blade.
5. Stop cutting once you have cut through the jinx wood to avoid damage to the mitre box.
6. You must score the wood before cutting through to prevent the saw from slipping.
7. Always cut with the saw blade parallel to the jinx wood and not with the saw at an angle.
8. Do not use excessive force when cutting wood. Let the saw do the work.

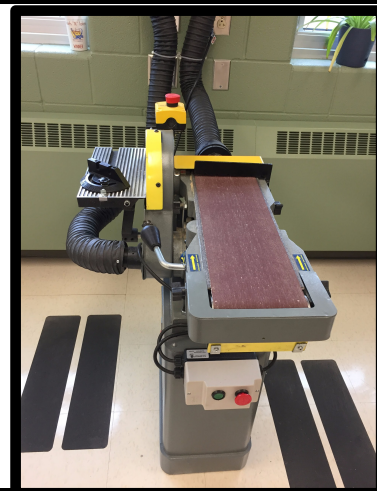


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Belt/Disk Sander *(also table mounted)*

1. Before turning this machine on, ensure that shirts are tucked in, sleeves are rolled up, jewellery removed, and long hair is tied up (and pinned back if longer than shoulder length).
2. Remove all sawdust from the sander and floor before and after sanding.
3. Do not operate this machine if the sandpaper is ripped or torn in any way (belt or disk).
4. Replace the abrasive paper with the machine turned off and locked out.



5. Ensure the gap between the table and/or guard and the sandpaper is 1/16 inches.
6. Make any adjustments to the table and guards with the power off.
7. Sand only dry wood or plastic. Never sand metal.
8. When working on small pieces, be careful to keep your fingers and knuckles away from the sanding disk.
9. Do not apply excessive force toward the disc or belt. Use a light touch and let the machine do the work.
10. Keep your work firmly on the machine table. Do not freehand sand.
11. When using the belt, keep your work firmly against the table and or guard.
12. Sand only on the "down-side" rotation of the disc.
13. When done sanding use a crape block to clean the sandpaper.
14. Never leave the machine running or unattended – make sure the belt/disc comes to a complete stop before leaving.



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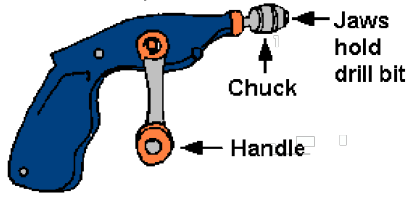





Jinx Wood Cutters

1. Always wear goggles when using jinx wood cutters.
2. Cut away from other people at designated wood cutting station.
3. Rotate the cutting guard to the desired cutting degree and firmly press down on the handle.
4. Release the safety switch located near the handle.
5. Place the piece of wood firmly against the cutting guard.
6. Place both hands on the handles when cutting.
7. When you have finished cutting, make sure the safety is latched before putting jinx wood-cutters down on a flat working surface.



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VISUAL GUIDE: Hand Tool Function and Safety Materials (Visual)

| Name | Picture | Function/Safety |
|------|--|---|
| |  | <ul style="list-style-type: none"> - Used for cutting basswood - Must be used with the mitre box - Ensure blade is tight before using |
| |  | <ul style="list-style-type: none"> - To be used to guide cutting of the basswood - Must be attached to the desk using the table vice - Must face onto the desk |
| | <p>The Pistol Grip Drill</p>  | <ul style="list-style-type: none"> - Used for cutting holes into wood - Must only be used when wood is secured into the table vice |
| |  | <ul style="list-style-type: none"> - Eye protection that is to be used at all times when using the tools of the lab |
| |  | <ul style="list-style-type: none"> - Used for gluing materials together - |
| |  | <ul style="list-style-type: none"> - Jinx cutters used for wood only |
| |  | <ul style="list-style-type: none"> - Emergency Stop Switch |
| |  | <ul style="list-style-type: none"> - C-Clamp - Used for securing wood materials to a butcher-block table or flat table working surface |

Online Safety Tutorials

The following link include safety videos on:

- General STAC safety rules
- General Machine safety rules
- How to use the Band Saw
- How to use the Scroll Saw
- How to use the Belt Sander
- How to use the Drill Press
- How to use the Disc Sander

<https://www.youtube.com/playlist?list=PLUru7M7M3wB9M3LjXfqgp6KapAqmAfxEV>